



COALITION FOR RESPONSIBLE MAMMOTH DEVELOPMENT, *ET AL.*

187 IBLA 141

Decided March 18, 2016



United States Department of the Interior  
Office of Hearings and Appeals  
Interior Board of Land Appeals  
801 N. Quincy St., Suite 300  
Arlington, VA 22203

703-235-3750

703-235-8349 (fax)

COALITION FOR RESPONSIBLE MAMMOTH DEVELOPMENT, *ET AL.*

IBLA 2013-222 & 2013-223

Decided March 18, 2016

Appeal from a Record of Decision of the Field Manager, Bishop (California) Field Office, Central California District, Bureau of Land Management, approving drilling and construction, operation, maintenance, and decommissioning of a commercial geothermal energy-generating plant. CACA-054722.

Decision affirmed; petition for stay denied as moot.

1. Environmental Quality: Environmental Statements–  
Geothermal Leases: Drilling–Geothermal Leases:  
Production–National Environmental Policy Act of 1969:  
Environmental Statements

In adjudicating an appeal from a BLM decision approving a plan for developing geothermal resources on Federal lands within a National Forest, we do not consider whether BLM acted in a manner consistent with the applicable Land and Resource Management Plan adopted by the Forest Service, and thus in compliance with the National Forest Management Act of 1976, 16 U.S.C. §§ 1600-1687 (2006). Rather, we are only concerned with whether BLM complied with section 102(2)(C) of NEPA, 42 U.S.C. § 4332(2)(C) (2006), in addressing the environmental ramifications of any deviation from the Plan.

2. Environmental Quality: Environmental Statements–  
Geothermal Leases: Drilling–Geothermal Leases:  
Production–National Environmental Policy Act of 1969:  
Environmental Statements

A BLM decision to approve a plan for developing geothermal resources will be affirmed where BLM prepared an EIS that took a hard look at the significant environmental consequences of drilling geothermal wells and constructing, operating, maintaining, and

decommissioning a geothermal energy-generating plant, and the appellant has failed to carry its burden to demonstrate, with objective proof, that BLM did not, as required by section 102(2)(C) of the National Environmental Policy Act of 1969, 42 U.S.C. § 4332(2)(C) (2006), adequately consider the likely individual and cumulative impacts on an endangered fish species, mule deer, wetlands and other waters of the United States, surface and groundwater, geothermal resources, and air quality.

3. Environmental Quality: Environmental Statements–  
Geothermal Leases: Drilling–Geothermal Leases:  
Production–National Environmental Policy Act of 1969:  
Environmental Statements

BLM is required by section 102(2)(C) of NEPA, 42 U.S.C. § 4332(2)(C) (2006), to supplement an EIS only when new information or circumstances demonstrate that the remaining Federal action will affect the quality of the human environment in a significant manner or to a significant extent not already considered in the EIS. An appellant fails to demonstrate that supplementation is required based on the mere assertion that the future adoption of measures for avoiding or mitigating adverse impacts to air quality and groundwater, in accordance with the approved plan, are likely to significantly change the expected impacts of a BLM decision to approve a plan for developing geothermal resources.

4. Environmental Quality: Environmental Statements–  
Geothermal Leases: Drilling–Geothermal Leases:  
Production–National Environmental Policy Act of 1969:  
Environmental Statements

BLM is required by section 102(2)(C) of NEPA, 42 U.S.C. § 4332(2)(C) (2006), to sufficiently describe and address the likely effectiveness of reasonable measures designed to avoid or mitigate the significant adverse effects of approving a plan for developing geothermal resources, thus ensuring that the resulting effects have been adequately considered. Such measures may be described

in general terms and rely on general processes for avoiding or mitigating the significant adverse effects, when they are likely to be uncertain. BLM need not actually adopt such measures or ensure that such effects are avoided or mitigated.

5. Environmental Quality: Environmental Statements–  
Geothermal Leases: Drilling–Geothermal Leases:  
Production–National Environmental Policy Act of 1969:  
Environmental Statements

In considering a plan for constructing and operating an energy-generating plant using geothermal resources obtained from Federal lands, BLM is not required by section 102(2)(C) of NEPA, 42 U.S.C. § 4332(2)(C) (2006), to consider alternative means for generating electricity that are not consistent with the purpose of the proposed action, or alternatives that are not technically or economically feasible.

6. Endangered Species Act of 1973: Section 7: Generally–  
Geothermal Leases: Drilling–Geothermal Leases:  
Production

A BLM decision to approve a plan for developing geothermal resources will be affirmed where BLM, with the concurrence of the Fish and Wildlife Service, determined that the plan is not likely to adversely affect an endangered fish species or its critical habitat, and the appellant fails to offer any objective proof of error or deficiency in BLM's analysis, thus demonstrating that BLM failed to fulfill its substantive obligation, under section 7 of the Endangered Species Act of 1973, 16 U.S.C. § 1536 (2006), to not jeopardize the continued existence of the species or destroy or adversely modify its critical habitat. The Board is not authorized to adjudicate the validity of the concurrence by the Fish and Wildlife Service.

7. Geothermal Leases: Drilling–Geothermal Leases:  
Production–Water Pollution Control: Federal Water  
Pollution Control Act

BLM does not violate section 404 of the Clean Water Act, 33 U.S.C. § 1344 (2006), by failing to require the proponent of a plan for developing geothermal resources to obtain a permit for discharging dredged or fill material into waters of the United States, where there is no evidence of such a discharge, and, in any event, the decision whether to require a permit rests with the Army Corps of Engineers.

APPEARANCES: Tanya A. Gulesserian, Esq., and Rachel E. Koss, Esq., South San Francisco, California, for Coalition for Responsible Mammoth Development; Richard T. Drury, Esq., Michael R. Lozeau, Esq., and Christina M. Caro, Esq., Oakland, California, for LiUNA; Andrew C. Emrich, Esq., Greenwood Village, Colorado, and Emily C. Schilling, Esq., Washington, D.C., for ORNI 50, LLC; Janell M. Bogue, Esq., Office of the Regional Solicitor, Sacramento, California, and Dylan Fuge, Esq., Washington, D.C., for the Bureau of Land Management.

OPINION BY ADMINISTRATIVE JUDGE KALAVRITINOS

The Coalition for Responsible Mammoth Development (CRMD) and Russell Covington, Robert A. Moore, Randy Sipes, Randal Sipes, Jr., and Laborers International Union of North America, Local Union 783 (collectively, LiUNA) have separately appealed from an August 13, 2013, Record of Decision (ROD) of the Field Manager, Bishop (California) Field Office (BFO), Central California District, Bureau of Land Management (BLM), approving drilling and construction, operation, maintenance, and decommissioning of a commercial geothermal energy-generating plant by ORNI 50, LLC (ORNI), in connection with the Casa Diablo IV Geothermal Development Project (CD-IV Project or Project), CACA-054722, on Federal lands in Mono County, California, near the existing Casa Diablo geothermal complex.<sup>1,2</sup> The ROD was based on a July 2013 Final EIS/EIR, which was prepared by BLM, along

---

<sup>1</sup> The appeals by CRMD and LiUNA were docketed by the Board, respectively, as IBLA 2013-222 and IBLA 2013-223. By Orders dated Oct. 24, 2013, we granted ORNI's motions to intervene in the two pending appeals.

<sup>2</sup> Mammoth Community Water District (MCWD) also filed a separate appeal from the August 2013 ROD, challenging the adequacy of the Environmental Impact

(continued...)

with Federal and State cooperating agencies (Forest Service (FS), U.S. Department of Agriculture, and Great Basin Unified Air Pollution Control District (APCD)), pursuant to section 102(2)(C) of NEPA, 42 U.S.C. § 4332(2)(C) (2006), and its Council on Environmental Quality (CEQ) implementing regulations, 40 C.F.R. §§ 1500.1- 1518.4.<sup>3,4</sup>

---

(...continued)

Statement/Environmental Impact Report (EIS/EIR) under section 102(2)(C) of the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. § 4332(2)(C) (2006), to the extent it considered the likely effects of the Project on groundwater resources relied upon by the Town. The Board docketed the appeal as IBLA 2013-217, and adjudicated it in *Mammoth Community Water District*, 186 IBLA 108 (2015). By Order dated Nov. 12, 2013, we granted in part and denied in part BLM's motion to consolidate all three appeals, approving consolidation of IBLA 2013-222 and 2013-223, but not IBLA 2013-217.

In *Mammoth Community Water District*, 186 IBLA 108, MCWD stated that, using a combination of surface and groundwater, it “provides the Town [of Mammoth Lakes (Town), in Mono County, California,] . . . and surrounding areas with safe, reliable and affordable municipal water supply, wastewater collection and treatment, and recycled water supply services.” Notice of Appeal/Statement of Reasons/Petition for Stay (NA/Petition) (IBLA 2013-217) at 3. The Board affirmed the ROD in that appeal.

<sup>3</sup> BLM, FS, and APCD jointly prepared the EIS/EIR to comply with Federal and State environmental review requirements of section 102(2)(C) of NEPA and the California Environmental Quality Act (CEQA), Cal. Pub. Res. Code, §§ 21000-21177 (West 2013), respectively. BLM and FS respectively administer the mineral and surface estate of the Federal lands at issue, and APCD is responsible for issuing the air quality control permits necessary for Project construction and operation. See Final EIS/EIR at 1-2, 1-13 to 1-14, 1-15, 3.2-6. BLM was the lead Federal agency, for the purpose of preparation of the EIS, under section 102(2)(C) of NEPA, and APCD was the lead State agency, for the purpose of preparation of the EIR, under the CEQA. LiUNA correctly asserts that the Final EIS/EIR was promulgated and the ROD issued by BLM before APCD approved the Final EIS/EIR. See LiUNA Statement of Reasons (SOR) at 5-6; BLM Opposition to Petition for Stay (Opposition) (LiUNA) at 8 (“[A]PCD still must certify the EIS[EIR] under CEQA before it can make a decision on the Proponent’s air [quality control] permit request”), 17 (“[A]PCD . . . was selected as a co-lead agency for purposes of CEQA in preparing the EIS[EIR]”). However, having been approved by BLM and FS, the EIS/EIR is effective, *to the extent it constitutes compliance by the Federal agencies with NEPA*. See ROD at 8 (“[A]PCD was responsible for ensuring compliance with the CEQA”).

(continued...)

Because we are not persuaded that CRMD and LiUNA have established any error of fact or law in BLM's approval of the Project, we will affirm the Field Manager's August 2013 ROD.

### *Background*

On February 17, 2010 (revised June 5, 2012), Mammoth Pacific, L.P. (Mammoth Pacific), ORNI's predecessor-in-interest, filed an application to construct, operate, maintain, and decommission the Project on Federally-leased lands within the Inyo National Forest, pursuant to the Geothermal Steam Act, 30 U.S.C. §§ 1001-1028 (2012).<sup>5,6</sup>

The Project constitutes a commercial geothermal power project that would encompass a 42.4 gross/33 net megawatt (MW) binary geothermal energy-generating plant and associated substation, geothermal well field with up to 16 geothermal wells (8 production wells and 8 injection wells), 5.42 miles of pipelines, and associated infrastructure.<sup>7,8</sup> See Final EIS/EIR at 2-4, 2-8. The wells would be sited at

---

(...continued)

<sup>4</sup> The Forest Supervisor, Inyo National Forest, FS, separately approved the Project in an Aug. 12, 2013, ROD, to the extent it would authorize activities on the surface of the affected Federal lands.

<sup>5</sup> Mammoth Pacific was co-owned by Ormat Nevada, Inc. (ONI), and Constellation Energy. ONI later acquired Constellation Energy's 50% interest on Aug. 2, 2010. ORNI, which is pursuing the Project, is a wholly-owned subsidiary of ONI. References herein to ORNI refer to Mammoth Pacific and ONI.

<sup>6</sup> The Federal land at issue is subject to four geothermal leases, CACA-11667, CACA-11672, CACA-14407, and CACA-14408, issued in 1982 and 1985, and currently held by ORNI. This land is within the Mono-Long Valley Known Geothermal Resource Area (KGRA), which has been developed for geothermal power generation since 1984. See Final EIS/EIR at 1-4, 3.7-2. The KGRA principally encompasses the 11- by 22-mile Long Valley Caldera, which was created by the collapse of land following a volcanic eruption that occurred approximately 760,000 years ago. Over the next 100,000 years, the center of the caldera, measuring approximately 6.2 miles in diameter, was pushed upwards as much as 1,640 feet, resulting in what is known as the Resurgent Dome.

<sup>7</sup> The power plant would be situated in secs. 29 and 32, T. 3 S., R. 28 E., and the wells would be situated in secs. 25, 26, and 36, T. 3 S., R. 27 E., and secs. 30-32, T. 3 S., R. 28

(continued...)

18 potential locations, identified by BLM and FS, in the Project area. Each well would be drilled to a total depth of approximately 1,600 to 2,000 feet (production) or 2,500 feet (injection). *See id.* at 2-8. During well construction, each well site, encompassing, *inter alia*, a drilling rig, water tank, generators, mud pits, and containment basin, would cover a total of 2.5 acres, which would be reduced to 0.4 acres after construction. *See id.* at 2-17. Approximately 6.5 acres would be cleared of trees and other vegetation for the purposes of constructing the power plant. *See id.* at 2-12. Once constructed, the power plant and adjacent substation would cover a total of approximately 6.75 acres. *See id.* at 2-12, 2-15. The Project would disturb a total of approximately 78.3 acres temporarily and 17.3 acres permanently. *See id.* at 2-6 (Table 2-1 (Comparison of Proposed Action and Alternatives)). Drilling operations would last approximately 60 days in the case of each well. *See id.* at 2-24. The anticipated life of the Project is 30 years.

As a condition of Project approval, ORNI is required to obtain appropriate Federal and State permits and other authorizations, before proceeding with any drilling or other development in conjunction with the Project. Such State authorizations include air quality control permits from APCD, which, issued pursuant to the State equivalent of the Clean Air Act (CAA), 42 U.S.C. §§ 7401-7671q (2006), authorize construction and operation of the geothermal wells, power plant, and other stationary sources of air pollution.<sup>9</sup> *See* Final EIS/EIR at 1-13 to 1-15, 4.2-6; ROD

---

(...continued)

E., Mount Diablo Meridian, Mono County, California. *See* Final EIS/EIR at 1-2. Most of the wells (14) would be situated in the Basalt Canyon area, west of U.S. Highway 395, which generally runs northwest-southeast through the Project area, and the remaining wells (2) and the power plant and substation would be situated east of the highway. *See* Final EIS/EIR at 2-7 (Fig. 2-1 (Project Location Map)), 2-9 (Fig. 2-2 (Project Layout-Aerial Photograph Base)). The wells in the Basalt Canyon area would be principally connected to the power plant by pipelines that parallel an existing pipeline that crosses under the Highway.

<sup>8</sup> The actual number and location of wells would depend upon the productivity of the wells, as “determined by modeling and actual drilling results.” Final EIS/EIR at 2-8.

<sup>9</sup> APCD must issue an Authority to Construct (ATC) and a Permit to Operate (PTO), authorizing construction and operation of the Project in conformance with the State equivalent of the CAA. *See* ROD at 8; ROD, Appendix 2 (Mitigation, Monitoring and Reporting Program), at A2-1 (Project Design Measure (PDM) AQ-4); Final EIS/EIR at 1-15, 3.2-7, 4.2-6.

at 8; ROD, Appendix 2, at A2-1. In addition, ORNI is required, *inter alia*, to obtain BLM's approval of Geothermal Drilling Permits, a Site License and Commercial Permit, a Utilization Plan and Facility Construction Permit, and Geotechnical and Surface Fault Rupture Hazard Investigations, BLM/FS's approval of a Migratory Deer Monitoring Plan, a Soil Erosion Control Plan, and a Noise Management Plan, APCD's approval of a Fugitive Dust Control Plan, a Hydrogen Sulfide (H<sub>2</sub>S) Abatement Plan, and an Emissions Management Plan, and, finally, BLM/California Department of Fish and Wildlife/Fish and Wildlife Service's approval of an Owens Tui Chub Population and Habitat Monitoring Plan and amended Remedial Action Plan. See ROD at 5; ROD, Appendix 2, at A2-1, A2-2, A2-6, A2-7, A2-9, A2-10. ORNI is also required to develop and implement a groundwater monitoring plan, in coordination with the Long Valley Hydrologic Advisory Committee (LVHAC) and MCWD, which is to focus on detecting any changes in the municipal water supply attributable to geothermal resource production/injection.<sup>10</sup> See ROD at 12; Final EIS/EIR at 6-15 to 6-17.

Once Federal and State permitting and other authorizations are in place, well drilling, weather permitting, would begin and proceed concurrently with construction of the power plant, taking approximately 16 months. Over the 6-month period from June through November, ORNI would drill wells at the rate of 6 wells per year, until it reaches a total of 16 wells, and during one summer season, it would lay the pipelines. See Final EIS/EIR at 2-36.

The Project is the latest in a series of geothermal drilling and development efforts that has resulted in the drilling of exploration and production wells in the vicinity of the proposed wells, in conjunction with the construction, maintenance, and operation of three existing geothermal power plants.<sup>11</sup> See Final EIS/EIR at 1-4, 1-5 (Figure 1-1 (Existing Facilities)), 1-6, 2-9 (Figure 2-2). Since 1984, geothermal production has mostly occurred in the Casa Diablo area, from depths of 500 to 800

---

<sup>10</sup> The LVHAC, composed of representatives of BLM, FS, U.S. Geological Survey (USGS), California Department of Oil, Gas and Geothermal Resources, California Department of Fish and Wildlife (CDFW), and Mono County was formed "to serve an advisory role with respect to management of Long Valley geothermal resources." Final EIS/EIR at 3.7-19.

<sup>11</sup> Two existing production wells, which were drilled in 2006, are situated in the Basalt Canyon area (57-25 and 66-25), where most of the 16 proposed wells will also be located. See Final EIS/EIR at 2-18 (Table 2-2 (Proposed Well Status and Previous NEPA Analysis)). BLM also states that 3 other proposed wells already have been drilled as exploration wells. Final EIS/EIR at 2-17.

feet, only shifting west to the Basalt Canyon area, where most of the current production will occur, with the drilling of two wells in 2006 to a depth of 1,500 feet.<sup>12</sup> The three existing power plants are located approximately 0.5 miles southeast of the Project's power plant (MP I (10 MW) ( in operation since around 1984), PLES I (15 MW), and MP II (15 MW) (in operation since around 1990)). *See id.* at 2-9 (Figure 2-2), 3.10-1. As in the past, energy generated by the existing and future plants would be sold to Southern California Edison (SCE), by use of a 650-foot long 33 kilovolt (kV) overhead transmission line that connects the Project substation to the existing SCE Substation.

The Project's power plant would be situated approximately 1.5 miles east of the Town.<sup>13</sup> *See* Final EIS/EIR at 1-2, 2-7 (Figure 2-1), 3.10-1; NA/Petition (MCWD) at 3. The Project's 16 geothermal wells would be mostly situated west of the power plant, both inside and outside the Town's municipal boundary. *See* Final EIS/EIR at 2-7 (Figure 2-1). Fourteen wells would be located west of the power plant "in the Basalt Canyon Area, in the vicinity of five existing wells (two production wells, two exploration wells, and one monitoring well)," and the remaining two wells would be located southeast of the power plant. *Id.* at 3.10-2. The proposed wells in the Basalt Canyon area are situated one to two miles closer to MCWD's water wells than the

---

<sup>12</sup> The geothermal system at issue is thought to operate due to the downward flow of melted snow and other surface water, along fault lines on the western edge of the Long Valley Caldera, which, heated at depth, moves upwards and laterally east under the Basalt Canyon and then Casa Diablo areas of the caldera to outcrops further to the east near the headwater springs of Hot Creek. *See* Final EIS/EIR at 3.7-11 to 3.7-13, 4.7-2 ("[R]oughly 70 percent of the current outflow from the geothermal reservoir occurs at Hot Creek on the southeastern edge of the Resurgent Dome. Geochemical, hydrological and thermal data from wells and springs in the southeastern caldera corroborate the continuity of geothermal fluid flow from Casa Diablo through Hot Creek and eastward to Lake Crowley and the commingling of shallow geothermal outflow and groundwater systems in the southern and southeastern caldera." (Emphasis added)).

<sup>13</sup> Hot geothermal fluid would be extracted from the geothermal reservoir by ORNI's proposed wells and carried, by pipeline, to the power plant, where it would be used to vaporize n-pentane (C<sub>5</sub>H<sub>12</sub>), a hydrocarbon, in a closed-loop system, whereby the vaporized n-pentane would be used to drive turbines/generators, generating electricity, condensed, and returned to the pre-heaters/vaporizers, in order to repeat the cycle. *See* Final EIS/EIR at 2-40, 2-43, 4.19-6. The cooled geothermal fluid would be returned, by pipeline, to the well field, and re-injected into the geothermal reservoir.

existing wells in that area. *See id.* at 6-21 (Figure 2 (Mammoth Community Well Locations, Deep Exploration Wells, and CD-IV Project Area)), D-68 (Figure 11 (Mammoth Groundwater Basin)), H-42, H-49 (“The primary MCWD production wells are about 3 miles west of Basalt Canyon”).

A Notice of Intent, initiating the public scoping process for the Project, was published in the *Federal Register* on March 25, 2011 (76 Fed. Reg. 16806). Public comments were accepted through May 9, 2011.

Thereafter, BLM, together with the cooperating agencies, prepared a Draft EIS/EIR, which addressed the potential environmental impacts of undertaking the proposed Project and alternatives thereto.<sup>14</sup> In addition to the proposed Project (Applicant Proposed Action (Alternative 1)), BLM considered two action alternatives, locating the proposed geothermal energy-generating plant closer to the existing geothermal power plants in the Project area (Plant Site Alternative (Alternative 2)) and realigning the proposed production and injection pipelines in order to minimize likely impacts on biological, cultural, and visual resources (Modified Pipeline Alternative (Alternative 3)), and a No Action Alternative (Alternative 4). Alternative 3 was BLM’s preferred alternative.<sup>15</sup> BLM also briefly addressed three other alternatives (Underground Pipeline Alternative, Reduced Power Alternative, and Alternative Plant Site in Basalt Canyon), but declined to afford them detailed consideration. *See* Final EIS/EIR at 2-85 to 2-87.

---

<sup>14</sup> The Draft and Final EIS/EIR were prepared by Environmental Science Associates (Enviro), under the direction of BLM, FS, and APCD. *See* 40 C.F.R. § 1506.5(c); Final EIS/EIR at 1-15; BLM Response to Supplemental SORs (Response) at 6 (“BLM was responsible for selecting the EIS contractor, directing the scope and content of the EIS, and reviewing draft and final versions of the document”), 7. Enviro, in turn, subcontracted certain aspects of the environmental review undertaken in connection with preparation of the EIS/EIR, including the Geologic and Geothermal Resources Technical Report (TR) (Final EIS/EIR, Appendix D), which was subcontracted to EGS, Inc., the “*Long Valley Caldera/Casa Diablo Geothermal Reservoir Simulation Model: Peer Review*” (August 2012) (SAIC Peer Review), which was subcontracted to SAIC, Inc. (SAIC), and the “*Appendix B: Long Valley Caldera/Casa Diablo Numerical Model - Forecast Scenarios*” (April 2012) (Appendix B), which was subcontracted to Geothermal Science, Inc. (GSI).

<sup>15</sup> Under Alternative 3, the total length of the pipelines would, by virtue of the realignment, decrease from 5.68 to 5.42 miles, resulting in less surface disturbance.

Notice of Availability of the Draft EIS/EIR was published in the *Federal Register* on November 16, 2012. 77 Fed. Reg. 68771.<sup>16</sup> The 75-day public comment period for the Draft EIS/EIR ended on January 30, 2013, generating a total of 28 comments, which were responded to in the Final EIS/EIR.<sup>17</sup> The Final EIS/EIR was issued on July 5, 2013. See Notice of Availability, 78 Fed. Reg. 40474.<sup>18</sup>

BLM expected the Project to produce large quantities of geothermal resources (heated brine) from the Long Valley geothermal reservoir in the Mammoth Groundwater Basin (Basin), which would be transported by pipeline to the energy-generating plant, and then re-injected. BLM considered the likely impacts of such activities on geothermal and groundwater resources in its EIS/EIR. See generally Draft EIS/EIR at 3.7-1 to 3.7-18, 4.7-1 to 4.7-17, Appendix D (Geologic and Geothermal Resources TR); Final EIS/EIR at 3.7-1 to 3.7-19, 4.7-1 to 4.7-17, Appendix D (Geologic and Geothermal Resources TR). BLM expected to increase existing production by as much as 50 percent, raising the flow by 6,000 gallons per minute (gpm), from 12,000 to 18,000 gpm. BLM concluded that, under either the Proposed Project (Alternative 1) or BLM's Preferred Alternative (Alternative 3), operation of the Project, was "not expected to cause substantial changes in the availability, quality, or temperature of hot springs, streams, and groundwater resources," and, indeed, that impacts to geothermal hydrologic features and groundwater resources were "anticipated to be minimal." Draft EIS/EIR at ES-8, ES-10. These conclusions were carried through to the Final EIS/EIR. See Final EIS/EIR at ES-9, ES-13.

Early on, in conjunction with its ongoing development of geothermal resources at Casa Diablo, ORNI had developed the Geothermal Reservoir Simulation Model (GRSM), in both a conceptual and numerical form. The Model was designed to

---

<sup>16</sup> Since the Draft EIS/EIR is a single volume that is uniquely paginated, we will cite to the numbered page(s).

<sup>17</sup> The comments and responses to comments are included, respectively, in Appendices G and H of the Final EIS/EIR.

<sup>18</sup> Volume 1 of the Final EIS/EIR contains the main text of the Final EIS/EIR. Since it is uniquely paginated, we will cite to the numbered page(s). Appendices A through F of the Final EIS/EIR are contained on a separate compact disk, included with the Final EIS/EIR. Appendices G and H are separately bound as Volume 2 of the Final EIS/EIR. In citing to an Appendix, since each Appendix is uniquely paginated, with the letter designation of the Appendix as a prefix, we will cite to the "Final EIS/EIR," followed by the numbered page(s) of the Appendix.

simulate geothermal production and predict reservoir response as a consequence of the drilling and extraction, and later reinjection, of geothermal resources from and into the geothermal reservoir at Casa Diablo. See Final EIS/EIR at 4.7-4 to 4.7-5, 6-27 (“The model was created expressly for the purpose of evaluating the conditions . . . in the Bishop Tuff geothermal reservoir in Basalt Canyon and for . . . managing [the] production and injection program. The model, based on the current understanding of the physical system and historic reservoir response, is the best available tool for conducting a reasonable evaluation of future impacts.”). The conceptual and numerical models were intended to investigate the likely impacts of future production scenarios on reservoir pressures and temperatures. See *id.* at 4.7-5, 6-27.

More recently, ORNI updated the GRSM for use in connection with the Project. It is undisputed that ORNI has never provided the GRSM or, specifically, its conceptual or numerical model, or the data input to and output from the model, for use in conjunction with BLM’s preparation of the Draft and Final EIS/EIR, since the GRSM and its modeling results were considered to be proprietary information of ORNI, and therefore were not subject to public disclosure. See Final EIS/EIR at 4.7-4, H-33. The GRSM was, however, subjected to independent technical (peer) review by SAIC, for the purpose of assessing the accuracy of its geothermal reservoir response predictions.<sup>19</sup> See *id.* at 4.7-4 to 4.7-5, 6-15 (“SAIC . . . independently peer-reviewed the Applicant’s proprietary numerical model of the geothermal reservoir on behalf of the lead agencies to confirm its quality and usefulness for predicting future production scenarios on reservoir pressures and temperatures”). The resulting Peer Review, which was provided to BLM, for use in conjunction with Draft and Final EIS/EIR preparation concluded that, since the actual effects of geothermal production, as monitored over time, had matched the model’s predictions, the model could be validly employed to assess the likely geothermal resource impacts of the Project, alone and together with existing Casa Diablo geothermal production.

Given its validity, GSI used the GRSM to forecast the likely effects of geothermal production/injection on the geothermal reservoir in the case of two scenarios, a baseline scenario involving continuation of the existing production/injection and a new scenario involving the addition of the proposed production/injection of the

---

<sup>19</sup> The SAIC Peer Review took the form of the report entitled “*Long Valley Caldera/Casa Diablo Geothermal Reservoir Simulation Model: Peer Review*” (August 2012), prepared by SAIC.

Project.<sup>20</sup> See Final EIS/EIR at 4.7-4 to 4.7-6. The resulting Appendix B was also provided to BLM, for use in conjunction with Draft and Final EIS/EIR preparation.<sup>21</sup>

In its Final EIS/EIR, BLM addressed the adequacy of the information supporting BLM's analysis of the likely groundwater effects of geothermal drilling and development in the Draft EIS/EIR. It concluded that the Draft EIS/EIR contained sufficient information regarding such effects, noting that, while BLM had undertaken detailed modeling in an effort to understand and predict "the *geothermal reservoir* response to proposed production and injection scenarios," that model was not used to understand and predict the *groundwater aquifer* response. Final EIS/EIR at H-33 (emphasis added). BLM further noted that certain information, which had been sought by MCWD, concerned the likely effects of the Project *on the geothermal reservoir*, which included the GRSM, a peer review of the model by SAIC, input and

---

<sup>20</sup> The GSI modeling took the form of the report entitled "*Appendix B: Long Valley Caldera/Casa Diablo Numerical Model - Forecast Scenarios*" (April 2012), prepared by GSI.

