DR-GEO-154

Information Required:

Please provide copies of any geotechnical data/documents that have been completed for the project site.

Response:

The Preliminary Geotechnical Investigation Report for the BSPP site was provided in October 2009 as part of AFC Volume 3, Data Adequacy Supplement.

DR-GEO-155

Information Required:

Please provide a listing and description of all significant seismic sources within a 100-mile radius that could affect the site. The information should include the fault name, a description of the fault, fault type, fault class, slip rate, maximum magnitude, approximate site-to-source distance, and estimated peak ground acceleration at the plant site due to the maximum credible earthquake occurring along the fault.

Response:

A list of all significant seismic sources within a 100-mile radius that could potentially affect the site is provided in Table DR-GEO-155-1. This table includes the information requested by the Staff. It is important to note that none of the 18 faults identified have the potential to generate ground accelerations of 0.1 gravity (g). The 0.1g value is an industry standard for significance in terms of foundational design, and this potential acceleration can be managed with proper foundational design and site geotechnical investigation.

Table DR-GEO-155-1 Significant Seismic Sources Within a 100-Mile Radius

Fault Name	Appproximate Site-to-Source Distance in miles (km)[3]	Fault Type[1]	Fault Class[2]	Maximum Magnitude (Mw)[3]	Estimated Peak Ground Acceleration at Site Due to the Maximum Credible Earthquake Occuring Along the Fault (g)[3]	Slip Rate[1]	Estimated Site Intensity[3]	Description of Fault[1]	
								Length of Fault	Last Rupture
Brawley Seismic Zone	59.0 (94.9)	right-lateral	A	6.4	0.023	--	IV	roughly 45 km	--
San Andreas - Coachella	59.2 (95.2)	right-lateral strike-slip	A	7.1	0.042	about 20 to 35 mm/yr	VI	1200 km, 550 km south from Parkfield; 650km northward	January 9, 1857 (Mojave segment); April 18, 1906 (Northern segment)
San Andreas - Southern	59.2 (95.2)	right-lateral strike-slip	A	7.4	0.055	about 20 to 35 mm/yr	VI	1200 km, 550 km south from Parkfield; 650km northward	January 9, 1857 (Mojave segment); April 18, 1906 (Northern segment)
Elmore Ranch	59.9 (96.4)	left-lateral strike-slip	--	6.6	0.027	between 0.5 and 1.5 mm/yr	V	about 10 km	November 23, 1987; M_w 6.2
Imperial	70.0 (112.6)	right-lateral strike-slip	A	7	0.031	between 15 and 20 mm/yr	V	69 km	October 15, 1979, M_w 6.4; May 18, 1940, M_w 6.9;
Superstition Hills (San Jacinto)	74.0 (119.1)	right-lateral strike-slip	A	6.6	0.020	between 1.7 and 5.5 mm/yr	IV	30 km	November 24, 1987, M_w 6.6
Pinto Mountain	75.9 (122.1)	left-lateral strike-slip	A	7	0.028	about 1.0 mm/yr	V	at least 73 km	Holocene; experienced triggered slip in 1992, due to shaking from the Landers earthquake
Superstition Mtn. (San Jacinto)	76.6 (123.3)	right-lateral strike-slip	A	6.6	0.019	between 5.0 and 9.0 mm/yr	IV	28 km	Holocene, in part; otherwise, Late Quaternary
Pisgah-Bullion Mtn.-Mesquite Lake	78.7 (126.6)	right-lateral strike-slip	A	7.1	0.029	0.8 mm/yr	V	34 km	Holocene; experienced triggered slip in 1992, due to the shaking of the Landers earthquake
San Jacinto-Anza	83.4 (134.2)	right-lateral strike-slip; minor right-reverse	A	7.2	0.030	typically between 7 and 17 mm/yr	V	210 km	within the last few centuries; April 9, 1968, M_w 6.5 on Coyote Creek segment
San Jacinto - Borrego	83.5 (134.4)	right-lateral strike-slip; minor right-reverse	A	6.6	0.017	typically between 7 and 17 mm/yr	IV	210 km	within the last few centuries; April 9, 1968, M_w 6.5 on Coyote Creek segment
Emerson So. - Copper Mtn.	88.5 (142.4)	right-lateral strike-slip	A	6.9	0.021	about 0.5 mm/yr	IV	about 55 km	June 28, 1992; M_w 7.3
San Jacinto-Coyote Creek	88.7 (142.8)	right-lateral strike-slip; minor right-reverse	A	6.8	0.019	typically between 7 and 17 mm/yr	IV	210 km	within the last few centuries; April 9, 1968, M_w 6.5 on Coyote Creek segment

