Calico Solar

DOCKET
08-AFC-13C
DATE May 31 2011
RECD. June 02 2011

May 31, 2011

Craig Hoffman
Compliance Project Manager
California Energy Commission
1516 Ninth Street, MS-2000
Sacramento, CA 95814

Subject: Calico Solar 08-AFC-13C
Applicant's Updated Report of Waste Discharge

Dear Mr. Hoffman:

Calico Solar hereby submits the Applicant's Updated Report of Waste Discharge. I certify under penalty of perjury that the foregoing is true, correct, and complete to the best of my knowledge.

Sincerely,

Daniel J. O'Shea
On behalf of Calico Solar, LLC

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REPORT OF WASTE DISCHARGE

CALICO SOLAR PROJECT - SAN BERNARDINO COUNTY, CALIFORNIA

PREPARED FOR:

CALICO SOLAR, LLC

URS PROJECT NO. 27651022.50001

MAY 31, 2011

R E P O R T

REPORT OF WASTE DISCHARGE - LINED WASTEWATER EVAPORATION PONDS – CALICO SOLAR PROJECT

Prepared for

Calico Solar, LLC

Matthew C. Moore, PE, CPESC, CPSWQ
Project Engineer

May 31,2011

URS

4225 Executive Square, Suite 1600
La Jolla, CA 92037
858.812.9292 Fax: 858.812.9293

URS

May 31, 2011

Mr. Richard W. Booth, PG, CHg
Water Quality Control Board Lahontan River Basin Region
2501 Lake Tahoe Blvd.
South Lake Tahoe, CA 96150

Subject: Report of Water Discharge – Lined Wastewater Evaporation Ponds
Calico Solar Project
San Bernardino County, California
URS Project No. 27651022.50001

Dear Mr. Booth:

URS Corporation Americas (URS) prepared the enclosed Report of Waste Discharge (ROWD) on behalf of Calico Solar, LLC. This report was amended from the report that was sent on June 30, 2010. The project has changed ownership as well as design. The major difference in the project is that there are now photovoltaic cells as well as SunCatchers and the location of the main services complex including the evaporation ponds have moved south of the railroad. Appendices to the report will include application Form 200 as well as information regarding Waters of the State. The project team is still assembling the data required to complete Appendix B that is anticipated to be submitted separately by June 10, 2011. The Form 200 is attached as Appendix A. We look forward to receiving comments from you at your earliest convenience and working with you in obtaining comments on this Report of Waste Discharge submittal for the project. Please do not hesitate to contact us if you have any questions or comments, or need any additional information.

Sincerely,

URS CORPORATION

Matthew C. Moore

Matthew C. Moore, PE, CPESC, CPSWQ
Project Engineer

MCM:ml

URS Corporation
4225 Executive Sq, Suite 1600
La Jolla, CA 92037
Tel: 858.812.9292
Fax: 619.293.7920

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AFC	Application for Certification
APN	Assessor Parcel Number
BFE	Base Flood Elevations
BGS	Below ground surface
BLM	Bureau of Land Management
BNSF	BNSF Railway Company
CAISO	California Independent System Operator
CCR	California Code of Regulations
CDCA	California Desert Conservation Plan
CEC	California Energy Commission
cfs	cubic feet per second
DWR	California Department of Water Resources
EC	electrical conductivity
FEMA	Federal Emergency Management Agency
HDPE	High Density Polyethylene
LCRS	Leachate Collection and Removal System
msl	mean sea level
MW	Mega Watts
PCC	Portland Cement Concrete
PCU	Power Conversion Unit
Project	Calico Solar
PVC	Polyvinyl chloride
RO	Reverse Osmosis
ROW	Right-of-Way
ROWD	Report of Waste Discharge
RWQCB	Regional Water Quality Control Board
SWPPP	Stormwater Pollution Prevention Plan
TDS	total dissolved solids
USCS	Unified Soil classification System
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
WDR	Waste Discharge Requirements

SECTION 1 PROJECT OVERVIEW

1.1 INTRODUCTION

URS Corporation Americas (URS) prepared this Report of Waste Discharge (ROWD) for the Calico Solar Project (Project). Calico Solar, LLC plans to construct and operate a solar electricity generating plant (Project) in the Mojave Desert of San Bernardino County. This report provides the Report of Waste Discharge information for the project related to discharge to proposed lined evaporation ponds for the disposal of brine waste from Reverse Osmosis (RO) water quality treatment of groundwater extraction for operational project use over the life of the project. Additionally, Appendix B contains an updated Application for Waste Discharge Requirements for Projects Involving Discharge of Dredge and/or Fill Material to Waters of the State.

