PALEONTOLOGICAL RESOURCES ASSESSMENT REPORT

MOUNTAIN VIEW IV WIND FARM PROJECT

City of Palm Springs
Riverside County, California

Submitted to:

Jon Berg
Dudek and Associates, Inc.
75-150 Sheryl Avenue, Suite C
Palm Desert, CA 92211

Submitted by:

Harry M. Quinn, Paleontologist/Geologist
Deirdre Encarnación, Report Writer
CRM TECH
4472 Orange Street
Riverside, CA 92501

Michael Hogan, Principal Investigator
Bai "Tom" Tang, Principal Investigator

October 26, 2006

CRM TECH Contract #1840P
Approximately 990 Acres and 2,300 linear feet
USGS Desert Hot Springs and Palm Springs, Calif., 7.5' (1:24,000) Quadrangle
Sections 22, 27, and 28, T3S R4E, San Bernardino Base Meridian

MANAGEMENT SUMMARY

Between March and October 2006, at the request of Dudek and Associates, Inc., CRM TECH performed a paleontological resource assessment on approximately 990 acres of vacant land and linear features in the City of Palm Springs, Riverside County, California. The subject property of the study is located in Sections 22, 27, and 28 of T3S R4E, San Bernardino Base Meridian. The study is part of the environmental review process for the proposed Mountain View IV Windfarm project. The Coachella Valley Water District (CVWD), as Lead Agency for the project, required the study in compliance with the California Environmental Quality Act (CEQA).

The purpose of the study is to provide the CVWD with the necessary information and analysis to determine whether the proposed project would potentially disrupt or adversely affect any paleontological resources, as mandated by CEQA, and to design a paleontological salvage program for the project, if necessary. In order to identify any paleontological resource localities that may exist in or near the project area and to assess the possibility for such resources to be encountered in future excavation and construction activities, CRM TECH initiated records searches at the San Bernardino County Museum and the Natural History Museum of Los Angeles County, conducted a literature search, and carried out a field survey of the project area, in accordance with the guidelines of the Society of Vertebrate Paleontology.

Based on the findings from these research procedures, the proposed project's potential impact on paleontological resources is determined to be low throughout most of the project area. However if older sedimentary rocks are encountered, then the potential becomes greater. Therefore, periodic monitoring of earth moving activities for paleontological resources is recommended if earth-moving activities exceed fifteen (15) feet in depth. Should older potentially fossiliferous alluvial sediments be encountered, then continuous monitoring for paleontological resources, along with a program to mitigate impacts to the resources that are unearthed, is recommended.

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INTRODUCTION

Between March and October 2006, at the request of Dudek and Associates, Inc., CRM TECH performed a paleontological resource assessment on approximately 990 acres of vacant land and linear features in the City of Palm Springs, Riverside County, California (Fig. 1). The subject property of the study is located in Sections 22, 27, and 28 of T3S R4E, San Bernardino Base Meridian (Fig. 1). The study is part of the environmental review process for the proposed Mountain View IV Windfarm project. The Coachella Valley Water District (CVWD), as Lead Agency for the project, required the study in compliance with the California Environmental Quality Act (CEQA; PRC §21000, et seq.).

The purpose of the study is to provide the CVWD with the necessary information and analysis to determine whether the proposed project would potentially disrupt or adversely affect any paleontological resources, as mandated by CEQA, and to design a paleontological salvage program for the project, if necessary. In order to identify any paleontological resource localities that may exist in or near the project area and to assess the possibility for such resources to be encountered in future excavation and construction activities, CRM TECH initiated records searches at the San Bernardino County Museum and the Natural History Museum of Los Angeles County, conducted a literature search, and carried out a field survey of the project area, in accordance with the guidelines of the Society of Vertebrate Paleontology. The following report is a complete account of the methods, results, and final conclusion of this study.