Table DR-GEO-155-1 Significant Seismic Sources Within a 100-Mile Radius

Fault Name	Appproximate Site-to-Source Distance in miles (km)[3]	Fault Type[1]	Fault Class[2]	Maximum Magnitude (Mw)[3]	Estimated Peak Ground Acceleration at Site Due to the Maximum Credible Earthquake Occuring Along the Fault (g)[3]	Slip Rate[1]	Estimated Site Intensity[3]	Description of Fault[1]	
								Length of Fault	Last Rupture
Laguna Salada	91.8 (147.8)	right-lateral strike-slip; right-lateral normal oblique	A	7	0.022	roughly 4 mm/yr	IV	about 70 km	February 23, 1892, magnitude 7
Eureka Peak	93.1 (149.8)	right-lateral strike-slip	--	6.4	0.013	roughly 0.6 mm/yr	III	about 20 km	June 28, 1992, M_w 7.3
Elsinore-Coyote Mountain	94.6 (152.2)	right-lateral strike-slip	A	6.8	0.018	roughly 4.0 mm/yr	IV	about 180 km (not including the Whittier, Chino, and Laguna Salada faults)	May 15, 1910; Magnitude 6
Burnt Mtn.	95.1 (153.0)	right-lateral strike-slip	--	6.4	0.012	about 0.5 mm/yr (?)	III	21 km	June 28, 1992, M_w 7.3
Calico - Hidalgo	98.8 (159.0)	right-lateral strike-slip	A	7.1	0.022	between 1.0 and 2.6 mm/yr	IV	55 km (95 km with West Calico fault)	Holocene; Exhibited triggered slip during 1992 as a result of the Landers quake

References:
1 Data as provided in the Southern California Earthquake Center - http://www.data.scec.org/faults/faultmap.html
2 Data as provided in the USGS Earthquake Hazards Program - http://earthquake.usgs.gov/hazards/qfaults/usmap.php
3 Data as provided by the EQFAULT program

Notes:
km = Kilometer; Mw = Momement Magnitude; yr = year; mm = millimeter; g = gravity

Fault Classes:
A. Geologic evidence demonstrates the existence of a Quaternary fault of tectonic origin, whether the fault is exposed by mapping or inferred from liquefaction or other deformational features.
B. Geologic evidence demonstrates the existence of Quaternary deformation, but either (1) the fault might not extend deeply enough to be a potential source of significant earthquakes, or (2) the currently available geologic evidence is too strong to confidently assign the feature to Class C but not strong enough to assign it to Class A.
C. Geologic evidence is insufficient to demonstrate (1) the existence of tectonic faulting, or (2) Quaternary slip or deformation associated with the feature.
D. Geologic evidence demonstrates that the feature is not a tectonic fault or feature; this category includes features such as joints, landslides, erosional or fluvial scarps, or other landforms resembling fault scarps but of demonstrable non-tectonic origin.

Site Intensity:
III Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
IV Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
V Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
VI Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.

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Information Required:

Please provide information with respect to the potential presence of such resources, the techniques used to identify and evaluate these resources, and the project's potential to impact such resources.

Response:

The U.S. Geological Survey's Mineral Resources Data System (MRDS) was used to identify known mineral resources at and near the site. No non-metallic or metallic mineral resources were identified on the Project site; however, there are three "occurrences", one prospect, and one past producer within an approximate 0.5-mile radius of the Project site (U.S. Geological Survey 2009). Below is a summary of the information provided by the MRDS for each resource.

Name	Development Status	Commodity
Continental Mining and Development Company (Record No. 10212796)	Occurrence	Copper
Butte Mine (Record No. 10212824)	Occurrence	Gold, Copper, and Silver
Lucky Day (Record No. 10213186)	Occurrence	Uranium
Uranium Prospect (Record No. 10213304)	Prospect	Uranium
Big Maria Pit (Record No. 10236929)	Past Producer	Sand and Gravel

The proposed project will not result in the loss of the known sand and gravel mine and no other mineral resources that would be of value to the region and residents of the state would be lost. Similarly, because there are no other known mineral resources on the project site, the project will not result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.