# Exhibit 1



## **BLM**, Vernal Utah

# **Preliminary Plan of Development**

And

# **Right-of-Way Application**

**To Support** 

## Enefit American Oil's Utah Oil Shale South Project



November 26, 2012





### **Table of Contents**

1.	INTRODUCTION
1.1.	Company Description
1.2.	Project Purpose and Need
1.3.	Technical and Financial Qualifications to Complete the Project
2	SOUTH PROJECT DESCRIPTION
21	South Project Development Status
2.1.	South 1 roject Development Status
2.2.	Feueral Ivexus
3.	GENERAL SITE CHARACTERISTICS 10
3.1.	Climate
3.2.	Geology
3.3.	Hydrology
3.3.1	. Surface Water
3.3.2	2. Groundwater
3.4.	Vegetation and Wildlife
3.5.	Land Use
Λ	DESCRIPTION OF THE UTILITY CORRIDOR FACE THES
<b>4</b> .	DESCRIPTION OF THE UTILITY CORRIDUR FACILITIES
4.1.	Fipeine Specifications
4.1.1	. Water Supply
4.1.2	Natural Gas
4.1.3	14 The second se
4.2.	ransmission Line Specifications
4.5.	Koad Specifications
4.4.	Associated Utility Relocations
4.5.	Unter Project Components
4.5.1	. Mining
4.5.2	roduction Plant
5.	CONSTRUCTION OF THE RIGHT-OF-WAY FACILITIES 17
6.	OPERATION AND MAINTENANCE OF THE FACILITIES
7.	TERMINATION AND REHABILITATION 19
8.	ALTERNATIVES
8.1.	Routing Methdology and Evaluation Criteria
8.2.	Routing Analysis Results
9.	SOCIAL AND ENVIRONMENTAL IMPACTS
10	OTHER DECLIDED DEDMITS AND ALITUODIZATIONS
11	VI HER REVURED I ERMITS AND AUTRORIZATIONS
11.	<b>KEFEKENCED</b>

#### **APPENDIX A. STANDARD FORM 299 RIGHT-OF-WAY APPLICATION**

#### APPENDIX B. TRANSMISSION AND UTILITY ROUTING FIGURE

APPENDIX C. ALTERNATIVE ROUTING ALIGNMENT FIGURE

## List of Acronyms and Abbreviations

amsl	above mean sea level
BLM	Bureau of Land Management
BNA	Bird's-Nest Aquifer
BO	Biological Opinion
BPD	Barrels per Day
BPP	Bonanza Power Plant
CFR	Code of Federal Regulations
cfs	cubic feet per second
CS	Cross-Section
CWA	Clean Water Act
DGT	Deseret Generation and Transmission
EE	Eesti Energia
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
EPAct	Energy Policy Act of 2005
ESECA	Energy Supply and Environmental Coordination Act
F	Fahrenheit
ft	feet
FLPMA	Federal Land Policy Management Act
kv	kilovolt
m	meters
MLEA	Moon Lake Electric Association, Inc.
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
OSEC	Oil Shale Exploration Company
PHMSA	Pipeline and Hazardous Materials Safety Administration
POD	Plan of Development
PSD	Prevention of Significant Deterioration
Q	Quarter
ROW	Right-of-Way
SCO	Synthetic Crude Oil
Secretary	Secretary of the Interior
SHPO	State Historic Preservation Office
TBD	To Be Determined
UBEZ	Uintah Basin Energy Zone
URMPFL	State of Utah Resource Management Plan for Federal Lands
USACE	United States Army Corps of Engineers
USGS	United States Geological Survey
VFO	Vernal Field Office (Bureau of Land Management)
WRCC	Western Regional Climate Center

### **1. Introduction**

Enefit American Oil (Enefit) intends to develop a commercial oil shale mining, retorting, and upgrading operation located in Uintah County, Utah, known as the Enefit Utah Oil Shale Project (South Project). While the South Project itself will be located on primarily private land owned by Enefit, with some minor surface stockpile activities envisioned to occur on State of Utah School and Institutional Trust Lands Administration land, Enefit requires a right-of-way (ROW) grant from the Bureau of Land Management's (BLM's) Vernal Field Office (VFO) in order to construct, own and operate a utility corridor (or corridors) to the site (ROW Project). The ROW Project would contain underground (i.e. buried) water and natural gas pipelines extending from regional interconnection utility access points, as well as an outgoing product pipeline to distribute upgraded oil to market. The utility corridor would also contain overhead transmission lines, to be constructed, owned, and operated by Moon Lake Electric Association, Inc. (MLEA). Road improvements and utility relocates as a result of the South Project may also require a ROW grant, and Enefit is currently studying both of these aspects to determine if additional land requirements (beyond existing ROWs) would be necessary. This Preliminary Plan of Development (POD) has been prepared to explain the nature of the BLM ROW grant request and the ROW Project, including a short description of the South Project, a schedule and description of ongoing design activities, and a schedule and description of environmental survey and reporting activities completed to date, ongoing, and planned for the future. BLM Standard Form 299 is included as Appendix A.

It is anticipated that, in order to comply with the National Environmental Policy Act (NEPA), the BLM VFO will prepare an environmental impact statement (EIS) to inform decision-making regarding granting of the ROW. The Council on Environmental Quality, in their *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act* (40 Code of Federal Regulations [CFR] Parts 1500-1508), directs agencies to implement the NEPA process "at the earliest possible time to insure that planning and decisions reflect environmental values, to avoid delays later in the process, and to head off potential conflicts." This Preliminary POD is being submitted as such to encourage a thorough NEPA planning effort and early informed decisionmaking.