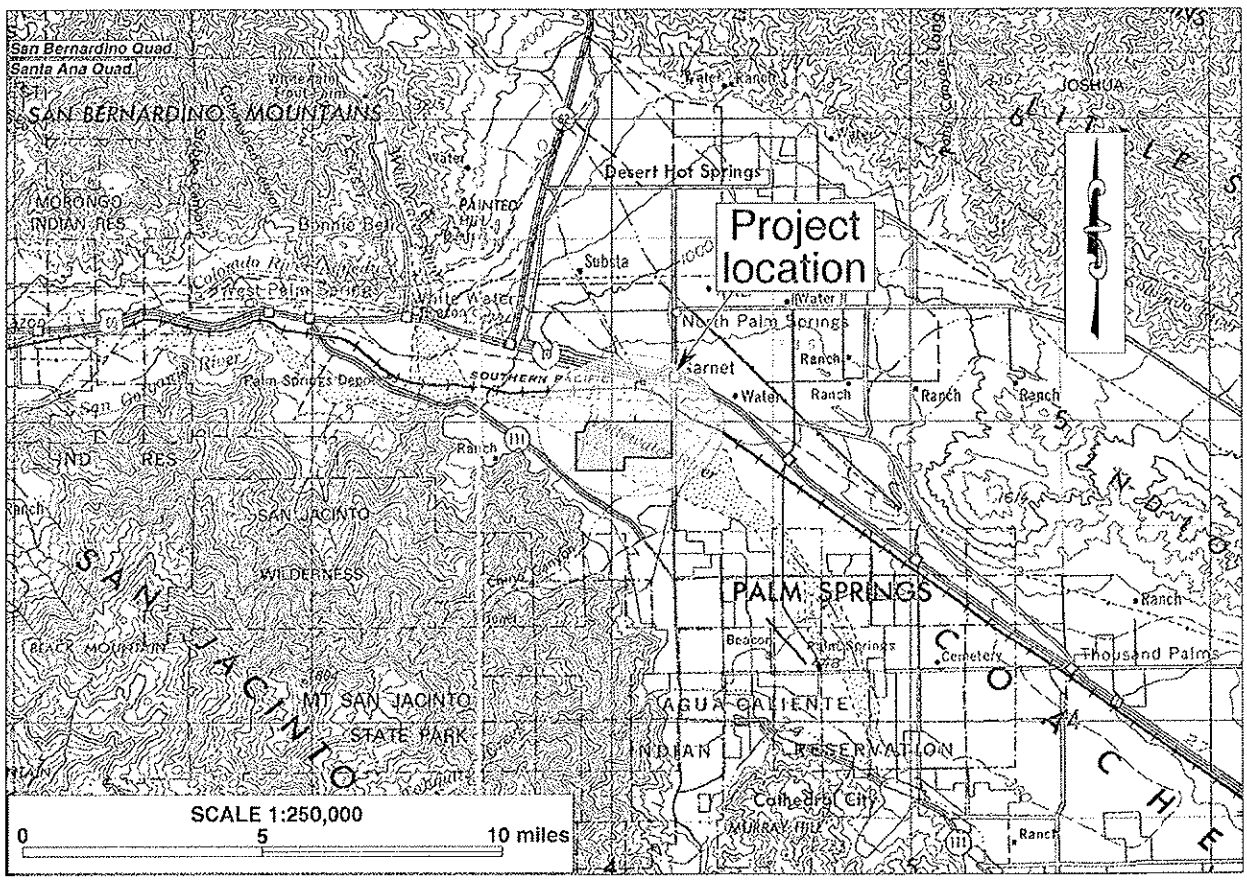

Figure 1. Project vicinity. (Based on USGS San Bernardino and Santa Ana, Calif., 1:250,000 quadrangles, USGS 1969/1979 editions)

