APPENDIX J:

SUMMARY OF PUBLIC SCOPING COMMENTS FOR THE PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT AND POSSIBLE LAND USE PLAN AMENDMENTS FOR ALLOCATION OF OIL SHALE AND TAR SANDS RESOURCES ON LANDS ADMINISTERED BY THE BUREAU OF LAND MANAGEMENT IN COLORADO, UTAH, AND WYOMING

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The following is a list of the acronyms and abbreviations, including units of measure, used in this report.

GENERAL ACRONYMS AND ABBREVIATIONS

ACEC	Area of Critical Environmental Concern
AQRV	air-quality-related value
BLM	Bureau of Land Management
BOR	Bureau of Reclamation
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	*Code of Federal Regulations*
CO	Colorado
CO_2	carbon dioxide
CPW	Citizen Proposed Wilderness
CWA	Clean Water Act
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act of 1973
FLPMA	Federal Land Policy and Management Act
GAO	Government Accountability Office
GHG	greenhouse gas
HIA	Health Impact Assessment
ICP	in-situ conversion process
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969
NHPA	National Historic Preservation Act
NLCS	National Landscape Conservation System
NOI	Notice of Intent
NPS	National Park Service
NSO	no surface occupancy
NSS	Native Species Status
NWR	National Wildlife Refuge
ONA	Outstanding Natural Area
OSTS	oil shale and tar sands

PEIS	programmatic environmental impact statement
PSD	Prevention of Significant Deterioration
R&D	research and development
RD&D	research, development, and demonstration
RFDS	reasonably foreseeable development scenario
RMP	Resource Management Plan
RNA	Research Natural Area
ROD	Record of Decision
ROI	return on investment
SGCN	Species of Greatest Conservation Need
SMA	Special Management Area
STSA	Special Tar Sand Area
SWA	State Wildlife Area
UNCCC	United Nations Framework Convention on Climate Change
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WA	Wilderness Area
WSA	Wilderness Study Area

UNITS OF MEASURE

ft	foot (feet)
gal	gallon(s)
mi	mile(s)

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J.1 INTRODUCTION

In 2008, the U.S. Department of the Interior, Bureau of Land Management (BLM), amended eight Resource Management Plans (RMPs) in Colorado, Utah, and Wyoming to make public lands available for the potential leasing and development of oil shale resources and also two land use plans to expand the acreage available for potential tar sands leasing in Utah, where these resources are located. Figures J-1 and J-2 show the locations of oil shale and tar sands resources. The amendments, supported by the preparation of a programmatic environmental impact statement (PEIS) required under Section 369(d)(1) of the Energy Policy Act of 2005, Public Law 109-58 (H.R. 6), made approximately 2 million acres available for potential leasing and development of oil shale and approximately 431,000 acres available for potential tar sands leasing and development. The *Proposed Oil Shale and Tar Sands Resources Management Plan Amendments to Address Land Use Allocations in Colorado, Utah, and Wyoming and Final Programmatic Environmental Impact Statement* (BLM 2008a) and resulting Record of Decision (ROD) (BLM 2008b) provide detailed maps and more specific information about the geographic area studied in 2008.

In April 2011, the BLM initiated new efforts to prepare a PEIS that will reexamine the allocation of land best suited for oil shale and tar sands leasing and development. These new efforts, which may lead the BLM to consider amending the 10 RMPs previously amended, will take into consideration the nascent character of technology for developing oil shale and tar sands resources and new information made available since the 2008 ROD, including, but not limited to, the U.S. Geological Survey (USGS) reassessment (USGS 2010a,b, 2011) of oil shale resource estimates and the U.S. Fish and Wildlife Service's (USFWS's) announcement that the greater sage-grouse, *Centrocercus urophasianus*, was warranted for listing as a threatened or endangered species under the Endangered Species Act of 1973 (ESA), although the listing was precluded by higher-priority listing actions. The new PEIS will analyze and document the environmental, social-cultural, and economic considerations associated with alternative approaches for allocation of oil shale and tar sands resources, in order to consider whether it is appropriate for approximately 2,000,000 acres of public lands to remain available for potential leasing and development of oil shale and approximately 431,000 acres of public lands to remain available for potential leasing and development of tar sands resources.

A Notice of Intent (NOI) to prepare a PEIS and possible land use plan amendments for allocation of oil shale and tar sands resources on lands administered by the BLM in Colorado, Utah, and Wyoming was published in the *Federal Register* on April 14, 2011 (BLM 2011). The NOI articulated a preliminary purpose and need for the proposed action of amending land use

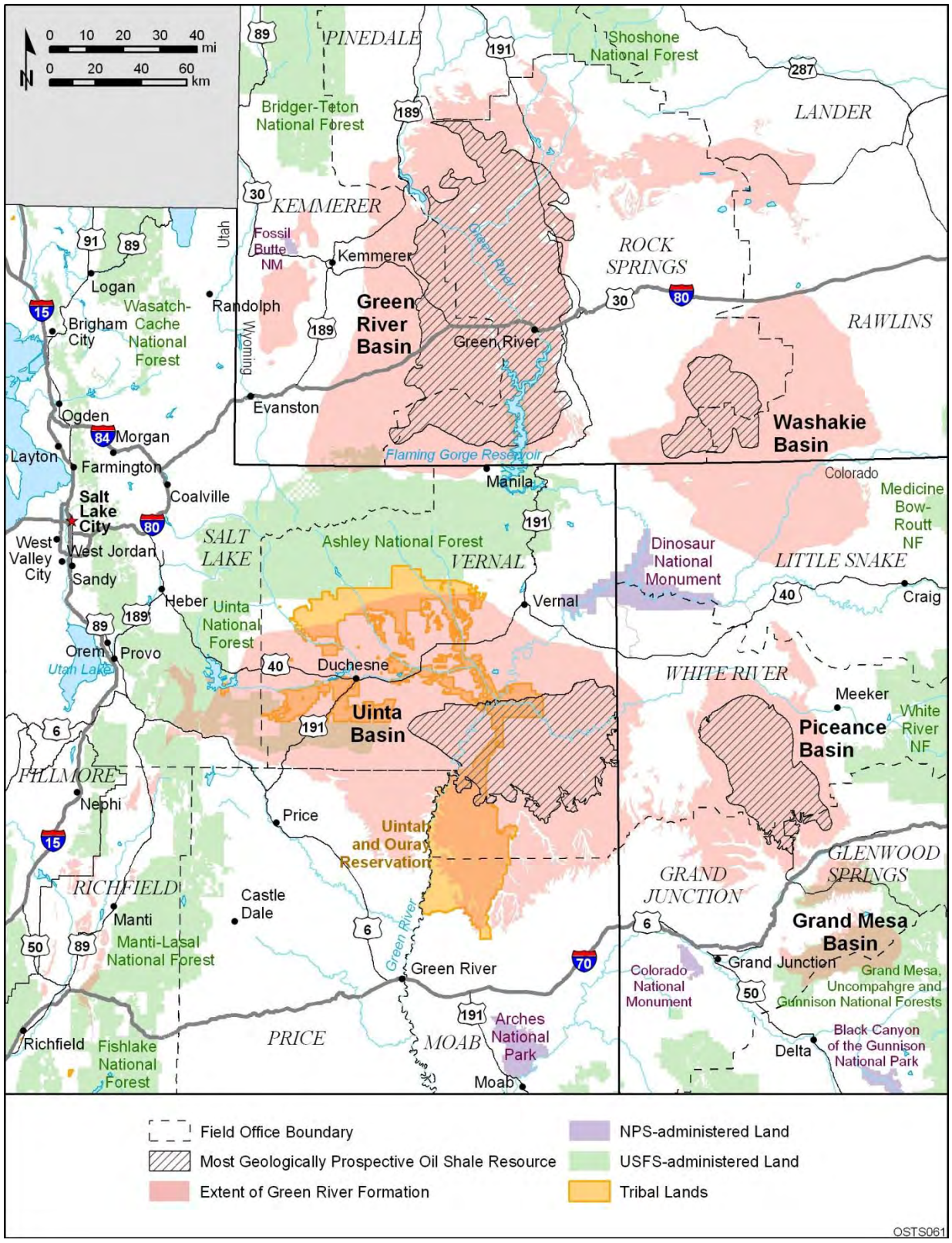

FIGURE J-1 Most Geologically Prospective Oil Shale Resources within the Green River Formation Basins in Colorado, Utah, and Wyoming (Source: BLM 2008a)

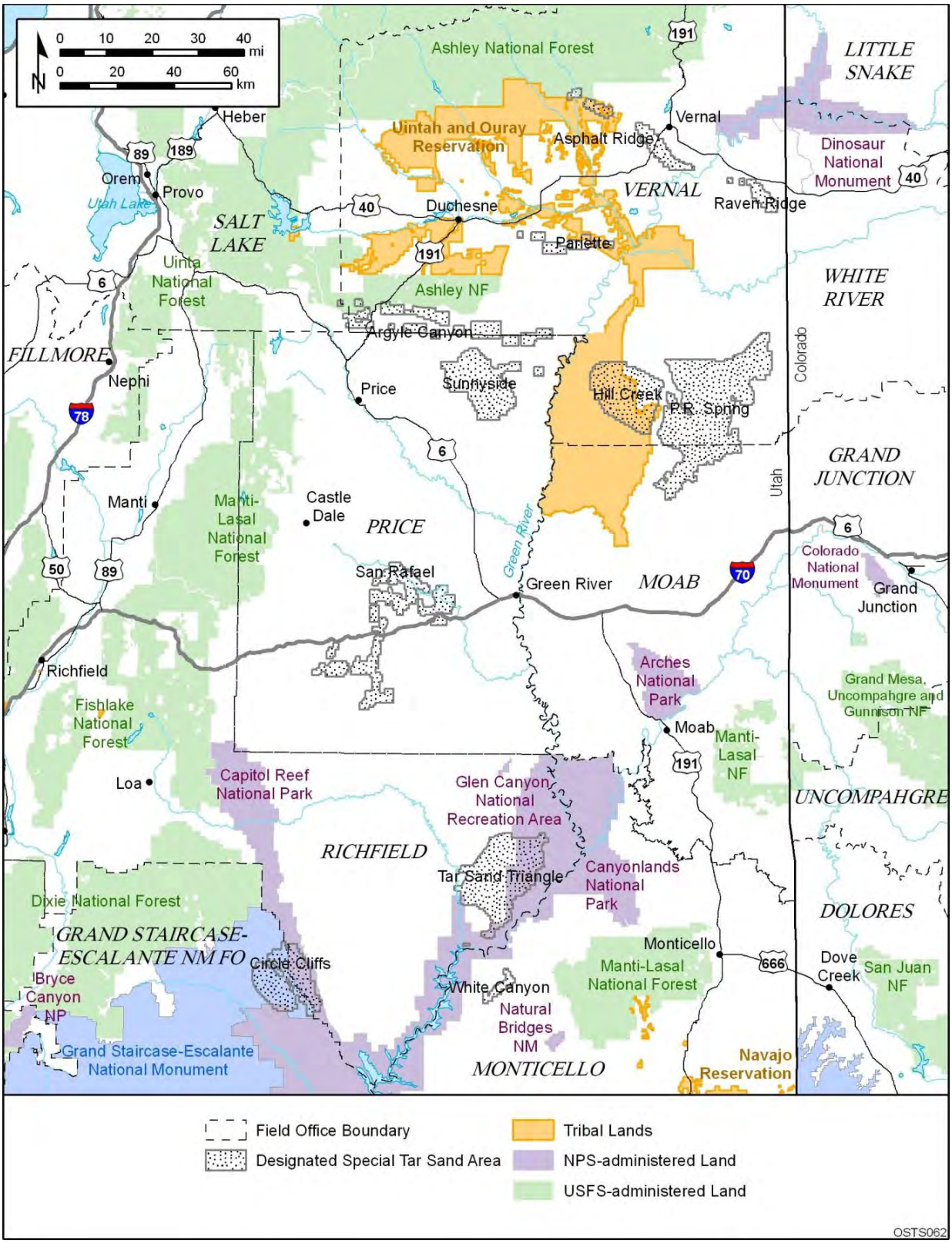

FIGURE J-2 Special Tar Sand Areas in Utah (Source: BLM 2008a)

plans, identified planning criteria, initiated the public scoping process, and invited interested members of the public to provide comments on the scope and objectives of the PEIS, including identification of issues and alternatives that should be considered in the PEIS analyses. The NOI also sought information about historic and cultural resources within the areas potentially affected by the proposed land use plan amendments to assist in analyzing the potential impacts of the planning decisionmaking under consideration in the context of both the National Environmental Policy Act of 1969 (NEPA) and Section 106 of the National Historic Preservation Act (NHPA).