#### 1.1. Company Description

Enefit is a wholly-owned subsidiary of Eesti Energia AS (EE; known as Enefit for activities outside of Estonia), the world's largest oil shale processing company. Founded in 1939 and owned by the national government of Estonia, EE mines up to 17 million tons of oil shale per year to produce shale oil and electricity in the Baltic region of northern Europe. EE employs nearly 8,000 people worldwide and has produced approximately 200 million barrels of oil and 550 terawatts of power throughout their history. See Figure 1 for a summary of the EE organizational structure.

Preliminary Plan of Development to Support Enefit American Oil's Utah Oil Shale South Project Page 2 of 29

#### Figure 1. EE Organizational Structure

#### Enetit

- · Vertically integrated utility (oil shale mining, shale oil production, generation, distribution, supply)
- S&P credit rating of BBB+/stable outlook. Moody's credit rating A3/stable outlook
- State owned, Bonds listed on the London Stock Exchange



#### **1.2. Project Purpose and Need**

**BLM's Purpose and Need.** BLM's purpose for this ROW application action is to consider the applicant's request for use of certain federal land managed by BLM for construction and operation of utility corridors (natural gas, power and water) to Enefit's private property holdings, known as Enefit South. BLM's need for federal action arises from its responsibility under the Federal Land Policy Management Act (FLPMA) and other legislation to respond to the applicant's ROW request. BLM's multiple-use mission includes managing activities on federal land such as ROW authorizations, while conserving natural, historical, cultural, and other resources on the public lands. FLPMA gives the Secretary of the Interior (Secretary) general authority to grant ROWs across public lands administered by the BLM, including ROWs for water and natural gas pipelines, roadways, electrical transmission lines and other facilities and systems. 43 U.S.C. § 1761; 43 C.F.R. Part 2800. BLM will decide whether to deny the ROW, grant the ROW, or grant the ROW with modifications.

**Applicant's Purpose and Need.** Enefit's purpose and need for the ROW Project is to supply natural gas, power, water, and other needed infrastructure through one or more utility corridors in order to produce and deliver shale oil from oil shale mined under Enefit's South Project, by uninterrupted operation of an economically viable mining, oil shale retorting and upgrading industry.

In August of 2005, Congress enacted the Energy Policy Act of 2005, 42 U.S.C. § 15927. Section 369 of the Energy Policy Act (EPAct) declares that oil shale and tar sands deposits are "strategically important domestic resources that should be developed to reduce the growing dependence of the United States on politically and economically unstable sources of foreign oil imports" and mandates that development of oil shale "should occur, with an emphasis on sustainability" to benefit the United States. *Id.* at § 15927(b). To support this policy, the EPAct directs the Secretary to implement a series of actions to, among other things, make public lands available to suport oil shale development activities. Granting the ROW supports the purposes underlying the above provisions of the EPAct.

Preliminary Plan of Development to Support Enefit American Oil's Utah Oil Shale South Project Page 3 of 29

Furthermore, the production would aid in fulfilling the energy policy of the State of Utah, which states that: "It is the policy of the state that Utah will promote the development of nonrenewable energy resources, including natural gas, coal, oil, *oil shale*, and tar sands.... Utah will promote the development of resources and infrastructure sufficient to meet the state's growing demand, while contributing to the regional and national energy supply, thus reducing dependence on international energy sources." Utah Code Ann. § 63M-4-301(1)(b), (d) (emphasis added). Granting the ROW and enabling development of Enefit's South Project will advance implementation of the goals of the State's energy policy.

Moreover, on March 2, 2011, Utah Governor Gary Herbert released the document *Energy Initiatives & Imperatives, Utah's 10-Year Strategic Energy Plan* to serve as a structure and outline to guide the state's planning with regards to energy and transmission development, efficiency and conservation, economic development, and the development and application of new technology to promote energy independence and sustainability for Utah. The plan provided five guiding principles and ten goals for energy strategy in the state, and the ROW Project and South Project are being designed and will be implemented with those principles and goals in mind in order to promote and sustain responsible energy and economic development in the State of Utah.

In February 2012, the State of Utah established the State of Utah Resource Management Plan for Federal Lands (URMPFL), by creating the Uintah Basin Energy Zone (UBEZ). The South Project area and ROW Project area are located within the UBEZ. Specifically, Utah Code Ann. § 63J-8-105.5(3)(b) of the URMPFL states, "the highest management priority for all lands within the [UBEZ] is responsible management and development of existing energy and mineral resources in order to provide long-term domestic energy and supplies for Utah and the United States." Further, Utah Code Ann. § 63J-8-105.5(5)(c) and (d) indicate that the State calls upon federal agencies to "allow continued maintenance and increased development of roads, power lines, pipeline infrastructure, and other utilities necessary to achieve the goals, purposes, and policies described in this section" and "refrain from any planning decisions and management actions that will undermine, restrict, or diminish the goals, purposes, and policies for the [UBEZ]."

The cost of the South Project and ROW Project, including construction, operation and maintenance, and abandonment, are estimated to be multi-billion dollar projects. Enefit is currently undertaking a pre-feasibility study (see Section 2.1) to develop a +/-30 percent estimate for both capital and operating expenditures, as well as evaluating a variety of alternatives and optimizations of the base case scenario. Enefit's project development activities represent significant economic development to the City of Vernal, Uintah County, and the State of Utah, providing over 2,000 permanent jobs and several thousand more construction and indirect jobs. Enefit's project development activities will enhance health and human services, educational opportunities, and long-term community growth to the Uintah Basin region.