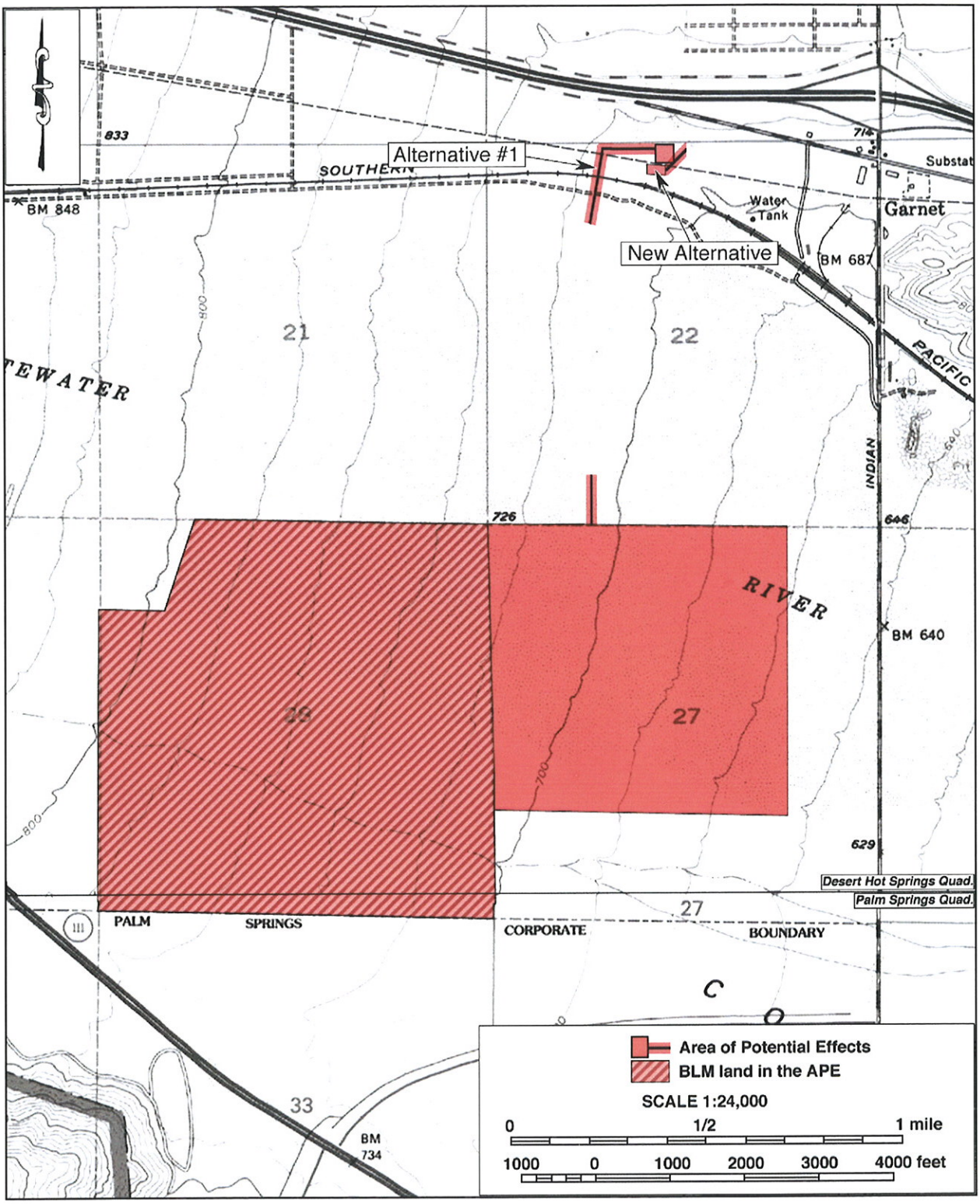

Figure 2. Project area. (Based on USGS Desert Hot Springs and Palm Springs, Calif., 1:24,000 quadrangles, USGS 1978/1996 editions)

SETTING

The project area is located in the Coachella Valley, which occupies the northwestern portion of the Colorado Desert geomorphic province (Jenkins 1980:40-41). The Colorado Desert province is bounded by the Peninsular Ranges province on the southwest, the eastern Transverse Ranges province on the north, and the southern portion of the Mojave Desert province on the northeast *(ibid.)*. The Colorado Desert province widens to the southeast as it extends through the Imperial Valley and into Mexico.

One of the major features found within the Colorado Desert province is the Salton Trough, a 290-kilometer-long (approx. 180 miles) structural depression containing the present-day Salton Sea and the Holocene-age Lake Cahuilla. It extends from the San Gorgonio Pass area southward into Mexico and, during the late Miocene and early Pliocene, constituted a northward extension of the Gulf of California (Powell 1995). Since elevations within the Colorado Desert province tend to be low while those of the adjacent provinces can be quite high, the northwestern portion of the Salton Trough was filled with more than 4,000 feet of sediments by late Pleistocene and Holocene times (Proctor 1968). These coarse, fluvial-derived clastic sediments afford only local environments for the preservation of vertebrate remains; however, some scattered vertebrate fossils have been found in them.

While the term "Salton Trough" refers to the entire structural depression from the San Gorgonio Pass to the Gulf of California, "Salton Basin" is used to describe the portion of the area that drains directly into the Salton Sea (Harms 1996:117). The Salton Sea, therefore, occupies the Salton Basin portion of the Salton Trough (*ibid.*). Holocene Lake Cahuilla occupied a much larger portion of the Salton Basin than the present-day Salton Sea (Rogers 1965). The shoreline of the last ancient lake can be seen today as a line along the base of the Santa Rosa Mountains at an elevation of approximately 42 feet above mean sea level (Waters 1983; Wilke 1978). However, there were a number of earlier in-fillings of the Salton Trough, each leaving behind lacustrine sediment deposits. When the lake was dry or drying, fluvial sediments were deposited in the same area.

