BUREAU OF LAND MANAGEMENT
PLAN OF OPERATIONS
SHEEP MOUNTAIN

Prepared for:

Energy Fuels Resources Corporation

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Prepared by:

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July 2012

Book 1 of 2

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Part 1 - Background Information

1.1 OPERATOR INFORMATION

Project Name:	Sheep Mountain Project
Operator:	Energy Fuels Wyoming Inc.
Address:	225 Union Blvd., Suite 600
	Lakewood, CO 80228
Phone Number:	1-303-974-2140
Tax I.D. Number:	[redacted]
Point of Contact:	Frank Filas, Director of Environmental and Regulatory Affairs

1.2 PROJECT LOCATION

The Sheep Mountain project (Project) is located approximately 8 road miles South of Jeffrey City, Wyoming in Fremont County, Township 28 North, Range 92 West, in portions of Sections 16, 17, 20, 21, 22, 27, 28, 29, 32 and 33 in an area of historic uranium mining development, the earliest of which dates back to the 1950s (see Figure 1.2-1). The Project is located approximately 62 road miles southeast of Riverton, Wyoming and approximately 105 road miles west of Casper, Wyoming in the Crooks Gap Mining District.

1.3 MINERAL AND SURFACE OWNERSHIP

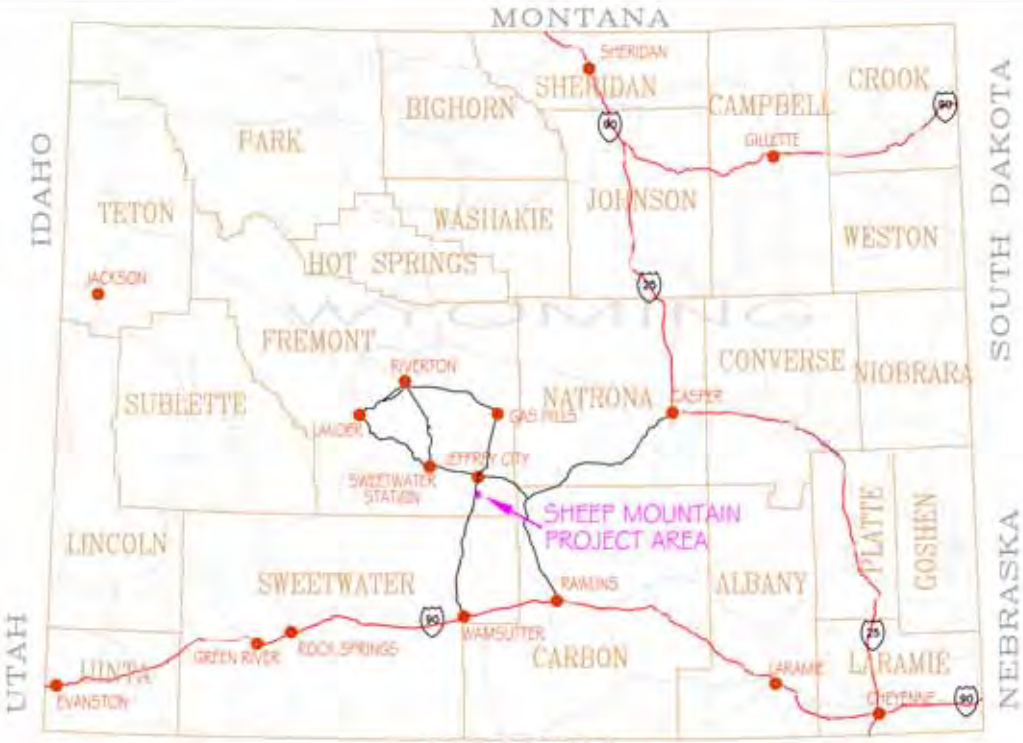
The Project is located within an active mine permit, Wyoming Department of Environmental Quality (WDEQ) Permit to Mine 381C, which includes approximately 3,625 surface acres (approximately 5.7 sq. miles) of mixed ownership including 2,313 acres of federal surface, 768 acres under state ownership, and 544 acres of fee lands. Approximately 2,836 acres of federal mineral estate is included in the Project Area. Refer to Figure 1.3-1, Mineral Ownership Map and Figure 1.3-2, Surface Ownership Map for detailed information.

Mineral Holdings: State Lease and Federal Claim Numbers include the following:

State of Wyoming Mineral Lease, ML 0-15536.

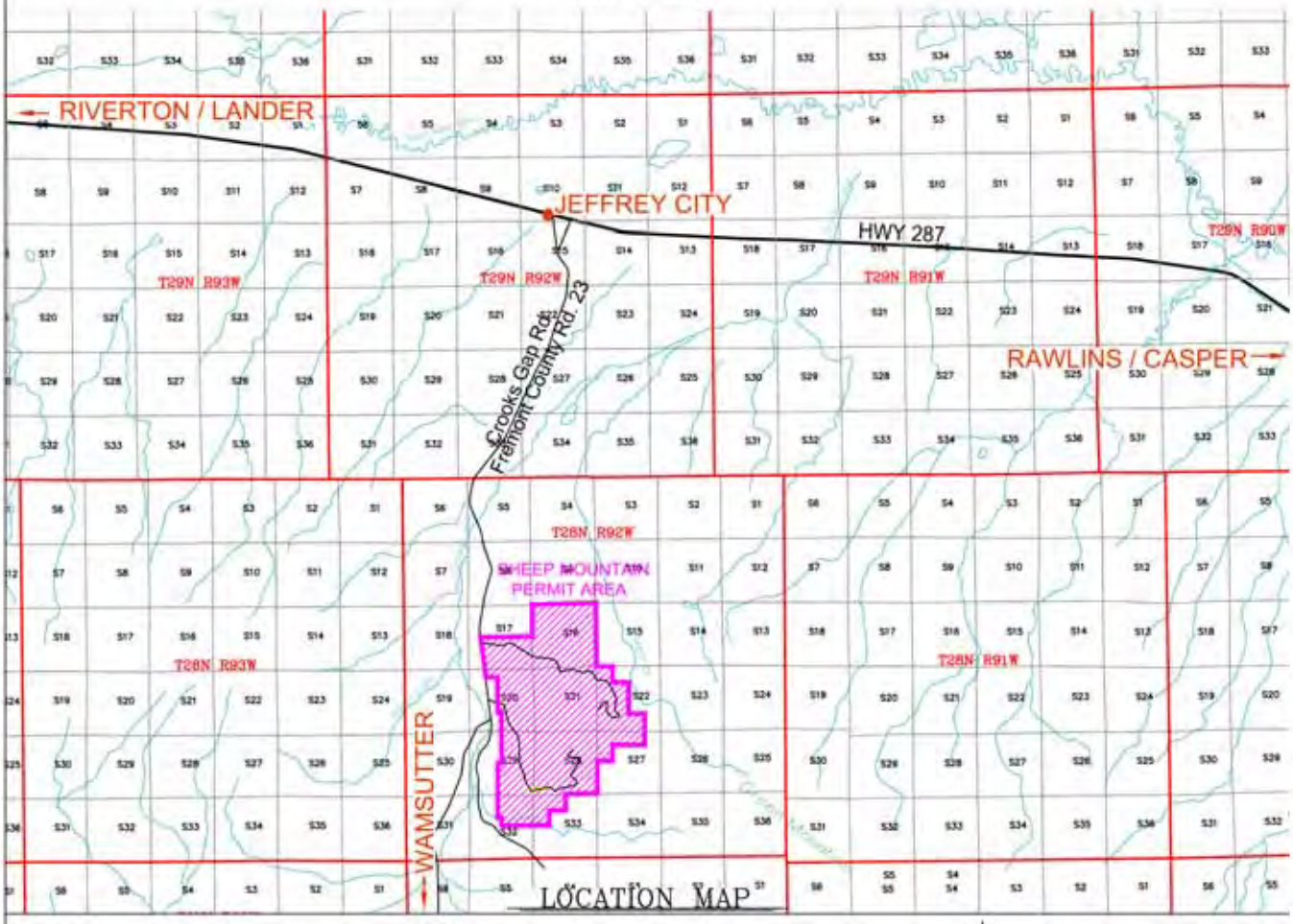
Unpatented BLM Claims, CARRIE-1 to 6, CHRISTIE 4-E, CINDY 1D, GOLDEN GOOSE 1D, 2, 3C and 4D, HIGHLAND 4D to 7D, JAMIE 1 to 33, FRANKIE 1, KEY 1D to 4D, 5C, and 6D to 8D, LAST CHANCE 1D, LOUISE 1-D, MIKE A, NH 1-D to 4-D, NEW SHEEP 1 and 2, PAY DIRT 6, 7, 12D and 13C, POORBOY # 1D, SM-1 to 28 and 8A, SNOWBALL 1 to 8, SUN 3C, 4C and 5-D, SUNDOG 2D, 17C to 19C, 20D, 21C and 22C, SUSAN JAMES 4D, TREY 1 and 2, TREY JR 1D, and ZEB 1C to 4C, 5D and 6D.

A detailed listing including BLM serial numbers is presented in Table 1.3.1.



VICINITY MAP

NOT TO SCALE



LOCATION MAP

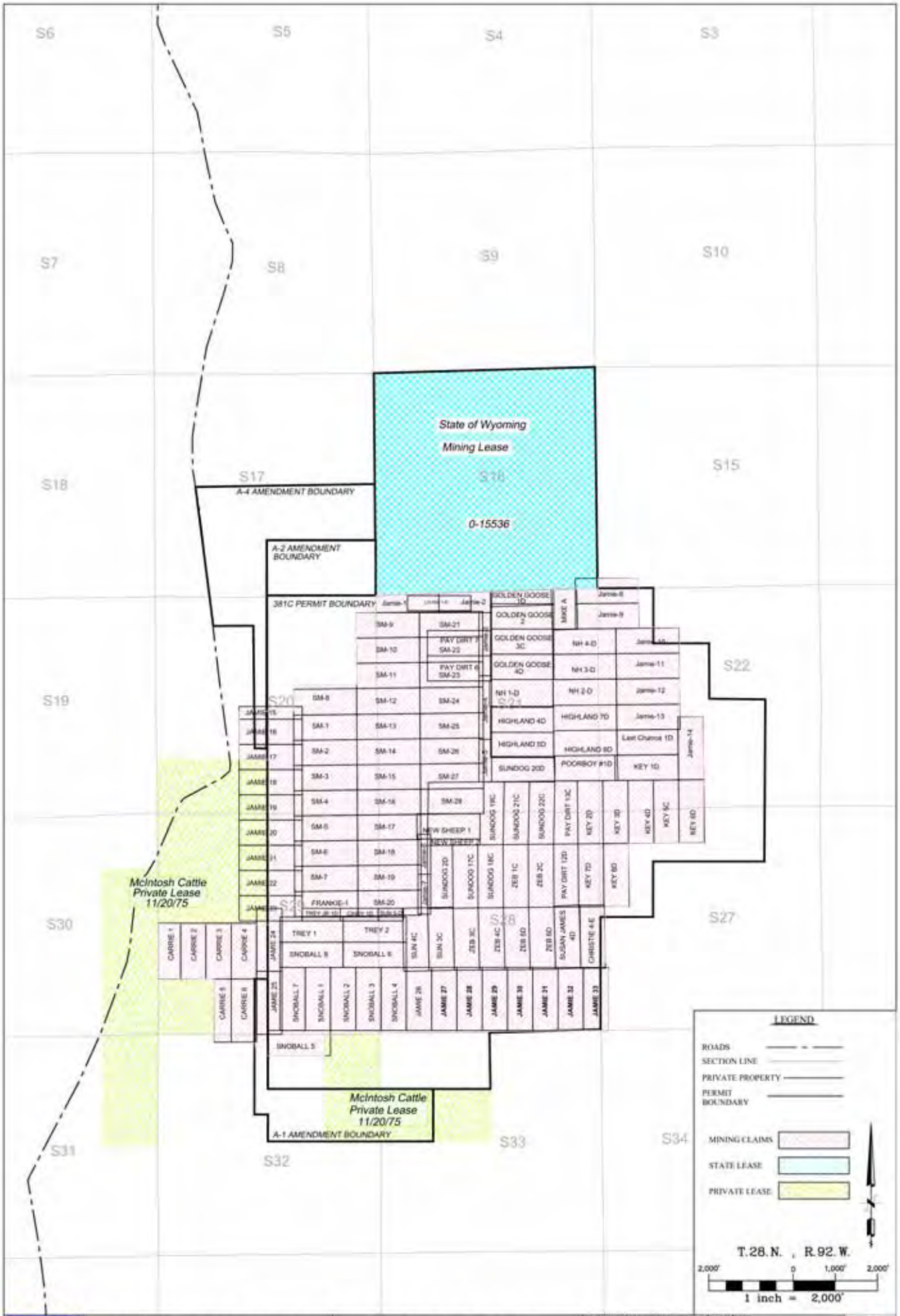
LEGEND

- T&R LINE
- SECTION LINE
- PERMIT BOUNDARY
- MAJOR ROADWAY
- ACCESS ROADWAY
- WATERWAY

10,000' 0 5,000' 10,000'

1 inch = 10,000'

BRS ENGINEERING	**PROJECT LOCATION**	**SHEEP MOUNTAIN MINES**	REVISION DATE: 07/10/12
	SCALE: 1"=10,000'	**FREMONT COUNTY, WYOMING**	CAD FILENAME:
	DRAWN BY: CDS		LP2008/PERMITING/LOCATION
	DATE: 7/9/12		DWG. NUMBER: 1.2-1



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SHEEP MOUNTAIN MINERAL OWNERSHIP MAP

SCALE: 1"=2000' | DATE: 07/5/12

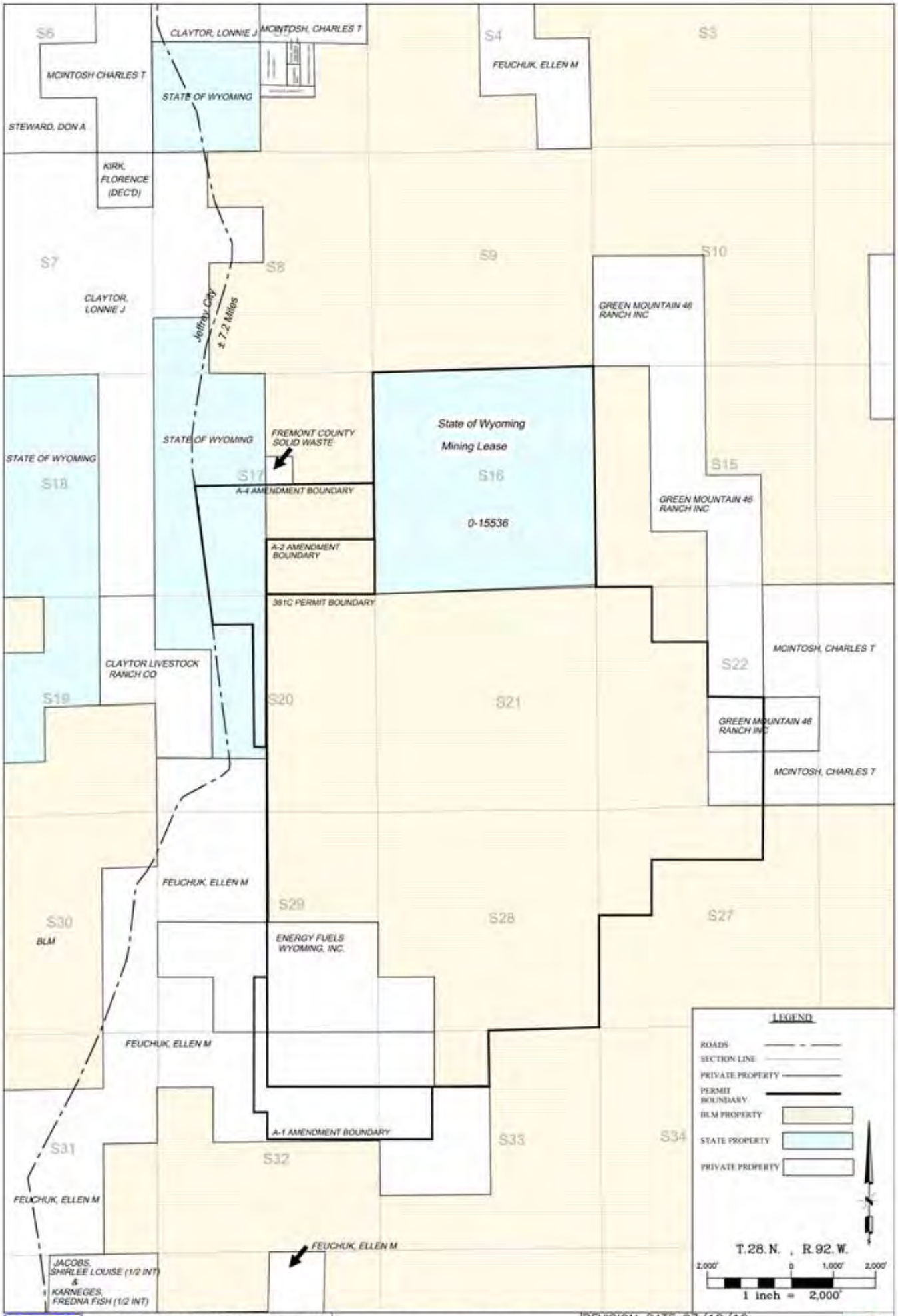
DRAWN BY: GG, RHCP

SHEEP MOUNTAIN MINES
FREMONT COUNTY, WYOMING

REVISION DATE: 07/12/12

CAD FILENAME: PERMITTING\2012 UPDATE\CLAIMS

DWG. NUMBER: FIGURE 1.3-1



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SHEEP MOUNTAIN SURFACE OWNERSHIP MAP

SCALE: 1"=2000' | DATE: 7/12/12

DRAWN BY: GG, RHCP

SHEEP MOUNTAIN MINES
FREMONT COUNTY, WYOMING

REVISION DATE: 07/12/12

CAD FILENAME: PERMITTING\2012 UPDATE\CLAIMS

DWG. NUMBER: FIGURE 1.3-2

Table 1.3.1 – Unpatented BLM Claims

BLM Serial Numbers of Unpatented Mining Claims within WDEQ Mine Permit 381C

Serial No.	Claim Name/Number	Serial No.	Claim Name/Number	Serial No.	Claim Name/Number
WMC261466	Christie 4-E	WMC306681	Jamie-26	WMC260796	SM #28
WMC261467	Cindy 1-D	WMC248332	Key #1D	WMC260775	SM #3
WMC300863	Frankie-1	WMC248333	Key #2D	WMC260776	SM #4
WMC169177	Golden Goose #2	WMC248334	Key #3D	WMC260777	SM #5
WMC247090	Golden Goose #3C	WMC248335	Key #4D	WMC280500	SM #6
WMC261469	Golden Goose #4-D	WMC247103	Key #5C	WMC260778	SM #7
WMC261468	Golden Goose 1-D	WMC248336	Key #7D	WMC260780	SM #9
WMC261472	Highland 6-D	WMC261478	Key 6-D	WMC260779	SM# 8
WMC261473	Highland 7-D	WMC261479	Key 8-D	WMC303909	SM-8A
WMC261470	Highland No. 4-D	WMC299476	Last Chance 1D	WMC297414	Snoball 1
WMC261471	Highland No. 5-D	WMC261480	Louise No. 1-D	WMC297415	Snoball 2
WMC299462	Jamie 1	WMC261481	Mike-A	WMC297416	Snoball 3
WMC299471	Jamie 10	WMC275870	New Sheep #1	WMC297417	Snoball 4
WMC299472	Jamie 11	WMC304801	New Sheep #2	WMC297418	Snoball 5
WMC299473	Jamie 12	WMC261474	NH 1-D	WMC297419	Snoball 6
WMC299474	Jamie 13	WMC261475	NH 2-D	WMC297420	Snoball 7
WMC299475	Jamie 14	WMC261476	NH 3-D	WMC297421	Snoball 8
WMC299463	Jamie 2	WMC261477	NH 4-D	WMC247120	Sun #3C
WMC299464	Jamie 3	WMC169165	Paydirt #6	WMC247121	Sun #4C
WMC299465	Jamie 4	WMC169166	Paydirt #7	WMC261489	Sun 5-D
WMC299466	Jamie 5	WMC248331	Paydirt #12D	WMC247130	Sundog #17C
WMC299467	Jamie 6	WMC247108	Paydirt #13C	WMC247131	Sundog #18C
WMC299468	Jamie 7	WMC261482	Poorboy #1D	WMC247132	Sundog #19C
WMC299469	Jamie 8	WMC260773	SM #1	WMC247134	Sundog #21C
WMC299470	Jamie 9	WMC260781	SM #10	WMC247135	Sundog #22C
WMC300864	Jamie-15	WMC260782	SM #11	WMC261491	Sundog 20-D
WMC300865	Jamie-16	WMC260783	SM #12	WMC261490	Sundog 2-D
WMC300866	Jamie-17	WMC260784	SM #13	WMC261492	Susan James 4-D
WMC300867	Jamie-18	WMC260785	SM #14	WMC297422	Trey 1
WMC300868	Jamie-19	WMC260786	SM #15	WMC297423	Trey 2
WMC300869	Jamie-20	WMC260787	SM #16	WMC261495	Trey Jr. 1-D
WMC300870	Jamie-21	WMC260788	SM #17	WMC247141	Zeb #1C
WMC300871	Jamie-22	WMC280501	SM #18	WMC247142	Zeb #2C
WMC300872	Jamie-23	WMC260789	SM #19	WMC247143	Zeb #3C
WMC300873	Jamie-27	WMC260774	SM #2	WMC247144	Zeb #4C
WMC300874	Jamie-28	WMC260790	SM #20	WMC261496	Zeb 5-D
WMC300875	Jamie-29	WMC260791	SM #21	WMC261497	Zeb 6-D
WMC300876	Jamie-30	WMC280502	SM #22	WMC306673	Carrie-1
WMC300877	Jamie-31	WMC280503	SM #23	WMC306674	Carrie-2
WMC300878	Jamie-32	WMC260972	SM #24	WMC306675	Carrie-3
WMC300879	Jamie-33	WMC260793	SM #25	WMC306676	Carrie-4
WMC306679	Jamie-24	WMC260794	SM #26	WMC306677	Carrie-5
WMC306680	Jamie-25	WMC260795	SM #27	WMC306678	Carrie-6

1.4 PROJECT SUMMARY

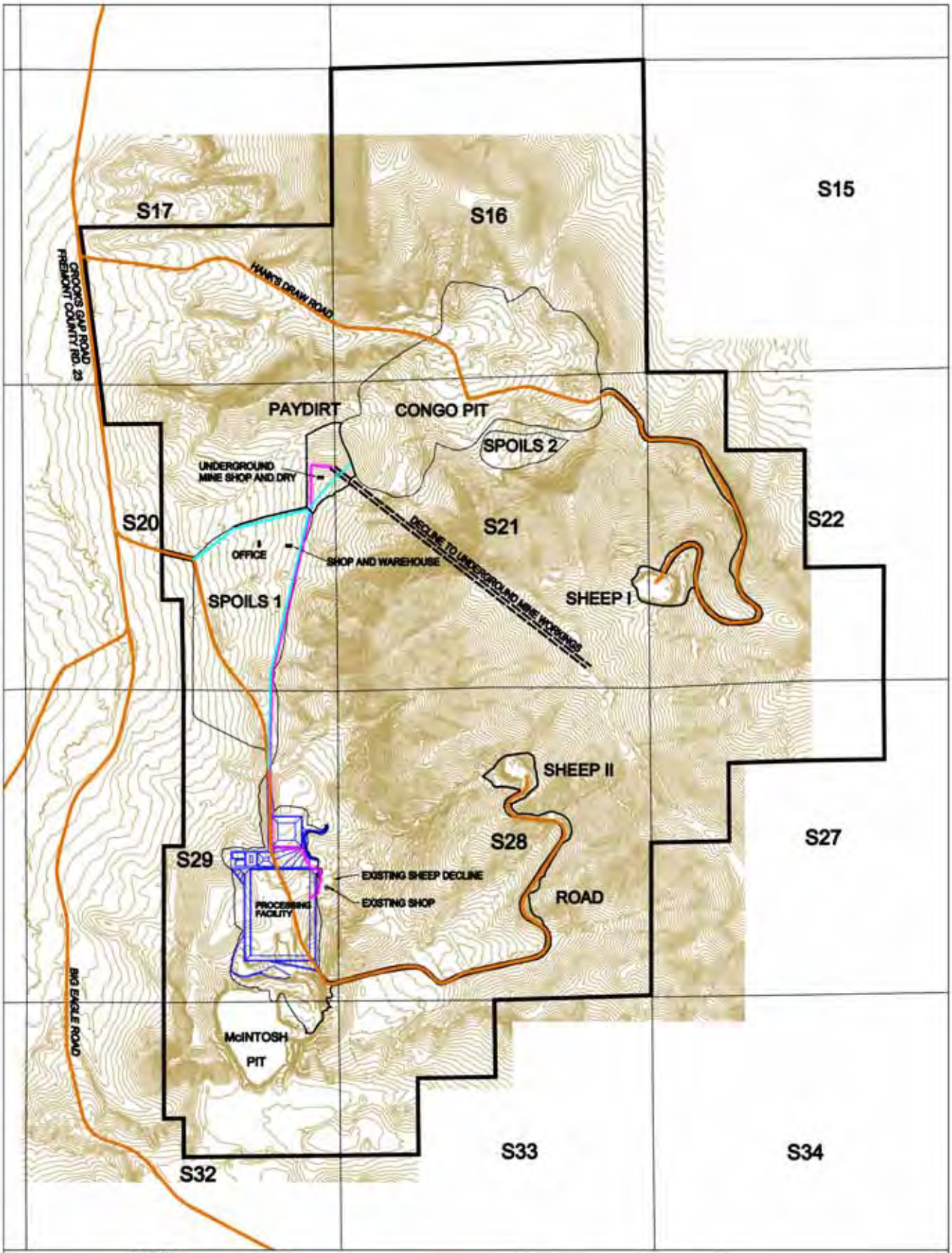
The purpose of the proposed Sheep Mountain Project is to mine identified ore deposits and extract approximately 1.5 million to 2.0 million pounds of uranium per year during active operations. The anticipated Project life is approximately 20 years from initial construction through final reclamation. The Project will use conventional open pit and modified room and pillar underground mining methods to extract the ore. Uranium recovery will be performed on-site using heap leach methods and a process plant to produce "yellowcake" (uranium oxide-U_3O_8). Open pit and heap leach operations will start as soon as the required permits are in place and the surface facilities are constructed. Based on currently identified resources, a 15-year-mine life is projected for open-pit operations. Underground development and rehabilitation will be deferred for up to 5 years depending on financing and market conditions. The underground mine is projected to have an 11-year-mine life based on currently identified resources. Once mining is completed, the mines will be reclaimed. Heap leaching will continue for a period of time after the mines close with reclamation commencing once processing operations are no longer economical.

The existing site conditions and the construction, operation and reclamation phases of the Project are described in more detail below. Figure 1.4-1 provides an overview of the Project area for reference purposes. The "Permit Boundary" shown on Figure 1.4-1 represents the "Permit Area" currently approved and bonded for mining operations by the Wyoming Land Quality Division (LQD). The terms "Project area" and "Project site" or "site" are synonymous with Permit Area when used in this plan.

1.4.1 Existing Mine Conditions

The Sheep Mountain area was extensively mined for uranium from the mid-1950s through the mid-1980s, but only limited site activity has occurred since that time due to a depressed uranium market. As shown on Figures 1.4-1 and 1.4-2, the Sheep I and Sheep II shafts and associated spoil piles (i.e., waste rock piles) and access roads are still in place, although the head frames, hoists, and related facilities have been removed. These vertical shafts are 1,909 feet and 1,417 feet, deep respectively. There are also two declines and a small shop and dry (change house) in the area just east of the proposed heap leach facility. The twin declines slope downwards at a 12.7 percent grade toward the top of the ore body; however, they do not extend all the way to the ore body. The shafts and declines will be used for ventilation purposes when underground mining recommences.

Other existing mine features of note include the partially backfilled and reclaimed Paydirt Pit in the northwest portion of the site and the McIntosh Pit Lake in the southwest portion of the site. There are also thousands of feet of historic drill roads and pads and several smaller reclaimed mine facilities within and surrounding the Project area. Underground mine workings are extensive in the Project area, especially within the more shallow deposits on the north end of the site. The deeper mine workings are all flooded at this time.



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PROJECT OVERVIEW		SHEEP MOUNTAIN MINES FREMONT COUNTY, WYOMING	REVISION DATE: 07/12/12
SCALE: 1"=1500'	DATE: 7/5/12		CAD FILENAME: P2008/PERMITING/PROJECT OVERVIEW
DRAWN BY: CDS			DWG. NUMBER: FIGURE 1.4-1

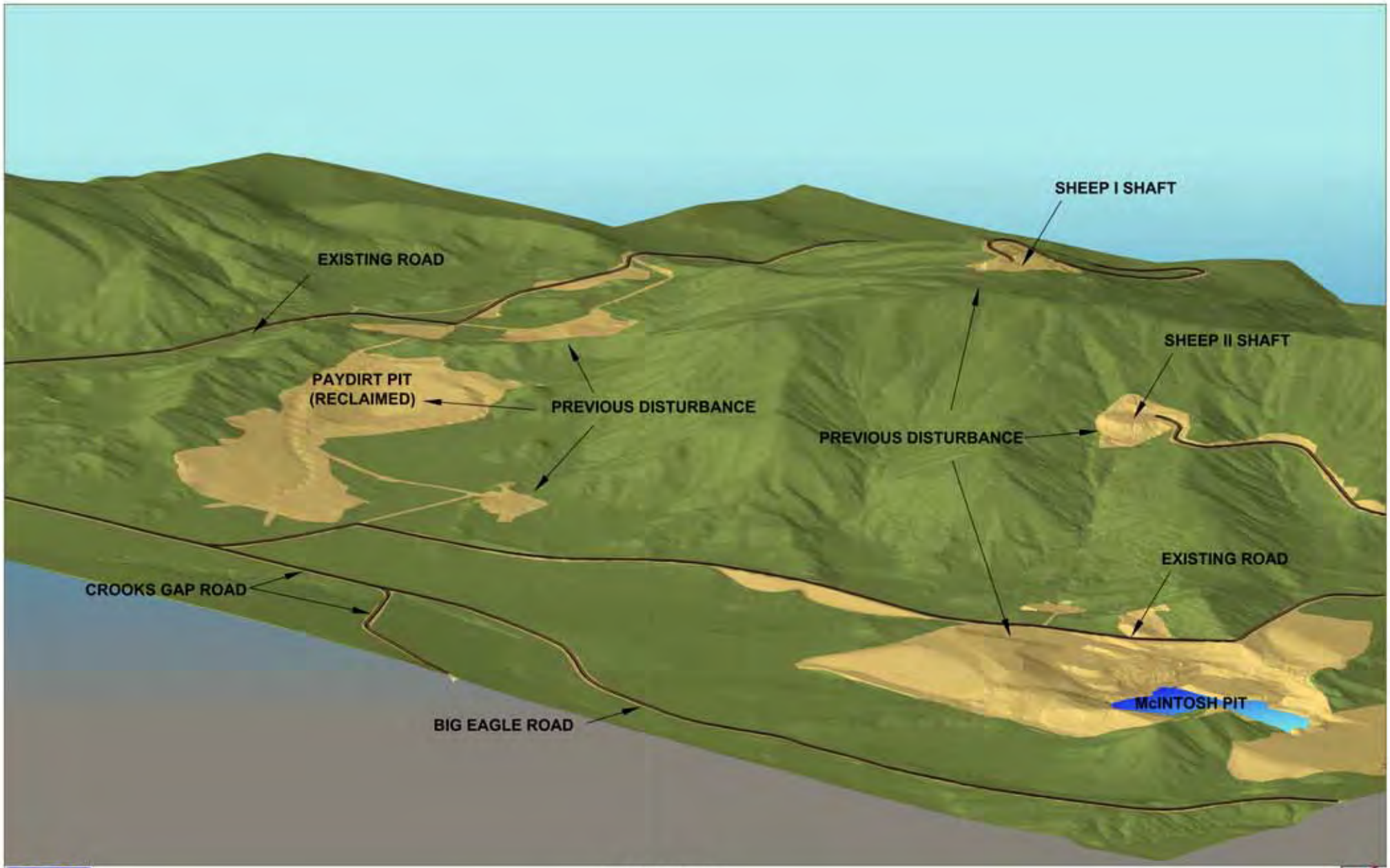

FIGURE 1.4-2

SHEEP MOUNTAIN EXISTING CONDITIONS

1.4.2 Construction Phase

Prior to the start of operations, an administration office, shop, warehouse, and guard house will be built on the west end of the site near the entrance to the Project. A processing facility consisting of a 40-acre heap leach pad and process plant will be constructed in the southwest corner of the site just north of the McIntosh Pit Lake. An overland conveyor system will be constructed from the reclaimed Paydirt Pit area (Paydirt area) to the heap leach facility. An ore pad will be constructed near the front end of the overland conveyor where ore will be stockpiled until it can be fed to the conveyor. The heap leach facility will consist of a constructed pad covered with multiple synthetic liners. The heap leach pad will drain to lined solution ponds. The process plant will consist of a solvent extraction (SX) system and a precipitation and packaging system. Prior to the start of underground development, a mine shop and dry (i.e., change house) will be added in the Paydirt area near the portals to the new double-entry decline. Figures 1.4-1 and 1.4-3 show the locations of the mine buildings, overland conveyor, heap leach pad, and process plant. Approximately 106 acres of surface area will be disturbed in constructing the heap leach facility and process plant. The majority of the area has been previously disturbed (new disturbance is approximately 29 acres). Access roads and utilities for the mine and processing facility are existing or will be constructed internally within the proposed disturbance areas for the mine and processing facility.