The BLM conducted 14 public scoping meetings for the PEIS within the three-state region covered by the PEIS from April 26, 2011, through May 5, 2011.

This report presents a summary of the issues raised during the scoping process and discusses which issues will be addressed in the PEIS. The report also includes summary statistics on participants in the process. Specific comments and their context are not presented; instead, the relevant issues raised in the comments as they apply to preparation of the PEIS are presented. All comments, regardless of how they were submitted, will receive equal consideration in the development and conduct of the PEIS. This report is available on the oil shale and tar sands (OSTS) PEIS Web site (http://ostseis.anl.gov).

J.2 SCOPING PROCESS

J.2.1 Approach

The public was provided with three methods for submitting scoping comments or suggestions on potential resource issues that should be discussed in the OSTS PEIS and used to inform consultation activities:

- Via a public Web site,
- By mail, and
- In person at public scoping meetings.

Public scoping meetings were held at seven locations in April and May of 2011: Salt Lake City, Utah (April 26); Price, Utah (April 27); Vernal, Utah (April 28); Rock Springs, Wyoming (April 29); Rifle, Colorado (May 3); Denver, Colorado (May 4); and Cheyenne, Wyoming (May 5). Meetings were held at 1:00 p.m. and 7:00 p.m. at each location, and a court reporter recorded a transcript for each meeting. At each meeting, the BLM presented background information about the OSTS PEIS and related activities. Presentation materials from these meetings, including slides, are available on the project Web site (http://ostseis.anl.gov).

J.2.2 Scoping Statistics

Approximately 4,663 individuals, organizations, and governmental agencies provided comments or suggestions on the scope of the PEIS. Three of these comments were part of major campaigns, each campaign involving an e-mail attachment containing essentially the same letter for each individual submittal. In total, these campaigns represented an additional 23,860 commentors. Approximately 3,061 comment letters were submitted online; 133 were submitted orally and/or in writing at scoping meetings; and 37 comment letters were submitted by mail. Comments were received from 5 state agency divisions (1 from Utah, 2 from Colorado, and 2 from Wyoming), 4 federal agency offices (1 from the National Park Service [NPS], 1 from the USFWS, 1 from the U.S. Environmental Protection Agency [EPA], and 1 from the U.S. Congressional Task Force on Unconventional Fuels), 14 local government organizations (Colorado: Garfield, Mesa, Pitkin, and Rio Blanco Counties; City of Rifle; Towns of New Castle, Rangely, and Silt; Utah: Carbon and Uintah Counties; Wyoming: Board of Lincoln County Commissioners; Coalition of Local Governments; Rock Springs City Council; and Sweetwater County Board of Commissioners), and more than 80 other organizations (including environmental groups, interest groups, consulting firms, and industry).

More than 392 people registered their attendance at the public meetings in April and May 2011; 133 individuals in attendance provided oral or written comments, or both, during the meetings. Of the remaining scoping comments that were submitted, about 0.1% were submitted by mail and 99% were submitted online.

Comments received by mail originated from five states and the District of Columbia. Approximately 4% of the comments originated from states outside the three-state study area. The comments that originated within the study area were distributed as follows: 81 comments from Colorado, 80 comments from Utah, and 14 comments from Wyoming.

J.3 SUMMARY OF SCOPING COMMENTS

Comments received during public scoping covered a wide range of topics and issues and represented a variety of points of view. Comments addressed various aspects of the proposed action, from environmental and socioeconomic impacts, to technologies, to mitigation and reclamation, to land use conflicts, planning, and leasing. Many of the comments did not directly address the scope of the PEIS to be prepared but fell into general categories that will influence the scope of issues covered in the PEIS.

Issues discussed in comments received during the public scoping period for the OSTS PEIS are divided into three major categories in the preparation of the PEIS: (1) issues within the scope of the PEIS; (2) issues outside the scope of the PEIS, but which may present related policy considerations; and (3) issues considered to be outside the scope of the PEIS as defined in the April 14, 2011, NOI (BLM 2011). A disposition of these issues is presented below. The scope of the Draft PEIS is accordingly shaped by this disposition of issues.

Issues within the scope of the PEIS include questions and concerns regarding the environmental and socioeconomic impacts of oil shale and tar sands development; resource assessments; sources and impacts of power production required for development; technologies to be used; stakeholder participation in the NEPA process; cumulative impacts; mitigation and reclamation; leasing; multiple use conflicts; consistency of the PEIS with state and local plans; land use planning; access to public lands for additional research and development (R&D) outside the ongoing oil shale research, development, and demonstration (RD&D) program; and development of alternatives to be analyzed.

Issues that are outside the scope of the PEIS but that may present related policy considerations include those related to reasons for revisiting the PEIS; deferment of decisions until RD&D results are available; oil shale regulations and national policy; deferment of analysis on environmental consequences to project-level NEPA evaluations; bonding requirements for leasing companies to ensure availability of funds for future reclamation; and determining commercial royalty rates; and establishment of federal subsidies, incentives, or taxes.

Issues that fall outside the scope of the PEIS are those issues that are not pertinent to the purpose and need for the proposed land use planning decision as described in the April 14, 2011, NOI. These include issues relating to evaluations and support of other energy sources (e.g., renewable energy resources, clean technologies, biofuels, geothermal, nuclear power, and conventional oil and gas resources); energy conservation measures; price of fossil fuels; sale of resulting oil on the international market; support for development on private lands; development and use of all fossil fuels and climate change; foreign oil as a national security issue; political motivation behind governmental policy; political unrest and instability in oil-producing countries; denial/approval of mining permits; and oil shale and tar sands development impacts on oil and gas prices.

A summary of issues raised in comments is presented in the following sections under the following main topics: environmental issues, socioeconomics, resource and technology concerns, stakeholder involvement, cumulative impacts, mitigation and reclamation, land use planning and leasing, policy, alternatives, and other issues. All of the scoping comments, both oral and written, are represented in Sections J.3.1 through J.3.10, although individual comments are not identified explicitly.

J.3.1 Environmental Issues

J.3.1.1 Issues within the Scope of the PEIS

The following text describes the main environmental concerns identified by commentors that are within the scope of the PEIS analyses. Several comments expressed concerns over the amount of significant disturbance to the surface and subsurface environment possibly resulting from the development of oil shale and tar sands resources. Specifically mentioned were permanent changes to water quantity and quality, air quality, topography, natural landscapes, wildlife habitat and populations, aquatic habitats, vegetation and habitat dynamics, cultural and

historical resources, human health, and climate, many of which have been observed as a result of a similar type of energy development elsewhere (e.g., Canada). The following sections summarize the specific comments related to the various environmental resource areas.

Water Quantity and Quality. Many commentors recommended that perennial waters, headwaters, and aquifers should be conserved and receive protection from oil shale and tar sands development. Concerns were expressed over the potential declines in overall water quality within the study area, specifically noting sources of drinking water, areas with cold water fish resources, Wilderness Areas (WAs), and locations of intensive recreational use. It was suggested that the PEIS assess the impacts on the health and livelihood of those downstream, including effects on fisheries, wildlife, riparian zones, and wetland areas. It was also suggested that there be a buffer beneath and on either side of all perennial water courses in which no development can occur to safeguard these water ways, ensure the safety of wildlife, and protect underlying geologic groundwater formations.

In addition, a few commentors stated the importance of addressing and evaluating the beneficial and deleterious impacts of water transfers, such as shifting from current agricultural uses to industrial uses (i.e., activities related to oil shale and tar sands), since they can lead to dislocations and environmental alterations (e.g., soil erosion or sediment loading) in the affected regions.

Concerns were raised regarding regional and state water demand and use for the development and production of oil shale and tar sands resources, along with related impacts on availability, existing water uses, reliability of supply, and consequences for users in the affected region. Specifically, commentors observed that the processes would consume large amounts of water in a region where water resources are very limited. Many commentors questioned where the water would be obtained from, who would lose water in order to provide needed water to oil shale and tar sands development, and what the resulting effects would be (e.g., ranchers' water rights and their ability to sustain crops and livestock). They also noted that the holding of water rights by oil shale and tar sands developers introduces enormous uncertainty on the system and regional water planning. Some commentors noted that less water than most estimates predicted will be needed for oil shale and tar sands development based on technologies currently being pursued and the fact that existing groundwater resources contained within the oil shale strata may be sufficient to produce nearly all of the oil shale in the basin without directly drawing from the Colorado River. In addition, some technologies do not use tailing ponds (e.g., bitumen extraction from oil sands), and 95% of the water used in the process can be recycled. It was also suggested that the BLM take into account the potential changes in water demand from other social, commercial, and economic developments in the region, as well as the impacts of climate change. In addition, it was mentioned that the PEIS must consider and evaluate water use and related activities from oil shale and tar sands development in the context of existing agreements (e.g., protection of endangered species), prior obligations (e.g., 1922 Colorado River Compact), and potential future commitments (e.g., Lower Colorado River Protection Act, Grand Canyon Watersheds Protection Act).

Commentors stated that the impact of water derived from the development and production of oil shale and tar sands resources must also be addressed in the PEIS. It was suggested that the PEIS assess the entire water use cycle and consider what will ultimately happen to the water (e.g., potential reuse options). Other topics identified include descriptions and assessments of the facilities, technologies, and processes associated with the exploitation of oil shale and tar sands resources, leachate and surface runoff, wastewater treatment techniques, wastewater quantity and quality, discharge methods, potential for pipeline corrosion and leaks, and prevention and mitigation measures. Specifically noted were concerns about the creation of acid drainage, increased loadings of current pollutants (e.g., thiocyanates, tetrathionates, fluoride, cyanide, arsenic selenium, and other heavy metals), leaching of spent shale, introduction of new contaminants, alteration of flow patterns, changes in temperature, and increased salinity in regional surface water and groundwater resources. Assessment of the impacts of these issues on fisheries, riparian zones, and wetland areas was requested. It was also recommended that the PEIS include available and updated information since 2008, including information from development activities at RD&D lease sites on expected contaminants and from a reference study (Bartis 2005) that found the burden of spent shale had significantly higher salt levels than raw shale and may yield other toxic substances.

Commentors stated that the PEIS should specifically analyze the impacts of ground-disturbing activities, such as extraction mining and in situ processing. Concerns were expressed related to the alteration of geological formations, aquifer hydraulic characteristics, groundwater flow patterns, subsurface water quality and contamination, and impacts on recharge of deep-water aquifers. Specifically, hydraulic fracturing practices in the development of shale oil and gas reserves were identified as causing contamination to drinking water supplies, which is currently being studied by the EPA. Commentors stated, whether true or not, that because oil shale and tar sands development involves such practices, the BLM has an obligation to review and analyze new and relevant data for inclusion in the environmental analysis. In addition, one commentor noted that the subsurface rock that remained after the oil shale was depleted would become a new aquifer and questioned how it would be cleaned to prevent leftover contaminants from leaching out into the ground water.

Finally, a few commentors made note of the U.S. Government Accountability Office (GAO) Water Report (GAO 2010), which reported on water usage and risks associated with the ultimate development of this resource. In general, commentors agreed with the importance of the research and the need to establish baseline conditions for water resources in oil shale regions, to model groundwater movement, and to coordinate with U.S. Department of Energy (DOE) and state agencies involved in water regulation. However, one commentor asserted that the report was not objective in terms of examination of water usage from oil shale technologies and costs, and that it offered improbable, theoretical operational scenarios for water demand. The commentor added that responsible, low-impact, and sustainable water usage is both technically and economically feasible for the industry, and thus suggested that the BLM perform its own objective examination of available technologies and costs.

Waste Generation and Disposal. Concerns were voiced that the mining, extraction, and processing of oil shale and tar sands resources will create toxic waste materials, including: heavy

metals (e.g., mercury, lead, and arsenic); naphthenic acids; polycyclic aromatic hydrocarbons (e.g., pyrene and naphthalene), and volatile organic compounds (e.g., terpenes). These materials have the potential to leach into the environment, migrate from the oil shale and tar sands facilities, produce dust and contaminate nearby water resources and ecosystems (see the Water Quantity and Quality discussion above). The importance of measuring ore product and waste stream mass flows was noted.