The project area is located south of Interstate 10, west of Indian Canyon Drive, northeast of State Route (SR) 111, and within the Whitewater wash (Fig. 2). It lies in an area where many existing windfarms are currently in operation, including one on the adjacent property to the north. Elevations in the project area range from 645 to 805 feet above mean sea level.

There are several dirt roads that cross the entire project area , some of which are still maintained. The BLM portion of the project area contains a total of seven small buildings located along the dirt roads in that area. A row of wooden power poles runs along a dirt road, just north of the southern project boundary. The soil is made up of coarse sand and gravel, with intermittent cobbles and small to medium-size boulders. Sparse vegetation is found throughout and consists of creosote bushes, brittle bushes, foxtails, chollas, cactuses, desert flowers, and small desert grasses and shrubs.

METHODS AND PROCEDURES

RECORDS SEARCHES

The records search service was provided by the San Bernardino County Museum in Redlands and the Natural History Museum of Los Angeles County in Los Angeles. These institutions maintain files of regional paleontological localities as well as supporting maps and documents. The records search results identify any known paleontological localities within the project area or in the general vicinity.

LITERATURE REVIEW

In addition to the records searches, a literature search was conducted using materials in the CRM TECH library, including unpublished reports produced during surveys of other properties in the area, and the personal library of CRM TECH geologist/paleontologist Harry M. Quinn.

FIELD SURVEY

In June and August 2006, CRM TECH paleontological surveyors John Eddy, Thomas Melzer, Lisa Hunt, Robert Porter, Arthur Diaz de Leon, Thomas Dorsey, Steve Cote, Justin Byrans, Maralene Cortez, Kara Barrentine, Dionisios Glentis, and field director Daniel Ballester conducted an on-foot field survey of the project area under the direction of Harry M. Quinn (see App. 1 for qualifications). During the survey, the field personnel walked parallel east-west transects spaced 15 meters (approx. 50 feet) apart. Daniel Ballester conducted the survey of the northern, linear portion of the project area, walking north-south 15 meter (ca. 50 feet) transects across an area that measured 250 x 250 feet across. The power line route was surveyed by walking parallel transects along each side of the centerline of the route. In this way, the ground surface in the entire project area was systematically and carefully examined to determine the soil types, to verify the geological formations, and to look for any indications of paleontological remains. Ground visibility was excellent (90%) due to a general lack of vegetation.

RESULTS AND FINDINGS

RECORDS SEARCHES

The Natural History Museum of Los Angeles County and the San Bernardino County Museum found no known paleontological localities within or in the general vicinity of the project area (McLeod 2006; Scott 2006; see App. 2).

Based of these previous discoveries, the San Bernardino County Museum considers the project vicinity to be an area of "low paleontologic sensitivity," and declares any ground-disturbing operations in the vicinity to have a "low potential to impact significant nonrenewable paleontologic resources" (Scott 2006). The Natural History Museum also notes that older Quaternary deposits at great depths beneath the Quaternary Alluvium may contain significant fossil vertebrate fossils (McLeod 2006).

LITERATURE REVIEW

The onsite geology has been mapped by Dibblee (1954a:Plate 2) as Qa, or alluvium consisting of fanglomerate, gravel, sand, and lacustrine clays, all of Recent age. The Qa has a variable thickness and rest unconformably on rocks of the Pleistocene age Ocotillo Conglomerate (Dibblee 1954b:23). While he considers the Ocotillo Conglomerate to be Pleistocene in age, he does not show any fossils having been recovered from it (*ibid*:25). Rogers (1965) mapped the surface geology at the project area as Qal, or alluvium of Recent age, and shows the project to be within the Whitewater River flood plain.

Proctor (1968:Plate 1) mapped the surface geology at the project site as Qal and Qs. He shows the Qal to be alluvium of Recent age, with a variable thickness and resting unconfomably on the Cabazon Fanglomerate and/or the Ocotillo Conglomerate, both considered to be late Pleistocene in age, but with no fossils having been recovered from either of them (*ibid*:24-25). The contact between the Recent alluvium and the older alluvium may be hard to determine in some areas, as they are composed of similar rock material, and because of this similarity, the distinction is often based on the degree of induration (Proctor 1968:25). The Qs is defined as Superficial Sand, mainly blowsand (*ibid.*).