#### 1.3. Technical and Financial Qualifications to Complete the Project

Enefit is considered a world leader in oil shale development. In Estonia, Enefit owns and commercially operates all key steps in the oil shale industry, from mining, to power and oil production, to end sales to customers. Internationally, Enefit acts as either a technology-provider, licensing the patented Enefit oil shale processing technology, or as a project developer, responsible for development from resource and feasibility assessment through technology provision, construction and operation. Enefit's project development teams draw from a century's-worth of oil shale industry experience to optimize solutions for each unique application. Enefit is wellqualified, both technically and financially, to execute the Project in a safe, responsible, and productive manner. Preliminary Plan of Development to Support Enefit American Oil's Utah Oil Shale South Project Page 4 of 29

## 2. South Project Description

Enefit has acquired one of the largest tracts of privately-owned oil shale resource in the United States, and the largest in Utah, totaling more than 30,000 acres and containing an estimated 2.6 billion barrels of recoverable shale oil across all holdings. The South Project was previously owned by Oil Shale Exploration Company (OSEC), with Petrobras America Inc. and Mitshale Development LLC holding options and jointly developing the South Project. In March 2011, Enefit acquired 100 percent of OSEC's shares and assumed full ownership and control of the South Project and all of OSEC's assets. Enefit renamed OSEC as Enefit American Oil and has continued development of the South Project with several key modifications to the business plan.

The South Project is designed to develop a green field oil shale mining and shale oil production complex, producing approximately 28 million tons of raw oil shale ore rock per year and 50,000 barrels per day (BPD) of premium quality, refinery-ready shale oil from the Green River Formation at full build-out. Shale oil will be produced from multiple surface retorts, with onsite upgrading of the raw shale oil. The proposed South Project facility will be located in the Uinta Basin approximately twelve miles southeast of Bonanza in Uintah County, Utah (Figure 2). Vernal, Utah is the nearest major municipality, located approximately 40 miles north of the Project site. The community of Rangely, Colorado is located approximately 25 miles northeast of the South Project site.

#### **Figure 2. Project Location**



The mining, retorting, and upgrading operation is being designed to produce synthetic crude oil (SCO) and other semi- and fully-refined petroleum products, as well as marketable byproducts such as anhydrous ammonia, on the privately-owned Enefit South tract. The South Project is currently being designed for construction and commissioning in two 25,000 BPD phases. The first phase, planned for years 1 through 4 following the completion of construction, would produce 25,000 BPD via an initial retort and upgrader design concept, while the second phase would produce an additional 25,000 BPD via an expanded retort and upgrader design concept. The 50,000 BPD operational plan is planned to continue for 30 years, utilizing oil shale ore rock mined from Enefit's southern private property holdings (see Figure 3). It is possible ore from other areas within Enefit's resource holdings would be processed within the facilities located on Enefit's private land; however, this scenario is not currently contemplated and would be addressed under separate cover in the future and as a separate project, if applicable. Raw shale oil will be hydrotreated onsite to produce a premium, refinery-ready SCO product in the first phase, followed by SCO and other refinery-ready and fully-refined products in the second phase. Project construction is planned to start in 2017 pending receipt of all necessary federal, state, and local authorizations.

Preliminary Plan of Development to Support Enefit American Oil's Utah Oil Shale South Project Page 5 of 29

Although Enefit's secured resource holdings extend beyond the southern portion of the private property, only the BLM ROW requested under this application servicing that portion of the property, and the activities associated with that portion of the property, are the subject of this Preliminary POD.





Figure 3. Enefit American Oil Resource Holdings

Preliminary Plan of Development to Support Enefit American Oil's Utah Oil Shale South Project Page 7 of 29

#### 2.1. South Project Development Status

Enefit purchased 100 percent of OSEC's holdings and assets on March 30, 2011, and South Project development activities are ongoing. Figure 4 provides an overview of the planned development timeline. Utility corridor buildout, which is the subject of this ROW application, would occur immediately prior to the Industry Complex Stage 1 25,000 bpd construction scheduled to begin in 2017.

#### **Figure 4. South Project Development Timeline**



As of the end of Quarter (Q) 3 2012, Enefit has completed the following key steps:

- Phase 1 exploration campaign and detailed analytic program to increase the resource confidence level and confirm the detailed properties and uniformity of the shale across Enefit's land holdings;
- Phase 2 exploration campaign to provide measured and indicated resource status and geotechnical information for mine and facility design;
- Collection of a 12-ton bulk sample, shipped to Enefit's joint-venture research and development center in Frankfurt, Germany;
- Crush-testing and retort bench testing of the initial bulk sample of Utah oil shale in Germany;
- Material characterization of bench scale-produced raw shale oil and gas products, including physical and chemical properties;
- Material characterization of bench scale-produced spent shale/ash, including physical, chemical, and leaching properties;
- Material characterization of bench scale-produced phenolic wastewater, including physical and chemical properties;
- Collection and crush-testing of second, 600-ton bulk sample for pilot plant testing;
- Study to evaluate optimized retort concept and design for processing of the raw oil shale ore rock;
- Study to evaluate upgrader concept to process raw shale oil into refinery-ready product;
- Study to evaluate market, price points, and route to market for the planned product;
- Study to evaluate routing of utility supply and product delivery corridor(s);
- Study to evaluate various mining scenarios to select the most effective and efficient mining horizon;

Preliminary Plan of Development to Support Enefit American Oil's Utah Oil Shale South Project Page 8 of 29

- Site selection study within the Enefit South private property area to determine the industrial plant location; and
- Baseline surveys and reporting for sage grouse and raptor nests on and in the vicinity of the Project site.

