



U.S.NRC

UNITED STATES NUCLEAR REGULATORY COMMISSION

Protecting People and the Environment

INFORMAL INFORMATION-GATHERING MEETING PERTAINING TO THE PROPOSED DEWEY-BURDOCK, CROW BUTTE NORTH TREND, AND CROW BUTTE LICENSE RENEWAL *IN-SITU* URANIUM RECOVERY PROJECTS June 8, 2011

United States Nuclear Regulatory Commission Official Hearing Exhibit	
In the Matter of:	POWERTECH USA, INC. (Dewey-Burdock In Situ Uranium Recovery Facility)
ASLBP #:	10-898-02-MLA-BD01
Docket #:	04009075
Exhibit #:	NRC-038-F-00-BD01
Admitted:	8/19/2014
Rejected:	
Other:	
Identified: 8/19/2014 Withdrawn: Stricken:	



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The Nuclear Regulatory Commission (NRC): Who We Are

The U.S. Nuclear Regulatory Commission was established by the **Energy Reorganization Act of 1974**.

The NRC is an independent regulatory agency **headed by five Commissioners**.



Who We Are



The NRC employs nearly 4,000 people among its suburban Maryland headquarters and four regional offices in Pennsylvania, Georgia, Illinois and Texas. NRC inspectors are also assigned to 65 nuclear power plant sites and three fuel facilities.

Our Mission

To regulate the nation's civilian use of certain types of nuclear materials to protect the public health and safety, promote the common defense and security, and protect the environment.

The NRC Regulates:

Nuclear reactors – commercial power reactors, research and test reactors, new reactor designs;

Nuclear materials – radioactive materials for medical, industrial and academic use;

Nuclear waste – transportation, storage and disposal of nuclear material and waste, decommissioning of nuclear facilities; and

Nuclear security – physical security of nuclear facilities and materials from sabotage or attacks.

What We Don't Do:

- **Regulate nuclear weapons, military reactors or space vehicle reactors. (These are regulated by other federal agencies).**
- **Clean up contaminated sites. (EPA, DOE, or others)**
- **Lobby for nuclear power. (The nation's nuclear agenda is set by the President and the Congress).**
- **Build, own or operate nuclear power plants, uranium recovery facilities, or other nuclear facilities nor do we manage land.**

Intergovernmental Collaboration

The NRC works with Governments and Governmental organizations including:

- **Department of Energy**
- **Environmental Protection Agency**
- **Department of Homeland Security**
- **Federal Bureau of Investigation**
- **Department of Health and Human Services**
- **State Governments**
- **International Atomic Energy Agency**
- **Native American Tribal Governments**

Review of Uranium Recovery License Applications

- **Comprised of a safety review and an environmental review.**
- **Both reviews are conducted in parallel.**

Safety Review

Evaluate proposed facility design, operational procedures, and radiation protection program to ensure the proposed action can be accomplished in accordance with applicable NRC regulations.

Environmental Review

- **Conducted in accordance with our regulations in 10 CFR Part 51, which implement the National Environmental Policy Act (NEPA).**
- **NEPA requires Federal agencies to consider environmental impacts before making a decision.**
- **Inform decision makers and the public of the proposed action, reasonable alternatives, and their environmental impacts.**

National Historic Preservation Act (NHPA)

Section 106 Consultation

- **Requires Federal agencies to take into account the effects of their undertakings on historic properties.**
- **Step 1: Initiate Section 106 Process**
 - Send consultation letters and identify appropriate State Historic Preservation Officer (SHPO) / Tribal Historic Preservation Officer (THPO) to consult with during the process.

Section 106 Consultation (Cont.)

- **Step 1: Initiate Section 106 Process (Cont'd)**
 - If the undertaking could affect historic properties, consult with consulting parties and proceed to identify historic properties (Step 2).

Section 106 Consultation (Cont.)

- **Step 2: Identify Historic Properties**
 - If historic properties are present, consult with consulting parties and proceed to assess possible adverse effects.

Section 106 Consultation (Cont.)

- **Step 3: Assess Adverse Effects**
 - If there is an adverse effect, consult with consulting parties and seek ways to avoid, minimize, or mitigate the adverse effects.

Section 106 Consultation (Cont.)

Step 4: Resolve Adverse Effects

- Consultation usually results in a MOA with applicant, SHPO, THPO, NRC and may be BLM . The MOA outlines agreed-upon measures to avoid, minimize, or mitigate the adverse effects.

Ongoing Section 106 Activities

- **Company: Uranerz Energy Corp – Nichols Ranch**
 - **Location: Johnson and Campbell Counties, WY**

- **Company: Cameco – Crow Butte**
 - (Existing Facility)**
 - North Trend**
 - (Expansion)**
 - **Location: Crawford County, NE**

Ongoing Section 106 Activities (Cont.)

- **Company: Powertech – Dewey-Burdock**
 - **Location: Custer and Fall River Counties, SD**
- **Company: Strata Energy, Inc – Ross**
 - **Location: Oshoto, Crook County, WY**

NHPA/NEPA Coordination

- NRC follows 36 CFR 800.8 that encourages early coordination of Section 106 and NEPA regarding effects on historic properties.
- NEPA documents address impacts on historical and cultural resources.

NHPA/NEPA Coordination (Cont.)

NHPA Section 106	NEPA
Initiate Section 106 Process	
Identify Historic Properties	
Assess Adverse Effects	Draft
Resolve Adverse Effects	Final

Additional Information

<http://www.nrc.gov>

<http://www.nrc.gov/materials/uranium-recovery.html>

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Uranium Recovery Regulations and Operations

William Von Till
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Agenda

- **Regulations**
- ***In-Situ* Recovery (ISR) Facilities**
- **ISR Process**
- **Safety at Facilities**
- **Emphasis on Groundwater Protection**
- **Environmental Monitoring**

Uranium Recovery Regulations

- **Atomic Energy Act of 1954**
- **Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA)**
 - Title I - inactive uranium mill tailings piles
 - Title II - uranium recovery facilities licensed by NRC (ISR facilities)
- **National Environmental Policy Act of 1969**