1.4.3 Operations Phase

The uranium deposit dips from north to south meaning that the ore is located relatively close to the surface on the north side of the site and becomes progressively deeper to the south. The shallow ore on the north end can be mined economically using open-pit surface mining methods at the Congo Pit. This will be done using scrapers, hydraulic excavators, and haul trucks. The ore will be hauled to the Paydirt area where it will be stockpiled on an ore pad for later transport to the heap leach facility. The initial waste rock from the open pit mining operation will be placed in Spoil Piles 1 and 2. Waste rock mined in the latter stages of mine operations will be concurrently used as backfill in other portions of the Congo Pit. The Congo Pit at full development will encompass approximately 210 acres within the pit crest and approximately 20 additional acres along the edge of the pit crest which will be disturbed to provide access around the pit and to construct external drainage ditches. The drainage ditches will also serve as highwall warning ditches. The two Spoil Piles combined will cover approximately 147 acres. Figures 1.4-1 and 1.4-3 show the locations of the Congo Pit and Spoil Piles.

The deeper ore in the southern portion of the site will be accessed by the aforementioned existing shafts and declines plus two new declines that will be driven in a southeasterly direction from the Paydirt area to the bottom of the ore deposit. These declines, shown on Figure 1.4-1, will be 5,470 feet in length with a downward slope of 10 percent. Underground mining will consist of drilling, blasting, and mucking (i.e., excavating the ore) using standard underground mining equipment. The mined ore and a portion of the waste will be hauled by low-profile trucks and loaders to a conveyor located in one of the new declines where it will be transported to the surface. The ore will be stockpiled for transport to the heap leach facility while the waste rock will be hauled to Spoil Pile 1. Approximately 19 acres of land in the reclaimed Paydirt pit area

will be affected. This will include the ore pad that will be used to stockpile ore from the underground and surface mining operations, a mine shop and dry/administration building for the underground operations, and portable trailers with meeting/lunch rooms and bathrooms for the open pit operations.

Ore will be transported by overland conveyor from the Paydirt ore stockpiles to the processing facility where it will be stacked on the heap leach pad using a radial stacker. The ore is leached by applying a sulfuric acid solution over the top of the heap using low-flow emitters. The acid percolates through the stacked ore and uranium and other metals are dissolved and enter into solution. The metal-laden solution, referred to as pregnant leach solution (PLS), is then collected in lined ponds below the pad and pumped to the SX circuit of the plant. The uranium is selectively removed from the pregnant solution using an organic collector. It is then further concentrated using a stripping solution and sent to the precipitation and packaging system where a yellow uranium oxide product, better known as yellowcake, is produced. The yellowcake is packaged in 55-gallon, Department of Transportation (DOT) approved drums and shipped out of state via truck to a conversion plant, which is the first step in converting the yellowcake into fuel rods for nuclear power plants. The process plant will also include a warehouse and shop, laboratory, offices, and dry. The total disturbance associated with the processing facility including the heap leach pad, ponds, and process plant is approximately 106 acres.

1.4.4 Reclamation Phase

The surface disturbances associated with the Project will be reclaimed at the end of the Project life. Reclamation will include backfilling the Congo Pit and regrading the surface to approximate original contours. The declines and vent shafts will be permanently sealed. Mine buildings will be demolished and the materials recycled or transported to a landfill. Concrete foundations will be broken up and buried. Mining equipment will be removed from the site. Topsoil or other suitable growth media will be placed on the regraded areas and revegetated. Figure 1.4-4 shows the reclaimed site.

Decommissioning and reclamation of the heap leach facility and process plant will be conducted under the jurisdiction of the Nuclear Regulatory Commission (NRC). Equipment from the plant that can be cleaned to meet NRC release standards will be removed from the site. The remainder of the plant structure and equipment will be shredded or broken into smaller pieces and buried in the heap. The heap will be regraded and an engineered cover placed over the pad and ponds. Drainages will be rock armored where necessary and disturbed surface areas will be regraded, covered with topsoil, and revegetated. The reclamation plan will be designed to provide for long-term stability under the maximum probable precipitation event, earthquakes, and other extreme conditions. After reclamation is complete, Energy Fuels will continue to monitor the site until the NRC approves a transfer of the land and title to the Department of Energy’s legacy program for long-term care and maintenance.

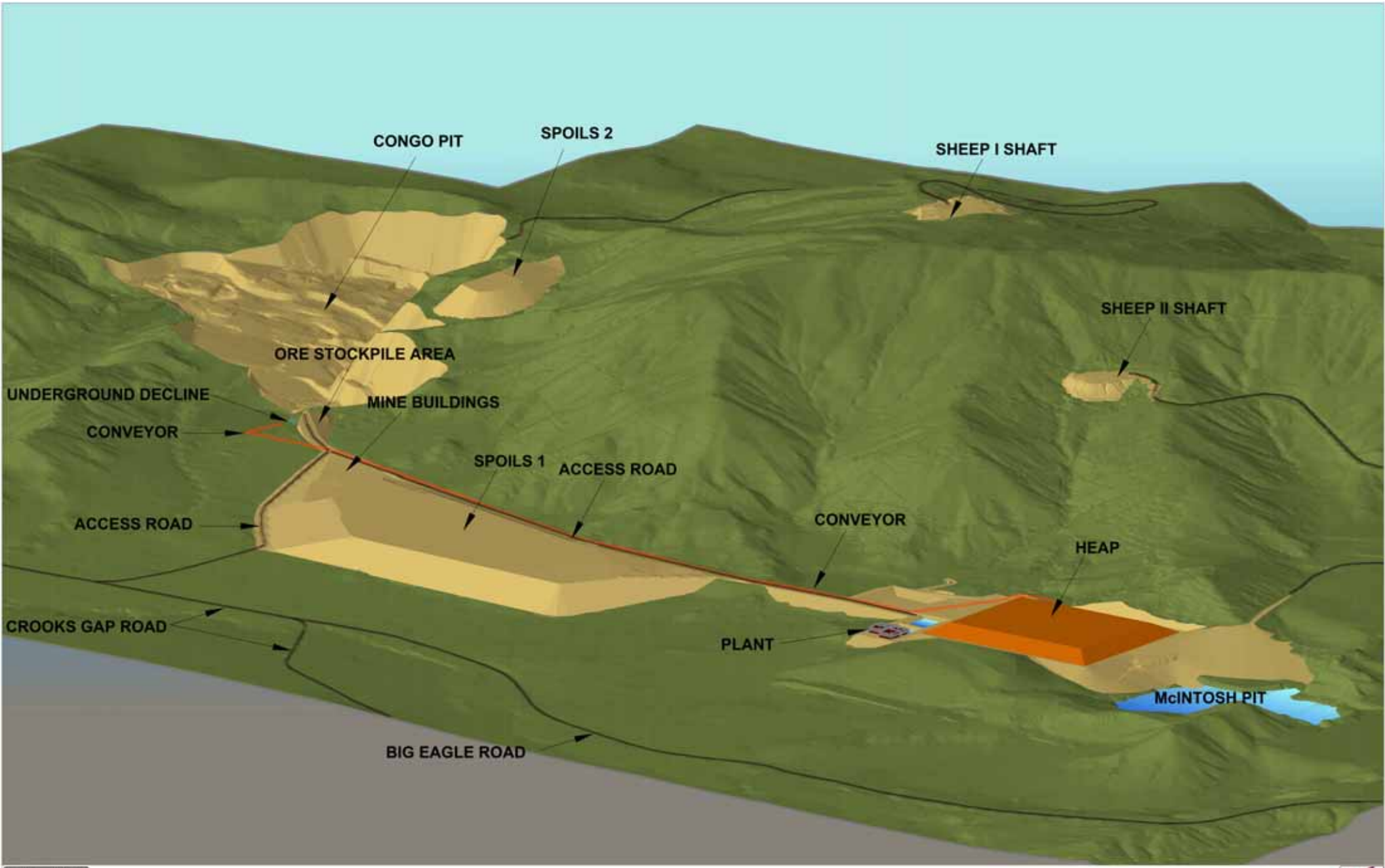

FIGURE 1.4-3
SHEEP MOUNTAIN MINE DURING CONSTRUCTION

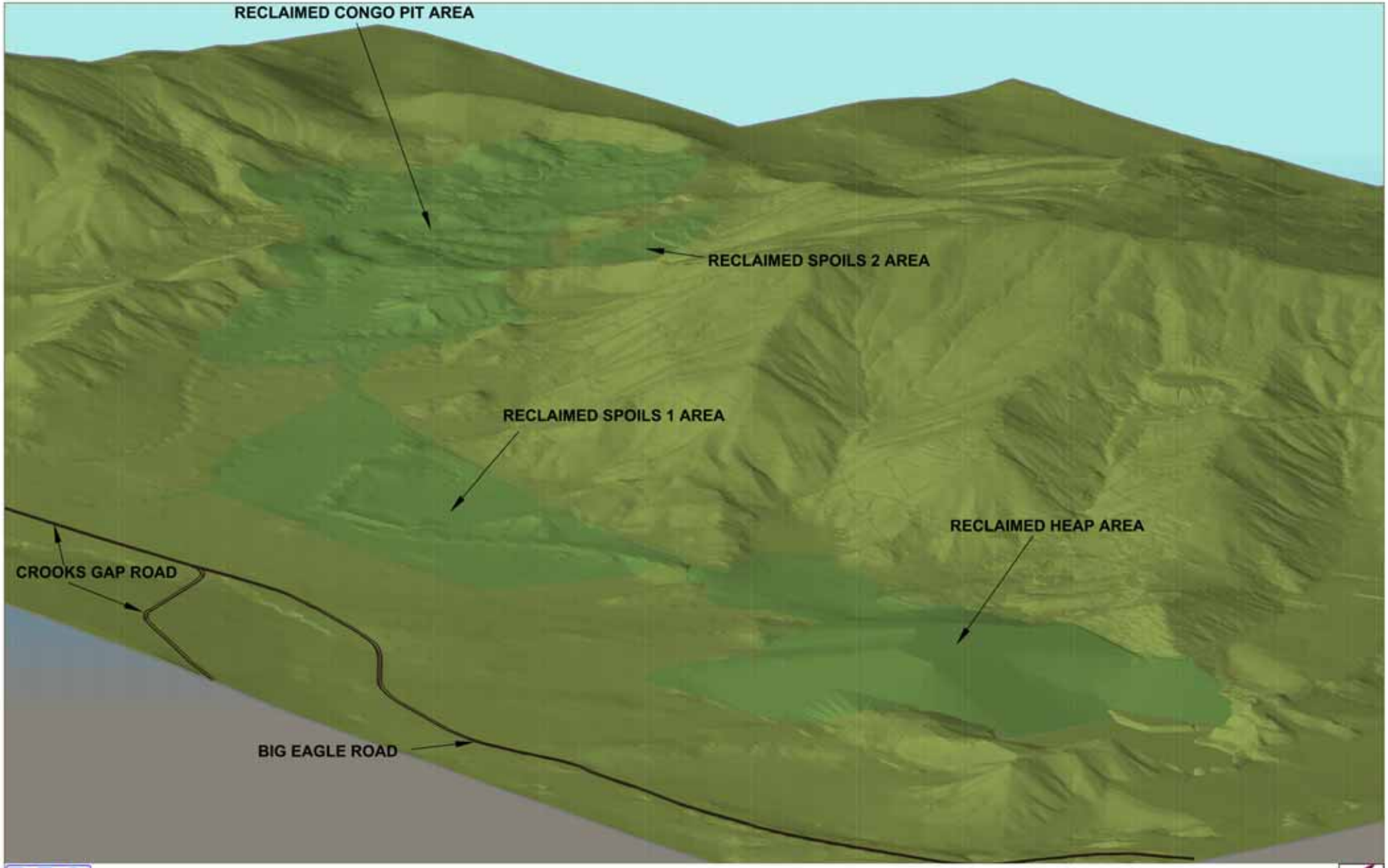

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FIGURE 1.4-4

SHEEP MOUNTAIN MINE RECLAMATION

1.5 PROJECT PERMITTING

The Project will require numerous local, state, and federal permits and approvals in addition to BLM's approval before mining and processing operations may proceed forward. The primary permits are summarized in the table and discussion below.

Table 1.5.0 – Sheep Mountain Project Permits, Approvals and Clearances

	Agency	Required Permit, Approval or Clearance
Local	Fremont County	Development Permit
State of Wyoming	Land Quality Division	Mine Permit
	Air Quality Division	Air Quality Permit
	Water Quality Division	Storm Water Permit
	State Engineers Office	Water Rights, Dam Permits, Well Permits
	State Historic Preservation Office	Cultural Resource Clearance
	Abandoned Mine Land Division	McIntosh Reclamation Funding
Federal	Nuclear Regulatory Commission	Radioactive Materials License
	Environmental Protection Agency	Construction Approval - Radon Emissions, Potable Water Systems Approvals

1.5.1 Local Permits

A project development permit and building permits are needed from the Fremont Board of County Commissioner. Applications for these permits will be made after the permitting with the state and federal agencies is more advanced.

1.5.2 State of Wyoming Permits

Amendments to existing permits, new permits, and clearances will be needed from various state agencies as discussed below.

Land Quality Division (LQD): Energy Fuels has existing permits for exploration drilling and to mine and reclaim the Congo Pit and the Underground Sheep Mine. An amendment to the existing mine permit will be submitted to LQD to expand the size of the pit and underground operations and add the heap leach operations. As of July 2012, a reclamation bond in the amount

of $1,754,687 was in place with LQD for the existing surface disturbance at the site including funds allocated toward reclaiming a portion of the McIntosh Pit (see Part 9). This bond amount will be adjusted over the course of the Project to reflect on-site reclamation commitments. Details on the current active permit with LQD follow.

Active Mine Permit: Wyoming Department of Environmental Quality (WDEQ)
Mine Permit Number 381C.

(a) Mine Permit Number 381C issued 8/15/1975 – Western Nuclear
Amendment A-1 issued 12/2/1975
Amendment A-2 issued 5/30/1978
Amendment A-3 issued 6/29/1979
Amendment A-4 issued 9/25/1981
Amendment A-5 issued 11/16/1982

Transferred to USE/CC on 6/14/1988
Transferred to Uranium One on 6/25/2007
Transferred to Titan Uranium USA Inc. (Titan) on 10/1/2009
Titan Uranium USA Inc. name changed to Energy Fuels Wyoming Inc. on 3/9/2012

(b) Issued for the mining of uranium oxide.

Air Quality Division (AQD): Energy Fuels will be required to obtain a construction permit from AQD for fugitive dust and other air emissions from mining and processing operations. Based on preliminary discussions with the agency, the site is expected to be categorized as a minor source.

Water Quality Division (WQD): Energy Fuels has a general storm water permit for the site and a storm water pollution prevention plan in place. The storm water plan will need to be updated prior to the start of construction to encompass the new facilities and mining activities. Although the permit is issued by WQD, personnel from LQD are responsible for regulatory oversight of storm water discharges at mine operations. Energy Fuels does not anticipate the need for discharging process water or mine water from the Project as the water will be consumed on site and evaporated. Should water discharge become necessary, an application to discharge would be submitted to the Wyoming Pollutant Discharge Elimination System (WYPDES) Program.

State Engineers Office (SEO): As part of the permitting process, Energy Fuels will check and update (where necessary) existing water rights, small dam permits, and water well permits.

Wyoming Game and Fish Department (WGFD): With the permission of the WGFD, water and fish samples were obtained from the isolated, man-made pond located south of the proposed heap leach pad. These samples were analyzed for radionuclides to establish background levels for the NRC license application. Fish samples were not taken from Crooks Creek because of the limited fish population in this creek. Specific permits from the WGFD are not needed based on the environmental baseline studies and surveys conducted to date. WGFD will review and comment on the LQD mine permit revisions in accordance with cooperative agreements between the two state agencies.

State Historic Preservation Office (SHPO): The mine permit area has been surveyed for cultural resources and no National Register of Historic Places (NRHP) eligible sites were found on site. Several historic NRHP sites are located near the property, but the SHPO has ruled that the visual setting for these sites (i.e., the mining backdrop) is not a contributing factor to their eligibility.

Abandoned Mine Land (AML) Division: The AML plans to reclaim the McIntosh Pit, starting in the spring of 2013. A portion of Energy Fuels' reclamation bond is for reclamation at the McIntosh Pit and will be released to the AML for that purpose. Energy Fuels will also work cooperatively with the AML in providing access and coordinating activities on site. The McIntosh Pit is located entirely on private lands.

1.5.3 Federal Permits

In addition to approval from the BLM, the Project will require a radioactive materials license with the NRC and several permits with the Environmental Protection Agency (EPA) Region 8 (see discussion below). A permit with the U.S. Army Corp of Engineers is not required, as there are no proposed activities in streams or wetlands. There are also no known threatened, endangered, or sensitive species on site that would require consultation with the U.S. Fish and Wildlife Service under the Endangered Species Act.

Nuclear Regulatory Commission (NRC): Energy Fuels will submit a radioactive materials license application consisting of a Technical Report (TR) and an Environmental Report (ER) to the NRC for the heap leach and processing area. These documents will be reviewed on parallel paths by the NRC, which will issue Requests for Additional Information (RAIs) when additional detail is required. Once the reports are deemed to be acceptable, a separate EIS and License Decision will be prepared by the NRC.

Environmental Protection Agency (EPA): Construction applications for radon emissions will be submitted to the EPA for the heap leach facility and the Sheep Underground Mine in accordance with the National Emission Standards for Hazardous Air Pollutants (NESHAPs). Under the Clean Air Act, the modeled incremental radon dose to the nearest general public receptor (typically the closest residence) must be maintained below10 millirem per year. New regulations for radon emissions from uranium processing areas are currently being written by the EPA and could impact the heap leach facility design. The Sheep Underground Mine application will not be submitted until later, as the underground portion of the Project will be deferred for one to five years after the start of the Project. Plans for the potable water systems at the mine buildings and at the process plant will also need to be approved by EPA Region 8.

1.6 PROJECT SCHEDULE

The Project schedule is dependent on a variety of factors including permitting and licensing, as well as market and financial circumstances. The current schedule anticipates that it will require 3 years to permit the Project with various state and federal agencies and about 9 months to construct the processing facility. Since the ore is close to the surface on the north end of the Congo Pit, the mine should be in production within about a few weeks after startup. Ore will then be stockpiled on the ore pad until the heap leach pad is constructed and ready to receive ore.

The underground mine startup will be deferred for 1 to 5 years after the start of the open pit operation. It will require about 18 months of development before the underground mine can be put into production.

The currently planned mine life of the open pit is 15 years with an additional 5 years allotted for mine closure and reclamation. The currently planned mine life of the underground is 11 years once it is in production plus an additional 1 to 2 years for reclamation. The processing facility is designed to accommodate the mined material from both open pit and underground mine operations over an operating life that will be several years longer than the mine life. Typically, heap leach operations shift to a rinse down stage prior to closure during which time product continues to be recovered. Reclamation of the processing facility is expected to require approximately 2 to 3 years, but could extend longer if placement of the final cover is delayed pending adequate settlement of the interim cover.

After closure and reclamation are complete, monitoring of mine reclamation and water quality will continue until the LQD and BLM determine that the reclaimed areas meet the standards for full release. Monitoring of the reclaimed heap leach and pond area will continue until the NRC, in consultation with the DOE, determine that this area meets the standards for transferring the property to the DOE for long-term care and maintenance. The post-reclamation monitoring period is expected to extend over a minimum of three years for the reclaimed mine areas and a minimum of 5 years for the reclaimed heap leach area.

Part 2 – Existing Site Conditions

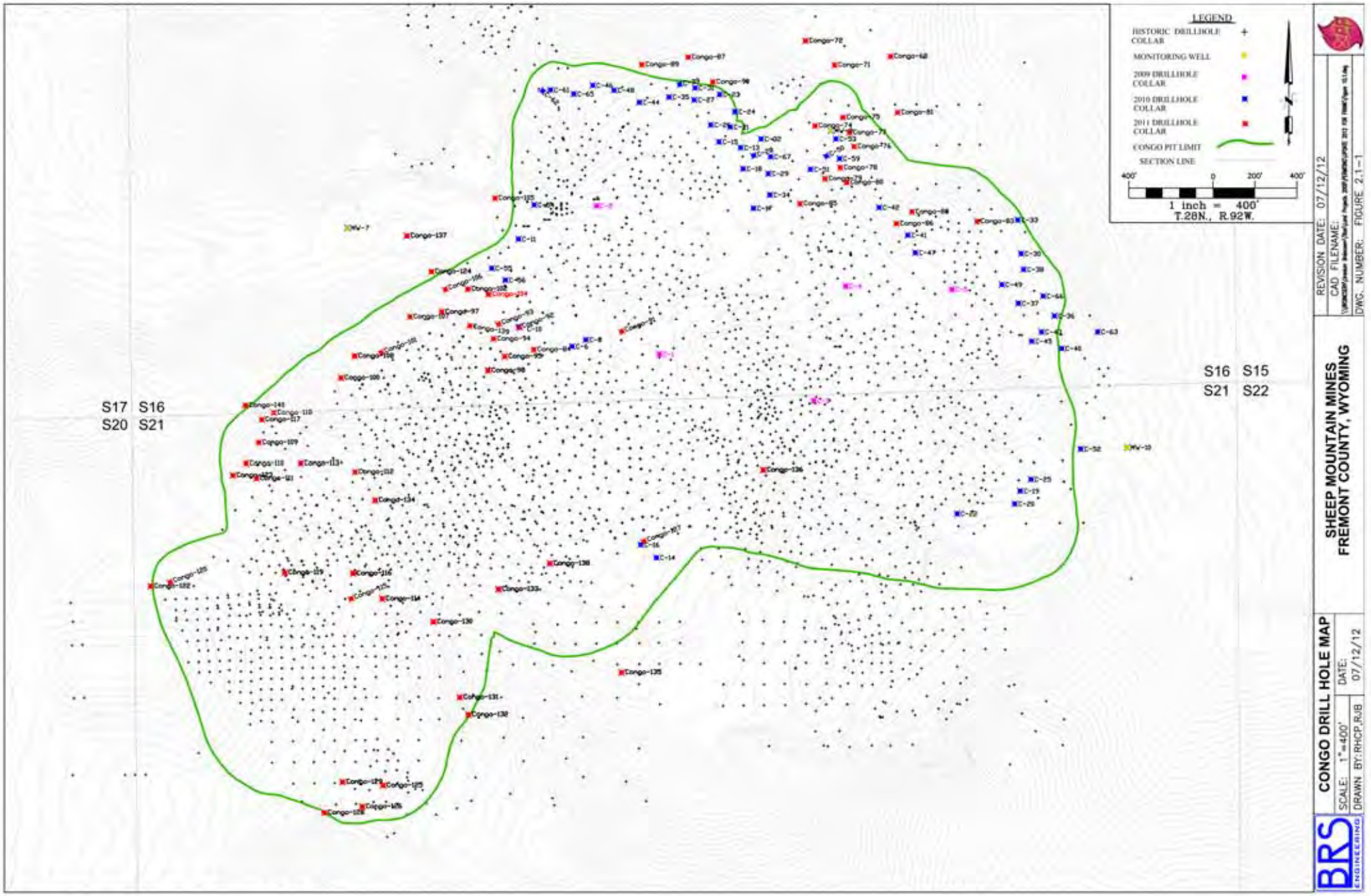
2.1 EXPLORATION DRILLING

Uranium was discovered in Crooks Gap in 1953. Literally thousands of drill holes have been completed at the Project site since that time. Figure 2.1-1, Congo Drill Hole Map, shows the location of the historic drill hole collars, 2009 to 2011 drill hole collars, and monitoring wells within and adjacent to the projected Congo Pit limits. Historic drill holes and associated access roads and pad that were completed prior to the passage of state laws and rules in the mid-1970s have not been reclaimed. Exploration activities since that time have been reclaimed including the 140 drill holes completed during the 2009 to 2011 time frame.

There has also been extensive historic drilling associated with the Sheep Underground Mine and the Sun-MC deposit that is located between the McIntosh Pit and the Sheep Underground Mine. The locations of these drill holes are shown on Figures 2.1-2 and 2.1-3. There has been no recent exploration activity in these areas. There are numerous old drill roads and pads in these areas, as most of the drilling activity occurred prior to the implementation of the state's mine reclamation program

2.2 HISTORIC MINING

Mining operations conducted by Western Nuclear at the site began in 1956 with the first ore shipped in 1957 to its Split Rock mill. The earlier operations in the 1950s and 1960s included the Seismic open pit and underground mines, the Reserve underground mine, the Paydirt open pit and underground mines, and the Golden Goose underground mine. Other smaller mines during this period included the Snoball, Heald, Congo, and the Incline. Ores from the early, non-Western Nuclear, mining operations were shipped to the Susquehanna Western mill located near Riverton, Wyoming. In the early to mid-1970s, the Golden Goose II and Sheep Mountain underground mines and the McIntosh Open Pit were started. Figure 2.2-1 shows the extent of historic open pit and underground mining at the site.



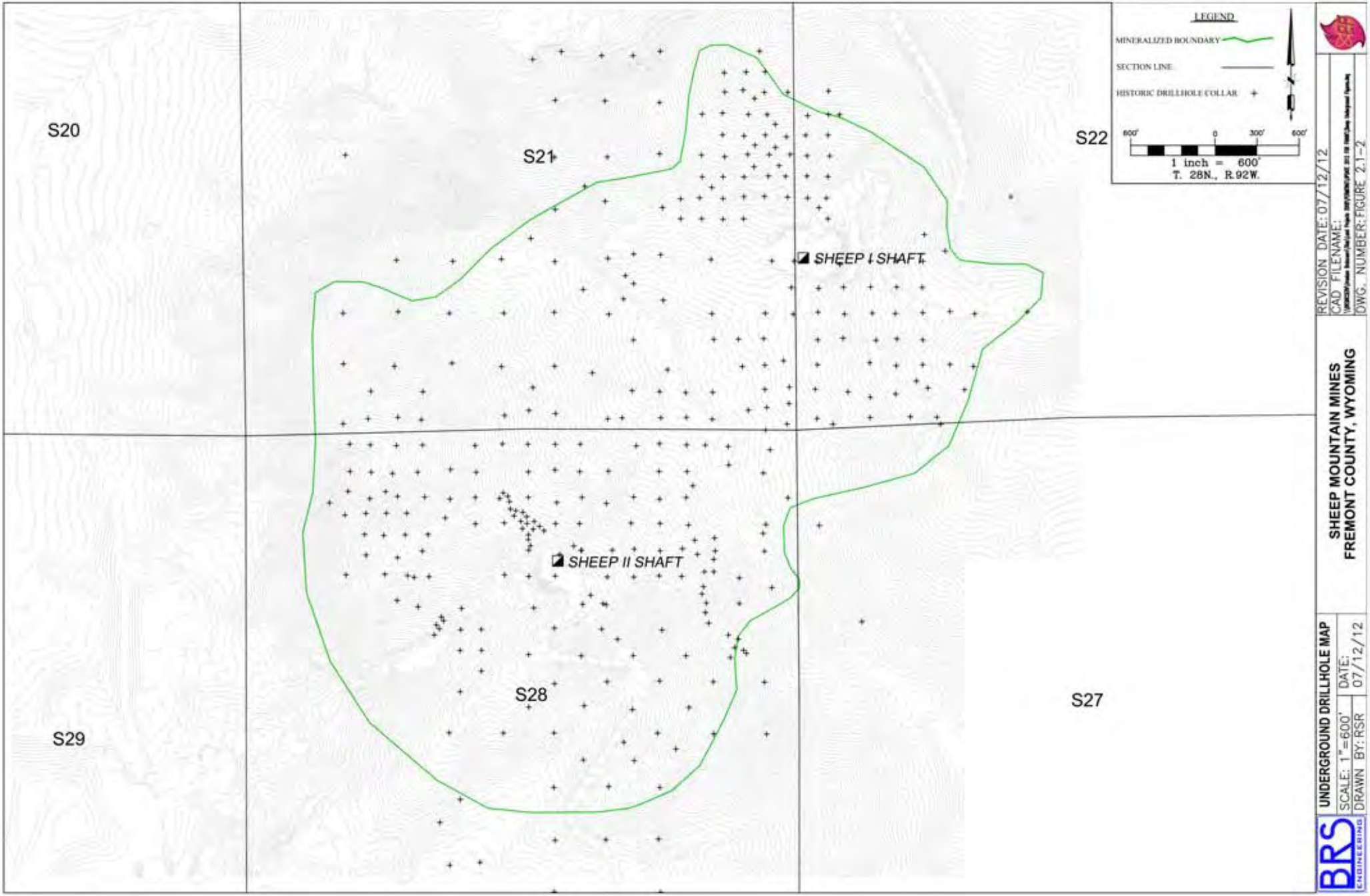
REVISION DATE: 07/12/12
CAD FILENAME:
DWG. NUMBER: FIGURE 2.1-1

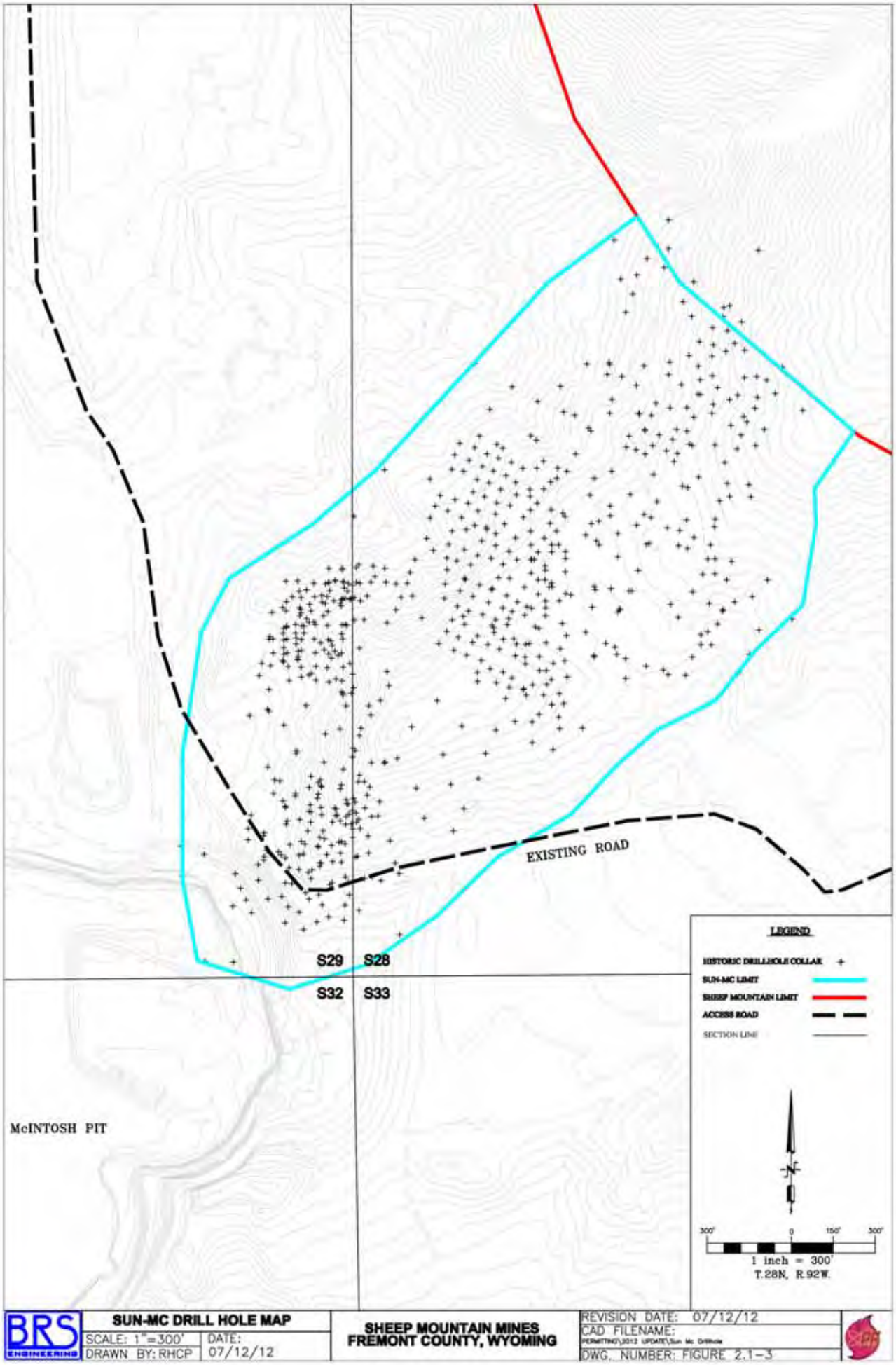
SHEEP MOUNTAIN MINES
FREMONT COUNTY, WYOMING