As of the end of Q3 2012, the following activities are ongoing and/or anticipated:

- Mining pre-feasibility study (begun July 2012; completion December 2012);
- Full Project pre-feasibility study, including preliminary engineering design, utility demand, emissions and effluent quantification and characterization, transportation management plan, and other supporting Project development components (begun November 2012; completion Q3 2013);
- Material characterization of raw oil shale ore rock and overburden, including geochemical and leaching properties (begun September 2012; completion December 2012);
- Updated market study, including product delivery transportation and logistics (begun November 2012; completion January 2013);
- Meteorological and air quality baseline data collection (Quality Assurance Project Plan was approved by the Environmental Protection Agency [EPA] December 2011; monitoring begun January 2012; completion May 2013);
- Hydrologic baseline data collection (begun October 2012; tentative completion September 2013);
- Pilot plant testing of Utah oil shale rock (anticipated to begin Q1 2013; tentative start date);
- Updated material characterization of pilot plant-produced spent shale/ash, phenolic water, and raw shale oil and gas products (anticipated to begin Q1 2013; dependent upon pilot plant test schedule);
- Air dispersion modeling (anticipated to begin Q2 2013 and be available for preliminary review by Q3 2013);
- Biological, waters of the U.S., and cultural resource baseline field surveys and reporting (anticipated to begin Q2 2013 and complete by Q3 2013);
- Socioeconomic study (anticipated to begin Q2 2013 and complete by Q3 2013); and
- Ongoing retorting and upgrading optimization efforts.

Enefit anticipates preparation and submittal of a Detailed POD approximately 2-3 months after completion of the the Project-wide pre-feasibility study. The Detailed POD will summarize preliminary engineering and plot plans for the private property activities and the utility ROW, as well as a detailed description of the construction, operation, and maintenance of the ROW facilities. The Detailed POD will also include an appropropriate level of technical descriptions of the existing conditions for physiographic, biological, water, air, cultural and socioeconomic resources in the ROW Project and South Project areas.

Additional studies, engineering design revisions, and other development activities not specifically listed above are expected to occur during the EIS process and may be made available to the BLM VFO upon request in order to complete the environmental impact analysis.

#### 2.2. Federal Nexus

Although mining, retorting, and upgrading activities are planned to occur solely within the South Project area, a ROW from the BLM VFO is anticipated to be required for a utility corridor(s) to support the South Project.

Preliminary Plan of Development to Support Enefit American Oil's Utah Oil Shale South Project Page 9 of 29

Natural gas, power, and water are required to be brought to the private property, and upgraded product is required to be distributed from the private property.

The mine, retort, and upgrader units are non-federal actions which fall outside the federal action, and therefore are similarly not anticipated to be reflected in the EIS "proposed action." The NEPA scoping process will address the appropriate level of analysis of the effects of the South Project to support the proposed action of BLM's decsion on the ROW, consistent with legal requirements.

Preliminary Plan of Development to Support Encfit American Oil's Utah Oil Shale South Project Page 10 of 29

## 3. General Site Characteristics

The areas encompassed by the ROW Project and the South Project are primarily located within the Uinta Basin Floor subregion of the Colorado Plateau ecoregion (Omernik 1987). Topography consists of a broad northwest sloping plateau, incised by several deep canyons. Elevations within the Project area range from 4,800 feet (1,463 meters) above mean sea level (ft/m amsl) along the White River to 6,818 ft (2,078 m) amsl on the plateau in the the southeastern South Project area.

#### 3.1. Climate

The climate in the area is semiarid, with hot, dry summers and occasional intense thunderstorms. Winters are cold, although snow accumulation is infrequent and sparse. According to the Western Regional Climate Center (WRCC), ambient conditions at the Bonzana meteorological monitoring station number 420802 between July 1948 and February 1993 consist of a mean annual maximum temperature of 62.6° Fahrenheit (F) and mean annual minimum temperature of 33.5° F. July tends to be the warmest month, averaging 92.3° F, while January is the coldest at 30.4° F. A record high temperature for the reporting period of 106° F was recorded in July 1981 and again in August 1983, while a record low of -32° F was recorded in December 1990 (WRCC 2012).

Average annual precipitation totals 8.87 inches, with October being the wettest month. Precipitation occurs in all months, although only May and October average more than an inch (1.03 and 1.05 inches, respectively). The wettest month on record during the reporting period was July 1985 with 3.90 inches, and the one-day maximum on record was 1.88 inches reported on June 11, 1970. There are numerous months on record when no precipitation was reported.

#### 3.2. Geology

The ROW Project and South Project areas located within the Uinta Basin comprise a broad intermontane syncline whose axis is concave southward and runs roughly parallel to the east-west trending Uinta Mountains to the north (Dynamac 2002). The underlying geologic units, descending from the surface, include unconsolidated Quaternary alluvium; the Uinta Formation; the Parachute Creek Member of the Green River Formation; the Douglas Creek Member of the Green River Formation.

The Parachute Creek Member contains the oil shale deposits that are the subject of the South Project. The contact between the bottom of the Uinta Formation and the top of the Parachute Creek Member dips to the northwest at approximately 2 degrees (Dynamac 2002). Near the southeastern and eastern extents of the Enefit South private property, the mining horizon occurs at outcrop. The Mahogany Marker, which is the richest oil shale zone and marks the transition from Quaternary- to Tertiary-aged beds, is the uppermost unit of the Douglas Creek Member and the subsurface indicator for the proposed mining horizon.