Uranium Recovery

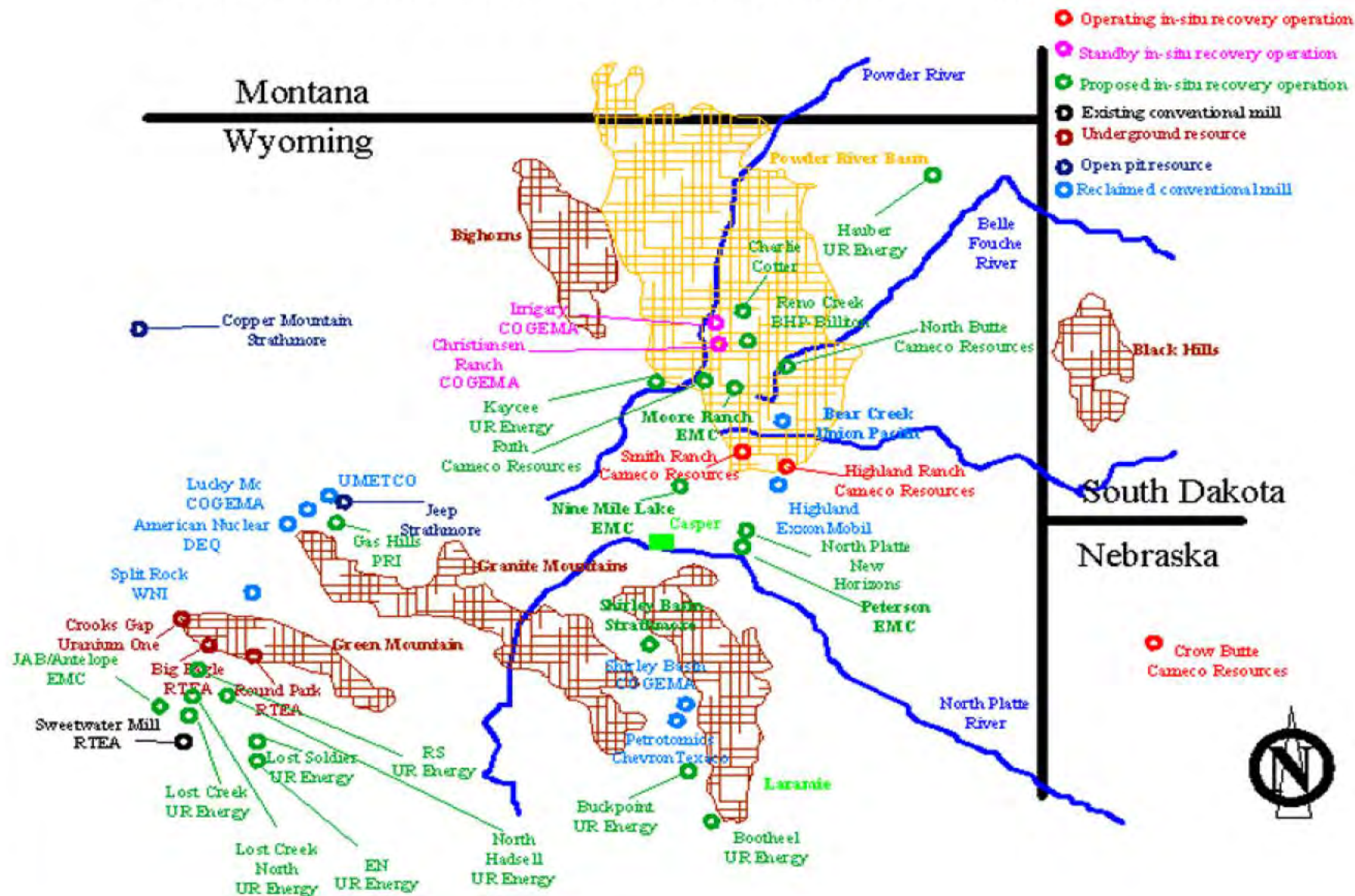
- **What is Regulated:**
 - **Milling** – any activity that produces byproduct material (10 CFR 40.4)
 - **Byproduct Material** – tailings or wastes produced by the extraction or concentration of U or Th for its source material content
 - **NRC DOES NOT Regulate MINING**
 - **Types of Milling** – Conventional, Heap Leach, *In-Situ Recovery*

NRC Uranium Recovery Regulations

Title II

- **Regulated under 10 CFR Part 40**
- **Materials Regulated:**
 - **Source Material (ores and product)**
 - **11e.(2) Byproduct Material (Uranium Mill Tailings)**
- **Uranium Recovery Regulations are in 10 CFR 40, Appendix A**
- **EPA Standards – 40 CFR 192 Subparts D & E**

