RADIATION AND ENVIRONMENTAL MONITORING

1. SAMPLING AND ANALYSIS OF MULTIPLE ENVIRONMENTAL MATRICES

- High volume air station
- Groundwater well

2. INSPECTION OF THE PHYSICAL FEATURES OF THE MILL

- Settlement monitor
- Tailings

PURPOSE:

TO MINIMIZE ANY IMPACTS TO WORKERS, THE PUBLIC & THE ENVIRONMENT

- To ensure that any potential doses to workers and the public are kept to a minimum
- To ensure that any environmental impacts of mill operations during operations and after reclamation are kept to a minimum
- To establish baseline data to assist with reclamation

WHERE?
ON AND OFF THE MILL PROPERTY

WHEN?
DAILY, WEEKLY, MONTHLY QUARTERLY, SEMI-ANNUALLY AND ANNUALLY
RADIATION AND ENVIRONMENTAL MONITORING

INCLUDES

- Ambient Air
- Vegetation
- Tailings
- Surface Water
- Soil
- Sediment
- Groundwater
- Meteorological Data
- Stack Emissions
- Settlement & Movement

plus:
- Gamma
- Opacity
- Ambient Radon
- Radon Flux

80+ groundwater wells
52 soil sampling locations
8 high volume air stations
100+ settlement monitors

Effluent concentration limit and ALARA goal

ALARA IN ACTION: For many matrices EFRI sets ALARA goals at 25% of the Regulatory Limit.
REGULATORY OVERSIGHT

REGULATED BY:

- Utah Department of Environmental Quality
- Utah Division of Water Rights
- U.S. NRC
- EPA

ASSESSMENT

- Compliance monitoring is reported quarterly, semi-annually and annually
- All results are scrutinized and assessed by regulators for compliance to applicable standards
- Regulators collect split samples for independent analysis
- The mill is inspected by regulators approximately 20 times per calendar year
- The mill has an extensive Quality Assurance/Quality Control program to ensure data are defensible, usable, representative and comparable
URANIUM 101

WHAT IS URANIUM?
- A mildly radioactive, naturally-occurring metallic element
- As common in the Earth's crust as tin, tungsten, & molybdenum
- Occurs naturally in rock, soil, food, and water
- Primarily used as the fuel for clean, carbon-free nuclear energy

HOW DO NUCLEAR REACTORS WORK?
- Two main isotopes of uranium: U-238 (99.3%) & U-235 (0.7%)
- U-235 fissions easily, creating heat in the process
- Nuclear reactors produce electricity by harnessing this heat to produce steam that drives turbines and generators.

HOW IS NATURAL URANIUM MADE INTO NUCLEAR FUEL?

1. MINING & MILLING:
   Companies like Energy Fuels produce natural uranium concentrate (U₃O₈) that is sold to nuclear utilities.

2. CONVERSION:
   U₃O₈ is converted into a gas called uranium hexfluoride (UF₆).

3. ENRICHMENT:
   The unenriched UF₆ is placed into centrifuges for enrichment, increasing the percentage of U-235 from 0.7% to 4%-5%, allowing controlled fission to occur.

4. FUEL FABRICATION:
   The enriched UF₆ is formed into solid UO₂ fuel pellets that are placed into metal tubes, and bundled into fuel assemblies that are loaded into nuclear reactors.

ENERGY FUELS’ URANIUM MINES, MILLS, AND PRODUCTION FACILITIES
WHAT IS VANADIUM?
- A naturally-occurring metallic element
- The most common forms of industrial vanadium are vanadium pentoxide (V₂O₅) and ferrovanadium (FeV)

WHAT IS VANADIUM USED FOR?
- Primarily used in high strength steel, titanium, and other alloys
- High capacity batteries using vanadium currently being commercialized for use in renewable energy systems

The 1st large-scale commercial use of vanadium was in the steel chassis of the Model T.

VANADIUM REDOX BATTERIES: High purity vanadium can be used in batteries to store renewable energy when the wind isn't blowing and the sun isn't shining.