Dibblee (2004:DF-121 & DF-123) mapped the surface geology as Qg and some Qa. The Qg is defined as "alluvial sand and gravelly sand of stream channel washes,"and the Qa as "alluvial sand and gravel of valley areas" (*ibid.*). These alluvial sediments are considered to be Holocene in age, and most of the project is within the Whitewater River flood plain (*ibid.*).

Geologic mapping by Proctor (1968:Plate 1) shows the Garnet Fault to pass north of the project area, and the project to be on the down-thrown side of the fault. This fault system has been active since at least late middle Pleistocene time. The activity along this fault has uplifted rocks of Pliocene and Pleistocene age to the surface at Garnet Hill and deposited a thick area of Holocene age sediments to the south, as shown by cross-section F-F' (*ibid.*)

Fault trenching across the Mission Creek fault in the Desert Hot Springs area found most of the upper sediments to be less than 2,000 years in age (Reeder and Rasmussen 1986:72). However, the age determination is based on surface geomorphology and soil development and not paleontologic data (*ibid.*). Some alluvial materials found at a depth of six meters was estimated to be at least 6,000 years old and possibly as old as 9,000 years (*ibid.*). These dates were inferred from clast weathering, abundance of secondary calcium carbonate, and the presence of paleosoils and not from any contained fossils (*ibid.*). These findings indicate a rather thick sequence of post-Pleistocene age sedimentary rocks in some portions of the Desert Hot Spring region. Being on the down thrown block of the Garnet Fault, the Holocene age sediments should be thicker here than where the Mission Creek Branch of the San Andreas Fault System has been trenched.

Knecht (1980:Map Sheet 2) mapped the surface soils as CdC, ChC and CkB. The CdC, ChC, and CkB soils all belong to the Carsitas Series (*ibid.*:11-12). The CdC soils belong to the Carsitas gravelly sand, 0 to 9 % slopes, the ChC soils to the Carsitas cobbly sand, 2 to 9% slopes, and the CkB soils to the Carsitas fine sand, 0 to 5 percent slopes (*ibid.*). These soils develop on gently sloping alluvial fans and valley fill areas and commonly have an 8 to 18

inch thick fine sand surface layer that contains less than 15% coarse rock material, especially in wind prone areas (*ibid.*).

The project area is well above the last high stand elevation of Holocene Lake Cahuilla, which was about 12 meters (ca. 42 feet) above sea level (Waters 1983:373), so is not within any known fresh water invertebrate fossil localities. Proctor (1968:22) shows a maximum elevation for any high stand of Lake Cahuilla to be ca. 58 feet above sea level, but even this is not high enough to affect the project area. There are some outcrops of the Early Pliocene age marine Imperial Formation a mile to the northeast of the project, but earth-moving activities should not go deep enough to encounter them (*ibid.*:Plate 1).

FIELD SURVEY

The field survey produced completely negative results. The project area was closely inspected for any evidence of paleontological remains, but none was found. The surveyors observed that soils in the project area consist of coarse sand and gravel, with intermittent cobbles and small to medium-size boulders. No fossil vertebrate or invertebrate remains were encountered during the field survey.

DISCUSSION

The results of the research procedures indicate that the project area contains surface soils that are Holocene in age. Since the project area is within the Whitewater River flood plain, it should contain a thick sequence of Holocene-age alluvium. However, Pleistocene-age sediments may be present at depth below the surface.

RECOMMENDATIONS

Based on the study results presented above, the proposed project's potential impact on paleontological resources appears to be low throughout the project area, with a high potential in areas of deep excavations. Therefore, once the depth of 15 feet is reached, or if potentially fossiliferous older Pleistocene alluvium is impacted sooner, then periodic monitoring of earth-moving activities for paleontological resources is recommended. In addition, a program to mitigate impacts to the resources that might be exposed during such activities should be implemented. The program should be developed in accordance with the provisions of CEQA as well as with regulations currently implemented by the County of Riverside and the proposed guidelines of the society of Vertebrate Paleontology, and should include but not be limited to the following, as outlined by Scott (2006):

- The excavation of areas identified as likely to contain paleontologic resources should be monitored by a qualified paleontological monitor. Monitoring should be restricted to any undisturbed subsurface older alluvium which might be present below the surface. The monitor should be prepared to quickly salvage fossils as they are unearthed to avoid construction delays. The monitor should also remove samples of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates. The monitor must have the power to temporarily halt or divert grading equipment to allow for removal of abundant or large specimens.

