

8.16 Paleontological Resources

8.16.1 Introduction

The City of Vernon (City) proposes to develop a power plant (VPP) on a 13.7-acre property at the southeast corner of Fruitland and Boyle avenues. The VPP will be a 914-megawatt (MW) net (at 65 degrees Fahrenheit [°F] with duct burners and evaporative cooling)/943-MW (gross) combined-cycle generating facility configured using three natural-gas-fired combustion turbines and one steam turbine. Two transmission line options are being considered to connect the plant to Southern California Edison's (SCE) Laguna Bell Substation. Natural gas for the facility will be delivered via approximately 2,300 feet of new 24-inch pipeline that will connect to Southern California Gas Company's (SoCalGas) existing gas transmission line (Line 765). Potable water for drinking, safety showers, fire protection, service water, and sanitary uses will be served from the City's potable water system through two 10-inch pipelines connecting to the City's water mains. One would connect in Boyle Avenue and the other in Fruitland Avenue. Recycled water for industrial purposes will be provided by the Central Basin Municipal Water District (CBMWD) through a nominal 16-inch carbon steel (or if using high density polyethylene [HDPE], a 20-inch) water line connecting to its recycled water line in Boyle Avenue, adjacent to the plant site. The blowdown will be sent to Sanitation Districts of Los Angeles County (LACSD) via a new 2,400-foot section of City sanitary sewer line.

Paleontological resources are fossils, the remains of prehistoric plants and animals, and are important scientific and educational resources because of their use in: (1) documenting the presence and evolutionary history of particular groups of both extinct and extant organisms, (2) reconstructing the environments in which these organisms lived, and (3) in determining the relative ages of the strata in which they occur and the geologic events that resulted in the deposition of the sediments that formed these strata. This subsection summarizes the paleontological resources and the potential impacts on paleontological resources that may result from construction of the VPP project and associated linear features.

The analysis presented in this subsection meets all requirements of the California Energy Commission (CEC) Appendix B Section (g)(16) and incorporates the Society of Vertebrate Paleontology (SVP) (1995, 1996) standard measures for mitigating adverse construction-related environmental impacts on paleontological resources.

8.16.2 Laws, Ordinances, Regulations, and Standards

Paleontological resources are classified as non-renewable scientific resources and are protected by several federal and state statutes, most notably by the 1906 Federal Antiquities Act and other subsequent federal legislation and policies and by the State of California's environmental regulations (CEQA, Section 15064.5). Professional standards for assessment and mitigation of adverse impacts on paleontological resources have been established for vertebrate fossils by the SVP (1995, 1996). Design, construction, and operation of the VPP, including pipelines and ancillary facilities, will be conducted in accordance with all LORS applicable to paleontological resources. Federal and state LORS applicable to paleontological resources are summarized in Table 8.8-1 and discussed briefly below, along with SVP professional standards.

TABLE 8.16-1
Applicable LORS Regarding Paleontological Resources

LORS	Applicability	AFC Reference	Project Conformity
Antiquities Act of 1906	Not applicable	-	-
CEQA, Appendix G	Fossil remains may be encountered by earth-moving activities	Section 8.16.2 and 8.16.4	Yes
Public Resources Code, Sections 5097.5/5097.9	Would apply only if some project land acquired by state (currently no state land)	-	-

8.16.2.1 Federal Laws, Ordinances, Regulations, and Standards

Federal protection of paleontological resources would apply to the VPP if any construction or other related project impacts take place on federally-managed lands, or if certain federal entitlements were required. Federal legislative protection for paleontological resources stems from the Antiquities Act of 1906 (PL 59-209; 16 United States Code 431 et seq.; 34 Stat. 225), which calls for protection of historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest on federal land. The project does not cross such lands, and no federal entitlement is required that would involve paleontologic resources mitigation requirements. Federal requirements would apply if a Federal agency obtained ownership of project lands during the term of the project license.

8.16.2.2 State Laws, Ordinances, Regulations, and Standards

Paleontologic resources are a limited, nonrenewable, very sensitive scientific and educational resource and, in California, are afforded protection under the state environmental legislation (California Office of Historic Preservation, 1983).

CEQA (Public Resources Code: 21000 et seq.) requires public agencies and private interests to identify the environmental impacts of their proposed projects on any object or site significant to the scientific annals of California (Division I, Public Resources Code: 5020.1[b]).

