



July 31, 2013

Vernal Field Office, BLM
Attn: Stephanie Howard
170 South 500 East
Vernal, UT 84078

RE: Scoping Comments – Enefit American Oil Utility Corridor Project EIS

Reviewers:

Thank you for the opportunity to provide comment on the scope of issues to be considered in the Enefit American Oil (Enefit) Utility Corridor Project Environmental Impact Statement (EIS). We are submitting these comments on behalf of Grand Canyon Trust, Living Rivers, Sierra Club, Southern Utah Wilderness Alliance, Conservation Colorado and Western Resource Advocates. Our organizations represent individuals that have a direct interest in the issues under consideration in this EIS. We hope that you will gather the data necessary to carefully consider the following issues and concerns as you undertake your statutory and regulatory obligations in reviewing Enefit's proposed development activities.

In Utah alone, there are more than 360,000 acres of Bureau of Land Management (BLM) land that are available for research and development of oil shale, and another 89,000 acres of state school trust lands already under active lease for development. It is vital that BLM take an exhaustive and expansive look at Enefit's oil shale development project, and take all steps necessary to protect public resources including, if necessary, denying Enefit's right-of-way (ROW) application should impacts from construction of the ROW prove unacceptable or the company be unable to mitigate them.

Importantly, Enefit's proposed development presents BLM with its first opportunity to evaluate and appropriately regulate a commercial-scale oil shale development project. Until now, BLM's environmental impacts analysis, as reflected in its 2012 oil shale and tar sands Programmatic EIS, has been general or even speculative in nature, and the agency has deferred any full impacts analysis until faced with a project-specific proposal. One of the primary challenges BLM faces in undertaking the Enefit EIS is that the company's technology remains under development. Enefit, by its own admission, must adjust its process to account for the different physical and chemical properties of the shale found in Utah, as well as the different physical environment in which development will occur. Enefit must also account for a different regulatory framework governing development activity. For these and other reasons, BLM must look closely at Enefit's proposal and not assume that information derived from Enefit's Estonia operation is directly transferable to its proposal for Utah.

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In order to fulfill its obligations under the National Environmental Policy Act (NEPA), BLM must fully account for Enefit's development plans on both federal and non-federal land, along with the technologies the company is proposing to use, and the broad impacts of its operations. It is also important that BLM analyze and understand the differences between shale mined in Estonia and in Utah, in order to allow the agency to properly evaluate the impacts from development activities in Utah.

I. Background on Enefit

Enefit is a subsidiary of Eesti Energia, a state-owned energy development company located in Estonia. The majority of Eesti Energia's oil shale development work involves electricity produced by burning oil shale in much the same manner that industry burns coal to produce electricity. In recent years, Eesti Energia has sought to ramp up development of liquid transportation fuels by retorting oil shale deposits mined locally in Estonia. As part of this effort, Enefit is developing a new retort processor, the Enefit280. Although construction of that facility is completed, it is not yet fully operational. As Eesti Energia explains in its 2013 Q1 financial report:

Hot commissioning in the new generation Enefit280 oil plant is still underway. Step by step we are moving towards doubling our oil production. Commissioning timetable has been affected by mechanical problems in the support systems of the oil plant. However, the first oil has been received and we still believe the decision to construct twice as large oil plant using Enefit technology is justified and that our plant will start oil production as expected.

(Eesti Energia 2013 Q1 report, letter from the CEO).

Enefit has also sought to expand liquid fuel development by initiating operations in both Jordan and the United States. As part of this effort, in March 2011, Enefit purchased 100% ownership of the Oil Shale Exploration Company (OSEC), one of the four companies in 2007 to receive a federal research, development and demonstration (RD&D) lease from BLM. In acquiring OSEC, Enefit obtained ownership of all property, leases and assets from OSEC, including OSEC's RD&D lessee (Lease # UTU-84087). Enefit intends to use the Enefit280, with unspecified modifications, to retort shale mined from its private property, state lands, and federal lease in Utah.

II. Utah is not Estonia

Shale rocks mined in Estonia and Utah share common characteristics, but have different physical and chemical properties. One difference is that Utah shale is drier and harder, produces more dust, and does not contain the same energy content as shale mined in Estonia. These differences will require adjustments to the pyrolysis process that Enefit uses, as well as changes to energy inputs, waste management practices, upgrading requirements, and emission controls. These challenges will require Enefit to modify its technology from that being used in Estonia. As Enefit's President, Rikki Hrenko, explained in a January 25, 2013, *Salt Lake Tribune* article, "Oil shale in different parts of the world has different qualities and every process has to be

modified to account for those differences.” Importantly for this EIS, these and other changes remain in the research and development phase.

With these changes in technology come different environmental impacts. Adding to the challenge BLM faces with this proposal is that environmental conditions in Estonia vary considerably from Utah. Also substantially different are the regulatory requirements and conditions associated with water and air quality impacts, as well as waste disposal and other environmental concerns. It is therefore imperative that BLM account for the key differences in both Estonian and Utah oil shale and the technologies required to process that shale, along with potential impacts to the Utah environment as a result of those differences. It is thus vital that BLM take a hard look at Enefit’s proposal and not assume that strategies Enefit employs to address and mitigate environmental impacts in Estonia would be appropriate for Utah.

Despite the many uncertainties about Enefit’s proposed technology, what is known about oil shale development activities in Estonia, including electricity generation, raises serious concerns. For instance:

- ✓ 90 percent of Estonia’s carbon dioxide emissions come from burning oil shale. It is unclear how much development of oil shale for liquid fuels would add.
- ✓ A July 2013 report from the Swedish Air Pollution and Climate Secretariat concludes that Estonia is the largest per capita polluter in the region, and calls on the company to drop oil shale as an energy source.
- ✓ In northeastern Estonia, towering mounds of gray shale ash are visible from space. Locals refer to these barren hills, which cover 50 square miles, as the “Estonian Alps.” On one of them is built a ski area. Another hosts a wind farm. Petroleum coke buried in another of these gigantic piles spontaneously ignited two years ago.
- ✓ The oil shale sector in Estonia uses four times more water annually than the rest of Estonia combined, and emits 100% of the sulfur pollution.
- ✓ To produce 50,000 barrels/day, Enefit will have to mine 28 million tons of rock a year, in addition to digging up and relocating whatever overburden is necessary. By comparison, the whole state of Colorado mines approximately 28 million tons of coal annually.

III. Legal Framework

A. NEPA

The National Environmental Policy Act (NEPA) requires federal agencies to prepare an Environmental Impact Statement (EIS) prior to taking major federal action. 42 U.S.C. §§ 4321-4370(d). In this EIS, BLM rightly considers the issuance of the ROW to be a major federal action. The purpose of NEPA is to require agencies to consider environmentally significant aspects of a proposed action, and, in so doing, inform the public of the environmental concerns and considerations that affected the agency’s decision-making process. In conducting the EIS, BLM must create an administrative record that demonstrates that it followed NEPA procedures.

Similarly, the Environmental Protection Agency (EPA) also requires a complete analysis of the purpose and need for the proposed project, 40 C.F.R. § 1502.13, along with a full and fair analysis of all reasonable project alternatives. 42 U.S.C. § 4332(2)(C)(iii), (E); 40 C.F.R. § 1502.1. In fact, the regulations implementing NEPA refer to the comparison of alternatives as the “heart of the environmental impact statement.” 40 C.F.R. § 1502.14. Agencies must “rigorously explore and objectively evaluate all reasonable alternatives,” then “[d]evote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits,” and explain why other alternatives were eliminated from detailed consideration. *Id.*

An EIS must provide detailed explanation and “rigorous analysis” of “all reasonable alternatives” and comparative analysis of the environmental impacts of all alternatives considered. 40 C.F.R. § 1502.14. BLM must not dismiss alternatives, without the required rigorous analysis, by simply saying that it “dismissed them due to economic, technical, logistical, and purpose and need criteria.” BLM must rigorously evaluate all reasonable alternatives, determine their viability, and place that information in the record. The final decision to grant or deny the ROW should be informed by the record produced through such scientific analyses.

Additionally, as part of the requirement that BLM take a “hard look” at the environmental consequences of Enefit’s proposal, BLM must evaluate all actions connected to the proposal and the cumulative impacts. 40 C.F.R. § 1508.25(a)(1). Connected actions are those which are “closely related,” including those that “[c]annot or will not proceed unless other actions are taken,” or those that “[a]re interdependent parts of a larger action and depend on the larger action for their justification.” Cumulative actions are those that “have cumulatively significant impacts and should therefore be discussed in the same impact statement.” Included in that analysis is the degree to which issuance of the ROW would adversely affect endangered and threatened species under the Endangered Species Act of 1973.

1. Enefit’s RD&D lease and development on its South Property are “connected actions” as defined under the law

We strongly support BLM’s decision to include in the EIS a full analysis of development activity on Enefit’s South Property. This determination complies with NEPA regulations for connected actions.

We also believe, consistent with NEPA, that BLM must include in the EIS a full evaluation of Enefit’s RD&D lease land, including the preference right lease area, because Enefit’s RD&D lease and development on its South Property are “connected actions” under the law. Enefit downplays this connection in its November 26, 2012, ROW development plan and application. However, in its July 19, 2012, RD&D lease development plan that BLM approved, Enefit outlines in clear terms that development of its RD&D lease is highly and significantly dependent on research and development activities that the company will undertake on its South Property (called the “Skyline Property” in the RD&D development plan). Exhibit A, attached. In short, under Enefit’s RD&D plan, development on the Enefit South Property is an integral part of development of its RD&D lease. Without BLM’s approval of this ROW, the company cannot

achieve the goals enumerated for its RD&D lease, including securing a lease for its preference right lease area.

Specifically, as Enefit explains in its July 2012 RD&D development plan, “[t]he RD&D Development Phase activities will be carried out on both BLM RD&D lease property and EAO’s adjacent Skyline Property....” *Id.* at 2. Additionally, Enefit explains that one of the reports it will develop is “[a] conceptual mining study tying BLM property and the private Skyline property together into an integrated mining plan with a description of the mining methods, production and mine advancement.” *Id.* at 8. Enefit even includes the RD&D preference right lease area as part of the “overall mining operation/unit,” *id.* at 10, and presents a strategy that necessitates Enefit process some, if not all, of the shale mined on federal land in the retort processors the company plans to build on its Enefit South property. Finally, the development timeline Enefit includes in its plan supporting its ROW application (ROW Application, Figure 4) is also found in its RD&D development plan. RD&D development plan, Figure 1.

2. Cumulative impacts

Should the ROW application be granted, it is reasonably foreseeable that additional energy infrastructure and refining projects will also be developed. The increased infrastructure and the clustering of projects to access and service Enefit’s oil shale development areas are likely to have a cumulatively significant effect on the resources in the area. Support facilities, such as power plants or other energy sources, must be analyzed for their impacts on the land, communities, and resources, in addition to impacts from truck and/or train traffic that is a necessary part of the commercial development planned. Likewise, the delivery pipeline that Enefit identifies in its ROW application should also be included in a cumulative impacts analysis.

Finally, when determining the extent of the cumulative impacts analysis, BLM must account for the fact that it did not tackle cumulative impacts in its 2012 oil shale and tar sands programmatic EIS and corresponding RMP amendments, but deferred those analyses until it conducted a project-specific NEPA. As the BLM described in the Record of Decision,

[i]f and when applications to lease are received and accepted for oil shale or tar sands resources within the acres available for leasing under this ROD, BLM will conduct additional required analyses, including consideration of direct, indirect, and cumulative effects of the proposed development, reasonable alternatives, and possible mitigation measures. On the basis of that analysis of future lease application(s), BLM will establish general lease stipulations and best management practices (BMPs) and amend applicable land use plans, if necessary. After a lease is authorized, actual development will require additional analysis to address the site-specific conditions of the proposed development and to develop mitigation measures as necessary.

Oil Shale and Tar Sands Record of Decision, March 2013, page 2.

Now is the time for the agency to take a hard look at the impacts, including all cumulative impacts.

B. Section 368, Energy Policy Act of 2005

We support the inclusion of the Section 368 energy corridors analysis in this EIS. Importantly, though, corridors designated under the 2009 West-wide Energy Corridor Final Programmatic Environmental Impact Statement (FPEIS) cannot be assumed to be free from conflict. In accordance with the Settlement Agreement in *Wilderness Society, et al. v. United States Department of the Interior, et al.*, No. 3:09-cv-03048-JW (N.D. Cal), the Department of the Interior (DOI) acknowledged that there are known conflicts within some or all of the corridors as designated. One of the corridors listed in the Settlement Agreement is corridor 126-258. That corridor is in close proximity to Enefit's properties, including the Enefit South Property. See <http://corridoreis.anl.gov/eis/fmap/sbm/index.cfm>.

Under the Settlement Agreement, "site-specific projects in a section 368 corridor will require individual NEPA analysis. The scope of that NEPA review will include analysis of whether the use of that corridor identified in the FPEIS is appropriate in the context of the site-specific project and/or whether additional analysis should be undertaken to modify or delete the corridor and designate an alternative corridor." Settlement Agreement at 10, Exhibit B, attached. Additionally, the Settlement Agreement includes the following general principles for future siting recommendations, which should help inform BLM's analysis in this EIS:

- Corridors must be "thoughtfully sited to provide maximum utility and minimum impact to the environment;"
- Corridors must be designed "to promote efficient use of the landscape for necessary development;"
- "Appropriate and acceptable uses are defined for specific corridors;" and,
- Corridors must provide "connectivity to renewable energy generation to the maximum extent possible while also considering other sources of generation, in order to balance the renewable sources and to ensure the safety and reliability of electricity transmission."

Settlement Agreement at 6.

C. National Historic Preservation Act (NHPA)

We fully agree with BLM's conclusion in the *Federal Register* notice that the EIS must fully evaluate compliance with the National Historic Preservation Act of 1966 (NHPA) and its implementing regulations. The area impacted by Enefit's proposed developments is rich in prehistoric archeological sites—ten prehistoric and historic sites, including two sites eligible for the National Register of Historic Preservation.

Congress enacted the NHPA because it found that "historic properties significant to the Nation's heritage [were] being lost or substantially altered, often inadvertently, with increasing frequency[.]" 16 U.S.C. § 470(b)(3); see *Nat'l Mining Ass'n v. Slater*, 167 F.Supp.2d 265, 271 (D.D.C. 2001) (reversed on other grounds); see also *Nat'l Mining Ass'n v. Fowler*, 324 F.3d 752 (D.C.Cir. 2003)). To serve the public interest in "the preservation of this irreplaceable heritage," Congress declared as the goal of the Act, the maintenance and enrichment of this "vital legacy"

for future generations of Americans. 16 U.S.C. § 470(b)(4). *See Southern Utah Wilderness Alliance v. Norton*, 326 F.Supp.2d 102, 108 (D.D.C. 2004).

NHPA accomplishes its purposes by “requir[ing] each federal agency to take responsibility for the impact that its activities may have upon historic resources” *City of Grapevine v. Dep’t of Transp.*, 17 F.3d 1502, 1508 (D.C.Cir. 1994). Specifically, a federal agency “shall, prior to the approval of . . . any license . . . take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register.” NHPA, § 106, 16 U.S.C. § 470f. An undertaking is any “project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including . . . those requiring a federal permit, license or approval.” 36 C.F.R. § 800.16(y). Section 106 also requires that the agency afford the Advisory Council on Historic Preservation (Advisory Council) “a reasonable opportunity to comment” on the undertaking. 16 U.S.C. § 470f.

Section 106 also requires consultation and communication among agency officials, the relevant State Historic Preservation Officer (SHPO), affected tribes, and other interested persons, including the public. *See* 36 C.F.R. § 800.2; *see also SUWA v. Norton*, 326 F.Supp.2d. at 108. The purpose of this consultation is to involve agency officials and other interested parties together in the identification of “historic properties potentially affected by the undertaking, [the] assess[ment of] its effects and [the] seek[ing of] ways to avoid, minimize or mitigate any adverse effects on historic properties.” 36 C.F.R. § 800.1(a); *see also SUWA v. Norton*, 326 F.Supp.2d. at 108.

To fulfill its obligations under the NHPA with regard to the EIS, BLM must take several steps. First, given the inadequacies in the previously completed cultural resource surveys, BLM must require Enefit to supply an updated cultural resource inventory for the affected area. This position accords with BLM’s commitment in its Environmental Assessment for the Oil Shale Exploration Company’s (OSEC) Research, Development, and Demonstration (RD&D) lease, that the applicant will “direct qualified archaeologists to examine and reevaluate these sites in the field to determine their current NRHP eligibility status and potential project impacts.” Vernal Field Office, Environmental Assessment Oil Shale Research, Development, and Demonstration White River Mine, Uintah County, Utah, DOI-BLM-UT-080-06-280, 157-58 (April 2007). Enefit, as the successor in interest in the lease originally granted to OSEC, must complete this inventory. Next, BLM must fully comply with its consultation obligations to the Utah SHPO, affected tribes, and other interested parties. Finally, BLM must fulfill the requirements set forth in NHPA’s implementing regulations, which provide governing standards for agencies that choose to use the NEPA process for section 106 purposes. 36 C.F.R. § 800.8(c).

D. Indian Country

Enefit acknowledges in the ROW application that its activities would take place on lands in what is known as Indian Country, specifically within the historical boundary of the Uintah & Ouray Reservation. Importantly, under federal law, EPA retains jurisdictional authority over management of hazardous wastes and air quality. Additionally, EPA has not ceded any

jurisdictional authority to the State of Utah, despite claims in recent years by state officials to the contrary.

IV. General Comments

A. Groundwater

The State of Utah has made it clear that “all” waters of the state, including “all” accumulations of groundwater, must be protected from contamination. The Utah Water Quality Act defines waters of the state as:

All streams, lakes, ponds, marshes, watercourses, waterways, wells, springs, irrigation systems, drainage systems, and **all other bodies or accumulations of water, surface and underground**, natural or artificial, public or private, which are contained within, flow through, or border upon this state or any portion of this state.

Utah Code Ann. § 19-5-102(23)(a) (emphasis added). The Act further specifies that “it is unlawful for any person to discharge a pollutant into waters of the state...or to place...any wastes in a location where there is probable cause to believe it will cause pollution.” Utah Code Ann. §19-5-107(1)(a) (emphasis added).

In assessing Enefit’s proposed ROW and development proposal, BLM must evaluate the cumulative impacts of Enefit’s operations on groundwater resources, including quantifying all accumulations of groundwater within all of Enefit’s active or potentially leased areas. In order to determine the existence of groundwater in the area, BLM must require that a comprehensive analysis of all groundwater resources in the area be conducted. While the literature review done by Enefit to quantify the extent of groundwater resources provides some data, the company must go further and be required to do actual baseline analysis, including conducting a thorough seep and spring survey of the area. This baseline analysis must take into account the ephemeral nature of groundwater recharge in that area, and therefore must be conducted at different times of the year.

In addition to providing critical the analysis for the EIS, this information will also help inform the application of the State’s permitting requirements. As outlined elsewhere in these comments (see *infra* “Solid and Hazardous Waste Management”), there is a potential for Enefit’s operations to discharge pollutants into area groundwater resources, especially given the nature of the waste stream. A discharge “means the addition of any pollutant to any waters of the state,” Utah Code Ann. § 19-5-102(7), and pollution is defined as “any man-made or man-induced alteration of the chemical, physical, biological, or radiological integrity of any waters of the state[.]” Utah Code Ann. § 19-5-102(13). In order to protect against an unlawful discharge, the Act requires any person discharging a pollutant into waters of the state to obtain a discharge permit. Utah Code Ann. § 19-5-107(1)(a); see also § 19-5-102(8) (discharge permit “means a permit issued to a person who...discharges or whose activities would probably result in a discharge of pollutant into waters of the state[.]”). Thus, under Utah law, persons must have a permit before discharging any pollutants into any accumulations of underground water.