A ROWD dated June 30, 2011 was previously submitted to the California Energy Commission (CEC) and the Lahontan Regional Water Quality Control Board (RWQCB). The current ROWD amends the June 30, 2010 to reflect changes in project design and ownership. The major difference in the project is use of photovoltaic cells in addition to SunCatchers and relocation of the main services complex (including the evaporation ponds) south of the railroad. Appended to the report are the completed application and Form 200 as well as information regarding Waters of the State.

1.2 PROJECT DESCRIPTION

On December 1, 2010, the California Energy Commission (Commission) issued a decision (Commission Decision) approving and licensing the Approved Project to be owned and operated by Calico Solar, LLC (Calico Solar). As approved in the Commission Decision on the Application for Certification (AFC), the Project site is located on 4,613 acres of land in San Bernardino County, California, which are primarily administered by the Bureau of Land Management (BLM). The BLM issued a right-of-way (ROW) grant for the Approved Project on October 21, 2010.

The revision to the project proposes to amend the Approved Project by: (1) utilizing additional technology to generate power at the facility, (2) modifying the phasing outlined in the Approved Project; and (3) relocating the Main Service Complex, substation and related facilities south of the BNSF railroad. The Approved Project, as modified (Modified Project), would generate 100.5 MW of power using the SunCatcher technology. Additional power, up to 563 MW, would be produced using single-axis tracker photovoltaic (PV) technology. Both the SunCatchers and the PV technology would be fully integrated components of the power plant, operate from the single control room, utilize the same transmission interconnection system, access the common water system and road network, and depend on the same construction and operation personnel.

The Modified Project would be the same size and would have the same footprint and boundaries as the Approved Project. The Amendment proposes to alter the phasing of the Approved Project. Phase 1 of the Modified Project would be located primarily south of the railroad and would include the main access road, the relocated main services complex, the on-site substation, and a portion of the PV modules. The well and a portion of the waterline would be constructed north of the railroad in Phase 1. Phase 2 of the Modified Project would be located north of the railroad and would include the remainder of the PV

modules and the SunCatchers, as well as the hydrogen infrastructure. The SunCatchers would be located toward the center of Phase 2.

Phase 1 of the Modified Project, which is primarily located south of the railroad and comprises approximately 2,144 acres, would include the following elements:

- main access road;
- relocated main services complex (including temporary lay down area);
- relocated on-site substation and shortened transmission line to the Pisgah Substation;
- water well located north of the railroad, and waterline to the main services complex (same source and well location, with a longer waterline crossing under the railroad); and
- solar field comprised of single-axis tracking PV modules producing up to 275 MW.

Phase 2 of the Modified Project, which is located north of the railroad and comprises 2,469 acres would include the following elements:

- bridge constructed over the railroad;
- continuation of the main access road north of railroad;
- solar field, comprised of up to 288 MW of single-axis tracking PV modules and 100.5 MW of SunCatchers, to be located toward the center of Phase 2; and
- hydrogen generation, storage, and distribution system for SunCatchers.

The operational water needs (inclusive of mirror cleaning, dust control, and potable water usage) once the plant is constructed will be approximately 19.7 afy.

Well water will be processed through the onsite water treatment plant to produce de-mineralized water and fed to the electrolyzer mounted on the hydrogen generator skid. The electrolyzer would eliminate any final impurities in the water prior to processing. The majority of the de-mineralized water will be used for PV and SunCatcher module cleaning. The hydrogen generation portion of the treatment process is less than 1-percent of the total quantity of the process water. Wastewater generated by the water treatment plant will be discharged to a lined concrete evaporation pond that meets the requirements of the local Lahontan Regional Water Quality Control Board requirements. Each pond would be sized to contain 1 year of discharge flow. After the brine has gone through the evaporation process, the solids that settle at the bottom of the evaporation pond will be tested by the Applicant and disposed of in an appropriate waste disposal facility. Internal recycling of various water streams will be used to the extent possible.