Guidelines for the Implementation of CEQA, as amended March 29, 1999 (Title 14, Chapter 3, California Code of Regulations: 15000 et seq.) defines procedures, types of activities, persons, and public agencies required to comply with CEQA and includes definitions of significant impacts on a fossil site (Section 15023, Appendix G [5.c]).

Public Resources Code, Section 5097.5 (Stats. 1965, c. 1136, p. 2792) defines any unauthorized disturbance or removal of fossil site or remains on public land as a misdemeanor.

Warren-Alquist Act (Public Resources Code 25000 et seq.) requires CEC to evaluate energy facility siting in unique areas of scientific concern (Section 25527).

In response to CEQA and subsequent acts, many agencies in California, including the CEC (2000), also have developed environmental guidelines for protecting paleontologic resources in areas under their respective jurisdictions. Under its guidelines, the CEC can require a paleontologic resource inventory/impact assessment of an area to be adversely impacted by

a discretionary project deemed nonexempt under its guidelines. As part of such an assessment, the CEC can require an inventory and mapping of fossil-bearing sedimentary units and previously recorded and newly documented fossil sites by a qualified paleontologist in the area to be affected, an evaluation of the scientific importance of these resources, a determination of the adverse environmental impacts that might arise from the project and an appraisal of their significance, and formulation of measures to mitigate these impacts to an insignificant level. The CEC required that such an assessment be conducted for the nearby Malburg Generating Station (MGS) AFC because of the potential for earth moving activities associated with project construction to result in impacts to fossil remains there. The results of the *Paleontologic Resource Inventory/Impact Assessment Technical Report* prepared for the MGS project (Lander, 2001) are reviewed and incorporated as appropriate in this study (e.g., Section 8.16.3.4).

This AFC, including the mitigation measures presented herein, complies with CEC (2000) paleontologic resource guidelines. The CEC guidelines, in turn, follow SVP (1995 and 1996) standard measures for assessing the scientific importance of paleontologic resources in an area of potential environmental effect, mitigating significant adverse construction-related impacts on these resources, and with conditions for acceptance of an impact mitigation program fossil collection by a museum repository.

8.16.2.3 Local Laws, Ordinances, Regulations, and Standards

There are no Los Angeles County or City of Vernon LORS that would apply to paleontologic resources.

8.16.3 Affected Environment

8.16.3.1 Geographic Location and Physiographic Environment

The VPP project area is located on the alluvial fan that extends south and southwest from the Hollywood and Glendale Hills to the ocean, on what was once the floodplain of the Los Angeles River. The Los Angeles River lies less than a mile to the northeast and east of the project site, and was no doubt an important source of sediment to this area during the Late Quaternary.

The project site lies on the northwest-trending central block of the Los Angeles Basin, near the northwestern corner of the Peninsular Ranges province where major linear geologic structures (faults, folds) and geographic features (mountains, valleys) trend in a generally northwesterly direction. The central block of the Los Angeles Basin is bounded by the Newport-Inglewood Fault to the southwest, the Santa Monica Fault to the northwest, and by the Whittier Fault to the northeast. The Los Angeles Basin is actively subsiding, so the strata that are exposed in the hills to the north dip steeply to the south and are found at great depth in the project area (see Jahns, 1954; Yerkes and others, 1965).

8.16.3.2 Regional and Local Geologic Setting

Regional surficial geologic mapping of the project site and vicinity is provided by Jennings (1962) at a scale of 1:250,000. This mapping indicates that the entire project site is underlain by Late Quaternary (Late Pleistocene and Holocene; the last 130,000 years) alluvium, which locally consists of unconsolidated Los Angeles River floodplain and alluvial fan deposits of

silt, sand, and gravel derived from the hills and mountain ranges that form the northern border of the central Los Angeles basin (see Dibblee, 1989). A surficial geologic map of the project site is presented as Figure 8.16-1 (figures are at the end of the section).

The central Los Angeles Basin in the project site vicinity is underlain by unconsolidated to poorly consolidated alluvial fan and fluvial sediments. Near the surface (upper 100 to 200 feet) these sediments appear to be of Late Quaternary age. These materials are derived from the hills and mountain ranges bordering the northern margin of the central Los Angeles Basin, and from elsewhere in the Los Angeles River drainage basin (Dibblee, 1989; Jennings, 1962; Yerkes and others, 1965). The back dirt from excavations for the installation of a pipeline down District Boulevard in January of 2006 was observed by the Paleontological Resources Specialist for this project, and it appeared to be composed of fluvial sands of the Los Angeles River.