In order to carry out this statutory mandate, the Utah Water Quality Board (Board) developed regulations to protect all waters of the state, including “all...accumulations” of groundwater, from the discharge of pollutants. Utah Code Ann. § 19-5-104(3)(a) (the Board “shall...develop programs for the prevention, control, and abatement of new or existing pollution of the waters of the state[.]”); §19-5-106(2)(a) (same). Pursuant to this duty, the Board promulgated the Groundwater Quality Protection regulations (Regulations). See Utah Admin. Code R317-6 et seq.

Because it is highly likely that Enefit will discharge pollutants into groundwater, the Regulations require the company to apply for a groundwater discharge permit. See Utah Admin. Code R317-6-6.1 (“No person may construct, install, or operate any new facility or modify an existing or new facility...which discharges or would probably result in a discharge of pollutants that may move directly or indirectly into ground water, including, but not limited to land application of wastes; waste storage pits; waste storage piles; landfills and dumps; large feedlots; mining, milling and metallurgical operations, including heap leach facilities; and pits, ponds, and lagoons whether lined or not, without a ground water discharge permit[.]”). In its ROW application, Enefit attempts to sidestep this responsibility by stating that the “requirement [for a groundwater discharge permit is] dependent upon site design” and that any anticipated application or review for such a permit has yet to be determined. (ROW application at 27.) This position is unacceptable for the purposes of the EIS. The company must clearly identify all impacts to all groundwater resources in the entirety of its operational area, and those impacts must be accounted for in the EIS. Unless and until the company can provide such information, the EIS cannot be completed.

B. Surface water

In addition to following state law, BLM must also ensure its actions restore and maintain the chemical, physical and biological integrity of our nation’s water. 33 U.S.C. § 1251(a); *see also* Utah Admin. Code R317-2-1A (The State of Utah’s goal is “to conserve the waters of the state and to protect, maintain and improve the quality thereof for public water supplies, for the propagation of wildlife, fish and aquatic life, and for domestic, agricultural, industrial, recreational and other legitimate beneficial uses”).

BLM must analyze the impacts of the entire Enefit development on surface water quality, including both perennial and ephemeral waters. The analysis must assess direct impacts as well as indirect impacts from increased erosion, loss of vegetation and shade and the presences of windblown pollutants. The examination should address changes to surface water patterns and the potential for sediment laden stormwater runoff. BLM must address the direct link between increases in sedimentation and increases in temperature. BLM must make baseline determinations as to the existing quality of the affected surface waters and must determine the impact the project will have on these waters as well as downstream beneficial uses and water quality. The agency must also assess compliance with the Colorado River Salinity Standards and address the State of Utah standards in place to protect the biological integrity of surface waters, which includes safeguarding macro and micro invertebrates as well as fish and other aquatic species.

Moreover, the State of Utah has established beneficial uses for watercourses that are likely to be affected by the alternative management scenarios which must be protected. Accordingly, BLM must consider these alternatives in the context of impacts to water quality and compliance with Utah's numeric and narrative water quality standards and Utah's anti-degradation regulations. To meet this requirement, BLM must undertake the analysis necessary to understand the impacts of development on water quality and to assure compliance with the law.

C. Air quality

The Enefit Project is located in the Uinta Basin. The Uinta Basin has some of the nation's worst air quality and oil and gas activity contributes to this problem. BLM should not approve a project that will lead to any further degradation of the Uinta Basin's air quality. Furthermore, if BLM should not rely on any air quality analysis it has conducted to date because all of these analyses have fatal flaws, in addition to confirming that any energy development in the Uinta Basin will contribute to unhealthy levels of pollution.

1. The NEPA Requirement to Consider Air Quality Impacts

To comply with NEPA's "hard look" requirement, BLM must explain how its actions will or will not comply with environmental laws and policies. 40 C.F.R. § 1508.27(b) (stating federal agencies must consider "[w]hether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment"); *see also id.* § 1502.2(d) ("Environmental impact statements shall state how alternatives considered in it and decisions based on it will or will not achieve the requirements of [NEPA] and other environmental laws and policies." (emphasis added)). Accordingly, BLM should analyze air emissions associated with oil and gas development, and determined whether those emissions would result in violations of federal air quality standards.

BLM must also support its conclusions about environmental impacts with adequate evidence in the record. *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto.*, 463 U.S. 29, 43 (1983); *Izaak Walton League of America v. Marsh*, 655 F.2d 346, 368-69 (D.C. Cir. 1981). This evidence should include "the best available scientific information." *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989); *see also* 40 C.F.R. § 1502.24 ("Agencies shall insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements.").

Therefore, prior to authorizing the Enefit development, BLM should thoroughly analyze whether air pollution from the oil shale development would exceed relevant air quality standards or have adverse impacts on public health or parklands. Those conclusions must be supported with relevant evidence.

NEPA also requires that BLM evaluate the direct, indirect, and cumulative impacts of federal actions. *See* 40 C.F.R. § 1508.25(c). The Council on Environmental Quality (CEQ) has recognized that "the most devastating environmental effects may result not from the direct effects of a particular action, but from the combination of individual minor effects of multiple

actions over time.” CEQ, Considering Cumulative Effects under the National Environmental Policy Act at 1. CEQ regulations define cumulative impacts as

the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

40 C.F.R. § 1508.7; *see also Grand Canyon Trust v. FAA*, 290 F.3d 339, 342 (D.C. Cir. 2002) (stating that an environmental analysis “must give a realistic evaluation of the total impacts and cannot isolate a proposed project, viewing it in a vacuum”). NEPA requires that an agency’s cumulative impacts analysis provide “quantified or detailed information.” *Neighbors of Cuddy Mountain v. U.S. Forest Serv.*, 137 F.3d 1372, 1379, (9th Cir. 1998); *see also Natural Res. Def. Council v. Hodel*, 865 F.2d 288, 299 (D.C. Cir. 1988) (“[P]erfunctory references do not constitute analysis useful to a decisionmaker in deciding whether, or how, to alter the program to lessen cumulative environmental impacts.”).

To meet its substantive duties, BLM may not simply defer to state regulation of air quality to demonstrate that the NAAQS and PSD increments for pollutants under the Clean Air Act will be protected. This is because:

- NEPA requires BLM to undertake a careful examination of the direct, indirect and cumulative environmental impacts of its proposed actions. This duty cannot be delegated to a State;
- Utah has not had a network of air quality monitors in the areas relevant to this action sufficient to determine compliance with NAAQS;
- States, including Utah, have not yet submitted State Implementation Plan (SIP) revisions to the EPA pursuant to Section 110 of the Clean Air Act to ensure attainment and maintenance of the ozone and PM_{2.5}, NAAQS, meaning no analysis or finding has been made showing that current state air quality rules are sufficient to ensure compliance with these NAAQS;
- The State of Utah permitting requirements do not apply to stationary sources that emit 5 tons per year or fewer of any criteria pollutant (*see* Utah Administrative Code R307-401-9) and only require an analysis of ambient air quality impacts if a source releases more than 40 tons of nitrogen oxides, 5 tons of fugitive PM₁₀ and 15 tons of non-fugitive PM₁₀ (*see* Utah Administrative Code R307-410-4). Furthermore, State of Utah permitting requirements do not actually require any analysis of impacts to ozone or to PM_{2.5};
- The State of Utah is failing to permit stationary oil and gas production facilities in accordance with PSD requirements under the Clean Air Act and EPA guidance. Namely, the State of Utah is not appropriately identifying stationary sources consistent with the regulatory definition of a stationary source. *See* 40 CFR §§ 51.166(b)(5) and (b)(6). Unfortunately, the State of Utah is not complying with this EPA guidance and is, as a result, failing to permit oil and gas stationary sources as dictated by the Clean Air Act;
- The State of Utah does not limit emissions related to vehicle tailpipes or fugitive dust or particulate matter to ensure compliance with the NAAQS; and,

- The State of Utah does not otherwise address the cumulative impacts of energy development to air quality. Although the State has a permitting program, this program only applies to single stationary sources that “consume increment” and does not address emissions from older stationary sources or from oil and gas development in the aggregate on a regional level.

In light of these shortcomings in Utah’s air quality regulations, it is incumbent upon the BLM to prepare a detailed analysis of air quality impacts and to take steps to limit such impacts to protect air quality standards, including the NAAQS and PSD increments. Furthermore, the BLM has a self-imposed duty—independent of any State of Utah obligation—to ensure that its actions comply with state and federal air quality standards. BLM must prepare quantitative dispersion modeling to analyze these impacts; that is the only way that BLM can assure the public that it is meeting federal and state air quality standards when analyzing the proposed project.

2. Ozone Background

Ozone levels in the Uinta Basin are among the worst in nation.

In the winter of 2010—the first time that winter ozone was monitored in the region—two monitors in the Uinta Basin recorded forty days between January and early March where ozone exceeded federal air quality standards. *See* EPA, Air Quality Statistics Report, http://www.epa.gov/airdata/ad_rep_con.html.¹ The fourth-highest value recorded during that time for the Uinta Basin was 117 parts per billion, or ppb. *See id.* The fourth highest reading each year is used to determine compliance with federal standards; the federal standard here is that values not exceed 75 ppb. 40 C.F.R. § 50.15. The following winter, these monitors recorded similar, elevated levels of ozone. The fourth-highest value recorded at any monitor was 116 ppb in February 2011 in the Uinta Basin and twenty-four days recorded values above NAAQS between January and March. *See* EPA, Air Quality Statistics Report, http://www.epa.gov/airdata/ad_rep_con.html. The highest day of ozone pollution in the Uinta Basin in 2011 saw levels reach 139 ppb. The average fourth-highest value, for 2010 and 2011 was 116.5 ppb.

Ozone pollution values in 2012 dropped to 75 ppb. *See* EPA, Air Quality Statistics Report, http://www.epa.gov/airdata/ad_rep_con.html. However, last year was an anomaly because the winter of 2012 was one of the mildest and driest on record. Cold temperatures and snow cover are two critical components that lead to ozone formation in the Uinta Basin.

In the winter of 2013, ozone pollution levels returned to their high values where the fourth-high will likely be some number above 116 ppb.²

¹ Select “Year” as 2010, “Geographic Area” as Utah, and grouping results by county, values listed for Uintah County in 2010 are 117 ppb. Repeat this process for 2011 and 2012. Values in 2011 are 116 ppb and in 2012 are 75 ppb.

² EPA, AIRNow, Air Quality Maps – Archive – Monthly Overview, Ozone Peak, January 2013, <http://airnow.gov/index.cfm?action=airnow.mapsarchivecalendar&maptype=o3peak&domainid=53&calyear=2013>

For comparison, Pinedale, Wyoming—often cited as the location of some of the worst wintertime ozone in the United States—averaged ozone concentrations of 79 ppb from 2009 through 2011. EPA, Air Quality Statistics Reports, http://www.epa.gov/airdata/ad_rep_con.html (last visited Mar. 22, 2012, selecting “Year” as 2009-2011, “Geographic Area” as Wyoming, and grouping results by county; data is for Sublette County, three values are 66, 67, and 103 ppb for 8-hour ozone, listed as “O3 8-hr 4th Max”).

According to the American Lung Association, the three most polluted counties for ozone in the United States are San Bernardino, Riverside, and Kern, all in California; the most polluted city is Los Angeles. American Lung Association, State of the Air 2011, <http://www.stateoftheair.org/2011/assets/SOTA2011.pdf>. From 2009 through 2011, Los Angeles County has averaged an ozone concentration of 100 ppb; San Bernardino County has averaged an ozone concentration of 110 ppb; Riverside County has averaged an ozone concentration of 102 ppb; and Kern County has averaged an ozone concentration of 98 ppb.³

These wintertime ozone levels in Uinta Basin show that the area is among the most polluted in the country for ozone and may have the worst ozone levels of any location in the country.

Congress has NAAQS for certain pollutants because they have a significant effect on public health. *See, e.g.*, 42 U.S.C. §§ 7408, 7409; 40 C.F.R. §§ 50.4 – 50.13. One of the pollutants regulated by NAAQS is ground-level ozone. *See, e.g.*, National Ambient Air Quality Standards for Ozone, 73 Fed. Reg. 16,436 (Mar. 27, 2008). Ground-level ozone is formed from precursor emissions—volatile organic compounds (VOCs) and nitrogen oxides (NO_x)—and its concentrations are affected by temperature, sunlight, wind, and other weather factors. *See id.* at 16,437. These precursor emissions originate from a wide variety of sources, both mobile and stationary. *Id.* Motor vehicles emit ozone precursors and are a cause of ground-level ozone pollution. *See, e.g.*, Environmental Protection Agency (EPA), Ground-level Ozone (May 20, 2009), <http://www.epa.gov/air/ozonepollution/>.

[&calmonth=1](#) (last visited Feb. 21, 2013); EPA, AIRNow, Air Quality Maps – Archive – Monthly Overview, Ozone Peak, February 2013, <http://airnow.gov/index.cfm?action=airnow.mapsarchivecalendar&mapttype=o3peak&domainid=53&calyear=2013&calmonth=2> (last visited Feb. 21, 2013); EPA, AIRNow, Air Quality Maps – Archive – Monthly Overview, Ozone Peak, March 2013, <http://airnow.gov/index.cfm?action=airnow.mapsarchivecalendar&mapttype=o3peak&domainid=53&calyear=2013&calmonth=3> (last visited Apr. 1, 2013). Days with orange values correspond to ozone levels between 76 and 95 ppb, days with red values from 95 to 115 ppb, and days with purple values to levels of 116 ppb and above. The Uinta Basin has recorded values of at least 116 or above on January 24-26; February 6, 14, 17, and 21; as well as March 1-3 and 7.

³ EPA, Air Quality Statistics Reports, http://www.epa.gov/airdata/ad_rep_con.html (last visited Mar. 22, 2012, selecting “Year” as 2009-2011, “Geographic Area” as California, and grouping results by county, values listed as “O3 8-hr 4th Max”; three values for Los Angeles County are 108, 90, and 101 ppb; three values for San Bernardino County are 108, 109, and 113; three values for Riverside County are 102, 99, and 106; three values for Kern County are 102, 100, and 94).

Ozone exposure can lead to adverse health effects in humans ranging from decreased lung function to possible cardiovascular-related mortality and respiratory morbidity. 73 Fed. Reg. at 16,436. Ozone pollution also “contributes to plant and ecosystem damage.” West Tavaputs Plateau Natural Gas Full Field Development Plan, Draft Environmental Impact Statement 3-18 (Feb. 2008) (West Tavaputs DEIS), *available at* http://www.blm.gov/ut/st/en/fo/price/energy/Oil_Gas/Draft_EIS.html. It damages trees and other plants thereby affecting landscapes in national parks, among other places. *See* EPA, Ozone – Good Up High, Bad Nearby (Feb. 12, 2008), <http://www.epa.gov/oar/oaqps/gooduphigh/bad.html>.

The Clean Air Act requires that states submit to the EPA air quality control region designations. *See* 42 U.S.C. § 7407. These designations are intended to help each state with the development and implementation of state plans for achieving NAAQS. *See id.* §§ 7407, 7410. Air quality control regions may be designated as either “nonattainment,” “attainment,” or “unclassifiable,” referring to whether or not that region is failing to meet NAAQS, is meeting NAAQS, or sufficient data does not exist to say whether the area is or is not meeting NAAQS for any given criteria pollutant regulated by the Clean Air Act, respectively. *See id.* § 7407(d)(1)(A). In practice, the EPA groups the classifications as either “nonattainment” or “unclassifiable/attainment,” choosing to put those areas for which sufficient data does not exist to determine NAAQS compliance with those areas for which monitoring data shows NAAQS compliance. *See, e.g.,* EPA, Ground-level Ozone Standards Designations, Frequent Questions, What is the designation process for the 8-hour ozone standard? (May 12, 2009) (indicating that unclassifiable and attainment are grouped), <http://www.epa.gov/ozonedesignations/faq.htm#7>; 40 C.F.R. § 81.345 (demonstrating that classifications are listed as “unclassifiable/attainment”).

At times, some people have attempted to suggest that the Uinta Basin is in attainment for ozone pollution. This is not the case. *See, e.g.,* Letter from James B. Martin, EPA, to Governor Gary Herbert, Utah (Dec. 8, 2011) (identifying the Uinta Basin as properly classified as “unclassified” and explaining that it is likely on the road to a nonattainment designation). The Uinta Basin is properly categorized as “unclassifiable/attainment,” not “attainment.” 40 C.F.R. § 81.345 (classifying Uintah County, including Indian Country, as “Unclassifiable/Attainment” for the ozone 8-hour standard); *see also* State of Utah, Department of Environmental Quality, Division of Air Quality, Utah Area Designation Recommendations for the 2008 Ozone NAAQS 49 (Mar. 2009), http://www.airquality.utah.gov/Public-Interest/Current-Issues/Ozone/2008_Ozone.pdf (recommending that Uintah County, outside of Indian Country, be categorized as unclassifiable/attainment). In reality, this categorization historically should have been “unclassifiable” because adequate ozone monitoring data did not exist to determine whether or not the Uinta Basin was complying with ozone NAAQS, for example. *See, e.g.,* EPA, 2003-2005 Ozone Levels – Monitored Counties 12 (last accessed on May 29, 2009), http://www.epa.gov/air/ozonepollution/pdfs/2003-2005_Design_Value_Color.pdf (lacking any monitoring data for Uintah County to determine whether or not it was in compliance with ozone NAAQS). *Compare* Utah Division of Air Quality, Ozone Report (May 29, 2009), <http://www.airmonitoring.utah.gov/currentpollution/o3.htm> (demonstrating that the Utah Division of Air Quality does not have an ozone monitor in or near Uintah County), *with* Utah Area Designation Recommendations for the 2008 Ozone NAAQS at 49 (recommending categorization of areas with ozone monitors as either “attainment” or “nonattainment” but never

“unclassifiable,” whereas all counties without ozone monitors are recommended as unclassifiable/attainment).

To the contrary, ground-level ozone pollution is a significant issue in the Uinta Basin as discussed above.

In order to avoid a nonattainment designation, the three-year average of the fourth-highest yearly value cannot exceed 75 ppb. *See* 40 C.F.R. § 50.15(b). Based on the fourth-highest values recorded in 2010 through 2013, the Uinta Basin will exceed a three year average of 75 ppb even if next year’s fourth-highest value were zero. During the winter the typical lowest-recorded level of ozone is somewhere around 39 ppb or 40 ppb. Even if the lower of these two values were the fourth-highest ozone value recorded in the third year of monitoring, the three-year average next year will be well above NAAQS. Thus, the Uinta Basin is now on an irreversible path of nonattainment classification.

3. Adequate Air Quality Analysis for This Project Does Not Exist

No adequate air quality analysis for this project exists. BLM will have to undertake unique air quality analysis, including ozone modeling. This analysis must consider—either quantitatively or qualitatively—the potential impacts to ozone during wintertime ozone episodes. BLM has never undertaken adequate wintertime ozone analysis. The ozone analysis that has been conducted in this area suffers from serious flaws that prevent the agency from using it to analyze potential direct, indirect, and cumulative impacts. There is no existing cumulative impacts ozone analysis that considers this project as well as all of the reasonably foreseeable development throughout the Uinta Basin. Even BLM acknowledges that all of its ozone impacts analyses undercount its latest projections concerning reasonably foreseeable development in the Uinta Basin. Thus, the agency will have to undertake unique air quality analysis here, which includes new cumulative impacts analysis.

4. This Proposed Development Will Exacerbate Air Quality Problems

Because the proposed project contributes ozone precursor emission, this project will likely exacerbate ozone pollution. BLM should not approve this project unless Enfit can demonstrate that air quality will improve as a result of this development.

5. Particulate Matter

There are several particulate matter air quality standards that must be addressed by BLM. These include the 24-hour PM₁₀ NAAQS, the annual and 24-hour PM_{2.5} NAAQS, and the PM₁₀ and PM_{2.5} PSD increments. The 24-hour PM₁₀ NAAQS limit concentrations to no more than 150 micrograms/cubic meter (µg/m³) over a 24-hour period. *See* 40 C.F.R. § 50.6. The annual and 24-hour PM_{2.5} NAAQS limit concentrations to no more than 15 µg/m³ and 35 µg/m³, respectively. Increments are similar to the NAAQS, although they apply based on whether an area is designated as Class I or Class II. The current 24-hour PM₁₀ increments limit concentrations in Class I areas to no more than 8 µg/m³. *See* 40 C.F.R. § 52.21(c). Of particular concern is the impacts of energy development to the 24-hour PM_{2.5} increments, which limit

concentrations to no more than 2 µg/m³ in Class I areas. *See* 75 Fed. Reg. 64864-64907. Class I areas in Utah include Arches National Park, Bryce Canyon National Park, Canyonlands National Park, Capitol Reef National Park, and Zion National Park.