Sanitary wastewater generated at the facility cannot be conveyed to an existing sewage facility or pipeline as there are no public or private facilities that manage sanitary wastewater flows for locations in the vicinity of the project site. The sanitary wastewater generated at the main services complex will be discharged into a sub-surface wastewater disposal system with septic tanks and leach fields, and will be designed in accordance with the applicable Laws, Ordinances, Regulations and Standards, including San

Bernardino County, California State Water Resources Control Board, and the Department of Health Services.

Since January 2010, a well (Well #3) has been installed and tested on private land previously identified as Not A Part (N.A.P.) of the Project, adjacent to the Project site (Figure 2). This will be the main production supply well for Project water use. Water from the well would be transported from the well to the main services complex via an underground waterline approximately six inches in diameter, buried approximately thirty inches below the surface. The Project proposes to construct on-site lined wastewater evaporation ponds to receive brine from the RO wastewater stream.

The purpose of this ROWD is to provide the information needed by the Regional Water Quality Control Board, Lahontan Region (RWQCB) to prepare Waste Discharge Requirements (WDRs) for the evaporation ponds. A completed application for Report of Waste Discharge (Form 200) is provided in Appendix A.

This ROWD pertains only to the Project's wastewater that will be discharged to the lined evaporation pond. Storm water management during construction and operation of the Project is not addressed by this ROWD, nor is management of other waste streams that will be generated by the Project (septic systems).

A construction phase Stormwater Pollution Prevention Plan (SWPPP) and industrial operations phase SWPPP will be prepared for the Project as outlined in conditions of certification from the CEC/BLM and will be in compliance with current State Water Resources Control Board requirements.

1.3 REPORT ORGANIZATION

The remainder of this ROWD is organized as follows:

- Background environmental setting information is provided in Section 2.
- A description of the proposed waste discharge is provided in Section 3.
- The RO wastewater pond design and construction are described in Section 4.
- Operation of the RO wastewater ponds is discussed in Section 5.
- The proposed monitoring plan is provided in Section 6.
- Figures and appendices follow after Section 6.

1.4 LIMITATIONS

URS prepared this document for the sole use of the Applicant. URS relied on information provided by Client, Client's consultants, and published sources in preparing this document. URS prepared this document in a manner consistent with the level of care and skill ordinarily exercised by professional consultants in the geographic area of the project site. URS provides no other warranties, either express or implied, concerning the contents of this document.

SECTION 2 GENERAL SITE INFORMATION

Background environmental setting information for the site is provided below.

2.1 HYDROLOGIC SETTING

The project site is in the southwest portion of the Mojave Desert, which is characterized by broad alluvial fans and fluvial terraces, playas, and scattered mountains. There are no perennial streams within the project site or in the area. The nearest major ephemeral stream is the Mojave River which is approximately 15-miles northwest of the site and is separated from the site by a watershed divide. The project site is situated within the Troy Valley hydrologic subarea, as defined by the Lahontan Regional Water Quality Control Basin North-South Plan. An analysis has been done on the project in regards to the impacts to the Waters of the State. See Appendix B, Impacts to Waters of the State.

According to the NOAA Atlas 14 internet-based Precipitation Frequency Data Server, the 100-year 24-hour storm event will generate approximately 3.5 inches of rain. Potential for flooding at the site is limited to infrequent high volume (flash flood) events that may occur due to heavy rainfall in the adjacent Cady Mountains. Flash flooding, if it occurs, will primarily affect the established, entrenched drainages that cross the site from approximately northeast to southwest, and it is considered unlikely that significant overbank flow would occur. When water does flow on-site, it is usually the result of precipitation occurring during 5- to 10-year storm events. These flows are ephemeral and occur only during periods of brief intense rainfall.

The climate in the site vicinity is semi-arid, with long, hot, dry summers and mild, intermittently wet winters. The average annual precipitation at the Daggett FAA Airport weather station, located approximately 17.4-miles northwest of the site, is 3.83-inches, based on the 62 years of data (source: www.worldclimate.com). The site hydrology was modeled using an estimated rainfall depth of 3.54-inches over a 24-hr period. The 100-year discharge ranged from 733 cubic feet per second (cfs) to 6,693 cfs at various locations throughout the site. The project site average precipitation is provided below:

Table 2.4-1 Average Precipitation (Inches) - Daggett FAA Airport

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.58	0.48	0.43	0.22	0.07	0.07	0.38	0.36	0.32	0.17	0.30	0.44