URANIUM PROJECTS IN WYOMING

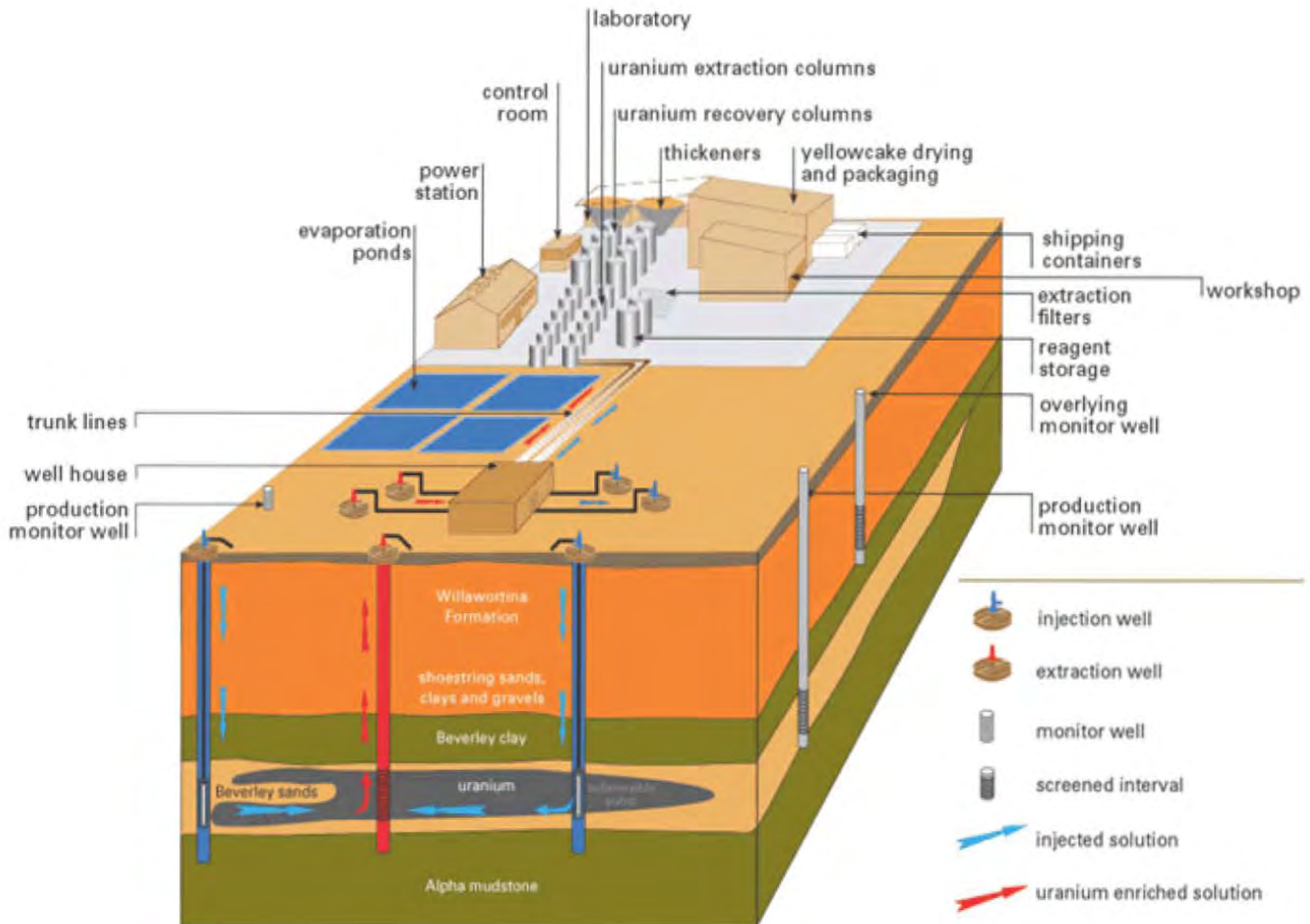




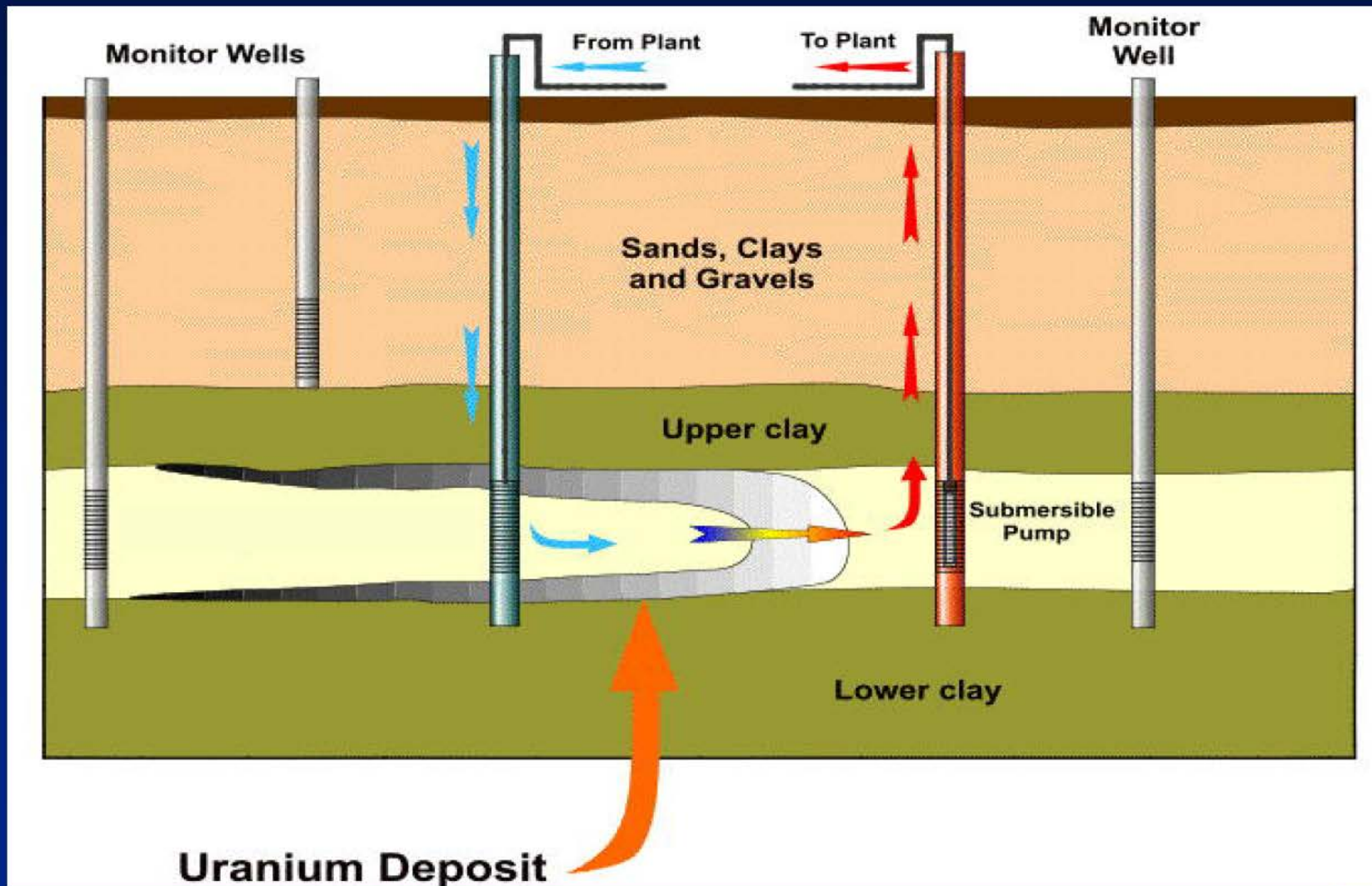
In-Situ Recovery (ISR) **Uranium Processing**