CONGO DRILL HOLE MAP

SCALE: 1"=400'
DRAWN BY: RHCP,RJB
DATE: 07/12/12

BRS ENGINEERING


S20
S21
S22
S28
S29
S27
SHEEP I SHAFT
SHEEP II SHAFT
LEGEND
MINERALIZED BOUNDARY
SECTION LINE
HISTORIC DRILLHOLE COLLAR
600' 0 300' 600'
1 inch = 600'
T. 28N., R.92W.
UNDERGROUND DRILLHOLE MAP
SCALE: 1"=600'
DRAWN BY: RSR
DATE: 07/12/12
BRS ENGINEERING
SHEEP MOUNTAIN MINES
FREMONT COUNTY, WYOMING
REVISION DATE: 07/12/12
CAD FILENAME:
DWG. NUMBER: FIGURE 2.1-2



BRS ENGINEERING

SUN-MC DRILL HOLE MAP

SCALE: 1" = 300' | DATE: 07/12/12

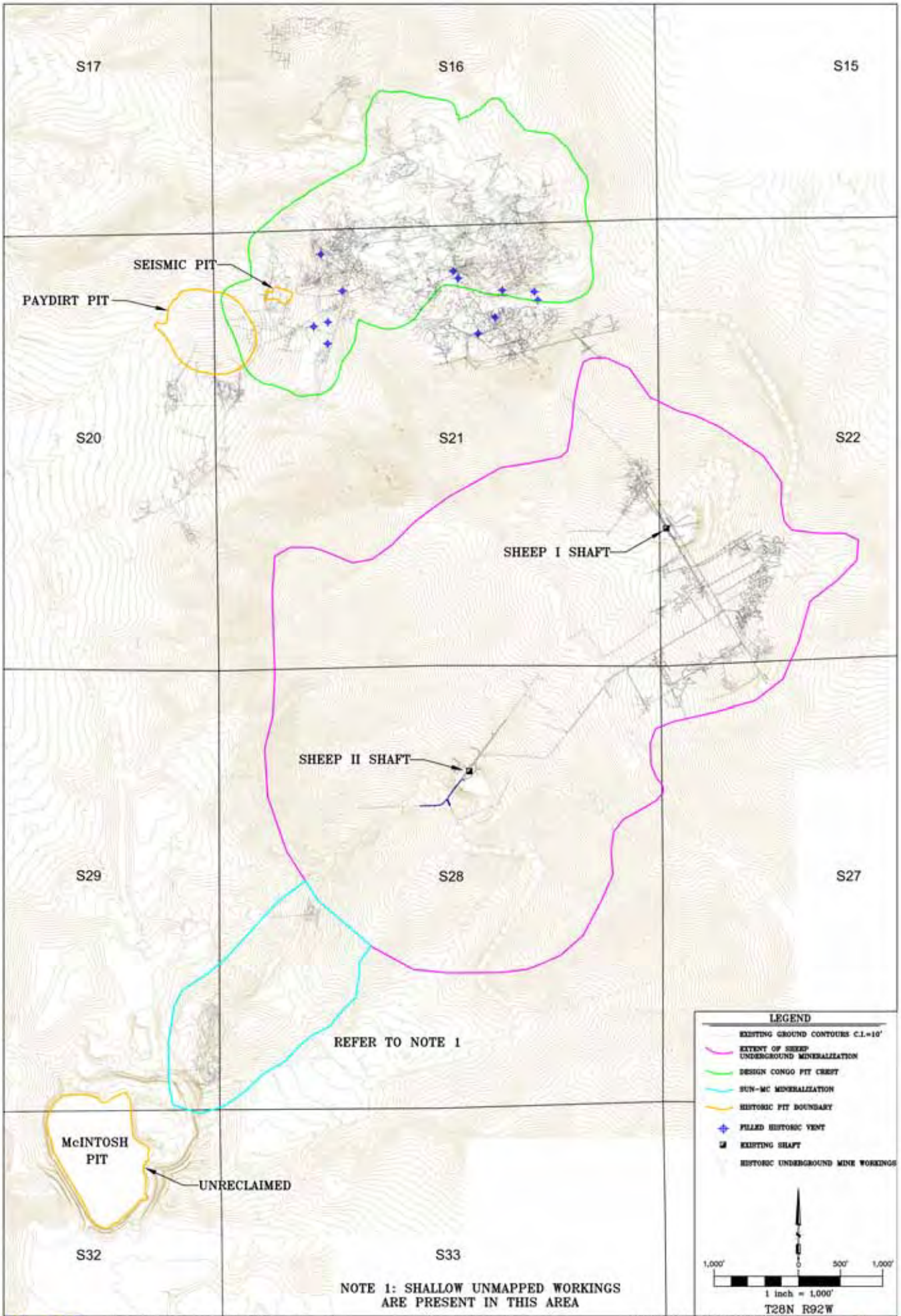
DRAWN BY: RHCP

SHEEP MOUNTAIN MINES
FREMONT COUNTY, WYOMING

REVISION DATE: 07/12/12

CAD FILENAME:
PERMITTING\2012 UPDATE\Sun Mc Drillhole

DWG. NUMBER: FIGURE 2.1-3



NOTE 1: SHALLOW UNMAPPED WORKINGS ARE PRESENT IN THIS AREA

BRS ENGINEERING	HISTORIC MINE WORKINGS SCALE: 1"=1000' DATE: DRAWN BY:RCP/CDS 6/20/12	SHEEP MOUNTAIN MINES FREMONT COUNTY, WYOMING	REVISION DATE: 07/12/12 CAD FILENAME: DWG. NUMBER: 2.2-1

2.3 RECLAIMED AREAS

The first mine reclamation requirements in Wyoming were implemented in 1969 through the Open Cut Reclamation Act. Subsequently in 1973 the Wyoming Environmental Quality Act was enacted and in 1975 the first Rules and Regulations were promulgated under the 1973 Act. Mine operations at Sheep Mountain were first licensed under the 1969 Act and later permitted under the 1973 Act with the issuance of Mine Permit 381C which remains in full force and effect. As a result of this 60 year history of mining and mine land reclamation, various portions of the mine permit were operated and reclaimed under varying degrees of regulations and to varying reclamation standards.

Figure 2.3-1 shows the areas on site that have been reclaimed and those that are currently bonded for reclamation. The table below provides a summary of the acreages reclaimed and currently bonded. The AML Division has reclaimed much of the pre-law surface disturbance including the Paydirt Pit and the Seismic Shaft areas. Additional areas of historic mine-related disturbance, including exploratory adits, exploration cuts and roads, have been inventoried by AML but are of a low priority for reclamation under the current program. Energy Fuels has no outstanding reclamation responsibility for these disturbances. Currently, the only significant mine related disturbance, with respect to AML, is the McIntosh Pit as discussed in Section 1.5.2.

Table 2.3.1 - Reclaimed and Bonded Acreages

Reclaimed Areas			
Entity	Era of Disturbance	Era of Reclamation	Acres
AML	Pre 1977 (SMCRA)	1990-2009	210.5
Titan	Post 1973	2009-2011	18.6
US Energy	Post 1973	2003-2006	67.6
Western Nuclear	Pre 1973	Pre 1973	213.3
Western Nuclear	Post 1973	1979-1988	9.5
TOTAL RECLAIMED			519.50
Bonded Areas			
Sheep I Road	1975	Bonded	36.4
Sheep I Shaft	1975	Bonded	15.6
Sheep II Road	1975	Bonded	38.0
Sheep II Shaft	1975	Bonded	10.5
McIntosh Pit	1973	Bonded	129.2
Big Sheep Decline	1993	Bonded	3.9
Powerline ROW	2011	To be Bonded 2012	7.0
TOTAL BONDED			240.6

The areas currently bonded for reclamation include the two existing access roads (acreage included in Sheep I and Sheep II roads) into the site, portions of the McIntosh pit and spoil pile,

the roads to the Sheep I and II mines, the Sheep I and II shafts and associated spoil piles, and the Sheep Decline area. The Sheep II spoil pile (5.1 Acres) was reclaimed in 2011, but is still bonded with LQD for revegetation. Details regarding current mine reclamation commitments follow.

1. Existing Sheep declines. This site work will include bulk heading, site re-grading, replacement of topsoil and revegetation. Reclamation will be completed once the declines are no longer needed for access or ventilation.

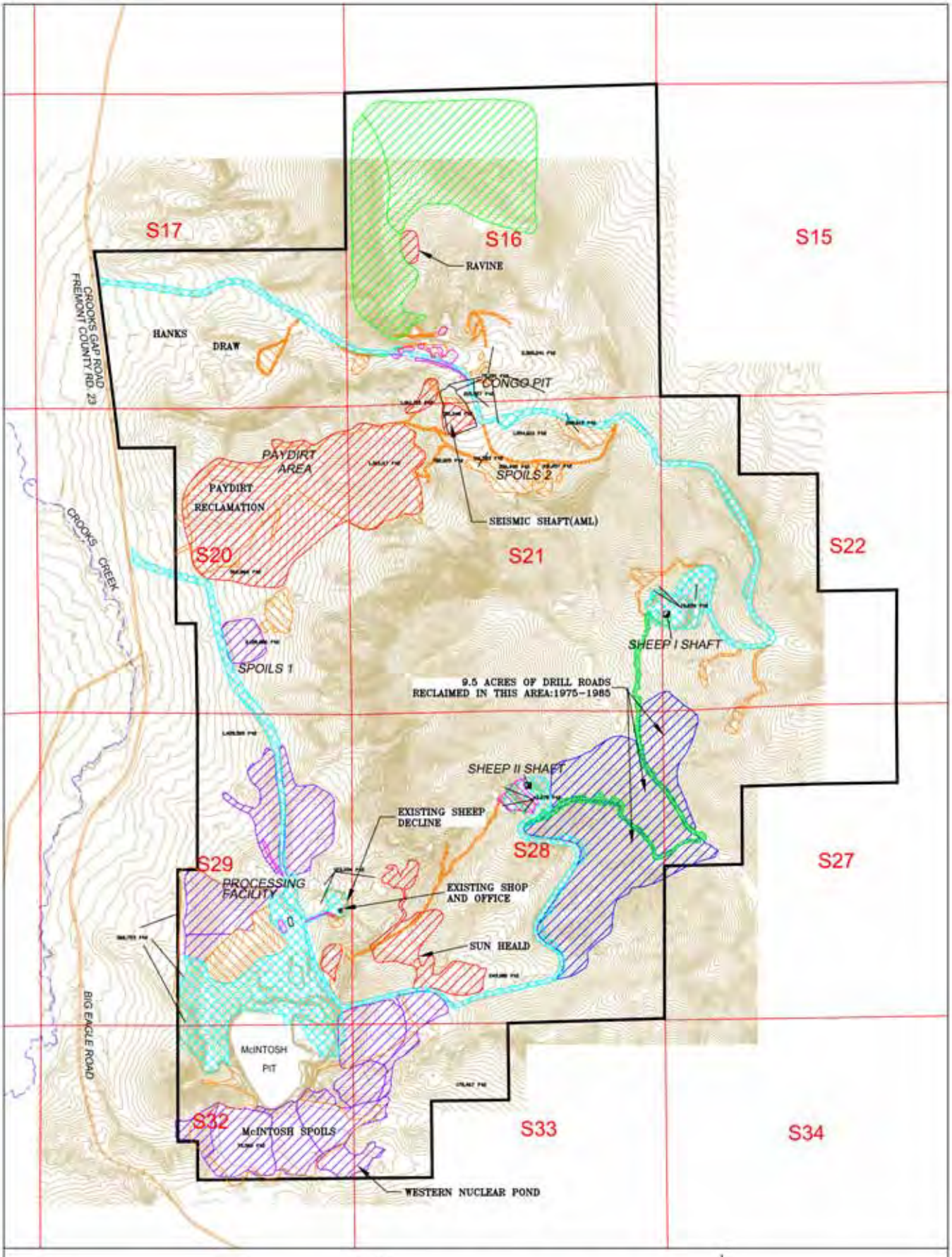
2. Sheep I cap. This site work, which included the installation of a permanent surface cap over the shaft, was completed in 2011. The cap includes access ports for monitoring and dewatering.

3. Access Roads. This site work applies to the site access roads as shown on the Operating Plan, Map 4.1. Portions of the existing access road will be reclaimed and/or will be incorporated into the proposed disturbance area once mine operations commence, as follows:
    b. The Sheep I Road has three segments totaling 36.4 acres.
        i. Segment 1, Hank's Draw from county road to the pit (13.8 acres): This road will be removed and reclaimed once it is no longer needed to support exploration and mining activities.
        ii. Segment 2, The portion affected by the Congo Pit (6.0 acres): Reclamation of this portion of the road is included with the pit. Internal access roads across the pit area will be maintained during operations and will be relocated as needed during pit operations.
        iii. Segment 3, The portion from the pit to the Sheep I shaft (16.6 acres): This portion of the road will need to remain until the end of mining and reclamation.
    c. The Sheep II Road has three segments totaling 38 acres.
        i. Segment 1, From the county road to the Project access control gate at the edge of disturbance related to Spoil Pile 1 (0.9 acres): This portion of the road will need to remain until the end of mining and reclamation.
        ii. Segment 2, From the Project access control gate across Spoil Pile 1 and through the processing facility area (24.2 acres): Reclamation of this portion of the road is included in the Spoil Pile 1 reclamation and/or the processing facility reclamation. Internal access roads through the processing facility area will be maintained during operations and will be relocated as needed during operations.
        iii. Segment 3, From the processing facility to the Sheep II shaft (12.9 acres): This portion of the road will need to remain until the end of mining and reclamation.

1. McIntosh Shop Area. In 2011, the mine shops were demolished and all material removed. In concert with this activity, although not required by the mine permit, the solid waste facility was excavated and removed. Sellable scrap metal was salvaged; all other solid waste was properly disposed of off-site at the Fremont County facility.

2. Sheep I and II shaft areas. The currently approved reclamation plan requires re-grading of the mine spoils and reclaiming them in-place subsequent to capping of the shafts. The proposed Operation Plan will maintain the shafts for dewatering, mine ventilation, and emergency ingress and egress. Mine spoils, including low grade ore stockpiles, are to be removed from the site under the new proposed plan. However, final reclamation will not be completed until such time as mining is completed at the Sheep Underground Mine. Mine spoils from the Sheep II shaft area were removed in 2011 and backfilled in the northern portion of the McIntosh Pit. Mine spoils at the Sheep I shaft will be backfilled in the Congo pit when a suitable backfill area can be established. Stockpiled ore will be processed at the proposed heap leach facility.

3. McIntosh Pit. The current approved reclamation plan requires Energy Fuels to reduce one-half of the current highwall (northern and western sides) for access and allows the remaining highwalls and ground water impoundment to remain as a reclamation reservoir. The Wyoming Department of Environmental Quality, Abandoned Mine Lands Division (AML) has determined the McIntosh pit to be eligible for its program once the bond obligation has been met. A portion of the north highwall was partially backfilled in 2011 as part of the removal of mine spoils from the Sheep II shaft area. The remaining highwall reduction obligation will be met by backfill during construction of the heap pad (refer to Map 4.1, Operating Plan). Based on discussions with AML and current practices for similar sites, it is anticipated that AML will seek approval to backfill the McIntosh pit above the expected ground water recovery level and reduce the highwalls that would remain once Energy Fuels' reclamation obligation has been met. In addition, AML would likely consider reclamation alternatives for the establishment of flow through surface drainage.



BRS ENGINEERING	**EXISTING CONDITIONS**	**SHEEP MOUNTAIN MINES**	REVISION DATE: 07/12/12
	SCALE: 1"=1,500' DATE: 7/9/12	**MINE PERMIT 381C**	CAD FILENAME: LP2008/PERMITING/EXISTING CONDITIONS
	DRAWN BY: CDS		DWG. NUMBER: FIGURE 2.3-1

Part 3 – Construction Plan

3.1 SITE ACCESS AND UTILITIES

Primary access roads and the majority of utility services and right-of-ways are pre-existing. The site is currently accessed off of Crooks Gap Road by the Hank's Draw Road and the Project Access Road as shown on Figure 3.1-1. Both roads will remain in place through the construction period and the initial development of the Congo Pit. Once the Congo Pit is in operation, the Hank's Draw Road to the pit will be reclaimed. The Project Access Road will be extended east to the Congo Pit. Access to the Sheep I shaft will be provided by a new road along the southeast perimeter of the pit. The new access road will be located within the disturbance limits of the open pit and will be relocated periodically as the open pit mining and sequential backfill proceeds. A similar situation will occur in the southern portion of the site, as the construction of Spoil Pile 1 and the heap leach facility will require the construction of a new access road from the administration office area near the site entrance to the processing facility and Sheep II Road.

3.1.1 Site Access

Mine Permit 381C boundaries will generally not be fenced but will be demarked with appropriate signage. However, access to the site will be controlled by barbed-wire fencing and/or gating at all defined points of ingress and egress to Mine Permit 381C and internally at the Radiation Control boundary with chain-link fence topped with barbed wire (see Figure 3.1-2). Public access to the mine and heap leach facility will be controlled through a single entrance at the Project Access Road with a guard shack manned during operating hours and gated at all other times. The Hank's Draw road will be gated and opened only as needed for deliveries (e.g., mine equipment, road materials), maintenance, and inspections.

The mine facility will be regulated by the Mine Safety and Health Administration (MSHA) and the State Mine Inspectors Office. Any persons wishing to enter the facility will be required to sign in and complete safety training as required by regulations and be equipped with proper Personal Protective Equipment (PPE) depending on which areas they wish to enter.

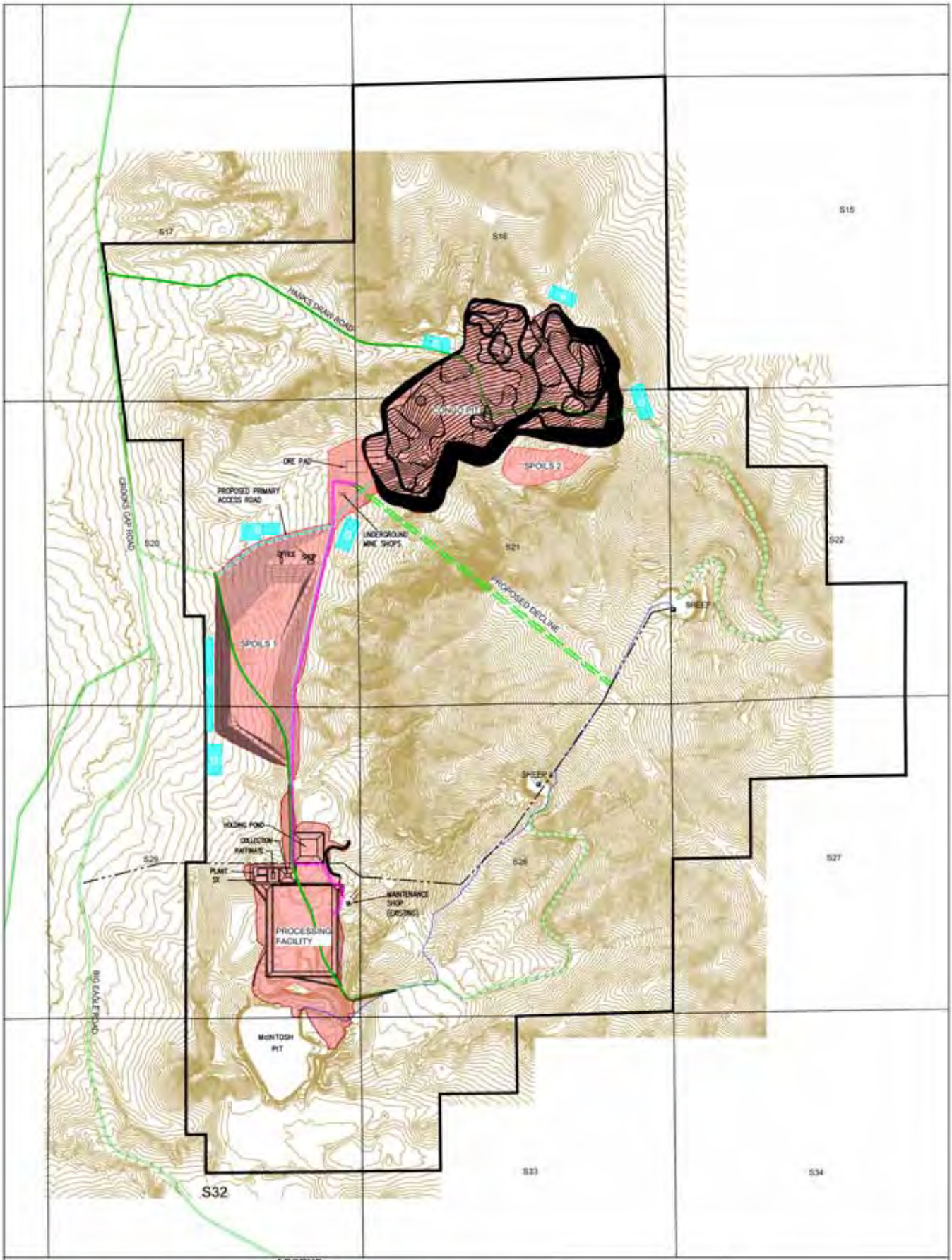
The heap leach processing facility is internal to the mine permit and will be enclosed by additional fencing as shown on Figure 3.1.2. The entrance to the radiation control area will be through the processing facility's administration building, which will be manned during operating hours and locked at all other times. The processing facility will be regulated by the Nuclear Regulatory Commission and MSHA. In addition to confirming safety training all visitors accessing the radiation control area will be subject to radiometric scanning prior to leaving the area.

3.1.2 Site Utilities

Electrical power lines for the site currently run from the Big Eagle Road through the proposed processing facility and then up a right-of-way corridor to the Sheep II and Sheep I shafts as shown on Figures 3.1-1 and 3.1-3. The buildings will be heated using natural gas. This line will come into the processing facility from a main line located along Big Eagle Road. Electrical

power and natural gas for the administration office and other buildings located by the Project entrance will come either from the processing area or as a separate line into the site from Crooks Gap Road using existing right-of-ways as shown on Figure 3.1-3. The decision on which route to take will be made during final design of the Project.

An existing eight-inch water line extends from the Sheep I shaft to the McIntosh Pit. A large submersible pump in the shaft will be used to dewater the mine and supply non-potable water for leaching and processing, dust suppression on the site roads, fire suppression systems, and washing equipment. Potable water will initially be supplied by Jeffrey City Water and Sewer District via water trucks. A water treatment system will ultimately be permitted and constructed on site to treat well water for potable use at the various buildings on site.



BRS ENGINEERING

PROJECT LAYOUT

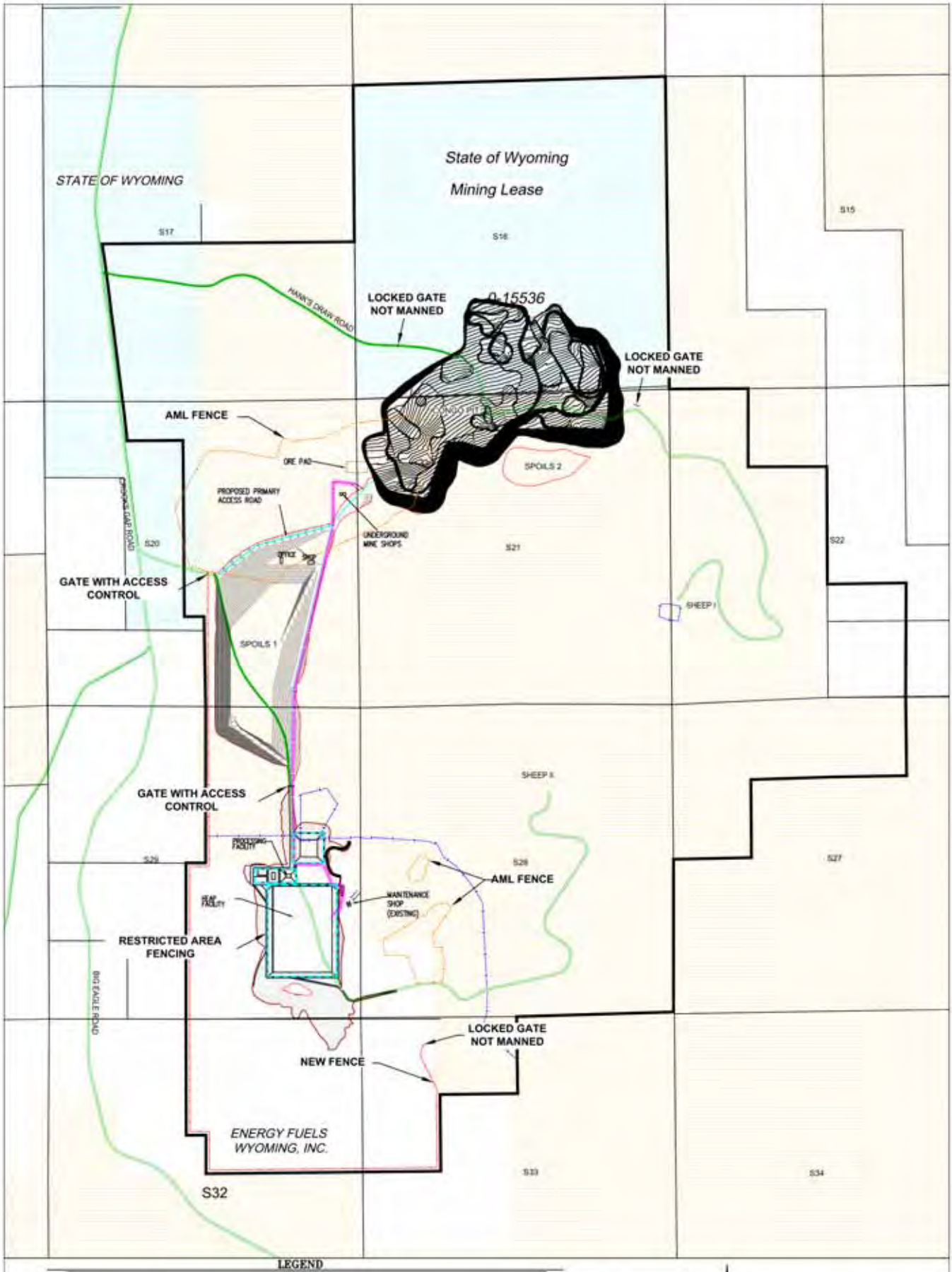
SCALE: 1" = 1500' | DATE: 7/25/12

DRAWN BY: CDS

SHEEP MOUNTAIN PROJECT
FREMONT COUNTY, WY

REVISION DATE: 09/12/12

DWG. NUMBER: FIGURE 3.1-1

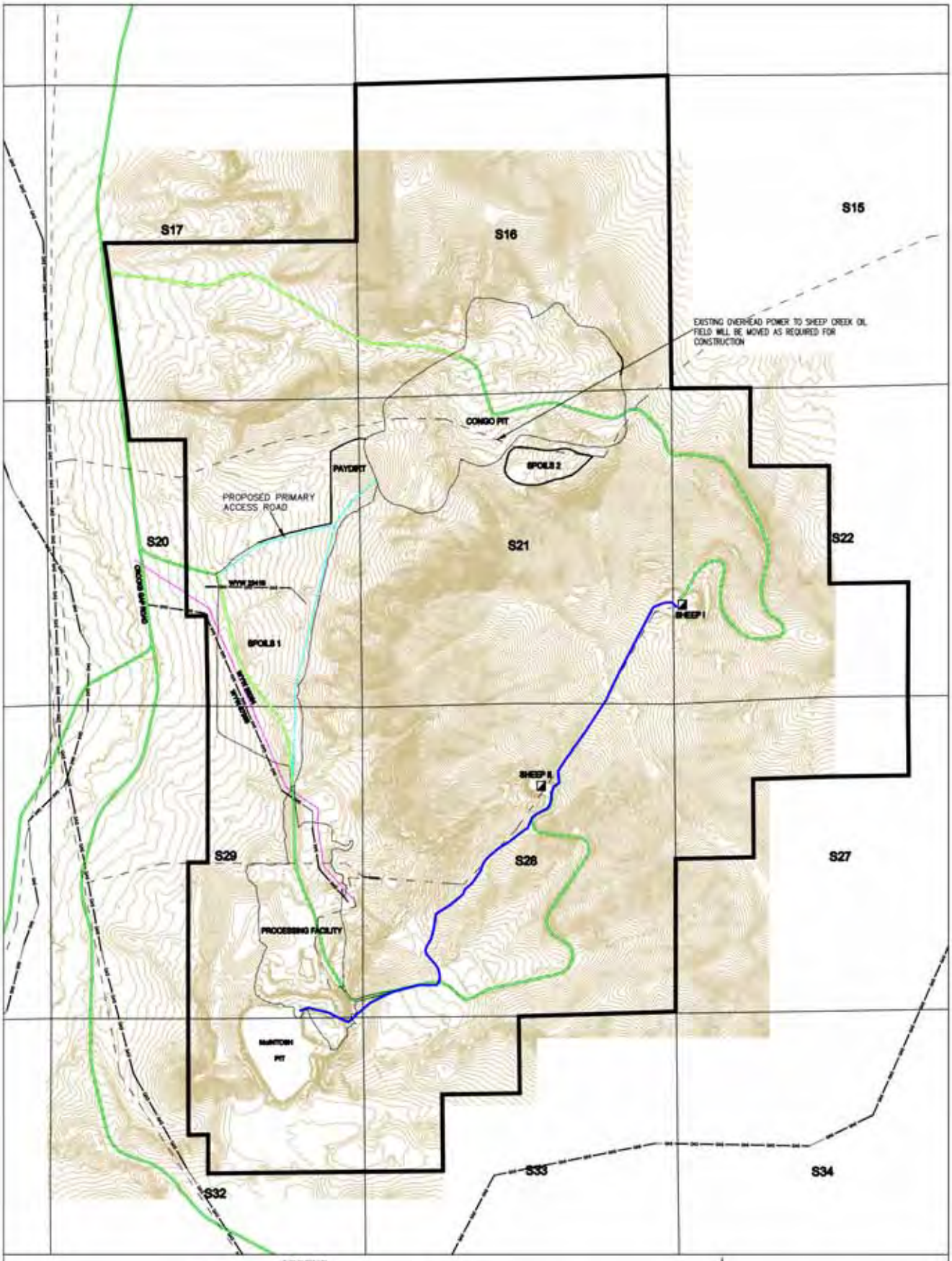


BRS ENGINEERING

FENCING

SCALE: 1" = 1500'
DRAWN BY: SS

SHEEP MOUNTAIN PROJECT
FREMONT COUNTY, WY



BRS ENGINEERING

EXISTING RIGHT OF WAYS

SCALE: 1"=1500' | DATE: 6/15/11

DRAWN BY: COS

SHEEP MOUNTAIN MINES
FREMONT COUNTY, WYOMING

REVISION DATE: 7/12/12

CAD FILENAME:

LP2008/PERMITING/SITE ACCESS AND UTILITIES

DWG. NUMBER: FIGURE 3.1-3

3.2 OPEN PIT DEVELOPMENT

The mine design for the Congo Pit includes typical highwall heights in the range of 100 to 400 feet with a maximum height of 600 feet in localized areas in the southeast pit corner. The open pit design employs similar design parameters and mining equipment configurations to those used successfully in past operations. The highwall design for the Congo Pit is based upon the performance of past projects in the Sheep Mountain and Gas Hills districts, and includes an average highwall slope of 0.7:1, which reflects the average of a 10-foot bench width and 50-foot wall at a 0.5:1 slope, as shown on Map 3.2, Construction Details (see map pocket).

