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DEPARTMENT OF FISH AND WILDLIFE
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EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director



December 4, 2018

Scott S. Slater
Chief Executive Officer
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550 South Hope Street
Los Angeles, CA 90071

Dear Mr. Slater:

INFORMATION REGARDING NEW SIGNIFICANT OR SUBSTANTIALLY MORE SEVERE IMPACTS TO FISH AND WILDLIFE RESOURCES FROM THE CADIZ VALLEY WATER CONSERVATION, RECOVERY, AND STORAGE PROJECT

On April 26, 2017, California Department of Fish and Wildlife (Department) staff attended a call with consultants and representatives for the Cadiz Valley Water Conservation, Recovery, and Storage Project (Project) intended to introduce the Project to Department staff and discuss the anticipated Project notification under the lake and streambed alteration (LSA) program. (Fish & G. Code, §§ 1600-1617.) The Department previously provided comments on the draft Environmental Impact Report (EIR) for the Project in February 2012. (SCH No. 2011031002.) In anticipation of the Project LSA notification, the Department began re-familiarizing itself with the Project EIR certified by the CEQA lead agency Santa Margarita Water District (District) and other related material. In the course of its review, the Department identified information of substantial importance that was developed after the District certified the Project EIR. This new information indicates the Project may cause significant effects not discussed or substantially more severe effects than shown in the Project EIR.

Specifically, new information demonstrates a hydrologic connection between the aquifer underlying the Project pumping site and nearby Bonanza Spring. The Department began installing GPS collars on desert bighorn sheep in the area of the Project in 2013 and this data indicates these legally-protected sheep utilize the spring. Further analysis and additional review of these effects will be necessary for the Department to evaluate the anticipated LSA notification, to consider and take appropriate action in response under the Fish and Game Code, and to fulfill its public trust responsibility for California fish and wildlife and the habitat on which they depend.

BACKGROUND

Project representatives indicated to the Department that the Project's proposed 43-mile water conveyance pipeline will involve 67 streambed crossings. This large proposed Project would trigger the Department's jurisdiction and require an LSA agreement. Based on the earlier discussion with the Project representatives, the Department expects notification under Fish and Game Code section 1602 for Project streambed crossings.

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The Department is California's designated trustee agency for fish and wildlife resources. (Fish & G. Code, § 1802.) The public trust doctrine encompasses the protection of wildlife and the Department must take its public trust responsibilities into account when exercising its mandate under the Fish and Game Code. (*Center for Biological Diversity v. Dept. of Forestry and Fire Protection* (2014) 232 Cal.App.4th 931, 952, 953.) The Department's area of expertise for purposes of the California Environmental Quality Act (CEQA) includes fish and wildlife, endangered species, and hydrologic conditions. (Pub. Resources Code, § 21104.2; Cal. Code Regs., tit. 14, § 15386 & ch. 3, Appen. B.) The Department is also a responsible agency under CEQA if a project requires the Department's discretionary approval, such as for an incidental take permit under the California Endangered Species Act or, as here, an LSA agreement under Fish and Game Code sections 1600-1617. (Cal. Code Regs., tit. 14, § 15381.)

The Department appreciates the District as CEQA lead agency certified the Project EIR on July 31, 2012; that the District drew related litigation; and that those challenges have run their course. (See, e.g., *Center for Biological Diversity v. County of San Bernardino* (4th Dist. 2016) 247 Cal.App.4th 326.) With that, the Project EIR stands as certified and the Project EIR is presumed adequate as a matter of law. (*Laurel Heights Improvement Assn. v. Regents of the Univ. of Cal.* (1993) 6 Cal.4th 1112, 1130.) Finally, the Department appreciates that, with the presumption of legal adequacy attached to the Project EIR, subsequent or supplemental environmental review is disfavored and is the exception to the rule under Public Resources Code section 21166. Indeed, a responsible agency may only determine subsequent or supplemental review is necessary in limited circumstances. (Cal. Code Regs., tit. 14, §§ 15096, 15162-15164.) One such circumstance exists where new information of substantial importance shows a project will have a significant effect not discussed in the certified EIR or that significant effects previously examined in the EIR will be substantially more severe. (*Id.*, § 15162, subd. (a)(3).) This may likely be the case here.

NEW INFORMATION SUBSEQUENT TO THE CERTIFIED PROJECT EIR

Numerous technical and scientific hydrological studies, reports, and analyses informed the Project and its environmental analysis prior to the District's certification of the Project EIR. Project EIR section 4.9 describes several of these studies and Project EIR Appendix H compiles many of them.