According to the Western Regional Climate Center, administered by the National Oceanic and Atmospheric Administration, the average annual pan evaporation at a station identified as "Mojave Station", presumably located approximately 94-miles northeast of the site, is 112-inches, based on the 62 years of data. The monthly average pan evaporation at Mojave Station is provided below:

Table 2.4-2 Average Pan Evaporation (Inches) - Mojave, California

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.00	4.65	6.45	9.97	13.59	15.33	17.21	16.00	11.83	8.28	4.76	3.52

2.2 GEOLOGIC AND HYDROGEOLOGIC SETTING

URS completed a report entitled, "Well Installation, Sampling, and Aquifer Testing – Calico Solar Project, San Bernardino County, California," dated May 14, 2010. The background geologic and hydrogeologic setting data are taken from that report as well as the analytical water quality testing results from Well #3 (proposed Project supply well). This report also includes boring and well completion logs, geophysical logs, the well development log for Well #3, figures of the site geology, and figures of the regional groundwater basins and wells. Figures 3 and 4 provide the geologic setting and regional groundwater basins.

2.2.1 Geologic Setting

The site is located in the western Mojave Desert on the southwestern flank of an alluvial fan emanating from the Cady Mountains, which form the northern and eastern boundary of a topographic basin. The southern portion of the site is located near the floor of the basin; south of the site, the ground surface slopes up gradually toward Pisgah Crater. The site area is bound on the west by low volcanic mountains and Troy Dry Lake. Elevations across the site range from approximately 2,800 feet above mean sea level (msl) near the apex of the alluvial fans near the northeastern corner of the site to approximately 1,820 feet msl within the wash near the southwestern corner of the site.

The site is mapped as primarily underlain by Holocene- and Pleistocene-age alluvial and fan deposits. The alluvial deposits shed from the adjacent ranges are composed of silty sand and gravel with localized gravel and cobble channels. The percentage and size of cobbles, and possibly boulders, are likely to increase toward the fan apexes in proximity to the Cady Mountains. Within the southeast portion of the site, the sandy alluvial deposits may be interlayered with basalt flows from Pisgah Crater. Clayey lake deposits associated with Troy Lake also extend onto the southwest corner of the site from the west. Preliminary on-site geologic mapping indicates that these lake deposits (Qlc) extend significantly into the southwest portion of the site. A U.S. Geological Survey (USGS) report describes three cores drilled to a depth of approximately 1,600 feet in Tertiary lacustrine deposits that consist of mudstone, tuffs and evaporite deposits that include borate salts in the vicinity of Hector. The mountains to the north, west and east of the site are primarily volcanic in origin; some volcanic rock outcrops are present in the northeastern portion of the site. These volcanic rocks lie non-conformably on older granitic rocks that form the core of the Cady Mountains. These volcanics and granitics served as the source of the Tertiary-age fanglomerates that are present in the subsurface.

The Pisgah Fault has been mapped on the eastern flank of the mountains west of the site; groundwater implications of this fault are discussed in the following section. Traces of the Lavic Lake Faults are present within the site boundary. These faults likely extend into the Cady Mountains to the north; however, they have not been mapped in detail north of I-40.

2.2.1.1 Soils

The project has two primary soil associations where construction would be conducted; the Carrizo-Rositas-Gunsight and the Nickel-Arizo-Bitter associations. The Carrizo-Rositas-Gunsight soil association occupies the majority of the site, while the Nickel-Arizo-Bitter association is present over much of the southern portion of the site, south of the BNSF rail lines. The Rock Outcrop- Lithic Torriorthents-Calvista association is present in the mountains along the northern site perimeter and the Rock Outcrop-Upspring-Sparkhule association is present on the southwest corner of the Project Site, as well as north and northwest of the site. Carrizo soils are formed in alluvium present primarily on flood plains, alluvial fans, fan piedmonts, and bolson floors, with slopes up to 15%. The soil erodibility factor is 0.15, which indicates a low potential for erodibility. Nickel soils are associated with alluvium derived from mixed rock sources and are present on fan remnants with slopes up to 35%. The soils are very gravelly loam, with gravel content ranging from 25% to 75%, generally increasing with depth and typically less than 15% clay. The soils are very deep, well drained with very low to medium runoff and moderate permeability. Nickel soils are commonly associated with Arizo and Bitter soils. The soil erodibility factor is 0.10, which indicates a low potential for erodibility.