<sup>21</sup> On Jan. 11, 2013, MCWD submitted a request for documents that were "referenced and relied upon in the Draft EIS/EIR," pursuant to the Freedom of Information Act (FOIA), 5 U.S.C. § 552 (2006). SOR (IBLA 2013-217) at 8. It asserted its need for the requested information to assess the accuracy of BLM's assessment of likely groundwater effects, which included

time histories of geothermal production, temperature and reservoir pressure for each production and injection well; a conceptual model description of the geothermal reservoirs in the Long Valley area that were proposed to be used for expanded geothermal development under the Project; and numerical model reports documenting the models used in the Draft EIS/EIR, including any input and output files, model assumptions, calibration and planning simulations.

*Id.* BLM addressed that request in the final EIS/EIR. MCWD stated, in connection with its appeal from the August 2013 ROD, that BLM disclosed some, but not all, of the requested information. It noted that BLM declined to disclose the additional information, not including the GRSM and its modeling results, unless MCWD signed non-disclosure agreements, since the information was considered by ORNI to be proprietary.

output files for the model, and model forecasts of future reservoir response, some of which was deemed proprietary information.<sup>22</sup> It also noted that other information sought by MCWD concerned the likely effects of the Project *on the groundwater aquifer*, which consisted of “subsurface geologic information based on proprietary and non-proprietary borehole data[] [and] results of hydrologic monitoring and groundwater monitoring[.]” *Id.*

BLM also stated that, based on the subsurface geologic information available to BLM and ongoing monitoring of the aquifer by MCWD and LVHAC, there were expected to be no impacts to groundwater resources attributable to the CD-IV Project:

Available evidence indicates that the shallow Mammoth Groundwater Basin is physically isolated from the deeper geothermal system. Because these two systems are separate, the CD-IV Project would be unlikely to affect the availability or quality of shallow groundwater resources in the Project vicinity. No effects on the shallow cold water basin have been observed during monitoring of the 27 years of operation of the existing Casa Diablo [drilling and development] facilities.

Final EIS/EIR at 4.7-12; *see id.* at 6-18 (“Data reviewed for the Draft EIS/EIR analyses included well boring logs, subsurface lithologies, geochemical studies, LVHAC monitoring data, MCWD’s groundwater model report and annual monitoring reports”), 6-19 (“Separation from cold groundwater is a fundamental concept of the geothermal system. *Without separation from overlying cold groundwater, the hot geothermal system could not exist[] [since] it would be quenched by the infiltration of cold waters.*” (Emphasis added)). Most importantly, BLM stated: “Because there is *no known hydrologic connection of the geothermal reservoir to the overlying groundwater aquifer* in Basalt Canyon, there is no forecast drawdown in groundwater levels as a response to predicted pressure and temperature changes in the geothermal reservoir.” *Id.* at H-34 (emphasis added).

---

<sup>22</sup> BLM stated that the GRSM was sufficiently described “for its intended purpose in forecasting the geothermal reservoir response to the proposed production and injection program,” but that specific information, sought by MCWD, regarding ORNI’s determination of that response was proprietary, including “[t]ime histories of geothermal production, injection, temperature, and reservoir pressure[,] . . . [details of] [t]he numeric model, input and output files, water budget time histories and pressure head maps for the calibration and projection simulations for the geothermal model[.]” Final EIS/EIR at H-33.

Because the Project's geothermal drilling and development might affect surface water in the headwater springs of Hot Creek, where geothermal resources and groundwater both emerge east of the Project area, and because the headwater springs are designated critical habitat for the Federal and State endangered Owens tui chub (*Siphateles bicolor snyderi*), BLM prepared a Biological Assessment (BA) on July 1, 2013, pursuant to section 7(c)(1) of the Endangered Species Act of 1973 (ESA), 16 U.S.C. § 1536(c)(1) (2006).<sup>23</sup> After analyzing the current status of the chub and its habitat and the likely effects of the Project, BLM concluded that the Project may affect, but is not likely to adversely affect (NLAA), the chub or its critical habitat. *See* BA at 31-32. It expected no direct impacts, since Project activities would occur over 2 miles from the chub and its critical habitat, and no indirect impacts, since, based on historical monitoring and modeling forecasts, potential changes in the quantity and quality of water in the headwater springs would be "insignificant and discountable[.]" *Id.* at 32. BLM anticipated little indirect impacts especially since a minor change in the rate of flow and water chemistry was expected, the projected maximum decrease in mean water temperature of 1.5°C was not likely to have detrimental effects, because chub "appear to be *relatively tolerant of moderate changes in their physical . . . environment as evidenced by the varied conditions that the remaining populations are exploiting,*" and project design measures (PDM) and mitigation measures (MM) would detect and react to any abnormal changes. *Id.* (emphasis added).

FWS issued a Letter of Concurrence (LOC) (No. 08EVEN00-2013-I-0368), concurring in BLM's NLAA determination, on August 2, 2013.<sup>24</sup> FWS noted that the only impacts of the Project to the chub and its critical habitat might occur as a consequence of changes in the rate of flow, temperature, and chemistry of the water in the headwater springs of Hot Creek. *See* LOC at 2. However, since it agreed that no direct impacts would occur and any indirect impacts would be insignificant, FWS concurred in BLM's NLAA determination. *See id.* at 3.

---

<sup>23</sup> The Fish and Wildlife Service (FWS), U.S. Department of the Interior, designated the Owens tui chub as an endangered species and critical habitat for the chub under the ESA, 16 U.S.C. §§ 1531-1544 (2006), effective Sept. 4, 1985. *See* 50 Fed. Reg. 31592 (Aug. 5, 1985). The chub is found in the AB and CD springs, headwaters of Hot Creek, which are designated critical habitat, as well as in the Little Hot Creek Pond. The Project is situated 2 miles from the springs and 5 miles from the pond. This case focuses on the likely effects of the Project on the headwater springs of Hot Creek.

<sup>24</sup> The LOC constitutes Appendix 4 of the ROD.

In his August 2013 ROD, the Field Manager approved BLM's Preferred Alternative (Alternative 3 (Modified Pipeline Alternative)), subject to all of the PDMs, proposed by ORNI, and MMs, developed by BLM that were set forth in the Final EIS/EIR.<sup>25,26</sup> See ROD at 4-5, 17; Final EIS/EIR at 2-46 to 2-71. He found this would best promote the goals of renewable energy and mineral resource development, while avoiding or minimizing adverse environmental impacts, and preventing any unnecessary or undue degradation of the public lands, violative of section 302(b) of the Federal Land Policy and Management Act of 1976 (FLPMA), 43 U.S.C. § 1732(b) (2006). See ROD at 6-8.

In issuing the ROD, the Field Manager stated that “currently available data indicate that the shallow Mammoth Groundwater Basin is *physically isolated* from the deeper geothermal system and therefore the [P]roject is unlikely to affect the quality or availability of shallow groundwater resources.” ROD at 12 (emphasis added). While finding no basis to anticipate any adverse impact on groundwater resources, the Field Manager stated that ORNI would also be required, as a condition of approval of the Project, to develop and implement “a cooperative shallow ground water monitoring plan,” in order to promote “ongoing data collection and monitoring” concerning the local water supply and appropriate remedial action: “[The plan will be] focused on detecting any [unanticipated] direct or indirect effects on the municipal water supply that may occur from geothermal production and injection[.]” *Id.*; see Final EIS/EIR at D-27 (“Regular monitoring data reviews . . . should assure there are no adverse [e]ffects on the quality of shallow cold groundwater and would give permitting agencies the ability to order corrective actions should any adverse effects be

---

<sup>25</sup> The Field Manager specifically approved ORNI's Feb. 17, 2010 (revised June 5, 2012) “Application for Geothermal Drilling, Commercial Use, Site License, and Construction Permit,” and associated Plan of Development, Plan of Operation, and Plan of Utilization. See ROD at 4.

<sup>26</sup> Attached to the ROD, as Appendix 2, was a Mitigation, Monitoring and Reporting Program, listing all of the PDMs and MMs adopted by BLM, in cooperation with FS and APCD, that were designed to avoid or minimize the Project's likely adverse environmental impacts. Importantly, BLM stated therein that “[t]he agencies retain **the authority to halt any activity** associated with the CD-IV Project *if the activity is determined to be a deviation from the approved project or the adopted [PDMs] and [MMs][.]*” ROD, Appendix 2, at A2i (emphasis added). In the ROD, the Field Manager stated that any failure by ORNI to adhere to the PDMs and MMs “could result in various administrative actions up to, and including, the termination of all approvals and the requirement to remove the facilities and rehabilitate disturbances.” ROD at 12.

determined”); BLM Opposition at 10. Finally, the Field Manager concluded that the Project had been thoroughly analyzed in the EIS/EIR, in compliance with section 102(2)(C) of NEPA, adding that the Project would not unnecessarily or unduly degrade the Federal lands at issue. *See* ROD at 6.

CRMD and LiUNA, both of which participated extensively in the NEPA review process, providing scoping comments and comments on the Draft and Final EIS/EIR, appealed timely from the Field Manager’s August 2013 ROD. LiUNA, but not CRMD, petitioned for a stay of the effect of BLM’s approval of the drilling and development of geothermal resources in connection with the Project, during the pendency of its appeal. However, since we finally resolve the appeal on its merits, the stay petition is denied as moot.

Before addressing the merits of the pending appeals, we note that the Board previously had occasion to define the sum and substance of the administrative record that was provided by BLM, following the filing of the appeals, for the purposes of review by the parties, in connection with their appeals, and, ultimately, by the Board, for the purposes of adjudication and resolution of the appeals.

On December 12, 2013, BLM filed a request to limit disclosure of confidential information, pursuant to 43 C.F.R. § 4.31(a), seeking, in pertinent part, to limit disclosure to the public of a total of approximately 368 documents, which disclosed the results of geothermal well testing and production and otherwise related to geothermal resources. The 368 documents, which were part of a unified administrative record for all three appeals, were allegedly exempt from mandatory public disclosure pursuant to FOIA, or otherwise exempt by law from public disclosure. BLM’s request was supported by ORNI, but opposed by MCWD, CRMD, and LiUNA.

We granted BLM’s request in separate February 20, 2014, Orders, in IBLA 2013-217 and IBLA 2013-222/2013-223, thereby agreeing not to publicly disclose the identified documents, but otherwise to permit disclosure to the parties to the appeal, pursuant to 43 C.F.R. § 4.31(c). BLM properly provided copies of the documents to MCWD, CRMD, and LiUNA on March 19, 2014.<sup>27</sup> By order dated May 23, 2014, we

---

<sup>27</sup> In our July 14, 2014, stay order in IBLA 2013-217, we denied MCWD’s motion to exclude all of these geothermal resource documents from the administrative record, for the purposes of Board review, pursuant to 43 C.F.R. § 4.24(a)(4), since, contrary to MCWD’s view, such documents were open for inspection by the parties to the appeal. *See* MCWD Motion to Exclude, dated Jan. 13, 2014, at 1-2. To the extent that CRMD and LiUNA similarly seek to exclude these documents, their motions are, likewise, denied. *See* CRMD Opposition to Request to Limit Disclosure, dated Dec. 26, 2013,

(continued...)

denied requests by CRMD and LiUNA for the April 5, 2012, “Main Report” and “numerical reservoir model,” both of which concern the GRSM, but afforded CRMD and LiUNA extensions of time, to and including June 20, 2014, in order to allow them sufficient time to submit supplemental SORs, addressing the documents recently provided to them.

Accordingly, we turn to the merits of the two appeals filed by CRMD and LiUNA.<sup>28</sup>

### *Discussion*

Before addressing the issues raised by CRMD and LiUNA in their respective NA/Petition, SOR, and/or Supplemental SOR (Supp. SOR), we note that the appellants seek to incorporate the issues raised in their comments to the Draft EIS/EIR and Final EIS/EIR.<sup>29,30</sup> See SOR (CRMD) at 2 n.3; NA/Petition (LiUNA) at 12. Such comments were fully addressed in the Final EIS/EIR and considered in connection with issuance of the ROD. See Final EIS/EIR at G-167 to G-325, G-391 to G-475, H-98 to H-134, H-150 to H-170; ROD at 14. However, by their nature, none of the referenced comments or supporting documentation sought to establish error *in the ROD*. We,

---

(...continued)

at 10-11; LiUNA Opposition to Request to Limit Disclosure, dated Dec. 24, 2013, at 3, 7, 10.

<sup>28</sup> LiUNA requests the Board to compel oral argument, pursuant to 43 C.F.R. § 4.25, and to refer the case for a hearing before an administrative law judge, pursuant to 43 C.F.R. § 4.415. However, it fails to establish that oral argument is likely to add to the lengthy briefing already provided by LiUNA, BLM, and ORNI, or that there exists any issue of material fact that is relevant to the disposition of LiUNA’s appeal and cannot be decided on the basis of the existing record, and warrants a hearing. See LiUNA Request for Oral Argument or Hearing, dated Jan. 22, 2014, at 2, 3. Therefore, LiUNA’s requests for oral argument and a hearing are denied.

<sup>29</sup> LiUNA seeks to incorporate by reference the arguments advanced by MCWD and CRMD in their SORs and/or Supp. SORs. See Supp. SOR at 2 n.2. We adjudicate these arguments only in the context of resolving the respective appeals by MCWD and CRMD.

<sup>30</sup> BLM and ORNI each filed a consolidated response to CRMD’s and LiUNA’s SORs, which is termed an “Answer.” BLM also filed a consolidated response to CRMD’s and LiUNA’s Supp. SORs, which is termed a “Response.”

therefore, look solely to their notices of appeal, petitions for stay, original and supplemental SORs, and other briefs generated in response to briefing by BLM or ORNI, for any failure by BLM to comply with section 102(2)(C) of NEPA or the other statutes cited by the appellants. In doing so, we will not attempt to surmise how or to what extent the referenced comments or supporting documentation support the current appeals, since they do not purport to demonstrate error in the decision on appeal.

### I. *The LRMP, NFMA, and NSO*

While principally challenging BLM's August 2013 ROD on the basis of BLM's failure to adhere to the environmental review requirements of section 102(2)(C) of NEPA, CRMD and LiUNA also argue that, in approving the Project, BLM acted in a manner "inconsistent with the Inyo National Forest Land and Resource Management Plan" (LRMP) and, therefore, violated the National Forest Management Act of 1976 (NFMA), 16 U.S.C. §§ 1600-1687 (2006). According to appellants, the approved Project will adversely affect mule deer (*Odocoileus hemionus*) and their habitat in the National Forest, and conflict with management objectives in the LRMP, which incorporated the CDFW mule deer habitat management plans. SOR (CRMD) at 2; see SOR (CRMD) at 25-26; SOR (LiUNA) at 25-26.

[1] The LRMP for the Inyo National Forest was developed by FS, not BLM, and it is the FS that determines whether its approval of the Project conformed to that plan, as required by the NFMA. See 16 U.S.C. § 1604(i) (2006). We note that FS' approval of the Project is limited to authorizations for the construction, operation, maintenance, and decommissioning of the electrical transmission line, connecting the new power plant and SCE substation, and access roads. See ROD at 5-6; Final EIS/EIR at 1-2. It did not concern BLM's authorization to construct, operate, maintain, and decommission the geothermal wells, production/injection pipelines, power plant, and related facilities. In addition, CRMD and LiUNA were afforded ample opportunity, through the FS appeals process, to challenge FS' determination that its approval of the Project conformed to the plan.

Further, as a matter of comity, the Board generally does not adjudicate the legality or propriety of actions taken by FS. See 43 C.F.R. §§ 4.21(b)(2) and 4.410(a); *Missouri Coalition for the Environment*, 172 IBLA 226, 237 (2007); *Wyoming Outdoor Council*, 159 IBLA 388, 401 (2003); *Colorado Environmental Coalition*, 125 IBLA 210, 218-20 (1993).

For these reasons, we will not decide whether, in approving the Project activity committed to its jurisdiction, BLM conformed with the LRMP, in compliance with the NFMA. See *Backcountry Against Dumps*, 179 IBLA 148, 176 (2010). Rather, we are

only concerned with whether BLM properly addressed, in the EIS/EIR, whether and to what extent its approved Project activity deviates from the LRMP, and, importantly, the resulting environmental ramifications, for NEPA purposes. *See Backcountry Against Dumps*, 179 IBLA at 176; *Save Medicine Lake Coalition*, 156 IBLA 219, 255-58 (2002), *aff'd sub nom.*, *Pit River Tribe v. BLM*, 306 F. Supp. 2d 929 (E.D. Cal. 2004), *rev'd on other grounds*, 469 F.3d 768 (9th Cir. 2006).

BLM and FS concluded that the Project conformed to the LRMP. *See* Final EIS/EIR at 1-10, 1-12, 3.10-1 to 3.10-2, 3.10-3, 3.10-3 to 3.10-5, 4.10-1, 4.10-2 to 4.10-3, 4.10-5 to 4.10-6 (“[T]he CD-IV Project would not conflict with any land use plan . . . applicable to the CD-IV Project, including the . . . LRMP[.] . . . Therefore, the CD-IV Project would not conflict with an applicable land use plan, . . . and the impact would be less than significant.”), 4.10-6 to 4.10-7. Neither CRMD nor LiUNA establishes that the Project would not conform with the LRMP.

LiUNA, however, asserts that, to the extent Project activities are situated in the portion of the Project area designated, under the applicable Federal leases (CACA-14407 and CACA-14408), as “No Surface Occupancy” (NSO), no surface-disturbing activity related to geothermal energy development may occur unless BLM and FS approve the activity, after properly finding that it will not significantly affect any management objective in the LRMP. *See* NA/Petition at 7, 45, 46-47. It states that BLM improperly held that Project activities, particularly various wells (12A-31, 14-25, 15-25, 23-31, 35-31, and 81-36) and the above-ground pipelines, will not significantly affect the visual resources and recreational use by members of the public at the Shady Rest Park and surrounding scenic areas.

We agree that, to the extent the Project area is subject to the NSO, BLM, as well as FS, has a duty to ensure that Project activities are consistent with the LRMP. *See* Final EIS/EIR at 3.10-1, 3.18-12, 4.18-2. BLM noted that “approximately 1.36 miles of pipelines and portions of up to 4 wells are located in the No Surface Occupancy areas.” *Id.* at 3.10-1; *see id.* at 3.18-3 (Fig. 3.18-1 (Photo Viewpoint Map)). In addition, we think the record amply demonstrates that BLM and FS acted to ensure that no activity is likely to significantly affect visual resources and recreational use contrary to any LRMP management objective, as required by the NSO stipulation. *See id.* at 3.14-1 to 3.14-4, 3.14-6 to 3.14-7, 3.18-1 to 3.18-12, 4.14-1 to 4.14-11, 4.14-12 to 4.14-13, 4.14-15 to 4.14-16, 4.18-1 to 4.18-24, 4.18-30 to 4.18-33, 4.18-36 to 4.18-37. Furthermore, in the EIS/EIR, BLM and FS determined the Project would not significantly impact visual resources or recreational use, contrary to any LRMP management objective. *See id.* at 4.10-6.

LiUNA fails to establish that any surface-disturbing activity associated with the 1.36 miles of pipelines and portions of 4 wells, situated in the NSO portions of the

Project area, are likely to significantly impact visual resources or recreational use, contrary to any LRMP management objective. Ultimately, we are not persuaded that the wells and pipelines will be so visible as to “impair” the “use and enjoyment” of the Park or surrounding scenic areas. NA/Petition (LiUNA) at 47.

## *II. Compliance with Section 102(2)(C) of NEPA*

CRMD contends that BLM’s decision to approve the Project violated the procedural requirements of section 102(2)(C) of NEPA because (1) BLM failed to consider the likely impacts of decommissioning the Project, the final phase of the Project, and “connected actions” to the other two phases of the Project, construction and operation/maintenance of the Project; (2) BLM failed to adequately describe the environmental baseline conditions in the Project area, prior to initiation of the Project; (3) BLM failed to take a “hard look” at the likely significant impacts of the Project to the Owens tui chub, mule deer, and wetlands and other jurisdictional waters; and (4) BLM failed to thoroughly evaluate appropriate and available measures for mitigating the likely significant impacts of drilling and developing geothermal resources on the Owens tui chub and mule deer.

CRMD also argues that BLM’s decision to approve the Project violated the substantive no jeopardy requirements of section 7(a)(2) of the ESA, 16 U.S.C. § 1536(a)(2) (2006), and the substantive permitting requirements of section 404 of the Clean Water Act (CWA), 33 U.S.C. § 1344 (2006).

LiUNA contends that BLM’s decision to approve the Project violated the procedural requirements of section 102(2)(C) of NEPA because (1) BLM failed to properly disclose to the public the GRSM and associated data underlying BLM’s assessment of the likely effects of geothermal production on the surface flow of geothermal resources to Hot Creek and other areas southeast of the Project area, and the air emissions data underlying BLM’s assessment of the likely effects of emissions of volatile organic compounds (VOC) on air quality;<sup>31</sup> (2) BLM failed to take a hard look at the likely significant impacts of VOC and H<sub>2</sub>S emissions by the Project; (3) BLM failed to take a hard look at the likely impacts of geothermal drilling and development on local surface and groundwater resources; (4) BLM failed to take a hard look at the likely cumulative impacts of the Project, together with the other geothermal drilling

---

<sup>31</sup> LiUNA states that the term “VOC” is often used interchangeably with “ROG,” which signifies reactive organic gases. See SOR at 10, n.1; BLM Answer at 26 n.10. We will generally refer to VOCs. Project activities do not emit ozone (O<sub>3</sub>), but expected emissions of VOCs and NO<sub>x</sub> (oxides of nitrogen) contribute to the formation of ozone. See Final EIS/EIR at 3.2-3.

and development occurring in the KGRA, on geothermal resources; (5) BLM failed to consider reasonable mitigation measures for avoiding or minimizing the likely significant adverse effects of the Project in terms of air quality, visual resources, noise, mule deer, and wildfires; and (6) BLM failed to consider reasonable alternatives to the proposed Project.<sup>32</sup>

CRMD and LiUNA both ask the Board to set aside BLM's August 2013 ROD, approving the Project, and remand the case to BLM for preparation of a supplemental EIS/EIR, as well as compliance with the other Federal statutes at issue, and issuance of a new decision. See SOR (CRMD) at 2, 30; SOR (LiUNA) at 29-30.

#### A. *Standard of Review*

[2] Section 102(2)(C) of NEPA requires a Federal agency to prepare a “detailed statement” addressing the potential environmental impacts of a proposed action and alternatives thereto in the case of any major Federal action that “significantly affect[s] the quality of the human environment[.]” 42 U.S.C. § 4332(2)(C) (2006). It is well established that the statute does not mandate the particular substantive results of agency decision making, but rather imposes procedural obligations on the agency, which require that the agency *and* the public be fully informed of the likely environmental consequences when the agency exercises its substantive discretion to approve a proposed action: “If the adverse environmental effects of the proposed action are adequately identified and evaluated, the agency is not constrained by NEPA from deciding that other values outweigh the environmental costs, [in deciding to go forward with the proposed action].” *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989).

---

<sup>32</sup> LiUNA also argues that BLM violated the dictate in section 302(a) of FLPMA, 43 U.S.C. § 1732(a) (2006), that it “manage the public lands . . . in accordance with the [applicable] land use plan[.]” See SOR at 24. It indicates that BLM failed to address “key issues,” including “recreation and wildlife habitat,” in conformance with the 1993 Bishop Resource Management Plan (RMP). *Id.* BLM is required to adhere to the RMP. See *Norton v. Southern Utah Wilderness Alliance*, 542 U.S. 55, 69 (2004) (“[Statutory and regulatory provisions] prevent BLM from taking actions inconsistent with the provisions of a land use plan”); *Tom Van Sant*, 174 IBLA 78, 91-92 (2008). However, LiUNA does not identify the specific directives of the RMP that are at issue, or demonstrate in what ways BLM failed to ensure that the Project adheres to such directives, and, therefore, does not establish that BLM failed to conform to the RMP, in violation of section 302(a) of FLPMA.

The adequacy of an EIS/EIR, which considered the likely environmental impacts of approving construction, operation, maintenance, and decommissioning of a geothermal energy-generating plant and related activity, must be judged by whether it constituted a “detailed statement” that took a “hard look” at all of the potential significant environmental consequences of the proposed action and reasonable alternatives thereto, considering all relevant matters of environmental concern. *Backcountry Against Dumps*, 179 IBLA at 161 (quoting 42 U.S.C. § 4332(2)(C) (2006), and *Kleppe v. Sierra Club*, 427 U.S. 390, 410 n.21 (1976)), and cases cited. The EIS/EIR must contain “a ‘reasonably thorough discussion of the significant aspects of the probable environmental consequences’” of the proposed action and alternatives thereto. *State of California v. Block*, 690 F.2d 753, 761 (9th Cir. 1982) (quoting *Trout Unlimited v. Morton*, 509 F.2d 1276, 1283 (9th Cir. 1974)).

In deciding whether an EIS/EIR promotes informed decision making, a “rule of reason” will be employed. *County of Suffolk v. Secretary of Interior*, 562 F.2d 1368, 1375 (2d Cir. 1977), *cert. denied*, 434 U.S. 1064 (1978); *Northern Alaska Environmental Center*, 153 IBLA 253, 256 (2000). The court in *County of Suffolk* stated:

[A]n EIS need not be exhaustive to the point of discussing all possible details bearing on the proposed action but will be upheld as adequate if it has been compiled in good faith and sets forth *sufficient information* to enable the decisionmaker to consider fully the environmental factors involved and to make a reasoned decision after balancing the risks of harm to the environment against the benefits to be derived from the proposed action, as well as to make a reasoned choice between alternatives.

562 F.2d at 1375(emphasis added.); *see Northwest Environmental Advocates v. National Marine Fisheries Service*, 460 F.3d 1125, 1139 (9th Cir. 2006) (“NEPA requires not that an agency engage in the most exhaustive environmental analysis theoretically possible, but that it take a ‘hard look’ at relevant factors”).

An appellant challenging a BLM decision to approve construction, operation, maintenance, and decommissioning of a geothermal energy-generating plant and related activity, following preparation of an EIS/EIR, must carry its burden to demonstrate by a preponderance of the evidence, with objective proof, that BLM failed to adequately consider a substantial environmental question of material significance to the proposed action, or otherwise failed to abide by section 102(2)(C) of NEPA. *See, e.g., Backcountry Against Dumps*, 179 IBLA at 161. The appellant must make an “affirmative showing that BLM failed to consider a substantial environmental question

of material significance,” and cannot simply “pick apart a record with alleged errors and disagreements[.]” *Arizona Zoological Society*, 167 IBLA 347, 357-58 (2006) (quoting *In re Stratton Hog Timber Sale*, 160 IBLA 329, 332 (2004)).

Further, in adjudging the adequacy of an EIS/EIR, the Board properly relies on the professional opinion of BLM’s technical experts, concerning matters within the realm of their expertise, which is reasonable and supported by record evidence. See *Backcountry Against Dumps*, 179 IBLA at 161-62. The Board’s deferential standard of review extends not only to BLM’s own experts, but also to non-BLM experts who offered their professional opinion and supporting analyses regarding the likely impacts of a proposed action, so long as BLM independently evaluated the opinion and supporting analyses. See, e.g., *Coliseum Square Association, Inc. v. Jackson*, 465 F.3d 215, 236 (5th Cir. 2006), *cert. denied*, 552 U.S. 810 (2007); *Lesser v. City of Cape May*, 110 F. Supp. 2d 303, 329 (D. N.J. 2000), *aff’d*, 78 Fed. Appx. 208 (3rd Cir. 2003) (“The NEPA review process often involves the consideration of specialized scientific fields about which the reviewing agency itself lacks the knowledge to make an informed decision. To forbid consultation with outside experts would result in uninformed agency decisions.”); *Northern Alaska Environmental Center*, 153 IBLA at 258. Such outside experts may be employed by parties with whom BLM consulted and/or by the proponent of the proposed action, since BLM will be the ultimate arbiter of the usefulness of the information submitted. See 40 C.F.R. § 1506.5(a) and (c); 43 C.F.R. § 46.105; *Sierra Club v. Lynn*, 502 F.2d 43, 59 (5th Cir. 1974), *cert. denied*, 421 U.S. 994 (1975) (“There is no NEPA prohibition against a . . . financially interested private contractor or a new community applicant providing the [F]ederal agency, which must of necessity work with these parties, data, information, reports, groundwork environmental studies or other assistance in the preparation of an [EIS]. . . . NEPA demands only that ‘the applicable [F]ederal agency must bear the responsibility for the ultimate work product designed to satisfy the requirement of § 102(2)(C).’” (quoting *Life of the Land v. Brinegar*, 485 F.2d 460, 467 (9th Cir. 1973), *cert. denied*, 416 U.S. 961 (1974))).

In the present case, in addition to experts employed by BLM and the cooperating agencies, BLM relied, in the preparation of the EIS/EIR, on outside consultants, both contracted and sub-contracted experts, whose work was scrutinized by the agencies’ experts. See Final EIS/EIR at 7-1 to 7-3. No justification is offered for disregarding the professional opinion and supporting analyses of such consultants.