ISR Central Processing

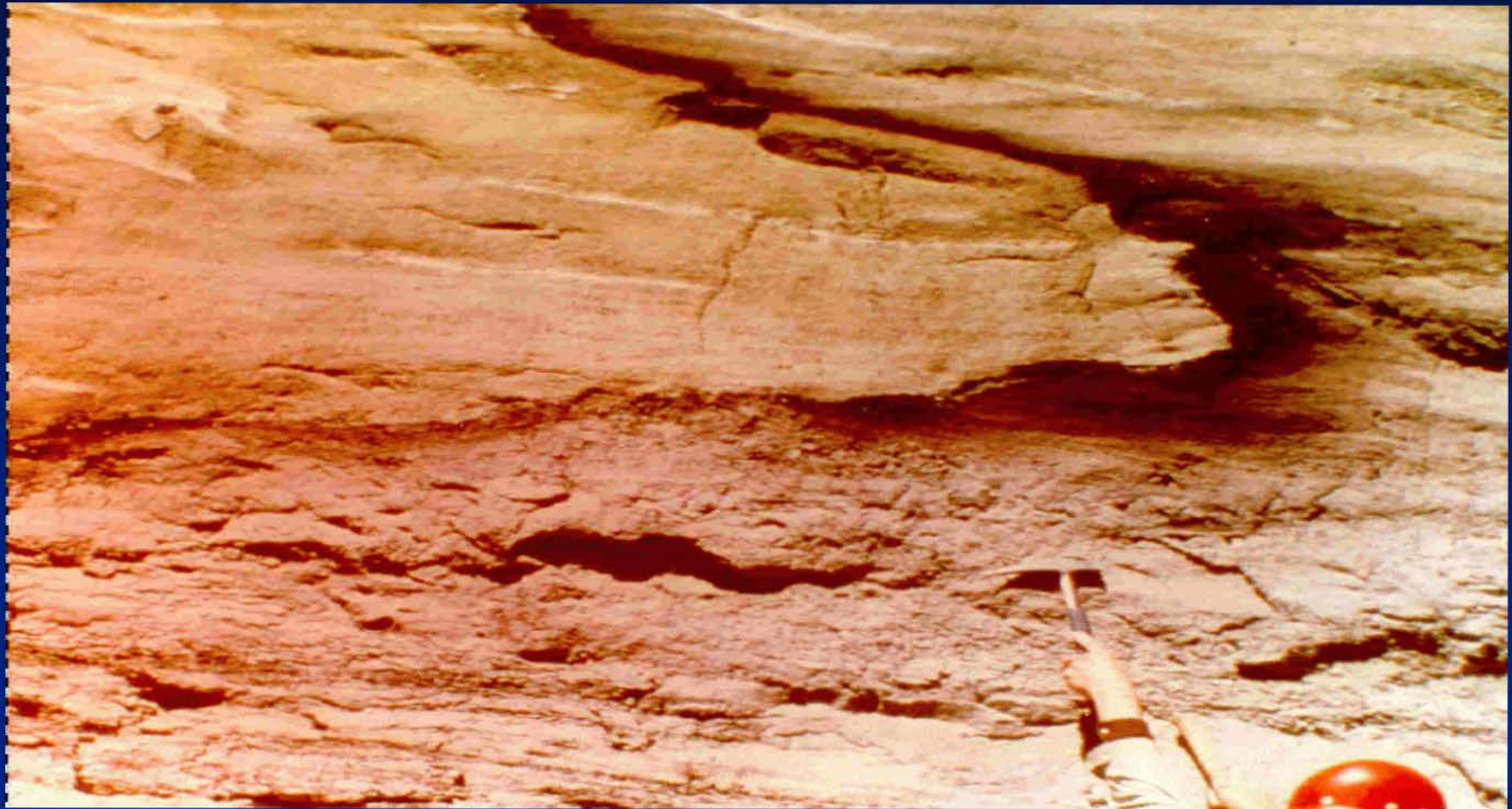




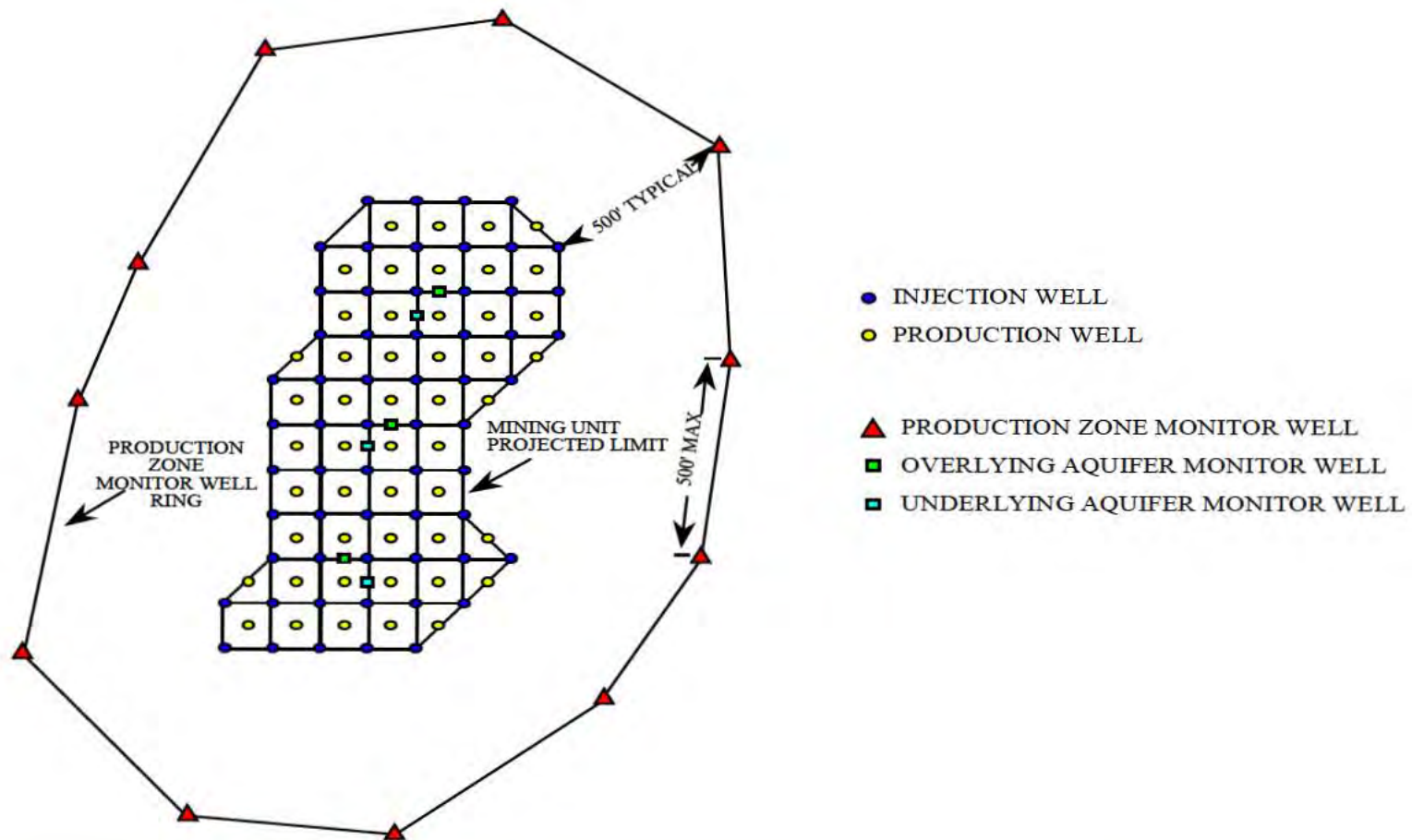
The ISR Process



Dark Area Is The Uranium Deposit In The Roll Front



Typical ISR Wellfield Layout



Wellfield Construction - Drilling



Shot taken at Smith Ranch, WY

ISR Wellfield Development



Shot taken at Smith Ranch, WY

Wellfield Construction



Shot taken at Smith Ranch, WY

Wellfield Construction



Shot taken at Smith Ranch, WY

Wellfield Construction



Shot taken at Smith Ranch, WY

Typical ISR Wellfield



Typical ISR Wellfield

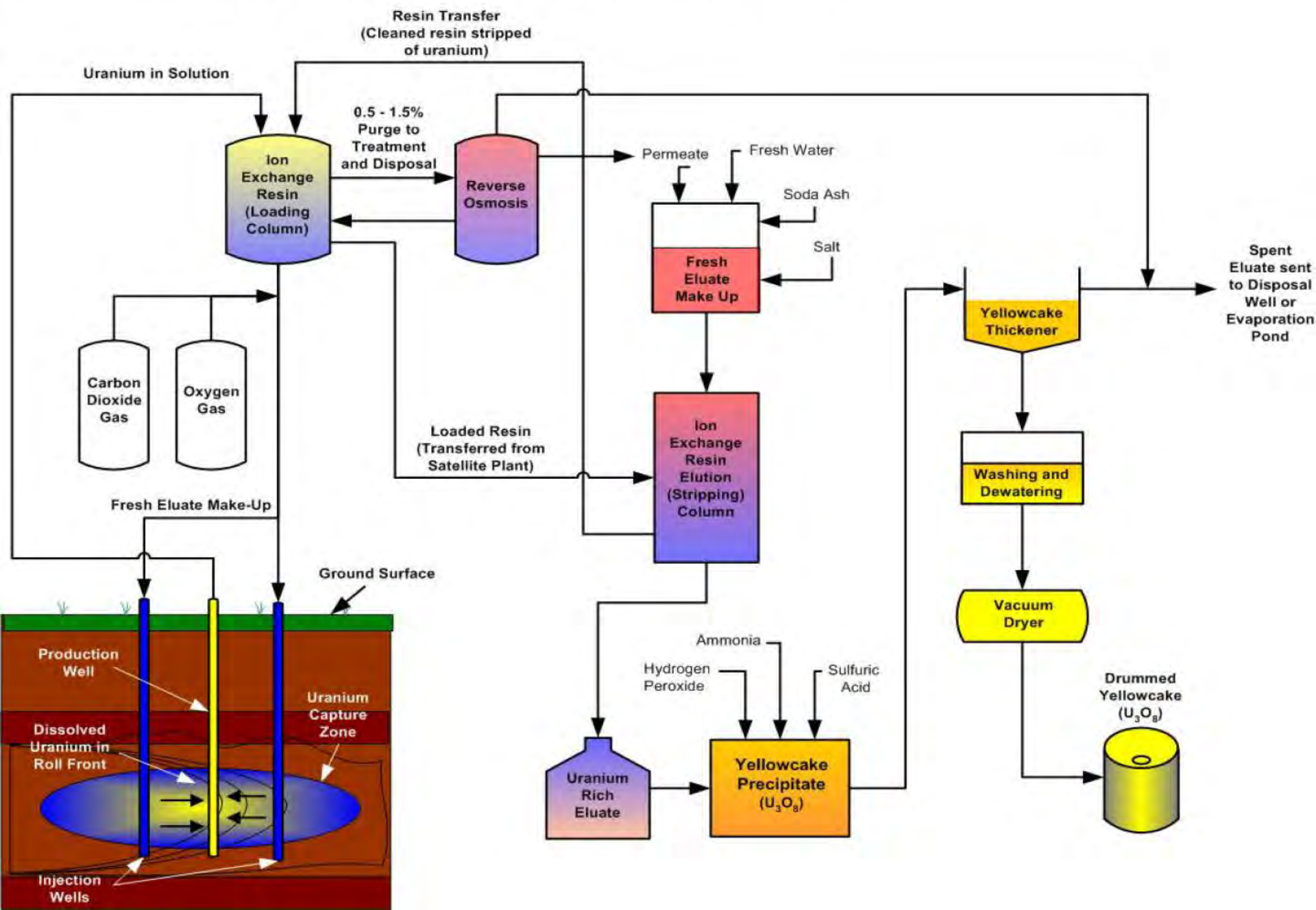


Typical ISR Wellfield



Shot taken at Crow Butte, NE

In-situ Uranium Recovery - Process Flow Diagram



Yellowcake



Satellite Building – Resin Tanks



Shot taken at Smith Ranch, WY

Satellite Building - Resins



Shot taken at Smith Ranch, WY

Yellowcake Thickener



Shot taken at Smith Ranch, WY

Yellowcake Filter Press



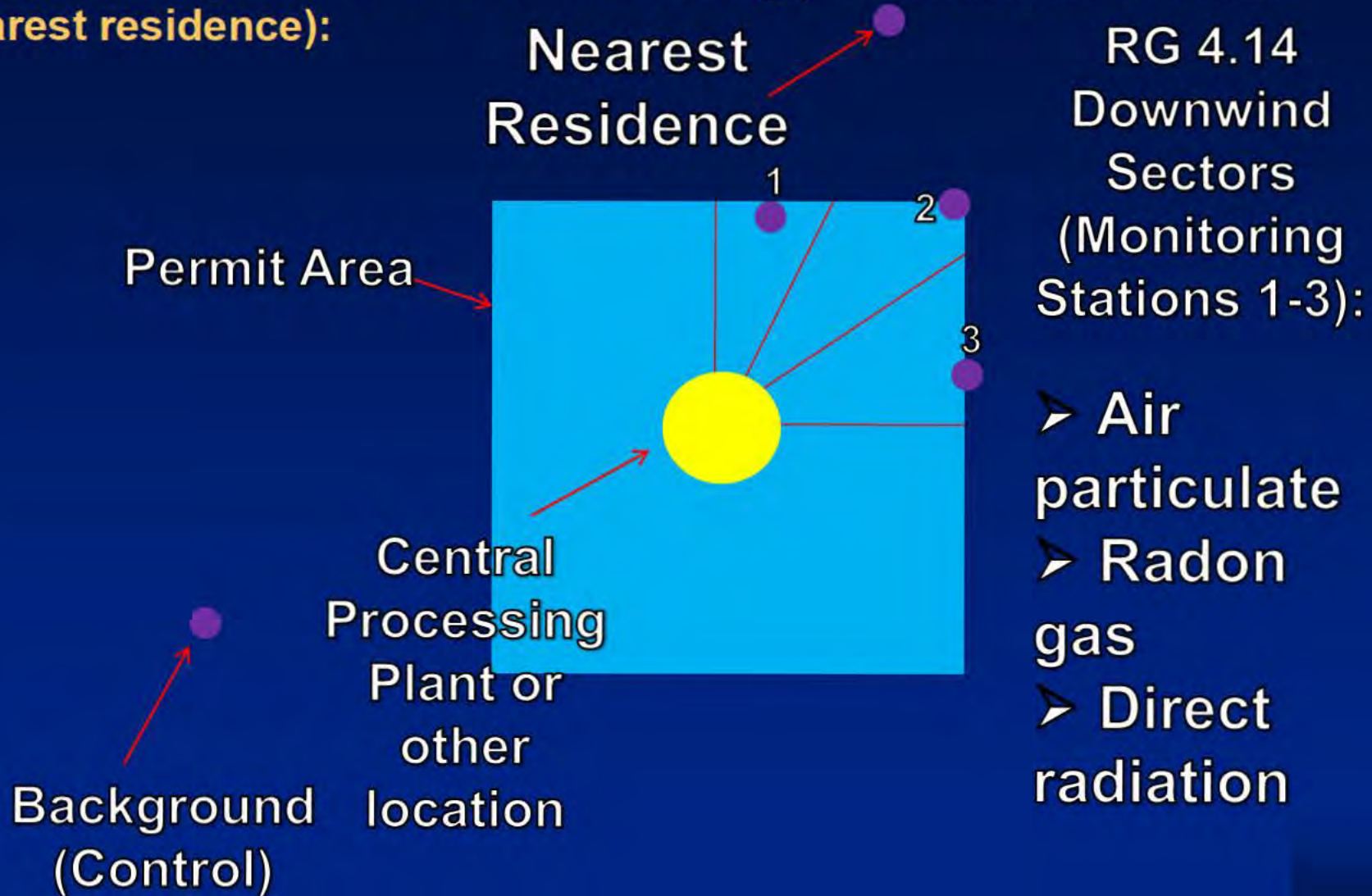
Shot taken at Smith Ranch, WY

Yellowcake Product



Yellowcake is packaged into 55-gallon drums and prepared for shipment. Typical product moisture levels range from 0.5 to 1.5 wt.% H₂O which are well within the converter's standard specification of 2.0 wt % H₂O.

Typical facility environmental monitoring (downwind sectors and nearest residence):



RG 4.14
Downwind
Sectors
(Monitoring
Stations 1-3):

- Air particulate
- Radon gas
- Direct radiation

Environmental Monitoring Station



Shot taken at Sweetwater Conventional Mill

Environmental Monitoring Station



Shot taken at Smith Ranch (ISR), WY

Safe Operation of Currently Licensed Facilities

- Cameco Smith Ranch (WY) – License Renewal and expansions
- Cameco Crow Butte (NE) – License Renewal and expansions
- Uranium One Willow Creek (formerly Cogema Irigaray/Christensen Ranch) (WY) – Restart and License Renewal
- Kennecott Sweetwater (WY) – in standby
- Uranium One Moore Ranch (WY) – not operating yet
- Three ISR sites in the Agreement State Texas