ENERGY FUELS' LA SAL COMPLEX AND WHIRLWIND MINES CONTAIN HIGH-GRADE VANADIUM
NUCLEAR ENERGY 101

NUCLEAR PROVIDES CLEAN, CARBON FREE, 24/7 ELECTRICITY – ALL FUELED BY URANIUM

AROUND THE WORLD

- 443 operable reactors
- 57 reactors under construction
- 426 reactors on order, planned, or proposed

IN THE UNITED STATES

- The U.S. is the largest producer of nuclear energy in the world
- 20% of all electricity – and 50% of all the clean, carbon-free electricity – in the U.S. comes from nuclear
- The U.S. does not currently mine enough uranium to fuel a single reactor
- About 50% of U.S. uranium imports come from Russia, China and their allies

ENORMOUS DEPENDENCE ON IMPORTED URANIUM

NUCLEAR FACTS

<table>
<thead>
<tr>
<th>Sources of Clean Energy</th>
<th>Nuclear 50%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wind</td>
<td>22%</td>
</tr>
<tr>
<td>Hydroelectric</td>
<td>20%</td>
</tr>
<tr>
<td>Solar</td>
<td>6%</td>
</tr>
<tr>
<td>Other</td>
<td>3%</td>
</tr>
</tbody>
</table>

% of Emission-Free Electricity Generated in U.S. in 2020

<table>
<thead>
<tr>
<th>Energy Efficiency</th>
<th>Nuclear 92%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydroelectric</td>
<td>45%</td>
</tr>
<tr>
<td>Wind</td>
<td>37%</td>
</tr>
<tr>
<td>Solar</td>
<td>24%</td>
</tr>
</tbody>
</table>

Electricity Generated as % of Capacity in U.S. in 2017

LARGEST PLANTS

<table>
<thead>
<tr>
<th>Nuclear Plants</th>
</tr>
</thead>
</table>

SPACE EFFICIENCY

1 sq. mile | Nuclear |
60 sq. miles | Solar |
310 sq. miles | Wind |

Land area needed to produce 1,000 MW of clean electricity
MINE RECLAMATION

Restoring Disturbed Land to a Beneficial Use

RECLAMATION BEGINS WITH PLANNING
• Environmental baseline studies
• Detailed plans approved by government officials
• Reclamation bonds to ensure successful completion of the process

HACK CANYON MINE

WHY THE PAST WILL NOT BE REPEATED
• Today’s environmental standards
• The mining industry’s commitment to health, safety & the environment
MILL TAILINGS RECLAMATION

BEAR CREEK URANIUM MILL, WYOMING
- Reclaimed Tailings
  - Reclaimed Site Owned by Federal Government
  - Must be Stable for Minimum 1000 Years Without Maintenance

L BAR TAILINGS SITE, NEW MEXICO
- Vegetation Cover

KEY DESIGN FEATURES
- Radon Barrier
- Vegetative Evapotranspiration Cover
- Impermeable Multiple Liners to Prevent Seepage
ALTERNATE FEED MATERIALS

WHAT ARE THEY?
- Uranium-bearing materials other than conventional ores
- Often process residue streams from other metal processing facilities and uranium conversion processes
- Can be low-cost sources of uranium
- Environmentally responsible recycling of valuable resources
- Tailings from processing alternate feeds are permanently disposed of at the Mill as 11e,(2) byproduct material and ultimately transferred to the US Govt. on mill final closure

EXAMPLES

| Uranium-bearing tailings from other metal processing facilities | Process residues from uranium conversion facilities | Uranium-bearing resins from municipal drinking water treatment facilities | Facility decommissioning materials & debris from FUSRAP and other government and private sites |

IMPORTANCE OF WHITE MESA MILL

1. UNIQUE CAPABILITY:
The mill is the only operating facility in the U.S. capable of processing and disposing of these types of materials.

2. GOVERNMENT SERVICE:
The mill provides a cost-effective, environmentally secure recycling and disposal option to the US Govt. for many of these materials.

3. ECONOMICS:
Processing of alternate feeds allows the mill to continue operating when uranium prices are low.

4. TRACK RECORD:
Energy Fuels has received authorizations to process over 20 different alternate feeds over the last 30 years and has recovered about 4 million lbs of uranium in the process.

Decontaminating alt feed shipment truck before leaving mill
WHAT ARE AUMs?