In challenging a BLM determination that relies on the professional opinion of its technical experts, the burden of proof falls to a party objecting to BLM’s decision to establish, by a preponderance of the evidence, that BLM erred in its determination. *West Cow Creek Permittees v. BLM*, 142 IBLA 224, 238 (1998). An appellant challenging such reliance must demonstrate, by a preponderance of the evidence, error

in the data, methodology, analysis, or conclusion of the expert: “[An appellant must show that] BLM erred when collecting the underlying data, when interpreting that data, or when reaching the conclusion, and not simply that a different course of action or interpretation is available and supported by the evidence.” *Id.* The appellant “must show not just that the results of [BLM’s] study *could be* in error, but that they *are* erroneous.” *Id.*

Above all, a mere difference of expert opinion about the likelihood or significance of environmental impacts will not suffice to show, to the Board’s satisfaction, that BLM failed to fully comprehend the true nature, magnitude, or scope of the significant impacts. *Backcountry Against Dumps*, 179 IBLA at 162. As we have long stated, the Board’s role “is not to decide whether an EIS . . . is based upon the best scientific data and methodology available or to resolve disagreements in the scientific community as to th[e] issues” raised by the appellant, but rather to determine whether BLM’s analysis of the “available data” regarding likely significant impacts was reasonable and supported by evidence in the record. *Center for Biological Diversity*, 181 IBLA 325, 341 (2012) (quoting *Wyoming Audubon*, 151 IBLA 42, 51 (1999)). Nor is the Board precluded from upholding an EIS/EIR that fails to remove all doubt regarding likely environmental impacts, since an EIS/EIR “need not achieve scientific unanimity[.]” *Id.* (quoting *Life of the Land v. Brinegar*, 485 F.2d at 473).

#### B. Whether BLM Properly Disclosed Underlying Environmental Data

LiUNA argues that BLM failed to properly disclose to the public, during the NEPA process, the GRSM and associated data underlying its assessment of the likely effects of geothermal production on the surface flow of geothermal resources to Hot Creek and other areas southeast of the Project area, and also the air emissions data underlying BLM’s assessment of the likely effects of emissions of VOCs on air quality.<sup>33</sup>

---

<sup>33</sup> LiUNA notes that BLM did disclose the emissions data underlying its assessment of air quality impacts after the ROD was issued in August 2013. *See* SOR at 11, 29. BLM asserts that such disclosure renders LiUNA’s argument regarding non-disclosure moot. *See* Answer at 40. However, LiUNA argues that the data constitutes significant new information that must be considered in a supplemental EIS/EIR. *See* SOR at 29. We are not persuaded that the data reveals that the Project, in terms of VOC emissions, is likely to affect air quality “in a significant manner or to a significant extent not already considered [in the EIS/EIR],” warranting a supplemental EIS/EIR.

*Biodiversity Conservation Alliance*, 183 IBLA 97, 117 (2013) (quoting *Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 374 (1989)). We agree with BLM that LiUNA has failed to demonstrate that any of this data “change[s] the analysis in the EIS[EIR] or any of the BLM’s conclusions” regarding likely air quality impacts. Answer at 40;

(continued...)

See SOR at 9-11; Supp. SOR at 2-5, 12-16, 17-18. It asserts that “NEPA prohibits agencies from relying on ‘secret studies’ that [they] fail[] to disclose to the public[.]” SOR at 11. In support, LiUNA cites (1) 40 C.F.R. § 1500.1(b) (“NEPA procedures must insure that environmental information is available to . . . citizens before decisions are made and before actions are taken”) (2) 40 C.F.R. § 1502.21 (“[m]aterial based on proprietary data which is itself not available for review and comment shall not be incorporated by reference”); (3) 40 C.F.R. § 1502.24 (“[a]gencies . . . shall make explicit reference . . . to the scientific and other sources relied upon for conclusions in the statement”); and (4) *Idaho Sporting Congress v. Thomas*, 137 F.3d 1146, 1150 (9th Cir. 1998) (“NEPA requires that the public receive the underlying environmental data from which a [Federal agency] . . . expert derived her opinion.”) See SOR at 9; Supp. SOR at 4, 12, 13. LiUNA concludes by claiming that, if BLM relies or wishes to rely on information not publicly disclosed, “it must release the[] [relevant documents] to the public, and prepare and circulate a supplemental EIS[/EIR] for public comment.” Supp. SOR at 18.

LiUNA takes particular note of the GRSM, particularly, the April 5, 2012, Main Report and the conceptual and numerical model, and associated data, which were purportedly “used to forecast the Project’s impacts on groundwater and geothermal resources[.]” Supp. SOR at 2-3; *see id.* at 3, 5, 12, 14, 15. However, we recently stated, in our opinion resolving MCWD’s appeal from the August 2013 ROD, that the GRSM was used to assess whether and to what extent geothermal drilling and development was likely to affect the geothermal reservoir, not the groundwater aquifer, or even the surface expressions of the groundwater aquifer, southeast of the Project area. *Mammoth Community Water District*, 186 IBLA at 112 n.8, 113; *see, e.g.*, Final EIS/EIR at 6-22 (“Local geothermal extraction and injection operations related to existing and potential expanded future operations were not modeled as part of th[e] study [of groundwater resource impacts] as existing publicly available studies and data do not indicate significant interaction between the upper cold water aquifer and the much deeper geothermal reservoir” (quoting Mammoth Basin Groundwater Model Report (Model Report), Wildermuth Environmental Inc. (September 2009)).<sup>34</sup> We continue to adhere to that position. See Supp. SOR (LiUNA) at 14 (“[T]he [ORNI] Model failed to include the shallow groundwater reservoir in its geothermal forecast analysis”).

---

(...continued)

*see id.* at 49 (“The EIS[/EIR] already analyzes the upper limit of n-pentane emissions that will be permitted by the [ ]APCD”).

<sup>34</sup> The Model Report may be found at [http://www.mcwd.dst.ca.us/assets/2009-mammoth-basin-gw-modeling-report\\_final.pdf](http://www.mcwd.dst.ca.us/assets/2009-mammoth-basin-gw-modeling-report_final.pdf) (last visited Mar. 16, 2016).

LiUNA and CRMD, however, also assert that, since the GRSM did not analyze the likely effects of the Project on groundwater resources, either under the ground or in surface expressions, the SAIC Peer Review and GSI Appendix B, which were directly based on the GRSM, did not support BLM's conclusions regarding such effects. *See* Supp. SOR (LiUNA) at 4-5, 19-24; Supp. SOR (CRMD) at 7-8, 11.

As we discussed in our recent opinion adjudicating MCWD's appeal, it is clear that BLM's conclusions were based on evidence *other than that associated with the GRSM*, including geophysical data and monitoring results obtained from existing groundwater and geothermal wells, which are set forth at length in the Geologic and Geothermal Resources TR and which establish the absence of any hydrologic connection between the groundwater aquifer and the geothermal reservoir other than where they are both manifested at the surface, southeast of the Project area. *Mammoth Community Water District*, 186 IBLA at 118-123; *see, e.g.*, Final EIS/EIR at 4.7-1, 4.7-10 to 4.7-14, 4.7-15, 6-18 ("The BLM and Forest Service took a hard look at the impacts of the CD-IV Project on groundwater resources[.] . . . Data reviewed for the Draft EIS/EIR analyses included well boring logs, subsurface lithologies, geochemical studies, LVHAC monitoring data, MCWD's groundwater model report and annual monitoring reports."), 6-18 to 6-27, 6-27 ("Flow, drawdowns, or temperature changes for groundwater resources in the Project area . . . were not calculated from the model's predictions of pressure and temperature declines in the geothermal reservoir, *because there is no indication that the shallow groundwater responds to geothermal reservoir pressure and temperature changes.*" (Emphasis added)), 6-28. Therefore, BLM expected no impact to groundwater resources as a consequence of the Project. *See, e.g., id.* at 4.7-12 ("Available evidence indicates that the shallow Mammoth Groundwater Basin is physically isolated from the deeper geothermal system.

Because these two systems are separate, "the CD-IV Project would be unlikely to affect the availability or quality of shallow groundwater resources in the Project vicinity. No effects on the shallow cold water basin have been observed during monitoring of the 27 years of operation of the existing Casa Diablo facilities." Final EIS/EIR at 4.7-12. To the extent that the Project would affect the outflow of geothermal resources onto the surface, where they would mix with the surface expressions of the groundwater, BLM expected little or no change to the quality of these surface waters, since it anticipated little or no change in the outflow of geothermal resources. *See, e.g., id.* at 4.7-2 to 4.7-6, 4.7-6 ("Based on response to reservoir pressure changes observed from historical monitoring and numerical model forecasts, the impact of the Proposed Action is not anticipated to have a substantial effect on outflow to surface waters and geothermal manifestations"), 4.7-6 to 4.7-9, 4.7-15, 6-27.

We focus now on the question whether BLM was required by NEPA to disclose the GRSM and associated data in connection with the discussion in the EIS/EIR regarding the likely effects of the Project *on the geothermal resources*.

LiUNA's assertion of error is based on its conclusion that "[t]he EIS/EIR impermissibly relied" upon the GRSM and associated data and the air emissions data in reaching its conclusions regarding the likely effects of the Project in terms of geothermal resources and air quality. SOR at 9; *see* Supp. SOR at 5 ("BLM violated its duty under NEPA to perform its own fact-finding and evaluation of the information relied upon in the EIS/EIR [concerning the GRSM]"), 7, 9 ("The Model is referenced numerous times in the Final EIS/EIR, and the simulations and forecasts generated by the Model were relied upon by the EIS/EIR to conclude that the Project would not have a significant effect on groundwater and geothermal resources"), 15. LiUNA properly states that BLM is required by section 102(2)(C) of NEPA and its implementing regulations to disclose to the public, during the NEPA process, "the underlying environmental data from which an agency expert derives his or her opinion." SOR at 9 (quoting *Siskiyou Regional Education Project v. Rose*, 87 F. Supp. 2d 1074, 1096 (D. Or. 1999) (citing 40 C.F.R. § 1502.24 ("Agencies . . . shall identify any methodologies used and shall make explicit reference by footnote to the scientific and other sources relied upon for conclusions in the [environmental impact] statement")); *see, e.g., Earth Island Institute v. U.S. Forest Service*, 351 F.3d 1291, 1300-01 (9th Cir. 2003).

A careful review of the Final EIS/EIR and the rest of the administrative record, however, reveals that, while the GRSM and associated data and the air emissions data were, in fact, generated by ORNI, none of this data was provided to BLM, in connection with its preparation of the EIS/EIR, and, therefore, BLM did not "rel[y]" upon any of this data in forming its conclusions regarding likely geothermal resource and air quality effects of the Project. *See, e.g.,* Final EIS/EIR at 4.7-1 ("This analysis of potential environmental consequences of the Proposed Action and Alternatives for geothermal . . . resources . . . relies upon expert peer review of the Applicant's proprietary simulation model of the geothermal reservoir and a comprehensive evaluation of the voluminous technical studies and monitoring data available for the Long Valley area since the beginning of existing geothermal operations." (Emphasis added)). BLM noted, in the EIS/EIR, that such data had been generated, but it did not incorporate any of this data by reference or otherwise rely on the data in formulating its assessment of likely effects. *See* BLM Response at 3-4; ORNI Answer at 21.

Indeed, LiUNA and CRMD also argue that, since BLM did not obtain the GRSM, including the April 5, 2012, Main Report, and associated data, generated by ORNI, BLM violated its obligation, under NEPA, to independently review information provided by a Project applicant, and verify the accuracy of that information. *See* Supp.

SOR (LiUNA) at 5-12 (citing 40 C.F.R. § 1506.5(a) (“The agency shall independently evaluate the information submitted [by an applicant] and shall be responsible for its accuracy. . . . It is the intent of this [regulatory language] . . . that acceptable work not be redone, but that it be verified by the agency.”); and, *e.g.*, *Barnes v. U.S. Department of Transportation*, 655 F.3d 1124, 1131 (9th Cir. 2011) (“The FAA [Federal Aviation Administration] . . . was required to independently evaluate the information in the EA and was responsible for its accuracy. [40 C.F.R.] § 1506.5(a).”)), 16-17; Supp. SOR (CRMD) at 8-12 (citing 40 C.F.R. § 1506.5(a); and, *e.g.*, *Barnes v. U.S. Department of Transportation*, 655 F.3d at 1131). They also assert that BLM’s failure to provide the GRSM and associated data renders the administrative record legally deficient. See Supp. SOR (LiUNA) at 18-19; Supp. SOR (CRMD) at 12-13.

LiUNA’s and CRMD’s argument hinges on their assessment that BLM “relied upon” the GRSM and associated data in reaching its conclusions regarding the likely effects of the Project on geothermal resources, either underground or in their surface expressions. Supp. SOR (LiUNA) at 5, 7; Supp. SOR (CRMD) at 9. We find no such reliance. Instead, we find BLM relied on the SAIC Peer Review and GSI Appendix B and other evidence in the record. See 43 C.F.R. § 4.411(d) (“After receiving a timely notice of appeal, [BLM] . . . must promptly forward to the Board . . . [t]he complete administrative record compiled during [BLM’s] . . . consideration of the matter leading to the decision being appealed” (emphasis added)); *e.g.*, Final EIS/EIR at 2-86 (“geothermal modeling”), 4.4-14 (“modeling forecasts”), 4.7-1 (“Applicant’s reservoir simulation model’s prediction of reservoir response to the proposed production increase”), 4.7-6 (“numerical model forecasts”); BLM Response at 3 (“An administrative record does not include . . . any documents that a third party believes should have been considered” (citing Decl. of Collin B. Reinhardt, BLM Geologist, BFO, dated May 15, 2014 (Ex. A to BLM Opposition to Supplemental Requests for Administrative Record Information), ¶ 3, at 3 (“[N]either [the model nor the Main Report] . . . were ever in BLM’s possession, nor were they relied upon by the BLM in its evaluation of the Project, except to the extent information from those items was presented in [the] EIS[/EIR] [or the SAIC Peer Review and GSI Appendix B] . . . that were reviewed by the BLM”))). BLM did not rely on the model developed by ORNI, but rather *the use of that model by GSI and SAIC to forecast the likely effects of the Project*. We further conclude that the SAIC Peer Review and GSI Appendix B were properly reviewed by Enviro, in preparing the EIS/EIR and, ultimately, by BLM, in adopting the EIS/EIR. LiUNA and CRMD fail to demonstrate otherwise. See *Sierra Club, Inc.*, 92 IBLA 290, 303 (1986); *e.g.*, Final EIS/EIR at 6-15 (“The lead agencies independently have considered the information provided by their team of qualified experts”).

LiUNA states “BLM failed to obtain and review the principal geothermal numerical model data” prepared by ORNI, in connection with the GRSM, adding that

“BLM never possessed, and never reviewed, the [ORNI] Model or the April 5, 2012[,] [ORNI] . . . ‘Main Report,’ which explains the development of the [ORNI] Model, its conceptual basis, and the Model’s calibration used to forecast Project scenarios[.]” Supp. SOR at 2, 3. While passing reference to the existence of the Main Report, and the conceptual and numerical model is made in the EIS/EIR and elsewhere in the record, the simple fact of the matter is that BLM did not review them, and did not rely upon their analyses and conclusions in preparing the EIS/EIR. We think that this was made clear in the EIS/EIR, which removed any doubt, eliminating any “‘mistaken assumptions’” regarding whether BLM relied on the GRSM and associated data in assessing the likely effects of the Project on geothermal resources. Supp. SOR at 27 (quoting *League of Wilderness Defenders/Blue Mountains Biodiversity Project v. Connaughton*, 752 F.3d 755, 761 (9th Cir. 2014)). LiUNA offers no convincing argument or supporting evidence for its claim that BLM, nevertheless, relied upon them in reaching its conclusions regarding the likely effects of the Project on geothermal resources.

LiUNA asserts that BLM relied on the SAIC Peer Review and GSI Appendix B, as well as the other 368 documents (referred to as “Geothermal Records”), to reach its conclusions regarding the likely effects of the Project on geothermal resources. See Supp. SOR at 12, 13. It, therefore, argues that, by failing publicly to disclose these documents as part of the NEPA process, and instead only providing them to the parties on appeal (MCWD, CRMD, and LiUNA), effectively “under seal,” BLM violated its public disclosure obligations under NEPA. *Id.* at 2. But as the Supreme Court stated, in *Weinberger v. Catholic Action of Hawaii/Peace Education Project*, 454 U.S. 139, 143 (1981):

Section 102(2)(C) . . . serves twin aims. The first is to inject environmental considerations into the [F]ederal agency’s decisionmaking process by requiring the agency to prepare an EIS. The second aim is to inform the public that the agency has considered environmental concerns in its decisionmaking process. Through the disclosure of an EIS, the public is made aware that the agency has taken environmental considerations into account. Public disclosure of the EIS is expressly governed by FOIA [Freedom of Information Act]. 42 U.S.C. § 4332(2)(C).

The decisionmaking and public disclosure goals of § 102(2)(C), though certainly compatible, are not necessarily coextensive. Thus, § 102(2)(C) contemplates that in a given situation a [F]ederal agency might have to include environmental considerations in its decisionmaking process, *yet withhold public disclosure of any NEPA*

*documents, in whole or in part, under the authority of an FOIA exemption.*  
[Emphasis added.]

The Court held: “NEPA’s public disclosure requirements are expressly governed by FOIA.” *Id.* at 145; *see Parker v. BLM*, 141 F. Supp. 2d 71, 81 (D.D.C. 2001) (“[I]f agencies seeking assistance from private parties in fulfilling their obligations under NEPA cannot maintain the confidentiality of proprietary materials that have been submitted to it, the government’s ability to obtain such information would be impaired”); *Mammoth Community Water District*, 186 IBLA at 123-26. BLM properly adhered to the FOIA restrictions in the course of preparing and promulgating the EIS/EIR, by not releasing the protected information as part of the NEPA process.<sup>35</sup>

Therefore, we conclude that, in assessing the likely effects of the Project on the surface flow of geothermal resources and air quality, BLM did not rely on any information that was not disclosed to the public, in contravention of section 102(2)(C) of NEPA.

### C. *Whether BLM Considered Connected Actions*

CRMD argues that BLM violated section 102(2)(C) of NEPA by expressly declining to consider the likely impacts of decommissioning the Project, since decommissioning would not occur but for the earlier phases of the Project, construction and operation/maintenance, and otherwise qualifies as a “[c]onnected action[],” within the meaning of 40 C.F.R. § 1508.25. *See* SOR at 2-4; Reply to BLM Answers (Reply) at 3 (“BLM treated Project decommissioning as a *separate* project requiring a *separate* permit and *separate* NEPA review”). It challenges the scope of the EIS/EIR, asserting that BLM must prepare a new EIS/EIR “that analyzes the whole Project.” Reply at 4.

The Council on Environmental Quality regulation at 40 C.F.R. § 1508.25 directs agencies, including BLM, when preparing an EIS, to consider, “[c]onnected actions” to the proposed action, which are those actions that are “closely related” to the proposed

---

<sup>35</sup> We do not address whether BLM properly invoked the FOIA exemptions in support of its decision to withhold the SAIC Peer Review, GSI Appendix B, or any of the other 368 documents from public disclosure, since we do not have that substantive authority. *See ATP Oil & Gas Corp.*, 178 IBLA 88, 93 n.5 (2009); *Ted Lapis*, 178 IBLA 62, 77 n.9 (2009) (citing *Deborah Reichman*, 173 IBLA 149, 160 (2007)). However, in exercising our authority to decide whether the failure to publicly disclose constitutes a NEPA violation, we find no violation.

action and so should be considered in a single EIS, since (i) the proposed action will “[a]utomatically trigger” the other actions, (ii) the proposed action “[c]annot or will not proceed unless [the] other actions are taken previously or simultaneously,” or (iii) the proposed action and the other actions “[a]re interdependent parts of a larger action and depend on the larger action for their justification.” BLM is required to consider the likely impacts of connected actions in a single EIS/EIR in order to avoid overlooking impacts that may, together with the impacts of the proposed action, be significant. See, e.g., *Earth Island Institute v. U.S. Forest Service*, 351 F.3d at 1305; *Backcountry Against Dumps*, 179 IBLA at 171-72.

CRMD states that BLM expressly declined to consider the likely impacts of decommissioning the Project in the EIS/EIR. SOR at 3 (citing Final EIS/EIR at 6-10). BLM counters by stating that it considered “the whole Project” in the EIS/EIR, including constructing, operating, maintaining, and decommissioning all aspects of the Project. Answer at 9; see *id.* at 10-11; 10 n.5 (“BLM did not identify decommissioning as a separate action, but rather included it as part of . . . the Proposed Action” (citing Final EIS/EIR at 2-46 (“Decommissioning would include dismantling the power plant and wellfield”))). It notes that the impacts of decommissioning were expected to be “substantially similar’ . . . although lesser in magnitude” in some cases to the impacts of constructing the Project, “since decommissioning is essentially construction in reverse.” *Id.* at 11 (quoting Final EIS/EIR at 4.2-5). BLM explains that it deferred consideration only of the effects of specific decommissioning activities that were likely to occur once ORNI prepared a detailed site abandonment and reclamation plan, at the end of the 30-year life of the Project, especially in light of any future changes by FS in the management of the surface of the affected Federal lands. See *id.* at 10-11 (citing Final EIS/EIR at 6-10 (“The Draft EIS/EIR . . . describes project decommissioning at a level of detail commensurate with *what is generally anticipated* in terms of future decommissioning activities.”) (emphasis added)).

BLM is required to address future activities to the extent that they can be reasonably foreseen at the present time, and so need not engage in a “crystal-ball inquiry.” *Howard B. Keck, Jr.*, 124 IBLA 44, 50 (1992), *affd*, *Keck v. Hastey*, No. S92-1670-WBS-PAN (E.D. Cal. Oct. 4, 1993) (citing *Scientists’ Institute for Public Information, Inc. v. Atomic Energy Commission*, 481 F.2d 1079, 1092 (D.C. Cir. 1973)). In the present case, we find BLM appropriately considered decommissioning only at the “level of detail commensurate with what is generally anticipated in terms of future decommissioning activities.” Final EIS/EIR at 6-10.

BLM will be required to approve a specific site abandonment and reclamation plan, which details the particular manner in which any wells that have been drilled will be plugged and abandoned, the actual power plant that has been constructed will be dismantled and removed, and the Federal lands that have actually been affected

restored, and, in so doing, BLM will first undertake a separate NEPA review, addressing the likely specific environmental impacts of such activities. See Final EIS/EIR at 2-46 (“ORNI . . . would prepare and subsequently implement a Site Abandonment-Reclamation Plan that would describe the proposed equipment dismantling and site restoration program”), 6-10 (“Th[e] [site abandonment and reclamation] plan would be submitted to the BLM and Forest Service for approval prior to implementation. BLM review of the . . . [p]lan would include conducting a NEPA process to analyze potential impacts and alternatives.”). While, in his August 2013 ROD, the Field Manager approved the Project, he expressly retained the authority to decline to approve any specific decommissioning activities following the conclusion of the earlier phases of the Project, and, therefore, after all the wells are drilled and all the geothermal resources are extracted, utilized in the power plant, and injected into the geothermal reservoir. BLM retained the ability to approve such activities, to condition such activities, and even to deny such activity, at the conclusion of all approved construction and operation/maintenance activities of the Project, and after further analyzing the specific impacts likely to occur as a consequence of decommissioning activities. In these circumstances, BLM may “[d]efer[] analysis of [specific] decommissioning until after Project approval,” despite CRMD’s objection. SOR at 3.

CRMD fails to demonstrate any error or deficiency in BLM’s assessment. Nor does it show that it was possible, when BLM prepared the EIS/EIR, to envision the proposed decommissioning at a level of detail greater than employed by BLM. CRMD also does not identify any specific aspect of the decommissioning that should have been addressed by BLM or the likely impacts of any such aspect that were not considered by BLM, as a consequence of BLM’s more generalized view of the likely nature, magnitude, and scope of that aspect of decommissioning.

Above all, BLM was not required to consider the likely impacts of specific decommissioning activities prior to issuance of the August 2013 ROD, but instead may do so *in the future, prior to deciding whether to allow decommissioning to go forward at that time*. See *Union Oil Company of California*, 102 IBLA 187, 189-93 (1988); *Glacier-Two Medicine Alliance*, 88 IBLA 133, 145-46 (1985); *Sierra Club Legal Defense Fund, Inc.*, 84 IBLA 311, 324-26, 92 I.D. 37, 44-46 (1985). As the Board stated, in *Sierra Club Legal Defense Fund, Inc.*, 84 IBLA at 325, 92 I.D. at 45, enunciating the applicable proposition in *Sierra Club v. Peterson*, 717 F.2d 1409 (D.C. Cir. 1983): “[T]he Department may delay preparation of an EIS provided that it reserves both the authority to preclude all activities pending submission of site-specific proposals and the

authority to prevent proposed activities if the environmental consequences are unacceptable.” That is the situation here.<sup>36</sup>

Accordingly, we conclude BLM adequately considered the likely impacts of decommissioning the Project, and therefore did not violate section 102(2)(C) of NEPA by not considering the impacts of specific decommissioning activities, in the EIS/EIR.

*D. Whether BLM Adequately Described Environmental Baseline Conditions*

CRMD argues that BLM violated section 102(2)(C) of NEPA by failing to adequately describe, in the EIS/EIR, the environmental baseline conditions in the Project area, prior to initiation of the Project, which description is necessary in order to be able to gauge the likely impacts of the Project. CRMD notes deficiencies in BLM’s description from the standpoint of (1) the Owens tui chub; (2) mule deer; and (3) jurisdictional waters in the Project area.

CRMD states that the Owens tui chub is found in only two native habitats, one of which is the headwater springs of Hot Creek, situated 2 miles east of the Project area and designated as critical habitat for the chub. It describes BLM’s description of chub habitat as “essentially useless,” since it did not describe the size and trend of the chub population in the headwater springs, the hydrologic conditions of the headwater springs as established by data collected by USGS since the 1980’s, or other habitat conditions, including “prey base, cover, water quality, water chemistry and presence of predators[.]” SOR at 5. Acknowledging that BLM recognized the importance of baseline information by requiring ORNI to develop and implement an Owens Tui Chub Population and Habitat Monitoring Plan, CRMD claims BLM failed to properly obtain and disclose this information “until *after* Project approval.” *Id.* at 6.

CRMD also states that, while BLM’s BA contained information regarding the population and water quality/quantity and other aspects of the habitat of the chub, that information was not included in the EIS/EIR and, in fact, could not have been included in the EIS/EIR since the BA was issued in July 2013, after promulgation of the Final EIS/EIR in June 2013, and therefore BLM failed to satisfy section 102(2)(C) of

---

<sup>36</sup> In addition, when considering the future site abandonment and reclamation plan, since BLM may justifiably consider, at that time, the likely cumulative impacts attributable to the decommissioning, together with the lingering effects of past construction and operation/maintenance, of the Project, we are not persuaded that there are any impacts, individual or cumulative, that are likely to be overlooked. CRMD certainly never identifies any such impacts.

NEPA: “[T]he question at hand is whether BLM’s *environmental review document* . . . satisfies NEPA’s requirements, not whether the BA does.” Reply at 6.

CRMD asserts that BLM’s description of mule deer use of the Project area was deficient because it did not assess such use during both spring and fall migration periods through the area over several years, but instead looked only at “one migratory period during the fall of 2011,” which was “not representative” of existing use, especially given “*unrefuted* evidence” in the record of the “high potential” for yearly variations in migratory routes. SOR at 6, 7. In support of its assertion that BLM’s assessment of use was not representative of actual use of the Project area, CRMD cites the opinions to that effect of Dr. Vernon C. Bleich, a leading large mammal biologist who has studied mule deer in eastern California, and Tim Taylor, the mule deer specialist with the CDFW, both of whom also strongly criticized the 2011 report, entitled *Geothermal Expansion Project, Mammoth Lakes, California, Deer Track-County Survey Results*, prepared by MACTEC Engineering and Consulting (MACTEC), upon which BLM relied.<sup>37</sup> See *id.* at 7-8 (citing Bleich Comments on Draft EIS/EIR at unpaginated (unp.) 2-3, and Letter to CRMD from Bleich (Bleich Comments on Final EIS/EIR), dated July 8, 2013, at unpaginated (unp.) 2);<sup>38</sup> Reply at 9-10. CRMD particularly objects to BLM’s failure to assess, with appropriate surveys, mule deer use of the Project area during the spring. See Reply at 9-10.

---

<sup>37</sup> As evidence of CDFW’s objection to BLM’s assessment of deer use of the Project area, CRMD incorrectly reports that “CDFW stated ‘[g]iven the limited sampling duration, which encompasses a single migration event, the degree to which these results may be generalized to future years or regarded as describing ‘average use’ cannot be known.’” Reply at 10 (quoting Letter to BLM from Bleich, dated Jan. 25, 2013 (Bleich Comments on Draft EIS/EIR), at unpaginated (unp.) 3 (citing Letter to D. Lyster, Mono County, from B. Henderson, CDFW, dated Mar. 7, 2011)). Bleich, however, attributed the quoted statement to Jim Paulus, in a Feb. 10, 2012, report entitled “Fall 2011 Migratory Deer Study for the Casa Diablo, Basalt Canyon, and Upper Basalt Geothermal Areas.” See Bleich Comments on Draft EIS/EIR at unpaginated (unp.) 3, n.16.

<sup>38</sup> Bleich’s Jan. 25, 2013, letter was Ex. C to Jan. 29, 2013, Comments on Draft EIS/EIR submitted by the California Unions for Reliable Energy (CURE), which, at that time, was represented by attorneys currently representing CRMD. See Final EIS/EIR at G-292 to G-308. Bleich’s July 8, 2013, letter was Ex. A to July 12, 2013, Comments on Final EIS/EIR submitted by CRMD. The Bleich Comments on Final EIS/EIR reference an Aug. 16, 2011, personal communication with Taylor, in which he is said to have objected to the adequacy of the 2011 MACTEC report, in addressing deer migrations through the Project area. See Bleich Comments on Final EIS/EIR at unpaginated (unp.) 2,

(continued...)