8.16.3.3 Stratigraphic and Paleontological Resource Inventory

A stratigraphic inventory and a paleontological resource inventory were completed to develop a baseline paleontological resource inventory of the project site and surrounding area by sedimentary unit to assess the potential paleontological productivity of each unit. Research methods included a review of published and unpublished literature and a field review of the project site and off-site linears. These tasks complied with CEC (2000) and SVP (1995) guidelines.

Geological maps and reports covering the geology of the project site and area were reviewed to determine sedimentary units present and to delineate their respective aerial distributions in the project area. Published and unpublished geological and paleontological literature was reviewed to document the number and locations of previously recorded fossil sites from sediments exposed in and near the project site and surrounding area and the types of fossil remains each sedimentary unit has produced. The results of record searches conducted at the Los Angeles County Museum of Natural History and the San Bernardino County Museum by Scott (2005), as well as Lander's (2001) report for the MGS, are incorporated herein

A field reconnaissance was conducted on September 7, 2005 and included the project site as well as offsite linears. An additional reconnaissance-level survey of the area was conducted on January 25, 2006. These field assessments were by Dr. W. Geoffrey Spaulding a qualified paleontologist and a recognized authority on the Quaternary paleoenvironments of the American west. The project area is thoroughly developed and is typified by asphalt and concrete surfaces, and buildings (largely warehouses and manufactories). Bare ground was evident along the Los Angeles Department of Water and Power's (LADWP) transmission line right-of-way (ROW), as well as in railroad ROWs adjacent to the generation facility site and just south of the sewer line alignment.

8.16.3.3.1 Paleontological Resource Assessment Criteria

The paleontological sensitivity of the project area can be assessed by identifying the paleontological potential of stratigraphic units within the project area through records search and literature review. Since the distribution of stratigraphic units can be identified through geologic mapping, parts of the project that have varying paleontologic sensitivity (high, low, or no sensitivity) for paleontological resources can be delineated and appropriate impact assessments and mitigation recommendations formulated based on these data.

A paleontologically sensitive stratigraphic unit is a sedimentary deposit that has potential to yield fossils that may be unique or scientifically important. The paleontological sensitivity of a stratigraphic unit is based on the abundance or density of fossil specimens previously recovered from that unit, the proximity of those records to the project site, and the scientific importance of the fossils that may be encountered (if sufficient data exist to make such a judgment). Paleontologic survey and reconnaissance can inform these assessments where exposures of specific sedimentary units are available for field inspection, but do not contribute substantially to assessments in cases such as the VPP where the project area is thoroughly urbanized.

An individual vertebrate fossil specimen may be considered unique or scientifically significant if it is: (1) identifiable, (2) complete, (3) well preserved, (4) age diagnostic, (5) useful in paleoenvironmental, geological, or geochronological reconstruction, (6) a type or topotypic specimen, (7) a member of a rare species, and/or (8) a skeletal element different from, or a specimen more complete than, those now available for its species. For example, identifiable vertebrate fossils, whether marine or terrestrial, are generally considered scientifically important because they are relatively rare. The value or importance of different fossil groups varies, depending on the age and depositional environment of the sedimentary unit that contains the fossils, their rarity, the extent to which they have already been identified and documented, and the ability to recover similar materials under more controlled conditions such as part of a research project. For example, marine invertebrates (radiolarians, dinoflagelates, diatoms) as well as other microfossils (pollen and spores, ostracods) may be important to specialized paleoenvironmental studies, but as isolated samples they are generally not considered a unique or significant paleontological resource. In other words, salvaging sample of sediment because they may yield a microfossil assemblage is normally not considered appropriate mitigation of project-related impacts to paleontological resources.

The following tasks were completed to establish the paleontological importance of the sedimentary units known to be present at or near the project site:

The stratigraphic inventory was completed and the stratigraphic units at and near the project site were identified

The paleontological sensitivity of each stratigraphic unit in the vicinity of the project site was assessed, based on the fossil remains previously documented within that unit.