Major Uranium Recovery Licensing Applications

Company	Site Under Consideration	Design	Estimated Application Date	Date Accepted	State	Status	Letter of Intent
Fiscal 2007 Applications							
Uranium One	Willow Creek	ISR - Restart	Received April 2007		WY	Completed 9/08	None
Cameco (Crow Butte Resources, Inc.)	North Trend	ISR - Expansion	Received June 2007	8/28/2007	NE	Tech Review Ongoing	None
Cameco (Crow Butte Resources, Inc.)	Plant Upgrade	ISR - Expansion	Received Oct 2006		NE	Completed 12/07	None
Fiscal 2008 Applications							
Lost Creek ISR, LLC	Lost Creek	ISR - New	Resubmitted Mar 2008	6/10/2008	WY	Draft License Issued	05/23/07
Uranerz Energy Corp.	Hank and Nichols	ISR - New	Received December 2007	4/14/2008	WY	Draft License Issued	06/27/07
Uranium One	Moore Ranch	ISR - New	Received October 2007	12/20/2007	WY	Completed 9/10	05/31/07
Uranium One	Jab and Antelope	ISR - New	Received July 2008	Mar-09	WY	Review Deferred	05/31/07
Fiscal 2009 Applications							
Powertech Uranium Corporation	Dewey Burdock	ISR - New	Resubmitted 8/09	Oct-09	SD	Tech. Rev. Suspended	01/26/07
Fiscal 2010 Applications							
Cameco (Crow Butte Resources, Inc.)	Three Crow	ISR - Expansion	Rec. August 2010		NE	Review Deferred	01/11/10
Fiscal 2011 Applications							
Strata Energy, Inc.	Ross	ISR - New	Dec-10		WY	Acc. Review Ongoing	01/08/10
Lost Creek ISR, LLC	Lost Creek	ISR - Expansion	Jul-11		WY		01/06/10
Cameco (Power Resources, Inc.)	Smith Ranch/Highland CPP	ISR - Expansion	Jul-11		WY		01/14/10
Titan Uranium USA, Inc.	Sheep Mountain	Heap Leach - New	Sep-11		WY		11/11/10
Cameco (Crow Butte Resources, Inc.)	Marsland	ISR - Expansion	Sep-11		NE		11/09/10
Uranium One	Allemand-Ross	ISR-Expansion	Sep-11		WY		10/08/10
Uranium One	Ludeman	ISR - New	Withdrawn, Resubmit 9/11		WY		10/08/10
Fiscal 2012 Applications							
AUC LLC	Reno Creek	ISR - New	Dec-11		WY		11/03/10
UR-Energy Corp.	Lost Soldier	ISR - Expansion	Mar-12		WY		11/01/10
Neutron Energy	Juan Tafoya	Conv. - New	Jun-12		NM		11/16/10
The Bootheel Project LLC	Bootheel	ISR-New (Satellite)	Jul-12		WY		08/09/10
Strathmore Minerals Corporation	Gas Hills	Conv. - New	Sep-12		WY		11/19/10
Strathmore Minerals Corporation	Roca Honda	Conv. - New	Sep-12		NM		11/19/10
Uranium Company of Nevada, LLC	Apex Mill	Conv. - New	Sep-12		NV		11/11/10
Rio Grande Resources	Mt. Taylor	Conv. - New	TBD		NM		11/10/10
Fiscal 2013 Applications							
Cameco (Power Resources, Inc.)	Ruby Ranch	ISR - Expansion	FY 2013		WY		01/14/10
Wildhorse Energy	West Alkali Creek	ISR - New	TBD		WY		01/07/10
Uranium Energy Corporation	Grants Ridge	Heap Leach - New	TBD		NM		01/15/10
Other Major Licensing Actions							
Cameco (Crow Butte Resources, Inc.)	Crawford, NE	ISR - Lic. Renew.	Received Dec. 2007		NE	Tech Review Ongoing	
Uranium One	Willow Creek	ISR - Lic. Renew.	Received May 2008		WY	Tech Review Ongoing	
Cameco (Power Resources, Inc.)	Smith Ranch/Highland	ISR - Lic. Renew.	Received 08/2010		WY	Supplement Required	
Hydro Resources, Inc.	Crownpoint	ISR - Lic. Renew.	Rec. 8/02, on hold until 2011		NM		
Cameco (Power Resources, Inc.)	North Butte	ISR - Ops Plan	Sep-11		WY		09/09/10
Cameco (Power Resources, Inc.)	Gas Hills	ISR - Ops Plan	Sep-11		WY		09/09/10
Cameco (Power Resources, Inc.)	Ruth	ISR - Ops Plan	Jun-13		WY		09/09/10
No. of New Facility Applications =						16	
No. of Restart/Expansion Applications =						11	
No. of Other Actions						7	
Total No. of Licensing Actions						34	

Public Involvement

- Indian Tribe Outreach Strategy for Uranium Recovery:
<http://www.nrc.gov/materials/uranium-recovery/public-meetings/ind-tribe-strat.pdf>
- Consultation Meetings
- Draft Supplemental Environmental Impact Statement (SEIS)
- Contact Us

Questions?



Shot taken of Mount Taylor, Grants, NM

Proposed Crow Butte License Renewal and North Trend Expansion Area ISR Projects

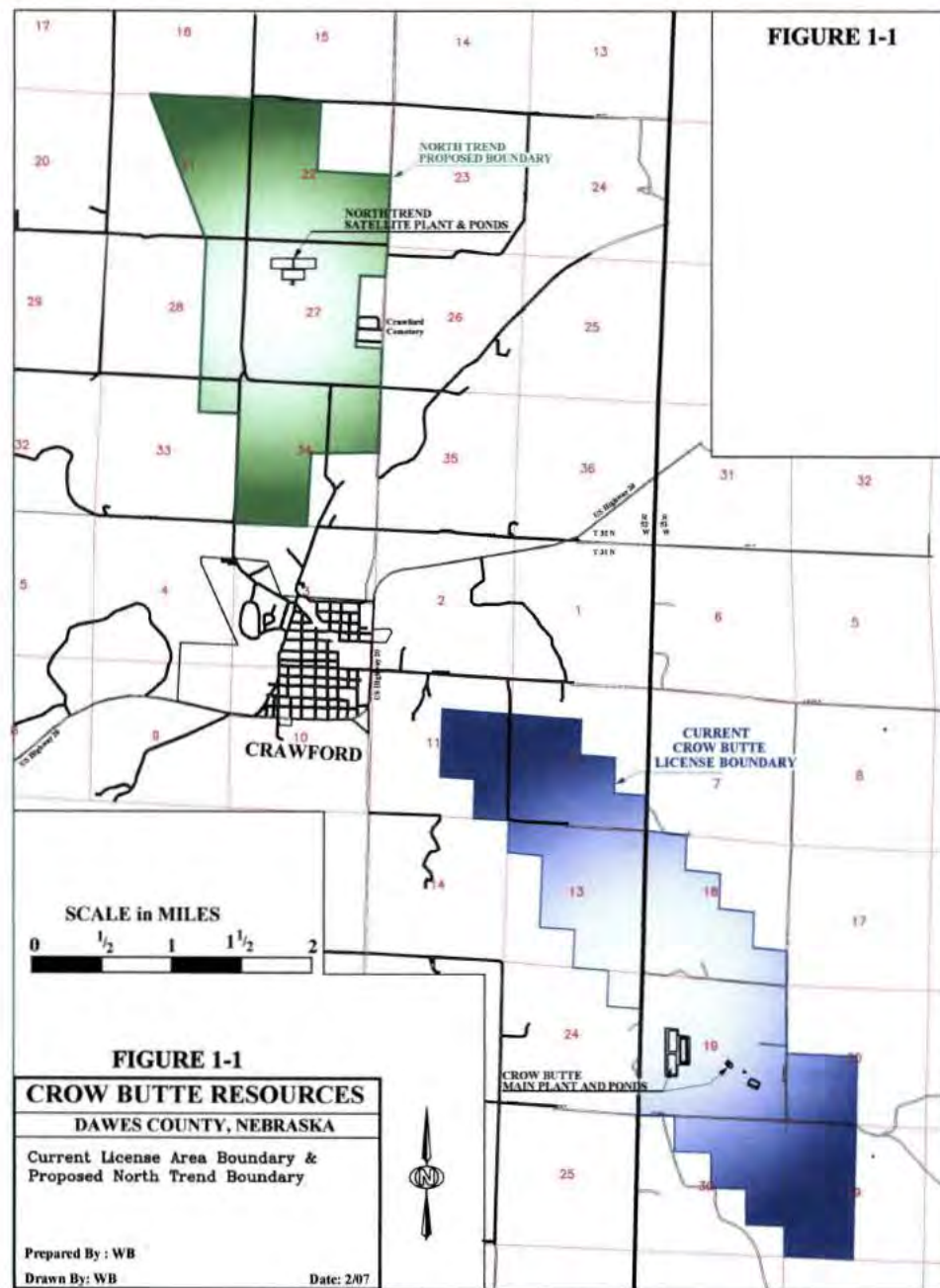
Nathan Goodman

**Project Manager (PM) for the
Proposed Cameco Inc's Crow
Butte License Renewal (LR) and
North Trend (NT) Expansion Area
In Situ Recovery (ISR) Facility**

Phone: 301-415-2703

Email: Nathan.Goodman@nrc.gov

Crow Butte Current LR and Proposed NT Facilities



Crow Butte Projects Proposed Action

- **Current License Area is 4 miles southeast of Crawford, Nebraska. The license area is 3,300 acres.**
- **The proposed North Trend Expansion area is approximately 2 miles north of Crawford, NE and would encompass 2,110 acres.**

Archeological Investigation

- **The NRC is currently reviewing archeological surveys submitted by the applicant as part of the applications for both the current facility and the proposed North Trend Expansion Area.**
- **The purpose of these surveys was to determine if there are potential adverse impacts to properties listed on or eligible for listing on National Registry of Historic Places (NRHP).**

Archeological Investigation

- For the Crow Butte operating facility, the application for license renewal archeological survey submitted by the applicant identified 72 archeological and architectural sites.
- Of these 72 sites, 0 were identified as eligible for listing on the NRHP.
- For the proposed NT Expansion site, the archeological survey submitted by the applicant identified 6 archeological and architectural sites.
- Of these 6 sites, 0 were identified as eligible for listing on the NRHP.