Air Quality, Noise, and Visual Impacts. Comments were received regarding concern over the unknown, yet potentially significant and far-reaching, impacts on local and regional air quality associated with oil shale and tar sands exploration, development, and associated activities (e.g., power generation, construction, and transportation). Potential impacts identified by commentors covered all stages of development (i.e., mining and processing through transportation of product) and included deterioration of overall air quality; higher levels of pollutants from emissions (e.g., ozone, sulfur dioxide, particulate matter, fugitive dust, volatile organic compounds, hazardous air pollutants, carbon dioxide [CO2], and other greenhouse gases); deleterious effect on humans, wildlife, and the environment; increased nitrogen deposition; impaired regional visibility; and impact of dust on mountain snow causing early snowpack melt and decreased tourism. Issues explicitly mentioned for ozone were wintertime conditions and projected oil shale and tar sands–related sources of ozone precursors and other emissions. Another commentor suggested utilizing data requirements, resource needs, constraints, and known impacts from technologies being utilized as part of existing applications and RD&D efforts (e.g., Shell's oil shale research facility and American Shale Oil's downhole burning process).

In general, commentors also asserted that both regional and local air quality concerns were not adequately addressed in the 2008 OSTS PEIS. Baseline air quality monitoring and on-site meteorological data collection in the planning areas were requested for all criteria pollutants.

With respect to air quality mitigation and in light of current technological uncertainties related to oil shale and tar sands development and operations, it was recommended that the BLM discuss potential control technologies, abatement measures, best management practices, and other design considerations that may minimize air pollutant emissions.

For noise impacts, commentors requested that background noise levels be established and recommended the use of audibility-based metrics for noise-sensitive areas rather than threshold standards for community annoyance. A widely voiced concern was that oil shale and tar sands development would degrade the visual landscape and topography of beautiful country.

In addition to the air quality effects on visibility, many commentors stated opposition to adverse impacts on the beauty and integrity of the visual landscape from oil shale and tar sands development processes. Commentors specifically noted that oil shale and tar sands development should not allow surface disturbance on areas eligible for Wild and Scenic designation or lands in Visual Resource Management Class I, II, or III.

Ecology and Wildlife. Many comments stated that oil shale and tar sands development will have significant impacts on wildlife and wildlife habitat and emphasized the need to protect not only threatened and endangered species, but special status species and priority habitat areas as well. Coordination with USFWS agencies and related foundations on all wildlife matters and conservation measures was recommended. Commentors also requested that the PEIS not defer biological diversity preservation to the project level.

In addition to identification of species, requests were made for baseline data on populations, ecological research plans to evaluate the impacts of development on those populations, and measures to avoid, protect, and/or mitigate their habitat areas. It was noted that seasonal restrictions for wildlife are ineffective mitigation measures because surface disturbance is anticipated to be 100%. One commentor specifically suggested pursuing underground mining, as opposed to open-pit, which would have less effect on surface habitats. Commentors also requested evaluation of the potential effect of oil shale and tar sands development on riparian areas, endemic wildflowers, and meadow grasses.

Commentors supported the inclusion of updated information and consideration for removal of additional areas, such as lands containing sage-grouse (*Centrocercus urophasianus*) habitats and/or wilderness characteristics, within potential oil shale and tar sands development areas. However, because of the size of potential development areas, commentors expressed additional concerns related to ecology and wildlife, summarized as follows.

Commentors asserted that fragmentation, destruction, and removal of sagebrush habitats would negatively impact sagebrush dependent and sensitive species within these areas, including sage-grouse, sage thrasher (*Oreoscoptes montanus*), sage sparrow (*Amphispiza belli*), and brewer's sparrow (*Spizella breweri*). Consideration of sage-grouse habitat was specifically emphasized by many commentors because seasonal habitats exist throughout the area identified for potential leasing. Noted was the opinion that any type of development would have the potential to impact sage-grouse habitat by further fragmenting the remaining population, leaving it vulnerable to extinction and increasing its potential for listing and federal protection under the ESA. As a result, it was requested that the PEIS thoroughly analyze habitat loss, destruction, and fragmentation; evaluate the consequences of development; adequately disclose all impacts of industrial activities, and identify measures to minimize potential effects. In addition, commentors recommended that the PEIS and RMP amendments include a no surface occupancy (NSO) and no surface disturbance/vegetation treatment buffer, suggesting a 3-mi minimum (preferably 5 mi) for sage-grouse leks, nesting habitats that surrounds the leks, winter habitat, and other vital sage-grouse habitats. In addition, it was suggested that human activity during the production phase be limited near leks during breeding season. Conversely, some other commentors believed that the new information related to sage-grouse should not change the status quo.

Commentors reported that the proposed development area contains all or a significant portion of the distribution of six mammalian Species of Greatest Conservation Need (SGCN) in Wyoming: canyon mouse (*Peromyscus crinitus*), cliff chipmunk (*Tamias dorsalis*), Great Basin pocket mouse (*Perognathus parvus*), piñon mouse (*Peromyscus truei*), pygmy rabbit (*Brachylagus idahoensis*; petitioned for listing under the ESA in 2003), and Wyoming pocket gopher (*Thomomys clusius*; petitioned for listing under the ESA in 2007) (USFWS 2006). An

additional 14 SGCN were also noted to have distributions overlapped by the project area, including Uinta chipmunk (*Eutamius umbrinus*), Idaho pocket gopher (*Thomomys idahoensis*), olive-backed (or Wyoming) pocket mouse (*Perognathus fasciatus*), pallid bat (*Antrozous pallidus*), spotted bat (*Euderma maculatum*), water vole (*Arvicola amphibious*), little brown myotis (*Myotis lucifugus*), long-eared myotis (*Myotis evotis*), western small-footed myotis (*Myotis ciliolabrum*), long-legged myotis (*Myotis volans*), northern flying squirrel (*Glaucomys sabrinus*), northern river otter (*Lontra canadensis*), vagrant shrew (*Sorex vagrans*), and Preble's shrew (*Sorex Preblei*). The majority of these species are limited by available habitat and dispersal ability; therefore, commentors recommended that the BLM work cooperatively with the Wyoming Game and Fish Department to delineate and maintain important habitats within the proposed project area. Other mammalian species identified as sensitive are the dwarf shrew (*Sorex nanus*), ringtail cat (*Bassariscus astutus*), big free-tailed bat (*Nyctinomops macrotis*), Townsend's big-eared bat (*Corynorhinus townsendii*), white-tailed prairie dog (*Cynomys leucurus*), and black-footed ferret (*Mustela nigripes*). Various reptile and amphibian species were also noted by commentors as being within the study area, including the Utah milk snake (*Lampropeltis triangulum taylori*) and Great Basin gopher snake (*Pituophis catenifer deserticola*).

Commentors requested evaluation of the direct, indirect, and cumulative effects on migratory birds, raptors, their habitats, and nesting sites, specifically noting the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. Migratory and other bird species specifically identified were the ferruginous hawk (*Buteo regalis*), peregrine falcon (*Falco peregrines*), golden eagle (*Aguila chrysaetos*), bald eagle (*Haliaeetus leucocephalus*), burrowing owl (*Athene cunicularia*), short-eared owl (*Asio flammeus*), Mexican spotted owl (*Strix occidentalis lucida*), willow flycatcher (*Empidonax traillii*), northern goshawk (*Accipiter gentilis*), Williamson's sapsucker (*Sphyrapicus thyroideus*), Lewis' woodpecker (*Melanerpes lewis*), grasshopper sparrow (*Ammodramus savannarum*), bobolink (*Dolichonyx oryzivorus*), long-billed curlew (*Numenius americanus*), and yellow-billed cuckoo (*Coccyzus americanus*). It was suggested that the BLM refer to the large datasets on nesting available from each BLM field office within the area under consideration. Commentors also stated that current BLM nest buffers for oil and gas, which are 0.25 mi for NSO and 2 mi for seasonal stipulations, are inadequate, and they recommended 3-mi buffers.

Commentors highlighted the fragmentation of crucial habitat for large mammal and big game species that is occurring as a result of current energy development (i.e., oil, gas, and wind). Species specifically identified by commentors included black bear (*Ursus americanus*), cougar (*Puma concolor*), bobcat (*Lynx rufus*), bighorn sheep (*Ovis Canadensis*), mule deer (*Odocoileus hemionus*), pronghorn (*Antilocapra Americana*), and elk (*Cervus Canadensis*). Commentors asserted that BLM should include these wildlife populations, habitat (regular and seasonal), and migration routes as part of the impact analysis on the areas identified for potential leasing and future surface-disturbing activities. Commentors also requested that BLM exclude big game areas, ranges, and corridors from oil shale and tar sands development or, at the very least, allow NSO in these areas. For Wyoming, specific range areas mentioned include Powder Mountain, Powder Rim, Cherokee Basin, Cherokee Rim, Haystacks, and surrounding areas.

Commentors also expressed concern about the potential impacts of oil shale and tar sands development on wild horses and natural viewing opportunities for them.

Commentors noted that Colorado State Wildlife Areas (SWAs) provide important habitat for wildlife as well as recreational opportunities and an economic draw for local communities. SWAs are managed by the Colorado Division of Wildlife and serve to provide wildlife-related recreational opportunities. Six areas were identified as bordering BLM lands or overlapping with BLM-managed subsurface resources opened for oil shale and tar sands development according to the 2008 PEIS and ROD: the Shell Oil SWA hunting lease, the Yellow Creek Unit, the Square S Summer Range Unit, the Square S Ranch Unit, the Little Hills Unit, and the North Ridge Unit of the Piceance SWA.

Fish and Fisheries. Noting that the Colorado River system and its tributaries provide a home for the many endangered, threatened, and sensitive fish species, as well as other native nongame and game fish, commentors voiced concerns over the impacts of oil shale and tar sands development on fish populations and fisheries. Concerns over habitat disturbance, sedimentation, water pollution, water supply reductions, and downstream condition were expressed. Further concern was expressed over the impacts of alterations in river water quality on native fish species, with particular concern related to the Endangered Fish Recovery Implementation Program, for which major efforts and expenses have already been incurred in the Colorado River Basin. It was recommended that the PEIS specifically include distribution and habitat data for endangered, threatened, and sensitive species, including Colorado pikeminnow (*Ptychocheilus lucius*), Colorado River cutthroat trout (*Oncorhynchus clarkii pleuriticus*), flannelmouth sucker (*Catostomus latipinnis*), bluehead sucker (*Catostomus discobolus*), razorback sucker (*Xyrauchen texanus*), mountain sucker (*Catostomus platyrhynchus*), and roundtail chub (*Gila robusta*). It was further recommended that measures be taken to identify monitoring plans that could be used to develop mitigation techniques necessary to lessen impacts on water quality and related impacts on aquatic species.

Specifically, multiple commentors stated that there is a need to protect the last remaining Colorado River cutthroat trout, which have habitats and native population strongholds located with the Upper Colorado River system, particularly the Green River basin where proposed oil shale lease areas are located. In 2009, the USFWS reviewed this species listing under the ESA and determined that listing was not warranted at that time. However, the Colorado River cutthroat trout is categorized by the Wyoming Game and Fish Department as a Native Species Status 2 (NSS2) species, which means the species are physically isolated and/or exist at extremely low densities throughout their range, while habitat conditions appear to be stable. Thus, commentors noted that habitat degradation and loss of populations within their distribution range could result in new petitions to list Colorado River cutthroat trout or in petitions to list other species of concern. A further review and impact analysis of the Colorado River cutthroat trout was recommended to be included in the new PEIS. In addition, stronger mitigation or conservation measures were recommended to meet the management objectives of the Conservation Agreement for Colorado River Cutthroat Trout (2010), including all three states in the study area. The commentors specifically requested a more substantial analysis than was completed in the 2008 PEIS and ROD and the identification of appropriate mitigation measures.

Commentors noted that both the flannelmouth and bluehead sucker are categorized by the Wyoming Game and Fish Department as NSS1 species, which are physically isolated and/or exist at extremely low densities throughout their range, while habitat conditions are declining or vulnerable. Therefore, it was recommended by commentors that no loss of habitat function occur as a result of the BLM's actions. However, it was noted that some modification of the habitat could occur, provided that habitat function is maintained (i.e., the location, essential features, and species supported are unchanged).