The Final EIS/EIR reflects BLM's awareness that, although the chub was not present in the Project area, it was found "in the mixed cold and thermal water of certain springs of the Hot Creek State Fish Hatchery [Hatchery] located approximately two miles east of the Project [area]," and that the AB and CD springs, which serve as headwaters of Hot Creek, are designated as critical habitat for the chub. BLM Answer at 14 (citing Final EIS/EIR at 3.4-12). It noted that chub were also found in the Owens River Gorge and Little Hot Creek Pond. BLM was also aware of the current size and trend of the overall chub population, general habitat requirements for the chub, and current status of the occupied habitat for the chub, given existing water quality/quantity and other habitat conditions. See Final EIS/EIR at 3.4-6, 3.4-12. Pursuant to MM WIL-10, BLM also required, as a condition of Project approval and prior to the production and injection of any geothermal resources, that ORNI develop, obtain approval by BLM, CDFW, and FWS, and implement a new Owens Tui Chub Population and Habitat Monitoring Plan and an amended Remedial Action Plan. See *id.* at 4.4-14 to 4.4-15, 4.4-34 to 4.4-35. Under the Monitoring Plan and amended Remedial Action Plan, ORNI would be required, *inter alia*, to conduct baseline and periodic surveys of chub populations and habitat conditions, including benthic macroinvertebrate populations, aquatic vegetation, water temperature, dissolved oxygen, turbidity, and other habitat characteristics, and to undertake appropriate measures in response to changes in habitat conditions.

BLM states, on appeal, that relevant environmental baseline data for the chub was found in BLM's July 2013 BA. See Answer at 14-15. We agree with CRMD that the BA is not a NEPA document, and so does not satisfy NEPA requirements. However, our review makes clear that the EIS/EIR adequately reported the relevant data, and therefore satisfied NEPA. CRMD has not preponderated in establishing any error or deficiency in BLM's environmental baseline information regarding the chub, or, in any other way, demonstrated that BLM's NEPA assessment of the likely impacts of the Project did not satisfy NEPA.

The record also shows that BLM was well aware of the fact that mule deer do not reside solely in the Project area, but rather use the area during fall and spring migration periods. See Answer at 18 (citing Final EIS/EIR at H-102). It disputes CRMD's assertion that it relied on only one migratory period during the fall of 2011 in

---

(...continued)

n.3. CRMD does not identify any actual statement by Taylor in the record, nor does it rebut BLM's statement that "[t]he BLM has *no record of such criticism from CDFW* in its record for the Project, other than what was communicated via CRMD's comment letter on the Draft EIS." Answer at 19 (emphasis added).

assessing the prevalence of mule deer in the Project area, noting that it instead relied on “[n]umerous” surveys that have been performed by Jim Paulus, MACTEC, Quad Knopf, and others over the course of many years, in order to track the movement of mule deer in the Project area. *Id.* (quoting Final EIS/EIR at H-102), 19 (citing Final EIS/EIR at 3.4-18 to 3.4-19). BLM notes that these surveys, the most recent of which occurred in 2004, are cited in the Final EIS/EIR. In addition, BLM points out that, while CDFW commented on the Draft EIS/EIR on January 30, 2013, it “did not highlight any insufficiency in the MACTEC report, or indeed . . . any aspect of the BLM’s description of the existing environment for mule deer in the Project area. . . . *If CDFW did indeed have reservations about any part of the BLM’s analysis on mule deer, it did not communicate them to the BLM.*” *Id.* at 19 (emphasis added). As with its claims regarding the chub, CRMD fails to establish that BLM’s assessment of the likely impacts of the Project was undermined by any error or deficiency in BLM’s environmental baseline information regarding mule deer.

CRMD asserts that BLM’s description of jurisdictional waters in the Project area was deficient because its delineation of such waters in the EIS/EIR was, admittedly, only “preliminary” in nature, having not been officially reviewed and verified by the U.S. Army Corps of Engineers (Corps), rendering BLM’s conclusion that the Project would not directly impact such potential waters “unsupported.” SOR at 8; and Reply at 16 (quoting Final EIS/EIR at H-69). It notes that, absent such review and verification, BLM incorrectly relied upon the July 30, 2012, “Investigation of Riverine Resources Including Wetlands at the Proposed CD4 Project, Mammoth Lakes, California,” prepared by Jim Paulus, to identify potential waters. It also notes that the Corps did not state, in an October 4, 2013, letter to CRMD from David J. Castanon, Corps, also relied upon by BLM, that no jurisdictional waters would be affected by the Project. *See* Reply at 16-17 (citing BLM Answer at 31-32).

“Waters of the United States” are considered by the CWA and its implementing regulations to define the limits of the jurisdiction of the Corps under the CWA. *See* 33 C.F.R. § 328.1. Such waters are of concern in the present case because section 404(a) of the CWA, 33 U.S.C. § 1344(a) (2006), authorizes the Corps to issue “permits . . . for the discharge of dredged or fill material into the navigable waters at specified disposal sites,” where “navigable waters” are defined, under 33 U.S.C. § 1362(7) (2006), as “waters of the United States[.]” *See* 33 C.F.R. § 323.2(a) (“*waters of the United States*”). Such waters are deemed to be those that extend across State lines (interstate waters) and rivers, streams, wetlands, and other waters whose use, degradation, or destruction could, in some way, affect interstate or foreign commerce, tributaries of such waters, and wetlands adjacent to such waters. *See* 33 C.F.R. §§ 328.2, 328.3(a), (b), and (c), and 328.4(c).

CRMD notes that the Project area contains streams that flow to jurisdictional waters, wetlands adjacent to jurisdictional waters, and “other jurisdictional waters,” referring to “Hot Creek and its tributaries[] which flow to Lake Crowley[],” which are deemed to be jurisdictional waters. SOR at 8, 9. It points out that several proposed wells would be located adjacent to Hot Creek, 9 miles of pipeline would cross Hot Creek and adjacent wetlands, and the power plant and substation would be located close to Hot Creek and adjacent wetlands. *See id.* at 9. CRMD states that geothermal well drilling would bring drilling mud, drill cuttings, and geothermal fluid to the surface, where they might be released from the drilling site and flow to jurisdictional waters, and that the soil disturbance and vegetation removal associated with the construction of access roads, pipelines, and the power plant might cause increased erosion and the flow of sediments and other pollutants to jurisdictional waters. *See Reply* at 17 (citing Final EIS/EIR at 4.19-3 to 4.19-4, 4.19-7). It argues that BLM failed to take any of these likely impacts into account.

BLM provided that Project facilities would be located and designed in such a manner as “to avoid direct impacts to wetlands and waters of the U[nited] S[tates].” Final EIS/EIR at 4.3-8; *see id.* at 4.3-14. The record supports BLM’s averment that it prepared a “detailed jurisdictional assessment” that determined the existence of “potential[]” jurisdictional waters in the Project area. BLM Answer at 31 (quoting Final EIS/EIR at 4.3-8); *see* Final EIS/EIR at 3.3-11 (“An assessment of potential wetlands and other waters of the U.S. . . . was conducted . . . by Jim Paulus, Ph.D.[.] . . . The assessment consisted of evaluating and mapping any features that could be considered jurisdictional under state and [F]ederal regulations.”). These waters and their relationship to Project facilities were delineated in the EIS/EIR. *See* Final EIS/EIR at 3.3-18, 3.3-19 (Fig. 3.3-2 (Potential Wetlands and Waters of the U.S.)), 3.3-20 (Fig. 3.3-3 (Potential Wetlands and Waters of the U.S.)).

BLM principally noted the existence of two intermittent waterways, tributaries of Mammoth Creek, that run, wholly or partially, through the Project area, one that passes near two proposed wells (55-32 and 65-32) and the pipelines that would connect them to the proposed power plant, and the other that passes near the remaining wells and the pipelines that would connect them to the plant, as well as wetlands adjacent to these waterways. Both waterways and the associated wetlands would be situated no closer than approximately 0.125 miles from the wells and the plant. Only the pipelines associated with wells 55-32 and 65-32 would cross one of the waterways and associated wetlands. Further, BLM deemed only one of these waterways, the short “blue line” drainage that crosses the pipelines running from wells 55-32 and 65-32 to the plant, and associated wetlands as likely to be jurisdictional waters. *See* Final EIS/EIR at 3.3-18 (“The [short] ‘blue line’ drainage that [runs] through the Casa Diablo Geothermal Lease area shows a clear and continuous ordinary high water mark until its connection to Mammoth Creek. It is therefore likely a jurisdictional water of the U.S.”). It stated that the longer “blue line” drainages in the

Upper Basalt and Basalt Canyon, which connect the remaining wells to the plant, were not likely to be jurisdictional waters, since they “did not exhibit continuous indicators of a defined bed and bank and an ordinary high water mark,” also noting the absence of any wetlands adjacent to these drainages. *Id.*

In addition, BLM specifically provided that, where feasible, pipelines would not cross riparian conservation areas (RCA), which were deemed by FS to extend 300 feet on either side of all “blue line” drainages (PDM HYD-2 and MM SW-7), and that, although certain pipelines would cross jurisdictional waters, supporting structures were to be located in such a fashion that they were not within, and would span, any features of such waters. *See* Final EIS/EIR at 3.3-18, 4.3-8, 4.3-14, 4.19-1, 4.19-23. It also provided that, in order to prevent sediments from reaching any of these waters, ORNI would be required, as a condition of approval of the Project (PDM HYD-1), to undertake, during construction, operation, and maintenance of the Project, “appropriate erosion control measures and [Lahontan Regional Water Quality Control Board (LRWQCB) and] [FS Best Management Practices (BMP)] to prevent soil erosion, including the preparation of a Storm Water Pollution Prevention Plan.” *Id.* at 4.3-8; *see id.* at 4.3-3. It further provided that, in order to prevent drilling mud, drill cuttings, and geothermal fluid from reaching any of these waters, ORNI would be required, as a condition of approval of the Project (MM SW-1, MM SW-2, MM SW-3, MM SW-4, and MM SW-5), (1) to obtain prior approval by BLM, FS, and LRWQCB of a Comprehensive Site Drainage and Runoff Management Plan that would prevent any increases in stormwater runoff from any Project sites, during at least a 20-year, 24-hour storm event; (2) to build containment basins/sumps that would be adequate to contain any on-site flows and associated pollutants during a 100-year storm event, during well construction; (3) to properly dispose of drill cuttings on-site or off-site, following well completion; (4) to build containment structures to prevent the release of any geothermal resources, during well testing; and (5) to obtain prior approval by BLM and FS of plans for building spill containment facilities at the power plant in such a manner as to prevent the infiltration to groundwater of any spilled fluids, including geothermal resources and n-pentane. *See id.* at 4.19-22 to 4.19-23.

BLM admitted that, since its assessment of potential jurisdictional waters had not been reviewed by the Corps, the assessment “should be considered preliminary until official review and verification by the [Corps].” Final EIS/EIR at 3.3-18. It properly acknowledged that the Corps has the final substantive authority, under the CWA, to determine the existence and limits of jurisdictional waters in the Project area. *See* BLM Answer at 31. Further, we know of no provision in NEPA or other authority requiring BLM to have the Corps review and verify BLM’s determination of potential jurisdictional waters before BLM may address the likely impacts of a proposed action on such waters, for NEPA purposes. BLM also notes that the Corps would be called upon, in any event, to determine the existence and limits of jurisdictional waters and whether ORNI was required to obtain a Section 404 permit were it to be later found

that Project activities are likely to result in the discharge of dredged or fill material in such waters. *See id.* (citing Letter to CRMD from Castanon, dated Oct. 4, 2013 (“Ground disturbance activities within the Hot Creek watershed would not be regulated by the Corps unless fill were to be placed within those aquatic resources we deem jurisdictional”)). BLM’s approval of the Project would not obviate the requirement to obtain a Section 404 permit were the Corps to be later persuaded that the Project would result in the discharge of dredged or fill material in such waters. However, since it preliminarily determined, for NEPA purposes, that no discharge of dredged or fill material would occur in any potential jurisdictional waters, BLM properly concluded that the Project would not adversely affect jurisdictional waters. Further, we agree that the fact that the final authority resides in the Corps does not undermine the completeness or adequacy of BLM’s determination of potential jurisdictional waters and resulting impacts, for NEPA purposes. *See id.*

CRMD argues that BLM’s belief regarding the location and design of Project facilities was an “assumption,” because it was based on the preliminary assessment by Paulus regarding the presence of jurisdictional waters in the Project area. Reply at 16. It further concludes that, since it was certain that Project pipelines would cross and other Project facilities would be situated in close proximity to jurisdictional waters, BLM had, in the absence of specific evidence regarding the presence of such waters, no reason to support its belief that any of these facilities would not affect such waters: “[W]ithout knowing with certainty the extent of jurisdictional waters on the Project site, the BLM had no evidence to conclude that the Project would avoid them[.]” *Id.*

BLM’s conclusion that the Project would not adversely affect jurisdictional waters was based on its assessment of the presence of potential jurisdictional waters in close proximity to or underlying Project pipelines or other facilities and the incorporation of PDMs and MMs intended to ensure the proper location and design of such facilities and, in general, the avoidance or mitigation of likely impacts, even were such waters ultimately deemed to be jurisdictional waters. CRMD does not present any convincing argument or supporting evidence establishing any error in BLM’s determination of potential jurisdictional waters in the Project area. Nor has it demonstrated that BLM was required to do more than identify such waters, for the purposes of fulfilling BLM’s NEPA obligation to assess the likely impacts of the Project, rather than fulfilling the Corps’ CWA obligation to decide whether to issue a Section 404 permit.

#### *E. Whether BLM Took “Hard Look” at Potential Significant Impacts*

##### *1. Assertions of Error by CRMD*

CRMD contends that BLM failed to take a “hard look” at the likely significant impacts of the Project to the Owens tui chub, mule deer, and wetlands and other

jurisdictional waters, where a hard look is defined as “reasoned analysis containing quantitative or detailed qualitative information.” SOR at 9-10 (quoting BLM NEPA Handbook H-1790-1 (Rel. 1-1710 (01/30/2008)), § 6.8.1.2 (Analyzing Effects), at 55).<sup>39</sup>

First, CRMD argues that BLM failed to take a hard look at the likely significant effects of Project drilling and development on the quality and quantity of water, as well as the availability of aquatic vegetation and invertebrate fauna for cover, foraging, and/or spawning, in the headwater springs of Hot Creek, which provide critical habitat for the Owens tui chub. See SOR at 10-14.

BLM thoroughly analyzed the likely effects of geothermal drilling and development on Hot Creek and its tributaries, as well as the associated Owens tui chub and its critical habitat. See Final EIS/EIR at 4.4-9, 4.4-13 to 4.4-15, 4.4-23. It attributed no impacts to construction and decommissioning of the Project, since the chub and its critical habitat were situated approximately 2 miles east of the Project area. Rather, BLM attributed potential impacts only to operation of the Project, specifically the extraction and re-injection of geothermal resources from the geothermal reservoir, given the potential for changes in the quality and quantity of surface waters when combined with geothermal resources that are expressed in the headwater springs of Hot Creek, where the chub resides.<sup>40</sup> However, since it expected little change in the quality or quantity of the combined surface waters/geothermal resources, BLM concluded that the Project was not likely to adversely affect the chub or its critical habitat. See *id.* at 4.4-14, H-25.

Based on analysis of the results of the historical monitoring by LVHAC of the effects of existing geothermal drilling and development and modeling forecasts, BLM expected changes in the flow and temperature of the combined surface waters/geothermal resources in the headwater springs of Hot Creek to be “minimal.” Final EIS/EIR at H-25. It stated that drilling and development in the Casa Diablo area had, in recent years, resulted in only minimal temperature changes, with no

---

<sup>39</sup> The NEPA Handbook is found at [http://www.blm.gov/style/medialib/blm/wo/Information\\_Resources\\_Management/policy/blm\\_handbook.Par.24487.File.dat/h1790-1-2008-1.pdf](http://www.blm.gov/style/medialib/blm/wo/Information_Resources_Management/policy/blm_handbook.Par.24487.File.dat/h1790-1-2008-1.pdf) (last visited Mar. 16, 2016).

<sup>40</sup> The headwater springs of Hot Creek are, at times, also referred to as the Hot Creek State Fish Hatchery Springs, or variations thereof, since they supply water to the Hatchery, downstream of the headwater springs.

accompanying changes in chemical content, evidencing the absence of any substantial alteration in the flow and temperature of combined surface waters/geothermal resources in the critical habitat for the chub. *See id.* at 4.4-14. Temperature changes were only on the order of less than 2°F, even during the most significant period of geothermal development (1988-2003), increasing at most to 4°F during periods of drought or excessive precipitation. *See id.* BLM further noted that LVHAC's monitoring had disclosed that geothermal resources that flowed onto the surface from the underlying geothermal reservoir, in the case of Hot Creek and its tributaries, constituted "less than 5 percent of the total flow" in Hot Creek and its tributaries.<sup>41</sup> *See id.* at H-25. It expected that any diminishment in that flow attributable to drilling and development of geothermal resources, which would be, at most, 17 percent, would cause a reduction in the total flow of less than 1 percent, which was "not likely to be measurable[.]" *Id.*; *see id.* at 4.4-14. BLM acknowledged that geothermal development was likely to cause the geothermal discharge at the headwater springs to decrease by approximately 17 percent, but concluded that this was likely to have little impact on the springs, since only "a very small part (less than 5 percent)" of the total flow from the springs was attributable to geothermal resources. Answer at 17 (quoting Final EIS/EIR at 4.4-14). BLM projected the total flow would be reduced

---

<sup>41</sup> CRMD objects to BLM's reliance on LVHAC's "interpretive analys[i]s" of "proprietary" hydrologic monitoring data to support its conclusion that the Project is not likely to adversely impact the chub or its critical habitat, since BLM failed to disclose this analysis to the public as part of the NEPA process, rendering the analysis "not independently verifiable." Reply at 5 (quoting Final EIS/EIR at 6-16; and citing *id.* at H-25). It points to its proffered declaration of Scott Cashen, an environmental biologist consultant, who had submitted comments regarding the Draft and Final EIS/EIR, on behalf of CRMD or CURE. He stated that LVHAC had not analyzed the monitoring data. *See id.* (citing Cashen Decl., dated Jan. 22, 2014 (attached to Reply), ¶¶ 4-7, at 2-3).

Although, BLM relied, in part, on LVHAC's analysis of proprietary hydrologic monitoring data, it also considered publicly available monitoring data, along with modeling forecasts generated by GSI, using the SAIC peer-reviewed GRSM, which was properly excluded from public disclosure. *See* Final EIS/EIR at 4.4-14 ("[H]istorical monitoring data[] [and] modeling forecasts . . . suggest that little change to the quantity, quality or temperature of the[] geothermal features [including the headwater springs of Hot Creek] would occur under the Proposed Action"), 4.7-3, 4.7-6, 6-15, 6-16 ("LVHAC [considered] . . . both public and proprietary monitoring . . . data"), 6-16 to 6-17. We are not persuaded that LVHAC did not and, in the future, will not properly contribute to BLM's understanding of the likely effects of the Project on the chub and its critical habitat. CRMD has not preponderated in showing error in BLM's decision, which relied on the Final EIS/EIR.

“by less than 1 percent[.]” *Id.* (quoting Final EIS/EIR at 4.4-14). BLM, therefore, concluded that the Project was not likely to adversely impact the chub or its critical habitat, since there was likely to be little or no change to the quality or quantity of combined surface waters/geothermal resources in the headwater springs of Hot Creek. *See* Final EIS/EIR at 4.4-14, H-25.

CRMD argues that, since BLM’s conclusion regarding the likely impacts to the chub and its critical habitat was not supported by “substantial evidence” in the EIS/EIR, BLM’s analysis and conclusion did not constitute the “hard look” required by section 102(2)(C) of NEPA. SOR at 12. Rather, it asserts that the substantial evidence supports the conclusion that the Project is likely to significantly adversely impact the chub and its critical habitat.

CRMD specifically argues that BLM’s determination that the Project was likely to reduce the flow of geothermal resources at the headwater springs of Hot Creek “by about 17 percent” over the 30-year life of the Project, and therefore would not adversely affect the chub or its critical habitat, was not supported by the GRSM, since the GRSM “cannot assess the Project’s impacts to [such] . . . [s]prings.” Supp. SOR at 6 (quoting Final EIS/EIR at 4.4-14). It notes that Brent A. Meyer, a private hydrogeologic modeler, who reviewed the confidential information disclosed in response to the Board’s March 7, 2014, Order, including the SAIC Peer Review and the GSI Appendix B, concluded that the GRSM could not predict the changes in the quality or quantity of the outflow from the headwater springs. *See id.* at 6-8 (citing “Validity Assessment of the Use of the Existing Long Valley Caldera Geothermal Reservoir Model as a Tool to Quantify Environmental Impacts Associated with the Proposed Casa Diablo IV Geothermal Development Project,” Meyer (Primary Author), dated June 10, 2014 (Ex. A to Meyer Decl., dated June 13, 2014 (attached to Supp. SOR)) (Meyer Validity Assessment), at 5-7). Meyer explained that, since the GRSM was designed to assess the effects of geothermal development on the geothermal reservoir, but not the groundwater aquifer, the GRSM could not predict the effects on *the total combined outflow of geothermal and groundwater resources* at the headwater springs of Hot Creek, and the likely consequences for the chub and its critical habitat. Meyer stated that the GRSM should have assessed the effects of geothermal development on geothermal *and* groundwater resources, since the “evidence indicates” that the reservoir and aquifer “are connected.” Supp. SOR at 8 (citing Meyer Validity Assessment at 6-7). He concluded: “Unlike the model here, a useful model would need to be able to simulate connectivity between the upper cold [water] reservoir and [lower] geothermal reservoir in order to properly define the likelihood and significance of the Project’s impacts to both reservoirs [as expressed at the headwater springs to Hot Creek].” Meyer Decl., ¶ 5.f., at 4.

CRMD has not established that the GRSM should have assessed the likely effects of the Project on groundwater resources at depth, using the GRSM or any variation

thereof. Nowhere does CRMD offer any convincing argument or supporting evidence of a “connect[ion]” between the geothermal reservoir and groundwater aquifer, other than where the geothermal and groundwater resources both flow onto the surface. Meyer himself did not state that the evidence indicates the existence of a connection, noting only: “Assessment of impacts to [the potable aquifer for the Town and Hatchery Springs] . . . requires a model that can confirm or refute the assumed absence of connectivity between th[e] upper [cold water] reservoir and the lower geothermal reservoir[.] . . . The bottom line is[] the conceptual model upon which the geothermal reservoir model is designed *may be flawed with respect to reservoir connectivity.*” Meyer Validity Assessment at 7, emphasis added. CRMD fails to demonstrate that BLM was required to assess, through the GRSM or other means, the mixing of the two resources underground and the resulting consequences for the outflow at the headwater springs of Hot Creek.

In addition, BLM plainly considered the consequences of mixing the two resources on the surface, in the case of existing and expected future geothermal development, using modeling forecasts obtained using the GRSM, together with historical monitoring, to determine the likely effects of development on the flow of geothermal resources, and the likely effects on the flow of combined surface waters/geothermal resources. See Final EIS/EIR at 4.4-13 to 4.4-14, H-25. BLM, concluded that geothermal development had caused, and was likely to continue to cause, little or no change in the quality or quantity of the total combined outflow at the headwater springs, and therefore was expected to have little or no effect on the chub or its critical habitat. See *id.* at 4.4-14, H-25.

Next, in support of its assertion that substantial evidence in the record already supports the conclusion of likely significant impacts to the chub and its critical habitat, CRMD refers, first, to information compiled by the USGS that shows a decline in the outflow of thermal waters from the geothermal reservoir to the headwater springs of Hot Creek, on the order of from 30 to 40 percent, coinciding with the original Casa Diablo development, from 1990 to 2000, and continuing thereafter. See SOR at 12 (citing Letter to BLM from Cashen, dated Jan. 28, 2013 (Attach. A to CURE Comments on Draft EIS/EIR, dated Jan. 29, 2013) (January 2013 Cashen Letter), at 20). It states that the USGS information, in fact, discloses that the outflow of thermal waters to the headwater springs of Hot Creek is “directly related” to the rate at which geothermal resources are being extracted by the Casa Diablo development. *Id.* It specifically notes that Colton Spring, which is situated between the Casa Diablo development and the headwater springs of Hot Creek “went dry in 1991 when geothermal well pumping rates increased.” *Id.* CRMD also states that the chub population has declined in response to the decrease in thermal waters outflowing to the headwater springs of Hot Creek. See *id.* at 12-13. It notes that, while the population was estimated at 334 (plus or minus 105) in the AB Spring and 523 (plus or minus 146) in the CD Spring in 1988, the population was only 180 to 245 in the AB spring and 0 in the CD Spring in

1999. *See id.* (citing January 2013 Cashen Letter at 21 (citing Owens Tui Chub: 5-Year Review and Evaluation, FWS, 2009, at Table 1)). While unwilling to attribute a specific cause and effect, Cashen concluded that “one can infer that the apparent decline in the Owens tui chub populations could be due to the decline in the thermal water component given its influence on tui chub habitat.” January 2013 Cashen Letter at 21.

BLM states that, rather than disclosing a decline in the outflow of thermal waters from the geothermal reservoir to the headwater springs of Hot Creek over the period from 1990 to 2000, which was likely to be reflected in changes in the temperature of the springs, the available data disclosed only modest changes in the temperature in the springs, on the order of less than 2°F, but also occasionally 4°F, with no accompanying changes in water chemistry, during the most significant period of geothermal development at Casa Diablo (1988-2003), which changes appear to be more attributable to climatic causes than to geothermal development. *See Answer at 16* (citing Final EIS/EIR at 4.4-14). Therefore, it expected that geothermal development would maintain the “constancy of the environment, primarily flow and temperature,” which had been deemed by Cashen to be the “outstanding” ecological component for the critical habitat in the springs. January 2013 Cashen Letter at 19. BLM also noted that, despite continued geothermal production throughout the preceding time period, no decline in the rate of discharge at the springs was detected. *See Answer at 16-17* (citing Final EIS/EIR at D-30 (“Through 2012[,] the combined Fish Hatchery spring discharge rate matched or exceeded pre-drought levels of 12-24 cfs [cubic feet per second] while geothermal production has continued[.] . . . [T]he thermal water contribution to the total spring flow has declined [approximately] 0.15 cfs since 1988 but the average spring temperatures have only changed [approximately] 2 degrees [F] through 2012[.]”). BLM concluded that there has been no decline in geothermal flow at the headwater springs of Hot Creek as a consequence of geothermal development.

BLM does not deny that Colton Spring went dry in 1991, the chub population declined in 1999, or there have been chemical changes in the headwater springs of Hot Creek. *See Answer at 17.* However, CRMD does not offer any convincing argument or supporting evidence to dispute the fact that, in recent years, geothermal development has resulted in little or no change to the quality and quantity of water in the headwater springs of Hot Creek, and, therefore, has had and is likely to have no adverse impact on the chub or its critical habitat.

CRMD refers, second, to information reported by Sorey and Sullivan that discloses a change in the chemical content of waters in the headwater springs of Hot Creek attributable to geothermal development. *See SOR at 13* (citing M.L. Sorey, and R. Sullivan, *Quantitative Analyses of Warm Spring Waters at Hot Creek Fish Hatchery*,

*Mammoth Lakes, California*, in 30 TRANSACTIONS OF THE GEOTHERMAL RESOURCES COUNCIL (2006)).<sup>42</sup> It quotes from the report to the effect that changes in the mix of thermal and non-thermal waters has resulted in “corresponding changes in chemical flux reaching the springs.” *Id.* The quote does not indicate the nature and extent of changes in chemical content, or the resulting impacts on the chub and its critical habitat. Nor does it indicate that the changes are, in any way, attributable to geothermal development. In any event, 2006, the year of the Sorey and Sullivan report, represents a substantial change in geothermal production associated with a shift from Casa Diablo to Basalt Canyon. See Final EIS/EIR at 4.7-4, 4.7-5. Further, the information in the Sorey and Sullivan report is contradicted by the more recent information relied upon by BLM, which disclosed little or no change in the chemical content of these waters, and no corresponding impact on the chub or its critical habitat. See *id.* at 4.4-14, 4.7-3 (“Concentrations of non-reactive elements [such as chloride, boron, and fluoride] in hot springs which have been sampled over time . . . did not change significantly”), 4.7-7.

CRMD states, third, that confidential information disclosed in response to the Board’s March 7, 2014, Order, specifically a report entitled *Hydrological Monitoring Summary: Long Valley Caldera, California*, M.L. Sorey (January 2010) (Sorey Monitoring Summary) and the SAIC Peer Review both contradict BLM’s conclusion regarding the minimal likely impacts of geothermal development, establishing that, “since geothermal development began at Casa Diablo, *statistically significant chemical changes which indicate a change in thermal flow* have occurred in the water at Hatchery Springs[.]” (Emphasis added.) Supp. SOR at 4 (citing Sorey Monitoring Summary at 4 (“The increase in production rate and declines in pressure at Casa Diablo appear[] to have altered the amount of hot spring outflow in and near Casa Diablo”); and SAIC Peer Review at unp. 21 (“Apart from the Hatchery Springs[,] . . . production operations do not appear to have affected the thermal flow to the springs”)). In addition, CRMD asserts that, while BLM has not addressed the likely effects on the chub and its critical habitat stemming from the changes in chemical content previously noted by the USGS, such effects have been assessed by Cashen, who concluded that there have been “statistically significant changes” to critical habitat since geothermal development began at Casa Diablo, which “may [be] exacerbate[d]” by the Project, “significantly affecting the critical habitat.” *Id.* at 6 (quoting Letter to CRMD from Cashen, dated June 6, 2014 (Ex. A to Cashen Decl., dated June 11, 2014 (attached to Supp. SOR)) (June 2014 Cashen Letter), at 4, 5).

---

<sup>42</sup> CRMD cites to pages 947-51 of the report by Sorey and Sullivan, but does not provide a copy of the report or copies of the cited pages.