Based upon site relief in the Congo area, surface water inflow can be kept out of the pit by ditching around the highwall crest and day-lighting the runoff to offsite drainages. In addition to controlling surface water runoff, the ditching will serve as a safety berm to prevent access to the highwall (see Map 3.2). All offsite drainage will meet the requirements of the WYPDES storm water permit, including appropriate sediment control measures. Excess groundwater inflow in the pit will be used as a part of the daily operation of the pit for dust control on haul roads or consumed at the processing facility. Current data indicates that ground water flow will average less than 150 gpm (refer to Appendix D-5 WDEQ Mine Permit 381C). Based upon the dip of the formation, the pit floor will be inclined such that a low area will be kept at all times as a sump for the pumping system. As a result, the remainder of the floor will be kept dry such that year round operations can be maintained under most conditions, and quickly restored following direct precipitation events.

Due to the nature and extent of mineralization, the Congo Pit is essentially a single open pit that will be developed sequentially to accommodate the desired mine production and allow for internal backfilling. This sequential schedule and internal backfilling reduces the amount of double-handling of mine waste material required to backfill and reclaim the mined pit during the life of the mine.

The host formation is exposed at the surface and dips between 9 and 16 degrees to the southeast with the shallowest mineralized areas existing at the northwest corner of the pit. The overall mine sequence begins in this area, where the access ramp will require less than 40 vertical feet to access the pit. Subsequent pit extensions will utilize this access, working within the pit floor at grades less than the dip of the formation. Average ramp grades of 4 to 8 percent will be utilized, with no grades exceeding 10 percent. Two way ramp and haulage routes are planned to be a minimum of 40 feet wide, with higher speed portions being 60 feet wide for safe passing. The equipment selected for this Project has an average width of 12 feet, so these haul road widths will provide ample space between opposing directions of travel.

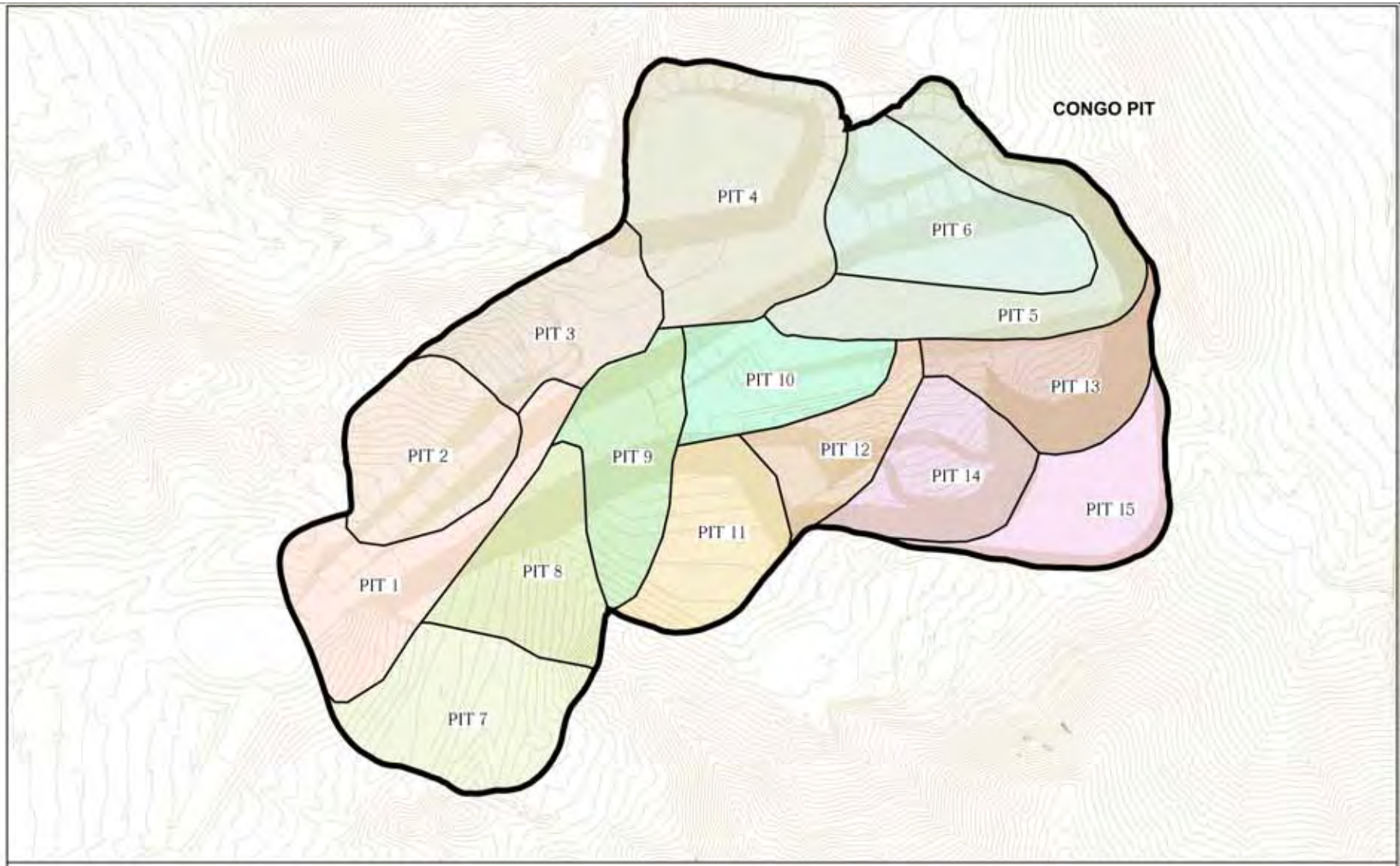
Haul roads will be crowned and ditched to quickly shed any direct precipitation, and culverts will be installed to convey runoff from first and second order drainages which are crossed by the haul road. Berms reaching the midpoint of the wheel of the largest equipment on site will be installed in any area where the potential for equipment tipping exists. A typical haul road detail is presented in Map 3.2. Berms may be utilized to divide opposing lanes of travel to provide further protection against collision. The haul roads will be surfaced with site produced sandy gravel

passing a 3/8-inch screen, to provide a surface which minimizes tire wear, is easily maintained, reduces fugitive dust emissions and does not become slick when wet. Full time maintenance of haul roads will be performed by a motor grader. Dust control and water to aid in compaction of the surface will be provided by off-road water trucks.

The initial pit construction will create haul road access from the open pit mine area to the mine spoil and ore stockpile areas. As discussed above, mine development will start in the northwest portion of the pit and then proceed along the north side of the pit. Once this area is mined, mining will proceed down dip. As shown on Figure 3.2-1, 15 areas will be mined in sequence. The first 6 areas are excavated in a panel along the up dip portion of the deposit and are the shallowest. During development of these areas, the mine waste rock will be hauled to Spoil Piles 1 and 2. Subsequent mining will be completed in successive panels proceeding down and along dip i.e., areas 7 through 10, 11 through 13, and finally 14 and 15, which will reach the greatest depths. Beginning with area 7, the great majority of mine waste will be sequentially backfilled into previously mined areas.

In conjunction with the initial development of the open pit, an ore pad and two spoil piles will be constructed. The ore stockpile pad will be constructed west of the pit in the reclaimed Paydirt area and consist of compacted native soils covered with gravel passing a 3/8-inch screen. Approximately 19 acres will be available in the Paydirt areas to accommodate the surface facilities related to the underground mine, the crushing and conveyor loading area and the ore stockpile pad. The ore stockpile pad will occupy approximately 4 acres and will be bermed on the downhill sides to contain runoff from precipitation events. Spoil Pile 1 will be located in a gently-sloping area on the west side of the Project area and Spoil Pile 2 will be located just south of the pit. Spoil Piles 1 and 2 will encompass approximately 131 acres and 16 acres, respectively, at full build-out. The spoil piles will be constructed in a phased manner with vertical lifts of 5 feet or less. Safety berms will be constructed around the perimeter of each pile. The waste in the spoil piles will be compacted by the haulage units (i.e., scrapers and trucks), which will split tracks while dumping and progressively raising the spoil piles in lifts. Haulage routes within the spoil pile area will be routinely graded and sprayed with water to control fugitive dust.

Topsoil will be salvaged from the open pit area, ore stockpile area, and Spoil Piles 1 and 2 during construction and placed in the topsoil stockpiles shown on Figure 3.1-1. Topsoil stockpiles will be clearly marked with signage in accordance with LQD regulations. Topsoil stripping will be conducted in a phased manner as the pit and spoil piles expand. Temporary and permanent erosion controls consisting of silt fence, sediment control wattles, berms, ditches, sedimentation ponds, and culverts will be installed throughout the disturbed areas, as necessary, to minimize erosion and capture sediment.



LEGEND

EXISTING GROUND CONTOURS CI-10'

500' 0 250' 500'

1 inch = 500'

BRS ENGINEERING	**PIT SEQUENCE**	**SHEEP MOUNTAIN MINES FREMONT COUNTY, WYOMING**	REVISION DATE: 07/12/12
	SCALE: 1"=600' DATE: 3/5/12		CAD FILENAME: TITAN\CONGO 2012 SEQUENCE FIGURES\Overall Sequence.dwg
	DRAWN BY: CDS		DWG. NUMBER: 3.2-1

3.3 UNDERGROUND MINE DEVELOPMENT

Development of the underground portion of the Project will be deferred for 1 to 5 years after the start of the Congo Pit depending on market conditions. Deferral of the underground portion of the Project will allow for a gradual phased expansion of mine personnel on site and the gradual dewatering of the underground workings. Underground mine development will start with construction of a new double-entry decline from the reclaimed Paydirt Pit area to the base of the deposit. The decline will be 5,470 feet in length at a grade of 10 percent. A conveyor belt will be installed in one of the two entries for haulage of ore and waste to the surface.

The existing shafts will be used for ventilation and emergency escape purposes with exhaust fans mounted at both locations. As discussed in Section 4.4.1, an existing groundwater pumping system is installed at the Sheep I shaft and will be used to dewater the underground workings. If the existing bore hole ventilation shafts can be rehabilitated, they will be used as intake shafts. The existing Sheep declines may also be extended to the top of the ore deposit for additional ventilation and emergency escape purposes.

Prior to the start of underground production, it will be necessary to rehabilitate the existing workings. This will include: establishing the ventilation system; cleaning up and re-bolting areas where ground conditions are poor; installing power, water, and compressed air lines; building haulage roadways; and, conducting long-hole drilling to delineate ore zones.

3.4 PROCESSING FACILITY

The general site layout and construction requirements for the processing facility (i.e., heap leach and process plant) is shown on Figure 3.4-1. This area is private land owned by Energy Fuels and the majority of this area is occupied by the existing spoil pile from the McIntosh Pit. Therefore, very little if any topsoil can be salvaged in this area during construction. Topsoil from other areas or suitable soil salvaged from the mine excavations (see Section 4.5) will eventually be needed for reclamation of this area.

The heap leach pad area, which is approximately 40 acres in size, is divided into four cells. The pad liner system will consist of multiple synthetic liners with a leak detection system (See Map 3.2 for liner details). The pad will be constructed by excavating the 40 acre area down to the design grade, as the pad will be built mostly below the existing ground surface with only the north facing portion of the pad day-lighting toward the ponds and processing area. Figure 3.4-1 presents the cut and fill volumes necessary to construct the pad. The foundation for the pad will then be built by placing and compacting several lifts of fine-grained soil. A geosynthetic clay liner (GCL) will be installed on top of the foundation. The GCL, as its name implies, consists of bentonitic clay within a synthetic liner. Two high-density polyethylene (HDPE) liners will then be placed over the GCL. The rolls of liner material are joined together using heat fusion equipment. A geotextile is placed between the two liners to create a void where leaks can be detected. The geotextile will drain to a sump with standpipes, which are used to access the sump for monitoring purposes and to pump out any collected solution. This system is designed to minimize the hydraulic head on the secondary liner and the underlying GCL.

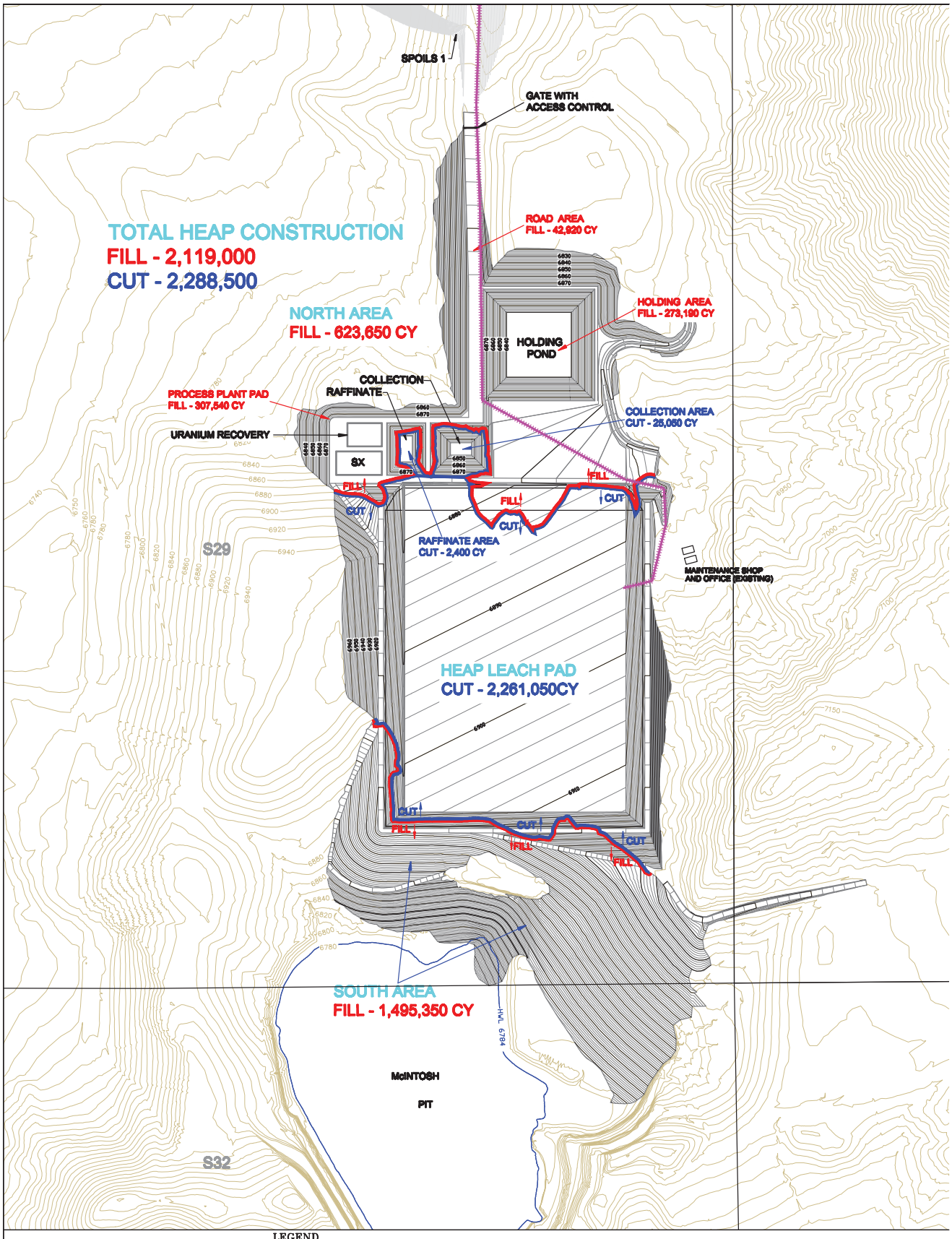
The collection, raffinate, and holding ponds, shown on Figure 3.4-1, will also be constructed in a similar manner to the pad liner. The pad liner will drain to the collection pond where the pregnant leach solution (PLS) can then be pumped to the raffinate pond for recirculation or to the process plant for uranium recovery. As a point of clarification, the raffinate pond contains solution that has been processed to remove uranium and/or PLS that is not sufficiently concentrated in uranium to send to the process plant. Additional reagents are added to the raffinate prior to it being recirculated back to the heap for leaching. The holding pond is used to evaporate excess solutions and also serves as additional storage capacity in the event of a large precipitation event or upset condition in the heap or process plant.

The process plant or "plant" is defined as the buildings and systems that collectively are utilized to recover uranium from the PLS. The process plant will include two large buildings. Solvent extraction (SX) processing equipment will be located within the SX building and yellowcake recovery including precipitation, washing, drying, packaging, storing, and loading will be located within the uranium recovery building. Both buildings will be constructed on concrete pads with metal walls and roofing. The concrete pad will include curbs and sumps to allow for containment and cleanup of any releases of reagents or process solutions. The SX building and uranium recovery building will have aerial footprints of approximately 15,000 square feet and 20,000 square feet, respectively. In addition several other smaller buildings will be constructed at the process plant including an administration office and dry, a laboratory, a warehouse, and a shop. Tanks for storage of sulfuric acid, kerosene, hydrogen peroxide, and other reagents will be installed outside the buildings near their point of use. Two water tanks, each with a combined storage capacity of 500,000 gallons, will also be installed in this area. The buildings, tanks, and pond area will encompass approximately 27.1 of the total 106.1 acre processing facility.

The SX system will consist of a large clarifier to remove larger particles from the pregnant solution, polish filters to remove smaller particles, and a series of mixer-settler tanks where the solution will be mixed with an organic consisting mostly of kerosene with small amounts of an amine extractant and an alcohol phase modifier. Because of the large amount of organics used in the SX building, it will be equipped with a robust fire suppression system.

The uranium recovery building will include a series of precipitation tanks where hydrogen peroxide is added to precipitate uranium, a large thickener where the precipitant is partially dewatered, a filter press to remove the remaining water, a vacuum dryer to dry the yellowcake, and packaging equipment to put the yellowcake into 55-gallon DOT drums. The drums will be stored in a separate room within the building until such time that they are sold to a power plant and transported to a conversion plant for further processing.

An enclosed, overland conveyor system will be constructed from the ore pad at the Paydirt area to the heap leach pad, a distance of approximately 8,000 feet. A feed hopper with a grizzly and crusher will be installed at the front end of the conveyor system, which will be fed by a front-end loader. A radial stacker will be installed at the tail end of the conveyor system, which will be used to place the ore on the pad. The overland conveyor system will vary in height above the ground from approximately 3 feet to as high as 35 feet where vehicle traffic has to pass under it. Transfer points between conveyor segments will generally be about 10 to 15 feet above the ground.



LEGEND

- EXISTING GROUND CONTOURS CI-10'
- PROPOSED CONSTRUCTED HEAP AREA CONTOURS CI-10'
- CUT AREA / VALUES
- FILL AREA / VALUES
- PROPOSED CONVEYOR ALIGNMENT

N

400' 0 200' 400'

1 inch = 400'

T. 28 N., R. 92 W.

BRS ENGINEERING

PROCESSING FACILITY LAYOUT

SCALE: 1"=400' | DATE: 07/09/12

DRAWN BY: HJH,CDS,RHCP,RSR

SHEEP MOUNTAIN MINES
FREMONT COUNTY, WYOMING

REVISION DATE: 07/12/12

CAD FILENAME: DOZER/LP2008/MCINTOSH HEAP 2011/MCINTOSH HEAP 10 ALT 2

DWG. NUMBER: FIGURE 3.4-1

3.5 ESTIMATED CONSTRUCTION COSTS

The capital cost of the Project has been estimated to be $60.8 million dollars initially for the processing facility and open pit development. Another $61.6 million dollars will be needed to develop the underground mine. The table below presents a summary of the estimated costs.

Table 3.5.0 – Estimated Construction Costs

Capital Expenditures:	Initial Capital	Years 2-7	Life of Mine
Permitting (NRC, BLM, and WDEQ)	$ 4,328		$ 4,328
Pre-Development Mine Design	$ 1,200		$ 1,200
OP Mine Equipment	$ 14,301		$ 14,301
UG Mine Equipment		$ 61,601	$ 61,601
Office, Shop, Dry, and support	$ 3,166		$ 3,166
Mineral Processing	$ 37,803		$ 37,803
TOTAL CAPITAL EXPENDITURES	**$ 60,798**	**$ 61,601**	**$ 122,399**

Source: 43-101 Mineral Reserve and Resource Technical Report, BRS Engineering, March 12, 2012.
(All costs current dollars x 1,000)

Labor and material requirements for the Project are discussed below in detail.

3.5.1 Labor Requirements

Open pit development will be conducted by mine personnel, as there is no large pre-stripping requirement for the Congo Pit. It is anticipated that initial mine development will require about 20 employees and then staffing will expand over a several month period to the full complement of 41 employees (see Section 4.1). The majority of the personnel needed for the open pit mine operation is expected to come from local areas with just a few staff positions requiring regional recruiting.

Underground mine development will include an estimated 30 employees to drive the double-entry decline, assuming two work shifts a day, and 20 more employees to conduct rehabilitation in the mine, assuming access through one of the existing shafts and one work shift per day. It will require about 18 months to complete the declines and rehabilitation work. Once the mine is put into production, staffing will gradually expand over about a year to the 128 employees estimated in Section 4.2. About half the underground miners will be recruited regionally and the remaining half will be hired from the local population and trained.

Construction of the heap leach and process plant will require an average work force of about 110 employees over a 9 month period. This includes approximately 100 contracted personnel and 10 Energy Fuels and quality control personnel. Both general and specialized contractors will be hired to do the construction. A general contractor experienced in mill construction will be hired to build the process plant. Specialized contractors will be contracted to erect the larger tanks, and install the liners and overland conveyor. Pre-engineered building and siding suppliers will mobilize company ironworkers and sheet metal installation crews along with mobile cranes,

man-lifts, fork lifts, and welding machines to construct the buildings. Smaller, local contractors will be used to supply materials, perform earthwork, and construct the smaller buildings at the site. Energy Fuels will encourage its contractors to review, qualify and employ as many skilled and unskilled workers from the area as possible; however, the process facility work force will likely consist of about 30 percent local hires with the remaining 70 percent consisting of a regionally contracted workforce. As the processing facility nears completion, Energy Fuels will gradually add operational staff. Approximately 35 employees will be needed to operate the facility as discussed in Section 4.3.

It is expected that the majority of the employees will live in Riverton, Lander, and Jeffrey City with a few making the longer commute from Casper. At this time, Energy Fuels does not have definite plans to provide busing for employees; however, it will be considered as the Project moves closer to startup. The previous operator of the Sheep Mountain mines did provide bus service to and from Jeffrey City. Given the distances involved to Riverton, Lander, and Casper, most employees living in those areas will likely car pool. Most construction contractors will also provide company trucks and/or vans in which their employees will ride together.

3.5.2 Material Requirements

The table below provides a summary of the major material requirements for the processing facility and the estimated number of truckloads that will be required to transport this material to the site over a nine month period.

Table 3.5.2 - Material Requirements

Item	Item Unit	Quantity	Weight (lbs.)	Load per truck	Truckloads
Heap Pad Primary Liner 40 mil HDPE	sq. ft.	2,307,223	464,120	30,000 lbs.	15.5
Heap Pad Secondary Liner 60 mil HDPE	sq. ft.	2,307,223	696,179	30,000 lbs.	23.2
Geonet 200mm HDPE	sq. ft.	2,307,223	472,556	30,000 lbs.	15.8
GCL Base Layer	sq. ft.	2,307,223	2,580,120	30,000 lbs.	86
Concrete	cu. Yd.	500		10 cu. Yd.	50
Steel Walkways			5,700	30,000 lbs.	0.2
Conveyor and Stacking			200,000	30,000 lbs.	6.7
Piping and Plumbing	lf	584,088	1,213,604	30,000 lbs.	40.5
Buildings and Laboratory	sq. ft.	106,000	1,060,000	30,000 lbs.	35.3
Electrical			50,000	30,000 lbs.	1.7
Major Plant Equipment			2,000,000	30,000 lbs.	66.7
		Total	8,742,280		341

3.6 QUALITY ASSURANCE PLANS

Quality assurance plans relate to a variety of activities. For discussion purposes these are divided into the following categories:

- Pre-Operational Baseline Monitoring
- Mineral Processing Facility Construction and Operations
- Mine Facility Construction and Operations
- Operational Monitoring

Pre-Operational Baseline Monitoring: Pre-operational monitoring and environmental baseline characterization has been completed in consultation with WDEQ, BLM, and NRC and in accordance with appropriate regulations and guidance documents. In cases of overlapping guidance and/or regulation the most extensive requirements have been met. These monitoring and environmental baseline characterization programs have been in place for more than one year and followed the prescribed quality control and assurance requirements. Pertinent data is summarized in Part 8 of this Plan of Operations and in the Appendix D 2011 Addendums.

Mineral Processing Facility Construction and Operations: Mineral processing facilities in Wyoming require a NRC Source Materials License for construction and operations. The license requires quality control and quality assurance procedures to be followed on a specified schedule during construction. This includes testing of foundations, liners, concrete, pipes and valves, tanks, and safety devices on all equipment and buildings. Prior to operations, standard operating procedures must be in place for all routine tasks and the processing facility must pass a pre-operational inspection. During operations, quality control and assurance programs are required as license conditions relating to environmental controls, worker health and safety, and potential off-site exposures for identified environmental pathways. Any non-routine tasks that are not covered by a standard operating procedure must be approved by the Radiation Safety Officer through a company Radiation Work Permit that specifies the procedures to be followed in completing the task.

Mine Facility Construction and Operations: Mine facilities are constructed and operated with respect to health and safety under MSHA. This includes requirements for implementation of a site safety plan which includes training, a material handling plan including MSDS data sheets for all materials, and monitoring and testing of various environmental factors in the work place including but not limited to noise, air quality, dust, and radon gas. All training and monitoring must be documented and demonstrate compliance with appropriate standards.

Operational Monitoring: In addition to internal monitoring of the mine and mineral processing facilities, external monitoring of ground and surface water, fugitive dust, and radiological levels is required. Operational monitoring is subject to the same levels of quality control and assurance as are applicable to pre-operational monitoring. Part 8 of this Plan of Operations presents additional information on Operational Monitoring.

Part 4 – Operating Plan

Operational activities will include drilling of exploratory boreholes; excavation of an open pit mine and development of associated spoil piles; advancement of underground mine workings using modified room and pillar methods; and, operation of a heap leach and process plant to produce yellow cake (uranium oxide). Surface disturbing and interim reclamation activities will be performed sequentially to minimize the amount of surface disturbance at any one time. Map 4.1 Operating Plan (see map pocket) shows the maximum extent of mining activities, waste rock stockpiles, process plant, heap leach pads, solution collection and evaporation ponds, support facilities, buildings, and access routes. This map will be referenced throughout Part 4 of this Plan of Operations.

Open pit and heap leach operations will start as soon as the required permits are in place and the surface facilities are constructed. Based on currently identified resources, a 15-year-mine life is projected for open-pit operations. Underground development and rehabilitation will be deferred for up to 5 years depending on financing and market conditions. The underground mine is projected to have an 11-year-mine life based on currently identified resources. The processing facility will have an operational life of several years more than the mine operations, as the processing facility will enter a rinse down period after the mines close, during which time processing and recovery of uranium will continue.

Both the surface and underground mining will use diesel powered equipment and some blasting to extract ores. Placement of overburden materials in their temporary and final storage locations will be accomplished with diesel powered equipment. All pit overburden will be temporarily stockpiled on the surface during the initial phases of mining, while later pit mining phases will sequentially backfill the overburden and waste material within previously mined portions of the pit. Ore will be trucked from the open pits to a stockpile site located adjacent to the underground mine portal. Ores from the underground mine will be transported to the surface via belt conveyors and then combined with open pit ores and transported via an enclosed overland conveyor system to the processing facility. Underground mine waste will also be transported to the surface via conveyor belt and then placed with the open pit overburden.

4.1 CONGO OPEN PIT

The Congo Pit will be operated two shifts per day, four to five days per week on a year-round basis. The pit will be mined using scrapers to remove the overburden, a friable sandstone, and haul it initially to one of the two spoil piles and later to mined out areas of the pit. Dozers will assist in this effort by ripping the overburden and pushing the push-pull scrapers. Hydraulic excavators will excavate the ore and load it into haul trucks for transportation to the ore pad. Graders and water trucks will maintain the haul roads. Based on the water table depth and mining rate, the pit is not expected to encounter ground water until the fourth or fifth year of operation. After that, a sump will be maintained in the lower portion of the pit where ground water will be pumped out to a holding tank for dust suppression use.

4.1.1 Disturbed Area Summary

Table 4.1.1 provides a disturbance and reclamation summary over the life of the Congo Pit. The use of concurrent backfill methods will allow for a degree of interim reclamation, but final reclamation of most of the pit will need to wait until mining is completed.

Table 4.1.1 – Disturbance and Reclamation Area Balance

Year	Spoils 1 Area* (Acres)		Spoils 2 Area (Acres)		Congo Pit** (Acres)		Topsoil Piles (Acres)		Processing Facility (Acres)	
	Disturb	Reclaim	Disturb	Reclaim	Disturb	Reclaim	Disturb	Reclaim	Disturb	Reclaim
0							3.6		106.1	
1	86.3				33.0		12.9			
2	29.1				22.8		4.1			
3	29.7				19.9		3.9			
4	5.1		15.5		32.3	6.8	6.5	2.9		
5					38.3					
6					0					
7					0					
8					6.5	8.3				
9					11.4					
10					11.0	5.5				
11					9.9					
12					44.5					
13										
14										
15										
16		25.0				66.5		2.9		
17		25.0								
18		25.0				47.4				
19		75.2		15.5		40.5			81.8	
20						54.6		25.2		187.9
Total	150.2	150.2	15.5	15.5	229.6	229.6	31.0	31.0	187.9	187.9
Project Total										614.2

* Includes 19 acres re-affected in the reclaimed Paydirt pit area. Spoil Pile 1 only 131.2 acres.
**Includes highwall access and ditching for drainage. Open pit only 209.7 acres.

In addition, 240.6 acres are currently bonded for reclamation under Miner Permit 381 C. Of this total approximately 40 acres will be re-affected by the proposed operations and are included in the reclamation acreages summarized in Table 4.1.1. The remaining bonded areas will be reclaimed and/or the bond obligation discharged, as in the case of the McIntosh pit cooperative agreement with AML, during the first 4 years of operations.

4.1.2 Mine Equipment

Stripping and mining equipment were selected based on the nature and configuration of the deposit and physical parameters such as the anticipated haulage profile. Because the deposits consist of numerous dipping mineralized horizons, it was determined that both the stripping and mining equipment must not only be efficient but highly selective and flexible. The articulated mine trucks are 6-wheel drive units capable of operating in rugged and steep conditions. The scrapers can self-load, operate as a pair in a push-pull configuration or can be push loaded with assistance from the track dozers. The self-loading scraper can excavate in lifts as thin as the cutting edge of the unit or approximately 3 inches. For mining, the medium size excavators will be able to excavate in lifts as thin as 6 inches, if needed. The open pit mine equipment list follows.

Table 4.1.2 - Open Pit Mine Equipment List

Major Equipment	Number
Excavator	2
Motor Grader	2
Track Dozer	2
Mine Haul Truck	2
Wheel Loader	1
Twin Engine Scraper	3
Single Engine Scraper	3
Self-Loading Scraper	1
Water truck 3000 gallons	1
Water truck 8000 gallons	1
Mine Support vehicles	
Fuel/lube truck	1
Mechanical service truck	1
Rubber tire backhoe with forklift attachment	1
Pickup trucks, 4WD, ¾-ton	8

4.1.3 Operating Parameters

Equipment cycle times have been estimated for both stripping and mining using the specific haulage profiles developed as part of the mine planning and sequencing. Based on these estimates, both the stripping and mining can be accomplished in a single 10-hour daily shift, 5 days per week. The proposed primary stripping fleet consists of three twin engine scrapers (637 CAT or equivalent) paired with three single engine scrapers (CAT 631 or equivalent) in a push-pull configuration. Both stripping and mining equipment will be supported by dozers and motor graders. The nominal capacity of this configuration is capable of excavation and placement of over 5 million cubic yards of material on an annual basis. Mining will be completed in a selective manner with a 2 cubic-yard bucket on a medium-size excavator loading

two 35- ton articulated mine haul trucks. The mining crew is projected to have excess annual capacity and will thus be responsible for handling the majority of the internal mine waste.