Commentors reported that the Upper Colorado River system supports important sport fisheries based on wild populations of rainbow trout (*Oncorhynchus mykiss*), brown trout (*Salmo trutta*), and brook trout (*Salvelinus fontinalis*) and on introduced populations of cutthroat trout (*Oncorhynchus clarkia*). The commentors noted that the maintenance and enhancement of instream habitat is important to the long-term sustainability of fisheries and that the condition of instream habitat is directly related to the overall condition and health of the surrounding watershed. It was further recommended that the analysis of impacts and development of mitigation measures specifically address recreational and economic issues related to local fishing activities, native fisheries, and/or related businesses.

Soil and Vegetation Impacts. Commentors expressed concern that land disturbance and mining will create a landscape that does not ecologically function as equivalent to the premining conditions. They also asserted that mining increases erosion and creates a temporal loss of ecosystem functions that is not mitigated even by successful reclamation and revegetation. Some commentors noted that portions of the proposed mining areas have unique soil properties (cryptobiotic crust) that should be preserved. Other commentors were concerned about desertification.

Special status, sensitive, and/or rare plant species and habitats noted by commentors include federally threatened Uinta Basin hookless cactus (*Sclerocactus wetlandicus*), Graham's beardtongue (ESA candidate; *Penstemon grahamii*), Garrett' s beardtongue (*Penstemon scariosus garrettii*), Barneby's columbine (*Aquilegia barneybi*), Caespitose catseye (*Oreocarya caespitosa*), Mancos columbine (*Aquilegia micrantha* var. *mancosana*), Eastwood's monkeyflower (*Mimulus eastwoodiae*), Colorado blue spruce (*Picea pungens*), red osier dogwood (*Cornus sericea*), boxelder (*Acer negundo*), narrowleaf cottonwood (*Populus angustifolia*), narrowleaf evening primrose (*Oenothera fruticosa*), Indian ricegrass (*Achnatherum hymenoides*), hanging garden sullivantia (*Sullivantia hapemanii* var. *purpusii*), southwest stickleaf (*Mentzelia argillosa*), Dudley Bluffs bladderpod (*Lesquerella congesta*), Dudley Bluffs (or Piceance) twinpod (*Physaria obcordata*), Ute-lady's tresses orchid (*Spiranthes diluvialis*), White River beardtongue (*Penstemon scariosus* var. *albifluvis*), and narrow-stem gilia (*Gilia stenothyrsa*).

For many of these plant species, requests were made to have a buffer ranging anywhere from 300 ft to 0.5 mi around all known occurrences. Concerns were also noted that strip mining and/or some in situ methods (if used) and the associated infrastructure (e.g., road development) would require that vegetation be stripped from much of the land, resulting in destruction of habitats and long recovery periods.

Wilderness Areas, Other Specially Designated Areas, and Lands with Wilderness Characteristics. Commentors stated that BLM must perform an updated inventory of lands for wilderness characteristics, as well as preserve and protect areas with wilderness characteristics in management decisions. Commentors also proposed that some areas be excluded from development, including designated and proposed WAs, Wilderness Study Areas (WSAs), citizen-identified inventories, and Areas of Critical Environmental Concern (ACECs) that were nominated or considered for potential designation in a RMP.

Other areas specifically identified within Colorado include the Bitter Creek proposed wilderness unit (straddles the Colorado–Utah state lines in the Eastern Book Cliffs) and South Shale Ridge Citizen Proposed Wilderness (CPW), in addition to core and linkage areas within Heart of the West Wildland Network Design (also covering areas within Utah and Wyoming).

In Utah, areas identified include Fiddler Butte WSA, Glen Canyon Recreation Area, Rat Hole Canyon, Book Cliffs (includes Turtle, Desbrough, and Desolation Canyon, along with extensive wetlands), Dirty Devil CPW, Sids Mountain CPW area (encompasses a large portion of the San Rafael Swell), White Canyon proposed wilderness complex (including White Canyon, Fort Knocker Canyon, and Tuwa Canyon), Bitter Creek proposed wilderness unit, Lower Bitter Creek proposed wilderness unit, Dragon Canyon proposed wilderness unit (includes Davis, Side, Atchee, and Dragon Canyons in Utah, and Little Whiskey Creek in Colorado), Sunday School Canyon proposed wilderness unit (adjacent to Winter Ridge WSA and bounded by Wood Canyon, Buck Canyon, Willow Creek drainage, and Seep Ridge), and Seep Canyon proposed wilderness unit (includes Park Canyon, Park Ridge, and Crooked Canyon).

In 2008, the State of Wyoming designated the Adobe Town area as Very Rare or Uncommon under the state's environmental quality act; part of it is an SWA. It was recommended that this entire area be protected from oil shale and tar sands development to preserve its ecological, environmental, geological, cultural, historical, archaeological, scenic, and recreational value. Other Wyoming areas proposed by commentors for wilderness protection include Kinney Rim (North and South), Red Creek Badlands, Devils Playground, Buffalo Hump, and Sand Dunes. In addition, commentors requested that citizens' proposed additions to existing WSAs also be excluded from oil shale and tar sands development.

Cultural Resources. The Dirty Devil and Fiddler Butte CPWs in Utah were identified to contain an abundance of archeological resources, including rock shelters, campsites, lithic scatters, stone tool quarries, and petroglyph sites. Commentors noted that studies by the NPS and BLM in this area have suggested that this region contains an average density of 24 archeological sites per square mile. The Glen Canyon and San Juan River area was also stated to contain significant cultural resources, including more than 26,000 documented archaeological sites, the majority on BLM-administered lands, thus making the region among the most significant concentrations of archaeological sites in the western United States. It was further noted that the Bitter Creek WSA has a number of pictograph and petroglyph sites, as well as graves, historic homesteads, an old growth forest, and inspiring scenery. Main Canyon in Utah contains sites of the historical Northern Ute migration route.

Commentors noted that significant cultural resources are found within the Colorado portion of Dragon Canyon, including 43 sites registered with the Colorado Office of Archaeology and Historic Preservation. A Wickiup Village, which is listed on the *National Register of Historic Places*, was also identified in and around the Duck Creek ACEC. Commentors added that the BLM White River Field Office in Colorado has identified cultural resources through its cultural resource interpretation program, which should also be included and preserved. In addition, it was recommend that an archeologist be used to help assess the impacts on historical archeological sites.

Recreation. Commentors expressed concern over the impacts on recreational users of national parks and other public lands, specifically noting hikers, rafters, hunters, sport fishers, skiers, and photographers. A few commentors also voiced concerns related to impacts on tourism within the study area. One commentor stated the opinion that most people do not have time to explore all the lands set aside for recreation, so more lands should be opened up for other purposes (such as productivity, industry, trade, and the ability to live off the land).

Special Areas of Concern. Commentors identified many areas of special concern or interest to them, in addition to the aforementioned WAs and areas with cultural and archaeological significance. Commentors expressed concern over the protection of these areas and suggested their exclusion from leasing areas. Some of these additional areas included existing and potential ACECs, Research Natural Areas (RNAs), Outstanding Natural Areas (ONAs), recreation areas, NPS lands, USFWS-administered lands (e.g., National Wildlife Refuge System lands), National Monuments, National Conservation Areas, Wild and Scenic River segments, National Historic and Scenic Trails (e.g., the Pony Express, Oregon/California Mormon Trail, Overland Stage Trail, and Cherokee Trail), areas with high recreational value, and other areas that are part of the National Landscape Conservation System (NLCS). In general, commentors requested that these areas be excluded from oil shale and tar sands development. Commentors also requested maps illustrating special areas of concern with respect to exposed oil shale and tar sands formations and indicating how these areas may be altered as a result of projected surface mining activities.

Specific rivers, gulches, creeks, and watersheds identified by commentors that may or may not have special designations included the Colorado River, Green River, New Fork River, Henrys Fork River, Blacks Fork River, Hams Fork River, San Juan River, White River, Big Sandy River, Corral Gulch, Ryan Gulch, Piceance Creek and Basin, Range Creek, Horse Creek, Cottonwood Creek, Muddy Creek, Bitter Creek, Whiskey Creek, Little Whiskey Creek, Clear Creek, Spring Creek, Black Sulphur Creek, Fawn Creek, Hunter Creek, West Fork Parachute Creek, Parachute Creek, Dry Fork Piceance Creek, Tent Creek, Davis Creek West Evacuation Creek, and Willow Creek along with their tributaries, watersheds, and side drainages.

Colorado special areas of concern designated as ACECs for their visual, wildlife, botanical, fisheries, and ecological values include the East Fork Parachute Creek ACEC, Trapper/Northwater Creek ACEC, Duck Creek ACEC, Ryan Gulch ACEC, and Dudley Bluffs ACEC. Also identified were potential Colorado ACECs that encompass the Snake John

Subcomplex of the Coyote Basin Complex (important habitat for the sensitive white-tailed prairie dogs and endangered black-footed ferret), Dudley Bluffs bladderpod and twinpod habitat outside of existing ACECs, Graham's Penstemon habitat outside the Raven Ridge ACEC, Narrow-stem gilia habitat outside the existing Lower Greasewood ACEC, Narrowleaf evening primrose habitat outside existing ACECs, and White-tailed prairie dog complexes outside of the Snake John Subcomplex of the Coyote Basin Complex.

Special areas of concern for Utah identified by commentors as having scenic value wildlife, crucial habitats, special status species, watersheds, cultural resources, historical features, and paleontological resources include the Colorado River Basin (including by extension Lake Mead and Lake Powell), Big Pack Mountain, Sids Mountain, Uinta Basin and Mountains, Book Cliffs, Bates Knolls, Tavaputs Plateau, McCook Ridge, Winter Ridge, Seep Ridge, Greater Canyonlands, Seep Canyon, Sweet Water Canyon, Desolation Canyon, Sunnyside Special Tar Sand Areas (STSAs), White Canyon, Happy Canyon, Wood Canyon, Buck Canyon, Fort Knocker Canyon, Tuwa Canyon, Rat Hole Canyon, Turtle Canyon, Desbrough Canyon, Davis Canyon, Side Canyon, Atchee Canyon, Dragon Canyon, Sunday School Canyon, Park Canyon, Park Ridge, Crooked Canyon, Red Rocks, Natural Bridges National Monument, areas adjacent to Capitol Reef, and parts of the Heart of the West Wildland Network. Also noted were potential Utah ACECs that encompass Bitter Creek and Bitter Creek-P.R. Springs, Nine Mile Canyon, Main Canyon, Devil Canyon-North Wash, White River Canyon, Coyote Basin Complex (includes Kennedy Wash, Myton Bench, and Snake John), Four Mile Wash, Sids Mountain, and Tar Sands Triangle. Also specifically noted for Utah were lands included for wilderness designation in the proposed America's Red Rock Wilderness Act (originally introduced in 1989, not enacted).

In Wyoming, the following ACECs were noted: Cedar Canyon ACEC, Greater Red Creek ACEC (originally Red Creek ACEC, expanded to include relevant and important values in the Currant Creek and Sage Creek Drainages), Greater Sand Dunes ACEC, Natural Corrals ACEC, Oregon Buttes ACEC, Pine Springs ACEC, White Mountain Petroglyphs ACEC, South Pass ACEC, Special Status (Candidate) Plants ACEC, and Steamboat Mountain ACEC. The potential ACECs include sage-grouse potential ACECs in the South Pass and Salt Wells areas as identified in the Sage-Grouse Plan Amendment process, Monument Valley Management Area as identified in the Green River RMP, and Powder Rim migration corridor for the Grand Teton pronghorn herd (extending southward from Trapper's Point to Seedskadee National Wildlife Refuge [NWR]). In addition, Sugarloaf Basin Special Management Area (SMA), Jack Morrow Hills Planning Area, and the Seedskadee NWR itself were recommended for protection and exclusion from oil shale and tar sands leasing.

Also in Wyoming, the Little Mountain ecosystem in the Green River Basin and the Vermillion Creek drainage in the Washakie Basin was identified as critical habitat to a host of big game, game bird, sport fish, and nongame species. The headwaters of Bitter Creek (in the Washakie Basin), Henrys Fork River (from the Wyoming–Utah state line to Flaming Gorge Reservoir), Big and Little Sandy drainages (from their confluence near Farson to the head of the Green River Basin), along with parts of the Blacks Fork (from Flaming Gorge Reservoir upstream to Interstate 80), and Hams Fork (from its confluence upstream to Kemmerer) Rivers were identified to support viable populations of Colorado River cutthroat trout (NSS2),

flannelmouth suckers (NSS1), bluehead suckers (NSS1) and/or roundtail chub (NSS1), and important trout fisheries. In addition, the Fontenelle Reservoir, Flaming Gorge Reservoir, and Green River corridor between the two reservoirs were specifically identified as waters supporting economically important sport fisheries, in addition to providing domestic water to the communities of Green River, Rock Springs, and the surrounding communities. The Red Desert, Horseshoe Bend, The Haystacks, Willow Creek Rim, and Skull Creek Rim in Wyoming were also identified by commentors.