In its review of Project information in preparation for the Project LSA notification, the Department identified additional data and reports developed or released since Project EIR certification and relevant to the Project. They include but are not limited to the following: Aquilogic, Inc., Review of the Groundwater Hydrology of the Cadiz Project, San Bernardino County, California (October 2013); Andy Zdon & Associates, Inc., Mojave Desert Springs and Waterholes: Results of the 2015-16 Mojave Desert Spring Survey, Inyo, Kern, San Bernardino and Los Angeles Counties, California (November 11, 2016); T.P. Rose, Data Measured on Water Collected from Eastern Mojave Desert, California (August 18, 2017) LLNL-TR-737159; Kenny GeoScience and TLF Consulting,

Inc., Updated Assessment of Cadiz Water Project's Potential Impacts to Bonanza Springs (January 2018); Andy Zdon et al., *Understanding the Source of Water for Selected Springs Within Mojave Trails National Monument, California*, Environmental Forensics, Vol. 19, No. 2 (2018), pp. 99-111; and Adam Love and Andy Zdon, *Use of Radiocarbon Ages to Narrow Groundwater Recharge Estimates in the Southeastern Mojave Desert, USA*, Hydrology, Vol. 5, No. 3 (2018). In addition, the Department began installing GPS collars on desert bighorn sheep (*Ovis canadensis nelsoni*) in the area of the Project in 2013. The Department has collected extensive GPS data on the species' movement and use of springs, including Bonanza Spring.

The Project EIR considered the connection between the groundwater aquifer underlying the Project wellfield and nearby springs and concluded the springs were hydrologically disconnected from the groundwater aquifer. (Project EIR, p. 4.9-19.) The Project EIR identified impacts to desert bighorn sheep to be less than significant. (Project EIR, pp. 4.4-43, 44, 45, 48, 52, 58.) The new information available in recent technical reports, however, demonstrate a hydrologic connection between the aquifer underlying the Project pumping site and nearby Bonanza Spring. The recently collected GPS collar data indicate that desert bighorn sheep utilize Bonanza Spring. Based on the Department's review of this new information, the Department believes the Project EIR would not be adequate for the Department's use, as a CEQA responsible agency and the public trustee for wildlife, for regulatory approval of a Project LSA agreement.

BONANZA SPRING CONNECTION TO WELLFIELD GROUNDWATER

The new reports provide information about the connection between the Project wellfield aquifer and Bonanza Spring that was not known at the time of the Project EIR. Multiple reports are the result of 2015 and 2016 surveys and sampling data from springs in the Mojave Desert. The surveys included springs near the Project, such as Theresa Spring in the Marble Mountains and Bonanza Spring in the Clipper Mountains. The researchers collected, tested, and analyzed water samples and developed and investigated new data regarding water temperatures, chemical signatures, and stable isotopes deuterium, oxygen-18, and tritium.

Analysis of the newly collected data indicates that Bonanza Spring is not solely locally sourced from a perched aquifer; this is contrary to the conclusion of the Project EIR that there is no hydraulic continuity between area springs and the regional groundwater table. Bonanza Spring is located in a 50-acre watershed and its flow has remained consistent over periodic measurements since 1929, even during drought periods. Measured spring temperatures are 11.5 degrees Fahrenheit warmer than the average annual ambient air temperature, indicating that the spring water traveled from significant depth.

The isotopic composition of springs in the Mojave Desert that arise from locally sourced or perched aquifers generally reflect the same isotopic values as local precipitation. The reports document, however, that deuterium and oxygen-18 isotope values at Bonanza

Spring do not correlate with local precipitation values or with values at other nearby springs. Instead, the values indicate a source water that emanates from a higher elevation such as that found in the Providence Mountains north of the Clipper Mountains.

The new information also includes results from tritium testing water samples from Bonanza Spring. Tritium is incorporated into precipitation water molecules and, because of its intense production during atmospheric thermonuclear tests from 1951 to 1980, can be detected in springs dependent on local precipitation or modern groundwater. The water samples from Bonanza Spring had non-detect tritium values, indicating the source water for this spring is pre-1952 origin consistent with a deeper groundwater source.

In addition to the recent data and reports establishing that Bonanza Spring is fed from a deep regional aquifer rather than a local perched aquifer, chemical and isotopic analyses of groundwater from the Project area and from Bonanza Spring show that Bonanza Spring is connected to groundwater in the Fenner Valley where the Project wellfield is located. The spring and the wellfield share a similar Na-HCO₃ chemical composition. Bonanza Spring also has the same deuterium composition as a groundwater well located near the Project wellfield. Precipitation in the higher-elevation Providence Mountains shares isotope values with Bonanza Spring and the Fenner Valley alluvial aquifer. Together, the hydrologic characteristics and the isotopic and geochemical data for Bonanza Spring and other nearby groundwater sources demonstrate that Bonanza Spring and Fenner Valley groundwater underlying the Project wellfield rely on the same precipitation source and are hydraulically connected.

In addition to the new hydrological reports, the Department has collected new GPS data since certification of the Project EIR on desert bighorn sheep and their use of certain areas, including Bonanza Spring. The Department as part of its wildlife management and monitoring efforts has been intensively collaring and tracking desert bighorn sheep in the Mojave Desert since 2013. The GPS collar data indicate that individual bighorn sheep frequent Bonanza Spring.