#### 3.3. Hydrology

#### 3.3.1. Surface Water

The drainages and streams in the area are tributary to the White River, including Evacuation Creek (located near the western edge of the Enefit South private property), Hells Hole Canyon, Weaver Canyon, Park Canyon, Cripple Horse Canyon, and Coyote Wash. Each of these tributaries are ephemeral with the exception of Evacuation Creek, which maintains a minimal perennial baseflow. These channels trend in a northerly direction with the exception of Park Canyon, which courses westward and discharges to Evacuation Creek, and Coyote Wash, which also courses westward and discharges to the White River. Coyote Wash is located approximately six miles north-northwest of the Evacuation Creek discharge point on the White River. In addition to these named drainages, several more unnamed ephemeral drainages also occur throughout the area. Preliminary Plan of Development to Support Enclit American Oil's Utah Oil Shale South Project Page 11 of 29

According to historic United States Geological Survey (USGS) gauging data (USGS 2012), for the reporting period from October 1923 to September 2011, the White River as measured immediately downstream from the Highway 45 bridge over the river (gauging station 09306500; approximatley two river-miles downstream of the Evacuation Creek discharge point) averaged a flow rate of 691.4 cubic feet per second (cfs). The highest flow rate month tends to be June, where flow rates averaged 1,810 cfs, while the lowest tends to be January, where rates decrease to 355 cfs. The White River is a warm-water river, with average temperatures peaking at 71.4° F in July.

Evacuation Creek was monitored as part of the White River Mine oil shale project in the mid- to late-1970s, with several USGS gauging stations established at points along the creek. For the reporting period from 1975 to 1979, Evacuation Creek near Watson, Utah (gauging station 09306430) averaged 1.11 cfs. A peak flow event of 1,980 cfs was recorded during the reporting period, and the creek was observed to draw down to no flow as well (Lindskov and Kimball 1984).

#### 3.3.2. Groundwater

Dynamac Corporation conducted an extensive characterization of regional groundwater conditions and existing groundwate wells for BLM to facilitat well closure and abandoment activities (Dynamac 2002). Alluvial aquifers associated with Evacuation Creek and the White River are approximately 30 feet think and consist primarily of silt and clay. Hydraulic conductivity is approximately one foot per day for Evacuation Creek alluvium and 25 feet per day for the White River alluvium. Recharge occurs primarily in the form of streamflow infiltration, while discharge occurs primarily in the form of evapotranspiration.

The Bird's-Nest aquifer (BNA) occurs in the Parachute Creek member of Green River Formation and underlies the whole of the South Project area at an average thickness of 115 feet. Water levels in the BNA range from a few feet below ground surface where the formation occurs as outcrop along Evacuation Creek, to over 400 feet near the White River Mine, which is located approximately two miles northwest of the South Project area. Transmissivity in the aquifer varies significantly based on fracturing and solution. The BNA is recharged primarily via infiltration from Evacuation Creek and downward leakage from the overlying Uinta Formation, while localized discharge occurs primarily in the form of upward leakage to the White River alluvium.

#### 3.4. Vegetation and Wildlife

The areas comprising the ROW Project and South Project are largely uninhabited and semiarid, primarily consisting of Inter-mountain Basins Big Sagebrush Shrubland, with smaller units of Colorado Plateau Mixed Low Sagebrush Shrubland, Mixed Bedrock Canyon and Tableland, Pinyon-Juniper Shrubland, and Inter-mountain Basins Mixed Salt Desert Scrub (CH2M Hill 2012a). Upland vegetation is a mix of sagebrush (*Artemisia spp.*), rabbit brush (*Ericameria spp.*), juniper (*Juniperus osteosperma*), western cedar (*Thuja plicata*), and sparse grasses. Cottonwood trees (*Populus spp.*) are prevalent along the White River, as are greasewood (*Sarcobatus vermiculatus*), willow (*Salix spp.*), salt grass (*Distichlis spicata*) and the invasive, non-native salt cedar (*Tamarix ramosissima*). Evacuation Creek contains a similar vegetative community except for the absence of cottonwoods.

Wildlife in this area is characterized by those species adapted to hot, dry conditions. Mule deer (*Odocoileus hemionus*), coyote (*Canis latrans*), and black-tailed jackrabbit (*Lepus californicus*) are frequently observed in the region, as are smaller desert rodents.

Enefit conducted aerial surveys for greater sage-grouse (*Centrocircus urophasianus*) and nesting raptors in April and June 2012 (CH2M Hill 2012a and 2012b). No greater sage-grouse individuals or leks were observed in the survey area, which included the Enefit South private land and BLM lease-right holdings plus a one-mile buffer (total of approximately 42,000 acres). The vegetative understory components that are important for greater sagegrouse were found to be limited as a result of current land use (e.g. grazing) and natural conditions. Habitat fragmentation associated with industrial development and human activity is also likely to limit greater sagePreliminary Plan of Development to Support Encfit American Oil's Utah Oil Shale South Project Page 12 of 29

grouse populations in the area (CH2M Hill 2012a). Active golden eagle (*Aquila chrysaetos*) nests and adult eagles were observed in the steep canyon walls along both the White River and Evacuation Creek, although no juveniles were observed during the survey events, nor were nests with clear evidence of young chicks having been present and fledged (CH2M Hill 2012b).

Enefit is planning to conduct general vegetation and wildlife surveys, as well as targeted special-status species surveys, for the South Project and ROW Project areas in spring and early summer 2013.

#### 3.5. Land Use

The South Project area is remote and sparsely-used. The current major land uses in the area include cattle and sheep ranching, oil and natural gas production, underground mining of gilsonite ore, and limited outdoor recreation. Enefit maintains winter sheep grazing on the South Project area, and BLM maintains several grazing allotments on the surrounding federally-managed land.