The proposed project area was also reported to overlap a number of mammalian SGCN (listed under the Ecology and Wildlife section above) habitats, including the piñon-juniper woodlands (of the Colorado Plateau), sagebrush steppe, gardner's saltbush, and barren areas within the Washakie Basin. It was recommended that the PEIS take into account and avoid disturbance of these ecosystems and sensitive habitats.

The issue of buffer zones, which includes additional areas surrounding areas of concern (e.g., water resources, sensitive habitats, and National Historic and Scenic Trails) where development would be excluded was brought up by several commentors. It was noted that current buffer zones (typically 0.25 mi) were inadequate to protect and prevent degradation of these resources.

Environmental Justice. Commentors requested that the PEIS thoroughly analyze environmental justice impacts, given that there are numerous small communities within the planning area.

Climate Change. Commentors stated that climate change discussion and analysis must be considered more thoroughly in the new PEIS. This section should include a description and summary of ongoing and projected climate change impacts (regional and local) relevant to the action, potential impacts that could be exacerbated by climate change (e.g., water resources, air quality), and reasonable mitigation measures, protocols, or policies to guide oil shale and tar sands leasing and development considerations. Also noted were recent advancements made since 2008 in both the study and science of climate change, which have specifically made analysis of localized impacts more viable. In addition, it was remarked that the PEIS review and incorporate relevant federal (e.g., Council on Environmental Quality [CEQ] guidance), regional, state, and tribal climate change plans or goals to help the BLM reconcile its proposed action for oil shale and tar sands leasing and development with such plans.

Climate change issues and topics specifically cited in the scoping comments are increased greenhouse gas (GHG) emissions (i.e., CO_2), rise of summer temperatures, warmer water, changes in streamflows, alterations in water levels, reduction in water availability, and increasing frequency and intensity of disturbances such as floods and wildfires. These were all identified by commentors as likely having deleterious ecological effects resulting in the degradation of existing habitats as well as the potential for adverse economic ramifications. By contrast, other commentors stated that CO_2 emissions should not be a significant consideration within the scope of the PEIS and that climate change is mitigated through the absorption of CO_2 by green plants.

A qualitative discussion of the link among GHGs, climate change, and potential impacts of climate change was requested. One commentor specifically suggested that the PEIS describe the potential range of GHG emissions that may be associated with life-cycle commercial oil shale and tar sands development under each alternative. The commentor asserted that this analysis would help illustrate how GHG emissions scenarios may vary according to the amount of public lands the BLM ultimately decides to make available to potential commercial-scale leasing and development. It was asserted that the development of oil shale emits more GHGs than do conventional liquid fuels from crude oil.

Commentors suggested that the BLM reference climate-change–related studies on supply and demand aspects of Colorado River management such as those of the USGS National Climate Change and Wildlife Science Center, the Regional Climate Science Centers, Western Water Assessment, and the Bureau of Reclamation (BOR).

J.3.1.2 Issues outside the Scope of the PEIS, but Which May Present Related Policy Considerations

Air Quality, Noise, and Visual Impacts. One commentor requested that leasing not proceed until more is specifically known about the amount of energy and resulting pollution output required to extract oil shale and tar sands; thus, these issues can be taken into consideration in the impact analysis.

Cultural Resources. It was commented that all potential oil shale and tar sands development areas, especially those where the entire surface area may be affected, need to receive the highest priority to ensure adequate tribal review, physical archaeological surveys, and paleontological baseline assessments prior to any leasing or development in these areas. It was recommended that the PEIS identify areas with cultural, historic, archaeological, or paleontological properties and/or resources which are at risk, employ one or more administrative measures to protect the resources, and ultimately consider closing these areas to oil shale and tar sands leasing and development.

While some of the types of areas noted in this comment are excluded from possible leasing or development under one or more alternatives analyzed, the PEIS does not address the full breadth of this comment.

Human Health. Commentors voiced the opinion that development of oil shale and tar sands resources should not be permitted until data are available on health consequences. It was mentioned by commentors that deleterious effects and public health consequences have been occurring in the areas in which oil shale and tar sands techniques are used. Commentors associated these effects with increased levels of highly toxic chemicals and heavy metals, deteriorating air quality, and changes in climate. Examples given include longer allergy/asthma seasons and increased injuries from snowstorms. One commentor also mentioned solastalgia,

which is the emotional distress caused by environmental change. Another commentor questioned if the oil shale and tar sands development companies would put up a bond to cover health impacts.

J.3.1.3 Issues outside the Scope of the PEIS

Beyond what is provided in the draft PEIS, the kind of specific information requested in the issues within this section on environmental concerns is not necessary to make an allocation decision of the kind contemplated here.

NEPA Analysis. Several commentors requested that the PEIS analyses perform a baseline study of the various resource areas (e.g., water, air, ecology and wildlife, cultural resources) to document a starting point for measuring impacts and their significance.

Given that the three "most geologically prospective" areas in Colorado, Utah, and Wyoming encompass approximately 3,538,000 acres, it would not be practicable nor affordable for the BLM to conduct baseline surveys for these various resources. More importantly, it would be premature to try to establish a baseline so far in advance of any commercial development; the appropriate time to establish a baseline is just before an area is to be leased.

It was requested by some commentors that the BLM not defer the analysis of environmental consequences and impacts of commercial oil shale and tar sands development to site-specific NEPA evaluations; while acknowledging that there are many unknowns with oil shale and tar sands technology and development, commentors request that the BLM not defer analysis of consequences to later NEPA documents. In addition, it was mentioned that site-specific NEPA review will likely not provide an adequate region-wide analysis of the relationships and impacts to resources (e.g., water use) across the three state region. On the other hand, different commentors believe that it is not up to the BLM to determine what technologies are appropriate or will succeed, but to simply ensure that the resource is available on a fair basis.

Given the high degree of uncertainty of the nature of future development of oil shale or tar sands resources on public lands, the nascent character of the industry in the United States in general, and the nature of the proposed action as a land allocation action, the level of impacts analysis in the 2008 PEIS was appropriate for the decisions being addressed, and a similar approach will be used in the current PEIS. In this context, it bears noting that appropriate and applicable environmental laws will be addressed, regulations complied with, and environmental evaluations assessed at the project level when specific development plans are submitted and before a project can proceed.

Similarly, with respect to a regionwide analysis, in the sense of cumulative impacts, the CEQ regulations at 40 CFR 1508.7 define a cumulative impact as follows: "Cumulative impact is 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 agencies (federal or non-federal) or person undertakes such other actions." Clearly defining the scope and scale of potential environmental consequences of a proposed action, along with

identifying other reasonably foreseeable future actions, are the keys to effective cumulative effects analysis. Determining the appropriate scope and scale of analysis depends on a well-defined proposed action and on the identification of resources that could be affected by the action and issues about the proposed action identified in the scoping process. Until the BLM has information about the location and the type of technology that will be used, it cannot conduct an effective cumulative effects analysis of the relationships and impacts on resources as suggested in the comment. The BLM will consider the full range of consequences of actions in the appropriate NEPA document when the information to do so is available.

Water Quantity and Quality. Commentors requested that the PEIS provide a thorough characterization of existing groundwater and surface water resources within the project area, including all waters that may be impacted by oil shale and tar sands development, the nature of potential impacts, and specific pollutants likely to impact those waters. Commentors further recommended that the PEIS identify within each alternative all source water protection areas and any water bodies that appear on a state impaired waters list (i.e., 303(d)), along with the constituents for which those water bodies are listed. In addition, it was requested that hydrologic monitoring be performed prior to, during, and after operations. Consultation with federal, state, and local water authorities and experts was recommended.

The future development of oil shale or tar sands resources is too uncertain to perform meaningful analyses of the types suggested by the commentors. The recommended analyses would be more appropriately and more effectively performed in subsequent NEPA analyses at the project lease and development levels.

Commentors expressed concerns related to the potential impacts of oil shale and tar sands development on regional water sources and the insufficiency of analysis, recommendations, and conclusions in the 2008 PEIS. It was specifically emphasized that the new PEIS identify and evaluate the sources of water to be used and both the direct and indirect impacts of use, as well as cumulative effects. Commentors highlighted the importance of understanding the water implications, specifically as they relate to Colorado River entitlements, of the oil shale and tar sands industry prior to decisions regarding leasing or commercialization. Commentors also stated that alternative options for water supply should be explicitly addressed and the RMPs be modified to ensure access to water. One commentor suggested the importation of water by train tanker cars.

The future development of oil shale or tar sands resources is too uncertain to perform meaningful analyses of the types suggested by the commentors.

Commentors recommend that the PEIS identify all currently available information regarding ongoing water demands and expected projections, including amounts required, location of draws, and source identification (agricultural, domestic, and public water supply wells or intakes), to consider whether there is sufficient surface and groundwater to support oil shale and tar sands development in the region without detrimentally affecting existing development and water use.

The future development of oil shale or tar sands resources is too uncertain to perform meaningful analyses of the types suggested by the commentors. It would not be practicable or affordable for the BLM to perform the detailed analyses suggested, while any such studies would be speculative given the current state of knowledge.

Air Quality, Noise, and Visual Impacts. Commentors stated that analyses should include data and discussions on the sources, magnitudes, and emission factors associated with criteria and other pollutants of concern (including precursors) from conventional aspects of and preferred future processes for oil shale and tar sands development; that the data should also be of sufficient quality to be used in a full-scale quantitative assessment of direct, indirect, and cumulative impacts within both the study area and all surrounding affected areas; and that the analysis should include air dispersion modeling, regional and long-range transport evaluations, local effects, ozone analysis (including to Class I areas),emission predictions, and airborne dust emissions estimates for each alternative to provide the level of information necessary to support any future leasing decisions and ensure that oil shale and tar sands development does not degrade air quality. Commentors further stated that, where possible, evaluations should be performed on the basis of real studies and data rather than modeling, and that projected pollutant levels should be compared with levels projected by using alternate oil production sources and using efficiency alternatives. This comparison would also entail estimating levels of development and changes in development depending on which land tracts are leased. One commentor recommended utilizing the Utah BLM Air Resource Management Strategy in the analysis.

Given the nascent state of development of oil shale and tar sands technologies in the United States and the highly uncertain extent and specific locations of future development, the types of quantitative analyses suggested by the commentors would be speculative. The recommended analyses would be more appropriately and more effectively performed in subsequent NEPA analyses at the project lease and development levels.

It was requested that the PEIS address the air quality impacts of the estimated emissions for all criteria pollutants and compare them with the National Ambient Air Quality Standards (NAAQS) and Prevention of Significant Deterioration (PSD) incremental limitations. Commentors requested that air quality related values (AQRVs) be discussed and that sensitive receptor locations, including Class I air sheds, national parks, WAs, and other sensitive sites be identified.

Given the nascent state of development of oil shale and tar sands technologies in the United States and the highly uncertain extent and specific locations of future development, the types of quantitative analyses suggested by the commentors would be speculative.

Monitoring. Several commentors emphasized the importance of obtaining baseline conditions for meteorology, water, air, and soil quality, and wildlife populations (as noted above) in order to allow accurate measurement of impacts. In addition, concerns were expressed over monitoring and responsibility for impacts after the development sites have been closed and

abandoned. It was suggested that required monitoring for any oil shale and tar sands leasing program be at least as thorough as the Prototype Oil Shale Leasing Program.

Given that the three "most geologically prospective" areas in Colorado, Utah, and Wyoming encompass approximately 3,538,000 acres, it would not be practicable nor affordable for the BLM to conduct baseline surveys for these various resources. More importantly, it would be premature to try to establish a baseline so far in advance of any commercial development; the appropriate time to establish a baseline is just before an area is to be leased.

In any case, air quality monitoring is ongoing, and results of recent monitoring were used in the air quality analysis in Section 3.5.3, where it is noted that, under federal air quality regulations, each of the three states carries out an ongoing air quality monitoring program for criteria air pollutants. In addition, a number of the companies conducting the RD&D programs in Colorado and Utah have performed baseline surface water and groundwater quality studies, as noted in Appendix A.