ABANDONED URANIUM MINES
- Historic mines from the 1950s-60s
- No reclamation/closure requirements at that time
- Mainly supplied uranium to the U.S. government
- Now being reclaimed by the government, Navajo Nation and responsible parties

500+ on Navajo Reservation
100+ on USFS, BLM land in Four Corners area
MILLIONS of tons of waste rock ore
$2 BILLION committed for remediation

PROGRESS TO DATE VERY SLOW

WHITE MESA MILL'S ROLE
- Most materials are conventional ores and can be processed by the mill right now, under its existing licensing
- Recover valuable uranium
- Tailings from processing will be permanently disposed of in the mill’s state-of-the-art tailings facilities as 11e.(2) byproduct material
- Title will ultimately be transferred to the U.S. Government on final mill closure
REEs (RARE EARTH ELEMENTS)

17 ELEMENTS:
Lanthanides plus Scandium & Yttrium

CURRENT REE SUPPLY DOMINATED BY CHINA
METRIC TONS

CHINA
UNITED STATES
OTHER COUNTRIES

REEs in Electric Vehicles
Demand Expected to Increase Significantly

USES BY VOLUME

USES BY VALUE

Energy Fuels
RARE EARTH ELEMENTS AND WHITE MESA MILL

A PERFECT FIT: Monazite Ore from Chemours ~ 0.2% U$_3$O$_8$

- Waste streams will be relatively small. (Feed quantities less than uranium processing)
- Process utilizes existing equipment and expertise.
- Grade is similar to surrounding uranium mines. (La Sal Complex: 0.18 - 0.21% U$_3$O$_8$)

THE WHITE MESA RARE EARTH PROCESS

1. Monazite Arrives at Mill
   Shipped in a closed container from Georgia

2. Rare Earths Extracted
   Monazite is broken down with crack and leach process

3. Rare Earths Put into Solution
   Produces a high purity solution of all rare earths

4. Uranium, Thorium & Radium Removed
   Used for nuclear fuel, cancer treatments + other uses

5. Rare Earths Precipitated & Bagged
   We precipitate the mixture of Rare Earths as carbonate and prep for shipping to Estonia

6. WHITE MESA TO PRODUCE REEs
   Lab work is underway to design a specific process to produce individual Rare Earths at the Mill. This process is similar to how we produce uranium and vanadium.
   Note: at this point in the process, all radionuclides have been removed.
WHY MONAZITE?

1. HIGH AVAILABILITY
   - Produced at heavy mineral sand ("HMS") operations in U.S., Australia, Africa, and elsewhere.
   - Titanium & Zirconium is the target, but Monazite is a low-cost by-product.
   - HMS operators have issues with Monazite due to uranium and thorium content.

2. HIGH VALUE
   - ~53-55% Total Rare Earth Oxides (TREO) + ~0.2% UO₂.

3. HIGH DISTRIBUTIONS of RE
   - Monazite has superior distributions of critical REEs (TREO Basis).
   - ~20-25% NdPr (Used for magnets in motors) and >10% "Heavies" (Sm+).
   - Typical U.S. bastnaesite ore has lower RE distribution.

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**MONAZITE PRODUCTION**

Gravity Separation ("Spirals") → High Specific Gravity → Magnetic Separation → Non-Magnetic → Electrostatic Separation → NdPr

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**MONAZITE SUPPLY CHAIN**

1. Hyron (TN)
2. Brazil
3. South Africa
4. Madagascar
5. Australia
6. White Mesa Mill
7. Estonia
8. Chemours (GA)

- Rare Earth Carbonate Supply
- Existing Monazite Supply
- Potential Future Monazite Supply
COMMUNITY INVOLVEMENT
COMMUNITY BENEFITS

EMPLOYMENT

MAJOR EMPLOYER
One of the Largest Private Employers in San Juan County (top 15 overall)

HIGH QUALITY JOBS
27.5% Higher Salaries than Median Household Income

ANNUAL AVERAGE EMPLOYMENT

HIGH QUALITY JOBS

MEDIAN INCOME

$45,000

$40,000

$35,000

$30,000

$25,000

$20,000

$15,000

$10,000

$5,000

$0

SAN JUAN COUNTY

ENGAGED COMMUNITY PARTNER

HIGH SCHOOL CONTRIBUTOR
- Provides financial support to FIELDS Program at Whitehorse High School on Navajo Nation
- Provides internships in electromechanical technology work at the Mill