Current and historic energy development have resulted in a fragmented landscape in the vicinity, crossed by no fewer than seven underground pipelines, multiple overhead transmission lines, and numerous smaller temporary surface-lain collector pipelines supporting the oil and gas fields of the region. The only paved road in the South Project area is Highway 45, with the remainder of the transportation infrastructure being gravel county and BLM roads. Highway 45 is located predominantely along an open, gradual slope, where traffic is visible from long distances (CH2M Hill 2012a). A privately-owned and operated electric rail line services the Bonanza coal-fired power plant.

The nearest businesses are associated with the gilsonite mining industry approximately five miles north of the South Project area, while the nearest permanent residences are south of Vernal near the Highway 45 crossing of the Green River, approximately 30 miles northwest of the South Project area.

Recreational opportunities in the South Project area consist primarily of off-highway vehicle travel, hunting, and river-running along the White River. There is a public access point to the White River at the Highway 45 bridge crossing.

Preliminary Plan of Development to Support Enefit American Oil's Utah Oil Shale South Project Page 13 of 29

## 4. Description of the Utility Corridor Facilities

The following is a brief description of each of the utility components that are the subject of the BLM ROW application. A figure depicting the routing and typical sections of the utility ROWs is provided in Appendix B. The ROW need that is the subject of this application is primarily associated with bringing water and natural gas to support the development activities occurring on private-property in the South Project, as well as transporting product (i.e. upgraded shale oil) to market. As shown in Appendix B, Enefit has developed several typical sections for the proposed utility corridor. The ROW widths vary from 50 feet, where a single pipeline would be located (e.g. cross-section [CS] B), to over 350 feet, where gas, water, and product lines would be located adjacent to dual overhead transmission lines (e.g. CS E). Transmission lines are specifically addressed in Section 4.2 below

#### 4.1. Pipeline Specifications

#### 4.1.1. Water Supply

Water will be needed for various South Project processes, including dust suppression, sanitary use, mining activities, product upgrading, and spent shale/ash handling. In order to supply the South Project with water, Enefit is proposing to utilize the spare capacity in Deseret Generation and Transmission's (DGT's) existing water delivery pipeline, which terminates approximately 20 miles north-northwest of the proposed plant site at DGT's Bonanza Power Plant (BPP). Enefit has agreed with DGT on conveyance of water from the Green River, through the DGT system, to a new pipeline that would be constructed from the DGT system termination point at the BPP to the South Project plant site. Enefit is proceeding with changing the point of diversion from the White River, where the 15 cfs water right currently exists, to the Green River in order to minimize environmental impacts and improve reliability. Enefit is currently evaluating engineering design scenarios for water withdrawal from the Green River. Enefit has completed studies to confirm the capacity in the existing DGT system to convey the 15 cfs of water, to evaluate the flow in the Green River and demonstrate that it can support the additional 15 cfs withdrawal, and to evaluate routing alternatives for the new pipeline from the BPP to the South Project plant site, and a study is currently underway to evaluate engineering design scenarios for water withdrawal. Enefit would construct and own the new pipeline from BPP to the Enefit plant, and DGT would operate and maintain the new pipeline as well as the withdrawal and pumping facility and the existing pipeline from the diversion point to the BPP.

The water supply pipeline would be the longest of the utility routes, extending approximately 19 miles from the BPP to the Enefit plant site. Engineering design is ongoing, however, preliminary evaluations indicate the water supply pipeline diameter would be between 24- and 30-inch inside diameter and material would consist of welded steel. In segments where water supply pipeline would be the only utility, a 50-foot-wide permanent ROW would be required.

In addition to the water supply pipeline, Enefit will construct an approximately 1,000-acre-foot terminal reservoir on the private property to store water and provide for reliability and continued operation during water supply maintenance activities. Raw water will also be treated on site to produce the higher purity water needed for the hydrotreater unit and for use as potable water at the production complex. Although water storage and raw water treatment are not directly related to the BLM ROW application, it is possible that alternatives associated with the proposed water supply pipeline may affect these "downstream" features.

#### 4.1.2. Natural Gas

Enefit will require natural gas to supply a variety of functions at the South Project site, such as industrial processes, building heat, pilots for the flare system, supplemental duct firing, and upgrader complex function. Enefit is proposing to construct, own and operate a new gas pipeline to connect to the existing Questar natural gas

Preliminary Plan of Development to Support Enefit American Oil's Utah Oil Shale South Project Page 14 of 29

pipeline that runs approximately 10 miles north of the South Project area. Enefit is conducting ongoing negotiations with Questar regarding connecting to their natural gas pipeline system. Routing of the natural gas supply pipeline was considered in conjunction with the water supply pipeline, and the two underground utilities would share a common ROW corridor for at least part of their distance. Questar would construct a mainline tap and customer metering station within, and/or immediately adjacent to, their existing ROW. Any additional BLM ROW requirements associated with the Questar tap and meter station would be the subject of a separate application.

The natural gas pipeline would be the shortest of the pipeline segments, extending approximately 8 miles from the exiting Questar pipeline tie-in to the Enefit plant site. Preliminary evaluations indicate the natural gas line diameter would be between 6- or 8-inch inside diameter and material would consist of welded steel. The natural gas line only occurs in segments with water, product and transmission, where the pipeline ROW permanent width would be 100 feet and the adjacent transmission ROW permanent width would be 250 feet.