Status of 106 Consultation

- August 2010, consulted with SHPO.
- September 2010, invitation letters sent to 20 tribes for the proposed North Trend Expansion Area site.
- November 2010, invitation letters sent to 20 tribes for the proposed license renewal of the current facility.
- June 2011, information gathers/site visit meeting.

Information Gathering Meeting Pine Ridge Reservation

- **All information gathered today will help the NRC staff conduct an independent analysis to determine whether there are traditional cultural properties or additional archeological sites eligible for a listing on the NRHP.**

Proposed Dewey-Burdock ISR Project



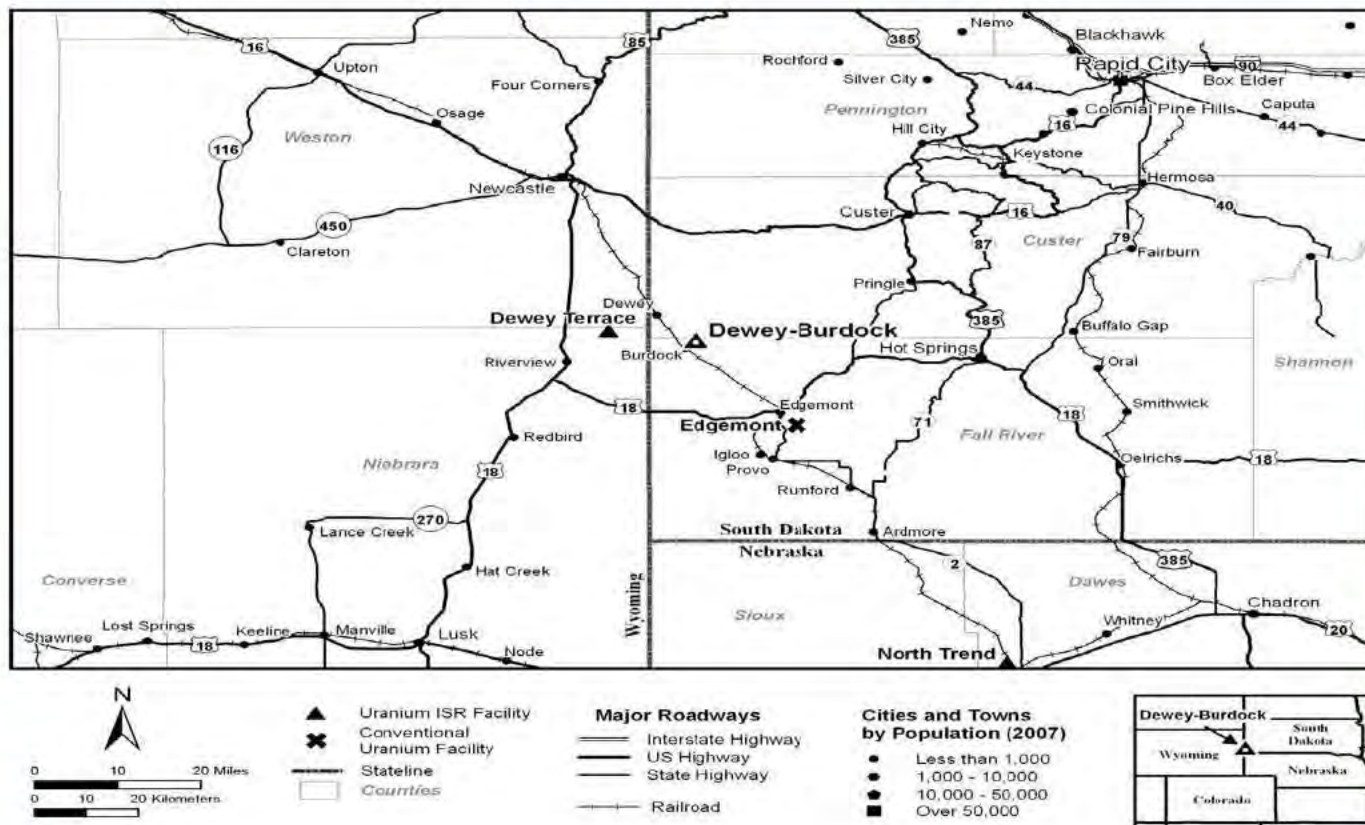
Haimanot Yilma

**Project Manager (PM) for the NRC
Staff Environmental Review of
Powertech (USA) Inc's Proposed
Dewey-Burdock *In Situ* Recovery
(ISR) Facility**

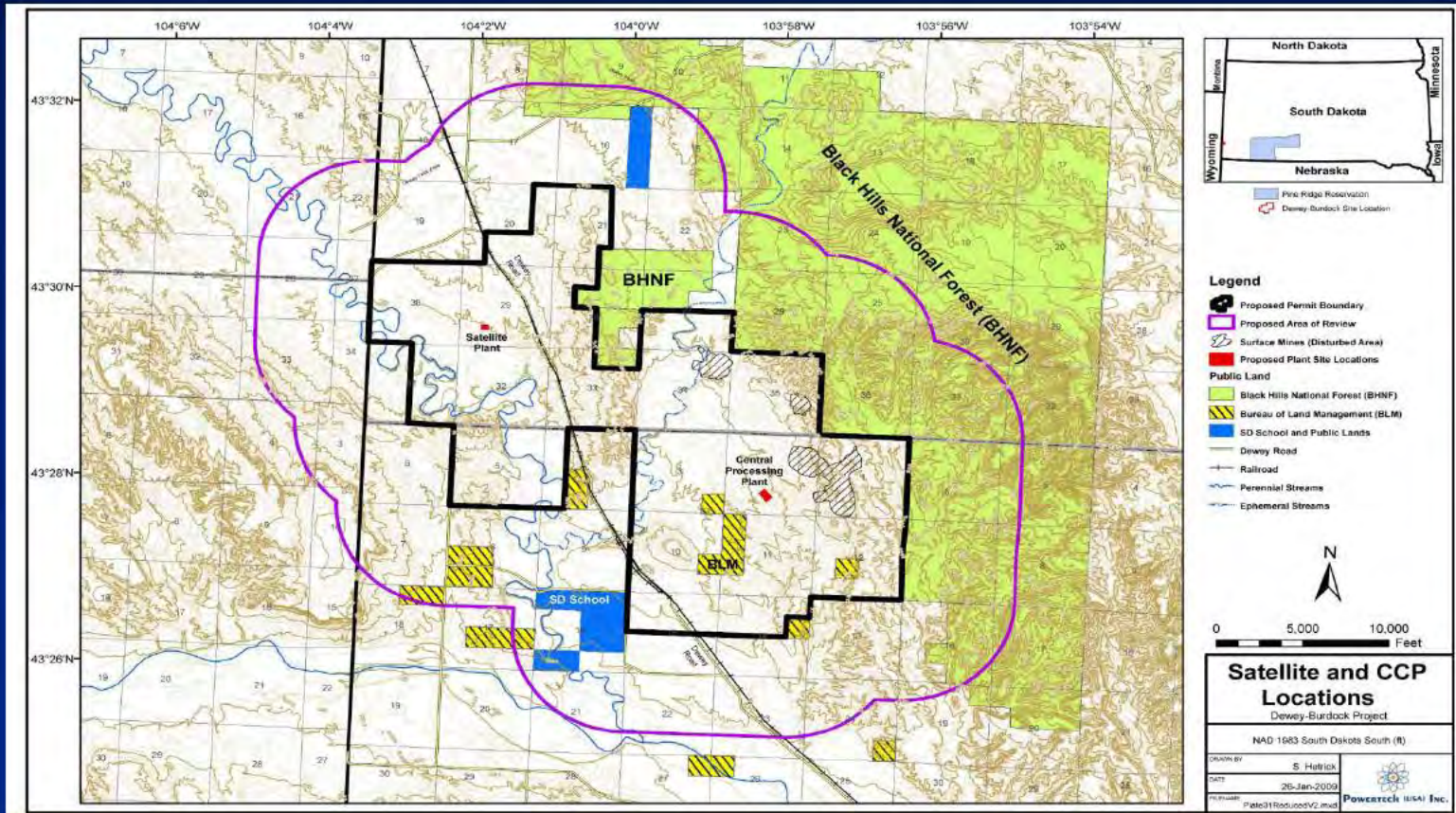
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Dewey-Burdock Proposed ISR Facility