- Collected samples of sediments should be washed to recover small invertebrate and vertebrate fossils. Recovered specimens should be prepared so that they can be identified and permanently preserved.
- Specimens should be identified, curated, and placed into a repository with permanent retrievable storage.
- A report of findings, including an itemized inventory of recovered specimens, should be prepared upon completion of the steps outlined above. The report should include a discussion of the significance of all recovered specimens. The report and inventory, when submitted to the appropriate Lead Agency, would signify completion of the program to mitigate impacts to paleontologic resources.

CONCLUSION

CEQA Appendix G provides that "a project may be deemed to have a significant effect on the environment if it will ... disrupt or adversely affect a ... paleontological site except as a part of a scientific study." The present study, conducted in compliance with this provision, is designed to identify any significant, non-renewable paleontological resources that may exist within or adjacent to the project area, and to assess the possibility for such resources to be encountered in future excavation and construction activities.

Based on the results of the study, the proposed project's potential impact on paleontological resources is determined to be low throughout most of the project area. However if older sedimentary rocks are encountered, then the potential becomes greater. Therefore, periodic monitoring of earth moving activities for paleontological resources is recommended if earth-moving activities exceed fifteen (15) feet in depth. Should older potentially fossiliferous alluvial sediments be encountered, then continuous monitoring for paleontological resources, along with a program to mitigate impacts to the resources that are unearthed, is recommended.

REFERENCES

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2004a Geologic Map of the Desert Hot Springs Quadrangle, Riverside County, California. Dibblee Geology Center Map # DF-121, Santa Barbara, California.

2004b Geologic Map of the Palm Springs Quadrangle, Riverside County, California. Dibblee Geology Center Map # DF-123, Santa Barbara, California.

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1986 Character and Holocene Activity of the Mission Creek Fault in the Vicinity of Desert Hot Springs, Riverside County, California. In Marilyn A. Kooser and Robert E. Reynolds (eds.): *Geology around the Margins of the Eastern San Bernardino Mountains;* pp. 71-73. Publications of the Inland Geological Society, Volume I. Redlands, California.

Rogers, Thomas H.

1965 Geological Map of California, Santa Ana Sheet (1:250,000). California Division of Mines and Geology, Sacramento.

Scott, Eric

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Waters, Michael R.

1983 Late Holocene Lacustrine Chronology and Archaeology of Ancient Lake Cahuilla. *Quaternary Research* 19:373-387.

APPENDIX 1

PERSONNEL QUALIFICATIONS

PROJECT GEOLOGIST/PALEONTOLOGIST
Harry M. Quinn, M.S.

Education

1968 M.S., Geology, University of Southern California, Los Angeles, California.
1964 B. S, Geology, Long Beach State College, Long Beach.
1962 A.A., Los Angeles Harbor College, Wilmington North Palm Springs, California.

- Graduate work oriented toward invertebrate paleontology; M.S. thesis completed as a stratigraphic paleontology project on the Precambrian and Lower Cambrian rocks of Eastern California.

Professional Experience

2000-Present Project/Field Paleontologist, CRM TECH, Riverside, California.
l998-Present Project/Field Archaeologist, CRM TECH, Riverside, California.
1992-1998 Independent Geological/Geoarchaeological/Environmental Consultant, Pinyon Pines, California.
1994-1996 Environmental Geologist, E.C E.S., Inc, Redlands, California.
1988-1992 Project Geologist/Director of Environmental Services, STE, San Bernardino, California.
1987-1988 Senior Geologist, Jirsa Environmental Services, Norco, California.
1986 Consulting Petroleum Geologist, LOCO Exploration, Inc. Aurora, Colorado.
1978-1986 Senior Exploration Geologist, Tenneco Oil E & P, Englewood, Colorado.
1965-1978 Exploration and Development Geologist, Texaco, Inc., Los Angeles, California.