In-pit grade control will be a critical aspect of the Project. This type of sandstone hosted uranium deposit may exhibit local variability in grade and thickness and potentially variable radiometric equilibrium conditions. To address these conditions, minimize mine dilution, and maximize mine extraction, a tiered systematic grade control program is essential. The following narrative describes the tiered grade control program.

Tier 1, Radiometric Scanning: Field personnel equipped with calibrated hand-held gamma meters will be assigned to both the stripping and mining crews. Grade control personnel along with mine supervisory personnel will be provided with detailed mapping of anticipated mineralized areas within the various work areas, and will continually monitor these areas along with other excavations for radiometric and/or visual indications of uranium mineralization.

Tier 2, In-Pit Assay: There will be a portable in-pit sample trailer equipped with a portable x-ray fluorescence (XRF) assay instrument and appropriate sample preparation equipment. All mine trucks working within identified mineralized zones will be sampled with an auger system and the samples prepared and assayed. The individual trucks will then be directed to deliver the material to the heap leach facility or mine waste area depending on the results of the assay. Grade control and supervisory personnel will also have the ability to collect spot samples for immediate assay to field calibrate their gamma meters for variations in radiometric equilibrium conditions. The XRF can assay for uranium and heavy metals that may be present.

Tier 3, Quality Control: As each mine truck is sampled and tested, the field assay sample rejects will be collected and separated by grade ranges. The daily pit samples will be blended and split to provide representative samples that will in turn be assayed at the plant laboratory. The plant lab will assay both solid and liquid samples and will be subject to an outside and/or third party quality control system.

These grade control procedures will also be used to segregate material for final reclamation cover. Procedures will be the same as for grade control, except rather than segregating the material with concentrated metal and radiation levels, the scanning and assaying will be used to identify materials that do not contain deleterious metals and/or radionuclides.

4.1.4 Ground Control

Ground control for the historic underground mines will be conducted by a crew that includes a medium-sized excavator, a medium-sized dozer, and a field engineer with access to the digital 3D modeling of the historic underground mines (see Section 2.2 for plan view map of the historic mines). This crew will locate shallow underground zones in the pit floor based upon the mine mapping, over-excavate and collapse the mine voids, and backfill the area prior to placing mining equipment in the area. Assistance in location of the voids will be provided by in-pit drilling equipment and/or shallow seismic testing. Blasting to shatter cemented, arkosic sandstone layers may be utilized on an as-needed basis to assist in the collapse of the historic underground mine areas.

4.1.5 Mine Support and Utilities

Mine support facilities will consist of the main office, mine shop and warehouse located near the site entrance. Portable trailers with bathrooms will be set up near the haul truck ready line at the ore pad area to serve as a meeting and lunch area for the crews. A fuel station will also be located near the ready line for fueling mobile equipment. In consideration of the remoteness of the site and the potential hazardous winter driving conditions, emergency stores of non-perishable food and water will be kept on-site along with portable cots should it be necessary for personnel to remain on-site during such conditions. Electric and natural gas service was provided to this site previously. Some upgrading and adaption of this infrastructure for the planned Project will be necessary. Ground water rights in excess of the Project's needs are held by Energy Fuels from a combination of various wells and the existing Sheep underground mine shafts and the McIntosh pit. This water will meet the Project's consumptive needs for dust control, mineral processing and potable use.

4.1.6 Open Pit Staffing

Projected staffing for the open pit mine is summarized in the following table.

Table 4.1.3 - Open Pit Mine Staff

General Project Manager	1
Mine Manager OP	1
Mine Lead man OP	2
Maintenance Lead man	1
Warehouse/clerk	1
Safety/personnel Manager	1
Environmental Engineer	1
Chief Mine Engineer	1
Chief Mine Geologist	1
Surveyor	1
Technicians	3
Secretary/Clerk	1
Accountant	1
Equipment Operators	17
Mechanics and Oilers	4
Open Pit Grade Control	4
Total Open Pit Staff/Labor	**41**

4.2 SHEEP UNDERGROUND

A modified room and pillar method utilizing large, rubber-tired diesel equipment will be employed. A new double entry decline will be constructed starting at the reclaimed Paydirt Pit and ending below the deposit. The existing shafts will be used for ventilation purposes only, with exhaust fans mounted at both locations. Existing and new bore hole ventilation boreholes will be used to augment the primary ventilation. The deposit is comprised of 16 stacked mineralized zones with a total thickness of approximately 350 feet. The deposit will be mined primarily from bottom to top as a cut/fill operation. Ore and some waste will be crushed and placed on a conveyor belt in the decline for transportation to the surface

4.2.1 Mine Design Parameters

Planned mining at the Sheep Underground will use two conventional mining schemes, one for development drifts and one for mining sections. The development drifts will utilize a dual opening approach with crosscuts on 100 foot centers. Two different size openings will be used. A 12-foot by 12-foot opening will be used for haulage and a 12-foot by 8-foot opening will be used for transportation and ventilation. Ramps and vertical raises will be used to connect the development drifts for efficient movement of equipment and mined ore and waste rock.

For the mining panels, multiple entries will be used depending on the width of the mineralized pod. Entries will be approximately 12 feet wide and a minimum of six feet high with an average of approximately seven feet high. Crosscuts will be placed on nominal 100 foot centers, but their location will vary depending on the spatial distribution of the ore. Production will occur both during advancement and then on retreat when an area has been mined to its full extent. The advance mining is done as described above, driving approximately 12 feet wide by seven feet high drifts. Multiple drifts will be driven parallel to one another with connecting crosscuts. This will create pillars in between the drifts that will initially be left in place for ground support. On retreat mining, pillars containing ore are removed. In areas that do not have mineralization directly above them, temporary support will be placed such as timbers and the pillars will be removed allowing the roof to ultimately fail. In area with mineralized pods directly overhead, the adjoining rooms will be backfilled using a cemented backfill. The backfill is a combination of waste rock mixed with three and one half percent cement and three and one half percent fly ash. This backfill will exceed the strength of the native rock and prevent the roof from failing and diluting the mineralized zones above them.

Ventilation will be provided by two 500 horsepower (hp) exhaust fans at the Sheep No. I Shaft and Sheep No. II Shaft assisted by multiple portable face fans. Fresh air will be drawn into the mine through the dual declines. The existing Sheep declines and new and existing boreholes will also be used to augment ventilation in areas located furthest from the ventilation shafts. Ventilation requirements for this mine are approximately 220,000 cubic feet of air per minute. Fresh air must be directed across each of the working faces and though the drifts designed for personnel transport. Bulk-heading of mined out areas will play an important role in allowing fresh air to be efficiently directed to the active working faces.

Blasting of the rock, both for development and mining will be done by drilling 8 to 12-foot blast holes using jumbo drilling rigs and/or jacklegs and loading the blast holes with a blasting cap, chemical booster, and ANFO (ammonium nitrate and fuel oil). The blasts will be initiated using a non-electric system (nonels) with the hole pattern, firing sequence, and delays designed to allow for optimum breakage and minimum ore dilution. Explosives and detonators will be stored in separate underground-powder magazines. Blasting operations will be conducted in accordance with MSHA regulations (30 CFR Parts 55. 56 and 57).

Mucking of the ore and waste will be done using scooptrams. Haulage from the working faces to the haulage conveyor or to the ore chutes will be done using underground trucks and scooptrams. These scooptrams are able to load, haul and dump (hence the common name LHD) the mined material without the aid of additional pieces of equipment over shorter distances. The LHD's will load the ore and waste into low-profile haul trucks when longer haul distances are involved. The back (i.e., roof) and ribs (sidewalls) in the drifts, both during production mining and development, will be supported with rock bolts and, where needed, wire mesh. A rock bolting machine, which can drill holes both vertically and horizontally, will place the rock bolts on approximately four-foot centers as the drifts advance. There will be overlap of bolting and wire mesh between each round to ensure proper ground control coverage. Timbers and cribbing may also be used in areas where ground conditions are poor. Boreholes to construct ore chutes or to aid in ventilation will be completed by a raise boring machine. To accomplish this, a small pilot hole is drilled from the top to the bottom at the location where the raise is to be placed. The raise bore cutting head is placed at the bottom of the hole and the rotating cutting head is pulled up the hole, enlarging it to the desired diameter. All the cuttings fall to the bottom of the hole and are hauled away with one of the LHDs.

Waste rock, as much as possible, will be placed in mined out workings to avoid the necessity of hauling the waste to the surface. This will be done as both a loose fill (i.e., gobbed waste) and as a paste backfill. When it is not possible to place the waste underground, it will be transported to the surface where it will be stockpiled for final reclamation.

4.2.2 Underground Mine Equipment

A preliminary list of the underground mining equipment needed for this operation follows.

Table 4.2.1 - Underground Mining Equipment List

Major Equipment	Number	Mine Support vehicles	Number
Jumbo Face Drills	5	Powder Buggies	1
Jack Legs	12	Bobcat Skidsteer	2
Rock Bolters	7	Utility Truck – Flatbed	1
Scooptrams	10	Scissor Truck	1
Haul Trucks	18	Man trips	6
		Fuel/lube truck	1
		Mechanical service truck	2
		Forklift	1

4.2.3 Underground Mine Staffing

Productivity has been estimated for both development and mining. Based on these estimates, both the required development and mining can be accomplished in two 10-hour shifts, 4 to 5 days per week. The development crew will consist of 2 face drill operators, 2 rock bolter operators 2 scooptram operators, and 2 to 6 haul truck operators. The mining crew will be comprised of 5 to 8 face drill operators, 5 rock bolter operators, 3 scooptram operators and 10 to 14 haul truck operators. Both development and mining will have additional utility personnel to: help with placing the bolts and wire mesh for ground control; transporting supplies and parts; installing air lines, water lines, and ventilation tubing: and, scaling down the ribs (walls) and back (roof) after a blast. Two blasting crews will work both the development headings and the mining headings loading and shooting the faces upon completion of the drilling.

Staffing and labor requirements for the underground mine are summarized in the following table.

Table 4.2.2 - Underground Mine Staff

Mine Manager UG	1
Shift Foremen UG	2
Maintenance Supt.	1
Maintenance Foreman	2
Warehouse/clerk	2
Safety/personnel Manager	1
Chief UG Mine Engineer	1
UG Mine Geologist	1
Surveyor	1
Technicians	2
Secretary/Clerk	1
Accountant	1
Equipment Operators	72
Mechanics and Oilers	18
Utility/Blasting/etc.	16
Surface Personnel	6
Total Underground Staff/Labor	**128**

4.2.4 Underground Mine Support and Utilities

An estimated 19 acres of the reclaimed Paydirt Pit area will be redisturbed during construction to build the underground mine support facilities. Most of this disturbed area will include the ore pad, crusher and conveyor loadout, and fueling station, which will also be used by the open pit operations. A small office building and shop and a dry (i.e., change house) will be located near the entrance to the decline. The office will be used by the shift and maintenance foreman and surface support personnel. The shop will be used to work on major repairs and rebuilds. Most other maintenance work will be performed in an underground mine shop. Current plans are to utilize the warehouse at the main administration building to support both the surface and underground operations.

4.3 MINERAL PROCESSING

Ores from the surface and underground mined will be fed into the feed hopper/crusher at the front end of the overland conveyor. The enclosed overland conveyor system will then transport the ore approximately 1.5 miles to the processing facility. The processing facility consists of a 40-acre heap leach pad, associated ponds, and the process plant where the uranium is recovered from solution, precipitated, dried, and packaged for shipment.

4.3.1 Heap Leach Pad and Ponds

After being received at the processing facility, ores will be placed on the double-lined leach pads using a radial belt conveyor. The heap leach recovery method includes the application of a sulfuric acid solution (H_2SO_4) through low-flow emitters on top of the heap for extraction of the uranium mineral from the ore. Solutions percolate through the ores on the heap pads, by gravity flow, dissolving the uranium from the ores. The pregnant leach solution (PLS) containing uranium is then collected by a series of lined ditches and pipes which convey the PLS into lined ponds. PLS will be pumped to the processing plant or re-circulated from the ponds to the heap until they reach the desired concentration for processing.

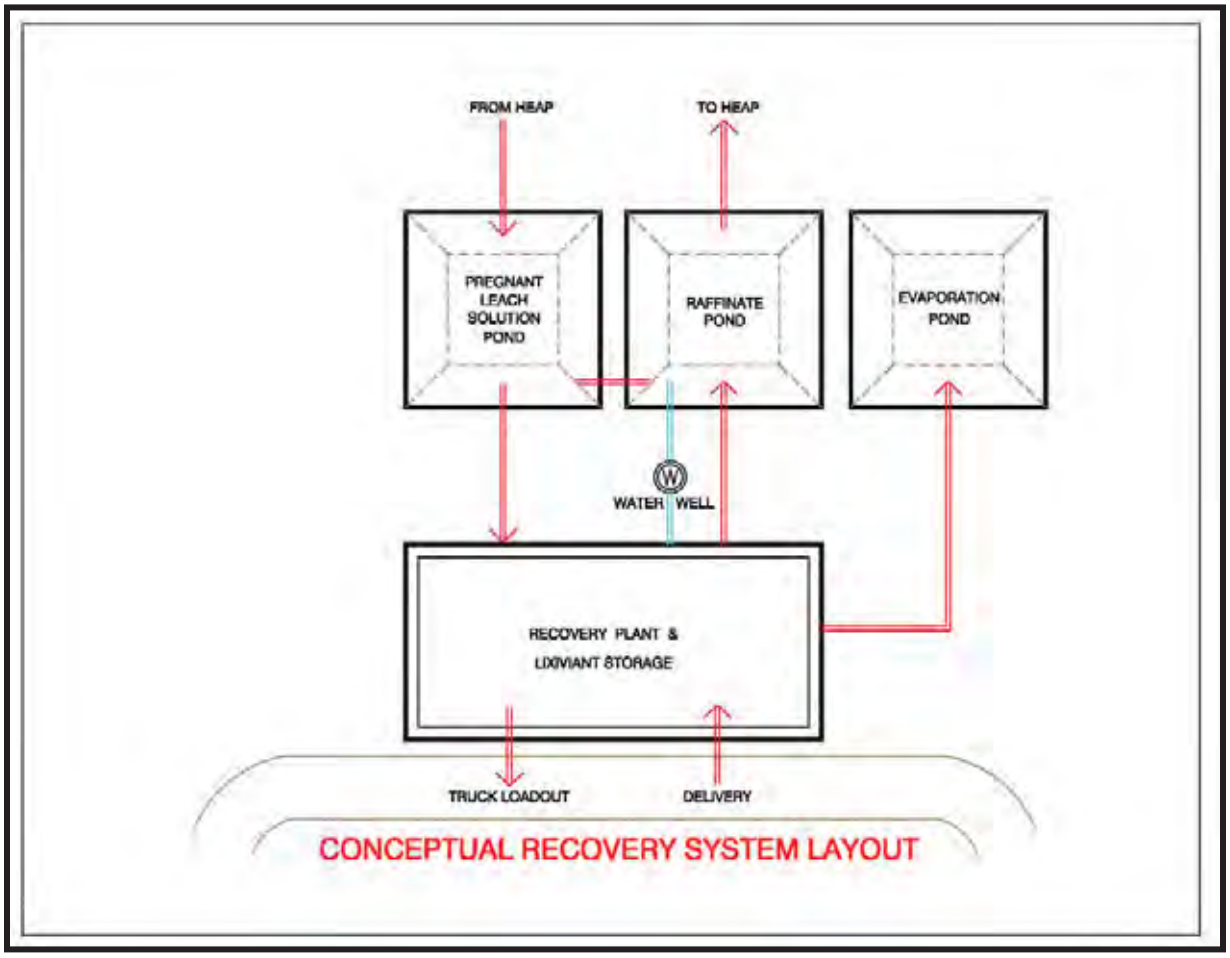
The heap leach pad is lined with a synthetic double liner system with leak detection. A network of drain pipes convey the solutions that pass through the heap to a lined collection pond by gravity flow. Leach solutions are distributed on the heap through a piping network utilizing drip emitters for uniform application of solutions. The heap pad is initially leached with fresh leach solution. Leach solutions returned from the heap to the collection ponds are regenerated with acid and an oxidant as necessary and recycled through the heap until the solution grades are enriched to suitable levels for processing. Enriched PLS is then pumped to the process plant for uranium recovery. A generalized schematic of the heap layout is presented on the next page.

4.3.2 Uranium Recovery

Uranium recovery starts with a solvent extraction (SX) system in which the uranium solution from the heap is mixed with an organic phase extractant and solvent carrier to concentrate the uranium and remove impurities. The uranium is removed from the organic carrier and precipitated as a uranium oxide known as “yellowcake”, while the remaining leach solution is

separated from the organic carrier and then returned to the heap as fresh leach solution. Up to approximately 10 percent of the initial solution volume will be removed from the system as a waste stream that will be stored in a lined evaporation pond and/or spray evaporated on spent portions of the heap leach pads. Spent solutions and process liquid wastes will be managed in double-lined evaporation ponds on-site; no wastes will be discharged from the site.

Figure 4.3-1 - Typical Heap Leach Schematic



Yellowcake precipitation will be accomplished in a series of agitated tanks with hydrogen peroxide solution to produce uranyl peroxide. Precipitated yellowcake will be thickened with the aid of a dilute flocculant solution. Depending on impurity content, the thickener overflow will be pumped to the collection pond or evaporation pond and the underflow containing the precipitated uranium will be pumped to a pressure filter (e.g. a filter press). The filtrate will join the thickener overflow, and the filter cake will be fed by inclined screw conveyor and/or positive displacement pump to a vacuum paddle dryer. This type of dryer has been selected because it utilizes a closed loop air filter and vacuum system to capture particulate emissions and recover vapor as distilled condensate (i.e., it is a zero-discharge system). A wet scrubber will capture fugitive dust and fumes from the surrounding yellowcake precipitation and drying area and its dilute slurry will be

recycled to the yellowcake thickener. The dried yellowcake will discharge through a closed chute into 55-gallon DOT drums for storage and later transportation to a conversion facility via a properly placarded semi-tractor and trailer.

4.3.3 Compliance with BLM Regulations

The design, construction and operation of the heap leach facility and ponds will comply with 3809.420 (b) (12) regulations including:

- 3809.420 (b) (12) (i): Standard engineering practices will be adhered to achieve and maintain stability and facilitate reclamation. The heap leach facility and associated process and holding ponds are regulated by the NRC and will adhere with regulatory guidance including Regulatory Guide 3.11, "Design, Construction, and Inspection of Embankment Retention Systems for Uranium Mills".
- 3809.420 (b) (12) (ii): Liner and containment systems will employ two low-permeable synthetic liners with a continuous leak detection system. The ponds and heap leach pad will be constructed with primary (60 mil HPDE) and secondary (40 mil HDPE) liners. A high permeability layer, e.g. HDPE Geonet, between the primary and secondary liners will be used for leak detection. This permeable layer will gently slope to individual lined sumps which will monitor each of the heap leach cells and each of the process and holding ponds independently. As added protection, the secondary liner will be underlain by a geosynthetic clay liner (GCL) on a prepared foundation.
- 3809.420 (b) (12) (iii): Design storm events required by USNRC guidance exceed the regulatory requirements of 3809.420 (b) (12) (iii) and are as follows:
    - The Raffinate Pond is sized to contain three days of make-up leach solution, and three days of leach solution required to wet fresh ore, assuming a maximum application rate of 360 gallons per minute (gpm), plus the volume for the 100-year, 24-hour storm event over the pond surface area. An additional 5 feet of freeboard above the design capacity is incorporated into the design to account for wave motion due to high winds. Should the Raffinate pond reach its freeboard limit, it will overflow by gravity via a double lined overflow to the Collection Pond.
    - The Collection Pond is sized to contain one day of collected PLS (i.e., the solution contained within the active leaching area of the heap) and the volume of the 100-year, 24-hour storm event over the pond and heap pad surface areas. An additional 5 feet of freeboard above the design capacity is incorporated into the design to account for wave motion due to high winds. Should the Collection Pond reach its freeboard limit, it will overflow by gravity via a double lined overflow to the Holding Pond.
    - The Holding Pond is sized to contain the entire volume of all planned process waste streams (accumulated over the 90 days of the 3 winter months), precipitation over the area of the pond accumulated over the 3 winter months, overflow of the Probable Maximum Precipitation (PMP) event from the Raffinate and Collection ponds, and the volume for the PMP event over the Holding Pond and Heap area. An additional 5 feet of freeboard above the design capacity is incorporated into the design to account for wave motion due to high winds.

- 3809.420 (b) (12) (iv): All vats, tanks or other vessels used for the storage of reagents, chemical, fuel and other potentially toxic constituents will be contained by concrete walls or lined earthen berms capable of containing the entire capacity of the storage vessel in the event of a leak or spill with an additional allowance for freeboard.
- 3809.420 (b) (12) (iv): Access to the radiation control areas, which may contain toxic and/or radioactive constituents, will be controlled by fencing (8 foot chain link) to exclude access to the public, wildlife, or livestock. In addition, the ponds will be covered with bird balls and/or netting to deter waterfowl.

4.3.4 Processing Facility Staffing

Staffing for the heap leach and uranium recovery systems is presented below.

Table 4.3.1 - Heap and Plant Staff

Process Manager	1
Radiation safety officer	1
Radiation safety technician	1
Heap operations supervisor	1
Plant operations supervisor	1
Heap operations leadman	1
Heap operators, shift	6
Plant operations leadman	1
Plant operators, shift	3
Plant operators, days only	3
Plant general labor/helpers	3
Dryer operators	3
Chief chemist/lab supervisor	1
Lab technicians, including sample prep.	2
Maintenance leadman	1
General maintenance technician	3
Mechanic	1
Electrical/instrumentation technician	2
Total Heap and Plant Staff	**35**

4.4 WATER MANAGEMENT PLANS

This section describes the management plans for ground water, potable water, and surface water. Pumping of ground water to dewater the underground mine and the deeper portion of the pit is expected to provide all the water needed for mining and processing operations. Potable water will initially be supplied by Jeffrey City and later by on-site water wells with an approved water

treatment system. Given the semi-arid climate and the absence of perennial water flow within the permit area, surface water management will focus on storm water control and erosion protection.

4.4.1 Ground Water

Both the underground and open pit will require dewatering for mine operations. Mine dewatering from the underground mine will be required in advance of re-opening the mine. Mine dewatering from the open pit mine will not be necessary until the 4th or 5th year of operations as the open pit mine does not reach the ground water table until that time. Initiation of underground mine dewatering from the Sheep 1 Shaft is scheduled to begin during the construction period and increase substantially to between 300 and 400 gpm once the open pit and processing area are operating. The water will be used for processing, dust suppression, cleaning and maintenance, fire suppression, and other uses throughout the site. The higher usage rates will be incurred in the summer when more water is evaporated and more water is needed for dust suppression.

Once underground development and production mining commence, an average of approximately 20,000 gallons of additional water will be consumed per day in the ventilation system and in the drilling of ore and waste rock. However, except for the development of the new double-entry decline, this water will originate from underground mine sumps.

As discussed in Section 8.6 and documented in Appendix D-6, Hydrology – Addendum 2011, an extensive network of monitor wells has been established for the Project. All baseline monitor wells have been sampled quarterly for more than one year. Historical water quality and water level records for many of these wells provide a continuous record dating to 1988. Despite over 50 years of mining history, some of which proceeded modern regulations, existing ground water quality does not show significant degradation from mining. In the vicinity of the McIntosh pit, 5 surrounding wells have been monitored for water level and water quality since 1988. This included the period of time from 1990 to October 2000 when the Sheep underground mine was being dewatered and the pumped water discharged into the McIntosh pit. While water levels in the pit were affected, water quality in both the pit and monitor wells was relatively stable and consistent. The only exception was a slight but general rise in Radium 226 and uranium concentrations in the McIntosh Pit.

The AML is evaluating treatment of the McIntosh Pit water during future reclamation. Treatment of the water would likely be accomplished using a barium chloride system in which water would be pumped from the pit to a portable treatment plant, dosed with barium chloride, and then returned via gravity flow to the pit. The barium added by the treatment system combines with the sulfate in the water to form a precipitant that also binds both radium and uranium and settles out of solution. Energy Fuels has a portable treatment system that could be used for this purpose.

In the event that mine dewatering at 300 to 400 gpm is not sufficient to completely draw down the water table in the underground mine, it may become necessary to treat and discharge water to Crooks Creek or Sheep's Creek. If this were to happen, Energy Fuels would permit a water treatment and discharge system as described in Section 1.5.2.

4.4.2 Potable Water

Energy Fuels anticipates that 50 gallons per day (gpd) per person of potable water will be needed at the site for every employee that showers at the end of the shift. Additional water will also be needed in the mill for laundry facilities. As a general rule, the construction crews and open pit mine crews will not shower on site while the crews in the mill and underground mine will need to shower before leaving the site due to higher exposures to radon dust. Initially, the company plans to purchase water from Jeffrey City and import it to the site for the portable bathrooms and limited shower facilities that will be present during the construction period. This will likely continue through the initial mine operations period when only the open pit is in operation given that the site's potable water needs (approximately 2,000 gpd) could still be met by one water truck or less per day. As the mine operation expands with underground mining, a potable water treatment system will be built in accordance with EPA requirements. Assuming up to 200 personnel, the system will be designed to treat and provide approximately 10,000 gallons per day.

4.4.3 Surface Water

The Project has a Storm Water Pollution Prevention Plan (SWPPP) that is active and current. This plan will be updated as necessary during mine operations. The heap leach facility and process plant, which will be regulated by the NRC, are required to incorporate surface water management practices which account for the Probable Maximum Precipitation (PMP) and Probable Maximum Flood (PMF) events. Storm water runoff from the adjacent lands will be prevented from interacting with the heap leach and process plant facilities and detained within an existing, permitted impoundment northwest of the processing facility. Storm water from the heap leach and process plant areas will be contained in a double-lined pond (i.e., the holding pond) with leak detection. This will be a zero discharge facility with excess water removed via evaporation.

The Sheep Creek and Crooks Creeks drainages are both perennial river systems (Sheep Creek to the east and Crooks Creek to the west of the Project). They are both located within the South Platte drainage basin, although neither have continuous flow to the Sweetwater drainage to the north. Mining and processing operations are not expected to directly affect either Sheep Creek or Crooks Creek. No surface disturbance is planned in the Sheep Creek drainage and groundwater flow is west and away from the creek. Crooks Creek is downgradient from the Sheep Mountain Project and likely receives groundwater inflow through adjacent saturated sediments, although the rate is low as evidenced by the lack of springs in the area. Monitor wells have been installed in the uppermost aquifer downgradient from the proposed heap leach, the McIntosh Pit, and proposed mining disturbances. Groundwater monitoring will be conducted over the life of the Project and post reclamation until bond on the Project is released

As discussed in Section 8.6 and documented in Mine Permit 381C, Appendix D-6, Hydrology – Addendum 2011, surface waters within Crooks Creek have been monitored for over one year with respect to flow and water quality. Water quality data downstream of the Project shows alkaline waters with total dissolved solids of approximately 200 mg/L and Radium 226 values less than 1 picoCuries per liter (pCi/L) (note: the radium drinking water standard is 5 pCi/L). The upstream monitoring location shows similar water quality i.e., alkaline waters with slightly higher total dissolved solids and similar levels of Radium 226.

4.5 TOPSOIL MANAGEMENT PLAN

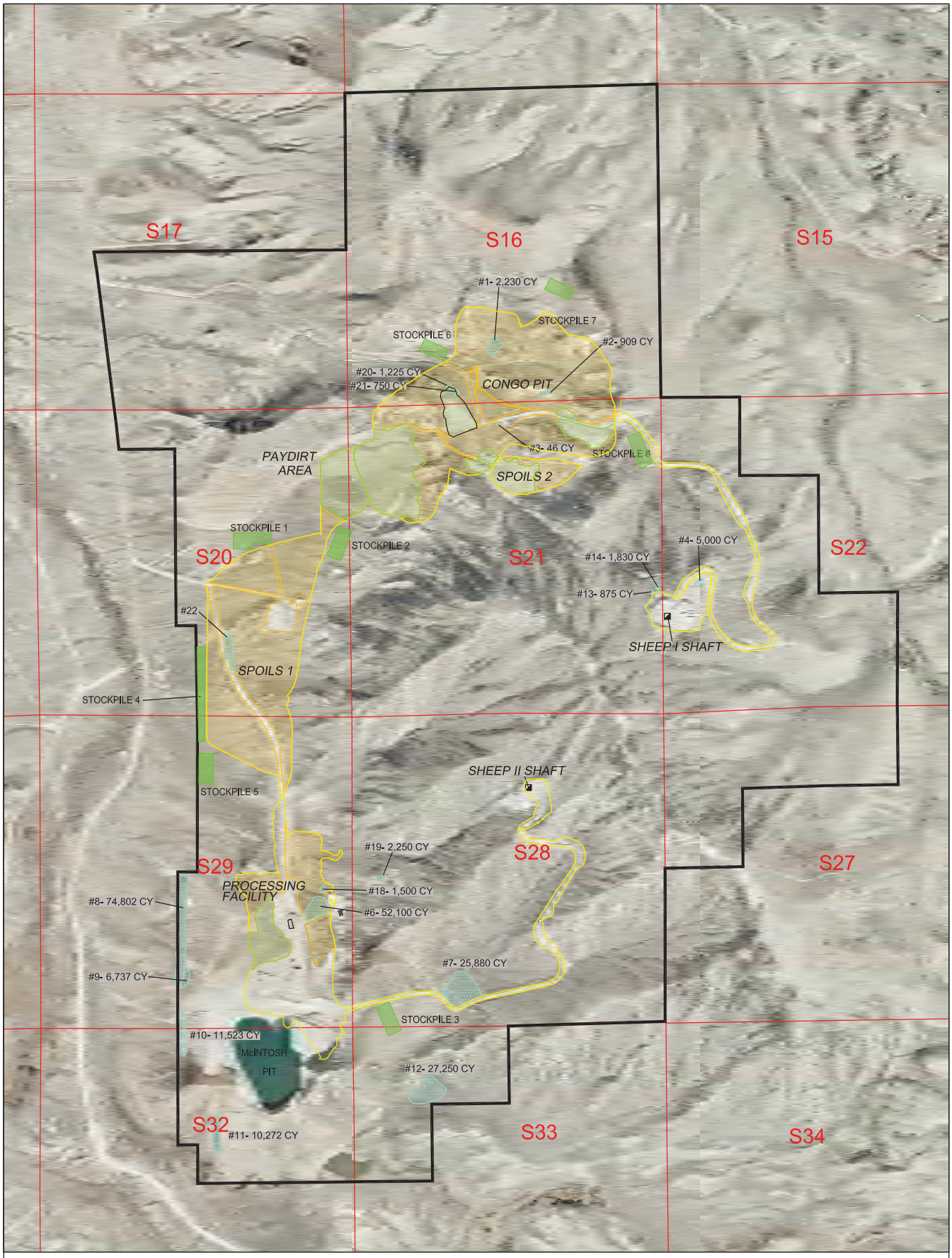
The soils in this portion of Fremont County were studied and mapped to an Order 3 scale by the U.S. Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS) in 1983. Information regarding Fremont County is available in both electronic and hard copy formats. The NRCS has also centralized dissemination of typical soil series descriptions. This information is available on the internet at www.nrcs.usda.gov. Original soil assessments were completed for Mine Permit 381C and are located in the 1980 Appendix D-7 Soil Assessment completed by Mine Reclamation Consultants, Inc. This soil survey was conducted during the fall of 1979 on the Western Nuclear, Inc. study area. The soil series identified within the study area included the BlackHall, Cotopaxi, Elk Mountain, Fluetsch, Ryan Park and Typic Cryorthents series. The overall depth of salvageable topsoil was estimated to be 0.73 feet. The most common limiting factor described was coarse textures with high percentages of fine sand or coarser material that limited the available water holding capacity.

Additional field mapping was conducted by BKS Environmental in 2010 according to techniques and procedures outlined in the National Cooperative Soil Survey and LQD Guideline 1 (August 1994 Revision). An Order 2 soil survey was conducted in August of 2010. Actual soil boundaries were identified in the field by exposing soil profiles to determine the nature and extent of soil series within the Sheep Mountain Project Area. The soil boundaries were delineated on a 2006 NAIP orthophoto with a relative scale of 1:8,000. Updated information is included in Appendix D-7, Soils, Addendum 2011.