8.16.3.4 Paleontological Resource Inventory Results

Since the 19th Century the Los Angeles Basin has been known for its rich Late Pleistocene paleontologic record, chiefly from the La Brea Tar Pits that lie approximately 8 miles west-northwest of the VPP (e.g., Stock, 1972). These remains are preserved in asphalt seeps, and no asphalt seeps are known in the vicinity of the VPP. However, their mode of preservation (anaerobically without mineral replacement) is important to note in that this is also the case for other fossil sites in the area, discussed below. The potential for fossilization per se is, therefore, not a criterion to be used for assessing paleontologic sensitivity in this area. In addition, the fact that some of these remains are younger than 10,000 years before present (B.P.), and therefore post-date the end-Pleistocene extinctions (e.g., Martin and Klein, 1984), needs to be noted. Normally, paleontological assessments focus on extinct

vertebrates older than 10,000 B.P. For the sake of this assessment, however, organic remains younger than 10,000 B.P. are also considered potentially significant paleontologic resources, provided they are not in a demonstrably cultural (archaeological) context.

8.16.3.4.1 Stratigraphic Inventory

The stratigraphic inventory includes those geological units that may occur in the region, but are unlikely to be encountered as well as those units that may be disturbed by project-related excavations.

Field reconnaissance revealed the project area to be thoroughly urbanized, and the ground surface is visible in only limited areas, adjacent to streets and in transmission line and railroad ROWs. The ground surface is uniformly well-compacted, and consists of a sandy to gravelly alluvium. No evidence of paleontologic potential was noted on the ground surface in the vicinity of the plant, or the proposed ROWs for the natural gas and electric transmission lines. There is variable evidence for the importation of gravel and fill, including railroad ballast, in certain areas such as the transmission line ROW parallel to Randolph Street, which is built at least 5 feet above grade. As noted above, fluvial sands appeared to have been exhumed during excavations along District Boulevard, and this sediment has high paleontological potential.

Granitic Basement

Granitic rocks may be present at great depth below the VPP area. These are igneous rocks with no paleontologic sensitivity, and would not be affected by the project.

Tertiary Marine Strata

The hills that lie approximately 5 miles to the north of the project area are composed primarily of Miocene-age marine sedimentary rocks of high paleontological sensitivity. As noted above, the Los Angeles Basin is actively subsiding and, as a consequence, these and other Tertiary rocks of high paleontologic potential deep steeply beneath the surface to the south towards the center of the Los Angeles Basin and the project area. These Tertiary strata are, therefore, likely to be present, but at depths greater than those that would be disturbed by project construction.

Quaternary Alluvium

Quaternary (Pleistocene and Holocene) terrestrial sediments underlie the project site and would be affected by project construction. These are subaerially deposited strata laid down as a consequence of debris flows from the hills to the north, as well as fluvial channel and overbank deposits of the Los Angeles River which, prior to its channelization, meandered across this alluvial plain. Quaternary alluvium is normally devoid of fossil remains due to its high-energy depositional regime and the subaerial nature of that deposition, which generally precludes rapid burial. However, fluvially deposited sediments of the Los Angeles River are present also and fine-grained fluvial facies may contain well preserved fossil remains. On January 25, 2006 the back dirt from excavations for the installation of a pipeline down District Boulevard was observed, and it appeared to be composed of fluvial sands of the Los Angeles River. Therefore, the undisturbed Quaternary sediments beneath the project site and off-site laterals possess high paleontologic sensitivity because of their potential to contain fluvial facies deposited by the ancestral Los Angeles River (see below).

8.16.3.4.2 Paleontologic Inventory

An inventory of the paleontologic resources associated with the Quaternary alluvial and fluvial sediments of the Los Angeles Basin is presented below and the paleontologic importance of these resources is assessed. As noted above, these are based chiefly on the results of this project specific records search (Scott, 2005), and the records summarized by Lander (2001). A separate map (Confidential Figure 8.16-2) showing the location of the paleontologic sites discussed below has been filed under a Request for Confidentiality.

The literature review, archival searches, and field survey conducted for this inventory documented only one previously recorded fossil site as occurring within three miles of the project site. Approximately one mile northwest of the VPP plant site excavations at depths of up to 37 feet yielded plant, invertebrate, and vertebrate remains associated with radiocarbon dates of less than 2,000 B.P. (Scott, 2005). In addition, a number of previously recorded fossil sites have been documented in this portion of the Los Angeles Basin in proximity to the Los Angeles River (Lander, 2001) but more than three miles from the VPP. The fossil remains from most of these sites were recovered as part of paleontological resource impact mitigation programs conducted for other major construction projects.

The well-preserved wood, seeds and leaves of land plants determined to be middle Holocene age (5,020±80 B.P.) were recovered at a stratigraphic level 5 feet above the base of younger alluvium and at a depth approximately 20 feet below grade at University of California Museum of Paleontology (UCMP) fossil site PB 98033 in the ancestral Los Angeles River channel at Union Station. Additional wood fragments occurred at shallower depths (Lander, 1997, 2001).