Our concerns over particulate matter do not just relate to dust. PM_{2.5} can form through secondary atmospheric reactions with precursor pollutants, including sulfur dioxide, NO_x, and even VOCs. Sulfur dioxide and NO_x are explicitly identified as precursors to PM_{2.5}. *See* 40 C.F.R. § 52.21(b)(50)(i)(b) and (c). To this end, we request BLM to prepare a photochemical model to take into account secondary PM_{2.5} and accurately analyze and assess impacts to the NAAQS and increments. As with ozone, particulate matter is a significant problem in the region. Monitoring in the nearby Uinta Basin has recorded elevated levels of fine particulates, or PM_{2.5}. The NAAQS 24-hour average maximum limit on PM_{2.5} is 35 µg/m³. National Ambient Air Quality Standards for Particulate Matter, 71 Fed. Reg. 61,144, 61,144 (Oct. 17, 2006).

The Utah Division of Air Quality (DAQ) operated a PM_{2.5} monitor in Vernal from approximately December 2006 to December 2007 which showed that PM_{2.5} concentrations in the Uinta Basin often significantly exceed NAAQS. *See* DAQ, Particulate PM_{2.5} Data Archive, <http://www.airmonitoring.utah.gov/dataarchive/archp25.htm> (showing concentrations substantially higher than 35 µg/m³, the 24-hour average maximum NAAQS limit, particularly during January and February 2007) (January and February readings attached; Vernal is listed as —VLL). Air quality monitoring data from the DAQ's Vernal monitor during that time showed that PM_{2.5} has reached concentrations as high as 63.3 µg/m³. DAQ, Particulate PM_{2.5} Data Archive, January 2007, <http://www.airmonitoring.utah.gov/dataarchive/PM25JAN07.pdf>.

In 2009, monitors in the area recorded further exceedances of NAAQS. From a period spanning a part of 2009, January 21 to March 5, an EPA-funded Vernal monitor operated by the State of Utah recorded four exceedances. During that same period a monitor in Roosevelt recorded three exceedances of the 24-hour maximum average value for PM_{2.5}. The high concentration observed in Vernal was 60.9 µg/m³ and the high concentration recorded in Roosevelt was 42.4 µg/m³, both well in excess of NAAQS. These values show that current maximum concentrations of PM_{2.5} in the Uinta Basin are at a level detrimental to human health and the environment. The current PM_{2.5} 24-hour average maximum baseline for the Uinta Basin is either the highest (63.3 µg/m³) or second highest (60.9 µg/m³) concentration reading from the Vernal monitor. Both of these values indicate that PM_{2.5} is a significant problem in the Uinta Basin and well above NAAQS.

Finally, air quality monitoring data from 2013, available from the Utah Division of Air Quality shows that monitors in Vernal and Roosevelt recorded several exceedances of the 24-hour PM_{2.5} NAAQS. Again, this data confirms that PM_{2.5} is a critical problem in the Uinta Basin and in the area of the proposed project.

Furthermore, BLM's resource management plan for the Richfield Field Office lists background levels for fine particulates that are also in exceedance of NAAQS. These elevated levels of particulate matter in the region demonstrate the importance of fully analyzing and

considering this issue. Only with modeling, that also analyzes secondary particulate matter formation, can BLM ensure that it understands the impacts of the proposed project on particulate matter levels in the Uinta Basin.

6. Nitrogen Dioxide

On February 9, 2010, the EPA finalized revisions to the nitrogen dioxide NAAQS, supplementing the current annual standard of 53 parts per billion with a 1-hour standard of 100 parts per billion. *See* 75 Fed. Reg. 6474-6537 (Feb. 9, 2010). These NAAQS became effective on April 12, 2010.

BLM must analyze and assess the impacts of reasonably foreseeable oil and gas development to the 1-hour nitrogen dioxide NAAQS. This is especially important because these standards are measured over a one hour period, meaning that they can be exceeded if nitrogen dioxide levels exceed the NAAQS for only short periods of time. Sources of nitrogen dioxide associated with oil and gas development include any activity or equipment that combusts fuel NO_x emissions, including compressor engines, drilling rigs, vehicles, heavy equipment, and heaters.

7. Sulfur dioxide

On June 22, 2010, the EPA finalized revisions to the sulfur dioxide NAAQS, replacing the current 24-hour and annual NAAQS. *See* 75 Fed. Reg. 35520 (June 22, 2010). The NAAQS limits concentrations to no more than 75 parts per billion over a one hour period and became effective on August 23, 2010. It is critical that BLM analyze and assess impacts to the sulfur dioxide NAAQS in light of the new 1-hour standard. Furthermore, BLM must also analyze and assess impacts to the sulfur dioxide PSD increment. This increments limit concentrations to no more than 2 µg/m³ annually, 5 µg/m³ over a 24-hour period, and 25 µg/m³ over a 3-hour period. *See* 40 C.F.R. § 52.21(c).

8. Cumulative Air Quality Impacts

It is critical that BLM evaluate the cumulative impacts of its decision when coupled with all other potential air-quality-impacting activities in the region. As discussed above, both ozone and particulate matter are problematic in the region. BLM must evaluate, through the use of dispersion modeling, how the project will contribute to pollution levels and whether cumulative air quality impacts might result in exceedances of federal and state air quality standards such as NAAQS and PSD increment limits.

Cumulative impacts analysis should also include the potential air quality impacts from off-road vehicle travel in the Uinta Basin as well as off-road vehicle travel on nearby federal, state, and private lands. Off-road vehicles and travel on unpaved routes can result in significant amounts of fugitive dust emissions (which include both coarse and fine particulates) as well as tailpipe emissions of various pollutants regulated under NAAQS and the PSD increment limits.

BLM should also include ongoing and proposed oil and gas development and ongoing and proposed oil shale and tar sands development on federal and state lands in the area. BLM should also include large polluting activities such as coal-fired power generation in the region in its cumulative impacts analysis. For example, the Bureau of Land Management's Vernal Field Office allows significant oil and gas development in its field office. The cumulative impact assessment should address the Gasco Natural Gas Project and the Greater Natural Buttes project. Both of these sizable projects included air quality analyses (which, incidentally, indicated problems with ozone in the region). Similarly, the State of Utah permits significant natural gas development in its Drunkards Wash field. BLM should include projects such as these in its cumulative impacts analysis.

9. Emissions Inventory

BLM should prepare a comprehensive emissions inventory to guide its analysis of the proposed project's air quality impacts. In Utah, oil and gas emission inventories have been prepared for the Uinta Basin, for example. *See* Development of Baseline 2006 Emissions from Oil and Gas Activity in the Uinta Basin, http://www.wrapair.org/forums/ogwg/documents/2009-03_06_Baseline_Emissions_Uinta_Basin_Technical_Memo_03-25.pdf (last visited Feb. 9, 2011). This inventory could be a useful guide for BLM in assessing the quality and quantity of emissions likely to be released by oil and gas development. Either way, accurate emissions inventories will be crucial to demonstrating that all reasonably foreseeable oil and gas development fully complies with state and federal air quality standards.

10. Quantitative Dispersion Modeling

In order to fully understand the impacts of emissions from the project on ambient concentrations of pollution BLM must prepare quantitative dispersion modeling. Only through modeling can BLM understand how the emissions from those activities will affect potentially elevated levels of pollutants, such as ozone and fine particulates.

11. Air Quality Alternatives

To effectively address the air quality impacts of any oil and gas development on the Uinta Basin, we request BLM analyze in detail and adopt an alternative that requires the following:

- A no net increase in SO₂, NO_x, PM_{2.5}, PM₁₀ and VOC emissions in order to address impacts to ozone and PM_{2.5} standards;
- An alternative that limits surface disturbance to address impacts to ozone and PM_{2.5} standards; and,
- An alternative that prohibits the project or stages of the project where it is found that the air quality impacts of the development would cause or contribute to exceedances of any NAAQS, PSD increments, or other state or federal air quality standard.

D. Solid and hazardous waste management

Proper waste management is critical to protecting human health, water resources and other environmental media, and federal taxpayers. The cleanup of Anvil Points, the site of failed oil shale development in Colorado, has already cost taxpayers \$24 million and will continue to cost taxpayers more in ongoing management costs. It is incumbent on BLM (and EPA) to prevent cleanup costs from oil shale project being similarly hoisted on taxpayers by closely scrutinizing development plans and enforcing relevant regulations.

As noted earlier in these comments, Enefit's disposal practices in Estonia include enormous waste piles, one of which spontaneously ignited. To the extent waste is piled and left in the environment, it will leach, resulting in surface water contamination via run-off and groundwater saturation based on precipitation. That is why hydrologic investigations are so important—to provide the information necessary to ensure that appropriate environmental protections are in place. Additionally, given Enefit's experience in Estonia, there are serious questions about ignitibility.

Foremost in protecting these interests is the Resource Conservation and Recovery Act (RCRA). However, due to a 2008 ruling by EPA, there is great uncertainty regarding the applicability of this federal law to oil shale development. In a December 24, 2008, notice in the *Federal Register*, EPA announced that above-ground oil shale retort is neither *de facto* Subtitle C waste under RCRA nor Bevill exempt. Bevill wastes are solid wastes resulting from the extraction, beneficiation, and processing of ores and minerals that are excluded from the requirements of EPA hazardous – but not solid – waste program under RCRA. Non-Bevill wastes are not exempt from RCRA.

As EPA declared in the December 2008 notice, compliance with RCRA's hazardous waste provisions must be made on a case-by-case basis. BLM's 2012 oil shale and tar sands programmatic EIS highlights this point:

Hazardous materials and wastes are unique to the technology combinations used for oil shale development. However, hazardous materials and waste impacts are common for some of the ancillary support activities that would be required for development of any oil shale facility regardless of the technology used. These activities include the development or expansion of support facilities, such as employer-provided housing and power plants.

BLM, Oil Shale and Tar Sands PEIS, November 2012, page 4-191.

EPA's ruling and BLM's conclusion in the oil shale and tar sands programmatic EIS, taken together, speak to the need for each development proposal to be closely scrutinized by the appropriate regulatory agency. In order for BLM to be able to properly evaluate RCRA's applicability, Enefit should be required to spell out in detail the nature of the constituents that it plans to use and any it intends to release into the environment, any plans it has to contain both hazardous and solid wastes, and any mitigation proposals. Without such information, regulatory authorities cannot be assured that the necessary permits have been issued and that precautions

have been taken to protect the affected resources, including public resources. The public, too, cannot be assured that the regulators are meeting their legal obligations and protecting human health and the environment. Additionally, only through a clear determination of the nature and legal classification of the wastes to be generated prior to development activities can any mitigation measures that BLM adopts be met. In order to make this determination, both BLM and EPA must be provided with all relevant, independently-verifiable data.

In the EIS, BLM must identify and provide an in-depth analysis of the exact makeup of the waste streams that are proposed for placement in the environment. Each element and/or component of the waste stream must be analyzed to determine whether it:

- is a hazardous waste as defined by RCRA;
- is a solid waste as defined by RCRA;
- poses a threat to air quality;
- constitutes a threat to human health, wildlife, water quality or other aspects of the environment; and,
- has a cumulative or synergistic effect on human health or the environment.

E. Endangered Species, Eagles, Migratory Birds, Sensitive Species and Other Wildlife

1. Endangered Species

Congress enacted the Endangered Species Act (ESA) in 1973 to provide for the conservation of endangered and threatened fish, wildlife, and plants and their natural habitats. 16 U.S.C. §§ 1531, 1532. To accomplish this purpose, the ESA requires the Secretaries of the Interior and Commerce to add species to the lists of endangered and threatened species, and to designate “critical habitat” for listed species. *Id.* (citing 16 U.S.C. § 1533(a)). The two Secretaries share responsibilities under the ESA. In general, the Secretary of the Interior acts through the United States Fish and Wildlife Service (FWS) to implement ESA requirements with respect to terrestrial species; the Secretary of Commerce, through the National Oceanic and Atmospheric Administration’s Fisheries Service, handles responsibilities for marine species. *Id.* at n.32 (citing 16 U.S.C. 1532(15) (definition of “Secretary”)); 50 C.F.R. § 402.01(b); ESA Consultation Regulations, 51 Fed. Reg. 19,926 (June 3, 1986)). The ESA imposes substantive and procedural obligations on all federal agencies, including EPA, with regard to threatened and endangered species and their critical habitat. *Id.* at 35 (citing 16 U.S.C. §§ 1536(a)(1), (a)(2), 1538(a)(1), (a)(2); 50 C.F.R. § 402.06(a)).

Section 7(a)(2) of the ESA requires that

Each federal agency shall, in consultation with and with assistance of the Secretary, insure that any action authorized, funded, or carried out by such agency ... is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [critical] habitat of such species

16 U.S.C. § 1536(a)(2). The definition of agency “action” is “broad and includes ‘the granting of licenses, contracts, leases, easements, rights-of-way, [or] permits.’” 50 C.F.R. § 402.02. BLM’s

authorization of the ROW is an “action” under the Endangered Species Act.

Thus, “section 7(a)(2) imposes a substantive duty on federal agencies to ensure that none of their actions is likely to jeopardize listed species or destroy or adversely modify the critical habitat of such species.” *Id.* (citing 51 Fed. Reg. at 19,926). Here, BLM must ensure that the proposed action does not jeopardize listed species or adversely modify their critical habitat.

The ESA’s implementing regulations set forth a specific process, fulfillment of which is the only means by which an action agency ensures that its affirmative duties under section 7(a)(2) of the ESA are satisfied. 50 C.F.R. § 402.14(a); *Sierra Club v. Babbitt*, 65 F.3d 1502, 1504-05 (9th Cir. 1995). By this process, each federal agency must review its “actions” at “the earliest possible time” to determine whether any action “may affect” listed species or critical habitat in the “action area.” 50 C.F.R. § 402.14. Here, BLM must explain how its failure to consult

The “action area” is defined to mean all areas that would be “affected directly or indirectly by the Federal action and not merely the immediate area involved in the action.” 50 C.F.R. § 402.02.

Here, the “action area” is large, and includes all land and water directly and indirectly impacted by all phases of construction and operation of the proposed action, including but not limited to connected and related actions on federal and non-federal land, such as exploration; mining; hauling; storing; processing; transmitting electricity, water, gas and other mediums; transportation; refining; reclamation; and other activities. The “action area” also encompasses areas and habitats potentially impacted by air and water pollution resulting from the aforementioned activities, including areas in Colorado.

Federally listed and candidate species occurring within the action area include but are not limited to greater sage-grouse, Mexican spotted owl, Yellow-billed Cuckoo, Bonytail chub, Colorado pikeminnow, Greenback cutthroat trout, humpback chub, razorback sucker, black-footed ferret, Canada lynx, North American wolverine, clay reed-mustard, Graham beardtongue, pariette cactus, shrubby reed-mustard, barneby reed mustard, Unitah Basin hookless cactus, Ute ladies’-tresses, White River beardtongue.

Consultation is a process between the federal agency proposing to take an action (the “action agency”), here BLM, and FWS. “Formal consultation” commences with the action agency’s written request for consultation and concludes with FWS’ issuance of a “biological opinion.” 50 C.F.R. § 402.02. The term “may affect” is broadly construed by FWS to include “[a]ny possible effect, whether beneficial, benign, adverse, or of an undetermined character,” and is thus easily triggered. 51 Fed. Reg. at 19926. If a “may affect” determination is made, “consultation” is required. The biological opinion issued at the conclusion of formal consultation “states the opinion” of FWS as to whether the federal action is “likely to jeopardize the continued existence of listed species” or “result in the destruction or adverse modification of critical habitat.” 16 U.S.C. § 1536(c)(1); 50 C.F.R. § 402.12(c).

BLM must undergo formal consultation for Enefit’s development project because

proposed actions “may affect” threatened and endangered species. For example, construction and operation of Enefit’s retort facility and related, connected actions, like mining, transportation, and transmission, could impact any number of listed species in a variety of ways, such as through direct mortality, vehicle collision, air pollution, water pollution from pipeline spills, sedimentation, etc.

In addition to the duty to ensure no jeopardy, or destruction or adverse modification, in section 7(a)(2) of the ESA, section 7(a)(1) of the ESA requires all federal agencies to “utilize their authorities in furtherance of the purposes of this Act by carrying out programs for the conservation of [listed] species” 16 U.S.C. § 1536(a)(1). Just as BLM retains its section 7(a)(2) duties when authorizing the Enefit American Oil Utility Corridor Project, BLM retains the ultimate responsibility, under section 7(a)(1), to “carry[] out” its responsibilities and authorities “for the conservation” of listed species – *i.e.*, to further listed species’ ability to survive and recover from the threat of extinction. 16 U.S.C. §1536(a)(1).

2. Bald and Golden Eagles

The Bald and Golden Eagle Act prohibits anyone from taking, possessing, or transporting a bald eagle (*Haliaeetus leucocephalus*) or golden eagle (*Aquila chrysaetos*), or the parts, nests, or eggs of such birds without prior authorization. This includes inactive nests as well as active nests. Take means to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, or disturb. Activities that directly or indirectly lead to take are prohibited without a permit. Construction and operation of the proposed action and related, connected actions, like exploration, mining, transportation, and transmission, could directly or indirectly impact golden and bald eagles in a variety of ways, such as through direct mortality, vehicle collision, electrocution, pollution, and behavioral disruption. BLM’s EIS must thoroughly analyze and disclose how all facets and phases of construction and operation of the proposed action, including related and connected actions, may “take” bald and golden eagles.

3. Migratory Birds

The Migratory Bird Treaty Act (MBTA), originally passed in 1918, implements the United States’ commitment to four bilateral treaties, or conventions, and provides for closed and open seasons for hunting game birds. The MBTA protects over 800 species of birds by implementing the four treaties within the United States. The list of migratory bird species protected by the MBTA appears in Title 50, section 10.13, of the Code of Federal Regulations (50 CFR 10.13). The MBTA provides that it is unlawful to pursue, hunt, take, capture, kill, possess, sell, purchase, barter, import, export, or transport any migratory bird, or any part, nest, or egg or any such bird, unless authorized under a permit issued by the Secretary of the Interior. Take is defined in regulations as: “pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect.” Construction and operation of the proposed action and related, connected actions, like exploration, mining, transportation, and transmission, could “take” migratory birds in a variety of ways, such as through direct mortality, vehicle collision, electrocution, pollution, and behavioral disruption. BLM’s EIS must thoroughly analyze and disclose how all facets and phases of construction and operation of the proposed action, including related and connected actions, may “take” migratory birds.

4. BLM Sensitive Species

BLM Manual 6840.2 establishes that, “...the BLM shall designate Bureau sensitive species and implement measures to conserve these species and their habitats, including ESA proposed critical habitat, to promote their conservation and reduce the likelihood and need for such species to be listed pursuant to the ESA.”

Section 6840.2 C. on implementation of this direction provides: “On BLM-administered lands, the BLM shall manage Bureau sensitive species and their habitats to minimize or eliminate threats affecting the status of the species or to improve the condition of the species habitat, by:

2. Ensuring that BLM activities affecting Bureau sensitive species are carried out in a way that is consistent with its objectives for managing those species and their habitats at the appropriate spatial scale.
4. Working with partners and stakeholders to develop species-specific or ecosystem-based conservation strategies.
7. Considering ecosystem management and the conservation of native biodiversity to reduce the likelihood that any native species will require Bureau sensitive species status.
8. In the absence of conservation strategies, incorporate best management practices, standard operating procedures, conservation measures, and design criteria to mitigate specific threats to Bureau sensitive species during the planning of activities and projects.”