Human Health. Commentors requested that the PEIS include qualitative and quantitative discussions of the known health risks associated with the proposed action and populations at risk. In addition, commentors recommended that the PEIS incorporate a formal methodology to evaluate all health issues and potential mitigations, such as a Health Impact Assessment (HIA) or cost-benefit analysis, and that agencies with relevant health expertise in developing HIAs be consulted. Areas noted of specific concern to human health for analysis in detail include air pollution, water pollution, and climate change.

The proposed action being a land allocation action does not, in and of itself, present human health risks. Health risks associated with any future related actions would be analyzed prior to their approval and with the specific knowledge of a given project's dimensions. Any future actions would be subject to all prevailing environmental regulations protecting human health.

J.3.2 Socioeconomics

J.3.2.1 Issues within the Scope of the PEIS

Commentors asked that the PEIS take a hard look at the socioeconomic impacts from oil shale and tar sands development on communities in the area and consider utilizing community planning to mitigate socioeconomic impacts. Specifically, it was requested that the PEIS analyze impacts and develop mitigation measures addressing economic effects on local fishing activities, native fisheries, hunting, ranching and grazing, retirement communities, tourism, and related businesses.

The "boom and bust" cycle that the region has experienced over past decades as a result of oil shale and tar sands development was also referred to numerous times. Commentors noted

that these cycles, in addition to seasonal restrictions that concentrate development during seven months of the year, make it particularly difficult to attract and keep permanent workers. The adverse tradeoff between short-term jobs and long-term sustainable employment, along with increased profits for energy companies, was pointed out by commentors, noting that the temporary work force that has positive impacts on the local economy via the creation of jobs may also cause adverse local impacts in terms of inconsistent and unpredictable housing availability, motor vehicle traffic, demands on infrastructure, tax bases, and revenue flow. In addition, local governments would have to provide law enforcement, medical care, and other social services on a year-round basis, even when the peak needs fluctuate, which often results in shortages and straining of resources. Transportation issues noted by commentors related to the effects of transport of the oil shale and tar sands product on roads, including access roads and county roads, citing road wear and related required road maintenance, reconstruction, and upgrades. It was noted that investment in community services, facilities, and infrastructure would ideally be needed years in advance of commercial production. Commentors requested that the aforementioned regional and local economic impacts be weighed against economic benefits from industry over the long term in the PEIS.

J.3.2.2 Issues outside the Scope of the PEIS, but Which May Present Related Policy Considerations

Concern was expressed over the transparency of the companies developing oil shale and tar sands, whether or not they pay taxes, and where that tax money goes. Further concern was expressed over taxpayers having to foot the bill for any cleanup that may result from oil shale and tar sands activities. Commentors also suggested that the companies who develop this resource be taxed or have bond requirements with the money set aside to either cover restoration costs, or be directed toward sustainable and renewable energy development, or granted in another way that would be beneficial to the taxpayers. Other commentors requested that federal funding be provided to impacted local communities to assist with infrastructure improvements and service expansions, or that federal incentives be established for companies to promote upfront and ongoing investment in and contributions to state agencies and local governments directly affected by oil shale development and production.

One commentor noted that about half of the royalties, by law, return to state and local governments and are intended to help mitigate the impacts of development and that reduced royalty rates would directly diminish their ability to deal with the impacts of that development. Another commentor asked the BLM to consider the ancillary benefits to the American public from a robust oil shale industry when considering a fair return to the taxpayer, noting that rates should be established in a way that would be beneficial to the taxpayers, yet not deter investment in oil shale and tar sands development.

J.3.2.3 Issues outside the Scope of the PEIS

Beyond what is provided in the draft PEIS, the kind of specific information requested in the issues within this section on socioeconomic concerns is not necessary to make an allocation decision of the kind contemplated here.

Commentors recommended that the analysis include baseline data for community infrastructure and capacity to be used to assess what additional needs will be required to support oil shale and tar sands development; a thorough housing analysis incorporating local constraints, including buildable land; and an assessment of how capital costs will be covered.

The current level of knowledge of future oil shale or tar sands development does not warrant the detailed analysis proposed, which, consequently, would be speculative.

It was further recommended that the broader economic impacts on the region be analyzed, should the BLM close areas to energy development. It was suggested that the BLM consider using a total economic value approach for this analysis that includes estimation of nonmarket values for the planning area and define an opportunity cost of keeping lands available. The concept of assessing the carrying-capacity thresholds of the regional and local economies was also mentioned by several commentors.

The proposed scope and methods of economic analyses are alternative methods to those conventionally used in a NEPA analysis. The current conventional methods of analysis meet the needs of the PEIS, while remaining reasonably feasible to perform by using readily available public information. See Alternatives and Issues Considered but Eliminated from Detailed Analysis, Section 2.5.1, Carrying-Capacity Thresholds.

J.3.3 Resource and Technology Concerns

J.3.3.1 Issues within the Scope of the PEIS

Resource Assessments. A number of commentors invoked the recent USGS oil shale resource assessment. It was noted that the assessment identifies the PEIS study area as the largest oil shale resource in the world and containing more oil resources than the total of all known proved conventional onshore and offshore reserves of the United States.

Power and Energy. The amount of energy required to power the oil shale and tar sands development and extraction was a concern expressed by many commentors, as was the ratio of energy expended to actual oil produced. Commentors mentioned that power from the existing grid might not be adequate for oil shale and tar sands development; thus, the PEIS should examine how electricity needs will be met. In addition, commentors noted that the extraction of oil shale and tar sands resources may require substantial consumption of natural gas and water.

Technology. Several commentors suggested that the PEIS include a realistic assessment of the industry's current technologies, quantifying their associated environmental impacts and the general ability to commercially develop oil shale and tar sands. It was noted that a perceived lack of detailed information regarding development technologies will make it difficult for BLM to adequately assess potential impacts. Additional concerns were expressed regarding which oil shale and tar sands technologies would be considered within the scope of the PEIS.

J.3.3.2 Issues outside the Scope of the PEIS, but Which May Present Related Policy Considerations

Power and Energy. One commentor suggested that the environmental costs of electricity generation should be factored into lease rates. Commentors also specifically requested that the PEIS include an analysis of options for meeting power demands for oil shale development in a manner consistent with Colorado's renewable energy standard.

Technology. One commentor suggested the PEIS address the need and readiness for a commercial program; another suggested that the BLM set an environmental basis for commercial processes that meets the final requirements.

Many commentors discussed BLM's ongoing oil shale RD&D program and expressed concern that data from the projects would not be available in time for use in the PEIS. Many stated that development efforts should proceed slowly or not at all, with R&D facilities on small plots to demonstrate feasibility. In addition, commentors emphasized that these projects should be used to help assess not only the viability of technologies, but also to understand effects of oil shale and tar sands development (e.g., air quality or displacement of wildlife) and determine sources for required water and energy.

One commentor stated that research indicates the presence of possible valuable co-products in the central Piceance basin, including lithium and rare earth metals that should be considered for recovery in the current RD&D program. The commentor proposed excluding further leasing in the area unless and until research on such co-product recovery was performed.

Other commentors stated that the BLM made an incorrect assumption in the NOI by stating "there are no economically viable ways yet known to extract and process oil shale for commercial purposes." Commentors asserted that the viability of commercial technologies has been proven in Brazil, China, and Estonia. Shell Oil was identified as having invested in the technical and commercial development of the in-situ conversion process (ICP) for oil shale since the early 1980s as a means to economically develop oil shale in an environmentally responsible and socially sustainable manner. Other commentors noted that technologies currently exist that minimize water consumption (and even possibly eliminate or produce in situ water), reduce CO2 emissions, require few workers, abate ground-disturbing footprints, and utilize natural gas produced in the production process. It was further emphasized that the issue that concerns the commercial viability of oil shale and tar sands resource development and the issue of whether

certain lands should be made available in the future are two separate issues, and thus the failure to make federal land available for leasing will only slow technological growth.

Commentors further suggested that the BLM could exclude processes which are not environmentally clean by limiting lease bids to those who can meet acceptable environmental standards, which would be defined as whether or not the process is worse than the exploration and production of crude oil.

Economic Feasibility. Commentors requested that the BLM perform a cost-benefit analysis for oil shale and tar sands development and provide the ratio of energy in/out for each technology evaluated. In general, it was requested that leasing and the development of oil shale and tar sands resources not proceed unless it can be demonstrated that available commercial technologies are economically feasible. Commentors mentioned that the low resource recovery (about 10% to 40%) and small return on investment (ROI) from in situ technologies is not in the public interest. One commentor asserted that in order for oil shale to be economically feasible, a deposit would need to be 50 ft thick and provide 50 gal/ton, which is at least double what was considered in the 2008 PEIS for leasing requirements. Commentors stated that the BLM must further evaluate the potential development and viability of these resources, including a technological readiness assessment that looks at cost projections and comparisons to other energy sources.

On the other hand, other commentors expressed support for the 2008 RMP amendments and stated that coherent national policy and long-term regulatory stability are necessary to promote the research, development, and capital investment needed to explore environmentally responsible oil shale production options. Commentors also remarked that based on current practices and technology, oil shale has been proven around the globe to be economical, commercially viable, and environmentally acceptable. Commentors specifically mentioned the high input-to-output energy ratio. For example, one commentor asserted that an average grade of shale oil containing 25 gal/ton raw shale will have about 80% of the energy in the original resource found in products for sale. In addition, commentors noted that technologies exist that can extract certain impurities (e.g., pyridine) naturally found in oil shale and tar sands deposits, such that companies can sell it separately to make their projects more economically feasible.

Finally, some commentors requested that the BLM evaluate the impacts of oil shale and tar sands developments on oil and gas prices.

J.3.3.3 Issues outside the Scope of the PEIS

Beyond what is provided in the Draft PEIS, the kind of specific information requested in the issues within this section on resource and technology concerns is not necessary to make an allocation decision of the kind contemplated here.

Resource Assessments. Some commentors supported oil shale and tar sands development, stating that we need to take advantage of all available domestic energy resources, including unconventional ones, for our national security and strategic interests. Others noted that simply identifying a vast resource does not prove it to be productive, especially if it cannot be accessed or developed. In Wyoming, for example, one commentor mentioned that the land available for leasing is checkerboard; thus, a very small percentage is considered commercially attractive.

The above comments are not relevant to the proposed action analyzed in the PEIS.

Several commentors requested that the resource assessment include a comparison of these resources with other oil shale and tar sands resources worldwide (e.g., Canada).

This comment is not relevant to the proposed action analyzed in the PEIS.

Power and Energy. Commentors further recommended that this analysis document existing power generation facilities and disclose any new facilities that would need to be constructed, including an analysis of the location of plants, stack parameters, plant fuel sources, along with an assessment of the air quality impacts of such plants.

The analyses suggested by the commentors would be speculative given the current state of knowledge of future oil shale and tar sands development.

Technology. Broad comments related to technology included statements that no methodologies have proved to be commercially viable and all options create environmental damage. One commentor specifically noted that even in situ technologies pose post-recovery problems (e.g., land subsidence and water contamination). Another mentioned that U.S. refineries are not equipped to handle the sulfur levels in the oil that result from the tar sands and the removal of sulfur requires a lot of hydrogen, typically derived from water and natural gas. Conversely, other commentors noted that underground mining options or directional drilling technologies can minimize, or even possibly eliminate, any measurable impact on wildlife. In addition, they noted that some emerging technologies do not use any solvents that would put groundwater at risk of contamination, are carbon neutral (produce oil from oil shale without CO2), and have rapid real-time reclamation that can mitigate as they go. Commentors also expressed concerns that technologies were too new and unproven to open up land for commercial leasing and development, or they objected to making assessments using information about technology that existed 40 to 70 years ago. Still others felt it should be left up to industry to decide what technology to use.

Commentors also voiced concern that a specialist in oil shale and tar sands technology or mining was not part of the BLM PEIS team. In addition, commentors requested that the PEIS show potential locations of facilities, wells, pipelines, extraction sites, and transport facilities.

The above comments are either not relevant to the proposed action, are speculative, or do not affect the scope of the analysis.

J.3.4 Stakeholder Involvement

J.3.4.1 Issues within the Scope of the PEIS

Issues identified in comments include recommendations for intergovernmental collaboration (at the local, county, state, and federal level), community and stakeholder input, and the formation of a federal government–industry alliance. Commentors also suggested consideration of political agendas, local area fiscal impacts, Native American concerns, consultation with subject matter experts (e.g., climate change, human health assessment), and interactions specifically with federal, state, and local departments and organizations (e.g., environmental, water). Many comments from state and local governmental agencies requested active involvement and inclusion in the PEIS process, as well as in discussing policy matters. Several individuals expressed general concerns that their input, comments, and opinions as stakeholders will not be considered or respected and that oil shale and tar sands development will eventually proceed despite their objections, thus diminishing the value of their efforts to participate in the process.