Lander (2001) also notes that the shells of nonmarine mollusks (freshwater snails and clams, land snails), the valves of freshwater ostracods (bivalved crustaceans), the bones and teeth of vertebrates (freshwater fishes, frogs, lizards, snakes, birds, shrews, rabbits, rodents), logs of cottonwood (*Populus* sp.), and the pollen and spores of other land plants were recovered from a stratigraphic interval in the lower 5 to 10 feet of the younger alluvium and at depths approximately 44 to 60 feet below grade at the Metro Red Line Universal City station (LACMVP fossil sites 6306, 6385, 6386; UCMP fossil site PB 98002) (Lander, 2000, 2001). The fossil remains from these sites, which lie 0.25 mile south of the current Los Angeles River channel, were associated with radiocarbon dates of 7,860±80 B.P., 8,880±60 B.P., and 10,500±70 B.P., indicating an early Holocene to latest Pleistocene age for these remains (Lander, 2000). Additional land plant remains were recovered at a depth 16 feet below grade at the Metro Red Line North Hollywood station, approximately 1.7 miles north of the Los Angeles River (Lander, 2000, 2001).

Some of the post-Pleistocene plant remains recovered from fluvial facies representing Los Angeles River sediments were directly examined by this author in 1998, and the wood included that of cedar or juniper (*Cupressaceae*), some seeds were of wild grape (*Vitis* sp.), and leaves included those of sycamore (*Platanus occidentalis*) and willow (*Salix* sp.), plants that were probably common along the ancestral Los Angeles River.

In addition to these Holocene and terminal Pleistocene remains, Lander (2001) points out that older fossils have been found at other previously recorded fossil sites, including the bones and teeth of extinct late Pleistocene (Ice Age) land mammal species assignable to the Rancholabrean North American Land Mammal Age. LACMVP fossil site 3250, near the

intersection of Vermont Avenue and the Hollywood Freeway, yielded fossilized mammoth remains at a depth only 8 feet below grade; LACMVP fossil site 1755, near the intersection of South Hill and West 12th streets, yielded fossilized horse remains at a depth 43 feet below grade; and fossilized bison remains were uncovered at a depth roughly 35 to 55 feet below grade at a fossil site just west of Union Station in the Metro Red Line tunnel (Jefferson, 1991; Lander, 2000, 2001; Miller, 1971). Presumably, the fossil remains from these sites are 10,750 to 130,000 years in age (Jefferson, 1991; Lander, 2000, 2001). Additional fossil continental vertebrate and invertebrate remains of presumed late Pleistocene or early Holocene age were encountered at depths at least 30 feet below grade at SBCM fossil sites 09.006.017 to 09.006.021 in the Alameda Corridor approximately 4 miles south of the project site (Scott, 2005).

Although preserved in a special environment of deposition (asphalt seeps) unlikely to be duplicated in the project area, the paleontologic record from Rancho La Brea, about 8 miles to the west-northwest also deserves mention. The abundance and diversity of faunal remains from this site speak to the paleontologic potential of Late Quaternary sediments in the Los Angeles Basin. Records of large carnivores (dire wolf, saber-tooth cat, the American lion), elephantids (mammoth, mastodon), ground sloths (mylodons, nothrotheria), and other large herbivores (including the extinct llama, camel, horse, and bison) speak to the diversity of the terrestrial ecosystem of the Los Angeles Basin during the Late Pleistocene (e.g., Stock 1972).

8.16.4 Environmental Analysis

The potential environmental effects from construction and operation of the VPP on paleontological resources are presented in the following subsections.

8.16.4.1 Significance Criteria

In its standard guidelines for assessment and mitigation of adverse impacts to paleontological resources, the SVP (1995) established three categories of sensitivity for rocks potentially containing paleontological resources: high, low, and undetermined. To these categories is generally added that of "no sensitivity" as it is applied to such sedimentary units as granite or basalt that, due to their igneous (molten) origin, never contain fossils.

As noted above, for the sake of this assessment organic remains younger than 10,000 B.P. that include such remains as plant macrofossils have the potential to shed new light on what is now an extinct ecosystem, that of the ancestral Los Angeles River and environs. Therefore they are also considered potentially significant paleontologic resources, provided they are not in a demonstrably cultural (archaeological) context. Also, in keeping with the significance criteria of the SVP (1995), all vertebrate fossils are categorized as being of potential significant scientific value.