Proposed Dewey-Burdock ISR Project



Dewey-Burdock Proposed Action

- **Located ~13 miles from Edgemont, SD**
- **Borders the Blacks Hills National Forest to the North, Northeast and East**
- **10,580 acres wide**
 - Approximately 10,340 acres of private ownership and
 - Approximately 240 acres of BLM ownership

Dewey-Burdock Proposed Action

- **Powertech Inc. proposes to use the ISR process to extract uranium from the Dewey-Burdock Site**
- **If approved, the license will be issued for 10 yrs.**

Archeological Investigation

- **To identify potential impact to cultural and historical properties, Archeological survey was conducted by the applicant over the entire Areas of Potential Effect (APE)**
 - **10,580 acres**
- **Survey conducted by archeologists from Augustana College**
- **NRC staff is reviewing the survey**

Archeological Investigation

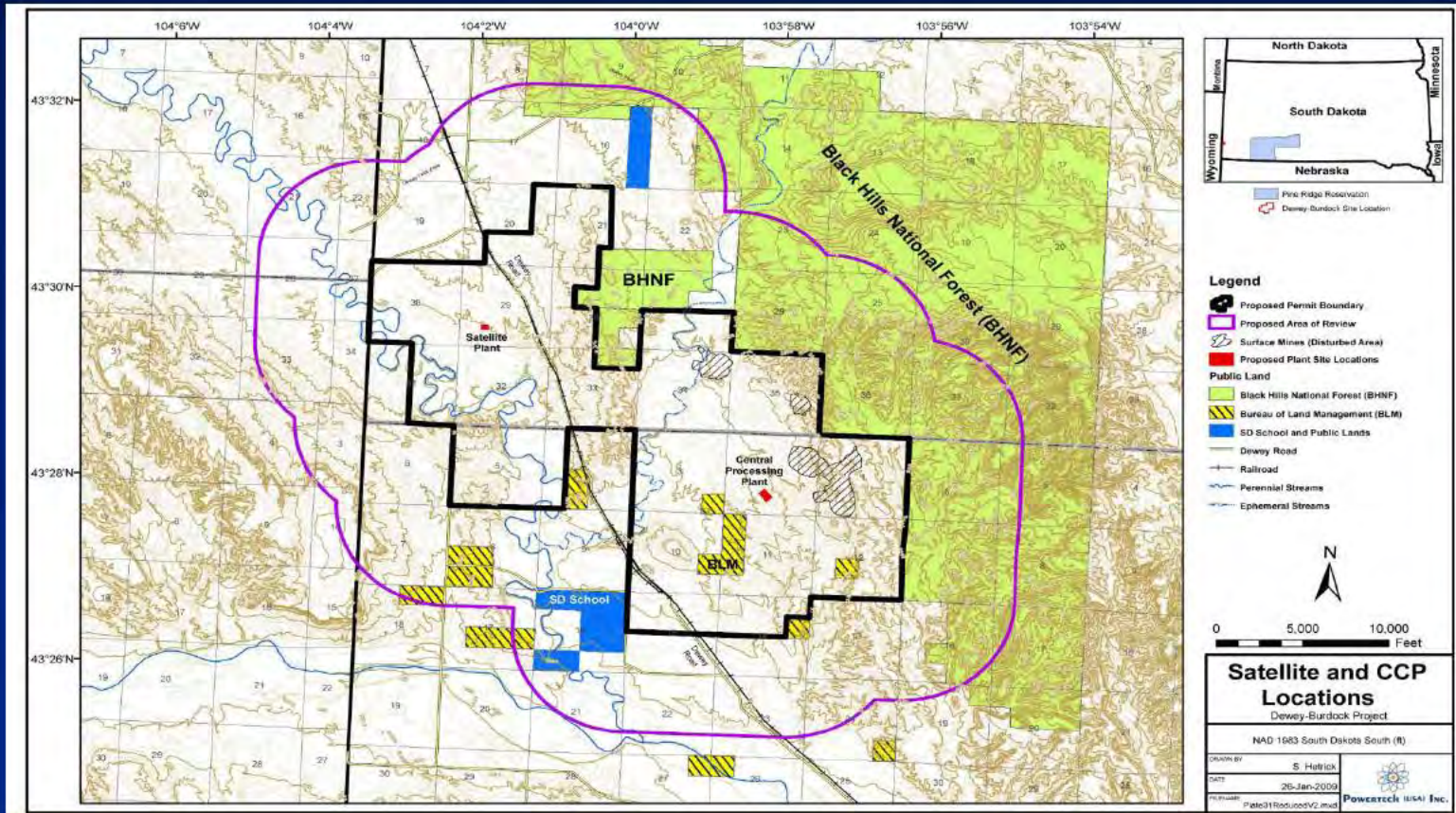
Archeological Sites

- **Over 200 Archeological sites were documented**
 - 4 eligible for nomination
 - None listed on National Register

Historical Properties

- **10 Historical Properties/structures were documented**
 - 2 listed on the National Register
 - 3 eligible for nomination

Proposed Dewey-Burdock ISR Project



Black Hills Proximity

- **Borders the Blacks Hills National Forest to the North, Northeast and East**
- **Sacred significance of the Black Hills**
 - **Invite you to share your concerns**
 - **Provide additional information that is important to you**
 - **Learn about Traditional Cultural Properties (TCPs)**

Status of 106 Consultation

- **Oct. 2009, Notice of Intent to develop SEIS**
- **Dec. 2009, consulted with SD SHPO**
- **March 2010, invitation letters sent to 17 tribes**
- **Sept . 2010, follow-up invitation letters sent to 16 tribes**
- **Feb. 2011, learned three more tribes might have interest in the APE**
- **June 2011, information gathering/ consultation/ site visit meeting**

Information Gathering Meeting Pine Ridge Reservation

- **All information gathered today will help the NRC staff conduct an independent analysis to determine whether there are traditional cultural properties or additional archeological sites eligible for a listing on the NRHP**

Any Questions?





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