With respect to topsoil handling, available suitable topsoil will be salvaged. Topsoil salvage will be directed by ground control personnel experienced with the identification of topsoil and/or other suitable plant growth material which may be encountered during excavation. This may include alluvial soils or buried topsoil from previous mine operations. Salvaged topsoil will be placed in designated stockpile areas. Topsoil stockpiles will be neatly dressed; stabilized with an interim seed mixture approved by WDEQ and BLM; and clearly identified by signage in compliance with WDEQ regulations. Figure 4.5-1 includes mapping and volume estimates of known existing topsoil stockpile from previous operations. These stockpiles will be preserved for future reclamation needs in addition to the topsoil which is salvaged.

Topsoil salvage will primarily be accomplished with a 623 self-loading paddle wheel scraper or equivalent which is capable of selectively excavating the topsoil. As needed, the scraper will be supported by a dozer or motor grader. The same equipment will be used for spreading the topsoil during final reclamation. Where possible a minimum application rate of 0.75 foot of topsoil will be maintained. Topsoil salvaged from federal lands will be segregated from topsoil from other sources and will be replaced only on federal lands.

In addition to topsoil salvage, a minimum of 2 million cubic yards of unclassified earthen material will be salvaged from the mine excavations. This material will meet WDEQ guidelines for suitability for metals and radio-nuclides and will be non-acid forming. This material will come from Quaternary alluvial deposits and/or weather Battle Spring Formation meeting the suitability criteria within the planned mine disturbance limits. This cover material will be spread over regraded areas prior to the placement of topsoil.



LEGEND

- SECTION LINE
- PERMIT BOUNDARY
- PLANNED DEVELOPMENT
- EXISTING COVERSOIL STOCKPILE
- PROPOSED COVERSOIL STOCKPILE
- NATIVE COVERSOIL TO BE STRIPPED AND STOCKPILED
- PREVIOUSLY RECLAIMED AREA COVERSOIL TO BE STRIPPED AND STOCKPILED

T.28N., R.92W.

1,500' 0 750' 1,500'

1 inch = 1,500'

BRS ENGINEERING	**TOPSOIL INVENTORY**	**SHEEP MOUNTAIN MINES FREMONT COUNTY, WYOMING**	REVISION DATE: 07/12/12
	SCALE: 1"=1500' DATE: 07/12/12		CAD FILENAME: LP2008/PERMITING/EXISTING CONDITIONS
	DRAWN BY: CDS,RSR		DWG. NUMBER: FIGURE 4.5-1

Figure 4.5-1, Topsoil Inventory, shows existing topsoil pile locations and anticipated topsoil salvage areas. Some 225,200 cubic yards of topsoil are currently stockpiled. It is estimated that 685,800 cubic yards of topsoil will be salvaged during mining operations (refer to Appendix D-7, Addendum 2011). This yields a total available estimated topsoil resource of 911,000 cubic yards. Of the total estimated 690 acres to be revegetated during the course of the Project, approximately 632 acres of land will require application of topsoil prior to revegetation. The remaining areas such as the topsoil stockpiles and pit perimeter access areas have not had topsoil removed and/or surface disturbance is limited. Based on the estimated volumes of available topsoil and the areas requiring topsoil placement, up to 0.9 feet of topsoil could be applied. Thus, sufficient topsoil is expected to be available for reclamation. It is proposed that initial topsoil placement begin at an approximate 0.75 foot depth. As reclamation proceeds, if there is sufficient topsoil resource, the placement thickness could be increased slightly to fully utilize the available resource. Table 4.5.1 provides a topsoil inventory for the site.

4.6 ROCK CHARACTERIZATION AND HANDLING PLANS

WDEQ regulations require an assessment of the geology and overburden within the Project. This information is presented in Appendix D-5 of Mine Permit 381-C and the Appendix D-5 Addendum 2011. The Addendum provides supplemental data collected from recent overburden sampling. Surficial geologic units exposed in the Congo pit area consist of Quaternary Alluvial deposits and weathered Battle Spring Formation. The Battle Spring Formation is the uranium host and is mineralized at or near the surface in some locations. Stratigraphic zones within the boreholes have been defined as unclassified, marginal or unsuitable based on WDEQ/LQD guidelines. Unclassified material does not contain any deleterious properties with respect to radiological or metal concentrations and is not acid forming. Without exception, the upper oxidized portions of the boreholes, whether collared in Battle Spring or Quaternary Alluvium, where unclassified. Mine operations will segregate both available topsoil and oxidized surficial mine overburden for final cover of the mine and heap areas during reclamation. The ore control methods and equipment previously described will be utilized to segregate this material. It is estimated that a minimum of 2 million cubic yards of suitable cover material can be salvaged from the Congo Pit.

Table 4.5.1 - Estimated Topsoil Salvage Volumes

AREA - Soil Map Unit	MU Symbol	Acres	Depth (ft)	CY
Heap and Heap Road				
Cushool	CU	11.5	2	37,100
Disturbance	D	62.9	0	
Onason	ON	14.3	0.75	17,300
Onason/Reclaimed Varient	ON-RV	14.4	1	23,200
Rock River	RO	3.1	1.25	6,300
	Total	106.2		83,900
Congo Pit				
Bosler	BO	16.0	2.17	56,100
Cushool	CU	60.8	2	196,200
Disturbance	D	54.4	0	
Onason	ON	78.5	0.75	95,000
	Total	209.8		347,300
Paydirt				
Bosler	BO	3.3	2.17	11,500
Disturbance	D	15.7	0	
	Total	19.0		11,500
Spoils 1				
Bosler	BO	19.1	2.17	66,900
Cushool	CU	25.0	2.17	80,700
Disturbance	D	22.5	0	
Onason	ON	55.9	0.75	67,600
Onason/Reclaimed Variant	ON-RV	0.8	1	1,300
Rock River	RO	8.0	1.25	16,100
	Total	131.3		232,600
Spoils 1 Road				
Bosler	BO	0.04	2.17	150
Disturbance	D	0.8	0	
Onason	ON	0.04	0.75	50
	Total	0.9		200
Spoils 2				
Bosler	BO	0.6	2.17	2,100
Disturbance	D	8.0	0	
Onason	ON	6.8	0.75	8,200
	Total	15.5		10,300
Total Salvage Area		**503.8**		**685,800**
Existing disturbance and stockpiled topsoil		**233.6**		**225,200**
TOTAL TOPSOIL AVAILABLE				**911,000**

4.7 SPILL CONTINGENCY PLANS

Spill contingency plans are applicable to both mine and mineral processing operations and for transportation.

Mine Operations: Mine operations use a variety of fuel and lubricants as well as antifreeze and other chemical products in daily operations. Fuel and lubricant storage areas will be enclosed with berms capable of containing any spill plus adequate free board from any storage tank. The ore pad and surrounding berms will be constructed of compacted clay-amended native soils. Mine shops and warehouses will be equipped with drain and waste containment sumps to contain any spills. Spilled fuel, used oil, used antifreeze, and other liquid wastes from maintenance operations will be recycled and/or disposed off-site at a licensed facility.

Mineral Processing: The mineral processing facility including the heap leach pad area is designed to contain all flows and spills and the Probable Maximum Precipitation (PMP) event. The heap pad area is designed with a positive drainage and collection system with solutions reporting to the collection pond. Any spill not contained in the process plant, even in the event of a complete loss of power, will gravity drain to the raffinate pond which in turn would overflow into the collection pond under extreme conditions. Finally the collection pond is designed with an overflow to the holding pond, which has sufficient design capacity for all operational solutions and containment of the PMP event, including an allowance for freeboard and potential wave action.

The process ponds (collection pond and raffinate pond), heap leach pad, and liquid waste containment pond (Holding Pond) are double lined with leak detection systems, which will be monitored regularly according to standard operating procedures to ensure prompt assessment of primary containment system performance. In addition, ground water monitoring downgradient of these mineral processing facilities will allow for detection of adverse impacts to ground water quality should the liner system fail. Leak detection monitoring and ground water monitoring are addressed in more detail in the Monitoring Plan presented in Part 6 of this Plan of Operations.

Transportation: Transportation on public roads, both to and from the mine and mineral processing operations, is subject to DOT regulations including requirements for a spill response plan. Material transportation to the operation will primarily involve diesel fuel, consumable items such as chemical reagents for mineral processing, underground mine materials and explosives. Items transported from the operation will primarily consist of “yellowcake”, which is a solid product packaged in DOT-approved 55 gallon drums for shipment.

Part 5 - Reclamation Plan

Surface disturbance will be phased over several years, depending on the uranium production rate, economic conditions and the availability of mine construction equipment and personnel. Final surface reclamation is also required by state regulatory agencies and assured by bonds. At the end of surface mining, stockpiled overburden will be returned to the pits and the surface re-graded followed by placement of topsoil and seeding. To the extent practical, underground mine waste rock will remain underground. Excess mine wastes from the underground will be backfilled and reclaimed with the open pit mine wastes. Final reclamation includes placing pit mine overburden and spoils back in the mine pits, plugging and abandoning ventilation shafts and access tunnels, removing ponds and buried process piping, regrading the surface to approximate pre-mine contours, replacement of topsoil, and revegetation of the disturbed surface with native plant species approved by the BLM and LQD.

Map 5.1 – Final Reclamation Map, shows the proposed final reclamation contours for the Project including the open pit mine, mine spoils and mineral processing facility. In general the plan seeks to return the lands to approximate original contours. In total, the mine will handle approximately 70 million cubic yard of material of which approximately 6 million cubic yards of material is ore. The processed ore will be reclaimed in-place at the heap leach facility. Thus, this volume will not be available for mine backfill and reclamation. This volume represents less than 10% of the total pit volume. This deficit is expected to be accounted for by the swell of the in-place material during excavation and excess waste from the underground, such that backfill to approximate original contours will be achievable.

5.1 CONGO PIT AND MINE SPOILS

Map 5.1 shows the proposed final configuration of the Congo open pit. Note that the extent of the open pit will be determined primarily by mineral economics. Mineralization at the southern limit of the open pit extends and is continuous with mineralization in the Sheep underground. The relative costs of stripping and mining an open pit as compared to underground mining costs, along with market conditions, will determine the ultimate limit of the Congo pit. The limit, as depicted on Map 4.1 Operating Plan, is considered to reflect the maximum extent of economic open pit mining at this time.

With respect to estimating mine reclamation costs, the overwhelming expense is related to backfill. The proposed mine sequence includes the stripping and mining of 15 contiguous pits within the overall pit limit shown on Map 4.1. Working space constraints will require at least some of the mine spoils from the first 6 pits to be removed from the pit as extra-pit spoils and temporarily stockpiled at the surface. Tonnages of materials are shown on the subsequent table. The extra-pit mine spoils equate to a volume of approximately 24.5 million cubic yards and includes an estimated 2 million cubic yards of mine spoils suitable for final reclamation cover prior to topsoil replacement. Subsequently, mine spoils generated by the development of pits 7 through 16 will be backfilled internally. Whenever the Congo pit reaches its economic limit, some 24.5 million cubic yards of material will be returned to the pit as backfill.

Table 5.1.1 - Congo Pit Summary of Mine Waste Volumes

Pit	Extra-Pit Overburden Spoil Pile #1 Cubic Yards (CY)	Extra-Pit Overburden Spoil Pile #1 Cubic Yards (CY)	Intra-Pit Overburden Backfill Cubic Yards (CY)	Reclamation Backfill Cubic Yards (CY)
1	4,300,000		300,000	
2	4,800,000			
3	4,800,000		100,000	
4	900,000	1,000,000	3,500,000	
5		1,000,000	4,400,000	
6	1,700,000		3,200,000	
7	5,300,000			
8			5,400,000	
9			5,500,000	
10			5,000,000	
11	2,700,000		2,600,000	
12			5,300,000	
13			5,700,000	
14			5,900,000	
15			4,900,000	
16				6,000,000
17				5,000,000
18				5,000,000
19				5,000,000
20				3,500,000
Total	**24,500,000**	**2,000,000**	**51,800,000**	**24,500,000**

Note: Numbers rounded

While the final reclaimed surface configuration will approximate original contours, the Congo pit is located in a rather steep upland area and reclamation will employ design criteria developed through geomorphic site investigations completed for the pre-mine conditions (see Appendix D6, Addendum 2011). Based on current success with geomorphic mine reclamation techniques on AML projects in the Gas Hills, it is believe that applying these techniques to the Congo Pit reclamation will create a diverse and erosionally stable landscape. Sections 5.4.5 and 5.4.9 provide additional details on these reclamation techniques.

As the open-pit mine moves from operating status to reclamation, the open-pit crew will be reduced in size to approximately 24 personnel, primarily equipment operators. Most of the equipment used during production will be utilized for reclamation activities. However, given that less selectivity is required during backfilling of the pit, larger equipment may be brought on site to reduce costs and shorten the reclamation period. Approximately three to four years will be

required to backfill the pit, spread topsoil, reshape (i.e., pock) the soil surface, and seed the reclaimed areas.

5.2 SHEEP UNDERGROUND

The Sheep underground mine is planned as a cut/fill mine such that the majority of mine waste is used as mine backfill as ore is successively removed. As such, there is a limited amount of net mine spoils that report to the surface. Out-of-mine spoil from the underground mine operations is primarily related to the initial decline development and additional mine development haulages. It is estimated that the total out-of-mine spoil will be approximately 570,000 cubic yards (1 million tons). Out-of-mine spoil will be placed on Spoil Pile 1 and later backfilled within the open pit during reclamation.

Upon completion of mining, the declines, shafts and vent holes will be capped and/or sealed with a bulkhead. The surface disturbances will be regraded to approximate original contours, topsoil replaced and the site revegetated. For the declines, the bulkhead will be at sufficient depth to minimize the potential for mine subsidence to reach the surface. This depth is generally 10 times the mine opening height and will be determined based on geotechnical factors, including the bulking factor and draw angle.

Demolition of buildings and placement of mine seals will be completed by a small crew of approximately 6 people over an 8-month period. Removal of waste rock from the Sheep I shaft area and regrading, topsoil placement, and seeding on the surface areas affected by underground operations will be done by the open-pit reclamation crew in conjunction with its reclamation of the Congo Pit.

5.3 MINERAL PROCESSING AND HEAP LEACH FACILITY

Reclamation of the heap leach and mineral processing facilities will be regulated by the NRC. Regulatory guidance is incorporated in NUREG 1620, which addresses cover and long term erosional stability. When the heap leach pad area has reached capacity and spent heap leach material has been rinsed and stabilized, the spent material will be graded to its final configuration less an allowance of approximately 10 feet for the cap and cover. By product material from the plant decommissioning (mostly equipment, tankage and building materials) will be placed in an excavated repository within the heap prior to placing the final cover and cap. Map 3.2 provides typical details for cap and cover and grading of the heap leach area The final cover design will require approval by the NRC.

At the start of plant reclamation, equipment and structure that can be cleaned to meet NRC release requirements will be removed from the site and reused at another project or recycled. Specialized demolition equipment will then be brought to the site to break up the concrete foundations and shred the remaining metal structures and equipment. This work may be done by a specialty contractor and/or on-site personnel with leased equipment. These materials will be placed in compacted layers within an excavated repository within the lined heap facility. During this same time, an interim cover of contaminated soils followed by clean soils will be placed over the heap. This will be followed by placement of the final cover, which is expected to

include a clay radon barrier, a capillary break consisting of coarse granular material, a soil cover layer, and an erosion protection layer of riprap and/or a soil/rock mulch. The total cover thickness will be approximately 10 feet. Based on current designs, the reclaimed heap will have gentle slopes of 6 horizontal to 1 vertical (6H:1V) with a maximum height of 134 feet above the primary liner system.

It will require two to three years to reclaim the site with most of the work being completed during the 6 to 8-month construction seasons. The reclamation staff will consist of approximately 24 personnel including 6 on the demolition crew, 12 on the earthwork crew, and 6 supervisory and health and safety personnel. Most materials needed for the cover will be available on site. Imported materials may include clay for the radon barrier and riprap for erosion protection. If these materials cannot be located on site, they will be imported from nearby quarries.

5.4 RECLAMATION PRACTICES

The following reclamation practices will be utilized in reclaiming the Project area.

5.4.1 Drill-hole Abandonment

Drill holes will be abandoned in accordance with BLM and State of Wyoming rules. Drilling within the Project area on all lands is regulated and bonded through the WDEQ Drilling Notification process. The active DN for the Project is No. 331. The DN addresses methods and costs for drill hole abandonment and drill site reclamation.

5.4.2 Demolition

Mine Permit 381C addresses the demolition of existing facilities within the Project and the demolition and reclamation of these facilities is addressed in the current bond. New facilities will meet the same demolition conditions and will be bonded in accordance with WDEQ guidance. The only exception will be the facilities within the NRC restricted boundary. Equipment and materials generated during demolition of the processing facility that meet release standards for radioactivity will be removed for use at another site or recycled. Materials and equipment that do not meet regulatory release standards, will be disposed of as 11E.2 by product material within the double-lined heap pad area.

5.4.3 Materials Handling

As described in Appendix D5, Addendum 2011, the mining plan will segregate both available topsoil and oxidized surficial mine overburden with low radiological levels for final cover of the mine and heap areas during reclamation. During development, unsuitable materials will be identified and selectively excavated and stored based on radiological levels, visual identification, and sampling. Radiological levels in excess of 70 MicroRem per hour is indicative of unsuitable material that will be buried below grade. This material can be readily identified in the field with hand held scintillometers.

5.4.4 Regrading and Reshaping

Surface disturbances related to mining and exploration will be backfilled, where necessary, and regraded to approximate original contours. Positive surface drainage will be restored. Salvaged topsoil will be replaced and the areas revegetated with the approved seed mixture as described in the subsequent section.

5.4.5 Topsoil Placement and Revegetation

Baseline vegetation surveys were completed at the site. Updated information is included in Appendix D-8, Vegetation, Addendum 2011. The 2011 vegetation survey included vegetative diversity and production measurements and recommended reference areas for comparison of vegetative success in reclaimed areas for bond release. BLM sensitive species are addressed in Part 8 of this Plan of Operations.

Subsequent to final grading of the land surface and prior to topsoil placement, regraded surfaces and available topsoil will be inspected and/or sampled as necessary to determine the need for amendments. Topsoil shall be placed in an incremental manner designed to limit haulage over previously placed topsoil. Scrapers will be the primary equipment used to place topsoil with assistance from a dozer and/or motor grader.

The revegetation method proposed for steeper areas is pitting and broadcast seeding while contour ripping and drill seeding is proposed for less steep areas. The pitting procedure has been used extensively in Wyoming AML projects such as those completed in the Gas Hills. The advantage of this approach is that the pitting creates a roughened micro surface that minimizes the development of rilling prior to the establishment of vegetation. In addition, in windblown areas the pits capture snow and enhance moisture availability. A discussion of the key steps that will be implemented during revegetation activities follow.

5.4.6 Agricultural Lime

Lime will be added if the materials at the final regraded surface exhibit the potential to develop acidic conditions. This is considered unlikely based on the overburden analysis previously performed and the intent to segregate suitable material for final cover in volumes sufficient to cover the mine and heap areas prior to topsoil placement. If needed, lime application rates will be determined by sampling the rough graded surface. Application equipment shall be specifically designed for such work and operated by experienced personnel. Once applied, agricultural lime will be incorporated into the regraded surface by discing within 12 hours of application

5.4.7 Fertilizer

Fertilizer rates will be determined by sampling of the available topsoil. Fertilizer will be broadcast by equipment specifically designed for application of granular fertilizer. Typically a 2:1:1 (N:P:K) fertilizer will be applied at the specified rate.

5.4.8 Agricultural Ripping and Topsoil Placement

Agricultural ripping will be completed prior to topsoil placement in areas of compacted substrate including coversoil that has been compacted by haulage vehicles. Agricultural ripping shall be done to a depth of twelve (12") inches parallel to the contour at intervals sufficient to "shatter" compacted materials between rip lines on a single pass of the ripping equipment.

5.4.9 Final Grading and Seeding

Pitting and broadcast seeding is recommended for steeper areas of the site including the Congo Pit area based on successful application of this procedure in similar areas. Pitting and broadcast seeding will be completed within forty eight (48) hours after commencement of agricultural ripping. Final surface tillage operations shall consist of digging approximately eight thousand to ten thousand (8,000 to 10,000) pits per acre. Pits shall range in width from eight to eighteen (8" to 18") inches parallel to the slope and in length of eight to twenty four (8" to 24") inches parallel to the contour. Completed basins shall have a minimum depth of six (6") inches and a maximum depth of eight (8") inches when measured by the method shown on Map 3.2. Pit forming devices shall be preceded by ripper teeth sufficient to reach below the bottom of the pits. Pits shall be constructed in rows parallel to the contour, so that the downslope flow of water is entrapped by the next row of pits. The pitted surface shall have a staggered pattern between adjacent rows of pits. The berm constructed between adjacent pits in the same row shall be sufficient to eliminate any flow of water parallel to the contour. Pits shall be constructed prior to seeding and seed shall be broadcast immediately thereafter with a broadcast seeder as part of the pitting process.

Contour ripping followed by discing and seeding using a drill seeder will be employed on less steep areas of the site where erosion is not a significant concern. Small areas that can’t be pitted or drill seeded may be ripped, disced, and broadcast seeded. The specified seed mix shall be uniformly distributed with a mechanical device specifically designed for such work and the ground thoroughly raked or dragged immediately after seeding to cover the seed with approximately one quarter (0.25") inch of soil. Raking or dragging will be done parallel to the contour. Broadcast seeding with raking or dragging will be done in all ditch and channel flowline areas.

Fall seeding shall be done between September 15 and the time that frost prevents preparation of a proper seed bed. Spring seeding shall be done after the frost leaves the ground and until May 15th.

5.4.10 Riparian Mitigation

Planned operations will not disturb any riparian habitat. No disturbance will occur within the Sheep Creek drainage basin to the east of the Project. The Project is located in portions of the Crooks Creek drainage basin; however, no discharge of untreated mine or process water to Crooks Creek is anticipated. Storm water discharges to Crooks Creek will be mitigated in accordance with the SWPPP. A 500 foot buffer along the eastern edge of Crooks Creek is proposed within which there would be no surface disturbance related to the Project. There will be no disturbance to the western edge of Crooks Creek as all Project activities and disturbances occur east of the creek.

5.4.11 Wildlife Habitat Rehabilitation

Wildlife surveys conducted for approval of the original 381C mine permit included April 1974 surveys and updated observations in 1980. The bulk of the original wildlife surveys were obtained from a survey conducted by Dames and Moore in April 1974 and documented in an Environmental Report prepared for Western Nuclear, Inc. in May 1974. The mine permit also included results of a Wyoming Game and Fish Department (WGFD) study conducted in south central Wyoming in 1980. As stated in the permit: It was "assumed that the animal density information for vegetation types in southwest Wyoming can be extrapolated to similar vegetation types in the Crooks Gap Area." Refer to Appendix D-9 of Mine Permit 381C.

Additional surveys were conducted by Real West Natural Resource Consulting in 2010 and monitoring is continuing. Updated information is included in Appendix D-9, Soils, Addendum 2011. The new wildlife surveys were completed in consultation with the WGFD and the Lander District office of the BLM. The surveys concluded that the Project is not located in a Sage Grouse Core Area or within critical winter range for Big Game. No other species of concern or potential habitat for listed species was found to occur within the Project. BLM sensitive species information is included in Part 8 of this Plan of Operations.

5.4.12 Post-Closure Management

After closure, the mine area will be monitored and a bond will remain in place until such time that all reclamation conditions of the permit have been met including but not limited to establishment of vegetation, stabilization of the site with respect to erosion, and demonstration through monitoring that the groundwater system has been returned to its pre-mine water quality.

Post closure in the mineral processing area will require transfer of title of the land to the DOE for long term care and maintenance with the requisite posting of funds for long term care and maintenance. As the processing site in located on private surface controlled by Energy Fuels, transfer of the surface rights will be straightforward. However, the area has a split mineral estate administered by the BLM and transfer of those rights to DOE may also be required.

Part 6 - Monitoring Plan

6.0 Operational Monitoring Plan

Operational monitoring includes environmental monitoring, compliance monitoring, and health and safety monitoring of personnel and workplace. Figure 6.0-1, shows the location of pre-operational monitoring and sample locations for ground and surface water, air quality, meteorological, and radiological parameters that define environmental baseline conditions in compliance with Federal and State regulations including the BLM, NRC, and WDEQ. In addition, pre-operational surveys and sampling programs have documented baseline conditions relative to wildlife, vegetation, soils, and climate. The majority of the pre-operational monitoring will be continued during operations although the frequency may change according to permit and/or license conditions. Additional, operational monitoring will be required by regulation and permit and/or license conditions, as well personnel monitoring. Operational monitoring will comply with all state and federal regulations, including but not limited to:

- BLM 3809.401 (4)
    - Primary focus is surface and ground water quality and quantity; air quality; revegetation stability; noise; and wildlife.
- WDEQ/LQD
    - Primary focus is mine reclamation; revegetation stability, diversity, and productivity; surface and ground water quality and quantity; and erosional stability.
- WDEQ/AQD
    - Primarily fugitive dust and carbon emissions.
- WDEQ/WQD
    - Primarily SWPPP and although not anticipated, surface water discharge.
- NRC
    - Primary focus is environmental pathways (air, water, soils, flora and fauna) for radiological and non-radiological constituents.
    - Radiation exposures, both occupational and to the general public
- EPA
    - Primary focus is radon gas emissions regulated under NESHAPS
- MSHA
    - Primary focus is worker health and safety including fugitive dust; underground working levels with respect to gases; exposures to chemical and solvents; and noise.
- Wyoming State Mine Inspector
    - Primary focus is worker health and safety
- Wyoming State Engineer’s Office
    - Primary focus is impoundments and water rights
- Wyoming Game and Fish and US Fish and Wildlife
    - Primary focus is wildlife

Some of the operational monitoring requirements will be based on subsequent license and permit conditions and are not fully defined at this time. A discussion of the major aspects and proposed operational monitoring follows. Tables 6.0.1 and 6.0.2 summarize the monitoring programs including monitoring locations, frequency and analytes.

6.1 Air Quality and Radiation Levels

Air Quality for the Sheep Mountain Project is regulated by NRC and EPA for radiological parameters at the processing facility and WDEQ/AQD at the mine site and processing facility as delegated to the State from the EPA. Primary concerns are hazardous air pollutants (HAPs) and air borne fugitive dust (regulated by AQD) and radiological particulates and radon gas (regulated by NRC and EPA). Figure 6.0-1 shows the location of current air monitor stations which monitor radioparticulates, radon-222 and direct gamma radiation; no site PM-10 or PM-2.5 data have been collected to date. The nine air monitors have been collecting continuous air samples for a minimum of 1 year. Air Monitors 2 and 3 are well removed from the mineral processing facilities and were established for environmental baseline determination. Pending the outcome of AQD permitting, the existing monitoring locations as well as PM-2.5 particulate monitors may or may not be needed. At a minimum, Air Monitor 2 will need to be relocated as it falls within the current open pit footprint. To ensure compliance with 10 CFR 20.1301, 20.1302, and 20.1501, air monitoring will be conducted on a continuous basis. Additional mobile measurements will be taken as required within the work place.

Mine related air quality monitoring and measurements will be required for underground working levels to protect worker's health and safety as required by MSHA and the Wyoming State Mine Inspector's Office. EPA will require monitoring of radon gas from mine vents as per 40 CFR Part 61, subpart B, however, the extent and frequency has not yet been established.

Additional radiological characterization of the site has been completed including surface gamma measurements, soil sampling and analysis, and radon flux measurements to determine background conditions. Similar radiological surveys will be completed during reclamation and decommissioning of the mine and mineral processing facility to ensure compliance with state and federal regulations.

6.2 Site Stability

Site stability and erosion is being monitored under the existing Storm Water Pollution Protection plan (SWPPP). The SWPPP will be updated as needed when site conditions related to new mine disturbance or mine reclamation change. The SWPPP calls for routine inspection and spot inspection following significant precipitation or runoff events.

6.3 Wildlife

Wildlife surveys have been completed for the Project in consultation with the BLM, Wyoming Game and Fish, and US Fish and Wildlife. The results of the wildlife surveys are included in Appendix D-9 and referenced under Part 8.9 of the Plan of Operations. Energy Fuels intends to

continue wildlife surveys prior to and during mine operations with a focus on species of concern and wildlife mortality.

6.4 Vegetation

Vegetation monitoring for radionuclide uptake is required by NRC regulations on an annual basis. WDEQ regulations require monitoring of areas that have been revegetated for cover, diversity, and productivity. Revegetated areas are compared to pre-established reference areas to measure the success of revegetation and to ensure the reclaimed lands have been returned to pre-mine land use.

6.5 Surface Water

Surface water has been continuously monitored for a minimum of 1 year along the nearest potential receiving surface water body, Crooks Creek, at three locations as shown on Figure 6.0-1 to establish background conditions upgradient of the Project, immediately adjacent to the Project, and downgradient from the Project. In addition, two ephemeral impoundments are sampled on an opportunistic basis. Surface water monitoring will continue during operations on a quarterly basis and includes both WEDQ and NRC water quality parameters in addition to water flow measurements. Additional sampling will be conducted as appropriate should a spill or excursion be detected.

6.6 Ground Water

Ground water monitoring to establish baseline hydrologic and water quality conditions both upgradient and downgradient of the proposed mines and processing facility has been completed with a continuous record of at least 12 months. In addition, some ground water monitoring wells and the McIntosh Pit, a legacy uranium mine pit filled with ground water, have been sampled continuously on an annual basis since 1988. Ground water monitoring will continue throughout the life cycle of the Project according to the NRC approved license and the WDEQ Permit to mine. Ground water sampling will be conducted on a quarterly basis and includes both WDEQ and NRC water quality parameters in addition to water level measurements. Additional sampling will be conducted as appropriate should a spill or excursion be detected.

6.7 Early Detection Operational Monitoring

Early detection operational monitoring is focused on mineral processing operations and includes:

- Routine measurement of solution flows in relationship to the anticipated water balance.
- Routine inspection of the heap leach and plant site.
- Continuous monitoring of leak detection systems.

Flow of solutions throughout the system will be measured and recorded using an automated system. Anomalous flow conditions in the system will be immediately investigated to determine the cause and if there is need for corrective action.

Routine inspection of the plant and heap site will include general observation of all work areas with respect to general housekeeping and to insure that instrumentation is functioning properly. Inspections will include visual inspections of the perimeter of the plant, ponds and heap and inspection of the leak detection systems. Inspection logs will be kept and included in internal weekly, monthly and annual inspection reports.

Leak detection systems will monitor each of the 4 cells within the heap and ponds. Any flow within the leak detection system will be directed by gravity flow to individual sumps with automatic level alarms and pump back systems. Leak detection as required by 3809.420(b)(12)(ii) is further discussed under Sections 3.4 and 4.3.1 of this Plan of Operations.

6.8 Personnel and Workplace Monitoring

Monitoring of personnel and the workplace is required in the mines (surface and underground), the mineral processing facility, and in the office and maintenance facilities with respect to potential occupational exposures. The nature, extent and frequency of personnel and workplace monitoring varies based on the potential exposure pathways and risks. Occupational exposure to chemicals and solvents is regulated. MSDS are required for chemicals in use or stored on site.

Within the radiation control boundary, personnel and visitors are required to complete radiological scans prior to exiting the facility. Work areas within the radiation control boundary will be monitored, either through fixed instrumentation or routine testing, as determined by the license conditions. Personnel working in radiation protection areas will be equipped with individual monitors and/or badge and will be required to participate in a routine bioassay program to further monitor exposure to radionuclides.

Work areas subject to dusty conditions or chemical fumes, will be monitored through fixed instrumentation and/or routine testing as required. Engineering controls will be employed in such areas to minimize exposures to the extent practicable. If the levels cannot be reduced sufficiently through engineering controls to meet regulatory requirements, then Personal Protective Equipment (PPE) will be required of persons entering or working in these areas.

6.9 Noise

The National Institute for Occupational Safety and Health (NIOSH) recommends an exposure limit for workplace noise of 85 decibels (dBA) for a duration of 8 hours per day (NIOSH 1998). Exposures at and above this level are considered detrimental to hearing.

6.9.1 Worker Exposure

Depending on the type of activity and the equipment being used, noise levels resulting from construction, mining, and mineral processing activities might reach or occasionally exceed 85 dBA near the source. Hearing protection will be required for workers in any work area where engineering controls cannot reduce noise levels below 85 dBA. The Sheep Mountain Project will comply with MSHA regulations, which require a hearing protection program complying with NIOSH standards at the processing facility, open pit mine, and underground mine. For any

work areas exceeding 85 dBA that cannot be reduced by implementation of practicable engineering controls, personal hearing protection will be required. MSHA regulations further require routine worker screening for hearing loss.