#### 4.1.3. Product Delivery

In addition to the utility delivery requirements to the South Project, Enefit also plans to construct, own, and operate a product delivery pipeline to carry the upgraded SCO and other products offsite. Enefit is planning to utilize an existing Chevron common carrier crude pipeline, which currently has available capacity and is located approximately 10 miles north of the South Project. The Chevron pipeline system extends to Salt Lake City, where the first 25,000 BPD product delivery is planned. Negotiations with Chevron Pipe Line Company are ongoing, and Enefit is working with Chevron to identify land requirements, interconnection facility design, and facility upgrade steps to support utilization of the common carrier pipeline.

The outgoing product pipeline would extend approximately 10 miles from the Enefit plant site to the tie-in with the existing Chevron common carrier line. Preliminary evaluations indicate the product line diameter would be 16-inch inside diameter and material would consist of welded steel. The product line occurs in segments adjacent to only transmission, where the total ROW permanent width would be 200 feet, and colocated with water, natural gas, and transmission, where the pipeline ROW permanent width would be 100 feet and the adjacent transmission ROW permanent width would be 250 feet.

Enefit is currently studying alternate product delivery scenarios and options, including other pipeline tie-in locations, rail spurs, and other transport logistics, to support the second 25,000 BPD phase. This study is expected to be finalized in Q1 2013, and the findings (including any changes in the South Project as a result thereof) will be summarized in the Detailed POD. Although ongoing final product quality specification is being determined through an upgrading conceptual study and market study, the South Project is currently contemplated to produce a premium quality SCO for delivery to Salt Lake City refineries via the first 25,000 BPD phase (years 1 through 4) and both finished and unfinished products for Salt Lakec City and other markets via the second 25,000 BPD (years 4 through 30).

#### 4.2. Transmission Line Specifications

Although some cogeneration of power may occur as a result of the retorting and upgrading processes, Enefit will require power delivery to the South Project. The South Project is located within the MLEA service area, and Enefit has initiated discussions with MLEA regarding extending transmission lines to the South Project. Discussions to date indicate that MLEA will apply for their own ROW grant from the BLM VFO and will construct, own, and operate the transmission facility; however, the transmission line corridor will run parallel and adjacent to the proposed underground pipelines, at least in part, as shown in the CSs in Appendix B. Issuance of a ROW grant for the transmission facility is expected to be considered in the Project EIS, as it is a connected action to the Project. Enefit and MLEA will work in cooperation, taking into consideration design factors such as constructability, cathodic protection, maintenance access, etc., to identify the best configuration for the utility

Preliminary Plan of Development to Support Enefit American Oil's Utah Oil Shale South Project Page 15 of 29

corridor(s). The transmission line design is anticipated to require a 138-kilovolt (kv) overhead line on H-frame structures, with power coming from the BPP and/or via an interconnection to the western power grid. Enefit and MLEA are anticipating implementation of a looped system, with dual 138-kv lines running to the site for reliability purposes, as shown in Appendix B.

The overhead transmission lines would occur singularly (i.e. a lone overhead transmission line circuit) and in tandem (i.e. side-by-side overhead transmission lines, each with its own circuit). Segments where a single overhead transmission line would occur would require a ROW permanent width of 150 feet, while segments where tandem lines would occur would require a ROW permanent width of 250 feet. There are two transmission segments, one extending from the BPP to the Enefit plant site and a second extending from approximately the same location as the Chevron pipeline tie-in to the Enefit plant site. The prior segment is approximately 19 miles in length, while the latter is approximately 10 miles in length.

#### 4.3. Road Specifications

Exising roads in the area are plentiful, as a result of the current and historic oil and gas development in the region. Enefit is currently studying whether upgrades to Highway 45, unpaved county roads, and/or unpaved BLM roads would be required to support construction, operation, and maintenance of the various project elements. If road upgrades requiring a ROW from BLM VFO are required, Enefit will indicate which roads and the degree of relocation that would be required in the forthcoming Detailed POD.

#### 4.4. Associated Utility Relocations

In addition to the utilities required for the South Project and described in Sections 3.1 and 3.2, there are several existing utilities located within the Enefit South private property that would need to be relocated as a result of the South Project. Those utilities have recorded easements granted by Enefit (or, in most cases, prior landowners, where Enefit has assumed the easement in the land purchase) and movement stipulations for each are indicated in the easement agreements. Those utilities include the following:

- One overhead transmission line owned by MLEA;
- Two underground natural gas liquids pipelines owned by Mid-America Pipeline Company (aka Mapco, Inc.); and
- One underground natural gas pipeline owned by American Gilsonite Company.

Enefit is proceeding with discussions and negotiations with each of these utility easement holders to identify the responsibility, timing, and location associated with the relocation requirements, as well as studying land requirements. In the event utility relocations as a result of the South Project would affect BLM land, Enefit will coordinate with both the BLM and the utility easement holder(s) to incorporate those effects into the environmental analysis for the South Project.

#### 4.5. Other Project Components

The following provides a brief description of the non-federal actions for which effects may require analysis in the EIS.

#### 4.5.1. Mining

Oil shale will be extracted from an approximately 7,000- to 9,000-acre area via a combination of surface and underground mining methods on Enefit's private property. Mining is expected to commence in the northeast and

Preliminary Plan of Development to Support Enclit American Oil's Utah Oil Shale South Project Page 16 of 29

east portions of the Project area, where the target formation is at its shallowest (i.e. outcrop or minimal overburden). Approximately 300 to 500 acres will be actively mined at any given time. Reclamation of the mined areas, including pit backfilling, recontouring, and revegetation, will begin approximately two to three years after commencement of mining in an area and will proceed concurrently with progressing mining activities. It is anticipated that the mining method will transition from surface mining to underground mining as ore extraction proceeds to the northwest of the private property, where the overburden zone becomes thicker, the ore body becomes deeper, and stripping ratios increase. Enefit is target a mining horizon of approximately 60 feet in thickness, beginning at the A groove, at an annual rate of approximately 27-29 millions tons per year at full Project build-out.