Previous Work Experience in Paleontology

1969-73 Attended Texaco company-wide seminars designed to acquaint all paleontological laboratories with the capability of one another and the procedures of mutual assistance in solving correlation and paleo-environmental reconstruction problems.
1967-1968 Attended Texaco seminars on Carboniferous coral zonation techniques and Carboniferous smaller foraminifera zonation techniques for Alaska and Nevada.
1966-1972, 1974, 1975 Conducted stratigraphic section measuring and field paleontological identification in Alaska for stratigraphic controls. Pursued more detailed fossil identification in the paleontological laboratory to establish closer stratigraphic controls, mainly with Paleozoic and Mesozoic rocks and some Tertiary rocks, including both megafossil and microfossil identification, as well as fossil plant identification.
1965Conducted stratigraphic section measuring and field paleontological identification in Nevada for stratigraphic controls. Pursued more detailed fossil identification in the paleontological laboratory to establish closer stratigraphic controls, mainly with Paleozoic rocks and some Mesozoic and Tertiary rocks. The Tertiary work included identification of ostracods from the Humboldt and Sheep Pass Formations and vertebrate and plant remains from Miocene alluvial sediments.

Memberships

Society of Vertebrate Paleontology; American Association of Petroleum Geologists; Canadian Society of Petroleum Geologists; Rocky Mountain Association of Geologists, Pacific Section; Society of Economic Paleontologists and Mineralogists; San Bernardino County Museum.

Publications in Geology

Five publications in Geology concerning an oil field study, a ground water and earthquake study, a report on the geology of the Santa Rosa Mountain area, and papers on vertebrate and invertebrate Holocene Lake Cahuilla faunas.

REPORT WRITER
Deirdre Encarnación, M.A.

Education

2003	M.A., Anthropology, San Diego State University, California.
2000	B.A., Anthropology, minor in Biology, with honors; San Diego State University, California.
1993	A.A., Communications, Nassau Community College, Garden City, N.Y.
2001	Archaeological Field School, San Diego State University.
2000	Archaeological Field School, San Diego State University.

Professional Experience

2004-	Project Archaeologist/Report Writer, CRM TECH, Riverside, California.
2001-2003	Part-time Lecturer, San Diego State University, California.
2001	Research Assistant, Dr. Lynn Gamble, San Diego State University.
2001	Archaeological Collection Catalog, SDSU Foundation.

APPENDIX 2

RECORDS SEARCHES RESULTS

Natural History Museum of Los Angeles County
900 Exposition Boulevard • Los Angeles, CA 90007

Vertebrate Paleontology Section
Telephone: (213) 763-3325
FAX: (213) 746-7431
e-mail: smcleod@nhm.org

4 July 2006

CRM Tech
4472 Orange Street
Riverside, CA 92501

Attn: Laura Hensley Shaker

re: Paleontological resources for the Mountain View IV Windfarm Project, CRM Tech # 1840, near the City of Whitewater, Riverside County, Paleo, project area

Dear Laura:

I have conducted a thorough search of our paleontology collection records for the locality and specimen data for the Mountain View IV Windfarm Project, CRM Tech # 1840, near the City of Whitewater, Riverside County, Paleo, project area as outlined on the section of the Desert Hot Springs USGS topographic quadrangle map that you faxed to me on 3 July 2006. We do not have any vertebrate fossil localities that lie directly within the proposed project boundaries, but we do have a locality somewhat nearby that occurs in sedimentary deposits similar to those that may occur subsurface in the proposed project area.

Surface deposits in the entire proposed project area consist either of younger Quaternary gravels from the Whitewater River wash that runs through the proposed project area or of soil and younger Quaternary Alluvium immediately surrounding the wash derived as fan deposits primarily from the mountains immediately to the west and northwest. We have no fossil vertebrate localities nearby from these types of deposits and they are unlikely to contain significant vertebrate fossils, at least in the uppermost layers. On Garnet Hill, immediately northeast of the proposed project area south of the Interstate 10 Freeway, however, there are exposures of older Quaternary deposits that may also occur subsurface in the proposed project area. Our closest fossil vertebrate locality in these same older Quaternary deposits is LACM 1269, east-southeast of the proposed project area north of Flat Top Mountain on the southern side of Seven Palms Valley, that contained specimens of fossil horse, *Equus*. Intriguingly, there are also some exposures of the marine Pliocene Imperial Formation on Garnet Hill, a rock unit formed from the northward extension of the Gulf of California otherwise known only in the Imperial Valley. The Imperial Formation deposits may also occur subsurface in the proposed project area. Presumably, these deposits of the Imperial Formation have been carried north

on the Pacific Plate - the South Branch of the San Andreas Fault occurs just outside the northeast boundary of the proposed project area. We have a couple of vertebrate fossil localities from the Imperial Formation that, of course, occur very far to the south of the proposed project area.