Table 2.4-3 Summary of Soil Characteristics

Soil Type	Texture	Depth of Surface Layer (inches)[1]	Land Capability Class	Wind Erodibility Group[2]	Erosion Factor (K)[3]	Natural Drainage Class[4]	Permeability (inches/hr)[5]
Carriso-Rositas-Gunsight	Loamy Fine Sand	9	7S	2	0.15	Somewhat Excessively Drained	6-20
Nickel-Arizo-Bitter	Gravelly Sandy Loam	7	7S	5	0.10	Well Drained	2-6
Rock Outcrop-Lithic Torriorthents-Calvista	Gravelly Loam	8	7E	8	0.20	Excessively Drained	2-6

1 - Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat. Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

2 - Wind erodibility groups range from 1 to 8, with 1 being highly erodible and 8 having low erodibility.

3 - This is an index of erodibility for standard condition and includes susceptibility of soil to erosion and rate of runoff. Low K values (below 0.15) indicate low erosion potential. High K values (above 0.4) are highly erodible. See report text for additional information.

4 - Table presents non-irrigated land capability classification. Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Capability classes range from 1 to 8, with higher numbers indicating progressively greater limitations and narrower choices for use: Class 1 - slight limitations that restrict use; Class 2 - moderate limitations restricting choice of plants, or requiring moderate conservation practices; Class 3 - severe limitations restricting plant choice or requiring conservation; Class 4 - severe limitations, requiring very careful management; Class 5 - subject to little or no erosion, but mainly restricted use to pasture, rangeland, forestland, wildlife habitat; Class 6 - severe limitations, generally unsuitable for cultivation, restrictions per Class 5; Class 7 - severe limitations, unsuitable for cultivation, restrictions per Class 5. Capability subclasses: e - erosion is main hazard unless close-growing plant cover maintained; s - soil limited because shallow, droughty or stony; c – chief limitation is very cold or dry climate. Capability units (after '-') are soil groups within a subclass with similar suitability for crops and pasture plants with similar management requirements and productivity.

5 - Permeability refers to saturated hydraulic conductivity for the surface layer. Permeability listed are minimum and maximum expressed in inches/hr.

2.2.2 Hydrogeologic Setting

The site is located within two different hydrologic regions, depending on whether surface water or groundwater is being considered. With respect to surface water, the site is located in the Troy Valley Hydrologic Subarea of the Newberry Springs Hydrologic Area of the Mojave Hydrologic Unit of the Lahontan Hydrologic Region. For groundwater, the site was previously within the Troy Valley Groundwater Basin, however, a reclassification places the site within the Lavic Valley Groundwater Basin, part of the Colorado River Hydrologic Region located to the south. The Troy Valley basin was incorporated into Lower Mojave River Valley Groundwater Basin to the west, now divided from the Lavic Valley basin by the Pisgah fault.

The Lavic Valley Groundwater Basin is approximately 159 square miles and is bounded by non-water bearing rocks of the Cady Mountains on the north and east, the Bullion Mountains on the south and east, the Lava Bed Mountains on the southwest, and the Pisgah Fault on the west. The opinion that the Pisgah fault is a groundwater flow barrier is based on a geologic map prepared by Rogers in 1967, as well as more recent data indicating that water levels are deeper to the east of the Pisgah and parallel faults. The division of the Lavic Valley basin from the Broadwell Valley basin to the east is not well documented; the mountains may only provide a partial groundwater barrier, depending on the depth of the alluvium in the valley. The southern part of the Lavic Valley basin lies within the Twenty-nine Palms Marine Corps Base. Groundwater east of the Pisgah Fault flows easterly toward the Colorado River Basin.

Parts of the eastern and northern boundaries of the Lavic Valley basin are drainage divides for surface water flow. In the northern part of the basin, surface drainage is to the southwest toward Hector Siding (immediately north of the railroad tracks at Hector Road), and in the southern part drainage is toward Lavic Dry Lake. Surface water flow in the site area comes from the Cady Mountains on the north and east, as well as the Pisgah Crater area on the south. Typically, surface water infiltrates the ground in washes on the alluvial fans and in the valley. During high flows, surface water runoff across the site and from the surrounding hills generally flows southwesterly toward Troy Lake.