Areas where fossils have been previously found are considered to have a high sensitivity and a high potential to produce fossils. In areas of high sensitivity that are likely to yield unique paleontological resources, full-time monitoring is typically recommended during any project-related disturbance of those sediments.

Strata that have not been known to produce fossils in the past, and that are unlikely to do so due to their geologic history, typically are considered to have low sensitivity. Monitoring is

not recommended during project construction, although spot checks by the project paleontologist may be recommended to confirm that excavations continue in low-sensitivity sediments.

Sediments that have not had any previous paleontological resource surveys or yielded any fossil finds, but that are generally unaltered material deposited in low-energy environments, are considered to possess undetermined sensitivity. After reconnaissance surveys, observation of exposed cuts, and possibly sub-surface testing, a qualified paleontologist can determine whether the area should be categorized as having high or low sensitivity.

Appendix G of CEQA addresses significance criteria with respect to paleontological resources (Public Resources Code Sections 21000 et seq.). Appendix G(V)(c) asks if the project will “directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.”

8.16.4.2 Project Assessment

The occurrence of fossils near the project site and within similar geologic environments as the project site suggests a potential for additional similar, scientifically important fossil remains to be encountered by earthmoving activities during project construction. The project elements are in the vicinity of the Los Angeles River where the potential of encountering fine-grained fluvial facies of high paleontologic potential is likely, *when* these activities extend to a depth sufficient to encounter undisturbed sediment. Within 4 feet of the surface there is no more than a low potential for these activities to encounter paleontologic remains, and the scientific value of these remains would likely be negligible due to the disturbed nature of the sediment.

8.16.4.2.1 Construction

This section identifies the potential adverse impacts on the paleontological resources resulting from construction phase effects of each portion of the VPP. Construction-related activities that would impact paleontologic resources include those operations that would disturb previously undisturbed sediment of high paleontologic potential; excavation activities such as trenching and grading, as well as drilling, tunneling, and boring. Construction activities that would result in no sediment disturbance, from laying foundations to construction of the superstructure, would not affect paleontologic resources. It should also be remembered that the site will be substantially disturbed by the current property owner as existing buildings and structures are removed prior to the transfer of the property to the City of Vernon.

Depth to paleontologically sensitive sediments is an important factor in this impact assessment. Because fossils relating to the ancestral Los Angeles River are scientifically significant despite their post-Pleistocene age, the depth to paleontologically sensitive sediment is relatively shallow. In the absence of additional data, this depth is assumed to be 4 feet below ground surface. This differs from the greater depth to paleontologically sensitive sediments assigned by Scott (2005), based on a determination not adopted here, that post-Pleistocene fossil remains do not represent significant paleontological resources.

Therefore, excavations within 4 feet of the current surface would affect sediment that has been previously disturbed and, therefore, is of low paleontologic sensitivity. Subsequent

refinement of the extent and depth of disturbed sediment, as a tool to more precisely constrain areas that may require mitigation monitoring, is recommended.

Power Plant Site

For the purposes of this CEQA analysis, the existing buildings and foundations will be removed and any contaminated soil remediated prior to transferring title of the site to the City of Vernon and prior to the commencement of this project. Once the property has been transferred, excavations to depths exceeding the greater of: 4 feet below ground surface, or the depth previously disturbed, would impact Quaternary alluvium which, in this area, can be expected to include fluvial facies of the Los Angeles River that have high paleontologic sensitivity. In the absence of mitigation, this would be an adverse impact to paleontologic resources.

Natural Gas Pipeline Route

The nearer the pipeline route gets to the Los Angeles River channel, the greater will be the probability of encountering fluvial sedimentary facies of high paleontologic potential. The occurrence of previously recorded vertebrate fossil sites in these deposits suggests there is a potential for uncovering additional similar fossils during earth-moving activities for installation of the natural gas pipeline. In the absence of mitigation this would be an adverse impact to paleontologic resources.

Sewer Line

The sanitary sewer line would extend east and then south to a hook-up with an existing main on Slauson Avenue. Excavations for this pipeline may affect previously undisturbed alluvium, including fluvial sedimentary facies of high paleontological potential. In the absence of mitigation this would be an adverse impact to paleontologic resources.