Shallow excavations in the soil and younger Quaternary Alluvium in the proposed project area are unlikely to uncover significant vertebrate fossils. Deeper excavations that extend into older Quaternary deposits or potential deposits of the marine Pliocene Imperial Formation, however, may well encounter significant fossil vertebrate remains. Any substantial and deep excavations in the proposed project area, therefore, should be closely monitored to professionally and expeditiously collect any vertebrate fossil remains uncovered without impeding development. Any fossils recovered during mitigation should be deposited in an accredited and permanent scientific institution for the benefit of current and future generations. Additional fossil locality information for the area may be available through the University of California at Riverside Department of Geology (collections and records now at the University of California at Berkeley Museum of Paleontology).

This records search covers only the vertebrate paleontology records of the Natural History Museum of Los Angeles County. It is not intended to be a thorough paleontological survey of the proposed project area covering other institutional records, a literature survey, or any potential on-site survey.

Sincerely,

Samuel A. McLeod

Samuel A. McLeod, Ph.D.
Vertebrate Paleontology

enclosure: invoice

SAN BERNARDINO COUNTY MUSEUM
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COUNTY OF SAN BERNARDINO
PUBLIC AND SUPPORT
SERVICES GROUP

ROBERT L. McKERNAN
Director

21 July 2006

CRM Tech
attn: Laura Shaker
4472 Orange Street
Riverside, CA 92501

re: **PALEONTOLOGY LITERATURE AND RECORDS REVIEW, MOUNTAIN VIEW IV WINDFARM PROJECT, WHITEWATER REGION, RIVERSIDE COUNTY, CALIFORNIA**

Dear Laura,

The Division of Geological Sciences of the San Bernardino County Museum (SBCM) has completed a literature review and records search for the above-named project in the Whitewater region of Riverside County, California. The proposed Mountain View IV Windfarm Project property is located in portions of sections 27 and 28, Township 3 South, Range 4 East, San Bernardino Base and Meridian, as shown on the Desert Hot Springs, California and the Palm Springs, California 7.5' United States Geological Survey topographic quadrangle maps (1955 and 1957 editions).

Previous geologic mapping (Rogers, 1965) indicates that the proposed project property is situated upon surface exposures of Recent alluvium laid down by the Whitewater River. This lithologic unit has low potential to contain significant nonrenewable paleontologic resources. However, this Recent alluvium may overlie sediments of older Pleistocene age present in the subsurface at an undetermined depth. Elsewhere in the Inland Empire, older Pleistocene sediments of similar geologic age have been demonstrated in many instances to have high potential to contain significant fossil resources. Such sediments, often found at depths of ~10' or more below the existing ground surface, have yielded the fossil remains of plants (Reynolds and Reynolds, 1991; Anderson and others, 2002) and extinct terrestrial Pleistocene vertebrates (Jefferson, 1991; Reynolds, 1991; Woodburne, 1991; Springer and Scott, 1994; Scott, 1997; Springer and others, 1998, 1999).

Rogers (1965) described surficial older Pleistocene exposures to the north of the study area as consisting of the Cabazon Fanglomerate and deformed gravels of Whitewater River. These rock units have been extensively folded, faulted and dissected, and so are unlikely to contain fossil resources in any abundance. The Cabazon Fanglomerate is a poorly sorted sandstone containing boulders of gneiss and granite derived from the San Bernardino Mountains and transported by the Whitewater River. If the subsurface older Pleistocene sediments here presumed to be present at depth conform with this lithology, it is unlikely that they will contain fossil resources.

For this review, I conducted a search of the Regional Paleontologic Locality Inventory (RPLI) at the SBCM. The results of this search indicate that no previously-known paleontologic resource localities are recorded by the SBCM from the study area, nor from within several miles in any direction.

Recommendations

The results of the literature review and the search of the RPLI at the SBCM demonstrate that the excavation in surficial Recent alluvium for the proposed Mountain View Windfarm IV Project has low potential to adversely impact significant nonrenewable paleontologic resources. Subsurface Pleistocene alluvium is also here considered to be unlikely to yield significant paleontologic resources in a reliable stratigraphic context, and so this unit is also assigned low paleontologic sensitivity. *No paleontologic resource mitigation program is recommended for excavation in surficial Recent alluvium, in the gravels of Whitewater River, or in the Cabazon Fanglomerate at this time.*

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Please do not hesitate to contact us with any further questions you may have.

Sincerely,

Eric Scott, Curator of Paleontology
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