DWR Bulletin No. 118 indicates that groundwater in the Lavic Valley basin is present in Quaternary alluvial and lacustrine deposits. However, the results of this investigation and review of the stratigraphy mapped and described by Dibblee and Bassett (1963) for the vicinity indicates that the groundwater encountered in Well #3 is probably derived from older Tertiary-age deposits present beneath the Quaternary deposits noted in Bulletin No. 118. These Tertiary-age deposits include sandstones, claystones, fanglomerates derived from granite and volcanics that are currently exposed in the Cady Mountains, and volcanics. Based on the geophysical logs and observations during drilling, there appears to be a coarser, more permeable interval of strata from approximately 550 to 800 feet bgs, and another from approximately 1,050 to 1,150 feet bgs. The representative thickness of these more permeable strata that represent the aquifer from which water will be extracted for the Project is approximately 350 feet. Because there are no records of other wells or borings drilled to this depth in the basin, the areal extent of the aquifer is not known.

The principal recharge in the Lavic Valley basin is derived from percolation of runoff. Subsurface flow from adjoining basins may also contribute to recharge. Natural recharge into the basin is estimated to be

about 300 afy and the storage capacity of the aquifer has been estimated to be approximately 270,000 acre-feet (af). However, little data exists to confirm these estimated values appearing in Bulletin No. 118.

2.2.2.1 Groundwater Quality

Limited water quality data are available within the Lavic Lake Groundwater Basin. Water from a well in the southern part of the basin near Lavic Lake identified in DWR Bulletin No. 118 was sodium sulfate in character with a total dissolved solids (TDS) concentration of 1,680 mg/L (ppm). Water from a well sampled in the 1950s in the northeastern part of the basin, possibly near the site, was sodium sulfate in character with a TDS concentration of 1,721 mg/L. Water from a well in the northwestern part of the basin near Hector Siding (not found during recent field studies) sampled in the 1950s was calcium-sodium bicarbonate in character with a TDS concentration of 278 mg/L. Groundwater analytical results for Well #3 (proposed production water supply well for Project) is provided in Section 3.

Additional references were reviewed, with very limited information found for the site vicinity. The State Water Resources Control Board has a Groundwater Ambient Monitoring and Assessment (GAMA) program for the Mojave River Basin, but the results have not been published (http://www.waterboards.ca.gov/gama/). The board also has an Underground Storage Tanks program (http://geotracker.waterboards.ca.gov/), but there are no monitoring wells in the project area. The USGS has a National Water Information System (http://nwis.waterdata.usgs.gov/nwis/qwdata/); only limited information was available for the site vicinity (discussed below), and no data were available within the Lavic Valley basin.

SECTION 3 PROPOSED WASTE DISCHARGE

The proposed waste discharge to the planned on-site lined wastewater evaporation ponds consists of saline wastewater from the Project's water treatment system. The location, volume, and character of the wastewater discharge are discussed below.

3.1 LOCATION

The approximate latitude and longitude of the planned lined wastewater evaporation pond is provided on Form 200 in Appendix A.

3.2 VOLUME AND WATER QUALITY

The wastewater discharge rate to the lined evaporation pond(s) is estimated to be at an average rate of approximately 5.1 gpm. Therefore, the Project is anticipated to discharge 8.2 acre-feet per year (afy) of wastewater to the pond. This discharge rate is a rough estimate prior to finalization of the wastewater treatment system design. At present, limited information is available regarding the anticipated chemical composition of the wastewater to be discharged to the lined evaporation pond. It is estimated that the TDS concentration of the wastewater will be approximately 3 to 3.5 times the concentration in the original supply water (1,340 mg/L TDS from Well #3). Based upon this estimate, the TDS range of the discharge effluent to the evaporation pond will be approximately 4,000 to 6,000 mg/l. The remainder of the mineral content would be expected to fall within that range. To provide a reasonable margin of operational flexibility, the Project proposes that the Waste Discharge Requirements (WDRs) allow for discharge of up to 10 afy of wastewater discharge.

The proposed method of treatment is to process the well water through a RO system to remove the majority of the dissolved solids. A de-mineralization stage may be required for the PV panel washing, SunCatcher mirror washing, and hydrogen generator. To prevent bacteria build up in the Plant raw water storage tank chlorine will be added. Table 3.3-1 provides the best currently available estimate of the wastewater quality influent to the water treatment plant from the proposed production well (Well #3).