Most of the information cited by CRMD, whether the USGS monitoring data or the analysis by Sorey and/or Sullivan and SAIC, does not specifically address the question of the likely effects of the Project on the chub and its critical habitat. Rather, it merely reports changes in the outflow in the headwater springs of Hot Creek. Only Cashen asserted that there have been statistically significant changes to the water flowing in the springs since development began in Casa Diablo, and only he addressed the likely consequences for the chub and its critical habitat. However, Cashen failed to appreciate that, since 2006 (and even since 1995), the chemical content of the springs has been relatively stable, indicating little or no change in the outflow of the springs. See June 2014 Cashen Letter at 6, 7; Final EIS/EIR at 4.7-3 (“The concentrations of non-reactive elements (such as chloride, boron, and fluoride) that have been used to track the origin, evolution, and circulation of geothermal fluids have *remained stable* in the [geothermal] reservoir, subsequent to an initial decline of 10 to 20 percent in chloride concentrations due to cold water influx during the early phases of geothermal production. Temperatures of produced geothermal fluids in Casa Diablo wells which also declined during that period have *stabilized* as well.” (Emphasis added)). Further, while speculating, on the basis of Cashen’s statement, that the Project “may exacerbate” the changes in the temperature and/or chemical content of the outflow in the springs, CRMD offers no convincing argument or supporting evidence demonstrating the nature, magnitude, or scope of any exacerbation, or, importantly, its consequences for the chub or its critical habitat. Supp. SOR at 6.

Finally, CRMD notes that changes in the thermal water content of the headwater springs of Hot Creek could benefit chub predators (rainbow trout), by altering the temperature and chemical content of the waters in the springs, indirectly adversely affecting the chub. See SOR at 13-14. BLM determined that the Project was not likely to substantially alter the temperature or chemical content of the waters of the springs, owing to changes in the flow of thermal water to the springs. See Final EIS/EIR at 4.4-14, 4.7-3 to 4.7-6. It could be expected then that, absent a change in temperature or chemical content, existing predation would not be altered. Further, while the BA does not satisfy NEPA, BLM specifically determined, in the BA, that the minimal changes to the geothermal outflow in the headwater springs of Hot Creek were not likely to change the nature or extent of predation by rainbow trout. See BA at 29.

In any event, CRMD’s assertion that the Project would substantially affect the nature and extent of predation was a remote and highly speculative impact. See SOR at 13-14 (“It is likely that the Owens tui chub adapted to life in the Owens River watershed -- while predaceous fish did not -- because the tui chub tolerated the conditions associated with the thermal water (either high temperature, high pH and chemicals associated with thermal water, or both). . . . [Since] the Project would

change the chemistry and temperature of the thermal water[,] . . . the Project would benefit predators by improving their aquatic conditions[.]”). BLM was not required to address a remote and highly speculative impact in the EIS/EIR, and its failure to do so was not violative of section 102(2)(C) of NEPA. *See Coeur d’Alene Audubon Society, Inc.*, 146 IBLA 65, 70 (1998) (citing *Trout Unlimited v. Morton*, 509 F.2d at 1283).

Indeed, CRMD offers no convincing argument or supporting evidence that any chub predators have actually benefitted from the prior changes that have already occurred in the temperature and chemical content of the headwater springs of Hot Creek, or are likely to be further benefitted by any likely future changes. *See* SOR at 13-14. Nor does it offer any evidence that the chub has experienced or is likely to experience any increased predation as a consequence of any likely changes in temperature and/or chemical content attributable to the Project. We regard the likelihood of increased predation as speculation.

Second, CRMD argues that BLM failed to take a hard look at the likely effects of Project drilling and development on mule deer.<sup>43</sup> *See* SOR at 14-16. It refers first to the fact that, while BLM recognized that Project activities might force “some

---

<sup>43</sup> LiUNA also argues that BLM failed to take a hard look at the likely adverse effects of the Project, alone and together with other “likely future projects,” on “several special-status [wildlife] species,” both in the long-term and across the “region,” which effects had been identified by its “expert wildlife biologist,” Dr. K. Shawn Smallwood, who holds Ph.D. in Ecology (1990), an M.S. in Ecology (1987), and a B.S. in Anthropology (1985), all from the University of California, Davis. SOR at 20 (citing Letter to BLM from Smallwood, dated July 13, 2013 (Ex. C to Ex. 3 (attached to SOR)); and Letter to BLM from Smallwood, dated Jan. 14, 2013 (Final EIS/EIR at G-452 to G-456)); *see* NA/Petition at 25-30. Smallwood had submitted comments, on LiUNA’s behalf, regarding the Draft and Final EIS/EIR.

BLM fully considered the likely individual and cumulative effects of the Project on wildlife species, including special-status species. *See* Final EIS/EIR at 3.4-1 to 3.4-24, 4.4-1 to 4.4-35, H-159 to H-163, H-168 to H-170. While biological surveys were not specifically conducted for the Project, BLM relied on existing Federal and State databases regarding the likely presence of special-status species in the Project area. In the case of the specific species cited by LiUNA, they were determined to be either not present or not likely to be present in the Project area (bald and golden eagles, prairie falcons, American badgers) or not likely to be affected by the Project (Sierra Nevada red fox). Further, in the absence of any individual impact, BLM expected that the Project would not contribute to any cumulative impact. LiUNA fails to offer any convincing argument or supporting evidence establishing any error or deficiency in BLM’s analysis and conclusions.

migrating deer” further west of the power plant and closer to U.S. Highway 395, subjecting them to the risk of colliding with vehicular traffic on the highway, BLM failed to quantify the incidence of “increase[d]” vehicular mortality that is likely to occur to migrating and resident deer as a consequence of the Project. *Id.* at 14 (quoting Final EIS/EIR at 4.4-18).<sup>44</sup> CRMD notes that BLM specifically failed to include certain information in the EIS/EIR, namely, that highways are the “most prevalent and widespread stressors of natural ecosystems,” there are two known “hot spots” for vehicular collisions near the Project area, vehicular collision is the “main cause” of accidental deer mortality in Mono County, and “numerous” deer are killed by vehicles annually along the highway, amounting to 15 percent of a sampled deer population. *Id.* at 14, 15. It asserts that, having failed to identify the incidence of collisions at the time of Project approval, BLM could not properly assess the likely added incidence of collisions attributable to Project approval, which may “significantly influence the performance of ungulate populations.” Reply at 11 (quoting Bleich Comments on Draft EIS/EIR at unpag. 6).

CRMD refers, second, to the fact that BLM failed to offer substantial evidence that the Project would not, together with other reasonably foreseeable projects, significantly cumulatively impact mule deer migrating through and residing in the Project area. *See* SOR at 15-16. Rather, it notes that Bleich concluded that the Project might contribute to a cumulative diminution of available high-quality forage, since the Project area is situated in the Sherwin Holding Area, and serves as critically important foraging habitat for deer migrating through the area in the fall and spring. *See* SOR at 15-16 (citing Bleich Comments on Draft EIS/EIR at unpag. 6-7; and Bleich Comments on Final EIS/EIR at unpag. 9-10); Reply at 12. It notes that Project facilities and activities will result not only in the direct loss, but also the indirect loss, of foraging habitat, since mule deer “do not occupy the area immediately adjacent to [drilling and] development sites[.]” Reply at 12. It also notes that the impacts are likely to be exacerbated, since they will occur during the migratory period. *See id.* CRMD concludes that the loss of foraging habitat is likely to cause a decline in the numbers of mule deer, and so adversely affect the health of each of the herds (Round Valley and Casa Diablo) that migrate through the Project area. *See id.* It points out the deer herd has already decreased from approximately 6,000 to under 2,000 animals during the last 23 years, owing to a “decreased carrying capacity[.]” SOR at 16.

---

<sup>44</sup> BLM actually stated that it was “not known” whether some migrating deer “would” be forced closer to the highway, subjecting them to the potential for increased mortality, owing to vehicular collisions. Final EIS/EIR at 4.4-18. It did not conclude this was likely to occur.

BLM considered the likely individual and cumulative impacts of the Project on mule deer and their habitat, including the likelihood for an increase in the incidence of vehicular collisions, especially along U.S. Highway 395, which runs through the Project area. See Final EIS/EIR at 3.4-1 to 3.4-3, 3.4-10, 3.4-18 (“Suitable mule deer habitat is present throughout the Project [area]. Mule deer herds in Mono County are defined by their winter ranges, where they migrate to lower elevations on the Eastern Sierra[.] . . . The location of the CD-IV Project is within the spring and fall migration path identified for members of the Round Valley [h]erd[.] . . . as well as members of the Casa Diablo herd[.]”), 3.4-18 to 3.4-19, 3.4-19 (“Characteristics of the vegetation in the Project [area] meet known habitat requirements for deer that enter the area to hold or forage as residents, or who pass through the area during normal migration”), 4.4-1 to 4.4-2, 4.4-5 to 4.4-8, 4.4-13, 4.4-15 to 4.4-21, 4.4-23, 4.4-25, 4.4-27 to 4.4-30.

BLM was well aware of mule deer migration routes in the vicinity of the Project, two of which pass directly through the Project area. It recognized that the power plant and associated production/injection pipelines would pose barriers to mule deer. Therefore, based on the 2011 MACTEC deer count-track survey, BLM estimated that up to 40 to 50 summer-resident, 10 to 20 winter-resident, and 300 migrating deer might be redirected by Project facilities “through or around the Casa Diablo geothermal complex[.]” Final EIS/EIR at 4.4-18. However, it further concluded that the plant would occupy only 6.5 acres of deer habitat, deer might migrate around the plant, deer might migrate east, rather than west, of the plant, and, therefore, away from the highway, and the pipelines would not substantially impede the movement of mule deer through the Project area, since adult deer would be able to jump over the pipelines and young deer would be afforded numerous places where they could cross under the pipelines. See *id.* at 4.4-5, 4.4-8, 4.4-17, 4.4-18, 4.4-20, 4.4-25. It noted that 3.7 miles of new pipelines would be placed parallel to existing pipelines, affording the same passage afforded by a single pipeline. BLM also stated that the pipelines would be placed underground where they cross roads, which has been shown to be effective in the case of the existing Basalt Canyon Pipeline, in minimizing the effect of pipelines on deer migratory patterns. See *id.* at 4.4-8, 4.4-17, 4.4-18, 4.4-20, 4.4-25. It acknowledged that it was not known whether the plant and associated pipelines would redirect migrating deer onto U.S. Highway 395, but provided, in any event, for a new deer crossing south of the plant, under MM WIL-4, which would reduce, but not eliminate, the risk of vehicular collisions. See *id.* at 4.4-18, 4.4-31.

Therefore, it is clear BLM was well aware of all of the factors identified by CRMD bearing on the likely impacts of the Project to migrating deer. It was not, however, able to further specify or quantify such impacts, and, indeed, regarded attempts to do so as “speculat[ion],” since there was “not sufficient data” regarding “how migrating deer would respond to the new barriers associated with the [Project].” Final EIS/EIR at 4.4-18.

CRMD offers no convincing argument or supporting evidence establishing the likelihood of an increased incidence of vehicular collisions or suitably describing or quantifying such impacts. Therefore, it does not establish that “the rate of deer-vehicle collisions and associated mortality *would increase* as a result of the Project[.]” SOR at 15, emphasis added. Rather, CRMD really only refers to the fact that deer are known to collide with vehicles in the western United States, including in Mono County, and along U.S. Highway 395. *See id.* at 14-15. Nor does CRMD establish how any of the information cited by it would change BLM’s assessment of the likelihood of collisions *specifically associated with the Project*. BLM concluded that collisions would not be eliminated as a consequence of the Project, but that they would not significantly affect the deer herd. *See* Final EIS/EIR at 4.4-18, 4.4-21, 4.4-25, 4.4-29 (“Permanent CD-IV Project facilities create a wildlife movement barrier that will alter but not likely impede the movement of mule deer”).

BLM considered the likely cumulative impacts of the Project on mule deer and their habitat, concluding that the Project area would continue to provide adequate forage and serve as migratory corridors for deer. *See* Final EIS/EIR at 4.4-28 to 4.4-29, 4.4-29 to 4.4-30, H-120. It concluded that the Project would have cumulative adverse impacts on migratory deer, but that they would not be significant, since adequate forage and migratory routes would remain.

CRMD does not identify the other reasonably foreseeable projects that are likely to contribute to a significant cumulative impact to mule deer or their habitat. *See Save Medicine Lake Coalition*, 156 IBLA at 242-43. Bleich does not identify these projects or their likely effects on forage or other habitat characteristics. Nor does he describe how the Project, which will only “eliminate up to 80 acres of habitat within the Sherwin Holding Area,” is likely to contribute to a significant cumulative impact. SOR at 16; *see* Final EIS/EIR at 4.4-6 (“Impacts to wildlife habitat would occur almost entirely in the Jeffrey pine forest and big sagebrush scrub communities[.] [U]p to 36.86 acres of Jeffrey pine forest would be affected by Project implementation, but only 10.28 acres would be permanently encumbered by Project facilities. Similarly, up to 39.56 acres of big sagebrush scrub would be affected by Project implementation, but only 3.82 acres would be permanently encumbered by Project facilities.”). Nowhere does he suitably describe or quantify any such impact. Indeed, we do not think that Bleich concluded that a significant cumulative impact is even likely. *See* SOR at 16 (“The Project’s potential to contribute further to the decline [in the herd population] *could* be cumulatively considerable as a result of the loss of foraging habitat or forage itself” (quoting Bleich Comments on Draft EIS/EIR at unpag. 10, emphasis added)).

Bleich asserted that BLM’s conclusions regarding the likely cumulative effects of the Project were unsupported. *See* Bleich Comments on Final EIS/EIR at unpag. 6-7.

However, neither Bleich nor CRMD offered any convincing argument or supporting evidence establishing that the Project was likely, together with any other activity, to have any cumulative or synergistic effect on the mule deer that BLM was required to consider. Importantly, neither offered any evidence demonstrating that, owing to geographic proximity or any other factor, there is likely to be *an interaction between the Project and any past, present, or reasonably foreseeable future activities* that might result in a specific cumulative impact, which BLM failed to address. See *Wyoming Outdoor Council*, 147 IBLA 105, 109 (1998).

Further, in order to establish an error or deficiency in BLM's analysis, it is not sufficient to demonstrate that "the professional literature" states that geothermal development, alone and together with other activity, "ha[s] potentially negative effects on mule deer[.]" Bleich Comments on Final EIS/EIR at unp. 7. As we recently stated in *Biodiversity Conservation Alliance*, 183 IBLA at 122:

It is not enough to cite to general scientific literature without making any effort to relate such scientific information to the proposed action and the circumstances under which it will occur, or otherwise demonstrate its relevance to the environmental consequences of that action. Mere citation does not demonstrate that BLM failed to properly understand the expected consequences of the proposed [action], or to fully appreciate its significance, and thus does not establish a violation of NEPA.

Third, CRMD argues that BLM failed to take a hard look at the likely effects of Project drilling and development on wetlands and other jurisdictional waters, since BLM's conclusion that such waters would not be directly affected by the Project is unsupported by and, indeed, contrary to record evidence. See SOR at 17-19. It refers to the fact that the production/injection pipelines will cross, and other Project facilities will be situated near or adjacent to, such waters, noting that the construction of such facilities will entail substantial vegetation removal, earth-moving, alteration of drainage patterns, and other soil-disturbing activities, which are likely to cause increased erosion, resulting in sediments, together with drilling mud, drill cuttings, and geothermal fluids, entering such waters.

BLM was well aware that soil-disturbing activities associated with Project construction might cause sediments and pollutants to be released and carried, in existing drainages, especially during storm events, to surface waters. It thoroughly considered the likely effects of construction on soils and surface waters in the Project area. See Final EIS/EIR at 3.8-1, 3.8-26, 3.19-1 to 3.19-3, 3.19-4, 3.19-6 to 3.19-14, 4.8-1 to 4.8-15, 4.8-16 to 4.8-17, 4.8-18 to 4.8-21, 4.19-1 to 4.19-8, 4.19-10 to 4.19-13, 4.19-14 to 4.19-23.

BLM noted that Project facilities typically were located at a sufficient distance from or not hydrologically connected to surface waters:

Wells 55-32 and 65-32 . . . would be located at least 1,100 feet east of the nearest tributary waterway [to Hot Creek]. The proposed plant site would be located approximately 1,200 feet northeast of the nearest tributary waterway. Generally, these facilities would be located at a sufficient distance from existing waterways that leaks would be contained or shut off prior to leaked fluids reaching surface waters. . . . All other proposed facilities [west of the highway] are located in areas that drain into swales, . . . including all proposed wells, pipelines, and access roads[.]

*Id.* at 4.19-3; *see id.* at 4.19-6, n.1 (“Other facilities [west of the highway] would be located in areas that drain to internally-drained basins” that “are not connected to downstream waterways”).

Further, BLM concluded that, given the implementation of PDMs and MMs, the drilling and development of geothermal wells, construction of the power plant, construction of production/injection pipelines, and other Project activities would avoid or minimize the disturbance of soils in the Project area, avoiding or minimizing soil erosion and the transportation of sediment to any surface waters, even during storm events. *See* Final EIS/EIR at 4.8-2 to 4.8-3, 4.8-4 to 4.8-5, 4.8-5 (“Generally, construction activities would result in direct soil disturbance . . . at up to 20 discrete sites ranging in size from 2.5 acres (for well sites) to 6.5 acres (for the power plant), scattered over an approximately 3 mile wide area. . . . [T]he total disturbance area over the life of the CD-IV Project could be over 50 acres. However, construction of the facilities would be phased such that a much smaller area would be disturbed at any one time[.] . . . In addition, the Project area is currently characterized by prior soil disturbances associated with previous geothermal exploration activities, [and] existing pipeline and well sites[.]”), 4.8-6, 4.8-16, 4.19-4 to 4.19-5, 4.19-8, 4.19-13.

BLM also concluded that the accidental release of drilling mud, drill cuttings, and geothermal and other fluids during Project construction and operations would be avoided or minimized, and, in any event, any release would not reach surface waters. *See* Final EIS/EIR at 4.19-4 to 4.19-7, 4.19-13. It specifically required ORNI, as a condition of approval of the Project, *inter alia*, to agree, under PDM HYD-10, that “[t]he plant and well pads will be designed so that spills will be contained on-site.” *Id.* at 4.19-2.

BLM expected no significant adverse impacts to water quality during Project construction and operation. *See* Final EIS/EIR at 4.19-10, 4.19-11, 4.19-13. It also specifically concluded that the Project would not adversely affect any of the potential

jurisdictional waters in the Project area. *See id.* at 4.3-2, 4.3-4, 4.3-8, 4.3-11 to 4.3-12, 4.3-14.

CRMD fails to offer any convincing argument or supporting evidence establishing any error or deficiency in BLM's analysis. Nor has it posited any likely impact to soil and/or surface waters, including potential jurisdictional waters, that BLM did not adequately consider, or the significance of which BLM failed to appreciate.

## 2. *Assertions of Error by LiUNA*

LiUNA contends that BLM failed to take a "hard look" at the likely significant impacts of the Project to air quality, surface and groundwater resources, and geothermal resources.

First, LiUNA argues that BLM failed to take a hard look at the likely significant impacts of VOC and H<sub>2</sub>S emissions to air quality. *See* SOR at 11-16; NA/Petition at 30-42.

LiUNA asserts that, in the opinion of its expert (Dr. Phyllis Fox), BLM "substantially underestimated" VOC emissions by the power plant, anticipating a total of 410 pounds (lbs.)/day, versus the true estimate of "as high as 3,201 [lbs./day]," in the form of n-pentane,<sup>45</sup> after considering the likely emissions of all components of the Project.<sup>46</sup> SOR at 11 (citing Decl. of Fox, dated Sept. 13, 2013 (attached to NA/Petition), ¶ 26, at 10).

BLM acknowledged the potential, despite the use of best available control technology (BACT), for leaks from seals, flanges, valves, and other connections at

---

<sup>45</sup> LiUNA sought to establish error only in BLM's assessment of the consequences of n-pentane emissions by the power plant, to the exclusion of other VOC emissions, but does not appear to challenge BLM's assessment that VOC emissions "associated with the CD-IV Project would be *almost exclusively related to fugitive n-pentane at the power plant.*" Final EIS/EIR at 4.2-12, emphasis added.

<sup>46</sup> Since 1981, Fox, who holds a B.S. in Physics from the University of Florida (1971) and a Masters (1975) and Ph.D. (1980) in Environmental/Civil Engineering from the University of California, Berkeley, has been a Professional Engineer, with extensive experience in air pollution management and control and other matters. *See* Fox Decl., ¶¶ 2-4, at 2.

the power plant, and, therefore, for fugitive n-pentane emissions. See Final EIS/EIR at 2-43, 4.2-4. It considered the likely impacts associated with n-pentane emissions. BLM determined that n-pentane would be emitted at a maximum daily rate of 410 lbs./day, and, therefore, 74.8 tons/year, even despite the fact that ORNI's proposal incorporated the use of BACT, requiring, *inter alia*, the use of vapor recovery devices for capturing n-pentane and undertaking maintenance and repair in such a manner as to avoid or eliminate any leaks.<sup>47</sup> See *id.* at 2-40, 2-43 (“[T]here are no routine emissions to the atmosphere. However, there can be fugitive leaks of the n-pentane[.] . . . Based on EPA [Environmental Protection Agency] calculation methods for fugitive leaks from connections and engineering estimates using motive fluid inventory records at similar facilities, [ORNI's] estimate of these fugitive leaks and emissions from all sources at the . . . Project is 411 pounds of n-pentane per day.”), 2-44, 4.2-4, 4.2-12 to 4.2-13.

BLM's estimate of n-pentane emissions was based on the fact that ORNI would be required by BLM, as a condition of approval of the Project, under PDM AQ-3, to “utilize best available equipment and design to minimize emissions of n-pentane,” and BACT, and, under PDM AQ-4, to “apply for an air [quality control] permit to construct and operate the wells and power plant,” and otherwise “conform to [ ]APCD requirements for controlling emissions.”<sup>48</sup> Final EIS/EIR at 4.2-6. Therefore, BLM would require ORNI to employ BACT to minimize n-pentane emissions and obtain an ATC and PTO from APCD, in compliance with Air District Rules, for the Project wells and power plant, before constructing and operating the wells and plant. See *id.* at H-132 (“[T]he Permit to Operate the [power] plant that would be issued by the [ ]APCD would include a condition to limit fugitive releases of n-pentane to . . . 410 pounds per day[ ]. The Permit to Operate would include monitoring and reporting requirements to ensure that the identified value for fugitive emissions is not exceeded.”). BLM further concluded that, since the Project would be required to employ BACT, “there is no additional feasible mitigation that can be applied to the CD-IV Project to substantially reduce” fugitive n-pentane emissions. *Id.* at 4.2-13.

---

<sup>47</sup> As a condition of approval of the Project, BLM required ORNI to implement a leak detection and repair (LDAR) program, whereby, in the event n-pentane emissions at any component of the power plant were found, during periodic monitoring, to exceed a specified level, appropriate repairs would be undertaken to eliminate the leak, as soon as practical. See Final EIS/EIR at 2-43 to 2-44, 4.2-4, 4.2-21 to 4.2-22.

<sup>48</sup> BLM adopted PDM AQ-3 and PDM AQ-4, as conditions of approval of the Project. See ROD, Appendix 2, at A2-1.

BLM concluded that, since emissions of 410 lbs./day would exceed the applicable significance threshold of 55 lbs./day, they were likely, in the long-term, to significantly impact air quality by causing or contributing to exceedances of the State 1-hour and 8-hour ambient air quality standards (AAQS) for ozone, in an area that is already deemed to be in non-attainment.<sup>49</sup> See Final EIS/EIR at 3.2-2, 4.2-6, 4.2-12, 4.2-14, 4.2-15, 4.2-16 to 4.2-17. BLM deemed these significant impacts, both individual and cumulative, unavoidable, since, other than BACT, there were no other feasible mitigation measures that could be used to avoid or minimize the expected emissions. See *id.* at 4.2-14, 4.2-15.

We are not persuaded that BLM erred in its determination that n-pentane emissions would not exceed 410 lbs./day. BLM explained that the 410 lbs./day estimate of actual n-pentane emissions, which was provided by ORNI, was also intended to be the maximum amount of n-pentane that could be emitted by the Project, under the applicable air quality control permits that ORNI sought from APCD, and was used in determining likely air quality impacts. See Final EIS/EIR at 4.2-4 (“ORNI . . . has estimated a maximum fugitive n-pentane leak rate for the CD-IV Project of 410 lbs[.]/day, and has requested this amount as [the air quality control] permit limit from the [APCD]”). BLM concluded that ORNI would be required, under its air quality control permits, to ensure that emissions did not exceed 410 lbs./day. It also recognized that the Project would not go forward until after APCD issues the permits, and, so until APCD concludes, after appropriate review, that the Project incorporates BACT, and otherwise complies with the State equivalent of the CAA.

Further, BLM provided for ensuring that n-pentane emissions do not exceed 410 lbs./day. It requires, as conditions of approval of the Project, under MM AQ-5 and MM AQ-6, that ORNI obtain approval by APCD of an Emissions Management Plan that will ensure that ORNI continuously monitors for and repairs leaks, in order to

---

<sup>49</sup> BLM was aware that the Project area is situated in an area that is considered to be in attainment for most of the criteria air pollutants (carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), and fine particulate matter (PM<sub>2.5</sub>)), but which is deemed to be in non-attainment for ozone, since the ozone level already has exceeded the 1-hour (0.09 parts per million (ppm)) and 8-hour (0.07 ppm) State AAQS. See Final EIS/EIR at 3.2-1 to 3.2-5. However, ozone levels have generally been decreasing over the period from 2005 through 2010, being recorded at 0.081 ppm (1-hour) and 0.07 ppm (8-hour) in 2010. See *id.* at 3.2-4 (Table 3.2-3 (Criteria Pollutant Maximum Ambient Concentrations)).

ensure that emissions do not exceed 410 lbs./day, which plan will be included in the air quality control permits issued by APCD.<sup>50</sup> See Final EIS/EIR at 4.2-21 to 4.2-22.

In all these circumstances, we agree that BLM was fully justified in using 410 lbs./day of n-pentane emissions in assessing air quality impacts, since it comported with BLM's reasonable assessment of expected emissions, and BLM has taken appropriate steps to avoid exceeding that emissions standard. See *Save Medicine Lake Coalition*, 156 IBLA at 250-51. Given its anticipated inclusion in the air quality control permits, any exceedances by ORNI of the emissions standard would be violative of the State equivalent of the CAA, and, in turn, BLM's Project approval, since ORNI is required, as a condition of approval, after obtaining the permits, to "conform to [A]PCD requirements for controlling emissions." ROD, Appendix 2, at A2-1 (PDM AQ-4); see *Powder River Basin Resource Council*, 183 IBLA 83, 94-95 (2012); BLM Answer at 27 ("The BLM is not required to analyze noncompliance with th[e] [APCD] permit").

LiUNA also argues that the expected n-pentane emissions, at the rate of 410 lbs./day, constitute a "per se significant impact," since they well exceed the 250 lbs./day level at which ORNI would be required by APCD to employ BACT.<sup>51</sup> NA/Petition at 39. However, BLM has already determined that operation of the power plant is likely to result in fugitive n-pentane emissions that will, by causing or contributing to exceedances of the State 1-hour and 8-hour AAQS, be significant, and required ORNI to employ BACT, as mandated by APCD, to address such emissions.

---

<sup>50</sup> BLM adopted MM AQ-5 and MM AQ-6, as conditions of approval of the Project. See ROD, Appendix 2, at A2-2.

<sup>51</sup> LiUNA cites APCD's Rule 209-A (Standards for ATCs). APCD's rules may be found at <http://gbuapcd.org/rulesandregulations/index.htm> (last visited Mar. 16, 2016). Section D of Rule 209-A applies, in relevant part, in the case of any new stationary source that "result[s] in . . . [a] net increase in emissions of 250 or more pounds during any day" of any pollutant for which there is a Federal AAQS or any precursor of such a pollutant. Rule 209-A at 1, emphasis added. When applicable, Section D provides that all new stationary sources "shall be constructed using [BACT]." *Id.* at 6. BACT is defined as the most stringent of either (1) the most effective emissions control technique that has been achieved in practice, (2) any other emissions control technique that is found by the State, after a public hearing, to be technologically feasible and cost-effective, or (3) the most effective emissions control technique that has been certified by the EPA to be contained in any State implementation plan. See *id.* at 11-12.

LiUNA specifically asserts that BLM was required by APCD, under Rule 209-A, to consider the use of BACT whenever there is a net increase in n-pentane emissions from a new stationary source, on the order of 250 or more lbs./day, of pollutants or the precursor to pollutants, for which pollutants there is a Federal AAQS. See SOR at 11-12, 13. It also argues that BLM was required by section 102(2)(C) of NEPA to consider BACT and other measures for avoiding or minimizing the effects attributable to n-pentane emissions in excess of 250 lbs./day. See *id.* at 12 (citing *South Fork Band Council of Western Shoshone of Nevada v. U.S. Department of Interior*, 588 F.3d 718, 727 (9th Cir. 2009)), 13. LiUNA notes that, rather than considering adoption of BACT, BLM provided for monitoring the level of n-pentane emissions. See NA/Petition at 40.