Some commentors asserted that the BLM has not done an adequate job of informing the public of the ramifications of extracting oil from these resources. Other commentors encouraged the BLM to disclose all efforts taken to ensure effective public participation and involvement. However, there was also concern that the NOI was deficient because notification by publication in public media with respect to the Salt Lake City, Utah, public meeting did not occur on a timely basis (before the 15-day period preceding the meeting). In addition, it was noted that the meetings in Price and Vernal, Utah, conflicted with other BLM meetings.

J.3.4.2 Issues outside the Scope of the PEIS, but Which May Present Related Policy Considerations

None.

J.3.4.3 Issues outside the Scope of the PEIS

None.

J.3.5 Cumulative Impacts

J.3.5.1 Issues within the Scope of the PEIS

Commentors recommended that the PEIS cumulative impacts analysis account for the impacts from all past, present, and future energy development projects in the region. Such actions would include oil and gas, coal, shale gas, and renewable energy (e.g., solar, wind, and geothermal) development, as well as future transmission corridor development, refining projects, and any other mineral development that competes for surface use on public lands. It was specifically requested that a full and comprehensive analysis be included for water contamination, water quality, waste water disposal, aquatic life, fishery resources, and downstream environments. Other cumulative factors identified for consideration included water contamination issues, activities leading to soil and vegetation disturbance, disturbance of habitat structure, habitat fragmentation; air quality and pollution, contributions to global warming, population growth, growth in other sectors (e.g., recreation and tourism), and infrastructure factors (e.g., transmission lines, pipelines, roads, fire management, and secondary impacts from required power generation associated with large-scale oil shale and tar sands development).

J.3.5.2 Issues outside the Scope of the PEIS, but Which May Present Related Policy Considerations

Commentors expressed concerns that the cumulative impact analysis in the previous PEIS was inconsistent with NEPA, which deferred detailed analysis to future analyses to be conducted on a lease-to-lease basis. In addition, it was noted that the assessment should not be performed based on a single, generic, oil shale facility in lieu of analyzing a reasonably foreseeable development scenario.

J.3.5.3 Issues outside the Scope of the PEIS

Beyond what is provided in the Draft PEIS, the kind of specific information requested in the issues within this section on cumulative impacts concerns is not necessary to make an allocation decision of the kind contemplated here.

Commentors recommended that the PEIS cumulative impacts analysis address a reasonably foreseeable development scenario (RFDS). It was further requested that these impacts be analyzed on multiple scales, including, for example, local, regional, and basin-wide scales.

Given the nascent state of development of oil shale and tar sands technologies in the United States and the highly uncertain extent and specific locations of future development, an RFDS cannot be projected at this time, nor is it possible to meaningfully perform the suggested multiscale cumulative impacts analysis.

J.3.6 Mitigation and Reclamation

J.3.6.1 Issues within the Scope of the PEIS

Commentors suggested that the PEIS link cumulative impacts with mitigation measures, adopt enforceable mitigation measures, and link mitigation measures with specific steps that should be taken in specific resource areas or over the larger landscape. Commentors further recommended that the PEIS specifically identify all relevant and reasonable mitigation measures to protect water sources, including technology selection to decrease potential contamination, water consumption, and groundwater flow effects; engineering practices to include water treatment and recycling, minimizing disturbed areas and hastening reclamation; and the preparation of erosion and sedimentation control plans. In addition, commentors recommended that mitigation address impacts on the demand for services and infrastructure in affected communities. One commentor believed that, as a programmatic document, the BLM should refrain from adopting any mitigation measures, allowing such measures to be addressed in the more site-specific NEPA analysis. Another commentor opposed mitigation measures that include private land purchases.

Some commentors noted that land has been and can be reclaimed after the resources are mined, while others stated that reclamation does not always work, has a poor track record, and sometimes cannot return systems to their original levels of ecological performance. It was further noted by one commentor that formations like the Uintah and Green River may not be able to be reclaimed because of unique geology and soil chemistry.

J.3.6.2 Issues outside the Scope of the PEIS, but which May Present Related Policy Considerations

Commentors want the BLM to acknowledge and coordinate with the BOR and the U.S. Forest Service (USFS) on active and ongoing projects. In addition, they requested that the BLM try to minimize irreversible impacts.

The responsibility for long-term stewardship and responsibility for the areas impacted by oil shale and tar sands development was emphasized by some of these commentors.

J.3.6.3 Issues outside the Scope of the PEIS

Beyond what is provided in the Draft PEIS, the kind of specific information requested in the issues within this section on mitigation and reclamation concerns is not necessary to make an allocation decision of the kind contemplated here.

Commentors recommend that the PEIS describe reclamation options and processes for the various oil shale technologies (e.g., open pit, subsurface mining) and development phases (e.g., construction, decommissioning). Commentors believe it is important to define the metrics

used to measure success, such as "successful revegetation," and to define reclamation by comparison to predevelopment conditions. Commentors voiced support for a reclamation plan that is based on actual soil types, precipitation, and altitude, while also taking into account use by wildlife, livestock, and wild horses.

The BLM believes that descriptions of reclamation options and their effectiveness would be most appropriately presented and analyzed in future NEPA analysis at the project lease and design stages.

J.3.7 Land Use Planning and Leasing

J.3.7.1 Issues within the Scope of the PEIS

Some comments raised issues associated with the land use planning process. One commentor noted that the BLM needs to explicitly address potential conflicts, for example, with oil and gas resources. It was suggested that the PEIS analyze the applicability of the Interim Final Rule on the Leasing in STSAs (October 2005) and how this specifically may affect NPS resources. One commentor asserted that the BLM should fully consider the impacts on or conflict with renewable energy development, suggesting coordination with the Solar Energy PEIS (BLM and DOE 2010). Others raised concerns about how development of oil shale and tar sands resources would be addressed in so-called "checkerboard" areas where federal lands are interspersed with state and private lands.

Commentors voiced concern about the continued multiple use of the BLM lands. It was noted that oil shale and tar sands development is generally inconsistent with multiple uses of land, because it displaces other land uses (e.g., recreation, mining, hunting, oil and gas production, livestock grazing, wild horse and burro herd management, communication sites, and ROW corridors). In addition, it involves the permanent removal of soil, which the commentors asserted therefore precludes other uses. Other commentors suggested that the BLM needs to show that there are actually competing priorities for the land. It was also noted that oil shale and tar sands development can be compatible with the development of other resources; commentors suggested that the BLM develop leasing programs that accommodate multimineral leasing.

J.3.7.2 Issues outside the Scope of the PEIS, but Which May Present Related Policy Considerations

Commentors suggested that the BLM assess results from the RD&D leases with respect to safe production, cleanup, and restoration before large areas are opened. Commentors suggested that only competitive leases be accepted, that leasing targets and schedules be set to avoid exceeding carrying capacities, and that leasing regulations provide for minimum bonuses. In addition, it was suggested that leasing should be designed to test alternative recovery methods where shale is shallow but has adequate thickness and grade.

Commentors noted that the BLM should avoid making irreversible commitments to oil shale and tar sands development within areas where Master Leasing Plans are being developed in consideration of other land uses and protections encompassed in such plans. Explicitly noted were Dinosaur Lowlands, Shale Ridge, Eastern Book Cliffs/Piceance Basin, Little Mountain, and Adobe Town.

It was recommended that the most recent RD&D lease progress reports be included in the PEIS. Commentors reiterated the fact that developers receiving leases will still have to go through the permitting process.

J.3.7.3 Issues outside the Scope of the PEIS

One commentor also voiced concern over BLM's ability to successfully manage impacts on the land from additional oil shale and tar sands leases, noting difficulties in managing impacts from off-road vehicle use and oil and gas leasing. Other commentors noted support for R&D on private lands.

The above comment is not relevant to the proposed action being analyzed in the PEIS.

J.3.8 Policy

J.3.8.1 Issues within the Scope of the PEIS

Commentors identified a number of policy-related issues. The identified policy issues addressed in the PEIS include the following:

- Concerns were raised over what new or different information and analysis should be expected from the EIS process and what guarantees the BLM can offer that this process will not be repeated in another two years.

- Conformation of the PEIS scope to the legal mandates, requirements, and intent of Section 369(d)(1) of the Energy Policy Act of 2005 was a specifically noted concern.

- Limitations associated with the PEIS only addressing the allocation of potentially suitable public lands for oil shale and tar sands development and not the actual leases were noted; it was suggested that the role of subsequent NEPA analyses in informing future decisions regarding leasing be addressed in the PEIS.

- Some commentors stated that site-specific NEPA review will likely not provide an adequate region-wide analysis of the relationships to and impacts on resources (e.g., water use) across the three-state study area, while others

noted that it is not up to the BLM to determine what technologies are appropriate or will succeed, but to simply ensure the resource is available on a fair basis. In any case, appropriate and applicable environmental laws and regulations will be complied with and new information will be reviewed when specific development plans are submitted and before a project can proceed.

- The need for consistency of any land use plan amendments with state and local plans and those of tribes to the extent provided by law, regulation, and policy was noted.

- The need for identification and evaluation of key regulations, statutes, and agreements that will influence oil shale and tar sands development and support environmentally friendly practices was noted.

- Inclusion of a discussion on the unique legislative history and purpose of Naval Oil Shale Reserves was recommended. It was stated that the reserves were meant for R&D and not for large-scale development, unless deemed essential to national security.

- A need for the BLM to consult with other federal agencies, including the EPA and CEQ, was observed.

- Conflicts with respect to the multiple uses of the public lands — particularly where oil shale and tar sands leasing and development could be in conflict with existing grazing, recreation, fishing, oil and gas development, and other resource objectives — were a noted concern.

- Conflicting resource values (e.g., assessment of socioeconomic impacts of loss of recreational lands to oil shale and tar sands development uses) were observed by several commentors.

J.3.8.2 Issues outside the Scope of the PEIS, but Which May Present Related Policy Considerations

- Questions and concerns were raised about whether a revision of the original 2008 PEIS is warranted or necessary. Specifically noted were the time and cost associated with the PEIS process. Commentors noted that the 2008 oil OSTS PEIS and RMP amendments (in addition to the 2008 Oil Shale Rule) were the result of a robust and valid public process which allows for resource development while protecting the environment and recreational uses of public lands. One commentor stated that by revisiting the PEIS, the BLM was in violation of the Federal Land Policy and Management Act of 1976 (FLPMA); another asserted the reduction of acreage sends a negative message to investment companies and the international community. Also mentioned was the fact that the areas proposed for removal from development are either

already off limits or may be precluded under BLM authority without redoing the entire PEIS.

- Deferment of the PEIS and leasing decisions for development of public lands and further amendments to the RMPs was recommended until research, technology constraints, potential resource demands and impacts, environmental harms, and infrastructure challenges have been significantly and completely analyzed. Waiting until the RD&D results are available before promulgating regulations, so as to not render the regulations obsolete, was specifically recommended.

- Support was expressed for the BLM to move forward with the leasing process and to develop the BLM oil shale and tar sands resources in an environmentally correct manner.

- A need was identified for consistent and stable regulation and a reliable national policy from the BLM considering the needs of the entire country. The abandonment of federal R&D in the 1980s when oil prices decreased and the resulting uncertainty for industry was a noted concern.

- Legality of oil shale and tar sands development and use was questioned under international and domestic climate change law, specifically Articles 2 and 3 of the United Nations Framework Convention on Climate Change (UNCCC).

- Initiation of a process was recommended that will draft the regulations governing commercial leasing, mining, and development for this energy development scenario, prior to any commitment of land or commercial leasing approval.

- One commentor stated that the PEIS must not incorporate any policy of "precautionary" bias or "worst case" scenarios, particularly any assumptions regarding impacts of extraction and mitigation technologies still undergoing development and testing.

- Commentors urged acknowledgment and consideration of the Colorado River Storage Project Act and conservation programs, such as those in the Bear River Watershed of Idaho, Utah, and Wyoming.

- Coordination and alignment of the OSTS PEIS with other energy EISs (such as the six-state Solar PEIS), thus turning these efforts into a National Energy Policy that addresses national needs more systematically, were suggested.

- Needs for the development of oil shale and tar sands resources for national security, independence from foreign sources of fossil fuels, and the diversification of domestic energy resources were observed. Almost all commentors who stated strong support for oil shale and tar sands development

stated that their support was based on the nation's need to end dependence on the import of foreign fuels and the desire to utilize this large domestic resource.