UDWR sensitive species for Utah County that may be directly, indirectly or cumulatively affected by the proposed action or related, connection actions include American white pelican, bald eagle, black swift, bluehead sucker, bobolink, Bonneville cutthroat trout, burrowing owl, California floater, Colorado River cutthroat trout, Columbia spotted frog, ferruginous hawk, fringed myotis, greater sage-grouse, June sucker, kit fox, least chub, long-billed curlew, northern goshawk, roundtail chub, short-eared owl, smooth greensnake, southern Bonneville springsnail, southern leatherside chub, spotted bat, three-toed woodpecker, Townsend’s big-eared bat, Utah physa, western red bat, western toad, white-tailed prairie dog and yellow-billed cuckoo.

In its EIS, the BLM should conduct or require survey for these species in all locations where they may occur on BLM land and may be directly, indirectly, or cumulatively impacted by the proposed and connected actions. It should disclose the status and trends of those species. Additionally, BLM must fully analyze the direct, indirect and cumulative impacts of all facets and phases of construction and operation of the proposed and connected, related actions on these species, and, in light of that analysis, manage those species and their habitats to minimize or

eliminate threats affecting the status of the species or to improve the condition of the species' habitat.

In addition to ground-disturbing activities relating to right of way construction and use, this analysis should evaluate direct, indirect and cumulative impacts relating to soil erosion, sedimentation, surface and groundwater withdrawals and discharges, including connectivity between ground and surface water, dust emissions, other air emissions and deposition, noise pollution, light pollution, and other effects of development and industrialization. This analysis should be searching and encompass all possible impacts to species, including but not limited to direct mortality; injury; poisoning; bio-accumulation; habitat degradation and fragmentation; elimination or degradation of breeding grounds; nursery habitat; and other important habitats; displacement; harassment and modification of behavior or life history.

BLM must analyze these effects cumulatively, in combination with other past, ongoing, and reasonably foreseeable land uses, including but not limited to oil and gas development, mining, livestock grazing, energy transmission, road construction and rights of ways, motorized and non-motorized recreation and other land uses. BLM's analysis should be qualitative and quantitative; whenever possible, it should quantify direct, indirect and cumulative impacts. For example, fragmentation of a species' habitat, like greater sage-grouse's, can be quantified at multiple scales as affected by land uses manifesting at those scales. BLM must present its analyses thoroughly and in terms and formats that are accessible and understandable to the public. It should list the nature and extent of all anticipated impacts for each species, and explain how and why ensuing management proposals are appropriate in light of BLM's duty "to minimize or eliminate threats affecting the status of the species or to improve the condition of the species' habitat."

V. Conclusion

Thank you for the opportunity to provide comment on the scope of the EIS for Enefit's utilities ROW. The issues raised in these comments point to the need for BLM to conduct a thorough and exhaustive analysis. The agency's approach in this analysis will likely set the tone for how it will address any subsequent oil shale development projects that may be proposed.

Please let us know what questions you have.

Yours,



Rob Dubuc, Staff Attorney
Joro Walker, Utah Office Director
Western Resource Advocates

EXHIBIT A



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Utah State Office

P.O. Box 45155

Salt Lake City, UT 84145-0155

<http://www.blm.gov/ut/st/en.html>



H. Banks 8/7/12

IN REPLY REFER TO:

1310 OSHL (9223rb)

UTU84087

AUG 02 2012

Rikki L. Hrenko
Enefit American Oil
671 W 100 N
Vernal UT 84078

Re: RD&D Lease UTU84087

Dear Ms. Hrenko:

The BLM has received and reviewed the update to the RD&D Development Plan dated July 19, 2012, submitted by Enefit American Oil Company, as Managing member of EAO Federal Lease, LLC (Enefit). This update modifies the original RD&D Development Plan submitted by Oil Shale Exploration Company, LLC (OSEC) pursuant to Section 8 of the captioned lease.

The proposed changes to the original OSEC development plan have been reviewed with respect to recognition of Enefit as lessee/operator, updating the research plan, and use of the Outotec/Enefit technology. These changes have been found to be generally consistent with the original proposal for the RD&D lease and are hereby accepted.

Please continue to work with the Vernal Field Office as operations proceed on this RD&D project. If you have any questions, please feel free call Mike Stiewig of the Vernal Field Office at (435) 781-4400, or Roger Bankert of the Utah State Office at (801) 539-4037.

Sincerely

/s/ Juan Palma

Juan Palma
Utah State Director

Cc: Green River District



BLM - UT - 950
2012 JUL 23 AM 8:34

July 19, 2012

Mr. Kent Hoffman
United States Department of the Interior
Bureau of Land Management
Utah State Office
PO Box 45155
Salt Lake City UT 84145-0155

Cc: Mr. Roger Bankert

Re: RD&D Lease UTU-84087

Dear Mr. Hoffman,

Enefit American Oil Co is submitting herewith its updated Research Plan for Oil Shale RD&D Lease UTU-84087. We appreciate the understanding and cooperation of the BLM as we worked through the changes in this Research Plan.

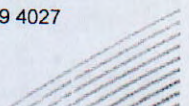
We look forward to the prompt approval of this plan and are available for any further questions or clarifications as needed.

Very Truly Yours,

Rikki Lauren Hrenko
CEO
Enefit American Oil

ENEFIT AMERICAN OIL
671 W 100 N
Vernal UT 84078
USA

www.enefit.com
Tel 435 789 4024
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- Note: The following information contains confidential commercial information and trade secrets which are exempt from disclosure under the Freedom of Information Act under the exemption contained in 5 USC § 552(b)(4).

2012 JUL 23 AM 8:34



July 19, 2012

Mr. Kent Hoffman
United States Department of the Interior
Bureau of Land Management
Utah State Office
PO Box 45155
Salt Lake City UT 84145-0155

Cc: Mr. Roger Bankert

Re: RD&D Lease UTU-84087

This Letter is being submitted to the BLM to update the RD&D Development Plan originally submitted by Oil Shale Exploration Company, LLC, as related to the RD&D Lease UTU-84087, which was issued effective July 1, 2007.

Items to Be Updated

- ◇ The existing documentation regarding the Lessee/Operator
- ◇ The timing and the RD&D activities to be carried out under the RD&D Work Plan
- ◇ The technology to be utilized

1. Lessee/Operator

On March 31, 2011, Enefit US LLC purchased 100% of the shares of Oil Shale Exploration Company Corp., holder of RD&D Lease UTU-84087 and renamed the company to Enefit American Oil (EAO). The EAO subsidiary that holds the BLM RD&D lease is named EAO Federal Lease LLC.

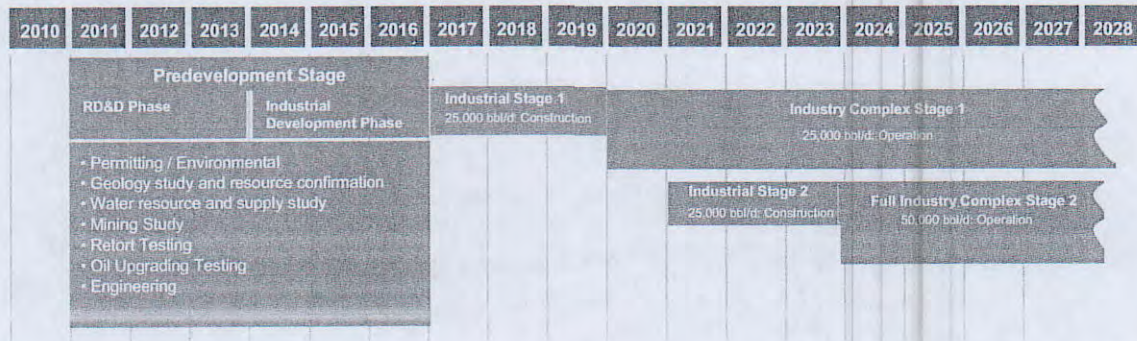
Operator:	EAO Federal Lease, LLC . 671 W 100 N Vernal UT 84078 435-789-4024
Representative:	Rikki L Hrenko Tel (US): 435-789-4024 Cell (US): 435-219-0963 Tel (Estonia): 372-715-2859 Cell (Estonia): 372-533-20786 Email: rikki.hrenko@enefitamericanoil.com

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2. Timing and RD&D Activities to be carried out under the RD&D work plan

EAO is currently planning for a commercial scale project producing 50,000 bbl/d from its private holdings and the BLM preferential lease through three (3) stages, as shown in the figure below.

Figure 1. EAO Project Development Timeline



Pre-development Stage: 2011-2016. This first stage is a Pre-development Stage, including the Research, Development and Demonstration phase which we have called "RD&D Phase" (as shown in Figure 1). This will be followed by an "Industrial Development Phase" which is beyond the scope of work of this RD&D work plan.

- o RD&D Phase: 2011-2013
 - RD&D Sub Phase 1
 - RD&D Sub Phase 2
- o Industrial Development Phase: 2014-2016

Industrial Stage 1: 25,000 bbl/d; construction 2017-2019; operation 2020. Following completion of the RD&D Development Phase and Industrial Development Phase (together, the Pre-Development Stage) we plan on 2 production ramp-up stages of 25,000 bbl/d each, which we have called the "Industrial Stage 1" and "Industrial Stage 2".

Industrial Stage 2: 25,000 bbl/d; construction 2021-2023; operation 2024

The sizing and timing of the three (3) project development stages could be altered based on the data and information collected throughout the various activities and stages.

The remainder of this section focuses only on the RD&D Phase, detailing Sub-Phase 1 and Sub-Phase 2.

The RD&D Development Phase is broken up into 2 sub-phases which build on the test work and progress of the previous sub-phase. The second sub-phase ends with the completion of the Enefit Pilot testing and PreFEED (Preliminary Front End Engineering Design) and completion of the application for conversion of the lease. New or unexpected information in an earlier phase may impact the timing or activities in a following phase. The RD&D Development Phase activities will be carried out on both the BLM RD&D lease property and EAO's adjacent private Skyline property, as well as offsite at Enefit's R&D center in Frankfurt Germany. As Enefit has a proven technology operating industrially in Estonia and is not developing a new technology, the RD&D phases' goal will be to prove the technology on the Utah resource and optimize the design for this specific resource.

A key goal of sub-phase 1 of the RD&D Phase is to demonstrate the similarity of the resource on the BLM RD&D lease to the adjacent Skyline property and to characterize the resource on both the Skyline and

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BLM property according to the mineral resource classification system to a level of "measured" and/or "indicated". Enefit is well aware of the results of extensive drilling and resource evaluation programs carried out by the White River Shale Project on Prototype Oil Shale Leases Ua and Ub. There were at least 26 core holes drilled on these lands between 1971 and 1976. Seven of the earlier ones were nomination drill holes to assess the resource prior to bidding (Southam Canyon 1 through 4 and Evacuation Creek 1 through 3). The White River Project then drilled 19 more core holes (X-1 through X-15 and P-1 through P-4). In each of these 26 holes, the core was logged geologically, the holes were geophysically logged, and the core was subjected to analyses, including Fischer assay. Some of the cores had rock mechanics testing, while others were subjected to detailed chemical analyses. The White River Shale Project determined that they had adequate data from those cores in order to complete the mine design and proceed with plans for commercial development.

OSEC also drilled a new hole on the RD&D lease (OSEC-1) and Enefit drilled one new additional core on the BLM RD&D Lease (OSEC-2). These new cores will provide additional data pertinent to the retorting characteristics and act as a confirmation against the data collected from the 1970s.

There was previously a higher density of drill holes and more data on the BLM RD&D lease and the BLM preferential lease lands than Enefit had on its private Skyline Property. Enefit was drilling on Skyline to bring the hole density and data base to a level comparable to that present on the BLM lands. Following the 2011 and 2012 drilling programs, Enefit has achieved a hole density on Skyline that is similar to the density level on the BLM property.

The previous work from the 1970s has provided a valuable dataset on the quality of the resource on the BLM White River Mine RD&D and Preference Right Lease Area. Upon EAO's taking over of the lease more than 27 boreholes had already been drilled on this property. As shown in Table 1, the BLM properties already fully meet the level of "measured" and/or "indicated".

Table 1- Enefit White River Project Area In-Place Resources Assurance Classification

Property	Measured		Indicated		Inferred		Total	
	Tons	Barrels	Tons	Barrels	Tons	Barrels	Tons	Barrels
EAO Preferential Lease Right Area	772 263 885	469 716 250	434 398 435	264 215 391	-	-	1 206 662 320	733 931 641
EAO RDD Lease	38 391 495	23 047 109	3 796 961	2 279 384	-	-	42 188 456	25 326 493
SubTotal	810 655 380	492 763 359	438 195 396	266 494 775	-	-	1 248 850 776	759 258 134
% of Resource in each classification	65%		35%		0%			

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A comprehensive analysis of the rock chemistry (macroelements, microelements) and mineralogy, as well as other parameters will be carried out from the new core on the BLM property as well as the new cores being drilled on EAO's private adjacent property. The detailed information from the assay work on this RD&D core will be compared to similar assay work carried out on cores distributed across EAO's and holdings. Once the similarity of the resource has been demonstrated, we anticipate that further development activities, particularly those related to technology testing and design, can be undertaken based on shale from both the BLM lease lands and from the private Skyline lands. Through the approval of this RD&D Phase work plan, BLM is accepting that if EAO can prove oil shale from the adjacent Skyline property is similar, shale from the adjacent property may be used along with shale from the BLM lease lands to demonstrate proof of commercial production, as defined in EAO's RD&D lease.

Further, as outlined below, EAO will undertake a technology demonstration program through sub-phases 1 and 2. The first step will be through laboratory assay work on freshly drilled Utah shale and conceptual engineering and modeling. This will be followed by offsite Enefit bench testing of the Utah shale. The final step of testing, which shall demonstrate commercial production as defined in EAO's RD&D lease shall be offsite demo testing in Enefit's demo unit in Germany, during sub-phase 2. Additional information on the Enefit bench and demo units can be found in Annexes 1 and 2. Both of these bench and demo units are modeled on the industrial Enefit process and utilize the same technology that would be constructed in Utah.

As noted in the work program outlined below in section 2.1 and 2.2, Enefit will also carry out a market study and multiple engineering feasibility studies on the Utah resource covering the mining and processing that will include design and economic data sufficient to estimate the project economics and demonstrate the lease requirement of providing an expectation of positive return from the RD&D lease. Upon completion of this work plan and completion of demo testing, the BLM shall recognize proof of commercial production as required under the lease, which shall require BLM to convert EAO's RD&D lease to a commercial lease, assuming, and at the time of, successful completion of the NEPA process and delivery of all information outlined in "Section 23. Conversion" of the RD&D lease.

Following the completion of demo testing during sub-phase 2, Enefit will continue the industrial development work needed in order to complete the design and permitting for the industrial facility during the additional Industrial Development Phase, which is beyond the scope of the RD&D work plan. This technology demonstration process is similar to the 3-phased approach that was previously approved under the OSEC RD&D Work Plan. The primary difference between the EAO and OSEC work plans is that under phase 3 of the OSEC plan they envisioned running a 250 ton/hour demo plant on site while EAO will use its offsite demo facility in Frankfurt.

It is clearly a prerequisite not only for the BLM to clearly demonstrate that the technology is proven, and *proven on the Utah resource, but also for EAO before making a multi-billion dollar investment.* With the significant operations experience of Enefit in Estonia and our JV with Outotec (Enefit Outotec Technology -EOT) and their experience in scaling up plants from demo/pilot to full scale production units, we do not believe that it is technically required nor economically feasible to construct and operate a stand-alone demo plant onsite. Through EOT, EAO has access to a wide range of already existing testing units, from small scale lab test equipment, through to bench and demonstration/pilot sized units. EOT's R&D center is already fully functional, staffed and equipped to carry out the full range of test work needed to demonstrate the feasibility of the Utah resource. Rather than undertaking the expense, site disturbance and permitting required to rebuild and staff such a facility on the site, EAO will ship oil shale to the German facility for test work. EAO will undertake a similar stepwise plan as previously proposed by OSEC and approved by the BLM.

The necessary engineering and economic proof can be obtained through the combination of bench testing, demo testing, engineering and Enefit's experience in Estonia. From a technical point of view, there is no additional benefit to producing more barrels through a larger demo or semi works plant. The

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key is rather to use the demo plant in order to produce the needed data for the detailed engineering and proving economic feasibility. EAO firmly believes that our proposal outlined below under the RD&D Sub-Phase 1 and 2 provides this level of engineering and economic proof. As such, EAO proposes to move directly from the demo plant tests to construction of Industrial Phase 1 which will produce 25,000 bbl/d and involve multiple Enefit units and likely an onsite hydrotreater. Before this construction starts in Utah, currently planned for 2017, Enefit will have constructed a new generation Enefit280 plant in Estonia, scheduled to start up in 2012. This is the same new generation Enefit technology that will be used in Utah. Additionally, by 2016 Enefit is planning to have built two further new generation Enefit plants as well as an onsite upgrading facility. In order to provide the BLM with more access to and information on both the bench and demo unit, as well as the new generation Enefit plant in Estonia, EAO would be happy to arrange an onsite tour to both of these facilities (in Germany and Estonia) and provide a technical team for this visit to answer BLM questions.

2.1. RD&D Sub-Phase 1 (2011-2012):

2.1.1 Geology Part 1: A multi-faceted drilling program was completed in the 3rd Quarter of 2011/1st Quarter of 2012; which started with an initial assay program followed by a core drilling program designed to achieve two goals – resource confirmation and supply of resource for bench testing:

Assay Program: Crushed core samples from EAO's core storage facility in Vernal and from the WRM bulk sample were selected for mineralogical and chemical testing.

The samples were taken from the proposed 55-foot mining horizon in 5 widely spaced drill holes. Three of these were on Enefit's private lands; one was on the BLM RD&D lease (OSEC-2); and the final one was on SITLA lands where Enefit has an oil shale lease north of the White River. This data, in conjunction with new information being collected in the program outlined below, will further demonstrate the uniformity of the oil shale rock properties across the project area. Enefit drilled an additional 15 holes the 1st Quarter of 2012 on the Skyline Property. So, including the 26 pre-existing White River Project holes, and the two new RD&D holes (OSEC-1 and OSEC-2), Enefit has 28 holes on the BLM land in its data base for geologic modeling and resource assessment. On the Enefit private land and SITLA leases, which cover a larger area than the BLM lands, Enefit has another 38 holes in its data base. Enefit's objective is to get nearly an equal density of holes on all these lands for the purpose of its resource assessment and for mine planning. We feel we are close to the point where no more drilling is required. The pre-existing data from the White River Project is an important component of our data base and we are growing more confident that we fully understand the oil shale characteristics in this region of the Uinta Basin.

We also had tests performed on samples from the stockpile at the White River Mine; which included chemical, mineralogical and thermal properties. These were compared with the data from OSEC-2 from which similar tests were run. These test results suggest that the impact of weathering on the stockpile has been limited and that the stockpile sufficiently represents the mining horizon such that the stockpile could be used in our upcoming demo plant test runs.

Norwest, working on behalf of Enefit, has designed a sampling program to make oil shale drill core composites of 7 or 8 individual horizons within the proposed mining horizon. The composites were sent to three independent labs for chemical, mineralogical and thermal properties. This data was then analyzed to see if any of the rock characteristics vary laterally across the project area. Based on these tests, showing no significant lateral changes across the property, and the Fischer assay data, Enefit's process team is able to confirm that the oil shale will behave the same in the retort regardless of where it is mined.

Resource Confirmation Drilling: Seven core holes were drilled in order to supplement EAO's existing data base. Of the seven holes, one was on the RD&D Lease. The seven widely spaced holes, covering the RD&D Lease and the EAO neighboring properties, provide additional geologic control and resource confirmation as discussed above.

Splits of the 3-inch core were subjected to Fischer assays on one-foot intervals in the Mahogany zone. Composites of the proposed mining zone were subjected to mineralogical and chemical analyses to determine whether there are variations across the project area.

One of the objectives is to demonstrate that bench and demo tests performed on oil shale samples taken from lands nearby the RD&D Lease are sufficient to conclude that oil shale from the RD&D Lease would perform the same were it to be subjected to the same bench and demo test programs.