6.9.2 Off-Site Exposure

The site is characterized as rural grassland with varied topography. Other land uses include oil production, crop production, transportation, recreation, and wildlife habitat. Due to the remote location of the proposed Project area and low number of nearby off-site noise receptors, noise impacts are expected to be minimal.

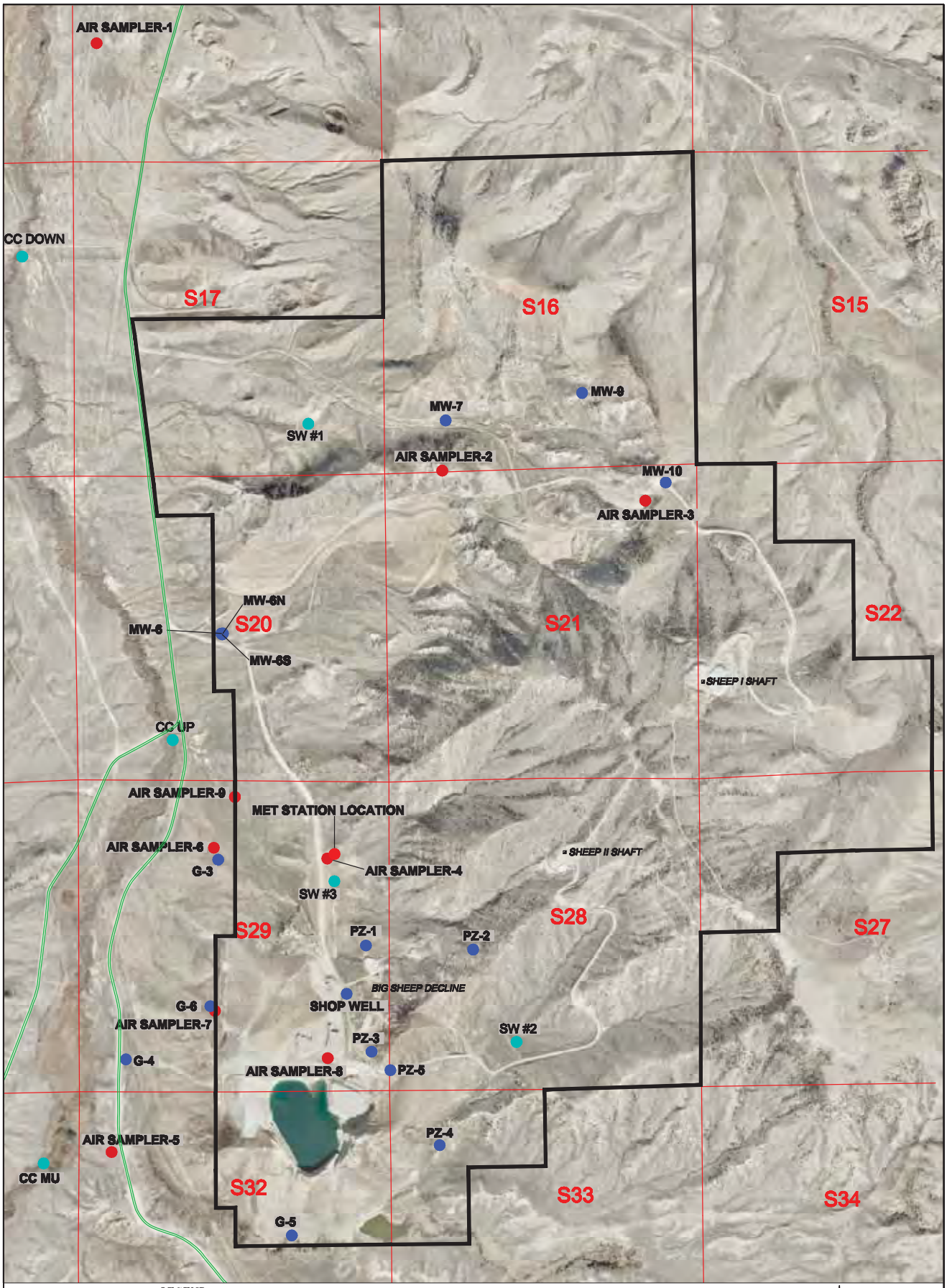
Noise levels associated with the open pit will generally be limited to infrequent blasting operations and the operation of mobile mining equipment and the crusher/conveyor. Open pit operations are scheduled for daylight operations on a nominal 5-day-per-week schedule. Off-site noise levels associated with the underground mine will be limited due to the lack of associated surface activities. Mine exhaust vents at the Sheep I and II shafts will be comprised of electric fans operated by line power which will emit a low steady hum from the electric motors.

Construction background noise may be as high as 105 dBA at 100 ft. The dBA level diminishes by 300 dBA over a mile (roughly 50 times distance at a drop of 6 dBA per distance multiplier). If noise measurements were taken at the site boundary, it would be a half mile away from construction activities and reduced by an estimated 150 dBA (LHSFNA 2011). Based on these assumptions, noise generated from construction activities is expected to dissipate to background levels at the Mine Permit boundary. Occupational noise levels will be monitored per MSHA and/or NIOSH regulations. Environmental noise will be estimated based on distance from the source and confirmed with spot measurements for initial operating conditions and updated annually.

6.10 Corrective Action

If operational monitoring detects conditions in excess of expected or permitted levels, considering background conditions and variability, state and federal regulations require timely reporting on the nature and location of the event. Although the specific response will be dependent upon of the nature and location of monitoring results, the general approach following discovery will be:

- Determine if emergency response and/or immediate action is required.
- Take appropriate initial action to secure the location of impact from public access, isolate the area of impact from the environment and stop the excursion at its source if possible.
- Assess the excursion with respect to public safety and the environment.
- Notify the appropriate regulatory agencies within required timeframes.
- Sample, clean-up and dispose of associated wastes as appropriate.
- Restore the site.
- Follow up with site personnel and regulatory authorities to assess the event and measures to prevent reoccurrences of a similar nature.



LEGEND

SECTION LINE

PERMIT BOUNDARY

MONITORING SITES

- AIR MONITOR
- MET STATION
- GROUND WATER MONITOR WELL
- SURFACE WATER SAMPLING

1 inch = 1500'

T28N R92W

BRS ENGINEERING	ENVIRONMENTAL MONITOR LOCATIONS	SHEEP MOUNTAIN MINES FREMONT COUNTY, WYOMING	REVISION DATE: 7/12/12
	SCALE: 1"=1500'		CAD FILENAME: LP2008/PERMITING/MONITOR ALL
	DRAWN BY: CDS,RSR		DWG. NUMBER: FIGURE 6.0-1
	DATE: 07/10/12		

Table 6.0.1 Summary of Site Environmental Monitoring Program

Media	Locations	Frequency	Parameter Table	Agency
Ground Water	**Mine:** PZ-6, -7, -8, -9, -10, MW-7, McIntosh Pit **Mill:** PZ-1, -3, -4, -5, G-3, -4, -5 Point of Compliance Wells (TBD)	Annual Quarterly	Field: pH, Temperature, Conductivity, Water Level, Dissolved Oxygen Lab: Ca, Mg, Na, K, CO3, HCO3, SO4, Cl, NH4, NO2+NO3, F, SiO2, TDS, Cond., Alk., pH, Al, As, Ba, Be, Bo, Cd, Cr, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, V, Zn, NatU, 226Ra, 228Ra, Th230, Po210, Pb210, Gross Alpha, Gross Beta	WDEQ/NRC WDEQ/NRC
Surface Water	CrookUS1, CrookUS2, CrookDS SW-01, SW-02	Quarterly As water is available after rainfall	Same as Ground Water but add Turbidity and discharge, TSS	NRC NRC
Air	**Mine: (TBD)** **Mill:** AM-1, -4, -5, -6, -7, -8, -9	As required by WDEQ/AQD Permit (TBD) Continuous measurement, Qrtly sampling	TBD NatU, 226Ra, Th230, Pb210 and Radon	WDEQ NRC
Noise	Permit Boundary, Mine Areas (TBD)	Quarterly	dB	MSHA/NIOSH
Soil	Downwind of Mill Area (TBD)	Annual	NatU, 226Ra, Th230, Pb210	NRC
Vegetation	Downwind of Mill Area (TBD)	Annual	NatU, 226Ra, Th230, Pb210	NRC
Wildlife	Raptors Large Game Sage Grouse	Seasonal, annually Seasonal, annually Seasonal, annually	Visual Observations	WDEQ WDEQ WDEQ

Table 6.0.2 Operational Monitoring:

Media	Locations	Frequency	Parameter Table	Agency
Stability/SWPPP	**Mine:** (as per SWPPP) **Mill:** (as per SWPPP)	Monthly, opportunistically after rainfall Monthly, opportunistically after rainfall	Visual observation of landform stability, sediment control, storm water discharge	WDEQ
Early Detection Monitoring	Heap Leach Pad Collection Pond Raffinate Pond Holding Pond Plant Buildings	Daily, Weekly, Monthly Annual	Unat, Ra-226, Th-230, Pb-210, Po-210, SO_4 as per license (TBD)	NRC
Personnel & Workplace	Radiation Control Areas	Personnel: Continuous, qrtly sampling Bioassay Workplace: throughout buildings	Radon-222, direct gamma Unat Radioparticulates, Radon-222 & daughters, Beta/gamma radiation	NRC

Part 7- Interim Management Plan

This plan addresses management of the Project during periods of temporary closure (including periods of seasonal closure) to prevent unnecessary or undue degradation. Interim management plans are required by the BLM under Section 3809.401(5) of Title 43 of the Code of Federal Regulations and by both WDEQ/LQD and NRC regulations. In the advent of circumstances requiring interim cessations of mine and or mineral processing operations, the BLM, WDEQ, NRC, and other regulatory agencies would be promptly notified.

WDEQ/LQD Noncoal Standard Operating Procedure 2.1, 1999, states “If mining (initiation of backfill) is halted for periods exceeding 180 days and primarily for economic reasons, the permittee must submit a Request for Interim Mine Stabilization (Request) under Noncoal Rules, Chapter 3, Section 2(k)(ii)(A). This provision does not elaborate on the "economic conditions" which may trigger a Request. The Request may apply to all currently disturbed lands or to specific disturbed units (e.g. an individual pit) within the permit area. A permittee may seek approval for reclamation delays up to five years in length. A permittee may request renewal of the Interim Mine Stabilization under Noncoal Rules, Chapter 3, Section 2(k)(ii)(D).

NRC Timeliness in Decommissioning Rule, 1994, and subsequent revisions to 10 CFR 40.42, set forth procedures for a 24-month interim standby period at uranium recovery facilities. If operations have not resumed by the end of that period, the licensee must proceed with decommissioning of the Project in accordance with license conditions unless a request for time extension has been requested and approved by the NRC.

Should interim cessation of mining and/or mineral processing operations be necessitated, the operation would not immediately shutdown but would proceed in an orderly manner to cease operations and stabilize the site. The cessation of mining and mineral processing could proceed at different rates depending on the status of each operation at the time the decision to place the operation on interim status was made. It is possible, if the mineral processing facility was receiving feed from other mine operations, that mineral processing operations would continue while the mine operations were temporarily ceased.

7.1 Mine Operations

Interim cessation and stabilization of mine operations would include:

- Filing a request for Interim Mine Stabilization and securing approval of the plan by the BLM and WDEQ.
- Specific reasons why mining should cease would be provided and the economic conditions that would restore viability to the permitted operation would be outlined.
- Access roads, haul roads, crusher/equipment areas, stockpile areas, buildings, loadout facilities, etc. within the existing permit area that are necessary to allow eventual mining of the reserves (and would therefore need to be preserved) would be clearly identified.
- Areas requiring stabilization and detailed stabilization procedures (e.g. temporary

seeding, permanent reclamation, partial backfilling, slope stabilization, safety fencing, etc.) necessary to establish a low maintenance configuration would be identified and addressed upon approval of the plan.

- Any stored fuel, lubricants, or other chemicals would be removed from the site and properly disposed of at licensed facilities. Storage vessels would be stabilized or removed.
- No new land disturbance would be created but mining of exposed ore would be completed and ores would be transferred to the heap leach facility for processing and/or stabilization.
- The primary items of concern would be human safety, maintenance of surficial stability on lands within the Permit Area, sediment control (or minimization of sediment loss) for disturbed lands and environmental protection.

7.2 Mineral Processing

Interim cessation and stabilization of mineral processing operations would include:

- Completion of active leaching operations to remove soluble constituents.
- Plant equipment including tanks and vessels would be drained, decontaminated and protected for future use.
- Interior surfaces in the processing facilities would be decontaminated and cleaned.
- Solids would be removed from the raffinate, collection, and holding ponds. Liners would be decontaminated and cleaned.
- Tanks containing fuel, reagents, and other products would be drained and stabilized for future use.
- Wastes generated by the decontamination and cleanup process would be disposed of within the heap leach pad area, stabilized and covered.
- The heap leach facility including pads, ponds, and the plant would be secured from public access. Site security would be maintained by physical presence and/or remote surveillance as approved in the interim plan.

7.3 Monitoring and Corrective Action

Monitoring and corrective action would include:

- Facilities would be routinely inspected on a monthly basis. The inspected areas would include both the mine and mineral processing areas, perimeter fencing, and components of the SWPPP.
- Any discovery of a breach of the site infrastructure would be immediately reported to the respective regulatory authorities. Potential hazards to human health and the environment would be assessed and reported as required. Remedial action would then proceed in a timely manner with approval of the respective regulatory authorities.
- Environmental monitoring for ground and surface waters, radiological levels, and air particulates would continue at operational frequencies unless otherwise approved by the respective regulatory authorities.

Part 8 - Operational and baseline environmental information

Site environmental and resource conditions are summarized here and documented annually in the Mine Permit 381C, Mine Permit 381C Annual Reports and recent addenda to Appendix D of the mine permit including:

- D-1 Land Use
- D-2 History
- D-3 Archeology
- D-4 Climatology
- D-5 Geology
- D-6 Hydrology
- D-7 Soils
- D-8 Vegetation
- D-9 Wildlife
- D-10 Radiology

Specific Items of note include:

1. Radiological Levels. Surface radiological levels are summarized below and further documented in Appendix D-10, Radiology Addendum 2011. Current baseline radiological surveys, including gamma surveys correlated to equivalent Radium 226 in soils, show elevated background levels of both Natural Occurring Radioactive Materials (NORM) and Technically Enhanced Natural Occurring Radioactive Materials (TENORM). These elevated background levels are related to the local geologic setting and outcropping of mineralized material and to the historical mining and mine reclamation activities conducted at the site.

2. Surface Drainage. Historic access to the site includes two routes both originating from the Jeffery City/Wamsutter County road. The northern access route is along Hank's Draw. The access road alignment has impacted the surface drainage in the area and led to increased sediment transport. The southern access route is more stable. The reclaimed Paydirt pit (AML) is a closed depression, lacking a surface outlet. Previously the access road between the Sheep I and Sheep II shafts was creating surface drainage issues, erosion, and off-site sediment transport. This access road was re-graded to approximate original contours and reclaimed by Energy Fuels (formerly Titan) in 2010.

3. Exploration and Historic Disturbances. The existing land surface within the Congo Pit limits (both State Lands and BLM) has been affected by mineral exploration, historic underground shafts and vents, and mine subsidence. Although this area is shown as new disturbance in the Operating Plan, the land surface has been extensively impacted by historic exploration and mine development.

4. Ground Water Hydrological Conditions. As discussed here and further documented in Appendix D-6, Hydrology Addendum 2011, despite the long history of mining, much of which proceeded modern regulations, existing ground water quality does not show

significant degradation from mining. In the vicinity of the McIntosh pit, the pit and 5 surrounding wells have been monitored for water level and water quality since 1988. This included the period of time from 1990 to October 2000 when the Sheep underground mine was being continuously dewatered and water was discharged into the McIntosh pit. While water levels in the pit were affected, the water levels in the monitor wells were not. Water quality in both the pit and monitor wells was stable and consistent. The only exception was a gradual rise in Radium 226 and uranium concentrations in the McIntosh pit.

5. Mineral Processing and Heap Leach Facility. The mineral processing and heap leach facility will be located on lands which have been extensively disturbed by open pit mining and associated spoil disposal. These lands are private lands granted originally under the Stock Raising Homestead Act of 1916. Energy Fuels recently purchased the surface land that will encompass the processing facility. This will facilitate the transfer of surface lands to the DOE for long term care and maintenance with the approval of the NRC when the Project is closed out and reclaimed.

A short summary of current information for each resource category is presented below along with references to Appendix D for more detailed information.

8.1 Land Use

Non-mining land uses include stock grazing, wildlife habitat, oil and gas production, and recreation. Post-mine land use will be unchanged. Refer to Appendix D-1 – Addendum 2011

8.2 History

Mine exploration and mining has been conducted in the Project area since the early 1950s. Refer to Sections 2.1 and 2.2 and Appendix D-2 – Addendum 2011.

8.3 Archeology

No NRHP eligible sites were identified within the Project area. Cultural surveys have been completed and submitted separately to BLM. Refer to Appendix D-3 – Addendum 2011.

8.4 Climatology

An on-site weather station has been in place for two years. A total of 9 air monitoring stations are in place that collect radiological information . Refer to Appendix D-4 – Addendum 2011.

8.5 Geology

Additional characterization of mine overburden has been completed. A selective material handling plan to segregate suitable materials for final cover and reclamation is presented in the Operation Plan. Refer to Appendix D-5 – Addendum 2011.

8.6 Hydrology

In addition to wells that have been continuously monitored since 1988, a comprehensive ground and surface water monitoring program has been established. Refer to Appendix D-6 – Addendum 2011.

8.7 Soils

Topsoil resources have been evaluated and are sufficient to support mine reclamation goals. Refer to Appendix D-7 – Addendum 2011.

8.8 Vegetation

Vegetation diversity and productivity have been quantified. Refer to Appendix D-8 – Addendum 2011. A supplemental report on Limber Pine, a BLM sensitive species, is included.

8.9 Wildlife

No critical habitat or sensitive species will be affected by the proposed mine operation. The Project is not located within the Sage Grouse core area or within critical winter range for Big Game. Refer to Appendix D-9 – Addendum 2011.

8.10 Radiology

Baseline radiological conditions and background levels, NORM and TENORM, have been defined. It is a reclamation goal to insure post-mining radiological levels are lower than current levels. Refer to Appendix D-10 – Addendum 2011.

Part 9 - Reclamation cost estimate

The current reclamation bond for Mine Permit 381C, held by the WDEQ/LQD, is summarized in Table 9.1. The bond amount is updated annually per state regulations. When the BLM Plan of Operations and the LQD mine permit revisions are approved, Energy Fuels will be required to post a bond based on the reclamation requirements for the first year's disturbance and update that bond annually.

Table 9.1.1 - Current Reclamation Bond

Permit No. 381C

Revised Bond Calculation Summary 8-5-2011

ITEMIZED TOTAL BY AREA

Monitoring	$28,620.00
Sheep Declines	$37,859.84
Sheep I Cap (Completed 2011)	$0.00
Roads	$198,931.16
Monitor Wells	$22,747.20
McIntosh Pit (Shops Removed 2011)	$85,328.29
TOTAL	**$373,486.49**

TOTAL FROM SUPPLEMENT DOCUMENT

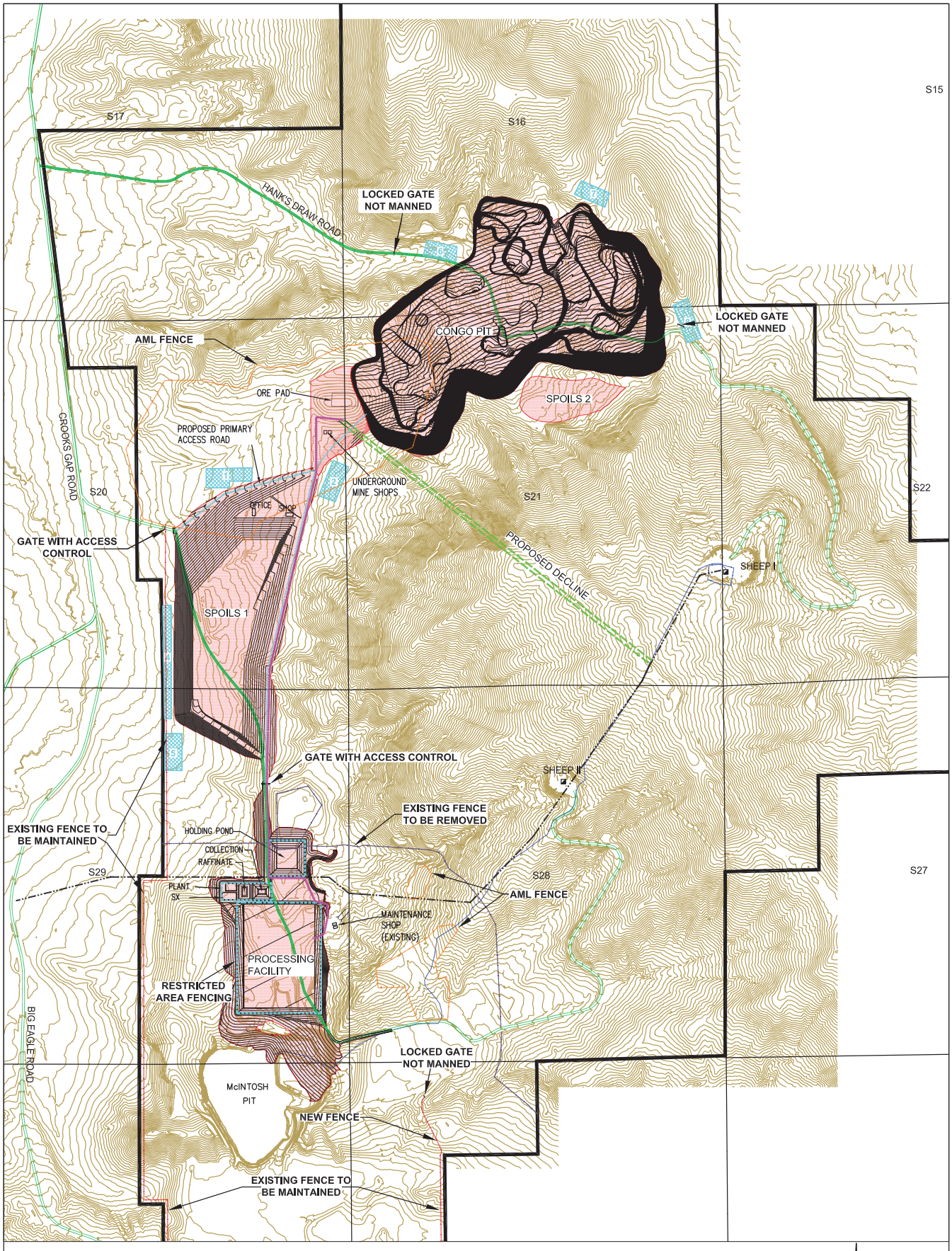
McIntosh Pit	$515,982.00
Sheep I	$41,398.00
Sheep II	$61,665.00
SUPPLEMENT TOTAL	**$619,045.00**

ADDITIONAL BOND RECOMMENDED FOR SHEEP I and II SHAFT AREAS (2010)

Sheep I	$295,399.50
Sheep II Spoils Haulage (Completed 2011)	$0.00
SHEEP I ADDITIONAL TOTAL	**$295,399.50**
SUBTOTAL	**$1,287,930.99**

MISCELLANEOUS ITEMS FROM WYDEQ GUIDELINE 12

Design final reclamation project, 6.25%	$80,495.69
Contractor profit, overhead, mob and demob10%	$128,793.10
Construction management, 4.25%	$54,737.07
Site monitoring, 0.5%	$6,439.65
Unknown costs, 4%	$51,517.24
Total Miscellaneous Items 25%	**$321,982.75**
TOTAL ESITMATED RECLAMATION OBLIGATION	**$1,609,913.74**
CURRENT BOND AMOUNT (UNCHANGED SINCE 2010)	**$1,754,687.24**



LEGEND

- SECTION LINE
- PERMIT BOUNDARY
- EXISTING ROAD / ACCESS ROUTES
- EXISTING ROAD TO BE REMOVED / RECLAIMED
- EXISTING GROUND CONTOURS CI-10'
- DESIGN CONTOURS CI-10'
- DEWATERING PIPELINE ALIGNMENT
- PROPOSED DECLINE TO UNDERGROUND MINE WORKINGS
- PROPOSED ROAD / ACCESS ROUTE
- PROPOSED CONVEYOR ALIGNMENT
- OVERHEAD POWER LINE
- EXISTING MINE PORTAL
- EXISTING MINE SHAFT
- EXISTING FENCE TO BE MAINTAINED
- EXISTING AML FENCE
- EXISTING FENCE TO BE REMOVED
- RESTRICTED AREA FENCING
- COVERSOIL STOCKPILE

T. 28 N., R. 92 W.

1 inch = 600'

BRS ENGINEERING

OPERATING PLAN

SCALE: 1"=600' | DATE: 7/05/12

DRAWN BY: CDS

SHEEP MOUNTAIN MINES
FREMONT COUNTY, WYOMING

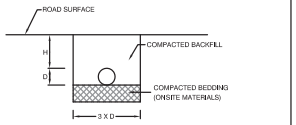
REVISION DATE: 07/12/12

CAD FILENAME: LP2008/PERMITTING/OPERATING PLAN

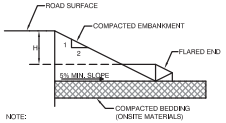
DWG. NUMBER: MAP 3.2

CULVERT DETAILS

CULVERT TYPICAL CROSS SECTION



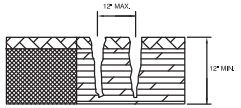
CULVERT OUTLET PROFILE DETAIL



NOTE:
FILL DEPTH (H) SHALL BE
A MINIMUM OF 2 FT.

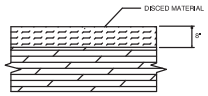
NOTE: ALL DIMENSIONS ARE APPROXIMATE

RIPPING



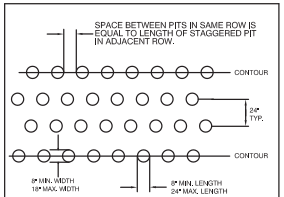
RIPPING SHALL BE PERFORMED TO A DEPTH OF 18" ALONG THE CONTOUR AT A MAX. INTERVAL OF 12" IN ONE PASS.

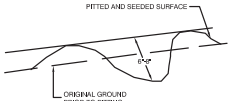
DISCING



DISCING SHALL BE PERFORMED TO A NOMINAL DEPTH OF 8" ALONG THE CONTOUR.

PITTING AND SEEDING

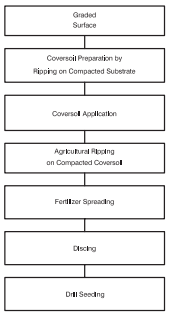




PITS:
MAX. DEPTH 8"
MIN. DEPTH 6"

NOTE: PITS TO BE CONSTRUCTED PARALLEL WITH CONTOURS.

TYPICAL REVEGETATION OPERATION SEQUENCE DETAIL



REVEGETATION SEQUENCE

1. The ground surface will be brought to the lines and grades reflecting approximate design contours and blend with adjacent topography at the completion of grading. Ripping shall be performed on areas of compacted substrate prior to coversoil placement. Coversoil shall be placed on the surface in a 12" thick layer along contour.

2. Ripping, discing, pitting and seeding shall only be done under appropriate soil and climatic conditions for agronomic purposes. Some conditions which may prevent acceptable soil preparation include: soils too wet; formation of clods during ripping, frozen condition or soils too dry.

3. Ripping shall be done on all areas to be seeded, which have been compacted by equipment traffic. Ripping shall be done to a nominal depth of twelve inches parallel to the contour at intervals of 12 inches. Depth of ripping may be limited to a depth of topsoil to avoid excessive mixing of topsoil and subsoil materials.

4. Fertilizer shall be applied to the ripped coversoil at the rate described in the specifications.

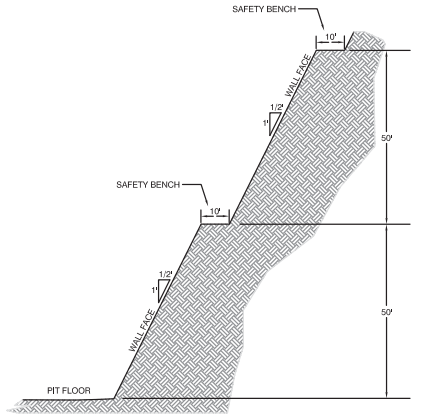
5. Discing shall immediately follow fertilizer application to produce a suitable seedbed. Discing shall be done to a nominal depth of eight inches parallel to the contour by using a heavy duty mechanical type double-gang disc with a minimum coulter diameter of twenty-two inches, or any other implement which is suitable for completion of this task.

6. Seeding operations shall consist of drill and broadcast seeding. Seeding shall only be done during daylight hours.

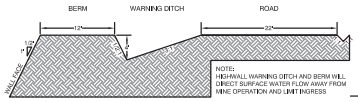
OPEN PIT MINE DETAILS

TYPICAL OPEN PIT HIGHWALL

NOT TO SCALE

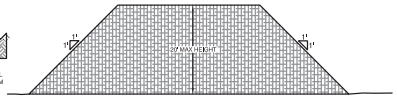


HIGHWALL WARNING DITCH AND BERM



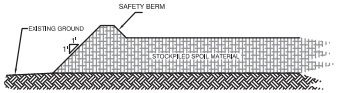
NOTE:
HIGHWALL WARNING DITCH AND BERM WILL DIRECT SURFACE WATER FLOW AWAY FROM MINE OPERATION AND LIMIT INGRESS

TOPSOIL STOCKPILE DETAIL



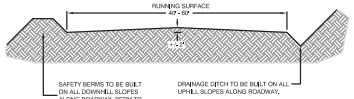
NOTE:
TOPSOIL PILE SHALL BE NEATLY DRESSED, LOCATED TO MINIMIZE WIND AND WATER EROSION, SEEDED WITH APPROVED TEMPORARY GRASS MIXTURE, AND CLEARLY MARKED AS "TOPSOIL"

MINE SPOILS CROSS SECTION



NOTE:
ALL MINE WASTE PILES WILL BE CONSTRUCTED IN A STABLE MANNER, OUTSIDE SLOPE WILL BE PROTECTED WITH A SAFETY BERM, BERM TO BE BUILT TO AXLE HEIGHT OF LARGEST SITE EQUIPMENT AND SHALL CONTAIN PRECIPITATION AND RUN-ON EQUALY TO A 10 YEAR / 24 HOUR STORM EVENT TO MINIMIZE SIDE SLOPE EROSION.

TYPICAL HAUL ROAD DETAIL



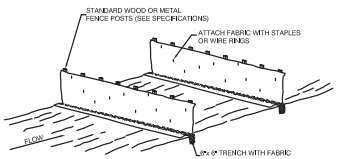
SAFETY BERMS TO BE BUILT ON ALL DOWNHILL SLOPES ALONG ROADWAY, BERM TO BE AXLE HEIGHT OF LARGEST SITE EQUIPMENT.

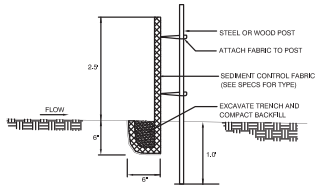
DRAINAGE DITCH TO BE BUILT ON ALL UPHILL SLOPES ALONG ROADWAY.