BLM was required by APCD Rule 209-A to consider the use of BACT when there is likely to be a net increase in emissions of 250 lbs./day or more of n-pentane, since it is a precursor to a pollutant (ozone), for which there is a Federal AAQS. We do not doubt that BLM was well aware that the APCD requirement applied to n-pentane emissions by the Project's power plant, since n-pentane is known to be a precursor to ozone, which is a pollutant for which there is a Federal AAQS, and since emissions are expected to exceed 250 lbs./day. See Final EIS/EIR at 4.2-4. Indeed, it specifically required ORNI, as a condition of approval of the Project, under PDM AQ-3, to "utilize best available equipment and design to minimize emissions of n-pentane," and employ BACT, for the purposes of avoiding or minimizing n-pentane emissions. *Id.* at 4.2-6. In addition, in adopting PDM AQ-3 in the ROD, BLM stated that "[APCD [would] . . . review and approve a summary of proposed [best available] equipment [designed to minimize n-pentane emissions][.]" ROD, Appendix 2, at A2-1. It also required ORNI, under PDM AQ-4, to "apply for an air [quality control] permit to construct and operate the wells and power plant," stating that the Project "will conform to [APCD requirements for controlling emissions]." Final EIS/EIR at 4.2-6. Beyond the required employment of BACT, BLM concluded that there is no other feasible mitigation that is likely to substantially reduce fugitive n-pentane emissions. See BLM Answer at 28, and ORNI Answer at 18 (citing Final EIS/EIR at 4.2-13).

Finally, BLM noted that the Project would employ leakless technology, to the extent that it is feasible. See BLM Answer at 29 (citing Final EIS/EIR at H-133); ORNI Answer at 18 (citing Final EIS/EIR at H-109). It provides, *inter alia*, for employing welded pipe runs and elbows, but otherwise allowing flanged valves and threaded instrumentation, since welding them is deemed infeasible, given the need for future replacement. LiUNA, however, maintains that requiring the use of leakless technology *across-the-board* "would constitute BACT[.]" SOR at 14 (citing Fox Decl., ¶ 14, at 6-7). LiUNA fails to establish that any of the leakless technology deemed by BLM to be infeasible is, in fact, feasible. Fox, LiUNA's expert, asserts that "leakless technology is feasible for all fugitive components" of the Project, and presumably would be employed under PDM AQ-3 of the approved Project. Comments on Draft

ATC Permit, dated Sept. 12, 2013 (Attachment to Fox Decl.), at 10. However, to the extent that any leakless technology is deemed infeasible, Fox fails to offer any convincing argument or supporting evidence to the contrary. We, therefore, are not persuaded that BLM was required to mandate the use of leakless technology across-the-board. Nor are we persuaded that BLM is required, in lieu of using leakless technology across-the-board, to implement a stricter LDAR program than the one adopted, whereby, when VOC emissions from a particular component exceed a specified leak rate (10,000 parts per million by volume (ppmv)), the component must be repaired as soon as practical. See ROD, Appendix 2, at A2-2. LiUNA fails to establish that the LDAR program adopted by BLM will not sufficiently reduce n-pentane leaks.

In the end, however, we agree that BLM did not fully specify the particular BACT for fugitive n-pentane emissions that ORNI should employ, but instead left that to be determined by ORNI, with the approval of APCD, during Project implementation. LiUNA fails to establish that BLM was required by the CAA or any other applicable law to identify the BACT for n-pentane emissions at the time of preparation of the EIS/EIR.

Ultimately, BACT determinations must be made by APCD, in connection with its issuance of air quality control permits for the Project, and the Project cannot go forward without the issuance of the permits. See ROD at 8; ROD, Appendix 2, at A2-1 (PDM AQ-4); Final EIS/EIR at 1-15, 3.2-7, 4.2-6; ORNI Answer at 20. BLM was not required to await a final BACT determination by APCD or even to obtain sufficient assurance, prior to acting, that APCD will issue permits with appropriate BACT, before approving the Project, following NEPA review, since the Project will not go forward in the absence of a final BACT determination and issuance of the permits by APCD. See *Southwest Center for Biological Diversity*, 154 IBLA 231, 244 (2001) (“BLM is not required to await final approval by the State to approve the [proposed] mining plan [which is] contingent on that approval”). As the Court stated in *Robertson v. Methow Valley Citizens Council*, 490 U.S. at 352-53:

[Where] state and local governmental bodies . . . have jurisdiction over the area in which the adverse effects need [to] be addressed and . . . they have the authority to mitigate them, it would be incongruous to conclude that the [Federal agency] . . . has no power to act *until the [State and] local agencies have reached a final conclusion on what mitigating measures they consider necessary*. [Emphasis added.]

It added: “Because NEPA imposes no substantive requirement that mitigation measures actually be taken, it should not be read to require agencies to obtain an assurance that third parties will implement particular measures.” *Id.* at 353 n.16.

We are not persuaded that BLM was required to undertake a BACT analysis as part of preparation of the EIS/EIR, pursuant to section 102(2)(C) of NEPA. Nor are we convinced that BLM was required to incorporate more specific BACT as part of its approval of the Project. While the proposed action incorporated certain measures for avoiding or minimizing air quality impacts, BLM recognized that VOC emissions generally would be significant, despite the employment of BACT, and that, in any event, APCD would, as part of the succeeding air quality permit process, determine the required BACT. BLM is plainly entitled to rely, for NEPA purposes, on the fact that APCD will ensure that the Project will not violate the State equivalent of the CAA, by incorporating BACT and otherwise defining the precise manner in which Project activities may emit VOCs and other air pollutants. *See, e.g., Powder River Basin Resource Council*, 183 IBLA at 94-95. LiUNA offers no convincing argument or supporting evidence that APCD will fail to ensure compliance with the State equivalent of the CAA, or that BLM otherwise failed to properly consider the likely effects of VOC emissions on air quality.

Next, LiUNA asserts that BLM failed to address the likely significant adverse effects of H<sub>2</sub>S emissions from the geothermal wells on air quality, and ultimately on public health, based on the opinion of Dr. Petra Pless that such emissions will not only result in an objectionable “rotten egg” odor, but also adverse health effects “rang[ing] from nose, throat and lung irritation . . . [to] sudden collapse[] and death[.]” SOR at 15 (citing Letter to BLM from Pless, dated Jan. 25, 2013, at 6-10).<sup>52</sup>

BLM clearly considered the likely impacts associated with H<sub>2</sub>S emissions, concluding that, although the geothermal wells were likely to temporarily generate emissions from geothermal resources in excess of APCD’s standard of 2.5 kilograms (kg)/hour/well, during drilling, testing, and clean-out, and so produce an objectionable “rotten egg” odor in the immediate vicinity of the wells, which would dissipate, under normal conditions, further away from the well, the emissions were not expected to pose any risk to human health, and would not be significant. *See* Final EIS/EIR at 3.2-1 to 3.2-3, 3.2-5 to 3.2-8, 4.2-1, 4.2-3 to 4.2-4, 4.2-10, 4.2-11, 4.2-13, 4.2-14, 4.2-15, 4.2-17, 4.2-21; ORNI Answer at 26 (“H<sub>2</sub>S emissions . . . will occur infrequently and at low levels”). Further, while H<sub>2</sub>S would be intermittently emitted on a temporary, short-term basis, lasting from several hours up to 30 days, at each well site, during construction, H<sub>2</sub>S would not be emitted during operation of the Project,

---

<sup>52</sup> The Jan. 25, 2013, Pless letter was Ex. D to Jan. 29, 2013, Comments on Draft EIS/EIR submitted by CURE. *See* Final EIS/EIR at G-311 to G-325. Pless holds a Doctorate in Environmental Science and Engineering from the University of California, Los Angeles (2001).

because the geothermal resources would be entirely contained within a closed-loop system from the production wells, through the pipelines to and from the power plant, to the injection wells. See Final EIS/EIR at 4.2-10, 4.2-13. Further, noting that the closest sensitive receptor was the Shady Rest Campground, situated approximately 0.5 miles from Well 38-25, and the closest residences were situated along the Trails End Road, approximately 0.8 miles from Wells 38-25 and 50-25, BLM concluded that the “health risks and odor nuisances that would be associated with the CD-IV Project are *expected to be negligible*.” *Id.* at 4.2-11, emphasis added. Accordingly, it did not expect any adverse public health effects. See *id.* at 4.2-3 to 4.2-4, 4.2-10, 4.2-11, H-23.

In addition, ORNI is prohibited by APCD, under Rule 424 (Geothermal Emissions Standards), from exceeding the 2.5 kg/hour/well standard at any well, and so ORNI would be required, as a condition of approval of the Project, to monitor for and abate any emissions in excess of the standard, under a plan approved by APCD. See Final EIS/EIR at 3.2-7, 4.2-10, 4.2-21, H-23; ORNI Opposition (LiUNA) at 18. BLM incorporated the requirements of Rule 424 in the Project MMs. See Final EIS/EIR at 4.2-10, 4.2-21 (MM AQ-4). Under MM AQ-4, if monitored H<sub>2</sub>S levels exceed the APCD 2.5 kg/hour/well standard or the State AAQS of 0.03 ppm for 1 hour, further emissions must cease until a plan for abating the emissions, approved by APCD, is implemented. BLM adopted MM AQ-4, as a condition of approval of the Project. See ROD, Appendix 2, at A2-1. It also required ORNI, as conditions of approval of the Project, to obtain APCD’s approval of air quality control permits to construct and operate any wells, under PDM AQ-4, and to comply with any requirements imposed by APCD concerning H<sub>2</sub>S emissions from any wells, under PDM AQ-2. See Final EIS/EIR at 4.2-6; ROD, Appendix 2, at A2-1.

We conclude that BLM properly assessed the likely effects of H<sub>2</sub>S emissions against the applicable standards of the regulatory agency (APCD), and was not required to do more. BLM was well aware that well workers would be situated in very close proximity to any releases of H<sub>2</sub>S, which could also affect users of the Shady Rest Park and other recreational areas situated within a mile or less of Project wells. See Final EIS/EIR at 3.2-5 (“Shady Rest Park, a Town of Mammoth Lakes sports complex, is approximately 160 feet [north]east of proposed Well Site 38-25”). However, the well sites and Shady Rest Park were not considered sensitive receptors. Further, BLM recognized that drilling, testing, and clean-out at any well site, including Well 38-25, was expected to release H<sub>2</sub>S only on a temporary, short-term basis, lasting up to 30 days. In addition, BLM provided that emissions would, in any event, cease and odor abatement occur following any release of H<sub>2</sub>S in excess of the standard of 2.5 kg/hour/well or 0.03 ppm. BLM deemed the two standards as adequate to prevent any adverse public health effects.

LiUNA fails to demonstrate that BLM erred in its conclusion that H<sub>2</sub>S emissions are likely to occur only on a temporary, short-term basis, during the drilling, testing, and clean-out of Project wells. It also fails to establish how H<sub>2</sub>S emissions that do not exceed 2.5 kg/hour/well or 0.03 ppm, which are the levels adopted by APCD and the State, are likely to threaten the health of workers or other members of the public in the vicinity of the geothermal wells, contrary to BLM's opinion. LiUNA offers no convincing argument or supporting evidence that H<sub>2</sub>S emissions will, under normal conditions, adversely affect public health, or even that precluding any H<sub>2</sub>S emissions in excess of the regulatory standards will not serve to adequately protect public health. BLM's conclusions represent the opinion of BLM's experts, which LiUNA seeks to rebut only with the contrary opinion of its experts. LiUNA fails to establish any error in BLM's analysis of the likely effects of H<sub>2</sub>S emissions, or otherwise demonstrate the supremacy of the opinion of its experts.

Finally, LiUNA asserts that BLM improperly deferred any efforts to avoid or minimize the likely significant adverse effects of H<sub>2</sub>S emissions. *See* SOR at 15. It notes that BLM provided for curtailing H<sub>2</sub>S emissions that exceeded the regulatory standards, but did not provide for any specific monitoring or plan for controlling emissions once the standard is exceeded. *See id.* at 15-16.

BLM provided, under MM AQ-4, that ORNI would be required to monitor H<sub>2</sub>S emissions during well drilling and testing, and, in the event that emissions exceeded 2.5 kg/hour/well or 0.03 ppm, ORNI would be required to cease further emissions pending implementation of an abatement plan, approved by APCD, for reducing emissions below such limits. *See* Final EIS/EIR at 4.2-10, 4.2-21. While ORNI is to develop an appropriate abatement plan, subject to APCD's approval, following BLM's approval of the Project, ORNI is committed, by virtue of BLM's approval, to ensure that no emissions exceed 2.5 kg/hour/well or 0.03 ppm, based on future monitoring. *See id.* at H-23. We do not think that it was necessary that BLM provide for specific monitoring and a specific abatement plan, since APCD was charged with ensuring that the regulatory standards are not exceeded during the lifetime of the Project, including monitoring emissions and requiring ORNI to take appropriate action to curtail any emissions exceeding the standards. LiUNA offers no convincing argument or supporting evidence demonstrating that the Project is, nevertheless, likely to result in public health consequences not addressed in the EIS/EIR. We conclude, then, that BLM fully complied with section 102(2)(C) of NEPA.

Second, LiUNA argues that BLM failed to take a hard look at the likely impacts of geothermal drilling and development on surface and groundwater resources. *See* SOR at 16-19; NA/Petition at 13-19. It states that BLM particularly failed to address the "hydrologic connectivity" between the geothermal reservoir and the overlying groundwater aquifer in the Project area, which gives rise to a "significant risk" that geothermal resources will contaminate the groundwater. SOR at 16. LiUNA

concludes that BLM fundamentally failed to support its conclusions regarding the likely hydrologic impacts of the Project with “[a]ccurate scientific analysis[.]” *Id.* at 18 (quoting 40 C.F.R. § 1500.1(b)).

We have dealt extensively with challenges to BLM’s evaluation of the likely groundwater impacts of the Project in resolving MCWD’s appeal. BLM concluded, after considering known geologic conditions and the lengthy history of geothermal drilling, exploration, and development and associated geothermal and groundwater monitoring in the case of the Project and surrounding areas, that there is *no hydrologic connection* between the geothermal reservoir and the overlying groundwater aquifer, such that the Project is not likely to contaminate the groundwater. *See, e.g.*, Final EIS/EIR at 3.7-4 (Figure 3.7-2 (Distribution of the Landslide Block of Metasedimentary Rocks from the Southern Rim of Long Valley Caldera)), 3.7-11, 3.7-18, 4.7-10, 4.7-12 (“No effects on the shallow cold water basin have been observed during monitoring of the 27 years of operation of the existing Casa Diablo facilities”), 6-19, 6-20 (Figure 1 (Cross Section A-A’)), 6-21 (Figure 2), 6-22, 6-23, 6-26, 6-28, D-25 (“The cold groundwater aquifers are separated from the deeper hotter geothermal system by *either intense alteration of thick ash-rich Early Rhyolite units in the western caldera or low permeability rocks of a landslide that slid into the south central part of the caldera*” (Emphasis added)), D-27 (“Because the shallow cold groundwater system and the deeper geothermal system are physically separated from the principal supply aquifers of the western Mammoth Groundwater Basin, geothermal production from the [P]roject is *not expected to adversely affect the water quality in MCWD wells* through either depleting the aquifer or by drawing in lower quality waters because of pressure declines” (Emphasis added)), D-43, D-47, D-68 (Figure 11), D-72 (Figure 15 (Monitoring well locations)), H-31, H-36 to H-37, H-38, H-40, H-44, H-45, H-46, H-47, H-49 (“Basalt Canyon wells have been producing an average of 2000 gallons per minute since 2006 and the MCWD has not reported any adverse effects on groundwater wells in its monitoring reports or to the LVHAC”).

While faults and fractures in the underlying strata could establish a connection between the groundwater aquifer and the underlying geothermal reservoir, BLM noted the existence of faults and fractures not in the Project area, but rather east and west of the Project area, which faults and fractures allowed water to seep from the surface down to the reservoir, where it was heated and then flowed east under the Project area to the surface geothermal manifestations, southeast of that area. *See* Final EIS/EIR at 3.7-2 to 3.7-3, 3.7-6, 3.7-8 to 3.7-10, 3.7-14, 3.7-18, 3.8-2 (Fig. 3.8-1 (Seismic and Volcanic Hazards)), 3.8-3 to 3.8-4, 3.8-5 (Fig. 3.8-2 (Geologic Units, Faults and Features)), 3.8-12 to 3.8-17. Further, even though it was well aware of the presence of faults and fractures and the incidence of earthquakes in the vicinity of the Project area, BLM plainly did not expect any seismic activity associated with any faults or fractures to cause the geothermal resources to affect groundwater resources at depth.

*See id.* at 4.7-10 to 4.7-14, 4.7-15, 4.8-11 (“[Of the proposed wells, only Well 55-31 is] crossed by a mapped trace of the active Hilton Creek Fault, or [is] . . . within its earthquake fault zone”), 4.8-12 (“The probability of a large earthquake along the Hilton Creek Fault is difficult to ascertain and the potential for fault rupture to occur in the exact location of the CD-IV Project is slight”), 6-18 to 6-28, H-27 (“Historic monitoring indicates that shallow groundwater displays little response to geothermal production”), H-151 to H-152, H-152 (“Basic hydrogeologic principles indicate that leakage from the lower geothermal [reservoir] . . . , if any were to occur, would flow downgradient rather than up towards the drinking water aquifer”).

BLM noted that the Project, to the extent that it affects the geothermal resources, is only likely to affect the quantity and quality of surface water in the case of Hot Creek and other areas southeast of the Project area, where the geothermal resources contact groundwater on the surface.<sup>53</sup> *See* Final EIS/EIR at 4.7-1, 4.7-2 to 4.7-9, 4.7-14, 4.7-15, 6-19, 6-22, 6-27 (“[T]he geothermal reservoir is measurably interconnected with the hydrologic features to the southeast of the caldera”), D-46 to D-48, H-27, H-34, H-39 (“The deeper western geothermal system in Basalt Canyon is distinct from the shallow eastern portion of the system that emerges at lower elevations east of Casa Diablo”), H-46, H-52 (“The . . . EIS/EIR acknowledges a connection between the deep geothermal reservoir and the shallow groundwater system in outflow zones *to the east of Casa Diablo*. The shallow groundwater aquifer in the western portion of the caldera is unrelated to these shallow outflow zones to the east[.]”). However, BLM did not regard any of the impacts to surface water likely to occur as a result of minor changes in the flow and character of the geothermal resources to be significant. *See* Final EIS/EIR at 4.7-2 to 4.7-9, H-155 to H-157.

After fully considering the challenges to BLM’s conclusions regarding the likely hydrologic effects of the Project, we were not persuaded that MCWD established any error or deficiency in BLM’s analysis. *See Save Medicine Lake Coalition*, 156 IBLA at 231-35. We, likewise, find that LiUNA has similarly failed.

---

<sup>53</sup> BLM also considered the likely effects to the quality of surface and groundwater attributable to surface and subsurface releases of hazardous substances and erosion caused by stormwater drainage across the Project area. *See* Final EIS/EIR at 3.8-4, 3.8-7 to 3.8-9, 3.8-10, 3.19-1 to 3.19-14, 4.8-1 to 4.8-7, 4.8-14, 4.8-16, 4.19-1 to 4.19-24, H-152 (“Given the high degree of state and [F]ederal regulations surrounding hazardous materials storage and use, the potential for an accidental surface release to infiltrate the subsurface to substantially affect groundwater quality is low”), H-153 to H-155. LiUNA offers no convincing argument or supporting evidence establishing any error or deficiency in BLM’s analysis or conclusions.

LiUNA does not offer any convincing argument or supporting evidence demonstrating any error or deficiency in BLM's analysis of the likely effects of the Project to surface and groundwater resources. It now states that the opinion of experts, offered by LiUNA and MCWD during the NEPA process, at best, "called for further study" by BLM, regarding the likely groundwater impacts. SOR at 16 (citing, *e.g.*, Decl. of Heidi M. Bauer (née Rhymes), dated Sept. 11, 2013 (attached to NA/Petition), ¶ 18, at 7 ("[Evidence of potential mixing of geothermal resources with groundwater in MCWD's Well P-17] required further analysis"));<sup>54</sup> *see id.* at 19. In addition, BLM was well aware of the slightly elevated chloride level, on the order of 2 to 5 milligrams per liter (mg/L), in Well P-17, but concluded that it was not evidence of a potential mixing of geothermal resources and groundwater.<sup>55</sup> *See* Final EIS/EIR at H-153; Letter to LiUNA from Bauer, dated July 12, 2013 (Ex. A to Ex. 3 (attached to LiUNA SOR)), at 3 ("It is agreed that one well [P-17] does not indicate a cause an[d] effect relationship"). Nor are we persuaded that the fact that no wells have been drilled in the area between the Project wells in Basalt Canyon and MCWD's water wells to the west establishes a deficiency in BLM's analysis, since BLM was sufficiently informed regarding the likelihood of any hydrologic connection based on the extensive drilling that has occurred in the vicinity of the Project area and the monitoring of geothermal and water well production.

LiUNA offers no geologic or other evidence of the existence of a hydrologic connection between the geothermal reservoir and the groundwater aquifer.<sup>56</sup> We find

---

<sup>54</sup> Bauer, who holds a B.S. in Environmental Geology (1993) and a Masters of Professional Science in Environmental and Waste Management (1997) from the State University of New York, Stony Brook, has been, since January 2004, a Senior Project Geologist with Air and Water Sciences of Petaluma, California, with extensive experience in groundwater contamination and other matters. *See* Bauer Decl., ¶¶ 2-4, at 2. She had submitted comments, on LiUNA's behalf, regarding the Draft and Final EIS/EIR.

<sup>55</sup> Bauer also notes the existence of a hydrologic connection, albeit between the geothermal reservoir and surface water, which was evidenced in the fact that a chemical contaminant, inadvertently added to spent geothermal fluid injected at depth in 1993, was detected 5 years later in Hot Creek. *See* Letter to LiUNA, dated Jan. 25, 2013 (Ex. A to Ex. 1 (attached to LiUNA SOR)), at 4-5. That connection is undisputed.

<sup>56</sup> LiUNA indicates that, even absent a hydrologic connection, seismic activity has the potential to cause geothermal resources to mix with groundwater, by causing leaks in production and injection well bores or other means. *See* NA/Petition at 13-15, 22-24. BLM fully considered the likelihood of seismic activity to occur, adversely affecting

(continued...)

no such evidence in Bauer's expert opinion, offered by LiUNA.<sup>57</sup> See SOR at 17 (citing Bauer Decl., ¶¶ 11, 12, at 4-5); Letter to LiUNA from Bauer, dated May 23, 2014 (attached to Supp. SOR), at 4 ("There seems to be an over-reliance [by BLM] on the assumption that there is no connection or interaction between the upper cold water aquifer and the geothermal reservoir. However, some data (presence of faults, fractures, and geochemistry data), as discussed in my earlier comments[,] . . . show that *a connection may exist, or that this cannot be ruled out*["] (Emphasis added)). Nor does Bauer otherwise undermine BLM's expert opinion regarding likely hydrologic impacts.

Third, LiUNA argues that BLM failed to take a hard look at the likely cumulative impacts of the Project, together with the other geothermal drilling and development occurring in the KGRA, on geothermal resources. See SOR at 22-23; NA/Petition

---

(...continued)

groundwater. It also concluded that it had not detected any increased seismicity as a consequence of the existing geothermal resource production/injection, and did not expect any as a consequence of the Project's proposed production/injection. See Final EIS/EIR at 4.8-12 to 4.8-13, H-159 ("[I]nduced seismicity directly related to geothermal activity has not been observed in the extensive records compiled from the regional and local seismic network established to monitor caldera unrest"). LiUNA fails to offer any convincing argument or supporting evidence demonstrating any error or deficiency in BLM's analysis or conclusions. See, e.g., Bauer Decl., ¶¶ 12-16, 19, at 5-7, 8. Nor has it shown that the Project itself is likely to trigger any seismic events.

<sup>57</sup> Bauer only alludes to the fact that the geothermal reservoir mixes with the groundwater aquifer near Hot Creek and other areas situated southeast of the Project area. See Bauer Decl., ¶ 15, at 6; Final EIS/EIR at 3.7-6, 3.7-12, 3.7-14, 3.7-18, 4.7-1, 4.7-2, 4.7-4 to 4.7-9, 6-19, 6-22, 6-27, D-46, H-27, H-34, H-39 ("The deeper western geothermal system in Basalt Canyon is distinct from the shallow eastern portion of the system that emerges at lower elevations east of Casa Diablo"), H-46, H-52. She offers no evidence that the reservoir and aquifer mix within the Project area, where the reservoir is situated much deeper than the aquifer. See Final EIS/EIR at 3.7-6, 3.7-14, 6-19, 6-20 (Figure 1), 6-23 to 6-26 ("The targeted production zones [under the CD-IV Project] in Basalt Canyon are substantially deeper than current production zones at Casa Diablo, providing a greater separation between the shallow groundwater aquifer and the deeper geothermal production zone"), D-48, H-27 ("The CD-IV Project will produce geothermal fluid from the geothermal reservoir, which is separate from the Mammoth Groundwater Basin and hosted more than 1000 feet below the MCWD wells"), H-39.

at 20-21. It is particularly concerned that a reduction in the pressure and temperature of geothermal resources tapped by the Project's wells will, together with other wells, result in a cumulatively significant reduction in the quantity and quality of the geothermal resources flowing onto the surface at Hot Creek and other areas southeast of the Project area.

BLM is plainly required by section 102(2)(C) of NEPA and its implementing regulations to consider the potential cumulative impacts of a proposed action. *See* 40 C.F.R. § 1508.25; *e.g.*, *Muckleshoot Indian Tribe v. U.S. Forest Service*, 177 F.3d 800, 809-10 (9th Cir. 1999); *Howard B. Keck, Jr.*, 124 IBLA at 53. Such impacts are those that result from the incremental impact of the proposed action “when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.” 40 C.F.R. § 1508.7. They include impacts that result from individually minor but collectively significant actions taking place over a period of time. *See id.*

BLM considered the likely cumulative effects of the Project on geothermal resources, both where they occur underground and where they flow onto the surface at Hot Creek and other areas. *See* Final EIS/EIR at 4.7-15 to 4.7-17. It noted that, in the absence of any other reasonably foreseeable future geothermal production in the vicinity of the Project, the Project's cumulative impacts would be those that are likely to occur as a consequence of undertaking production under the Project in connection with the existing Casa Diablo production, which was not expected to change in the foreseeable future. *See* Final EIS/EIR at 4.7-16 (“The analysis of the Proposed Action . . . assumes the continued operation of the[] [existing] geothermal facilities”).

Most significantly, BLM acknowledged that, as a consequence of combined geothermal resource production/injection, the thermal flow at the headwater springs of Hot Creek, which was most likely to experience a decline in thermal flow, might be reduced by 17%. *See* Final EIS/EIR at 4.7-3 to 4.7-8, H-155 to H-157. However, it concluded that, since the thermal flow at the springs was only a very small part of the total flow (less than 5%), a 17% reduction was likely to reduce the total flow by only 0.85%, resulting in a maximum decline in temperature of the combined thermal/non-thermal waters of 2.7°F. BLM, therefore, concluded that the Project would not contribute to significant adverse cumulative impacts to geothermal resources manifested on the surface in the headwater springs of Hot Creek or other areas southeast of the Project area. *See id.* at 4.7-14, 4.7-16, 4.7-17.

LiUNA offers no convincing argument or supporting evidence establishing any error or deficiency in BLM's analysis and conclusions. *See* Bauer Decl., ¶¶ 23-25, at 9. It does not specifically identify any likely cumulative impact that was overlooked by BLM, or the nature and significance of which was not adequately addressed by BLM, in

the Final EIS/EIR. Nor does LiUNA offer any evidence that the Project is likely, together with any ongoing geothermal drilling and development in the KGRA, to have any cumulative or synergistic effect on the environment that BLM was required to consider. Importantly, LiUNA offers no evidence demonstrating that, owing to geographic proximity or any other factor, there is likely to be *an interaction between the Project and any past, present, or reasonably foreseeable future geothermal drilling and development* that might result in a specific cumulative impact, which BLM failed to address. *Wyoming Outdoor Council*, 147 IBLA at 109. We have long held that, in order to demonstrate a deficiency in BLM's cumulative impacts analysis, "it is not sufficient merely to note the existence of other . . . projects . . . without *concretely identifying* the adverse impacts caused by such other . . . projects to which the action being scrutinized will add." (Emphasis added.) *National Wildlife Federation*, 150 IBLA 385, 399 (1999). LiUNA fails to carry that burden.

We are not persuaded that BLM failed to properly address the potential cumulative impacts of the Project, together with any past, present, or reasonably foreseeable future geothermal drilling and development in the KGRA, on geothermal resources.

#### *F. Whether BLM Required to Prepare Supplemental EIS/EIR*

LiUNA contends that BLM is required to prepare a supplemental EIS/EIR, to the extent that BLM has provided for adopting BACT to control air quality impacts and a groundwater monitoring plan to control groundwater impacts of the Project, following approval of the Project. *See* SOR at 26-29. It asserts that, although these measures are likely to be beneficial to the environment, they, nonetheless, will constitute, once adopted, "significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts," within the meaning of 40 C.F.R. § 1502.9(c), since they will fundamentally alter the cost/benefit analysis of whether to approve the Project. It concludes that BLM must supplement the EIS/EIR now, in order to address the likely effects of adopting such measures. *See id.* at 26-27 (citing *Russell Country Sportsmen v. U.S. Forest Service*, 668 F.3d 1037, 1048 (9th Cir. 2011) ("Supplementation may be required . . . when modifications to a proposed action, although lessening environmental impacts, also alter the overall cost-benefit analysis of the proposed action")).