Transmission Line

The proposed transmission line would connect to SCE's Laguna Bell substation by one of two routes. The River Route would extend east to the LADWP transmission ROW and head north near the edge of the LADWP ROW, then east to Downey Avenue, then north to Leonis Boulevard, then east on District Boulevard to the Los Angeles River then along the river to Randolph Street where it would turn east until it reaches the Laguna Bell Substation. This route is about 4.85 miles long. The Randolph Route would extend east to Alcoa Avenue, then southward through the City of Vernon to Randolph Street. It would then follow Randolph Street to the east to the Laguna Bell Substation, for a total distance of approximately 4.3 miles.

To the extent that excavations for transmission tower footings disturb previously undisturbed Quaternary alluvium at depths exceeding 4 feet, and not previously disturbed sediment or fill, the potential exists for adverse impact in the absence of mitigation.

8.16.4.2.2 Operation

Project operation will not cause additional ground disturbance, and therefore, will not affect paleontological resources.

8.16.5 Abandonment/Closure Impacts

No paleontologic resource impact would be involved during abandonment/closure of the VPP project if there are to be no earth moving activity in previously undisturbed strata.

However, if earth moving activities were to occur during abandonment/closure, the paleontologist would implement appropriate mitigation measures, if necessary.

8.16.6 Cumulative Impacts

If paleontological resources were to be encountered during VPP-related ground disturbance, the potential cumulative effect on paleontological resources will be low, as long as the proposed mitigation measures are implemented to recover any significant paleontological resources. When properly implemented, these mitigation measures will effectively recover the scientific value of significant fossils encountered during VPP construction. Thus, the proposed VPP will not cause or contribute to significant adverse cumulative impacts to paleontological resources. Additionally, scientifically controlled recovery of paleontological resources from this and other projects contributes to a beneficial cumulative impact through the realization of increased scientific knowledge of the paleontology of the Los Angeles Basin and southern California in general.

8.16.7 Proposed Mitigation Measures

This section describes measures that the City of Vernon proposes to reduce or mitigate potential project-related adverse impacts to significant paleontological resources, should any such resources be discovered during construction. No impact to paleontological resources would occur as a consequence of operation, so no mitigation is proposed for the operational phase of the project.

- **The Paleontologic Resources Specialist (PRS)** – The project proponent will retain a qualified PRS to assist the proponent in meeting these mitigation commitments.
- **Final Determination of Paleontologic Effect** – At least 90 days prior to construction mobilization, the PRS will meet with the project engineer and identify project construction activities that will involve excavation, drilling, or boring to depths greater than 20 feet in previously undisturbed sediment. The probability of such activities occurring, and their location, will be incorporated into the PRMMP.
- **Paleontological Resources Monitoring and Mitigation Plan (PRMMP)** – The PRMMP would provide the detailed protocol for a paleontological resource mitigation program to include the preparation of monitoring and discovery plans for construction. Procedures would be provided for preconstruction coordination, discovery procedures, sampling and data recovery, reporting, and museum curation for specimens and data recovered.
- **Paleontological Monitoring** – Before construction, the project proponent will retain a qualified paleontologist to design and implement the PRMMP during project-related, earth-moving activities for deep excavation at the power plant site and for construction of the off-site laterals. Qualified paleontologic monitors will be present during excavations greater than 20 feet deep where it will disturb previously undisturbed sediment. Monitoring will not take place in areas where the ground has been previously disturbed, in areas underlain by artificial fill, or in areas where undisturbed sediment will be buried, but will not otherwise be disturbed.

- **Construction Personnel Education** – Before starting construction, personnel involved with earth-moving activities will be informed of the possibility of encountering fossils, how to recognize them, and proper notification procedures. This worker training will be developed in a formal module to be included and presented.

Implementation of these mitigation measures will reduce the severity of impacts of project earth-moving activities on paleontological resources to an insignificant level by allowing for the recovery of fossil remains and associated specimen data and corresponding geologic and geographic site data that otherwise might have been destroyed by construction and unauthorized fossil collecting.

8.16.8 Involved Agencies and Agency Contacts

Because the proposed VPP will not be located on federal land and will not receive federal funding, there are no applicable federal LORS and no federal agencies with jurisdiction to enforce LORS related to paleontological resources. Therefore, no federal agency contacts were included in the Application for Certification.

State LORS include the Warren-Alquist Act, the Public Resources Code, and CEQA. The agency with jurisdiction over these LORS is the CEC. With the exception of the CEC, there are no state or local agencies that have responsibility for administering LORS related to paleontological resources.