This drilling program was completed in Q1 of 2012 and the testing program and data analysis and reporting will be completed by mid 2012.

Supply of Resource for Bench Testing: 23 holes were drilled to recover 6-inch core from the 55-foot mining horizon that was part of the mine plan for the White River Mine; EAO has identified this as its preferred mining horizon as well, both on the BLM lands and the neighboring EAO private property.

We collected 12 tons of the 6-inch cores from the mining zone. It was taken from the neighboring EAO private lands to minimize surface disturbance on the BLM RD&D lease. The 12 tons was shipped to Frankfurt for the bench test program and arrived in early February 2012.

EAO is confident that this oil shale is representative of the oil shale on the RD&D Lease, this has also since been confirmed with the test program outlined in the step "Resource Confirmation Drilling" above.

2.1.2 Mine Conceptual Study: In 2011 EAO contracted Norwest Corporation to prepare a conceptual mine plan that resulted in a preliminary master development plan that encompasses the BLM RD&D Lease, the BLM Preferential Lease lands, and neighboring EAO properties.

The conceptual mine plan will look at producing adequate oil shale to supply a 50,000 BPD commercial shale oil operation.

Enefit and Norwest will examine different mining plans to optimize the development of both the Skyline Property and the BLM PRLA lands. The Mahogany zone oil shale on the BLM lands is deeper and more expensive to mine than the same zone on the Skyline Property. As such, it will require less capital to develop the initial mine on Skyline. On any first generation oil shale project it is key to achieving financial and technological success that risks be minimized and that expenses be minimized upfront. As the Skyline project evolves successfully, Enefit will begin advancing its underground mining operations to the northwest and eventually mine on the PRLA lands. This is when the White River Mine facilities will prove key to the operations since the existing infrastructure then becomes an integral part of the operations. So, Enefit will gradually incorporate and renovate the White River facilities but it is not prudent to do this too early, since doing so entails a huge upfront capital expenditure.

The Plan will allow EAO to pursue its commercial development plans on its neighboring lands while at the same time completing the RD&D program that will lead to the conversion of the RD&D Lease to the Preferential Lease.

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2.1.3 Enefit bench testing: 12 tons of Utah shale will be shipped to Enefit's R&D center in Frankfurt Germany for bench testing, which will include the following:

- Oil shale crushing tests from 100mm to -6mm, including the following;
 - o Determination of criteria for beneficiation units (crusher, screens, etc.)
 - o Development of process scheme
 - o Specific energy consumption
 - o Wear characteristics
 - o Hazard investigation (i.e. ignition temperature, explosion pressure, explosion class, minimum ignition energy)
- Oil shale Investigations, to include:
 - o Proximate Analysis
 - o Ultimate Analysis
 - o Ash Analysis
 - o Physical properties
- Bench testing and process optimization for oil yield and quality related to process parameters
 - o E-assay (Fischer)
 - o Spent shale analysis
 - o Shale oil analysis
 - o Retort gas analysis
 - o Pyrolysis water analysis

2.1.4 Enefit Conceptual Engineering Study: A new Conceptual Engineering Study will be completed, incorporating the results from the bench scale test work. The study will be conducted to a +/-30% accuracy level and included:

- Process calculation and mass balance update
- Minimum required water amount for the process and plant infrastructure
- Sensitivity on oil yield - A range of oil yields was studied in the process calculations and design. The objective was to define the optimum feed grade for the retort and specify the mining horizon. The results shall serve as input for the conceptual mining study.
- Upscaling study - The optimal unit size for processing Utah oil shale shall be determined with the objective of 2 x 25,000 bbl/d production capacity.

2.1.5 Crude Oil Assay: The Enefit bench scale test unit provided samples of shale oil and gas that can be considered as potentially representative of the material that will be produced in the commercial plant. These samples were analyzed by EOT and are currently undergoing further detailed analyses to provide the data on which early assumptions can be reviewed and if necessary adjusted, thereby allowing the oil upgrading unit conceptual design to be formulated.

Sophisticated crude oil and gas assays are being performed by Maxxam Analytics in Edmonton, Alberta, Canada to provide detailed analyses of the raw samples produced from the Enefit bench scale testing unit. This study, together with the Market Study (see 2.1.7) will permit more definitive strategic planning of the shale oil upgrader plant. The assay requires about 5.28 gallons of representative composite shale oil, which must be deep chilled and shipped in special insulated metal oil sample cans and specialized gas canisters.

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2.1.6 Enefit Demo Construction: Enefit Outotec Technologies (EOT) is owned 60% by Enefit and 40% by Outotec. EOT holds the technology license for the Enefit technology and will ultimately supply the Enefit technology to the Utah oil shale project.

As part of the Enefit technology testing and development, EOT is currently building a demo plant at its Frankfurt R&D center for testing different oil shales, including the Utah shale and proving the technical concept. Preparations for the demo construction were started in spring of 2011, the design has now been prepared and construction is ongoing and anticipated to be completed by the end of 2012.

2.1.7 Market Study: Baker & O'Brien conducted an evaluation of the potential routes to market, valuation and positioning of EAO's synthetic crude oil (SCO) in the SLC and/or other refinery markets. The information received, combined with the crude assay results, will be key inputs in confirming what the end product should be and hence the design of the shale oil upgrader. Key questions that they addressed in the market study included:

- How much upgraded shale oil from EAO's facility can be processed in the Salt Lake refineries before a drop in value is noted (market saturation)
- What are the alternative ship-out (market placement) options for the excess SCO
- What are the needs in terms of transportation to move this material
- Should EAO consider further upgrading the SCO to produce ultra low sulfur diesel (ULSD) and unfinished naptha and VGO (Vapour Gas Oil)
- Should EAO consider production of jet fuel?

The combination of this study and the CAPEX and OPEX data obtained from the various engineering studies will be used to meet the lease requirement of demonstrating a reasonable expectation of a positive return.

2.1.8 Baseline Monitoring: Through the previous project owners (OSEC), EAO has acquired a newly installed, state-of-the-art meteorological and air quality monitoring station. Also acquired was an EPA approved Quality Assurance Project Plan (QAPP).

As part of Sub-Phase 1, EAO contracted an independent environmental consulting company (TetraTech) to operate the monitoring station according to the detailed requirements of the QAPP for 1.5 years. Prior to starting data collection, EAO met with the EPA to adjust the QAPP to reflect the changes in project ownership, modified development plan, and contract for station operations. This amended QAPP has been approved by EPA. This monitoring data is a crucial part of EAO's pre-permitting activities.

2.2 List of data and reports to be submitted to meet criteria for completion of Development Sub-Phase 1

- Results of core description and updated geologic assessment of the property, including new assay work demonstrating the composition of the shale located on the BLM RD&D lease as well as that on the EAO neighboring lands.
- A conceptual mining study tying the BLM property and the private Skyline property together into an integrated mining plan with a description of the mining methods, production, and mine advancement.
- Summary results of the Enefit bench testing.
- Summary results of the Enefit conceptual engineering.
- An update on the status of the Enefit demo construction.
- Summary results from the Enefit produced Utah shale oil crude assay testing program.
- Summary conclusions from the Utah market study.
- A status report on the weather and air quality monitoring station results.

- Note: The following information contains confidential commercial information and trade secrets which are exempt from disclosure under the Freedom of Information Act under the exemption contained in 5 USC § 552(b)(4).

EAO's provision of the information above shall be deemed to meet the criteria for completion of Sub-Phase 1 of the RD&D Phase.

2.3 RD&D Development Sub-Phase 2 (2012-2014):

2.3.1 Geology Part 2: Following the evaluation of the 2011 drilling and analytical testing program, EAO decided it was necessary to drill another 15 holes on the private property in order to characterize the geology, and the assay work needed to further confirm the rock properties (physical, chemical, mineralogical and metallurgical) as well as the resource classification (measured, indicated and inferred).

The drilling is complete; however, the testing is still in process. Most of the additional core hole assays will enhance the confidence in the resource classification for the purposes of project financing for the commercial facility. The core holes will also help with mine planning to gain confidence that there are no structural or stratigraphic discontinuities in the mine ore horizon and that the ore grade remains consistent and predictable.

2.3.2 Collection of Bulk Sample: We are currently in the process of collecting a 600 ton bulk sample to run through the Enefit demo plant. A portion of this sample is planned to come from the existing White River Mine stockpile. We explored various ways to collect the 600 tons; and selected blasting and excavating as the most cost effective solution. Once the sample has been collected, it will be crushed to 3 inch minus. Approximately 200 tons will then be crushed to ¼ inch minus, bagged in "super sacks" and shipped to EOT in Frankfurt, via sea container.

2.3.3 Mine Conceptual Study Update and/or Mine Pre-FEED: The mine plan will be evaluated to confirm that it is consistent with the project development schedule and the ore feed requirements of the plant.

- Grade control and blending of rock for the plant are crucial elements of the mine plan as well as stockpile volumes and grade.
- As needed, the rock mechanics data will be supplemented to optimize confidence in the underground mine design.
- The mining equipment and crusher requirements will be further refined.
- The capital and operating costs for the mine will be developed as part of the overall project cost studies.
- The planning will demonstrate that the deposit will be developed in an economically feasible manner by starting on the shallow surface mineable private property and transitioning to the deeper BLM property, treating the various properties as a unit in order to maximize economic recovery

2.3.4 Enefit Demo Testing: Enefit demo testing will take place in Enefit's R&D center in Frankfurt Germany, processing a fresh sample of oil shale from Enefit's Utah property. Demo testing will result in the following:

- Process engineering
 - o Process block diagram
 - o Process plant design and operating parameters
 - o Mass balance
 - o Process and plant description
 - o Process flow diagrams with main control loops

- Note: The following information contains confidential commercial information and trade secrets which are exempt from disclosure under the Freedom of Information Act under the exemption contained in 5 USC § 552(b)(4).

- Plant engineering
 - o Preliminary general arrangement drawings
 - o Preliminary plot plan
 - o Equipment list
 - o Drawings
- Electrical / Instrument engineering
 - o Electrical consumer's list and description of supply
- Cost estimation and report

2.3.5 New Generation Enefit280 Commercial Plant Operational :

- o The new Enefit280 plant will be operational in 2012 in Estonia. EAO would like to invite representatives from the BLM to Estonia in 2012 or the beginning of 2013 to examine the plant. This is the same technology which will be used in Utah.

2.3.6 Oil Upgrading Technology Selection and Conceptual Study: The shale oil upgrader conceptual study (+/- 30% accuracy) shall be completed following the crude oil assay results under Sub-Phase 1 of the RD&D Development Period.

- o Based on the results of the crude oil assay, knowledgeable technology providers will be contacted and evaluated for providing a solution for upgrading the raw Utah shale oil from the Enefit process to the desired end product. The list of potential technology providers will include those with experience with Green River shale oil and Estonian shale oil and the Enefit process. Based on the results of the crude oil assay, market study and desired end product, a conceptual engineering study will be completed.

2.3.7 Baseline monitoring: The 1.5 year meteorological and air quality baseline data collection will be completed within this phase.

2.3.8 Prepare application for lease conversion:

- EAO assumes that demonstrating that the resource quality is similar throughout the properties, specifically between the private Skyline property and the BLM lease property, will ensure that all project development work completed as outlined above is accepted as progress on this work plan.
- EAO also assumes that "proof of technology" shall be demonstrated by the Enefit demo testing.
- EAO shall provide data and documentation of the results, as well as the possibility of an onsite visit of the Enefit demo testing to the BLM.
- Following this submission and completion of the above work program, EAO shall submit an application for a commercial lease covering the preferential area.
- This conversion shall be governed by the terms set out in the RD&D lease.

- Note: The following information contains confidential commercial information and trade secrets which are exempt from disclosure under the Freedom of Information Act under the exemption contained in 5 USC § 552(b)(4).

2.4 List of data and reports to be submitted to meet criteria for completion of Development Sub-Phase 2

- a. Updated geologic assessment of the properties, including new assay work confirming the composition of the shale located on the BLM RD&D lease as well as the adjacent private Skyline property.
- b. An update of the mine conceptual study showing how the PRLA is integral to the overall mining operation/unit.
- c. Summary results of the Enefit demo testing.
- d. Summary report on the startup and operations of the new generation Enefit280 plant in Estonia.
- e. Description of the oil upgrading technology provider(s) and technical solution as well as summary results from the Enefit oil upgrading pilot tests and conceptual engineering report.
- f. A status report documenting the completion and main results of the weather and air quality monitoring station data collection.
- g. Application to BLM to trigger conversion process from RD&D lease to Commercial lease.
- f. Economic evaluation of commerciality

EAO's provision of the information above shall be deemed to meet the criteria for completion of Sub-Phase 2 of the RD&D Phase and of the entire RD&D work plan needed to prove commercial viability under the lease.

3. Technology to be Utilized

EAO plans to utilize its proprietary and advanced new generation Enefit Technology for shale oil production. Enefit technology is based on nearly 100 years of oil shale experience in Estonia. Enefit (known as Eesti Energia in Estonia) is the largest oil shale processing company in the world. In Estonia, Enefit annually mines approximately 18,739,000 tons of oil shale rock from surface and underground mines. It uses around 16,500,000 tons of oil shale per year for energy production, most of this going for power production. Enefit also operates the world's largest oil shale fired power plants, located in Narva Estonia, with a total output of 2,380 MW. Of key importance to the Utah project, Enefit also owns the most advanced proprietary shale oil production technology, the Enefit technology. It is this Enefit technology which will be utilized for oil production in Utah. In Estonia we annually produce 9 TWh of electricity and more than 1 million barrels of shale oil. Estonia is one of the largest industrial producers of shale oil and Enefit is the biggest producer of energy from oil shale in the world. In our total history we have mined 1 billion tons of oil shale, produced 550 TWh of power and 200 million barrels of oil in Estonia.

Our dedicated experts have been developing the process for more than 30 years and have numerous patents for the key elements on Enefit140 and Enefit280 technologies. After decades of research and development, we have designed and are now building the most efficient technology available anywhere for commercial production of shale oil. Our industrial oil production experience is unique in the world, all based on our history with the solid heat carrier technology. About 70% of the initial design has been reworked to achieve a stable and profitable operating regime – the redesigned unit is called Enefit140. The key area of improvements was increasing the units' online time, which had been only around 45 per cent prior to the improvements and has now reached more than 75%.

After patenting the Enefit140 in 2005, Enefit joined forces with Outotec, a world-leading process and plant engineering company with unsurpassed experience in metal and mineral processing. Our joint venture, Enefit Outotec Technology, is developing the Enefit process first in Estonia and then for application in Utah and other countries. This new generation Enefit plant is currently being constructed in Estonia. It will consume 2,425,000 ton of oil shale per year and

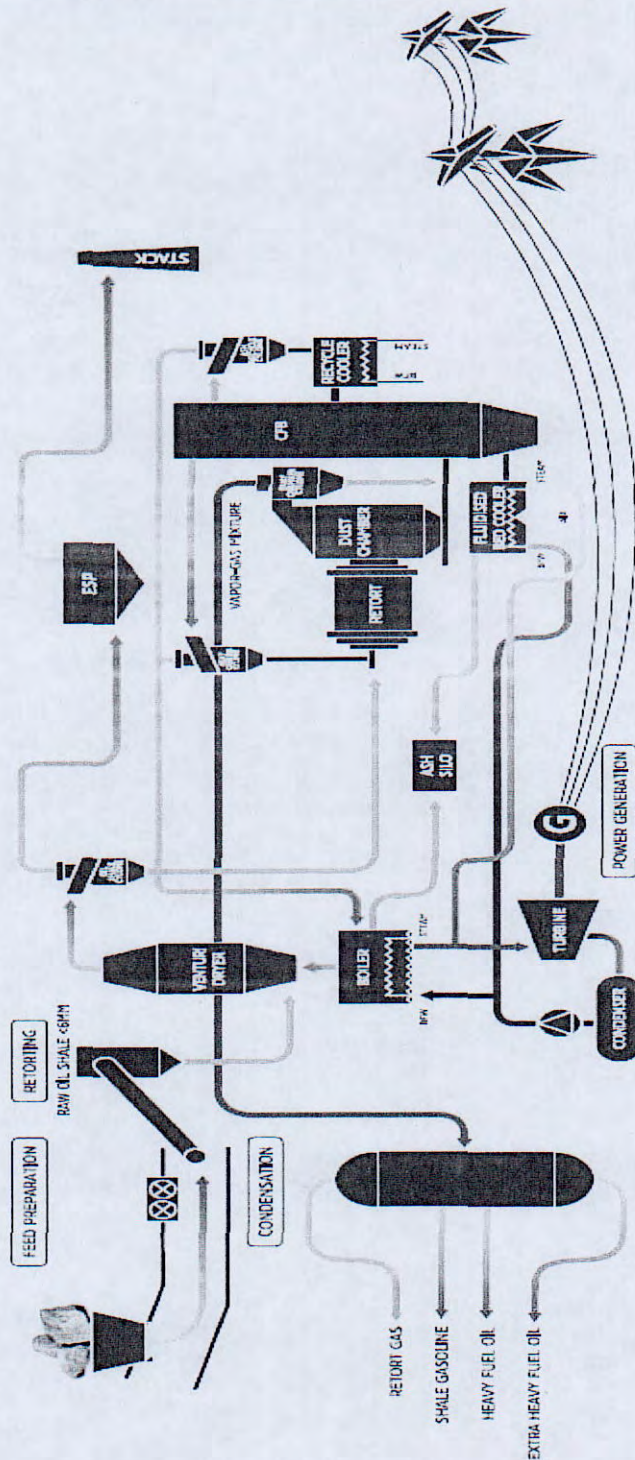
– Note: The following information contains confidential commercial information and trade secrets which are exempt from disclosure under the Freedom of Information Act under the exemption contained in 5 USC § 552(b)(4).

will produce 319,670 tons of shale oil, 2,648,600,000 ft³ of high calorific retort gas and 280 GWh of electricity. Startup is planned for 2012. The plant will ensure a lower environmental impact and use a new, more reliable and higher capacity Enefit technology, consuming 280 tons per hour.

3.1 Description of the Process Methodology and Equipment of the Enefit System

The Enefit technology refers to the know-how and technical solution based on a solids-to-solids heat transfer technology used to process oil shale and other hydrocarbon containing materials for oil production.

Figure 2. New Generation Enefit Technology Diagram



Key improvements include:

Unit size

The Enefit280 has twice of the capacity of its predecessor the Enefit140

Availability

The availability of the unit has been increased from 75% to more than 90%

Efficiency

The Enefit280 unit will recover heat from the ash and flue gases, which can be utilized for power production

Lower environmental impact

The lit pipe combustor has been replaced by CFB boiler which will result in more complete combustion of the spent shale (semicoke) and cleaner flue gases

Dust chamber and DC cyclone

The dust chamber and DC cyclone have been redesigned to avoid oil vapor con-

densation and dust accumulation to chamber surfaces to prevent clogging

Seal pots

In many places screw conveyors have been replaced with Seal Pot technology which provide reliable sealing between high and low pressure zones in the equipment

As shown in Figure 2 the key equipment of the Enefit process includes:

- oil shale feeding system
- pyrolysis system
- circulating fluidized bed boiler
- waste heat recovery system
- ash cooling
- electrostatic precipitator
- condensation section

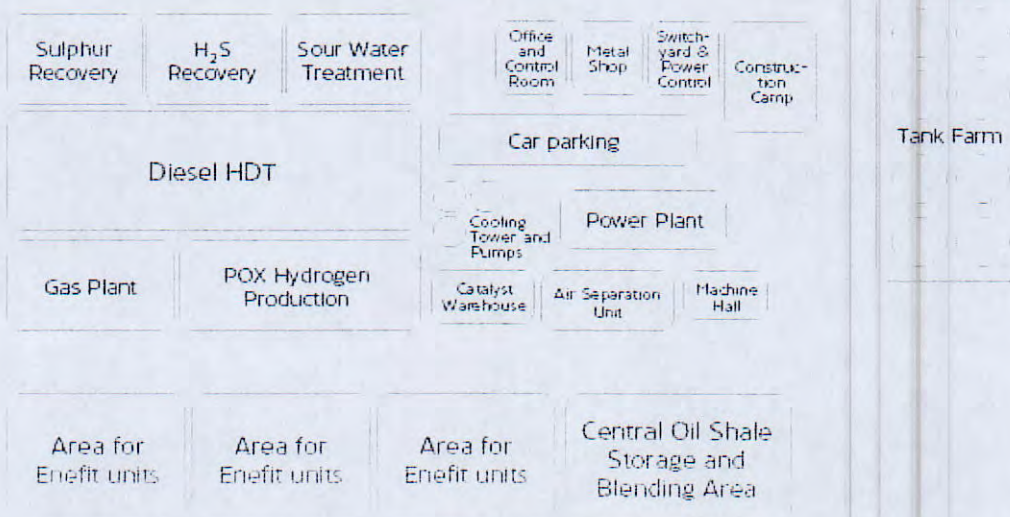
In summary, the oil winning process consists primarily of a rotary kiln, which heats the fresh oil shale by direct heating. In this step the organics contained in the oil shale are volatilized. The produced shale oil vapors from the Enefit system shall then be treated in a condensation unit, delivering raw shale oil products for further upgrading into commercial products in the shale oil hydrotreater facility. The remaining organic content in the retorting residue is used in a circulating fluidized bed to produce ash and hot gases, which are recycled to heat up the fresh oil shale entering the process. In order to improve the energy efficiency of the overall process, the collected heat is utilized for the production of electric energy in a steam turbine unit.