[3] BLM is required by NEPA's implementing regulations to supplement an EIS "if . . . [t]here are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts." 40 C.F.R. § 1502.9(c). However, it is well established that "an agency need not supplement an EIS every time new information comes to light after the EIS is finalized," but, rather, applying the rule of reason, only "if the new information is sufficient to show that the remaining [major Federal] action will 'affect the quality of the human environment' in a significant manner or to a significant extent not already considered, [must] a supplemental EIS . . . be prepared." *Marsh v. Oregon Natural Resources Council*, 490 U.S. at 373, 374, emphasis added. As the court stated in *State of Wisconsin v. Weinberger*, 745 F.2d 412, 420 (7th Cir. 1984): "[A Supplemental EIS is required when] the new [circumstances or] information present[] a *seriously different picture of the likely environmental consequences* of the proposed action not adequately envisioned by the original EIS[.]" (Emphasis added.) See, e.g., *Biodiversity Conservation Alliance*, 183 IBLA at 116-17; *Save Medicine Lake Coalition*, 156 IBLA at 248.

LiUNA offers no convincing argument or supporting evidence that BACT and the groundwater monitoring plan are likely to cause the Project to affect the quality of the environment in a significant manner or to a significant extent not already addressed in the EIS/EIR. It fails to establish that the future adoption of BACT or the groundwater monitoring plan is likely to substantially alter BLM's existing assessment of the likely effects of the Project on air quality or groundwater resources. In the case of BACT, BLM determined, in the EIS/EIR, that the Project would significantly, but unavoidably, adversely affect air quality as a consequence of VOC emissions, but required ORNI to employ BACT to control emissions, leaving it to ORNI, subject to the approval of APCD, to determine the specific measures to be employed, in conjunction with issuance of the air quality control permits. See ROD, Appendix 2, at A2-1; Final EIS/EIR at 4.2-14. In the case of groundwater monitoring, BLM determined, in the EIS/EIR, that the Project would not adversely affect groundwater resources, but required ORNI to develop and implement a monitoring plan designed to detect unforeseen impacts, leaving it to ORNI, in coordination with LVHAC and MCWD, to determine the specific measures to be employed. See ROD at 12; Final EIS/EIR at 4.7-13 to 4.7-14, 4.19-10 to 4.19-11.

LiUNA fails to demonstrate that the future adoption of specific measures for achieving BACT and groundwater monitoring currently presents "a seriously different picture of the likely environmental consequences of the proposed action not adequately envisioned by the original EIS," requiring supplementation of the EIS/EIR. *State of Wisconsin v. Weinberger*, 745 F.2d at 420. Nor has it not shown that the adoption of BACT or groundwater monitoring are likely to substantially alter the cost/benefit analysis, underlying BLM's decision to approve the Project.

Further, ORNI properly states that BLM is not required to supplement the EIS/EIR now simply because, once APCD considers whether to approve air quality control permits, APCD may choose to impose additional BACT, or presumably also because, once a groundwater monitoring plan is implemented, the State Water Resources Control Board (SWRCB) or LRWQCB may choose to impose additional restrictions on geothermal production. See Answer at 25 (“Supplementation is not appropriate simply because an agency with separate statutory jurisdiction takes action related to a project. *Ctr. for Biological Diversity v. Salazar*, 706 F.[.]3d 1085, 1095 (9th Cir. 2013) (requirement that a mining project obtain an air quality control p[ermit] is one of a number of ‘additional, independent actions [and] thus did not trigger NEPA supplementation [by BLM] . . .[.]’).[] As this Board has noted, supplementation is not appropriate where, as here, the agency’s ‘bounded analysis’ reflects maximum emissions and specific technological requirements are ‘entirely within the jurisdiction’ of a state permitting agency. *Ctr. for Biological Diversity*, 181 IBLA at 345[.]”); Final EIS/EIR at 3.2-7, 3.19-9 to 3.19-10. Regardless of what APCD or the SWRCB/LRWQCB subsequently do, BLM has, in its EIS/EIR, fulfilled its current obligations under section 102(2)(C) of NEPA.

We are not persuaded that BLM is required to supplement the EIS/EIR in order to address the likely consequences for the environment of adopting BACT to address air quality impacts or a groundwater monitoring plan to address groundwater impacts of the Project.

#### G. *Whether BLM Adequately Considered Reasonable Mitigation Measures*

##### 1. *Standard of Review*

[4] BLM must include a “reasonably complete discussion of possible mitigation measures” in the EIS/EIR.<sup>58</sup> *Robertson v. Methow Valley Citizens Council*, 490 U.S.

---

<sup>58</sup> See *Robertson v. Methow Valley Citizens Council*, 490 U.S. at 351-52 (“The requirement that an EIS contain a detailed discussion of possible mitigation measures flows both from the language of the Act and, more expressly, from CEQ’s implementing regulations. Implicit in NEPA’s demand that an agency prepare a detailed statement on ‘any adverse environmental effects which cannot be avoided should the proposal be implemented,’ 42 U.S.C. § 4332(C)(ii), is an understanding that *the EIS will discuss the extent to which adverse effects can be avoided.*” (Emphasis added)); 40 C.F.R. §§ 1502.14 (“[A]gencies shall . . . [i]nclude appropriate mitigation measures not already included in the proposed action or alternatives”), 1502.16 (“[The discussion of environmental consequences] shall include discussions of . . . [m]eans to mitigate adverse environmental impacts”), 1505.2 (“[The ROD] shall . . . [s]tate whether all practicable

(continued...)

at 352. BLM must, therefore, develop mitigation measures to the point that their likely effectiveness in avoiding or minimizing the potential significant impacts of the proposed action, and, therefore, the resulting consequences for relevant aspects of the human environment, can be adequately assessed, and then undertake that assessment. *See South Fork Band Council of Western Shoshone of Nevada v. U.S. Department of the Interior*, 588 F.3d at 727 (“The Supreme Court has required a mitigation discussion precisely for the purpose of evaluating whether anticipated environmental impacts can be avoided. . . . A mitigation discussion without at least *some* evaluation of effectiveness is useless in making that determination.” (citing *Robertson v. Methow Valley Citizens Council*, 490 U.S. at 351-52)). BLM cannot “mere[ly] list[]” or “perfunctor[il]y descri[be]” possible mitigation measures. *Okanogan Highlands Alliance v. Williams*, 236 F.3d 468, 473 (9th Cir. 2000). However, it is also well established that BLM is not required, as a substantive matter, to “actually formulate[] and adopt[]” a mitigation plan, such that the significant adverse impacts of the proposed action are, in fact, avoided or minimized. *See Southwest Center for Biological Diversity*, 154 IBLA at 243 (quoting *Robertson v. Methow Valley Citizens Council*, 490 U.S. at 352). The proposed mitigation must only be discussed “*in sufficient detail* to ensure that environmental consequences have been fairly evaluated[.]” *Robertson v. Methow Valley Citizens Council*, 490 U.S. at 352, emphasis added.

We particularly note that the court in *Okanogan Highlands Alliance* had occasion, in considering the adequacy of an EIS for a proposed cyanide leach gold mining operation on National Forest lands, to discuss the “line,” for purposes of adjudicating compliance with NEPA, between adequately discussing and merely listing mitigation measures. 236 F.3d at 476. It found the discussion of mitigating measures concerning water quality in that case adequate, even though “[i]t is true that the mitigating measures are described in general terms and *rely on general processes, not on specific substantive requirements*,” because, as FS explained, “since it is not possible to predict exactly what water quality will be, it is difficult to predict what exact mitigation will be necessary,” and therefore FS had “set up . . . a procedure to determine specific mitigation or treatment, if any, is required.” *Id.* at 477 (quoting FS Response to EPA Comments on Draft EIS), emphasis added. The court also stated that, “[b]ecause the actual adverse effects are uncertain, and the EIS considered extensively the potential effects and mitigation processes,” the discussion was adequate. *Id.*; *see, e.g., Friends of the Payette v. Horseshoe Bend Hydroelectric Co.*, 988 F.2d 989, 993 (9th Cir. 1993).

---

(...continued)

means to avoid or minimize environmental harm from the alternative selected have been adopted, and if not, why they were not”), 1508.20 (“*Mitigation*”), and 1508.25.

We, likewise, find BLM's discussion of mitigating measures in the present case adequate, to the extent that it is challenged by CRMD and LiUNA, since BLM described particular measures in sufficient detail, given the uncertain nature of the future resource impacts they were designed to address, providing processes for avoiding or mitigating potential effects, which were adequately considered.

## 2. *Assertions of Error by CRMD*

CRMD contends that BLM failed to thoroughly evaluate and provide a reasonably complete discussion of appropriate and available measures for mitigating the likely significant adverse impacts of drilling and developing geothermal resources on the Owens tui chub and mule deer.

First, CRMD argues that BLM failed to thoroughly evaluate "all feasible mitigation measures" for avoiding or minimizing likely significant impacts on the Owens tui chub, since BLM only considered, under MM WIL-10, requiring ORNI to develop and implement a new plan to monitor, through LVHAC, the actual effects of the Project on the chub and its critical habitat, and to amend an existing plan to remediate any adverse effects. SOR at 20; *see id.* at 20-23. It specifically asserts that BLM failed to thoroughly evaluate (1) requiring LVHAC to statistically analyze raw monitoring data in assessing how to mitigate adverse effects; (2) establishing the current chub population as a baseline for monitoring future adverse effects; (3) specifying the methodology designed to distinguish the effects attributable to geothermal production from naturally-occurring effects, the type of statistical analysis employed, the sampling scheme, the monitoring data to be collected and how, by whom, and how often it will be collected, and the minimum qualifications of the principal investigator, statistician, and agency personnel responsible for approving the study plan and reviewing the data; and (4) allowing LVHAC to independently decide whether to prevent or remediate any adverse effects, without identifying the qualifications of LVHAC members and their experience with statistical analysis, the extent to which LVHAC statistically analyzes the monitoring data, how often LVHAC meets to analyze the data, how decisions are made and the process for implementing LVHAC recommendations, the extent to which LVHAC's recommendations have been implemented, and the funding mechanism for LVHAC activities.

CRMD concludes that, despite the proposed adoption of the MM, BLM failed to satisfy section 102(2)(C) of NEPA because it did not address whether this MM was likely to reduce the potential significant adverse impacts of the Project on the chub and its critical habitat. *See Reply* at 7. It states that BLM's assessment of the efficacy of the MM was hampered by the fact that (1) the monitoring plan would not start with any baseline population and habitat information, which was to be obtained sometime after Project approval; (2) the methodology of data collection and evaluation was not spelled out; and (3) the qualifications and experience of the LVHAC, to undertake

monitoring and remedial action, were not identified. CRMD also states that LVHAC was “not mandated to do anything,” in terms of avoiding or minimizing significant adverse impacts on the chub or its critical habitat, and the likelihood that it would take appropriate action was not disclosed. *Id.* at 8.

BLM considered and adopted one MM (WIL-10) for avoiding or minimizing any adverse impacts of the Project on the chub. *See* Final EIS/EIR at 4.4-34 to 4.4-35; ROD at 5; ROD, Appendix 2, at A2-7. It required ORNI, prior to engaging in any production or injection of geothermal resources, to develop and implement, in consultation with BLM, FWS, and CDFW, a new Owens Tui Chub Population and Habitat Monitoring Plan and update an existing Remedial Action Plan, in order to monitor for any changes in the chub population and critical habitat in the headwater springs of Hot Creek. *See* Final EIS/EIR at 2-61 to 2-62. The MM outlined the population and habitat monitoring and remedial action plans, but did not provide the level of specificity sought by CRMD. In particular, it provided that ORNI would (1) conduct baseline and ongoing chub surveys, using methods approved by FWS and CDFW; (2) collect samples of benthic macroinvertebrates, which serve as prey for the chub, during the baseline and ongoing chub surveys; (3) conduct baseline and periodic assessments of chub habitat, including quantitatively evaluating physical stream characteristics and aquatic vegetation, using BLM-approved survey protocols; (4) incorporate the population and habitat data into ongoing analysis of water quality data; (5) prepare an annual report summarizing the current year’s survey and sampling, including analyzing trends, which report would be reviewed by BLM, FWS, and CDFW; and (6) amend the remedial action plan “to include measures specific to changes in Owens tui chub populations and primary constituent elements, such as aquatic vegetation, water quality, and an adequate insect prey base.” *Id.* at 2-62. The population and habitat monitoring and remedial action plans were required to be approved by BLM, FWS, and CDFW.

However, while it provided for adoption of the MM, BLM concluded that the Project was not likely, under any circumstances, to adversely impact the chub or its critical habitat. *See, e.g.,* Final EIS/EIR at 4.4-14 (“[I]ncreased geothermal fluid production in the geothermal reservoir is not anticipated to cause adverse impacts such as reduced flows or substantial temperature changes to springs, surface waters, and other hydrologic surface features that could provide habitat, therefore adverse effects on the Owens tui chub and critical habitat are not expected”). It ruled out the potential for any significant adverse impacts. CRMD offers no convincing argument or supporting evidence establishing that BLM erred in its no adverse impacts determination, or otherwise demonstrating the likelihood that the Project will negatively affect the chub or its critical habitat.

Further, BLM provided for adopting the MM only “[t]o ensure no adverse effects to the Owens tui chub or their critical habitat.” Final EIS/EIR at 4.4-14, emphasis

added. It allowed for the possibility that future circumstances might cause the Project to adversely impact the chub and/or its critical habitat, and that steps needed to be taken, at the outset, to ensure that ORNI responded in an appropriate fashion, although the specifics of such future impacts and the appropriate responses could not be detailed at the time of approval of the Project. Further, since the MM was not considered necessary to avoid or minimize any specific adverse impacts, BLM was not required to address the efficacy of this MM in the EIS/EIR. See BLM Answer at 37 (“MM WIL-10 does not factor into the EIS’ assessment of the Project’s potential impacts on [the chub]”). In any event, since BLM required ORNI to monitor the population and habitat of the chub and to take appropriate action to address any adverse impacts to the chub and/or its critical habitat, following implementation of the Project, and set up “a procedure to determine specific mitigation or treatment, if any, is required,” we think that BLM complied with section 102(2)(C) of NEPA. *Okanogan Highlands Alliance v. Williams*, 236 F.3d at 477.

BLM now states that the requirement in the MM that ORNI develop and implement a new Population and Habitat Monitoring Plan and an amended Remedial Action Plan was not intended to indicate any error or deficiency in BLM’s assessment of the likely adverse effects of the Project on the chub or its critical habitat, but simply to be responsive to any unexpected changes in the anticipated impacts of the Project. See Answer at 15 (“The BLM did not depend upon later-gathered data to determine impacts to the fish[.] . . . [The MM] merely allows the BLM to . . . identify *changes* that would necessitate implementation of remedial actions.” (Emphasis added)). Since such changes were, by their nature, unexpected, BLM could not specify the plan for monitoring and remediating such changes with the level of detail regarding methodology and personnel that is now sought by CRMD. See *id.* at 37 (“As the EIS[EIR] explains, MM WIL-10 establishes a monitoring program to identify *unanticipated impacts*” (Emphasis added)). In addition, BLM provided that ORNI would be sufficiently apprised regarding the current population and habitat of the chub that it would be able to assess whether and to what extent there are, in the future, any unexpected changes that warrant development and implementation of a remedial action plan. See *id.* (“MM WIL-10 affirmatively requires ORNI to collect baseline data prior to commercial operation in coordination with the [FWS and the BLM]”). Further, BLM provided for sufficient monitoring, from the start of the Project, that ORNI would be aware of any such unexpected changes.

BLM did not lodge responsibility for undertaking monitoring and remedial action in LVHAC. Rather, such authority was to be reposed in ORNI, subject to review by BLM, FWS, and CDFW, in accordance with the requirements to be included in the population and habitat monitoring and remedial action plans approved by BLM, FWS, and CDFW. CRMD, however, objects on the basis that “[ORNI] is not mandated to do anything,” since “no law requires [ORNI] to prevent or mitigate the Project’s significant

adverse effects on any resources.” SOR at 22. CRMD mistakes the duty imposed upon BLM by section 102(2)(C) of NEPA. BLM is not required to adopt and implement a plan for mitigating all of the adverse effects of the Project, or to ensure that the plan, in fact, succeeds in mitigating all of these effects. Rather, NEPA imposes a procedural, not a substantive, obligation to evaluate what measures might be taken to mitigate the significant adverse effects of the Project, and assess the likelihood that they will do so. Further, since CRMD fails to establish that the Project is likely to result in any significant adverse impact, we think that it is plainly sufficient, under section 102(2)(C) of NEPA, that the MM charges ORNI with taking appropriate action to remedy any unexpected future adverse impact to the chub and/or its critical habitat, in consultation with BLM, FWS, and CDFW.

Moreover, CRMD completely overlooks the substantive obligation imposed upon BLM by the ESA. Section 7(a)(2) of the ESA, 16 U.S.C. § 1536(a)(2) (2006), requires BLM, in consultation with FWS, to ensure that any authorized action does not jeopardize the continued existence of an endangered species or destroy or adversely modify its critical habitat. *See, e.g., Natural Resources Defense Council v. Houston*, 146 F.3d 1118, 1127 (9th Cir. 1998), *cert. denied*, 526 U.S. 1111 (1999); *Backcountry Against Dumps*, 179 IBLA at 179. That obligation follows BLM throughout implementation of the Project, such that BLM must ensure, in consultation with FWS, that the Project does not jeopardize the existence of the chub or destroy or adversely modify its critical habitat. *See* LOC at 3-4 (“If the proposed action changes in any manner that could result in adverse effects that you have not anticipated or the habitat and population monitoring program indicates the potential for adverse effects to the species or its critical habitat, you should contact us immediately to determine whether additional consultation would be appropriate”).

Second, CRMD argues that BLM failed to thoroughly evaluate the measures identified for avoiding or minimizing likely significant adverse impacts on mule deer. *See* SOR at 23-25; Reply at 14-15. It particularly asserts that BLM failed to address whether and to what extent any of these measures is likely to be effective in avoiding or mitigating such impacts.

BLM considered and adopted 13 PDMs (BIO-1 through BIO-7, HYD-1, HYD-2, HYD-4, HYD-6, NOI-1 and NOI-2) and 4 MMs (WIL-4 through WIL-7) for avoiding or minimizing any adverse impacts of the Project on mule deer and other wildlife likely to be impacted by the Project. *See* Final EIS/EIR at 4.4-31 to 4.4-32, 4.4-34; ROD at 5; ROD, Appendix 2, at A2-2, A2-6, A2-10, A2-15.

CRMD specifically challenges BLM’s consideration of four measures (PDM BIO-1 and MM WIL-4 through WIL-6), specifically applicable to mule deer.

PDM BIO-1 requires a qualified wildlife biologist to walk the pipeline route once each year for 3 years following pipeline construction to assess whether it is impeding wildlife movement and, if so, provides that FS may require ORNI to clear one or more paths for wildlife to pass under the pipeline, at the points where movement is being impeded. See Final EIS/EIR at 2-49. CRMD objects to BLM's failure to include specific standards for assessing whether movement is impeded, and when FS would require clearing a path for wildlife. It also notes that BLM should have considered installing remote cameras or other specialized techniques for assessing any impediments to wildlife movement.

Measure WIL-4 requires construction of a deer crossing over the pipeline that runs south of the proposed power plant, between the existing substation and the existing MP-1 power plant, which crossing will be designed, in consultation with CDFW, and resemble the existing crossing at the SCE easement. See Final EIS/EIR at 2-60. CRMD objects to BLM's failure to disclose whether and to what extent deer are likely to use the new crossing to cross over the pipeline. It also objects to BLM's failure to disclose the effectiveness of the existing crossing at the SCE easement.

Measure WIL-5 provides for placing up to 30-foot segments of the proposed pipelines running west through Basalt Canyon underground, parallel to the existing underground pipelines, generally situated where the pipelines cross, at 32 points, existing roads, and coinciding with the suspected migratory routes for deer. See Final EIS/EIR at 2-60. It also provided for placing pipelines underground "at high movement areas identified to the immediate south of Highway 395 and between well pad sites 57-25 and 66-25[.]" *Id.* CRMD objects to BLM's failure to disclose whether and to what extent deer are likely to cross the underground segments of the pipeline, noting that Bleich reported that deer are likely to cross over the underground segments only sparingly.<sup>59</sup> Reply at 15 (citing Bleich Comments on Draft EIS/EIR at unp. 14).

---

<sup>59</sup> CRMD also states that BLM should have considered constructing a crossing under U.S. Highway 395. See SOR at 24. To the extent that such a crossing would only serve to alleviate the impediment that the existing highway already poses to deer migration, mitigating any resulting adverse impacts to the deer, BLM was not required to consider that measure, since it would not mitigate any adverse impacts of the Project. However, CRMD is of the opinion that such a crossing might mitigate significant adverse impacts of the Project to the extent that Project facilities divert substantial numbers of deer onto the highway. We find no convincing argument or supporting evidence in support of this opinion, and, therefore, no reason to consider such a crossing as mitigation for the adverse impacts of *the Project*, which must be considered in BLM's NEPA review of the Project.

Measure WIL-6 requires ORNI to prepare and implement a Migratory Deer Monitoring Plan, subject to the approval of BLM and FS, which includes monitoring migratory patterns through the Project area and, if necessary, taking remedial action when monitoring discloses adverse impacts. See Final EIS/EIR at 2-60 to 2-61. It specifically provides that ORNI would determine, *inter alia*, whether, using remote camera stations, deer use remains relatively constant or declines measurably both before and after construction, whether deer are using above ground or underground pipeline crossing sites, and the success of any remedial actions in facilitating deer movement, and establish the existence of tracks not crossing pipeline routes and other “performance measures for determining if the various deer crossing measures proposed are meeting their goals.” *Id.* at 2-60. The measures further provide that constructing earthen ramps over pipelines or other remedial action would be taken when the Project is found to result in “significantly greater (e.g., > 25 percent above baseline) vehicle-related mule deer mortality or significantly reduced on-site deer population size or habitat use that cannot otherwise be explained by environmental factors[.]” *Id.* at 2-61. Citing Bleich, CRMD objects to BLM’s failure to establish a “clear threshold” for taking remedial action. SOR at 25 (citing Bleich Comments on Final EIS/EIR at unp. 11). It also states that the specific threshold noted in the Final EIS/EIR (greater than 25 percent above baseline mortality) was simply an example of a threshold that BLM might adopt. See Reply at 15.

BLM states that it proposed a revised MM WIL-6 in the Final EIS/EIR, *inter alia*, in order to provide specific performance standards regarding when to undertake remedial action to address adverse impacts on mule deer and their habitat, including where wildlife movement was being impeded, which standards were not present in PDM BIO-1. See Answer at 37-38 (citing Final EIS/EIR at H-161 to H-162). It also opposes CRMD’s claims regarding MM WIL-4, WIL-5, and WIL-6 since CRMD seeks to “achieve some level of effect,” which is at odds with the procedural nature of the NEPA requirements. *Id.* at 38. In any event, BLM states that it did not need to compare the new above ground crossing provided for by WIL-4 with the existing crossing in connection with the SCE easement, in determining the likely effectiveness of the new crossing. BLM states that it did determine, based on existing studies in the Project area, that deer would, in fact, adapt, and regularly cross both above ground and underground pipeline segments:

The Draft EIS/EIR analysis relied upon current scientific research and focused evaluations of available deer habitat and movement in presenting the effects conclusions that were reached. . . . The Draft EIS/EIR analysis concludes that *deer regularly traverse pipeline alignments* and that *deer make use of available overhead segments*; therefore, the analysis found substantial evidence supporting the conclusions that deer

would continue to utilize habitat in a similar manner following Project construction, and *deer would readily adapt to undergrounded pipeline segments that would be less impacting than overhead segments.* [Emphasis added.]

Final EIS/EIR at H-110. BLM also states that it specifically provided, as part of WIL-6, a sufficient trigger for remedial action should deer mortality increase as a consequence of the Project. *See id.* at H-111, H-161 to H-162.

BLM concluded that the Project is not likely, given the implementation of PDM BIO-1 and MM WIL-4 through WIL-7, to significantly adversely impact resident or migratory mule deer, owing to impediments to the movement of the deer. *See* Final EIS/EIR at 4.4-21, 4.4-25. It determined that adult deer would continue to cross the pipelines not only over their underground segments, but also by jumping over the above-ground segments, and that juvenile deer would continue to cross not only over the underground segments, but also by ducking under the segments that were placed at least 16 inches above ground. *See id.* at 4.4-8. However, since BLM deemed the implementation of the PDM and MMs as necessary to reduce significant impacts to insignificance, it was required to assess the likely efficacy of these measures. We find that BLM did so, relying on its longstanding experience with the existing Casa Diablo geothermal development and general scientific research. CRMD offers no convincing argument or supporting evidence establishing that adult and juvenile deer will not pass under or over the pipeline routes or otherwise demonstrating that the pipelines are likely to pose a substantial obstacle to deer migration, resulting in any adverse impacts to deer or deer habitat that were not considered by BLM. Nor has it shown that the mitigating measures will not adequately serve to perpetuate the existing migratory routes of the deer, or that the Project is likely to result in a significant impact.

Finally, we are not persuaded that BLM was required to achieve the level of specificity sought by CRMD in designing and assessing the likely effectiveness of any of the challenged measures. In general, BLM has provided for installation of proposed pipelines so as to facilitate the movement of deer and, in addition, for assessing whether this suffices to afford deer sufficient means for migrating across the Project area and, if necessary, taking appropriate remedial action. We are not persuaded that the Project must be described with a greater level of specificity in order to assure the mitigation of any significant impacts to insignificance. Nor do we think that BLM must address, in greater detail, the likely effectiveness of any of the specified mitigation. In particular, we agree that the specified threshold for taking remedial action was defined as “significantly greater” mortality and “significantly reduced” population size and habitat use, and is not definitively established. Nonetheless, we are not persuaded that BLM was required to do more, since this language was sufficient to reasonably ensure that no adverse impact, whether from vehicle-related mortality

or impediments to movement, was likely to rise to significance. CRMD offers no convincing argument or supporting evidence to the contrary.

CRMD fails to offer convincing argument or supporting evidence demonstrating that any of the measures identified by BLM was not sufficiently described, or, above all, that any error or deficiency in its description somehow prevented or impeded BLM's assessment of whether it would adequately serve to reduce any significant adverse impact to insignificance, or otherwise show that a particular significant impact would result, despite employment of the measure. It therefore does not establish that BLM failed to include a "reasonably complete discussion of possible mitigation measures" in the EIS/EIR. *Robertson v. Methow Valley Citizens Council*, 490 U.S. at 352.

### 3. *Assertions of Error by LiUNA*

LiUNA argues that BLM failed to consider reasonable mitigation measures for avoiding or minimizing the likely significant adverse effects of the Project in terms of air quality, visual resources, noise, mule deer, hazardous materials, and wildfires, when defining the scope of the EIS, examining impacts of the proposed action and alternatives thereto, and explaining the ultimate decision.<sup>60</sup> See SOR at 20-22, 48-50. It states that BLM, instead, improperly deferred consideration of such measures until "after the approval of the Project." *Id.* at 48. LiUNA asserts that: "Future deferral of mitigation of significant impacts is prohibited under NEPA, particularly where, as here, no final plans are provided, and no concrete performance standards are identified that ensure that the proposed mitigations will be both feasible and effective to reduce the Project's significant impacts. Therefore, the public is unable to know *what mitigations will ultimately be approved for the Project, and whether they will work.*" *Id.* at 49-50, emphasis added.

LiUNA specifically refers to the fact that BLM required ORNI (1) to develop and implement plans to reduce NO<sub>x</sub> emissions by mobile off-road equipment by an average

---

<sup>60</sup> LiUNA also challenges the adequacy of mitigation measures for wildlife, asserting BLM needs to incorporate specific standards for evaluating success, monitoring for the purpose of assessing effectiveness, and penalties for noncompliance and/or alternative actions that will be taken in the case of any failure of the measures. See NA/Petition at 28-29. We find the measures adequate, since BLM is not required by NEPA to actually formulate and adopt a mitigation plan. See *Southwest Center for Biological Diversity*, 154 IBLA at 243 (citing *Robertson v. Methow Valley Citizens Council*, 490 U.S. at 352). Nor, in any event, has LiUNA demonstrated that the measures adopted will not be effective in reducing any significant impacts to insignificance.

20% during construction activities, abate H<sub>2</sub>S emissions exceeding APCD's standard during well drilling and testing, and control VOC emissions during plant operations (MMs AQ-1, AQ-4, and AQ-5); (2) to develop and implement a plan for mitigating impacts to mule deer (WIL-6); (3) to develop and implement a plan to ensure noise associated with well pumps does not cause ambient noise levels at the Shady Rest Park to rise more than 3 dBA (NO-1); (4) to develop and implement a plan to clean-up spills or other releases of hazardous materials at all Project facilities that utilize or store potential water quality pollutants (PHS-1); (5) to develop and implement a plan to prevent and extinguish any wildfires (PHS-2); and (6) to develop and implement landscaping plans for mitigating significant adverse impacts of well site facilities, pipelines, and the power plant to visual resources (MMs VIS-1 and VIS-3), all following Project approval.

BLM plainly deferred the *adoption* of specific mitigation measures until after Project approval, to the extent identified by LiUNA. However, while we agree that BLM has deferred the adoption of specific mitigation measures until after Project approval, we are not persuaded that these measures were not reasonable, or that BLM did not afford them sufficient consideration.

BLM asserts that it did not defer its consideration of the “key aspects” of the mitigation measures for avoiding or minimizing the likely significant adverse effects of the Project in terms of air quality, mule deer, noise, hazardous materials, wildfires, and visual resources, since the identified MMs specified certain requirements that must be included in the post-approval plan for avoiding or minimizing such impacts. Answer at 35. We agree.