EROSION CONTROL

SEDIMENT CONTROL FENCE

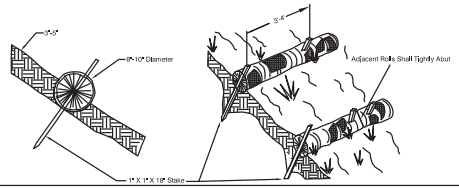
NOT TO SCALE





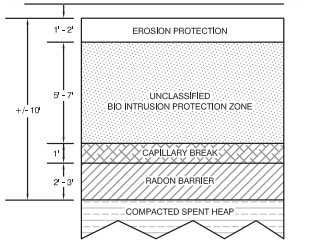
SEDIMENT CONTROL WATTLE

NOT TO SCALE

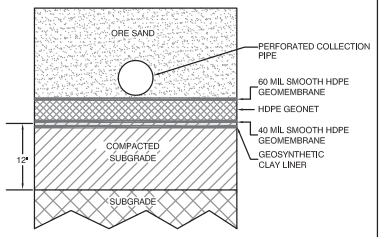


HEAP LEACH DETAILS

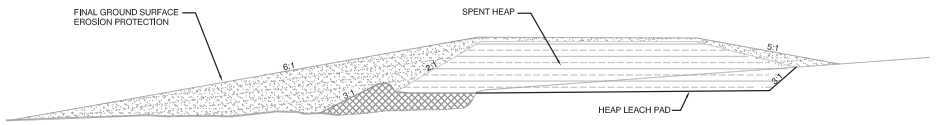
HEAP CAP AND COVER DETAIL



HEAP LEACH BASE DETAIL



HEAP LEACH TYPICAL CROSS SECTION



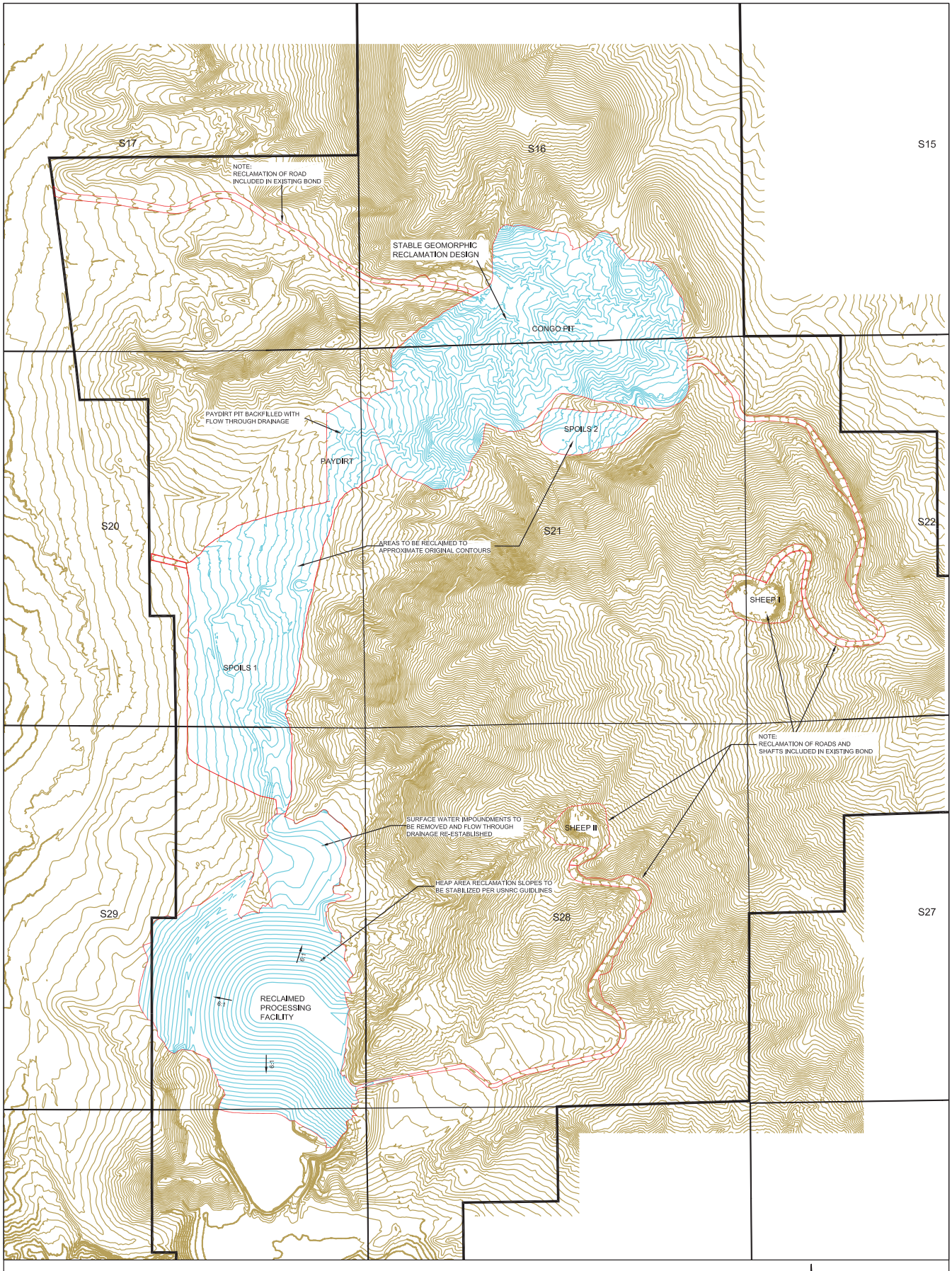
REVISION DATE: 7/12/12
CAD FILENAME:
DWG. NUMBER: MAP 4.1

SHEEP MOUNTAIN MINES
FREMONT COUNTY, WYOMING

CONSTRUCTION DETAILS

SCALE: NTS
DRAWN BY: CDS
DATE: 6/15/11

BRS ENGINEERING



BRS ENGINEERING

FINAL RECLAMATION MAP

SCALE: 1"=600' | DATE: 07/12/12

DRAWN BY: CDS

SHEEP MOUNTAIN MINES
FREMONT COUNTY, WYOMING

REVISION DATE: 07/12/12

CAD FILENAME:
LP2008/PERMITING/2012 RECLAMATION OVERALL.dwg

DWG. NUMBER: MAP 5.1

Threatened, Endangered, and BLM Sensitive Plant Species Report

For Energy Fuels Resources Corporation - Sheep Mountain Uranium Project

Legal Description: T28N, R92W, Sections 16, 17, 20-22, 27-29, 32, and 33

Prepared for:

Energy Fuels Resources Corporation
Frank Filas
225 Union Blvd., Suite 600
Lakewood, CO 80228

Prepared by:

BKS Environmental Associates, Inc.
P.O. Box 3017
Rock Springs, WY 82902

June 2011

Table of Contents

Tables:

Addendum:

Introduction:

The Sheep Mountain Project Area is located within T28N, R92W, Sections 16, 17, 20-22, 27-29, 32, and 33, totaling approximately 3,605.55 acres. The soils within the project area are generally coarse loamy and primarily formed from weathered sedimentary bedrock consisting mainly of sandstone. The two major vegetation communities present within the Sheep Mountain Project Area include Limber Pine-Big Sagebrush and Sagebrush-Grass. The vegetation communities are named for the 1980 WDEQ permit for the mine site. The minor vegetation community is Reclaimed Grassland. There are also large portions of disturbance within the project area.

There are several proposed disturbance areas, within the Sheep Mountain Project Area. The proposed disturbance areas total approximately 666.1 acres, of which, approximately 63% has been previously disturbed by past mining activities. Within the proposed disturbance areas activities associated with the uranium mining process will occur and include pit disturbances, spoil piles, and a heap leach area. Pit disturbances will occur within the Congo Pit, West Congo Pit Extension, Paydirt Pit, and the North Gap Pit. There are two proposed spoil piles: the West Spoils and the South Spoils. There are two alternative locations for the heap leach disturbance areas: the Paydirt Heap Leach (alternative one) and the McIntosh Pit (alternative two). The primary vegetation community present in the Congo Pit and West Congo Pit Extension areas, affected by the proposed mining activities, is the Sagebrush-Grass; however, smaller areas of the Limber Pine-Big Sagebrush, Reclaimed Grassland, and disturbance areas are also present and will be affected. The other pit disturbances, spoil piles, and heap leach locations will primarily affect the Sagebrush-Grass, Reclaimed Grassland, and disturbance areas.

The Limber Pine- Big Sagebrush vegetation community had approximately 41% vegetative cover and is dominated by *Pinus flexilus* (limber pine), *Artemisia tridentata* (big sagebrush), *Artemisia nova* (black sagebrush), *Chrysothamnus viscidiflorus* (Douglas rabbitbrush), *Purshia tridentata* (antelope bitterbrush), *Elymus spicata* (bluebunch wheatgrass), *Festuca idahoensis* (Idaho fescue) and *Poa* species (bluegrass). The Sagebrush-Grass vegetation community had approximately 37% vegetative cover and is dominated by big sagebrush, black sagebrush, *Ericameria nauseosusa* (rubber rabbitbrush), and Douglas rabbitbrush. The Reclaimed Grassland vegetation community had approximately 40% vegetative cover and is dominated by *Hesperostipa comata* (needleandthread), *Elymus trachycaulus* (slender wheatgrass), *Elymus smithii* (western wheatgrass), and *Elymus lanceolatus* (thickspike wheatgrass).

Two threatened and endangered species were surveyed for: *Penstemon haydenii* (blowout penstemon) and *Spiranthis diluvialis* (Ute ladies'-tresses). The Bureau of Land Management (BLM) Lander Field Office (LFO) listed 11 sensitive plant species, as of March 2010.

Methodology:

BKS Environmental Associates, Inc. (BKS), of Rock Springs, Wyoming, conducted threatened, endangered, and BLM sensitive plant species surveys in June, July, and August 2010. BKS used recreational grade GPS units (accuracy 3 to 15 meters) to mark any areas of potential habitat and individuals or populations of BLM sensitive plant species. BKS contacted the Wyoming Natural Diversity Database (WYNDD) to determine if any threatened, endangered, or BLM sensitive plant species occurred within the project area. Natural Resource Conservation Service (NRCS) soil map units were overlay on 2006 National Aerial Imagery Program (NAIP) true color ortho aerial imagery to

determine areas of potential habitat, based on soil characteristics, for threatened, endangered, and BLM sensitive plant species. Field surveys utilized both vehicular and pedestrian reconnaissance to determine potential habitat and species presence. Table 1 lists the BLM sensitive species and their habitat and phenology, as well as, an explanation of habitat potential in project area.

Table 1: BLM Sensitive Species and Explanation of Potential Habitat in Project Area					
Common Name	Scientific Name	Habitat Characteristics	Soils	Phenology	Explanation of Potential Habitat
Meadow Pussytoes	*Antennaria arcuata*	Moist, hummocky meadows, seeps or springs surrounded by sage/grasslands 4,950-7,900'	Clayey soils with high organic matter	July-September	Surveyed for in August in conjunction with *Spiranthes diluvialis* surveys. No habitat or individuals were found within the project area.
Porter's Sagebrush	*Artemisia porteri*	Sparsely vegetated badlands of ashy or tufaceous mudstone and clay slopes 5,300-6,500'	Semi-barren, low desert shrub. Dry, whitish, ashy-clay hills, gravelly-clay flats, Wagon Box Formation	June-July	Habitat characteristics not found within the project area. No individuals or habitat found within the project area.
Dubois Milkvetch	*Astragalus gilviflorus* var. *purpureus*	Barren shale, badlands, limestone, redbed slopes, and ridges 6,900-8,800'	Sandy-clay soils. Soils mostly derived from the Tertiary Wind River or Indian Meadows formations. Cretaceous Cody Shale, Triassic Chugwater, Dinwoody formations, Paleozoic limestone, gravelly moraines.	Late May - Early July	Habitat characteristics not found within the project area. No individuals or habitat found within the project area.
Cedar Rim Thistle	*Cirsium aridum*	Barren, chalky hills, gravelly slopes, and fine textured, sandy-shaley draws 6,700-7,200. Found within openings in big sagebrush grasslands. Also found in bunchgrass or cushion plant communities	Split Rock, White River, Wagon Bed, Wind River, Green River, and Wasatch formations	June-July	Surveyed for in June and July. No individuals or habitat found within the project area.

Table 1: BLM Sensitive Species and Explanation of Potential Habitat in Project Area Continued					
Owl Creek Miner's Candle	*Cryptantha subcapitata*	Sandy-gravelly slopes and desert ridges on sandstones of the Winds River Formation 4,700-6,000'. Occurs within the sparsely vegetated cushion plant communities	Sandstones and conglomerates derived from the Eocene Wind River formations. Some limestones	Late May-June or Mid June to mid July	Habitat characteristics not found within the project area. No individuals or habitat found within the project area.
Fremont Bladderpod	*Lesquerella fremontii*	Meadows, slopes, ridges, and benches in desert foothill, montane meadow, or alpine cushion plant communities on rocky, mesic, limestone derived soils. Rocky limestone slopes and ridges 7,000-9,000'	Limestone derived soils	May-July	Habitat characteristics not found within the project area. No individuals or habitat found within the project area.
Beaver Rim Phlox	*Phlox pungens*	Sparsely vegetated cushion plant communities. slopes on sandstone, siltstone, or limestone substrates 6,000-7,400'	Limestone, volcanic rich sandstone, siltstone, or red-bed clays	May - June	Habitat characteristics not found within the project area. No individuals or habitat found within the project area.
Rocky Mountain Twinpod	*Physaria saximontana* var. *saximontana*	Sparsely vegetated rocky slopes of limestone, sandstone or clay 5,600-8,300'	Sandy, gravelly soils, talus of limestone, red sandstone, or clay	May-Late June	Surveyed for in June. Habitat present within the project area, and within the proposed road disturbance. No individuals were found within the project area.

Table 1: BLM Sensitive Species and Explanation of Potential Habitat in Project Area Continued					
Limber Pine	*Pinus flexilis*	Timberline and at lower elevation with sagebrush. Associated species are Rocky Mountain lodgepole pine, Engelmann spruce, whitebark pine, Rocky Mountain Douglas-fir, subalpine fir, Rocky Mountain juniper, Mountain Mahogany, and common juniper			Surveyed for in June. Habitat and populations present within the project area and within the disturbance areas.
Persistent Sepal Yellowcress	*Rorippa calycina*	Found primarily along moist sandy to muddy banks of streams, stock ponds, and man-made reservoirs near the high-water line at 3660-6800 feet. Most populations are in semi-disturbed or recently flooded openings in small inlets or bays		Late May - August	Habitat characteristics not found within the project area. No individuals or habitat found within the project area.
Barneby's Clover	*Trifolium barnebyi*	Ledges, crevices, and seams on reddish -cream Nugget Sandstone outcrops 5,600-6,700'	Reddish cream Nugget Sandstone	May-July	Habitat characteristics not found within the project area. No individuals or habitat found within the project area.

Field reconnaissance surveys for BLM sensitive plant species were conducted in June, July, early August, and late August, 2010, to ensure surveys for all plant species were conducted during peak flowering periods. Field reconnaissance surveys were conducted for all BLM listed sensitive plant species, with efforts focused on limber pine, *Physaria saximontana* var. *saximontana* (Rocky Mountain twinpod), and blowout penstemon on June 22, 2010. Limber pine and Rocky Mountain twinpod, both BLM sensitive plant species, were surveyed for in areas that had sandy and gravelly soils. Areas to consider as potential habitat, for blowout pensteomon, should be at least 100 feet from top to bottom, have relatively fine sandy soils three feet in depth, and vegetation cover no greater than 30%. The presence of ant hills, sagebrush on the ridge of the slope, coarse sand, coarse fragments, and indicators of water vs. wind erosion indicate the area should not be considered potential habitat. Habitat and species surveys for Ute ladies'-tresses, *Antennaria acuata* (meadow pussytoes), and resurveying of limber pine populations were conducted on August 2 and 3, 2010. Pedestrian reconnaissance was conducted along the southern edge of the project area near the pond and drainage for Ute ladies'-tresses and meadow pussytoes.

In June 2011 BKS conducted tree density counts for the limber pine using the point center quarter method and measured distances from point to plant for a maximum of 50 feet. This method was used to estimate the total number of trees per acre within the limber pine habitat areas. BKS also used 2009 NAIP imagery to count the number of trees within the disturbance areas.

Results:

No threatened or endangered plant species or species habitats were found within the project area. No BLM sensitive plant species or threatened and endangered plant species records, for the project area, were found in the WYNDD database (February 2011). Sandy soils within the project area had greater than 30% ground cover, excluding the sandy areas as potential habitat for blowout penstemon. No habitat or individuals or populations of Ute ladies'-tresses were present within the project area. The banks of the pond located in Section 32 and 33 were dominated by *Hordeum jubatum* (foxtail barley), *Carex stenophylla* (needleaf sedge), and *Carex nebrascenis* (Nebraska sedge). The soil was clay, the water was stagnant, and there was no transition zone between the water and the mesic area of the banks. All of these characteristics are negative indicators for Ute Ladies'-tresses habitat. The drainage leading into the pond in Section 32 from Section 33 did not have water present, thus the lack of a late season water source excludes this area as potential Ute Ladies'-tresses habitat.

The following nine, of the 11 listed BLM sensitive plant species, were not present within the project area and do not have potential habitat within the project area: *Antennaria acuata* (meadow pussytoes), *Artemisia porteri* (Porter's sagebrush), *Astragalus gilviflorus var purpureus* (Dobois milkvetch), *Cirsium aridum* (Cedar rim thistle), *Cyptantha subcapitata* (Owl Creek miner's candle), *Lesquerella fremontii* (Fremont bladderpod), *Phlox pungens* (beaver rim phlox), *Rorippa calycina* (persistent sepal yellowcress), and *Trifolium barnebyi* (Barneby's clover). Potential habitat for the above listed species was determined non-existent based on habitat characteristics, primarily the lack of appropriate soil characteristics, topography, or vegetation communities.

Two of the 11 BLM sensitive plant species had potential habitat within the project area. Limber pine habitat and individuals were present within the project area and within the proposed disturbance areas. Rocky Mountain twinpod potential habitat was present in the project area, but not within the proposed

disturbance area. Photos of habitat and species present within the project area are located in Addendum A and a map of the potential habitat and populations are located in Addendum B.

Pinus flexilus (Limber pine)

Habitat Characteristics:

Limber pine habitat is located anywhere from 5,250 feet to 11,000 feet in the Rocky Mountains. The species is often found on steep rocky slopes that do not support other vegetation types. The soil parent materials are derived from many types including: sandstone, limestone, granite, serpentine, quartzite, shale, obsidian, pumice, and calcareous substrates. The species grows in cold environments and is acclimated to high wind speeds.

Threats:

Often times limber pine communities are found at the edge of sagebrush and grassland communities, the limber pine is often managed by cutting to prevent encroachment into these other communities. The encroachment is thought to occur due to wildfire suppression. Limber pines are also affected the following insect and disease agents: Rocky Mountain pine beetle (*Dendroctonus ponderosae)*, white pine blister rust (*Cronartium ribicola)*, and limber pine dwarf mistletoe (*Arceuthobium cyanocarpum)* (Means 2010). These insect and disease agents are the leading causes of limber pine decline in the Rocky Mountains.

White pine blister rust is one of the most destructive diseases of five needle pines in North America (Maloy 2001). The fungus cannot spread from tree to tree but requires an alternative host. The host is the *Ribes* sp (currants and gooseberries). The first and often most overlooked symptom is a red or yellow dot on the needles. This occurs shortly after the infestation. The first noticeable sign of infestation is a slightly swollen branch. As the disease progresses, the swollen area will become a canker. The cankers have a distinctive orange color (Maloy 2003). This is evident in photos 7 and 8 in Addendum B. Once a branch is girdled the needles will begin to turn red which is the first indication of disease within the stand. If the rust occurs on the main stem it will eventually girdle and kill the tree. (Maloy 2001)

Site Specific Information:

Limber pine was found throughout the project area and within the disturbance boundary, but most of the individuals were mainly in the central portion of the project area. The disturbance boundaries do not contain large areas of the Limber Pine-Big Sagebrush Grassland community. Limber pine and *Juniperus osteosperma* (Utah juniper) both occur within the community. Approximately 53.92 acres of habitat and 614 individuals of limber pine occur within the disturbance areas; however, large areas, approximately 1,101.49 acres of the Limber Pine-Big Sagebrush vegetation community are present outside of the disturbance boundary. This approximation was determined by aerial photography.

In June 2011 Limber Pine Big Sagebrush areas were sampled using the Point center quarter method. Ten point center quarter locations were taken within the community, thus forty samples total. Two species of trees were identified within the area: limber pine and Utah juniper. Limber pine had an approximate density of 17.89 trees per acre, while the Utah juniper had approximately 1.90 trees per acre. White pine blister rust was evident on the limber pine trees within the stands surveyed. Many of the trees were

succumbing to the infestation and in poor health. Approximately 90% of the trees observed were suffering from the white pine blister rust. The limber pines within the disturbance boundaries were infected with white pine blister rust.

In the 1980s, during the baseline study for this mine site, Limber pine was identified and rough species counts were determined. The 1980s study area included the current Congo Pit disturbance area and associated haul roads. Results of the baseline study indicated approximately 146 Limber pine individuals were present in the study area. The mean DBH was 15.6 cm and the range was 4.0 cm to 30.7 cm. The mean height was 4.4 meters and the range was 2.1 to 9.1 meters.

Physaria saximontana var. *saximontana* (Rocky Mountain Twinpod)

Habitat Characteristics:

Rocky Mountain twinpod occurs on "sparsely vegetated slopes on sandy, gravelly soils, rocky rims and outcrops, shale-siltsone, conglomerate bedrock, or talus of limestone, red sandstone (Chugwater formation), or clay between 5,200 and 8.850 feet" (Glisson 2004). The species is often found on dry south facing slopes, but can be found on any aspect. The species is often found surrounded by the limber pine/juniper vegetation community. The associated species are limber pine, Utah juniper, Douglas rabbitbrush, big sagebrush, and black sagebrush (WYNDD 2003).

Known Populations and Habitat in the Area:

In Wyoming, Rocky Mountain twinpod is known to occur from the Wind River Basin to the southern Big Horn Basin. It is known from 21 extant occurrences in Wyoming, 15 of which have been relocated since 1990 (Glisson 2004). The population of this species in Wyoming is greater than 14,400. There is a known population, reported in 1995, on Sheep Mountain. There are three small colonies present with an estimate of 100 plants in one colony (WNDD 2003b, Glisson 2004). The colonies occur around 6,950 feet in sandstone, limestone, and redbeds, in the Chugwater Formation, the slope aspect is west, and the slopes are sparsely vegetated (WYNDD 2003). The WYNDD Occurrence Rank is good (WYNDD 2003).

Threats:

The threats to Rocky Mountain twinpod include environmental climate change variables and surface disturbance activities including: mining, road and pipeline construction, and off-road vehicle use. Livestock is typically not a threat, as the habitat that the species grows in is not typically utilized for livestock grazing.

Site Specific Information:

The project area contains suitable potential habitat, generally located on sparsely vegetated slopes or islands within the Limber Pine-Big Sagebrush vegetation community in Sections 27, 28, and 33. There is about 119.71 acres of potential habitat within the project area. Within that total acreage, 1.95 acres of potential habitat is within the road disturbance boundary south of Sheep 2 Shaft in Section 28.

Discussion:

Limber pine has habitat and individuals present within the project and disturbance areas. Individuals within the disturbance areas are likely to be disturbed and/or killed due to mining activities; however, the number of individuals affected within the disturbance boundary is less than the number of individuals located within the project boundary outside of the disturbance areas that will not be affected by the mining activities. Rocky Mountain twinpod potential habitat is present within the project area, but outside the disturbance areas. It is at the discretion of the Lander BLM office to make effects determination for both species.

References:

Glisson, B. 2004, *Physaria saximontana* Rollins var. *saximontana* (Fremont County twinpod): A Technical Conservation Assessment. [Online]. USDA Forest Service, Rocky Mountain Region, http://www.fs.fed.us/r2/projects/scp/assessments/physariasaximontanavarsaximontana.pdf (March 2011)

Kendall, K. 1997. Limber Pine Communities [Homepage of High Elevation White Pines]. US Forest Service, http:///www.fs.fed.us/rm/highelvationwhite pines/index.htm (March 2011)

Means, Robert E. Synthesis of Lower Treeline Limber Pine (*Pinus flexilis)* Woodland Knowledge, Research Needs, and Management Considerations. USDOE Bureau of Land Management. Wyoming State Office, (August 2010)

Maloy, O. C. 2001. White pine blister rust. Online. Plant Health Progress doi:10.1094/PHP-2001-0924-01-HM.

Maloy, O.C.. 2003. White pine blister rust. The Plant Health Instructor. DOI:10.1094/PHI-I-2003-0908-01 Updated 2008.

Wyoming Natural Diversity Database (WYNDD). 2003, Research from the Glisson report regarding *Physaria saximontana* Rollins var. *saximontana* (Fremont County twinpod).

Wyoming Natural Diversity Database (WYNDD). 2011, Data compilation for C. Adams, completed February 21, 2011. Unpublished report. Wyoming Natural Diversity Database, University of Wyoming, Laramie, Wyoming.

ADDENDUM A

PHOTOGRAPHS

Photo 1: Limber Pine-Big Sagebrush Community. Located in the west half of Section 26. Potential *Physaria saximontana var. saximontana* habitat.

Photo 2: Limber pines in the background. Located southwest of Sheep 2 Shaft.

Photo 3: No blowout penstemon habitat. Potential *Physaria saximontana var. saximontana* habitat. Located in the southwest portion of Section 28.

Photo 4: Reclaimed Grassland- Located in the North Gap Pit

Photo 5: Ponded area in the southeast corner of project area. No *Spiranthes diluvialis* habitat.

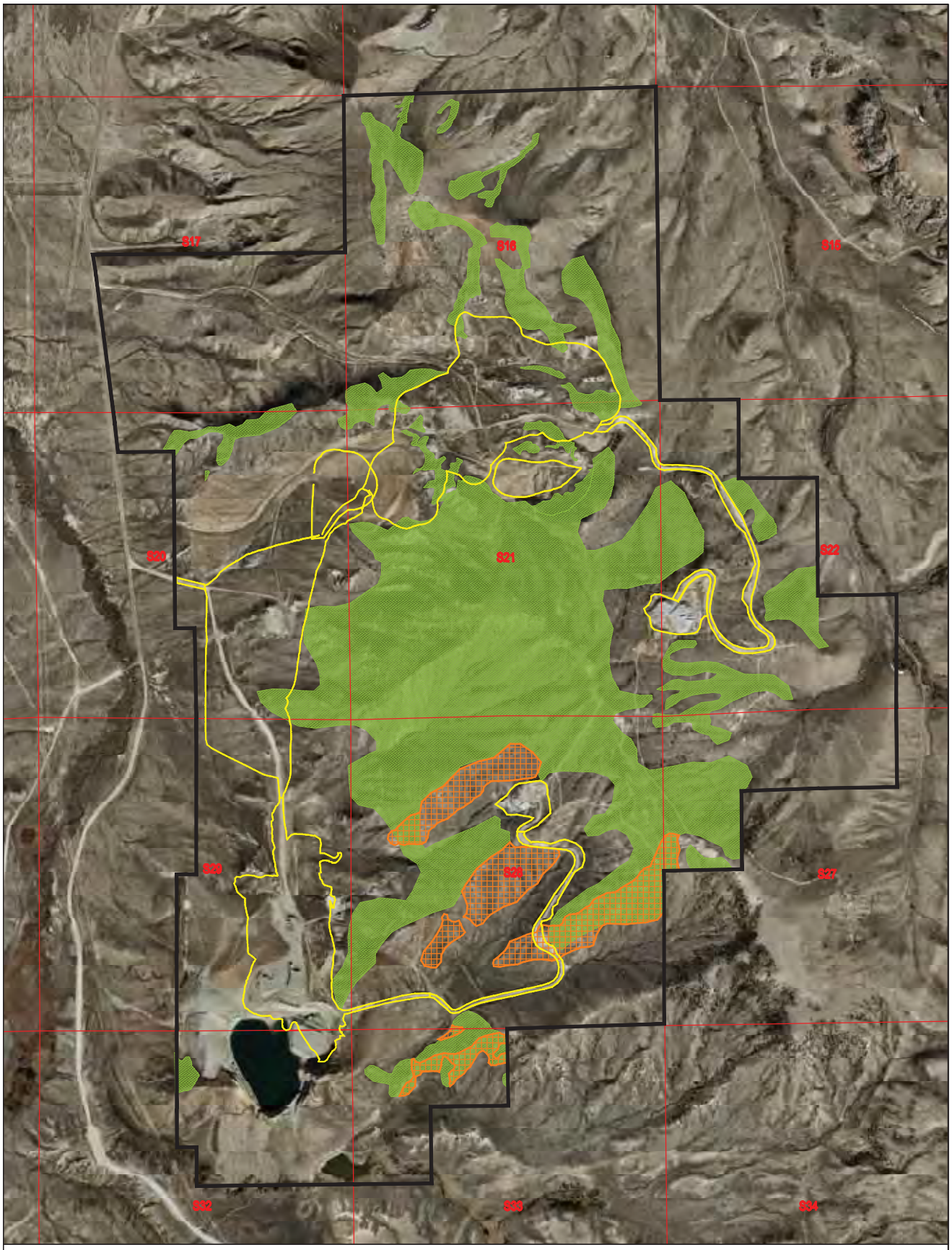
Photo 6: General view of Limber Pine Stands observed during the 2011 survey

Photo 7: Evidence of Blister rust observed during the 2011 Limber Pine Surveys.

Photo 8: Evidence of Blister rust observed during the 2011 Limber Pine Surveys.

Addendum B

Map



LEGEND

- SECTION LINE
- PERMIT BOUNDARY
- MAXIMUM EXTENT OF SURFACE DISTURBANCE

VEGETATION

- LIMBER PINE POPULATIONS AND HABITAT
- ROCKY MOUNTAIN TWINPOD POTENTIAL HABITAT

1,500' 0 750' 1,500'

1 inch = 1,500'

BRS ENGINEERING	**BLM SENSITIVE SPECIES**	**SHEEP MOUNTAIN MINES MINE PERMIT 381C**	REVISION DATE: 07/16/12
	SCALE: 1"=1500' DATE: 5/9/11		CAD FILENAME:
	DRAWN BY: CDS		DWG. NUMBER: D8.1

Legal Description of 381C Permit and Amendments

WESTERN NUCLEAR, INC.

APPENDIX C

LEGAL DESCRIPTION OF CROOKS GAP TOTAL PERMIT AREA

381 C		Acres
Sec 16 - All		640
Sec 20 - E½		320
Sec 21 - All		640
Sec 22 - NW¼NW¼, S½NW¼, SW¼SE¼, S½NW¼SE¼, SW¼		340
Sec 27 - N½NW¼, SW¼NW¼, NW¼NE¼		160
Sec 28 - All		640
Sec 29 - E½		320
Sec 32 - N½NE¼		80
Sec 33 - N½NW¼		80
	Total	3220

A-1		
Sec 29 - E½E½SE¼SW¼		10
Sec 32 - E½E½NE¼NW¼, E½NE¼SE¼NW¼, S½NE¼		95
Sec 33 - SW¼NW¼		40
	Total	145

A-2		
Sec 17 - S½SE¼		80
	Total	80

A-3		
Sec 29 - E½E½NE¼SW¼		10
	Total	10

Permit No. 381C, A-1, A-2, A-3 & A-5

Temporary Filing No. 2/96

WESTERN NUCLEAR, INC.

APPENDIX C

CROOKS GAP PERMIT AREA

LEGAL DESCRIPTION OF A-5 AMMENDMENT

A parcel of land located in the SE¼ and the SW¼ of Section 17 and in the NW¼ of Section 20, T28N, R92W, 6th PM, Fremont County, Wyoming more particularly described as follows:

The point of beginning being the Northeast corner of said tract and also the east quarter corner of Section 17.

Thence proceed S 89-59'-58" W, 4236.63 feet to a brass survey cap;

Thence S 8-21'-15" E, 292.00 feet to a brass survey cap;

Thence S 6-44'-00" E, 2569.02 feet to a brass survey cap;

Thence S 5-52'-36" E, 482.38 feet to a brass survey cap;

Thence N 89 59'31" E, 936.39 feet to a " rebar and survey cap;

Thence S 00-00'-35" W, 87.54 feet to a " rebar and survey cap;

Thence S 00-02'-37" W, 2882.49 feet to a "rebar and survey cap;

Thence S 89-57'-23" E, 330.11 feet to a "rebar and survey cap;

Thence N 00-39" E, 2162.60 feet to a "rebar and survey cap;

Thence N 00-00'-32" W, 807.50 feet to a brass survey cap;

Thence N 00-04'-59" E, 129.05 feet to a brass survey cap;

Thence N 00-00'-11" E, 375.29 feet to a brass survey cap;

Thence N 00-00'-14" E, 155.64 feet to the South ¼ corner of Section 17;

Thence N 00-00'-13" W, 1319.78 feet to a "rebar and survey cap;

Thence S 89-59'-35" E, 404.96 feet to a " rebar and survey cap;

Thence N 89-37'-21" E, 2182.47 feet to a "rebar and survey cap;

Thence N 00-24'-28" W, 1325.45 feet to the point of beginning.

Said parcel contains 212.52 acres.

Permit No. 381C, A1, A2, A3, A5

Temporary Filing No. 2/96