- Concerns were expressed that taxes, royalties, and/or subsidies would be established or granted in a way that would be beneficial to the taxpayers, yet not deter investment in oil shale and tar sands development. One commentor suggested that royalty rates for commercial leases be at least equal to oil and gas rates. Another specifically mentioned that the NOI for the PEIS was deficient and gave no notice that the royalty rate (Title 43, Part 3903.52 of the *Code of Federal Regulations* [43 CFR 3903.52]) was to be reconsidered or removed.

- Establishment of an adequate bond fund to finance future mitigation efforts and/or a trust fund to provide financial support to local communities early in the development process was recommended by several commentors.

- Providing access to public lands for additional R&D outside the ongoing oil shale RD&D program was suggested.

- Establishment of a technical advisory council, with members from the oil shale and tar sands industry and representing the region where findings from research could be shared with stakeholders, was recommended.

- The importance of recognizing and considering preexisting contractual rights, in accordance with applicable law, was noted.

J.3.8.3 Issues outside the Scope of the PEIS

- A suggestion was made for the immediate release of 5% of federal lands in the study area to fast-track oil shale and tar sands development, with an additional 10% released per year if success is demonstrated.

This suggestion is outside the scope of the purpose and need of the PEIS.

- Limiting the scope of the new PEIS to only those characteristics that differ from the originally known characteristics and that are relevant to the decisions in the 2008 ROD was recommended.

This suggestion is outside the purpose and need of the PEIS to prepare a new PEIS.

- Concerns were expressed that a specialist in oil shale and tar sands technology or mining was not specifically included as part of the BLM PEIS team. It was stated that such expertise would be essential in analyzing environmental

impacts associated with the resource development and extraction processes and developing a sound PEIS.

The concerns expressed in the comment are not relevant to the scope of the PEIS.

- Concerns were expressed that the state legislatures are too distant and do not have the authority to regulate tar sands and oil shale extraction, which will result in little or no oversight, emissions control, and protection against unanticipated construction. A bill passed by the Utah State legislature restricting the ability of a local town, city, or county to regulate any development for mining on any state or federally owned land was cited in support of this concern.

The concerns expressed in the comment are not relevant to the scope of the PEIS.

- The need for consistency with the ban on use of federal funds to implement Secretarial Order 3310, "Protecting Wilderness Characteristics on Lands Managed by the Bureau of Land Management," was noted. It was further stated that any attempt to implement, administer, or enforce Secretarial Order 3310 is a violation of Section 1769 of the April 21, 2011, Continuing Resolution, and thus the BLM should immediately cease all activities related to the OSTS PEIS.

The concerns expressed in the comment are not relevant to the scope of the PEIS.

J.3.9 Alternatives

J.3.9.1 Issues within the Scope of the PEIS

Commentors identified a number of issues related to alternative actions. The following considerations related to alternatives were submitted by one or more commentors:

- Support for the No Action Alternative that would leave in place current commercial leasing land allocation decisions from the 2008 ROD was expressed by several commentors. They observed that attempts to reverse the ROD subverts the public process, contradicts the spirit of the 2008 ROD negotiations, would be in direct contravention of the Energy Policy Act of 2005 and would be conducted without congressional authorization.

- Support for a conservation alternative was expressed, which expands beyond the list of lands to be excluded in Alternative C from the 2008 OSTS PEIS. This alternative would remove from oil shale and tar sands development land that contains (1) identified and/or potential wilderness characteristics, (2) CPW areas, (3) all ACECs, (4) core sage-grouse and/or other priority

habitat areas, (5) migration routes of big game herds, (6) the Adobe Town Very Rare or Uncommon Area (Wyoming), (7) designated and potential ACECs; (8) suitable Wild and Scenic River segments, and (9) lands identified as excluded from commercial oil shale and tar sands leasing in Alternative C of the 2008 OSTS PEIS.

- Consideration of a multiple-use alternative was proposed that would not remove several kinds of areas from oil shale and tar sands development. The proponent stated that it is possible to recover minerals without adversely impacting protected surface uses on lands that currently have restrictions for no surface disturbance through careful planning, management, mitigation and reclamation.

- A suggestion was made for a limited leasing alternative that significantly limits the number of areas made available for commercial leasing until the extraction process and its effects on the environment are better understood.

- Support was expressed for an alternative that limits leasing of public land to existing RD&D leases.

- Concern was expressed regarding preexisting contractual rights that could be affected by any alternative that could remove significant areas from oil shale leasing. Maintaining the ability of RD&D leaseholders to exercise their commercial conversion rights (on the preference area identified in their lease) and other contractual rights contained in their leases was specifically noted.

J.3.9.2 Issues outside the Scope of the PEIS, but Which May Present Related Policy Considerations

- Addition of a deferred leasing and development alternative was recommended that would delay the decision on whether to make available certain lands for commercial leasing and development until a number of conditions are met, including (1) ongoing RD&D projects are significantly complete and results analyzed, (2) oil shale and tar sands development is demonstrated to be a viable industry, (3) BLM's regulations are finalized, and (4) appropriate environmental quality standards are designed.

- A suggestion was made that the BLM prepare a Statement of Energy Effects detailing the adverse effects on energy supply, distribution, and/or use (including a shortfall in supply, price increases, and increased use of foreign supplies) for all alternatives that reduce the original 2 million acres of oil shale and tar sands resources previously made available.

- A suggestion was made to consider the development of alternate energy sources and to include an alternative that compares renewable energy sources with oil shale and tar sands.

- A suggestion was made for the inclusion of an alternative involving displacing the nation's dependence on foreign oil through efficiency improvements.

J.3.9.3 Issues outside the Scope of the PEIS

- Addition of a No Action Alternative that would provide a baseline of environmental conditions in the area against which leasing alternatives could be assessed was recommended.

The proposed additional No Action Alternative is not necessary; the current No Action Alternative provides a basis of comparison for other land allocation alternatives. See also the responses to similar comments regarding baseline studies in Section J.3.1.3.

- Inclusion of the No Action Alternative A from the 2008 OSTS PEIS, under which no amendments to existing land use plans to identify lands available for application for commercial oil shale leasing would be completed, and under which there would be no commercial leasing or development of tar sands on public lands, was recommended.

The proposed No Action Alternative is no longer relevant; land use plan amendments have already been made following the 2008 OSTS PEIS.

- Inclusion of a No Development Alternative that would include no oil shale and tar sands leasing or development at all on public lands was recommended.

The proposed No Development Alternative would not be responsive to the purpose and need of the PEIS, which is to analyze land allocation alternatives for a leasing program on public lands.

- Inclusion of an alternative that allows an increase in the amount of acreage under consideration for leasing and development was recommended.

The most geologically prospective area for oil shale and tar sands resources sets a reasonable and practical upper limit on the study area; Alternative 1, no action, includes the vast majority of the public lands in the study area.

- Inclusion of Alternative C from the 2008 OSTS PEIS with no modifications was recommended, with supporters stating that the BLM's reason for rejecting this alternative was flawed and that oil shale development was inappropriately prioritized over all other uses of public land.

It is not necessary to analyze the former Alternative C, since the current set of alternatives brackets lands therein and thus analyzes a range of impacts that encompasses that former alternative.

- Opposition to Alternative C from the 2008 OSTS PEIS was expressed, which stated that the available acreage is trivial and would not facilitate development of the resources.

The expressed opposition to the former Alternative C is not relevant to the scope of the current analysis.

- Opposition was expressed to inclusion of an alternative that emphasizes natural resource protection.

The expressed opposition to the mentioned alternative is contrary to the requirement of analyzing a full range of alternatives.

- A suggestion was made that the BLM consider the incorporation of a phased development alternative.

The suggested phased development alternative would not be compatible with the purpose and need of the PEIS, which is to analyze land allocation alternatives.

- Consideration of an alternative was suggested, which would open all BLM oil shale and tar sands lands to development while specifically defining in each solicitation the environmental standards that must be met.

The suggested alternative would not acknowledge existing restrictions on certain public lands, which would be in effect under any feasible alternative, and would not be responsive to the purpose and need of the PEIS to analyze alternatives which consider which lands should remain open for future leasing.

- Inclusion of an alternative was proposed that limits development to deposits that are at least 25 ft thick and yield 25 gal/ton or more; different standards for different states would not be considered, and thus the poor resource deposits in Wyoming would be excluded.

The separate criteria of 15 ft thick and 15 gal/ton used in Wyoming to define the study area were a necessary compromise to fairly account for the very large total (in-place barrels), albeit less rich, resource there. The proposed alternative would preclude this compromise.

- A suggestion was made that the alternatives have varying production scenarios to allow for better comparison among the presented alternatives. Also suggested was setting regional production targets to minimize effects on parks and other conservation levels.

Given the nascent stage of the technologies in question, it would be premature to set regional production targets and use such targets to structure alternatives, because such an attempt would be speculative, at best. Moreover, it would be premature to set regional production targets as suggested, given the state of the technologies.

- Concern was expressed related to alternatives that would remove any lands from leasing; it was cited that restricting available lands would choke off new technologies, impede progress being made, and hinder the ability to prove feasibility on federal land. It was further stated that such an alternative would create mostly noncontiguous parcels that would not allow for the efficient and economic development of the underlying oil shale resources.

The PEIS includes the ongoing RD&D projects under all alternatives. Since these projects are located in some of the richest resource areas, there would be no concern of impeding technological progress under any of the alternatives analyzed. Regarding the second part of the comment, the current range of alternatives encompasses a variety of geographic distributions of available lands.

J.3.10 Other Issues

Several other issues were raised in comments. The following were considered within the scope of the PEIS: the relationship between the PEIS and the ongoing oil shale RD&D program, their schedules, and data-sharing concerns.

Issues raised in scoping that were considered out of the scope of the PEIS were those more appropriately addressed in future NEPA analysis associated with lease applications, or within the ongoing RD&D programs. They included consideration of the mineral value of the shale itself (i.e., lithium, aluminum, and magnesium); consideration of natural seepage of oil into the ecosystem; and specifications on how the success of the technologies would be measured.

J.4 INTERAGENCY COOPERATION AND GOVERNMENT-TO-GOVERNMENT CONSULTATION

The BLM initially invited about 55 federal, tribal, state, and local government agencies to participate in preparation of the OSTS PEIS as cooperating agencies. To date, 15 agencies have expressed an interest in participating as cooperating agencies and efforts are underway to establish Memoranda of Understanding. These 15 agencies are as follows: Grand County, Utah; Garfield County, Colorado; the State of Colorado; the State of Utah; the State of Wyoming; USFWS; NPS; Carbon County, Utah; Lincoln County, Wyoming; Uinta County, Wyoming; Uintah County, Utah; Coalition of Local Governments; Duchesne County, Utah; City of Rifle, Colorado; Sweetwater County, Wyoming; and Shoshone Business Council (Eastern Shoshone Tribe).

In accordance with the requirements of Executive Order 13175, "Consultation and Coordination with Indian Tribal Governments," the BLM will coordinate and consult with tribal governments, Native American communities, and individual tribal individuals whose interests might be directly and substantially affected by activities being considered in the *Programmatic Environmental Impact Statement and Possible Land Use Plan Amendments for Allocation of Oil Shale and Tar Sands Resources on Lands Administered by the Bureau of Land Management in Colorado, Utah, and Wyoming.*

J.5 FUTURE OPPORTUNITIES FOR PUBLIC INVOLVEMENT

Scoping is only the first phase of public involvement provided under the NEPA process. The next phase of public involvement will consist of public review and comment on the Draft OSTS PEIS. At this time, the BLM anticipates releasing the Draft OSTS PEIS for public review in early 2012; a 90-day comment period will be provided.

The public also will have an opportunity to review the Final OSTS PEIS when it is published. The BLM will provide a 30-day review period on the Final OSTS PEIS. In addition, the BLM will provide a protest period related to proposed RMP amendments. In accordance with 43 CFR 1610.5-2, any person who participates in the planning process and has an interest that is or may be adversely affected by the proposed amendment of a RMP may protest such amendment. A protest may raise only those issues that were submitted for the record during the planning process.

Information about all opportunities for public involvement in the OSTS PEIS, including announcements of public meetings and releases of documents for review, will be maintained on the project Web site (http://ostseis.anl.gov). Individuals seeking e-mail notification of such opportunities can sign up for e-mail announcements.

J.6 REFERENCES

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