BLM sufficiently described the measures for avoiding or minimizing the likely impacts of the Project in terms of air quality, visual resources, noise, mule deer, hazardous materials, and wildfires, in the plans to be developed after Project approval. See Final EIS/EIR at 2-53, 2-54, 2-60 to 2-61, 2-65 to 2-66, 2-66, 2-66 to 2-67, 2-68 to 2-69. It provides that ORNI (1) will develop and implement plans to avoid or minimize the air quality impacts of NO<sub>x</sub>, VOCs, and H<sub>2</sub>S, which plans would provide for the reduction of NO<sub>x</sub> emissions by mobile off-road equipment by using late-model engines, low-emission diesel fuels, and other means, would describe the methodology for determining n-pentane emissions and measures to detect and repair leaks, and would provide for the abatement of H<sub>2</sub>S emissions during well drilling and testing, by describing abatement technology and its effectiveness; (2) will develop and implement a plan to monitor the movement of mule deer through the Project area, determine whether the Project is causing deer mortality or impediments to movement, and, in the case of significant increases in mortality or decreases in population size or habitat use, build ramps over pipelines or undertake other means to decrease mortality or increase travel routes; (3) will develop and implement a plan to assess baseline noise levels at the Shady Rest Park, verify noise levels once wells are operational, house well pumps in

a concrete building or undertake other specified means to reduce noise levels such that the ambient noise level at the Park does not rise more than 3 dBA, verify that noise reduction has occurred, and, if necessary, undertake further means to reduce noise levels; (4) will develop and implement a plan to prevent and control any spills of hazardous materials, by specifying equipment, including water trucks, tanks, and absorbents, and procedures to shut-in or control the flow of such materials and back-up measures, including sumps and dikes, training all personnel in emergency procedures, identifying emergency response providers, and other means; (5) will develop and implement a plan to prevent and extinguish any wildfires, by requiring the on-site maintenance of an adequate number and size of water trucks and fire extinguishers, training all personnel in fire prevention methods, and other means; and (6) will develop and implement plans for placing native trees and other vegetation to screen well site facilities and pipelines from Shady Rest Park, U.S. Highway 395, and other roads in the Project area and the power plant from a particular road in the Project area, such that the direct view and corners of the facilities are at least 65% obscured by the end of 10 years.

BLM also provided that ORNI would be required to meet a specified objective in implementing each of the mitigation measures, and accordingly provided a performance standard for assessing the effectiveness of the measure: (1) average 20% NO<sub>x</sub> reduction in fleet-wide emissions, below 2.5 kg/hour/well or an ambient 0.03 ppm of H<sub>2</sub>S, and n-pentane leaks less than 410 lbs./day; (2) not significantly greater vehicle-related mortality and not significant reductions in population size or habitat use; (3) ambient noise levels at Shady Rest Park of not more than 3 dBA; (4) containment of all hazardous materials spills; (5) extinguishment of all wildfires; and (6) the direct view and corners of all well facilities, pipelines, and power plant are obstructed by at least 65% from specified locations. BLM further provided, in all cases, that each of the plans for addressing potential adverse impacts of the Project was to be approved by a specific agency or agencies, prior to ORNI engaging in any activity that might result in such impacts. Therefore, (1) APCD must approve the plans to mitigate air quality impacts; (2) BLM and FS must approve the plan to mitigate mule deer impacts; (3) BLM and FS must approve the plan to mitigate noise impacts; (4) BLM, FS, Long Valley Fire Protection District (LVFPD), and Mammoth Lakes Fire Protection District (MLFPD) must approve the plan to mitigate hazardous materials spill impacts; (5) FS, LVFPD and MLFPD must approve the plan to mitigate wildfire impacts; and (6) FS must approve the plans for mitigating visual impacts of Project facilities. See ROD, Appendix 2, at A2-1, A2-2, A2-6, A2-10 to A2-11, A2-12, A2-14, A2-15. Each of these agency(ies) would ensure, following Project approval, that the particular plans fleshed out, in sufficient detail, the mitigation measures outlined in the EIS/EIR, and would further ensure that the measures achieve their identified purpose(s). BLM, therefore, properly concludes that the EIS/EIR “provides sufficient details about the various [mitigation] plans required for the Project for [the] purposes of analy[zing]” the impacts likely to occur as a consequence of the Project. Answer

at 36. Simply put, it was adequately informed regarding the nature and operation of the mitigation measures for the purposes of addressing their likely effectiveness in the EIS/EIR.

Finally, BLM considered the likely effectiveness of each of the identified measures. BLM concluded, in each instance, either that no significant harm to the environment would occur as a consequence of the Project or that any significant harm to the environment sought to be alleviated by the measure was not likely, after implementation of the measure(s), to rise to significance.<sup>61</sup> See Final EIS/EIR at 4.2-14 to 4.2-16, and 4.2-17 (air quality); 4.4-21 and 4.4-25 (mule deer ); 4.11-10 to 4.11-12, and 4.11-16 (noise); 4.13-11 and 4.13-15 (hazardous materials); 4.13-13 and 4.13-15 (wildfires); and 4.18-24 to 4.18-26, and 4.18-33 (visual resources).

LiUNA fails to offer convincing argument or supporting evidence demonstrating that any of the measures identified by BLM was not sufficiently described, or, above all, that any error or deficiency in its description somehow prevented or impeded BLM's assessment of whether it would adequately serve to reduce any significant adverse impact to insignificance, or otherwise show that a particular significant impact would result, despite employment of the measure. It therefore does not establish that BLM failed to include a "reasonably complete discussion of possible mitigation measures" in the EIS/EIR. *Robertson v. Methow Valley Citizens Council*, 490 U.S. at 352.

---

<sup>61</sup> BLM identified only three exceptions. Two involved the Project's NO<sub>x</sub> emissions, attributable to the operation of mobile off-road equipment, during Project construction, and the Project's VOC emissions, attributable to operation of the power plant, during Project operation. In these regards, BLM noted that, whether or not it employed the average 20% reduction in fleet-wide emissions (MM AQ-1) or the no greater than 410 lbs./day n-pentane leaks (MM AQ-5), the Project "could cause or contribute to an exceedance of the [S]tate's ozone 1-hour or 8-hour AAQS." Final EIS/EIR at 4.2-14. It properly identified these significant impacts as "unavoidable." *Id.* The only other exception involved the impacts on visual resources along most of U.S. Highway 395 and other roads. In this regard, BLM noted that, whether or not it employed the vegetative screening (MMs VIS-1 and VIS-3) in connection with well site facilities and the pipelines, the Project "would still result in a substantial adverse effect on the visual character and quality of the site and its surroundings, resulting in a significant and unavoidable impact." *Id.* at 4.18-26, 4.18-33.

*H. Whether BLM Considered All Reasonable Alternatives to Proposed Project*

LiUNA argues that BLM failed to consider all reasonable alternatives to the proposed Project, since BLM did not consider generating electricity by solar and other renewable means, but rather considered only nearly identical versions of generating electricity using geothermal resources (Alternatives 1 through 3), and not using geothermal resources to generate electricity (Alternative 4). See SOR at 43-46. It also argues that BLM improperly declined to afford detailed consideration to the alternatives of placing the entirety of the production/injection pipelines underground, reducing the size of the power plant, and relocating the power plant in Basalt Canyon.

[5] We agree that, since BLM is required to “[r]igorously explore and objectively evaluate all reasonable alternatives,” in order to address the relative merits of fulfilling the purposes of the proposed action by alternate means, “[t]he existence of a *viable but unexamined alternative* renders an [EIS] inadequate” under NEPA. LiUNA SOR at 43 (quoting 40 C.F.R. § 1502.14; and *Friends of Yosemite Valley v. Kempthorne*, 520 F.3d 1024, 1038 (9th Cir. 2008)), emphasis added. However, BLM is required to afford detailed consideration only to reasonable alternatives to the proposed action that *will accomplish its intended purpose, are technically and economically feasible, and yet have a lesser or no impact*, by virtue of avoiding or minimizing the adverse effects of the proposal. See 42 U.S.C. § 4332(2)(C) (2006); 40 C.F.R. §§ 1500.2, 1501.2, 1502.1, and 1502.14; e.g., *Backcountry Against Dumps*, 179 IBLA at 175. All this ensures that the BLM decisionmaker “has before him and takes into proper account all possible approaches to a particular project,” with differing environmental outcomes. *Save Medicine Lake Coalition*, 156 IBLA at 246 (quoting *Calvert Cliffs’ Coordinating Committee, Inc. v. U.S. Atomic Energy Commission*, 449 F.2d 1109, 1114 (D.C. 1971)).

“[N]o major [F]ederal project should be undertaken without intense consideration of other more ecologically sound courses of action, including shelving the entire project, or of accomplishing the same result by entirely different means.” *Environmental Defense Fund v. Corps of Engineers of the U.S. Army*, 492 F.2d 1123, 1135 (5th Cir. 1974). However,

an agency’s range of alternatives [will be reviewed] under a “rule of reason” standard that “requires an agency to set forth *only those alternatives necessary to permit a reasoned choice.*” [*State of California v. Block*, 690 F.2d at 767 . . . .

. . . “[T]he touchstone for our inquiry is whether an EIS’s selection and discussion of alternatives fosters informed decision-making and informed public participation.” *Id.* at 767. . . . Thus, an agency’s consideration of alternatives is sufficient if it considers an appropriate

range of alternatives, even if it does not consider every available alternative[.]

*Headwaters, Inc. v. BLM*, 914 F.2d 1174, 1180-81 (9th Cir. 1990) (emphasis added).

BLM's proposed action was based on ORNI's original proposal to continue to *drill and develop the geothermal resources* in accordance with existing geothermal leases in the Casa Diablo area of east-central California, with the aim of generating electricity, which was deemed to be, consistent with BLM's multiple-use management mandate for public lands, the designated purpose of the proposed action. See Final EIS/EIR at 1-3. Accordingly, BLM properly adhered to the goals defined by ORNI, since they agreed with BLM's management obligations and were not unduly narrow, precluding BLM's reasonable consideration of alternatives. See *Citizens' Committee to Save Our Canyons v. U.S. Forest Service*, 297 F.3d 1012, 1030 (10th Cir. 2002); *Northern Alaska Environmental Center*, 153 IBLA 253, 263-64 (2000). Given this, BLM was not required to consider entirely different means of generating electricity, since this would not achieve the intended purpose of the proposed action. See *Powder River Basin Resource Council*, 180 IBLA 119, 136 n.22 (2010); *Save Medicine Lake Coalition*, 156 IBLA at 246. Consequently, BLM was not required to consider alternatives that generated electricity by solar or other renewable means, since they would not achieve the purpose of the proposed action. See Final EIS/EIR at H-165 to H-167.

BLM was required, however, to consider alternative ways of generating electricity by geothermal means, in response to ORNI's proposal, such as by siting or sizing the required facilities in such a manner as to result in different impacts on the human environment. We think that BLM did so, by considering placing the power plant in a different location, in order to minimize visual impacts, and realigning the pipeline, in order to minimize visual, recreational, cultural, and wildlife impacts. We do not think that BLM was required to consider relocating the geothermal wells, since the general locations chosen were considered by ORNI and BLM to be the current optimum locations for recovering geothermal resources for energy generation purposes.<sup>62</sup> See Final EIS/EIR at 2-85 (“[T]he location of production wells is

---

<sup>62</sup> We are also not persuaded that BLM was required to consider siting the proposed power plant facilities, in whole or in part, at the location of one or more of the existing power plants, avoiding creating an entirely new footprint in the Casa Diablo area. Since the facilities would be sited in close proximity to the proposed site under this alternative, we fail to see how the alternative “accomplish[es] the same result [as the proposed action] by entirely different means,” and so must be considered by BLM. *Environmental Defense Fund v. Corps of Engineers of the U.S. Army*, 492 F.2d at 1135,

(continued...)

restricted by the location of the geothermal resource, as has been identified through the leasing and exploratory drilling processes approved previously”); *Save Medicine Lake Coalition*, 156 IBLA at 246.

We are also not persuaded that BLM erred in declining to afford detailed consideration to the alternatives of placing the entirety of the production/injection pipelines underground, reducing the size of the power plant, or relocating the power plant in Basalt Canyon. BLM properly rejected detailed consideration of these alternatives because they were not considered technically and/or economically feasible. See Final EIS/EIR at 2-85 to 2-87; *Save Medicine Lake Coalition*, 156 IBLA at 246.

BLM deemed the Underground Pipeline Alternative technically infeasible since, owing to the fact that pipelines carrying initial and spent geothermal resources will significantly expand/lengthen and contract/shorten, it is necessary to be able to inspect and repair the pipelines, in order to ensure the absence of leaks, which cannot be feasibly done if the pipelines are under the ground. It also stated that, were the pipelines to leak or rupture, this would result in additional environmental impacts. BLM further noted that the pipeline could be placed in a trench, allowing inspections and repairs, but that digging the trench would cause “far” greater environmental impacts. Final EIS/EIR at 2-85.

BLM concluded that the Reduced Power Plant Alternative did not achieve the purpose of the proposed action to drill and develop the geothermal resource, since it would entail the drilling of less geothermal wells. It further concluded that the alternative would not substantially alter the various impacts of the proposed action on soils and vegetation, air quality, visual resources, surface and groundwater resources, and geothermal resources, since it would not significantly change the number, location, size, and/or other features of the proposed geothermal wells, production/injection pipelines, and power plant, and, therefore, the alternative was, in

---

(...continued)

emphasis added. As we stated in *Powder River Basin Resource Council*, 144 IBLA 319, 329 (1998):

Where . . . a proposed alternative would not substantially differ from an alternative already considered by BLM, there is no need to specifically address it, since BLM is already aware of its environmental impacts, and thus the consequences of adopting it. As the court stated in *Headwaters*: “NEPA does not require a separate analysis of alternatives which are not significantly distinguishable from alternatives actually considered, or which have substantially similar consequences.” 914 F.2d at 1181.

effect, “not significantly distinguishable” from the three action alternatives already considered. *Headwaters, Inc. v. BLM*, 914 F.2d at 1181. BLM also noted that, since the alternative would lessen the amount of electricity generated by the proposed geothermal means, it would not displace as much electricity generated by fossil fuel-fired power plants, decreasing the production of CO<sub>2e</sub> by up to 88,000 metric tons annually, and so would partially reduce this beneficial impact of the proposed action.

Finally, BLM concluded that, while the Relocated Plant Site Alternative would decrease the length of the production/injection pipelines, reducing the associated environmental impacts, the alternative would entail even greater environmental impacts, as a consequence of the need to run a longer electrical transmission line to the SCE substation, to build new roads or undertake additional road improvements to access the plant, resulting in “substantial traffic increases,” and, finally, to undertake additional site clearing for the plant. Final EIS/EIR at 2-87. BLM determined that the resulting impacts to soils and vegetation, wildlife, air quality, cultural resources, visual resources, and recreational resources would be “more severe[.]” *Id.* It also noted that the new location, being closer to the Town, “could have increased surface occupancy conflicts[.]” *Id.*

LiUNA fails to offer any convincing argument or supporting evidence demonstrating that BLM erred, as a matter of fact or law, in its assessment of the infeasibility or other bases for rejection of the alternatives of placing the pipelines underground, reducing the size of the power plant, or relocating the power plant in Basalt Canyon.

LiUNA only asserts that BLM improperly declined to consider in detail the Underground Pipeline Alternative because of the significant environmental impacts associated with placing the pipelines underground, which would be offset by the resulting “long-term benefits” of underground pipelines to wildlife, especially as a consequence of avoiding habitat fragmentation, and to recreational use, especially as a consequence of avoiding the adverse visual impacts to members of the public using the Shady Rest Park and surrounding scenic areas. SOR at 45; *see id.* at 45, 47. BLM was well aware of these benefits. *See* Final EIS/EIR at 2-85. LiUNA, however, fails to address BLM’s basis for declining to afford the Underground Pipeline Alternative detailed consideration.

Further, we conclude that BLM “briefly discuss[ed] the reasons for . . . eliminat[ing]” any of the three alternatives rejected by BLM, and complied with 40 C.F.R. § 1502.14. *See Backcountry Against Dumps*, 179 IBLA at 175.

We, therefore, conclude that, since it did not fail to consider a “viable but unexamined alternative” to the proposed Project, BLM did not violate the requirement

of section 102(2)(C) of NEPA to consider all reasonable alternatives to the proposed action.

### III. Compliance with Section 7 of the ESA

CRMD contends that BLM's decision to approve the Project violated section 7(a)(2) of the ESA, 16 U.S.C. § 1536(a)(2) (2012), since BLM did not use the "best scientific and commercial data available" to ensure that the Project did not jeopardize the continued existence of the Owens tui chub or destroy or adversely modify its critical habitat. SOR at 26 (quoting 16 U.S.C. § 1536(a)(2) (2012)).

[6] Section 7(a)(2) of the ESA requires BLM, in consultation with FWS, to ensure that any authorized action does not jeopardize the continued existence of an endangered species or destroy or adversely modify its critical habitat, "us[ing] the best scientific and commercial data available." 16 U.S.C. § 1536(a)(2) (2012); *see, e.g., Natural Resources Defense Council v. Houston*, 146 F.3d at 1127; *Backcountry Against Dumps*, 179 IBLA at 179.

CRMD recognizes that, in order to fulfill its substantive and procedural obligations under section 7 of the ESA, BLM specifically assessed the likely impacts of the Project on the Owens tui chub and its critical habitat in a July 2013 BA, concluding that the Project "may affect, but is not likely to adversely affect" (NLAA) the chub or its critical habitat. The consequence of BLM's NLAA determination was that BLM was not required to formally consult with FWS, in order to ensure that the Project did not jeopardize the continued existence of the chub or destroy or adversely modify its critical habitat, where FWS concurred, on the basis of informal consultation, in BLM's assessment. *See Backcountry Against Dumps*, 179 IBLA at 179-80; *Missouri Coalition for the Environment*, 172 IBLA 226, 250-51 (2007). BLM informally consulted with FWS, obtaining FWS' concurrence with its NLAA determination.

However, CRMD asserts that the BA does not rely on the best scientific and commercial data available in making its NLAA determination, since BLM's analysis was "inaccurate and inadequate[.]" SOR at 27. CRMD specifically states that BLM incorrectly stated that the existing geothermal drilling and development has not altered any hydrology, pointing out that data generated by USGS and FWS have identified "chemical and temperature changes to thermal water" in the headwater springs of Hot Creek attributable to existing development. *Id.* (citing BA at 14 ("To date, no alterations in the hydrology . . . have occurred that would require [lease] stipulations [for monitoring and/or remediating adverse impacts] to be implemented")). It further avers that BLM did not adequately provide for ameliorating any such changes that occur as a consequence of the Project, since the Population and Habitat Monitoring Plan and amended Remedial Action Plan, which

have yet to be formulated, will not establish any specific triggers for remedial action and have no specific measures for mitigating such changes. *See id.* at 28.

BLM thoroughly analyzed the likely impacts of the Project on the chub and its critical habitat in its July 2013 BA, concluding that the Project may affect, but is not likely to adversely affect the chub or its critical habitat. *See* BA at 31-32. Further, FWS expressly concurred in BLM's NLAA determination, in the BA, on August 2, 2013. *See* LOC at 3.

The Board does not have any authority to address the legality or propriety of FWS' concurrence. *See Sierra Club, Angeles Chapter*, 156 IBLA 144, 165 (2002). We only address whether BLM prepared a BA, as required by section 7 of the ESA, in which it properly analyzed the likely impacts of the Project on the chub and its critical habitat, and, in so doing, having concluded that the Project "may affect" the chub and/or its critical habitat, determined whether or not the Project is "likely to adversely affect" the chub and/or its critical habitat. *See id.*

Since we are persuaded that BLM prepared a BA, making an NLAA determination, we conclude that it has fulfilled all that is required of it by section 7 of the ESA. CRMD fails to identify any information that was ignored or overlooked by BLM, or otherwise demonstrate any error or deficiency in BLM's analysis of the potential impacts of geothermal production on the headwater springs of Hot Creek, or the chub or its critical habitat. BLM has already concluded that there would be either no changes or only minimal changes to the temperature and chemical content of the springs. Further, CRMD does not establish that BLM failed, in defining the parameters of the required development and implementation of a Population and Habitat Monitoring Plan and amended Remedial Action Plan, to adequately provide for identifying any unexpected changes in chub habitat as a consequence of the Project and taking appropriate action to address such changes, in consultation with FWS and CDFW. Such a provision is contained in MM WIL-10, which is a condition of approval of the Project. *See* ROD at 5; ROD, Appendix 2, at A2-7 (MM WIL-10).

We, therefore, conclude that CRMD has failed to establish that BLM violated section 7(a)(2) of the ESA, by not properly fulfilling its substantive obligation to ensure that the Project does not jeopardize the continued existence of the Owens tui chub or destroy or adversely modify its critical habitat, using the best scientific and commercial data available in assessing the likely impacts of the Project.

#### *IV. Compliance with the CWA*

CRMD contends that BLM's decision to approve the Project violated section 404 of the CWA, 33 U.S.C. § 1344 (2006), since BLM failed to require ORNI to obtain a

Section 404 permit from the Corps, authorizing the discharge of dredged or fill material into jurisdictional waters, which is required because, given the presence of such waters in the Project area, “Project construction” is “likely” to result in the discharge of such material “to these waters.” SOR at 28. CRMD asserts that drilling several proposed wells adjacent to Hot Creek, constructing the pipelines across Hot Creek, and constructing the power plant and substation close to Hot Creek and adjacent wetlands is likely to result in the discharge of sediment, together with drilling mud and drill cuttings, to Hot Creek and its tributaries, and eventually Lake Crowley, all of which are jurisdictional waters. *See id.* at 29.

[7] Section 404(a) of the CWA, 33 U.S.C. § 1344(a) (2006), requires the issuance by the Corps of a permit for the discharge of any dredged or fill material into navigable waters, which are defined by 33 U.S.C. § 1362(7) (2006) as “waters of the United States[.]” *See* 33 C.F.R. Part 323; *United States v. Riverside Bayview Homes, Inc.*, 474 U.S. 121, 123-24 (1985). Fill material is deemed to include any material that, when placed in waters of the United States, has the effect of replacing any such waters with dry land or changing the bottom elevation of any such waters. *See* 33 C.F.R. § 323.2(e) (“*fill material*”). BLM concluded, in the present case, that ORNI was not required to obtain a Section 404 permit, since Project activities were not likely to directly or indirectly impact waters of the United States, as BLM had delineated such waters in the Project area. *See* Final EIS/EIR at 3.3-18 to 3.3-20, 4.3-8, 4.3-11 to 4.3-12, 4.3-14, H-115 (“[A] Section 404 permit will not be required”).

CRMD fails to offer any convincing argument or supporting evidence establishing that the Project is likely to result in the discharge of dredged or fill material into any jurisdictional waters. *See, e.g.*, SOR at 28 (“Project construction will likely release dredged or fill material to [jurisdictional] waters”). Nor do we agree that the Final EIS/EIR “makes clear that Project construction could discharge dredged or fill material into ‘waters of the United States.’” *Id.* at 30. Rather, BLM’s conclusion was to the contrary.

In any event, whether or not a Section 404 permit is required in connection with the Project is properly determinable by the Corps, not BLM, following approval of the Project by BLM.

We, therefore, conclude that CRMD has failed to establish that BLM violated section 404 of the CWA in approving the Project without requiring ORNI to obtain a Section 404 permit from the Corps, authorizing the discharge of dredged or fill material into jurisdictional waters, in connection with the Project. *See Larry Thompson*, 151 IBLA 208, 215-17 (1999); *G. Jon Roush*, 112 IBLA 293, 308 (1990).

### V. Compliance with FLPMA

LiUNA contends that, by failing to ensure that the Project complies with the air pollution standards of the CAA and applicable State statutes, BLM violated the dictate of section 202(c) of FLPMA, 43 U.S.C. § 1712(c) (2006), that BLM “provide for compliance with applicable pollution control laws, including State and Federal air . . . pollution standards[.]” See SOR at 23-24. Specifically, LiUNA claims that, having failed to address the question of mitigating VOC emissions, BLM failed to ensure compliance with the ozone NAAQS and CAAQS. See *id.* at 24. It also asserts that BLM failed to ensure that Federal air pollution standards would be met during Project construction and operation.

We agree that BLM is required by section 202(c) of FLPMA to ensure compliance with the air pollution standards of the CAA and applicable State statutes.<sup>63</sup> However, such compliance is expressly required to be obtained “[i]n the development and revision of [the applicable] land use plan[.]” 43 U.S.C. § 1712(c) (2006); see *Powder River Basin Resource Council*, 183 IBLA at 94.

BLM is not, at the present time, adopting or revising a land use plan. Rather, BLM has previously adopted a land use plan that provides for compliance with State and Federal air quality standards, by requiring that an air quality permit be obtained in conjunction with approval of any proposed management action. See Bishop RMP ROD, dated Mar. 25, 1993, at 13 (“Secure any necessary permits or clearances from state and local agencies relative to air quality requirements for projects that may impact air quality”).<sup>64</sup> BLM is required to conform its approval of management actions under that plan to the dictates of the RMP. See 43 U.S.C. § 1732(a) (2006); 43 C.F.R. § 1610.5-3(a); e.g., *Dona Jeanette Ong*, 165 IBLA 274, 278 (2005) (citing *Norton v. Southern Utah Wilderness Alliance*, 542 U.S. 55, 69 (2004)). Therefore, *in approving the proposed geothermal drilling and development under the RMP*, BLM must ensure that ORNI obtains an air quality permit from APCD. It has done so, by

---

<sup>63</sup> LiUNA cites the case of *Columbia Basin Land Protection Association v. Schlesinger*, 643 F.2d 585 (9th Cir. 1981), in support of its assertion that BLM is required to adhere to Federal and State air pollution standards. See SOR at 24. However, that case involved the application of the language in section 505 of FLPMA, 43 U.S.C. § 1765 (2006), that BLM is, in issuing rights-of-way, required to ensure “compliance with State standards,” and, therefore, is inapplicable here. See 643 F.2d at 602-05.

<sup>64</sup> The Bishop RMP ROD can be found at <https://archive.org/details/bishopresourcema11unit> (last visited Mar. 16, 2016).

requiring, as a condition of approval of the Project, that a permit be obtained before ORNI may go forward with any Project activities. See ROD at 5; ROD, Appendix 2, at A2-1.

Further, we are not persuaded that the geothermal drilling and development in connection with the Project, which is all that was authorized by BLM, will fail to comply with any State or Federal air quality standard. LiUNA makes no effort to show that any noncompliance is likely to occur in the reasonably foreseeable future. Nor, in any event, has any noncompliance yet to occur.

We have long recognized that BLM, which does not itself enforce the requirements of the CAA and its State equivalent, may properly rely, for NEPA purposes, on the fact that permitting and enforcement of the Act by the State, acting through APCD, subject to oversight by the EPA, *will ensure that the approved activity does not exceed or violate any State or Federal air quality standard.* See Final EIS/EIR at 1-2, 1-15, 3.2-6; *Edwardsen v. U.S. Department of the Interior*, 268 F.3d 781, 789 (9th Cir. 2001); *Okanogan Highlands Alliance v. Williams*, 1999 U.S. Dist. LEXIS 4068 (D. Or. 1999), *aff'd*, 236 F.3d 468 (9th Cir. 2000), at \*12, \*14 (“[F]ederal agencies may determine that other agencies with specialized jurisdiction over a given environmental impact will issue and enforce a permit as required by law”); *Davis v. Slater*, 148 F. Supp.2d 1195, 1214 (D. Utah 2001), *rev'd on other grounds*, 302 F.3d 1104 (10th Cir. 2002) (“[I]t is entirely reasonable, when evaluating the possible environmental impacts of a project, for an agency to assume necessary compliance with permitting standards regarding permits which the project must have in order to go forward”); *Powder River Basin Resource Council*, 183 IBLA at 94-95; BLM Opposition (LiUNA) at 17 (“[T]he Agency with jurisdiction over the air quality emissions from the Project is the [A]PCD”).<sup>65</sup> If it deems such permitting and enforcement inadequate under existing laws and regulations, LiUNA should pursue litigation against the EPA or APCD in a separate action.

---

<sup>65</sup> See also *Powder River Basin Resource Council*, 180 IBLA 32, 57 (2010) (“BLM need not evaluate the potential environmental consequences resulting from noncompliance with Federal and State permitting requirements or assume that violations of Federal and State standards will inevitably occur”); *Wyoming Outdoor Council*, 176 IBLA at 27 (“[I]n approving the Project, BLM properly assumed that emissions would be regulated, and, if necessary, controlled so as to satisfy both Federal and State air quality standards”), 30 (“In assessing the potential significant environmental impacts in the EIS, BLM properly relied upon the adequacy of State enforcement to ensure that no CAA violation occurs”).

Therefore, we are not persuaded that BLM, in approving the Project, violated section 202(c) of FLPMA, by failing to ensure compliance with any Federal and State air pollution standards.

To the extent not explicitly addressed herein, all other errors of fact or law raised by CRMD or LiUNA have been considered and are rejected as contrary to the facts or law, or immaterial to the disposition of the appeals.

*VI. Conclusion*

We, therefore, conclude, in the absence of any showing that BLM failed to comply with section 102(2)(C) of NEPA, or section 7(a)(2) of the ESA, or section 404 of the CWA, the Field Manager, in his August 2013 ROD, properly approved geothermal drilling and construction, operation, maintenance, and decommissioning of a commercial geothermal energy-generating facility by ORNI, in connection with the Casa Diablo IV Geothermal Development Project.

Accordingly, pursuant to the authority delegated to the Board of Land Appeals by the Secretary of the Interior, 43 C.F.R. § 4.1, the decision appealed from is affirmed, and LiUNA's stay petition is denied as moot.

\_\_\_\_\_  
/s/  
Christina S. Kalavritinos  
Administrative Judge

I concur:

\_\_\_\_\_  
/s/  
James K. Jackson  
Administrative Judge