NEW INFORMATION AND RELATED ENVIRONMENTAL EFFECTS

As mentioned above, the Project EIR discusses potential impacts to springs in nearby mountain ranges, including Bonanza Spring. (Project EIR, pp. 4.9-19, 22, 59, 60, 61.) Based on previous assessments, the Project EIR stated that there was no hydraulic connection between mountain springs in the Project watersheds and the groundwater underlying the Project wellfield. (Project EIR, pp. 4.9-19, 61.) According to the Project EIR, these springs “derive their water from precipitation in the higher elevation mountains, not groundwater from the alluvial aquifer.” (Project EIR, p. 4.9-59; see also Project EIR, pp. 19, 21, figure 4.9-4.)

The Project EIR considered a technical memorandum that evaluated two conceptual models for Bonanza Spring. (Project EIR, p. 4.9-59.) Both of these conceptual models

assumed that the spring's source water was from mountain precipitation that infiltrated into the ground and traveled to the springs. (Project EIR, p. 4.9-59.) According to the Project EIR, "[t]here is *no information* that suggests these springs are a result of any other source of water, such as deeply circulating groundwater, confined groundwater, or other similar mechanisms attributable to spring formation." (Project EIR, p. 4.9-59 (emphasis added).) As a result of assuming that the springs, including Bonanza Spring, share no hydraulic connection with the groundwater aquifer where Project pumping would occur, the Project EIR concluded the Project would have no impact on springs. (Project EIR, p. 4.9-60.)

The Project EIR alternatively considered as a hypothetical condition a hydraulic connection between groundwater feeding the springs and the aquifer, but adopted a mitigation measure that was based on the opposite assumption that there is no connectivity. (Project EIR, p. 4.9-60, Appen. B2, pp. 2, 3.) To mitigate any potential impact to less than significant, the Project EIR incorporates a monitoring protocol for Bonanza Spring as an indicator spring. (Project EIR, p. 4.9-60, Appen. B2, pp. 2, 3.) However, this monitoring protocol was based on the assumption that the nearby springs rely on rainfall recharge of shallow fractured bedrock and are not dependent on the aquifer underlying the wellsite. (Project EIR, Appen. B2, pp. 2, 3.) The Project EIR's hypothetical assessment led to the conclusion that the Project would have a less than significant impact on the springs. (Project EIR, p. 4.9-60.)

Bighorn sheep are a fully protected mammal under the Fish and Game Code section 4700 and take of this species is generally prohibited. The Project EIR states that adjacent and surrounding mountain ranges provide suitable habitat for desert bighorn sheep and that the Project may affect the species' habitat. (Project EIR, pp. 4.4-14, 24, 25.) The Project EIR notes that desert bighorn sheep movement through corridors near the Project could be temporarily affected by construction activities, but that no significant impact to wildlife movement would occur. (Project EIR, pp. 4.4-43, 44, 45, 52, 58.) The Project EIR states that man-made watering features in the area would not be impacted. (Project EIR, p. 4.4-43.) It also recognizes that man-made features and natural springs provide watering holes for desert bighorn sheep. (Project EIR, p. 4.9-19.)

The Project EIR indicated that any impact to desert bighorn sheep would be less than significant. The Project EIR did not map the species' occupied range in the Clipper Mountains where Bonanza Spring is located. Further, the Project EIR does not discuss potentially significant effects to the desert bighorn sheep from the Project pumping Fenner Valley groundwater hydraulically connected to Bonanza Spring. Since certification of the EIR, information from the recent hydrological reports and desert bighorn sheep GPS collar data raise the specter that impacts to this species may be substantially more severe than the Project EIR discussed.

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In short, the best available science regarding the Project and its potentially significant impacts to nearby Bonanza Spring and desert bighorn sheep has progressed since the District certified the Project EIR. The new information available to the Department does not arise from a single source, but is an accumulation of information from various sources over the past several years. The information from isotopic and chemical analyses of water samples demonstrates a previously unknown connection between the groundwater underlying the Project wellfield and Bonanza Spring. While the Project EIR and the monitoring protocol assumed that Bonanza Spring was hydraulically disconnected from groundwater, subsequent reports demonstrate that Bonanza Spring is connected to the aquifer underlying the Project wellfield. Based on this new information, the Project's groundwater source is now seen to be connected to the spring, raising the potential of a substantially increased risk of negative impacts to the desert bighorn sheep that frequent Bonanza Spring.

CONCLUSION

The Department began its review of Project-related materials and other new information in anticipation of the LSA notification for the Project. As part of its effort to date the Department has identified new information of substantial importance concerning the Project's more direct connection to, and potential impact on, Bonanza Spring and desert bighorn sheep than previously analyzed and disclosed in the Project EIR. Current information, including the hydrologic reports and the desert bighorn sheep GPS collar data described above, indicate the Project may pose a substantially higher risk to the spring and desert bighorn sheep than the Project EIR disclosed. Further analysis and additional review of these important issues will be necessary for the Department to evaluate the anticipated LSA notification, to consider and take appropriate action in response under the Fish and Game Code, and to fulfill the Department's public trust responsibility.

We look forward to further dialogue regarding this Project.

Sincerely,



Charlton H. Bonham
Director