#### 4.5.2. Production Plant

The production plant and related infrastructure will be located in the northern portion of the Project area, in Section 3, Township 11 South, Range 25 East, on an approximately 320-acre site (plant size is currently in design and may change based on arrangement and optimization of plant components; does not include terminal site reservoir). The production complex will consist of raw material handling, the retorting and oil recovery unit(s), raw shale oil upgrading facility, power block, wastewater treatment unit, storage yard, and administration buildings.

Mined and crushed oil shale will be processed in the retorting and oil recovery train(s) to produce raw shale oil, along with retort gas, spent shale, and wastewater. The retort process primarily consists of a pyrolysis process that heats the fresh oil shale in the absence of oxygen. In this step, the organics contained in the oil shale are volatilized and the produced shale oil vapors are separated into oil, pyrolytic water and retort gas in an oil recovery unit. Shale naphtha, along with heavy shale oil distillates, are then directed to the shale oil upgrading plant. The produced retort gas is partly used in the retort unit as an additional fuel. The excess retort gas is sent for further processing, cleaning, and/or used for onsite power production. The pyrolytic wastewater is sent for purification in the wastewater treatment unit.

The on-site shale oil upgrading plant will hydrotreat the shale oil feed streams to produce a premium, refineryready, SCO product and other finished and unfinished products. The plant will be designed in two trains, each with the capacity to produce 25,000 bpd (constructed separately in Phase 1 and Phase 2; see Figure 4 in Section 2.6) and comprised of the following process units:

- Steam methane reformer hydrogen plant;
- Hydrotreating unit;
- Off-gas treatment unit; and
- Wastewater treatment unit.

Enefit will continue to study optimizations of both the retort and upgrader as Project design progresses.

Preliminary Plan of Development to Support Enclit American Oil's Utah Oil Shale South Project Page 17 of 29

## 5. Construction of the Right-of-Way Facilities

Construction of the proposed underground pipelines and overhead transmission lines would follow standard overland pipeline and transmission construction. Preliminary routing analysis has been conducted on both underground and overhead facilities, and minimization of land disturbance was a primary evaluation factor in the siting. Routing sought to avoid sidehill slopes, which tend to be more difficult to construct, generally require a larger temporary and permanent footprint, and are more difficult to reclaim following construction. Routing also considered whether adequate space for construction would be available when coursing adjacent to existing features (e.g. roads and pipelines).

Enefit will commence field-truthing of the preliminary routing in early 2013 and will identify areas requiring temporary workspace during construction, as well as additional temporary workspace such as laydown yards, parking areas, and other ancillary elements. Specialized construction techniques will also be evaluated at sensitive environmental features, such as the crossing of the White River and Evacuation Creek and/or steep hill slopes. Enefit's Detailed POD will contain a detailed description of the construction typical sections and any specialized construction techniques, as well as a summary of the land disturbance area associated with each.

Construction of the overhead transmission lines, as identified in Section 4.2, would be closely coordinated with MLEA. As negotiations between Enefit and MLEA proceed, either Enefit or MLEA may undertake construction of the transmission lines to increase efficiency during construction and minimize cost. However, it is unlikely that construction responsibility will materially affect the design and/or disturbance associated with the transmission facility.

Preliminary Plan of Development to Support Encfit American Oil's Utah Oil Shale South Project Page 18 of 29

## 6. Operation and Maintenance of the Facilities

The water, natural gas, and product pipelines would be operated and maintained by Enefit. This allows Enefit to maintain a centralized safety and reliability monitoring program concurrent with other South Project elements (e.g. mine, retort, and upgrader) to ensure all facilities are functioning as designed. Scheduled or unanticipated maintenance on any one of the facilities could have significant effects on multiple other aspects of the overall ROW and South Projects, and Enefit will seek to minimize any adverse effects of facility outage by implementing administrative control measures over all facilities. The water supply system (i.e. the point of diversion, pumping system, and existing pipeline from the Green River to the BPP) would be operated and maintained by DGT on behalf of Enefit.

Pipelines would be maintained in accordance with safety and reliability as set forth by the United States Department of Transportation, Pipeline and Hazardous Materials Safety Administration (PHMSA) and other applicable federal, state, and local regulations.

Access for maintenance of the water, natural gas, and product pipelines, as well as the affiliated overhead transmission line, would primarily occur via existing roads and along a permanent centerline ROW access road. It is expected that a single permanent centerline ROW access would be sufficient to access all parts of the utility corridor and would be utilized by Enefit and MLEA, as well as potentially other parties where the proposed ROW Project utility corridor parallels existing features.

Preliminary Plan of Development to Support Enefit American Oil's Utah Oil Shale South Project Page 19 of 29

## 7. Termination and Rehabilitation

Rehabilitation of the construction ROW would occur immediately following the completion of construction, i.e. reclamation in the form of regrading and revegetation would occur as part of construction activities. It is anticipated that revegetation to at or near pre-ROW Project conditions would be complete within five years.

The ROW and South Projects as currently planned would continue for at least 30 years; therefore, the water, natural gas, product, and transmission lines would be in place for that duration at a minimum. It is anticipated that upon termination of the ROW Project, and in the event no other existing, proposed or reasonably-foreseeable projects are forthcoming that could utilize the infrastructure, the facilities would be abandoned in place.