In comparison to other processes for oil winning from oil shale, the Enefit technology has the advantage of processing fine material, so that all mined oil shale can be utilized. One requirement is an initial particle size of minus ¼ inch in order to ensure a fluidization in the circulating fluidized bed.

All machines in the plant which emit a noise level ≥ 85 dB (A), will be protected with appropriate noise protection devices/insulation in order to meet this value as a maximum limit at a measuring distance of 1 yard from the respective equipment.

A schematic detailing the facility layout for the Enefit process and related infrastructure, based on the new generation Enefit construction in Estonia, and the future planned expansion of an additional three Enefit 280 units, is shown in Figure 3 below.

Figure 3. General Enefit Facility and Supporting Infrastructure



3.2 Advantages offered by the Enefit system vs. the ATP system previously anticipated for use under the lease

Both, Enefit and ATP are horizontal retorts using the solid heat carrier technology. However, some important differences exist in terms of proven technology and technical ability to optimize the retort to new shales.

Enefit Technology is the only proven horizontal retorting technology in the world through its' decades of running shale oil plants in Narva, Estonia whereas ATP has no experience running commercial shale oil plants. ATP does have pilot facilities available which have successfully tested numerous types of oil shale, including from the current EAO lease lands, but they have not yet successfully demonstrated the ability to scale up to industrial size or gained any industrial operations experience. This is in significant contrast to Enefit, who has scaled up the technology from a unit consuming 220 tons of oil shale per day to the new Enefit 280, which consumes 308 tons of oil shale per hour. Our operators and engineers also have experience operating our Enefit 140 plant continuously for more than 30 years.

Main technical differences in the mechanical layout are also important to note: Enefit is a modular technology with individual units, but in the case of ATP, all components are combined into one single tubular structure. Enefit's modular layout allows easier modification of the technology to adapt it to various oil shales. For example, in the case of the Utah shale, a drier is not needed before the retort as the moisture content of the shale is so low. In the Enefit system, removing the drier from the process is simply removing one module, but in the case of ATP, the drier is integrated into the design of the single rotating tube and is more difficult to modify. For ATP, this means that each time, an individual process module needs to be modified, optimized, re-designed or removed, the entire technology concept has to be re-engineered.

The Enefit modular design also provides easier access for cleaning and routine maintenance, helping to improve the reliability and ease operations and maintenance.

The ATP technology is more difficult to operate and to maintain because of its' mechanically complicated design thus the reliability or operating hours are also expected to be reduced.

One additional key difference is the increased efficiency of the Enefit technology due to the utilization of waste heat from the ash and from the flue gases for power production. This power production allows Enefit to be energy self sufficient and even provide power back to the grid. It also means that the energy from the oil shale is being used as efficiently and fully as possible. This feature is not currently integrated into the ATP technology.

Annex 1

Description of the Enefit test programs and related demonstration and demo facilities

EAO, through its parent company Enefit and Enefit's JV partner Outotec, (together known as EOT, Enefit Outotec Technologies) has full access to the existing testing facilities at EOT's R&D center in Frankfurt Germany. EAO will use the Enefit bench testing unit and Enefit demo testing unit in EOT's Frankfurt R&D center, so no facilities will be needed onsite to support the Enefit bench and demo plants. This is an advantage that allows Enefit to reduce the environmental impact on the lease area, as compared to the original RD&D development plan submitted by OSEC, which envisioned bringing not only a 4 ton/hour, but also a 250 ton/hour unit to the site.

EAO will follow the Enefit Technology research, development and demonstration program listed below:

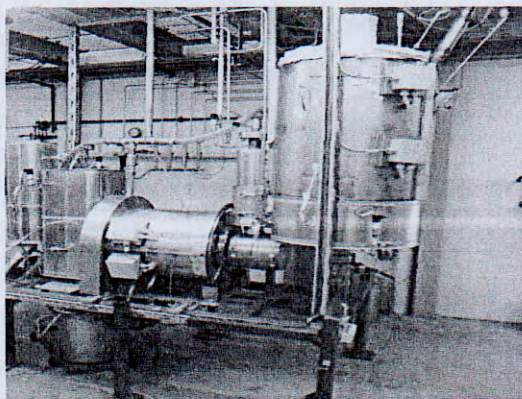
E-assay Study (Research): 2011

- 5kg (11 pounds) sample of Utah shale in EOT R&D center
- Testing at 4 different temperatures in addition to the Fischer Assay with oil shale + ash

Enefit Bench Scale Testing and Conceptual Engineering (Development): 2012

- 12 tonne (13.2 tons) of Utah shale to be shipped to EOT R&D center
- Crushing tests
- Ash production in 700mm CFB testing unit
- Enefit Bench scale testing
- Oil sample production for basic oil assay tests

Figure 1. Bench Testing Unit (20kg/h)

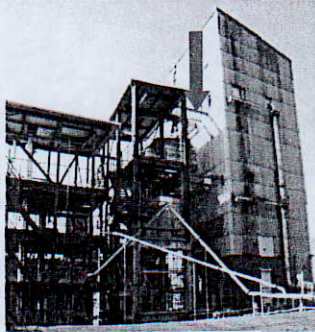


Demonstration Unit Testing (Demonstration): 2013

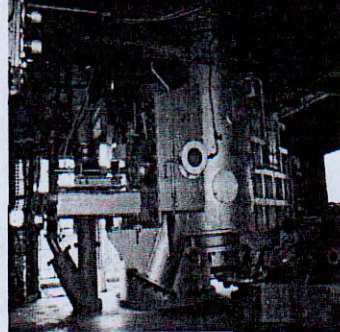
- 180 metric tonne (200 ton) sample to be shipped to EOT R&D center
- Will produce sample for pilot upgrading studies
- Provides key data for the pre-FEED and FEED stages

Figure 2. Demonstration Unit (350 kg/h)

Location of Future Retort



Existing 700mm CFB unit



The retort section of the Enefit Demonstration unit is currently under construction, to be completed in 2012. The retort will be located adjacent (to the left) of the existing 700mm (27.5 inch) CFB unit which will be integrated with the retort unit in order to accurately represent the Enefit280 process. The 700mm (27.5 inch) CFB combustion component of the Demonstration unit is already in place.

Annex 2

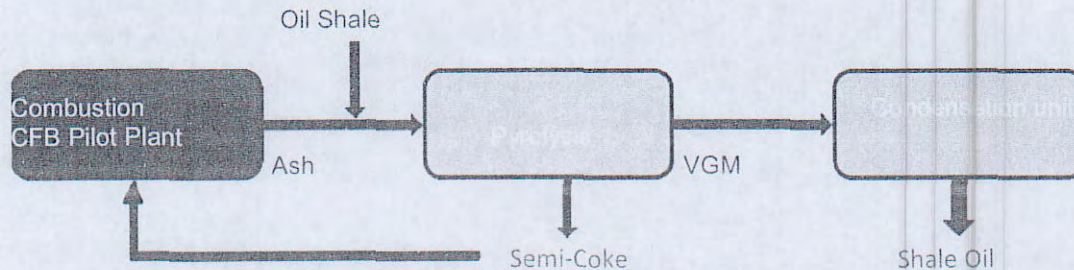
Description of the Enefit demo unit, test program and related facilities

- The demo plant should consist of the following sections:
- Oil shale storage and feeding
- Ash storage and feeding
- Ash preheating and feeding
- Rotary kiln pyrolysis
- Vapor Gas Mixture(VGM) dust removal
- VGM cleaning and two stage oil condensation
- Semi coke discharge and cooling
- Retort gas flaring
- Process control and log system
- Auxiliary equipment

A simplified, typical test structure for producing shale-oil sample would consist of three main steps:

- **Step I:** Pre-drying of oil shale – to produce enough dry source material for the next step
- **Step II:** Oil production within the new built demo plant, as shown in Figure 1 (The plant shall produce a shale oil sample, large enough for further analysis of the oil and subsequent upgrading test work)
- **Step III:** Analysis and combustion of the product “semi coke”

Figure 1. Simplified Process Scheme



Process Flow Description - The Process Flow Description, shown in Figure 2, describes the structure of the demo plant with the main systems as follows:

- Heat Carrier Feed System - The heat carrier will be heated up via the existing 700mm (27.5 inch) CFB. Therefore the media; either semi-coke or potentially sand as a replacement heat carrier, will be lifted from the ground floor to the upper level of the CFB building. The hoisting devices and the feed bin for the CFB already exist. From here the cold heat carrier will be directly dosed into the CFB reactor. Within the CFB reactor the heat carrier will be heated up to approximately 800°C (1472°F). The discharge of the heat carrier, which is also the feed to the retort pilot plant, will take place at the "Heat Carrier Seal Pot" of the CFB. The "Discharge Device" allows the dosing of the heat carrier directly from the seal pot. The remaining portion of the heat carrier will be transferred back to the CFB. Afterwards the heat carrier will be conveyed via an "Air Slide" to the "Feed Chute" in front of the "Retort". The "Air Slide" will be fed by N₂ as fluidizing media. Due to the steep incline of the slide, a low consumption of N₂ to keep the heat carrier flowing is expected.
- Dry Oil Shale Feed System - The wet oil shale has to be dried in a separate test step before the use of the Pilot Plant. The product should be stored in big-bags. The dried oil shale will be lifted from ground floor to the upper level of the CFB by the same hoisting devices as for the heat carrier. The big-bags will be positioned above the "Oil Shale Feed Bin", which is located in the floor of this platform. Then the big-bag has to be open and discharged into the bin. From the "Oil Shale Feed Bin" the shale will be dosed via screw conveyor (Oil Shale Screw Feeder) and "Rotary Valve" to the "Feed Chute" in parallel to the heat carrier. The drive of the "Oil Shale Screw Feeder" and the "Rotary Valve" are speed-controlled. By this means the constant flow of material can be adjusted. In addition the "Rotary Valve" shall seal the system against ambient air, otherwise oxygen could interfere with the pyrolysis process. The dried oil shale initially has an ambient temperature, which is mixed with the heat carrier, which is 800°C (1472°F). Both media are transferred to the "Feed Chute". It is in the Feed Chute, moments before entering the "Retort", that both media come in contact and the material and the temperature will merge. This is the start of the pyrolysis process.
- Pyrolysis System (Retort) - In the "Feed Chute", the heat carrier and the oil shale come into first contact and are directly discharged into the "Retort". Here both media are merged by the rotation of the kiln. The thorough solids to solids contact transfers the heat from the heat carrier to the oil shale and the chemical and physical reactions will start immediately at an average temperature of 480°C (752°F). The length of the pyrolysis process is determined by the length of the "Retort" kiln and its rotary speed. At the end of the "Retort" the joint media made out of oil shale and heat carrier will be discharged as "semi-coke" into the "DC Screw Conveyor". This screw conveyor is water cooled and shall cool down the semi-coke to a temperature level allowing it to be handled.
- Retort Dedusting System - Directly after the "Retort" the pyrolysis gas will pass the "Dust Chamber". Due to the relatively large diameter of the chamber there is a relatively slow velocity of the gas. This allows the larger dust particles to settle to the bottom of the dust chamber against the flow direction. Here the "Dust Chamber Screw Conveyor" will cool down and discharge (as already described above) semi-coke and dust. The discharge system will be sealed by a "Rotary Valve" from inleaking air. From the top of the "Dust Chamber" the gas will be transferred to the "Dust Chamber Cyclone". By utilizing the effects of high velocity the smaller dust particles will be separated from the gas within the "Dust Chamber Cyclone". The collected amount of fine dust will be discharged from time to time via "Rotary Valve" to a separate collecting barrel. By this measure we try to avoid any short circuits within the retort dedusting system. If the subsequent process gas treatment system would be blocked for some reason, a by-pass immediately opens to transfer the retort gas directly to the "Combustion Chamber" in order to ensure a controlled discharge of the gas. Otherwise a blockage in the process gas treatment system would result in overpressure in the pyrolysis system, which would cause uncontrolled leakages of the gas from the reactor to the ambient area.

- Process Gas Treatment - The subsequent process gas treatment system contains the "Condensation System" for oil-winning and subsequent fine particle separation system as the "gas cleaning safety stage". In the case of a significant amount of aerosols, this particle separation system shall take care to catch them before releasing the exhaust air. After the process gas treatment units an "ID Fan" will draft the gas through the system controlled by the pressure level in the "Dust Chamber". By this measure we are able to avoid overpressure in the system, which could occur due to intensive pyrolysis and a possible pressure drop in the gas treatment system, accidentally caused by fouling effects. Due to the fact that the flare on site is located at a distance to the rest of the pilot plant and the linking duct system is directed outdoors, we want to assure that there are no components left in the flue gas, which could condense on the cold surface of the ducts and cause some fouling. For this reason we have planned to include a "Combustion Chamber" equipped with a natural gas driven "Burner" close to the "ID Fan". The exhaust gas will be led to the top of the roof for final release. For the start-up phase of the retort unit we have to rinse the system with inert gas (e.g. N₂) for reason of fire protection.
- Miscellaneous - The necessary supplementary utilities such as cooling water, inert gas, pressurized air and instrument air will be provided from the resources of the R&D centre facilities. Piping links and tie-ins to the respective grid systems are available.
- Monitoring - Flue gas emission monitoring from the CFB exhaust gas will provide measurement of the CO, SO_x and NO_x emissions. Additional portable monitors can be installed as needed in order to measure other flue gas components (e.g. PM, HCl, etc). Additionally, all co- product streams- namely oil, retort gas, ash and produced water (from the condensation of the vapour gas mixture) can be collected for further offsite sampling and analysis.

Figure 2. Process Flow Description

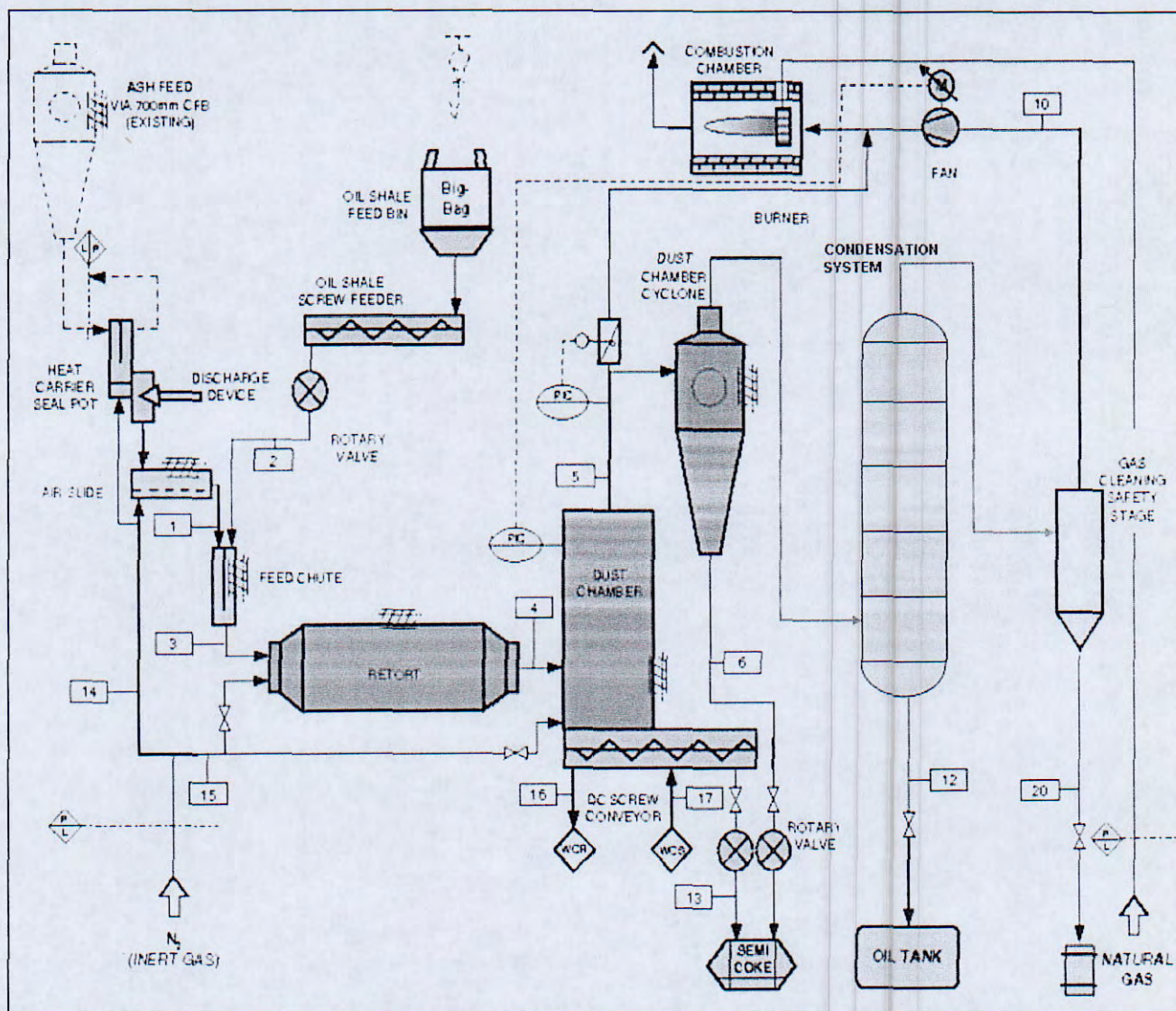


EXHIBIT B

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15 UNITED STATES DISTRICT COURT
16 FOR THE NORTHERN DISTRICT OF CALIFORNIA
17 SAN FRANCISCO DIVISION
18

19 THE WILDERNESS SOCIETY, *et al.*,

20 Plaintiffs,

21 v.

22 U.S. DEPARTMENT OF THE INTERIOR, *et al.*,

23 Defendants.
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25
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27
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No. 3:09-cv-03048 JW

NOTICE OF MOTION AND JOINT MOTION
TO DISMISS CASE PURSUANT TO FED. R.
CIV. P. 41(a)(2)

Date: July 9, 2012

Time: 9:00 a.m.

Courtroom 9, 19th Floor

Hon. James Ware

NOTICE OF MOTION

Plaintiffs The Wilderness Society, BARK, Center for Biological Diversity, Defenders of Wildlife, Great Old Broads for Wilderness, Klamath-Siskiyou Wildlands Center, National Parks Conservation Association, National Trust for Historic Preservation, Natural Resources Defense Council, Oregon Natural Desert Association, Sierra Club, Southern Utah Wilderness Alliance, Western Resource Advocates, Western Watersheds Project, and County of San Miguel, Colorado (collectively "Plaintiffs") and Federal Defendants U.S. Department of Energy ("DOE"), U.S. Department of the Interior ("DOI"), U.S. Bureau of Land Management ("BLM"), U.S. Department of Agriculture ("USDA"), and U.S. Forest Service ("USFS")¹ hereby serve notice that on July 9, 2012, at 9:00 a.m., they shall bring on for hearing before the Hon. James Ware, in Courtroom 9 a joint motion for dismissal of this action pursuant to Rule 41(a)(2) of the Federal Rules of Civil Procedure in accordance with Paragraph III.B and subject to Paragraphs III.B and F of the Settlement Agreement attached hereto as Attachment A.