LOCAL EVENT SPONSOR
- July 4th celebration (a major regional attraction)
- Blanding Fall Festival & Youth Rodeo Series
- San Juan County Fair Junior Livestock Show
- All high school football & basketball game broadcasts

SMALL BUSINESS SUPPORTER
- Clarks Market
- Bearskin Custom Ink
- Redd’s Ace Hardware
- Local young entrepreneurs (bakers, stoker makers, etc.)

I have a bright future. I see myself doing big things because of this program. The hands-on learning has allowed me to understand what goes on at the Mill and troubleshoot. I’d like to see other Navajo students join the program and have a shot at a better future.

Takenya Yazzie
Whitehorse High School FIELDS Scholar and FIELDS Intern at Energy Fuels

“

2021

$5,000 to San Juan High School
$5,000 to Whitehorse High School

Donations and Board Membership

Friends of Arches and Canyonlands Parks
SAN JUAN COUNTY
Clean Energy Foundation

NEW PROGRAM
Energy Fuels is establishing a new San Juan County focused community investment fund to share the benefits of the Mill’s new clean tech future

WHY?
Energy Fuels cares about the local community surrounding White Mesa Mill, and we want to set up a long-term institution with ongoing funding to boost local priorities

POTENTIAL AREAS of FOCUS

- TRIBAL COMMUNITY INITIATIVES
- EDUCATION
- HEALTH / WELLBEING
- ENVIRONMENT

LOCAL LEADERSHIP & FUNDING

- A Board including representatives from the community to help the Fund fit the needs of the communities
- Community will help direct the goals and vision of the Fund
- Board designed to provide accountability and management of the Fund
- Support local assets and institutions

$1 million initial contribution from Energy Fuels
Annual funding equal to 1% of mill revenues
“Climate change is the number one issue facing humanity.”

President Joe Biden

Energy Fuels is at the forefront of the effort to electrify the US:
+ existing uranium production
+ vanadium business
+ entry into rare earths elements!

We responsibly produce the raw materials needed for many clean energy and advanced technologies

**RARE EARTHS QUICK FACTS**
- Needed for electric vehicles (EVs), wind energy, batteries, cell phones, computers
- Energy Fuels could create 100+ clean-tech jobs at White Mesa Mill in rare earths

**URANIUM QUICK FACTS**
- Uranium fuels carbon-free, emission-free nuclear power—one of the cleanest forms of energy in the world
- Nuclear energy provides nearly 55% of carbon-free electricity in the US

**VANADIUM QUICK FACTS**
- Vanadium is used primarily in the steel, alloys, and chemical industries
- Grid-scale batteries using vanadium now being deployed

**RECYCLING**
Energy Fuels has recycled 6 million pounds of uranium, which when converted to nuclear fuel will:

- Eliminate over 85 million tons of CO₂
- Produce as much electricity as coal in a train that extended from LA to NYC—and almost all the way back
- Produce as much electricity as 24,500 wind turbines annually
CANCER TREATMENT

Extracting Radioactive Isotopes from Thorium

Targeted Alpha Therapies (TAT)
A cutting edge cancer treatment that shows great potential to treat cancers with reduced impact on surrounding healthy tissue.
Targeting mechanisms seek out cancerous cells and deliver radioactive isotopes to destroy them.

PROBLEM: Shortage of Radioactive Isotope Material
- Methods for production are exorbitantly expensive
- Isotope production isn’t scalable to meet the demand of new drugs
- Shortage limits research and development of new TAT drugs

SOLUTION: IsoCap Technology
- An efficient & lower cost way to extract target isotopes
- Isotopes can be extracted from thorium-232 and/or uranium-238

RadTran’s patented IsoCap-AA technology extracts medical isotopes for cancer therapeutics—specifically the rare alpha-emitters: Pb-212, Ac-225, Bi-213, Ra224, Ra-223

RESULT: A Scalable Supply of Effective TAT Drugs
IsoCap provides pharmaceutical companies the means to develop new drugs from natural byproducts of mining