8.16.9 Permits Required and Permit Schedule

No state or county agency requires a paleontological collecting permit to recover fossil remains discovered by construction-related earth moving on either state or private land in the project site. The project does not cross or occupy federal land.

8.16.10 References

California Energy Commission (CEC). 2000. Rules of practice and procedure & power plant site certification regulations – Siting regulations. August. P800-00-06.

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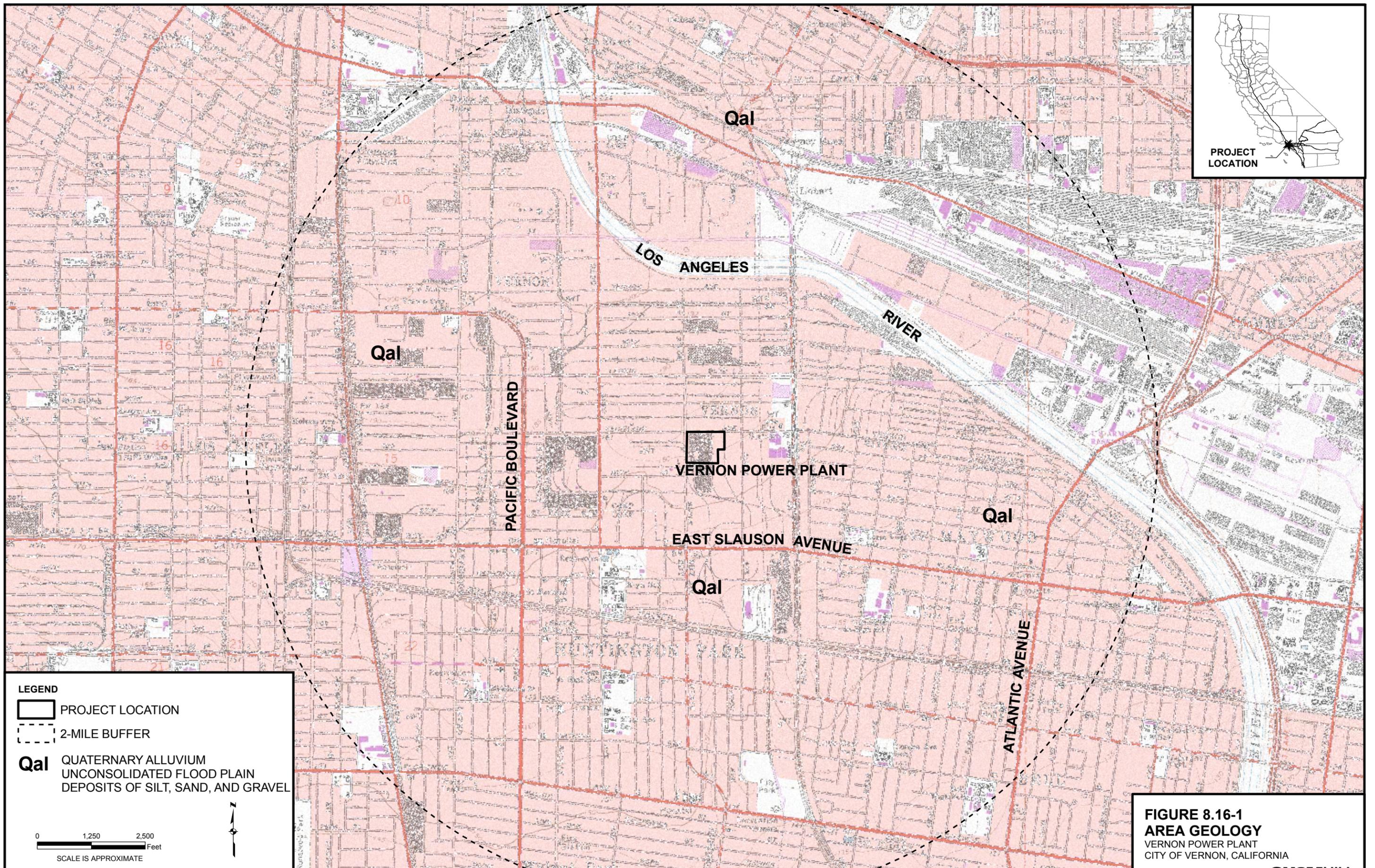


FIGURE 8.16-1
AREA GEOLOGY
 VERNON POWER PLANT
 CITY OF VERNON, CALIFORNIA