Intervenor-Defendants American Gas Association, American Public Power Association, Chamber of Commerce of the United States of America, Edison Electric Institute, National Association of Manufacturers, and National Rural Electric Cooperative Association have indicated that they likely do not oppose this motion, but will provide their response separately. A courtesy copy of this motion was provided to the Intervenor-Defendants on June 27, 2012.

MEMORANDUM OF POINTS AND AUTHORITIES

I. ISSUE TO BE DECIDED

Whether this action should be dismissed with prejudice in accordance with Paragraph III.B and subject to Paragraphs III.B and F of the Settlement Agreement attached hereto as Attachment A.

II. DISCUSSION

A. Factual Overview

Section 368 of the Energy Policy Act of 2005 ("EPAAct"), 42 U.S.C. § 15926, directed the

¹ The complaint also names in their official capacities Steven Chu, Secretary of Energy; Ken Salazar, Secretary of Interior; Tom Vilsack, Secretary of Agriculture; Tom Tidwell, Chief of the USFS (an agency within USDA); and Mike Pool, Acting Director of BLM (an agency within DOI).

1 Secretaries of the Interior, Agriculture, Commerce, Defense, and Energy to “(1) designate, under their
 2 respective authorities, corridors for oil, gas, and hydrogen pipelines and electricity transmission and
 3 distribution facilities on Federal land in the eleven western States . . . (2) perform any environmental
 4 reviews that may be required . . . and (3) incorporate the designated corridors into the relevant agency
 5 land use and resource management plans or equivalent plans.” To carry out this direction, BLM, DOE,
 6 and the USFS prepared a programmatic environmental impact statement (“PEIS”) to support the
 7 designation of energy corridors across Arizona, California, Colorado, Idaho, Montana, Nevada, New
 8 Mexico, Oregon, Utah, Washington, and Wyoming. On September 28, 2005, the Agencies published in
 9 the Federal Register a Notice of Intent to prepare the PEIS, amend relevant agency land use plans, and
 10 conduct public scoping meetings. The Agencies published a Notice of Availability of the draft PEIS in
 11 the Federal Register on November 16, 2007, inviting the public to comment on the draft PEIS until
 12 February 14, 2008. The final PEIS was made available in November 2008.

13 On January 14, 2009, DOI approved amendments to 92 BLM land management plans to design-
 14 nate energy corridors on the public lands governed by these plans. The designation includes approxi-
 15 mately 5,000 miles of corridors. On the same day, the USFS amended 38 land use plans, designating
 16 957 miles of energy corridors on public lands it administers.

17 B. Procedural History

18 Plaintiffs filed this action on July 7, 2009, challenging the PEIS and associated energy corridor
 19 designations. Plaintiffs bring claims under EPLA against all the Agencies, challenging their compliance
 20 with that statute. Plaintiffs also bring claims under the National Environmental Policy Act (“NEPA”),
 21 42 U.S.C. §§ 4321–4370h, against DOI, BLM, USDA, and USFS, alleging deficiencies in the PEIS
 22 prepared for the corridor designations. Plaintiffs further challenge the Records of Decisions (“RODs”)
 23 issued by DOI and BLM to incorporate the relevant corridor designations into the Resource Manage-
 24 ment Plans (“RMPs”) governing management under the Federal Land Policy and Management Act
 25 (“FLPMA”), 43 U.S.C. §§ 1701–1787, of the affected units of BLM-administered lands. Finally, Plain-
 26 tiffs challenge compliance with the requirements of section 7 of the Endangered Species Act (“ESA”),
 27 16 U.S.C. § 1536, alleging that DOI, BLM, USDA, and USFS failed to ensure that the corridor

1 designations would not jeopardize the existence, or adversely modify the critical habitat, of species
2 listed under that Act.

3 On September 28, 2009, the Court granted the parties' motion to stay proceedings to accom-
4 modate ongoing settlement discussions. That stay has remained in place and has allowed the parties to
5 negotiate a satisfactory settlement. On March 9, 2011, the court granted the motion to intervene of
6 Intervenor-Defendants.

7 C. Description of Settlement

8 The proposed Settlement Agreement has four principal components: an interagency Memoran-
9 dum of Understanding ("MOU") addressing periodic corridor reviews; agency guidance; training; and a
10 corridor study.² The MOU, described in Section II.A.1 of the Settlement Agreement, will govern the
11 Agencies' future review of corridors identified in the PEIS to address environmental concerns. That
12 review will take account of siting principles identified in the Agreement, as well as the need for the
13 periodic review and updating of appropriate mitigation measures. The siting principles are consistent
14 with EPLA, FLPMA, and regulations implementing FLPMA. Revision of any PEIS corridors would
15 occur (1) during the normal course of the land use planning process, (2) during environmental review of
16 a particular site-specific project that occasions reconsideration of a particular corridor, or (3) during land
17 use plan revisions proposed specifically to address potential corridor changes.

18 The agency guidance, described in Section II.A.2 of the Agreement, will embody principles
19 enunciated in the Agreement and will address the need for site-specific NEPA analysis for individual
20 projects.

21 Finally, the Settlement Agreement will provide for updating the BLM's and the USFS's training
22 materials to incorporate the principles set forth in the Agreement, as well as a corridor study to assess
23 whether the PEIS corridors are achieving their purposes to promote efficient and environmentally

24
25 ² In addition, BLM will delete portions of a superseded agency guidance document concerning the siting
26 of electric transmission corridors, IM 2010-169, and will issue a new guidance memorandum consistent
27 with the Settlement Agreement. See Section II.B.5 of the Agreement. The Plaintiffs and Federal
28 Defendants have also agreed on a settlement of Plaintiffs' claim for attorneys' fees under the Equal
Access to Justice Act, 28 U.S.C. § 2412.

1 sensitive corridor-siting decisions. *See* Section II.A.3 & 4 of the Agreement.

2 The Agreement contains Dispute Resolution provisions, Section III.B & F, allowing for the
3 resolution of disagreements concerning compliance with the terms of the agreement.

4 In return for the Agencies' undertakings, the Plaintiffs agree to dismiss their action with preju-
5 dice and will release the claims raised therein. Sections III.A & B. In accordance with that agreement,
6 the Plaintiffs and Federal Defendants jointly move at this time for dismissal of the complaint, with
7 prejudice, subject to the provisions of Paragraphs III.B and F of the Agreement.

8 Because the Intervenor will be filing a separate response to this motion, dismissal by stipulation
9 pursuant to Fed. R. Civ. P. 41(a)(1)(A)(ii) is not available.

10 III. CONCLUSION

11 The attached settlement represents a fair and reasonable resolution of this litigation and accom-
12 modates in a compromise document the competing concerns of the Plaintiffs and Federal Defendants as
13 reflected in the PEIS and RODs and in Plaintiffs' challenge thereto. *See Ahern v. Central Pac. Freight*
14 *Lines*, 846 F.2d 47, 48 (9th Cir. 1988) (Ninth Circuit committed to rule favoring settlement of litigation);
15 *California Dep't of Toxic Subs. Contr. v. Waymire Drum Co., Inc.*, No. C-98-03834 PJH, 1999 U.S.
16 Dist. LEXIS 3814, *5 (N.D. Cal. Mar. 19, 1999) (same).

17 Accordingly, the Plaintiffs and Federal Defendants respectfully request that the Court grant this
18 motion and dismiss this action with prejudice, in accordance with and subject to Paragraphs III.B and F
19 of the attached Settlement Agreement.

20
21 Respectfully submitted,

22 FOR THE PLAINTIFFS

23 DATED: July 3, 2012

24 /s/James S. Angell
25 JAMES S. ANGELL
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FOR THE FEDERAL DEFENDANTS

DATED: July 3, 2012

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Wilderness Soc'y, et al. v. U.S. Dep't of Interior, No. 3:09-cv-03048 JW
Joint Motion to Dismiss Case Pursuant to Fed. R. Civ. P. 41(a)(2)

Washington, D.C. 20044-7369
TEL: (202) 305-0404
FAX: (202) 305-0275
e-mail: meredith.flax@usdoj.gov

ATTORNEY ATTESTATION OF CONCURRENCE

I hereby attest that I have obtained concurrence in this filing and for affixing the signature of Plaintiffs' counsel, indicated by a "conformed" signature ("/s/"), to this e-filed document, in accordance with General Order 45.X.

Dated: July 3, 2012

/s/David B. Glazer
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CERTIFICATE OF SERVICE

I, David B. Glazer, hereby certify that I have caused the foregoing to be served upon counsel of record through the Court's electronic service system.

I declare under penalty of perjury that the foregoing is true and correct.

Dated: July 3, 2012

/s/David B. Glazer
David B. Glazer

SETTLEMENT AGREEMENT

Plaintiffs The Wilderness Society, BARK, Center for Biological Diversity, Defenders of Wildlife, Great Old Broads for Wilderness, Klamath-Siskiyou Wildlands Center, National Parks Conservation Association, National Trust for Historic Preservation, Natural Resources Defense Council, Oregon Natural Desert Association, Sierra Club, Southern Utah Wilderness Alliance, Western Resource Advocates, Western Watersheds Project, and County of San Miguel, Colorado (“Plaintiffs”), and Federal Defendants United States Department of the Interior (“DOI”), Kenneth L. Salazar, Secretary of the Interior; United States Bureau of Land Management (“BLM”); Robert Abbey, Director, BLM; United States Department of Agriculture; Tom Vilsack, Secretary of Agriculture; United States Forest Service (“FS”); Tom Tidwell, Chief of the Forest Service; United States Department of Energy (“DOE”); and Steven Chu, Secretary of Energy (“Defendants”) (collectively the “Parties”), by and through their undersigned counsel, hereby agree and stipulate as follows:

WHEREAS, on July 7, 2009, Plaintiffs filed the Complaint in *The Wilderness Society, et al. v. United States Department of the Interior, et al.*, No. 3:09-cv-03048-JW (N.D. Cal.), which Plaintiffs amended on September 14, 2009;

WHEREAS Plaintiffs’ Amended Complaint alleges violations of the Energy Policy Act of 2005, P.L. 109-58 (“EPAAct”), the National Environmental Policy Act, 42 U.S.C. § 4321 *et seq.* (“NEPA”), the Federal Land Policy and Management Act, 43 U.S.C. § 1763 *et seq.* (“FLPMA”), the Endangered Species Act, 16 U.S.C. § 1531 *et seq.* (“ESA”), and the Administrative Procedure Act, 5 U.S.C. § 551 *et seq.* (“APA”);

WHEREAS Section 368 of the EPAAct, 42 U.S.C. § 15926(a), directs the Secretaries of Agriculture, Commerce, Defense, Energy, and Interior, in consultation with the Federal Energy Regulatory Commission, States, tribal or local units of government as appropriate, affected utility industries, and other interested persons, to designate corridors for oil, gas, and hydrogen

pipelines and electricity transmission and distribution facilities on federal land, beginning with 11 western States (“section 368 Corridors”);

WHEREAS Section 368 of the EPA Act further directs the Secretaries of Agriculture, Commerce, Defense, Energy, and Interior to “perform any environmental reviews required to complete the designation” of the corridors and to formalize the designations by “incorporat[ing] the designated corridors into the relevant agency land use and resource management plans or equivalent plans,” 42 U.S.C. §§ 15926(a)(2) and 3;

WHEREAS, on November 20, 2008, Defendants issued a Final Programmatic Environmental Impact Statement for the section 368 Corridors, 73 Fed. Reg. 72,521 (Nov. 28, 2008);

WHEREAS, on January 14, 2009, the Deputy Assistant Secretary, Land and Minerals Management, signed a Record of Decision, amending 92 BLM land use plans to incorporate designation of the Section 368 Corridors;

WHEREAS, on January 14, 2009, the Undersecretary of the Department of Agriculture signed a Record of Decision amending 38 National Forest Land Management plans to incorporate designation of the Section 368 Corridors;

WHEREAS the Parties wish to implement this Settlement Agreement to resolve Plaintiffs’ Amended Complaint in *The Wilderness Society, et al. v. United States Department of the Interior, et al.*, No. 3:09-cv-03048-JW (N.D. Cal.), and thereby avoid protracted and costly litigation and preserve judicial resources;

WHEREAS the Parties have agreed to a settlement of these matters without any adjudication or admission of fact or law by any party; and

WHEREAS the Parties believe that this Agreement is in the public interest;
the Parties now agree as follows:

I. SCOPE OF AGREEMENT

- A. This Agreement shall constitute a complete and final settlement of Plaintiffs' Amended Complaint in *The Wilderness Society, et al. v. United States Department of Interior, et al.*, No. 3:09-cv-03048-JW (N.D. Cal.).
- B. This Agreement in no way affects the rights of the United States as against any person not a party hereto.
- C. Nothing in this Agreement shall constitute an admission of fact or law by any party. This Agreement shall not be used or admitted in any proceeding against a party over the objection of that party.
- D. This Settlement Agreement constitutes the final, complete, and exclusive agreement and understanding between the Parties and supersedes all prior agreements and understandings, whether oral or written, concerning the subject matter hereof. No other document, nor any representation, inducement, agreement, understanding, or promise, constitutes any part of this Settlement Agreement or the settlement it represents, nor shall it be used in construing this Settlement Agreement. It is further expressly understood and agreed that this Agreement was jointly drafted by the Parties. Accordingly, the Parties agree that any and all rules of construction to the effect that ambiguity is construed against the drafting party shall be inapplicable in any dispute concerning the terms or interpretation of this Agreement.
- E. This Agreement shall be governed by and construed under federal law.
- F. Nothing in this Settlement Agreement shall constitute, or be construed to constitute, a waiver of sovereign immunity by the United States. Nothing in the terms of this Agreement shall be construed to limit or modify the discretion accorded Defendants by the APA, the EPA Act, NEPA, FLPMA, the ESA, or by general principles of administrative law.
- G. The Parties agree that Defendants' obligations under this Settlement Agreement are contingent upon the availability of appropriated funds and that nothing contained in this Settlement Agreement shall be construed as a commitment or requirement that Defendants

obligate or pay funds in contravention of the Anti-Deficiency Act, 31 U.S.C. §1341, or other applicable law.

II. SPECIFIC PROVISIONS

A. This Agreement consists of the following five provisions: an interagency Memorandum of Understanding (“MOU”) addressing periodic corridor reviews; agency guidance; training; corridor study; and IM 2010-169. The objectives of these settlement provisions are to ensure that future revision, deletion, or addition to the system of corridors designated pursuant to section 368 of EPAct consider the following general principles: location of corridors in favorable landscapes, facilitation of renewable energy projects where feasible, avoidance of environmentally sensitive areas to the maximum extent practicable, diminution of the proliferation of dispersed rights-of-way (“ROWs”) crossing the landscape, and improvement of the long-term benefits of reliable and safe energy transmission. In addition, revisions, deletions, or additions to section 368 corridors are to be made through an open and transparent process incorporating consultation and robust opportunities for engagement by tribes, states, local governments, and other interested parties.

1. Interagency MOU: The BLM, FS, and DOE (the “Agencies”) will periodically review the section 368 corridors, as provided in Section 1.a.-c. below, on a regional basis to assess the need for corridor revisions, deletions, or additions. The agencies will establish an MOU describing the interagency process for conducting these reviews, the types of information and data to be considered, and the process for incorporating resulting recommendations in BLM and FS land use plans. DOE’s role will be limited to providing technical assistance in the areas of transmission adequacy and electric power system operation, as needed. As part of the periodic review process, the BLM and the FS will re-evaluate those corridors identified by plaintiffs as having specific environmental issues, attached as Exhibit A.¹ The BLM and the FS

¹ Corridors of Concern: The corridors identified by plaintiffs are referred to here as “corridors of concern.”

will also concurrently review their existing Interagency Operating Procedures (“IOPs”) to identify any revisions, deletions, and additions necessary.

These items will comprise the elements of an interagency MOU to establish a process for periodic review of section 368 corridors and the IOPs.

a. Interagency Workgroup:

- The agencies will establish an interagency workgroup composed of national office and field personnel, as appropriate.
- The workgroup will identify new relevant information (below at b.) that is pertinent to the consideration of section 368 corridors.
- The workgroup shall examine this new relevant information, review the corridors based on this information, and develop recommendations for any revisions, deletions, or additions to the section 368 corridors.
- The BLM and the FS shall ensure that recommendations are conveyed to appropriate agency managers and staff and that these recommendations are fully considered, as appropriate under applicable law, regulations, and agency policy and guidance.
- The BLM and the FS shall ensure that the siting principles (below at c.) are fully considered and public, tribal, and governmental involvement commitments (below at f.) are fully met.

b. Review materials: The new relevant information that the workgroup will review includes, but is not limited to:

- Results of the joint studies of electric transmission needs and renewable energy potential currently being conducted by the Western Electricity Coordinating Council (“WECC”) and the Western Governors’ Association (“WGA”), and funded by the DOE;
- Results of BLM’s eco-regional assessments that characterize the ecological values across regional landscapes;

- Agency Corridor Study of current use of section 368 corridors and IOPs (below at Section 4.);
- Other on-going resource studies, such as the WGA wildlife corridor study, the BLM's National Sage-Grouse Habitat Conservation Strategy, and the State of Wyoming's sage grouse strategy; and
- Current studies and other factors, such as states' renewable portfolio standards, that address potential demand, source, and load with particular regard to renewable energy.

c. **Corridor Siting Principles:** The Agencies shall review the following areas to ensure that the general principles listed here were considered in siting the current corridors, especially with regard to efficient use of the landscape: (i) northeastern California and northwestern Nevada, (ii) southern California, southeastern Nevada, and western Utah, and (iii) southern Wyoming, northeastern Utah, and northwestern Colorado. The BLM and the FS will make future recommendations for revisions, deletions, and additions to the section 368 corridor network consistent with applicable law, regulations, agency policy and guidance, and will also consider the following general principles in future siting recommendations:

- Corridors are thoughtfully sited to provide maximum utility and minimum impact to the environment;
- Corridors promote efficient use of the landscape for necessary development;
- Appropriate and acceptable uses are defined for specific corridors; and
- Corridors provide connectivity to renewable energy generation to the maximum extent possible while also considering other sources of generation, in order to balance the renewable sources and to ensure the safety and reliability of electricity transmission.

d. Interagency Operating Procedures: The BLM and the FS shall review the IOPs adopted in their respective Records of Decision designating energy corridors (January 2009). The BLM and the FS shall review the current utility of the IOPs and pertinent new data and shall actively solicit suggestions from stakeholders for changes to the IOPs. The BLM and FS shall consider new IOPs submitted by Plaintiffs for specific resources including, but not limited to, wildlife, wilderness characteristics, and special areas. The BLM and the FS shall develop recommendations for updating the IOPs concurrently with their periodic review of section 368 corridors.

e. Implementation of Workgroup Recommendations: Workgroup recommendations for section 368 corridor revisions, deletions, or additions will be considered for implementation through the BLM and the FS land use planning and environmental review processes. There are three circumstances when such consideration may occur:

- During the normal course of land use plan(s) revisions;
- During an amendment to a land use plan(s) caused by a specific project proposal that does not conform to a land use plan, or when issues within a designated section 368 corridor necessitate review of an alternative corridor path; or
- During an amendment to individual land use plans specifically to address corridor changes.

BLM and FS will adopt recommended changes to the IOPs (additions, revisions, deletions) through internal guidance or manuals or handbooks.

f. Stakeholder Participation: There will be two significant opportunities for stakeholder participation:

- The workgroup will provide information to and solicit comment from the public regarding its periodic review of corridors and consequent

recommendations, and also engage in consultation with other federal agencies, tribes, states, local governments, and other interested persons through an active exchange of information and opinion during review and before the workgroup makes a recommendation(s). Workgroup members will use this same process in their periodic review of BLM and FS IOPs and recommendations therefor. The MOU will outline appropriate means for conducting outreach, which may include listening sessions/information sharing, web postings/comments, or other appropriate means.

- Any land use plan amendments that consider workgroup recommendations will require evaluation under NEPA in accordance with applicable law, regulations, and agency policy and guidance. The agencies agree to a robust public involvement process and will ensure that:
 - The NEPA process follows agency procedures, including all applicable opportunities for stakeholder, tribal, state, and local government participation;
 - All potentially interested parties are provided opportunities to participate in scoping and the environmental review process as required by agency procedures;
 - Opportunities for full involvement of minority populations, low-income communities, and tribes are promoted and provided by the agencies.

g. Agency Responsibilities:

- BLM, FS, and DOE will each identify an official responsible for implementation of this settlement agreement.
- The DOE shall provide technical review, advice, and assistance regarding:
 - The need for proposed energy transport facilities;
 - The practical functionality of section 368 corridors;

- The impact on reliability and electric system operation for facilities located outside section 368 corridors; and
- Other technical factors relevant to siting energy transport facilities.
- The BLM and the FS will make recommendations for revisions, deletions, and additions to section 368 corridors and ensure that these recommendations are considered, consistent with applicable law, regulations, agency policy and guidance, and this Agreement.

h. Working Group Duration: The interagency workgroup will convene upon signing the MOU and remain in effect until any of its participating agencies determines that the workgroup no longer serves a purpose, but no less than two years following the signing of the MOU. The workgroup shall provide a brief annual report to each agency's MOU signatory, assessing the effectiveness of the workgroup, progress on the settlement agreement commitments, and the current utility of the group. The report will be made available to the public along with a summary of any revisions, deletions, or additions to the section 368 corridors completed at that time.

2. Agency Guidance: The BLM and the FS agree to issue internal guidance to managers and staff regarding use and development of the section 368 corridors. As part of this guidance, the agencies will provide direction on using corridors of concern and will identify known conflicts within these corridors. The BLM and the FS will also issue direction, consistent with applicable NEPA regulations, on how to use the Final Programmatic Environmental Impact Statement ("FPEIS"), *Designation of Energy Corridors on Federal Land in the 11 Western States (DOE/EIS-0386)*, when preparing site-specific NEPA documents.

The BLM and the FS shall develop coordinated guidance for agency managers regarding use of section 368 corridors, and the guidance shall include the following elements:

- a. Corridor Use:** BLM and FS managers will: encourage project proponents to locate projects within designated corridors or adjacent to existing rights-of-

way; notify project proponents of any section 368 corridor segments that are corridors of concern; and consider alternative locations if a proposed project would be located within a section 368 corridor of concern segment. The agencies recognize that siting projects within corridors will require site-specific environmental analysis, as well as review of land use plans, as required by applicable law, regulations, and agency policy and guidance.

b. Corridors of Concern: BLM and FS managers will be notified of those corridors of concern set forth by the plaintiffs at Exhibit A and the concerns identified there. Managers and the public will be notified that siting projects within these corridors will likely lead to heightened public interest and concern and may:

- Be challenged;
- Involve significant environmental impacts;
- Involve substantially increased or extensive mitigation measures such as off-site mitigation to compensate for impacts to sensitive resources;
- Include preparation of an environmental impact statement;
- Include consideration of alternatives outside the corridor and consideration of an alternative that denies the requested use; and
- Include amendment of the applicable land use plan to modify or delete the corridor of concern and designate an alternative corridor.

c. Use of the FPEIS:

- BLM and FS will be reminded that site-specific projects in a section 368 corridor will require individual NEPA analysis. The scope of that NEPA review will include analysis of whether the use of that corridor identified in the FPEIS is appropriate in the context of the site-specific project and/or whether additional analysis should be undertaken to modify or delete the corridor and designate an alternative corridor.

- BLM and FS will encourage “incorporation by reference” of data and studies in the FPEIS and other relevant documents, as appropriate for individual projects and consistent with NEPA regulations, in order to reduce bulky and redundant studies.
- BLM and FS managers will be directed that tiering to the FPEIS is not a substitute for site-specific analyses of any project proposed within a section 368 corridor and that environmental reviews of projects within section 368 corridors are subject to this settlement agreement and the NEPA regulations at 40 C.F.R. § 1502.20 and 40 C.F.R. § 1508.28.

d. Implementation of IOPs: Guidance will include:

- Procedures for periodic review and update of IOPs, based on the principles of adaptive management and including stakeholder engagement;
- Use of IOPs outside designated corridors on Federal lands; and
- Adoption of IOPs considered and approved by the agencies, particularly with reference to wilderness characteristics, wildlife, and special areas.

e. Corridor Changes: Guidance will remind managers that revisions, deletions, and additions to section 368 corridors must (at a minimum) meet the requirements specified for these corridors in section 368 of the EPAct and must consider the siting principles identified in section 1.c. above.

3. Training: The BLM and the FS agree to incorporate environmental concerns into agency training regarding the processing of applications for pipeline and electricity transmission ROWs, and to invite participation from representatives of environmental groups, tribes, and industry in such courses. The BLM and the FS agree to review existing training materials and incorporate an increased emphasis on environmental considerations when siting and permitting pipelines and transmission lines. Specifically these courses are the BLM’s Electric Systems Short Course offered once annually at the BLM National Training Center in Phoenix, Arizona; the BLM’s Pipelines Systems Course offered once annually in Durango, Colorado; and the

National Lands Training for Line Officer and Program Managers, which is jointly offered by the BLM and FS once annually in various locations.

4. Corridor Study: The BLM and the FS agree to study section 368 corridors in order to assess their overall usefulness with regard to various factors, including their effectiveness in reducing the proliferation of dispersed ROWs crossing the landscape of federal lands.

The agencies will study the section 368 corridors to assess their efficient and effective use and record practical lessons learned. The interagency workgroup will develop a corridor monitoring plan to support this study. The study is anticipated to involve an identification of the types and numbers of projects within the corridors, as well as the widths and lengths of existing ROWs within the corridors. The study would also identify where corridors are being over- or underutilized and would evaluate use of the IOPs in order to recommend potential new or modified IOPs. The study will inform the periodic review of section 368 corridors and IOPs (above at 1.b.) and be made public upon completion.

5. IM 2010-169: BLM agrees to delete a section, entitled “Environmental Review and Energy Corridors,” from Instruction Memorandum No. 2010-169, dated July 28, 2010, upon issuance of a new BLM instruction memorandum setting forth guidance for the siting and construction of electric transmission infrastructure in section 368 corridors. BLM Instruction Memorandum No. 2010-169, dated July 28, 2010, is entitled “Implementation Guidance for the Interagency Transmission Memorandum of Understanding.” The memorandum of understanding referred to was entered into by nine federal agencies in October 2009 to expedite the siting and construction of qualified electric transmission infrastructure in the United States. IM 2010-169 contains a three-paragraph section entitled “Environmental Review and Energy Corridors,” which addresses section 368 corridors and directs BLM managers to tier to the environmental analysis in the FPEIS to the extent the FPEIS addresses anticipated issues and concerns associated with individual qualifying projects.

B. Time Line for Implementation of Agreement

The agencies agree to make every effort to meet the timelines identified below. Should the agencies be unable to meet these internal timelines for any reason, the BLM Assistant Director for Minerals and Realty Management will notify the plaintiffs and explain the circumstances causing the delay.

- Upon the Effective Date (see Section III.I) of the settlement agreement, the provisions of section II.A.2.c. shall apply.
- Upon the Effective Date of the settlement agreement, the agencies will complete a MOU within twelve months. Progress on completion of the MOU will be reported quarterly to the plaintiffs. The final MOU will be made available to the public. Upon signing the MOU, the agencies will commence a periodic review of section 368 corridors, with recommendations due twelve months thereafter.
- Upon the Effective Date of the settlement agreement, the BLM and the FS will initiate a review of current guidance. New guidance will be developed concurrently with the MOU and will be completed within twelve months. Progress on completion of guidance will be reported quarterly to the plaintiffs. New guidance will be made available to the public.
- Upon the Effective Date of the settlement agreement, the BLM and the FS will initiate a review of current training materials, instructors, and outreach efforts. Within three months the BLM and the FS will identify representatives to be invited to participate in future training. Within twelve months training courses will be revised. Progress on completion of training revisions will be reported quarterly to the plaintiffs.
- Upon the Effective Date of the settlement agreement, the agencies will initiate development of a plan to study use of the section 368 corridors. The agencies will complete the work plan within twelve months of the Effective Date of the settlement agreement. The study will be completed within twelve months of completion of the work plan. The workgroup will report progress on the study quarterly to the plaintiffs.

III. EFFECT OF SETTLEMENT

A. Subject to Defendants' compliance with the terms of Paragraphs II.A. and II.B. of this Agreement, Plaintiffs release all claims in *The Wilderness Society, et al. v. United States Department of the Interior, et al.*, No. 3:09-cv-03048-JW (N.D. Cal.).

B. Subject to the provisions of paragraph F below, upon signing the settlement agreement, plaintiffs will stipulate to the dismissal with prejudice of their amended complaint in *The Wilderness Society, et al. v. Department of the Interior, et al.*, No. 03:09-cv-03048 JW (N.D. Cal.). However, the Court shall retain jurisdiction over this action for the limited purpose of resolving settlement implementation disputes pursuant to the provisions of Paragraph F, below, until each of the following events has occurred: (1) 24 months have elapsed following execution of the MOU in accordance with Section II.A.1, above; and (2) the following undertakings have been completed: (a) new guidance has been developed in accordance with Section II.A.2, above; (b) training materials have been revised in accordance with Section II.A.3, above; (c) the Corridor Study has been completed in accordance with Section II.A.4, above; and (d) IM 2010-169 is revised in accordance with Section II.A.5, above.

C. The Federal Defendants, through the BLM and the FS, shall pay Plaintiffs the sum of \$30,000.00, in full settlement and satisfaction of all of Plaintiffs' claims for attorneys' fees, costs, and other expenses in the above-captioned case. Payment shall be accomplished by electronic fund transfer. Within 5 business days of the date this Settlement Agreement is filed, Plaintiffs shall submit (if not already submitted) the account information and other information necessary for the Federal Defendants to process payment. The BLM and the FS shall undertake the procedures for processing payment within 20 days after this Settlement Agreement is filed or Plaintiffs submit the required payment information, whichever is later.

1. Release: Plaintiffs will accept the sum of \$30,000.00 in full settlement and satisfaction of all of their claims for attorneys' fees, costs, and other expenses in this matter and release the Federal Defendants from any liability for attorneys' fees, costs, and other expenses incurred or claimed, or that could have been claimed, for work performed on this case, under the

Equal Access to Justice Act, 28 U.S.C. § 2412, or under any other federal or state statute or common law. Plaintiffs or their counsel shall submit confirmation of receipt of payment in the above amount to counsel for Federal Defendants, within 14 days of receipt of payment.

2. Payee: Plaintiffs represent that the proper entity to receive payment pursuant to this Settlement Agreement is Earthjustice (tax ID is 94-1730465). Payment shall be made to Earthjustice by Electronic Funds Transfer payable to:

Mechanics Bank
725 Alfred Nobel Drive
Hercules, California 94547
Bank Routing #121102036
ACCT # 040-882578

Plaintiffs and their attorneys agree that the Federal Defendants' responsibility in discharging the payment obligation provided in this Settlement Agreement consists only of making the payment to Earthjustice in the manner set forth herein.

D. Any term set forth in this Agreement (including deadlines and other terms) may be modified by written agreement of the Parties.

E. Except as expressly provided in this Agreement, neither of the Parties waives or relinquishes any legal rights, claims, or defenses it may have.

F. In the event of a disagreement among the Parties concerning the performance of any aspect of this Agreement, the dissatisfied party shall provide the other party with written notice of the dispute and a request for negotiations. The Parties shall meet and confer in order to attempt to resolve the dispute within 30 days of the date of the written notice, or such time thereafter as is mutually agreed. If the Parties are unable to resolve the dispute within 90 days after such meeting, then any Party may apply to the Court for resolution. In resolving such dispute, the Court's review shall be limited to determining: (1) whether the Federal Defendants have reasonably complied with the performance deadlines set forth in Section II.B; (2) whether the MOU required by Section II.A.1 contains the terms required by this Agreement; (3) whether the guidance issued in accordance with Section II.A.2 contains the terms required by this Agreement; (4) whether the training developed by the agencies addresses the issues identified in

Section II.A.3; (5) whether the study prepared by the agencies contains the terms set forth in Section II.A.4; and (6) whether IM 2010-169 has been revised in accordance with Section II.A.5.

The Parties agree that any challenge to a final decision concerning amendments or revisions to land use plans, as well as to final decisions concerning revisions, deletions, or additions to Section 368 corridors, must take the form of a new civil action under the judicial review procedures of the Administrative Procedure Act, 5 U.S.C. §§ 701–706. The parties will not seek the remedy of contempt for any alleged violation of the settlement agreement.

G. Any notices required or provided for under this Agreement shall be in writing, shall be effective upon receipt, and shall be sent to the following:

For Plaintiffs:

BARK
Alex Brown, Executive Director
PO Box 12065
Portland, OR 97212
205 SE Grand, Suite 207
Portland, OR 97214
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H. Upon written notice to the other party, either party may designate a successor contact person for any matter relating to this Agreement.

I. The undersigned representatives of each party certify that they are fully authorized by the parties they represent to bind the respective Parties to the terms of this Agreement. This Agreement shall become effective upon signature on behalf of all of the Parties set forth below and upon the Court's entry of an order of dismissal in accordance with Section III.B above (the "Effective Date"). This Agreement may be executed in any number of counterpart originals, each of which shall be deemed to constitute an original agreement, and all of which shall constitute one agreement. The execution of one counterpart by any party shall have the same force and effect as if that party has signed all other counterparts.

ON BEHALF OF ALL PLAINTIFFS

DATED: July 3, 2012

/s/James S. Angell

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DATED: July 3, 2012

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ATTORNEY ATTESTATION OF CONCURRENCE

I hereby attest that I have obtained concurrence in this filing and for affixing the signature of Plaintiffs' counsel, indicated by a "conformed" signature ("/s/"), to this e-filed document, in accordance with General Order 45.X.

Dated: July 3, 2012

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Exhibit A
To
Settlement Agreement,
The Wilderness Society et al. v. United States Department of the Interior et al.,
3:09-cv-03048 JW (N.D. Ca.)

Per Section II.A.1. of the above-captioned Settlement Agreement, “corridors identified by plaintiffs as having specific environmental issues” are listed below, along with plaintiffs’ concerns over affected resources as identified by plaintiffs in the above-captioned lawsuit. Corridor numbers in boldface correspond to those set forth in Appendix A of the Programmatic Environmental Impact Statement, *Designation of Energy Corridors on Federal Land in the 11 Western States* (DOE/EIS-0386, November 2008) and in the Records of Decision issued by the Bureau of Land Management and U.S. Forest Service in January 2009.

WASHINGTON

102-105: numerous “suitable” segments under Wild & Scenic Rivers Act, borders designated Wilderness, Northwest Forest Plan critical habitat and late-successional/adaptive management reserves, crosses Pacific Crest Trail, tracks America’s Byway within 1 mile, National Register of Historic Places property.
244-245: conflicts with Northwest Forest Plan, critical habitat, tracks America’s Byway.

OREGON

7-24: 3 citizen-proposed wilderness areas, sage-grouse habitat, pygmy rabbit habitat, Steens Mountain Cooperative Management Area, and proposed Sheldon Mountain National Wildlife Refuge.
230-248: critical habitat, National Register of Historic Places property, Pacific Crest Trail, Clackamas Wild & Scenic River and other “eligible” segments under Wild & Scenic Rivers Act, conflicts with Northwest Forest Plan critical habitat and late-successional/adaptive management reserves.
24-228 (also in Idaho): sage-grouse habitat, National Register of Historic Places property.
4-247 – not close enough to QRA, old-growth forests, critical habitat, late-successional reserves, riparian reserves.

IDAHO

24-228 (also in Oregon): sage-grouse habitat, pygmy rabbit habitat.
229-254 (also in Montana - 3 segments – regular, (N) and (S)): critical habitat, National Register of Historic Places properties, “suitable” segment under Wild & Scenic Rivers Act.

WYOMING

Any in core areas are prohibited for transmission use by BLM guidance.
78-255: sage-grouse core area and habitat.
79-216: sage-grouse core area and habitat, National Register of Historic Places properties, National Historic Trail.
121-221: sage-grouse core area and habitat, National Historic Trail, BLM special management area.

MONTANA

229-254 (also in Idaho - 3 segments – regular, (N) and (S)): critical habitat, National Register of Historic Places properties, “suitable” segment under Wild & Scenic Rivers Act, Continental Divide Trail, USFS Inventoried Roadless Area.

CALIFORNIA

18-23: Areas of Critical Environmental Concern, Inventoried Roadless Areas, BLM Wilderness Study Areas, CA Boxer Wilderness, CA-proposed Wilderness, NV-proposed Wilderness, sage-grouse habitat, redundant to 18-224.

23-106: National Conservation Area, Area of Critical Environmental Concern.

23-25: critical habitat, National Conservation Area, Area of Critical Environmental Concern.

264-265: critical habitat, National Conservation Area, citizen-proposed Wilderness, USFS Inventoried Roadless Area.

107-268: National Forest, citizen-proposed Wilderness.

101-263: critical habitat; WSR; CA-proposed Wilderness, citizen-proposed Wilderness, USFS Inventoried Roadless Area.

NEVADA

17-35: access to coal plant, impacts to sage-grouse habitat.

16-24: Wilderness, National Conservation Area, National Historic Place, BLM Wilderness Study Area (in Oregon).

16-104: BLM Wilderness Area.

44-110: sage-grouse habitat.

110-233: sage-grouse habitat.

110-114: sage-grouse habitat, undisturbed, USFS Inventoried Roadless Area.

223-224: Areas of Critical Environmental Concern, Desert National Wildlife Refuge.

39-113, 39-231: Pahrnagat National Wildlife Refuge, Rainbow Gardens ACEC, near proposed Gold Butte National Conservation Area, Black Mountain tortoise habitat.

UTAH

110-114: much undisturbed, National Historic Place, BLM Wilderness Study Area, UT-proposed Wilderness.

66-259: access to coal plant, impacts to USFS Inventoried Roadless Area.

66-212: access to coal plant, impacts to National Historic Places, America’s Byways, Old Spanish Trail, BLM Wilderness Study Area, UT-proposed Wilderness, critical habitat, adjacent to Arches National Park.

116-206: undisturbed, monument, Old Spanish Trail, UT-proposed Wilderness, near USFS Inventoried Roadless Area.

68-116, Grand Staircase National Monument, Paria River.

126-258: access to coal plant.

COLORADO

130-274 and 130-274(E): access coal, directly or indirectly impacts Gunnison sage-grouse conservation areas, occupied Gunnison sage-grouse habitat, CO-proposed Wilderness, USFS IRA.

87-277: coal, Wilderness, sage-grouse habitat; National Historic Places.

144-275: coal, wilderness, National Historic Places.

ARIZONA

68-116: access to coal, impacts to Grand Staircase-Escalante National Monument, Wild & Scenic Rivers, scenic byway.

62-211: access to coal, impacts to citizen-proposed and designated Wilderness, National Historic Place, Wild & Scenic Rivers, Mexican spotted owl critical habitat.

47-231: desert tortoise and bonytail critical habitat, Area of Critical Environmental Concern, Lake Mead National Recreation Area.

41-47: impacts to Black Mountain population for desert tortoise.

41-46: impacts to Black Mountain population for desert tortoises.

46-270: Wild & Scenic river, Southwestern willow flycatcher critical habitat.

46-269: proposed and designated Wilderness areas, Wild and Scenic Rivers, Three Rivers Area of Critical Environmental Concern.

NEW MEXICO

81-272: Sevilleta National Wildlife Refuge, National Conservation Areas.