For the purposes of this ROWD, it is assumed that the wastewater quality will be worse than the quality of the first-encountered groundwater at the site, and thus that the wastewater will be classified as a "designated waste" and that the lined evaporation pond will need to comply with the requirements for a Class II surface impoundment set forth in California Code of Regulations (CCR) Title 27.

Table 3.3-1
Groundwater Analytical Results for Water Supply Well (Well #3)

Analyte	Well #3	Primary/ Secondary MCL
Date Sampled	**4/6/2010**	
Lab Report ID	**10-04-0403**	
Title 22 Metals:		
Antimony	<0.0150	0.006
Arsenic	**0.0811**	0.01
Barium	0.0220	1.0
Beryllium	<0.0100	0.004
Cadmium	<0.0100	0.005
Chromium	0.0172	0.05
Cobalt	<0.0100	NE
Copper	<0.0100	1.0*
Lead	<0.0100	0.015
Mercury	<0.000500	0.002
Molybdenum	0.321	NE
Nickel	<0.0100	0.1
Selenium	<0.0150	0.05
Silver	<0.00500	0.1*
Thallium	<0.0150	0.002
Vanadium	0.0329	NE
Zinc	0.19	5.0
Base Cations:		
Calcium	25.1	NE
Magnesium	6.24	NE
Sodium	437	NE
Potassium	12.7	NE
Other Metals:		
Aluminum	<0.0500	0.2*
Iron	**0.316**	0.3*
Manganese	**0.0684**	0.05*
Silicon	33.8	NE
Silica	72.3	NE

Table 3.3-1
Groundwater Analytical Results for Water Supply Well (Well #3)
(Continued)

Analyte	Well #3	Primary/ Secondary MCL
Date Sampled	**4/6/2010**	
Lab Report ID	**10-04-0403**	
Anions:		
Fluoride	**3.8**	2.0
Chloride	78	250*
Nitrate (as N)	5.2	10
o-Phosphate (as P)	<0.10	NE
Total Alkalinity (as CaCO3)	160	NE
Bicarbonate (as $CaCO_3$)	160	NE
Carbonate (as $CaCO_3$)	<1.0	NE
Hydroxide (as $CaCO_3$)	<1.0	NE
Sulfate	**700**	250*
General Water Quality Parameters:		
Turbidity (NTU)	4.6	NE
SC (umhos/cm)	**1900**	900*
TDS	**1340**	500*
TSS	4.6	NE
pH (unitless)	7.83	NE
Total P	<0.10	NE
Carbon Dioxide	5.6	NE
Other Priority Pollutants:		
VOCs (ug/l): Toluene	5.9	150
Xylenes (total)	<1.0	1750
SVOCs	ND	various
OCPs	ND	various
PCBs	ND	0.0005
TPH (C6-C44) (ug/l)	<500	NE
Total Cyanide	<0.050	0.15
Asbestos (MFL)	<0.19	7
Radionuclides (pCi/L):		
Gross Alpha	4.61	15

Table 3.3-1
Groundwater Analytical Results for Water Supply Well (Well #3)
(Continued)

Analyte	Well #3	Primary/ Secondary MCL
Date Sampled	**4/6/2010**	
Lab Report ID	**10-04-0403**	
Gross Beta	5.79	50
Strontium 90	0.129	8
Radium 226	0	5
Tritium	3.44	20000
Uranium	3.33	20
Radium 228	0.357	5

Notes:
Analytes reported in mg/l, unless noted otherwise.
NA: Not Analyzed.
NE: None Established.
ND: None detected; see lab report for detection limits for specific compounds.
MCL: Maximum Containment Level.
MCL is primary, unless indicated with an asterisk (*).
BOLD indicates concentration is above MCL.
The symbol "<" (less than) indicates the constituent was not detected above the analytical detection limit specified.
--- various
[a] MCL for total xylenes

SECTION 4 EVAPORATION POND DESIGN AND CONSTRUCTION

The Project proposes to build two on-site lined wastewater evaporation ponds that will meet the requirements of a Class II surface impoundment set forth in CCR Title 27. The on-site facility will include two evaporation ponds, each covering approximately 0.5 acre in surface area. It is currently planned that the ponds will be lined with one 40-millimeter HDPE liner at the bottom of the pond with a 4- inch concrete liner on top, separated with a one foot granular cushion layer between the liners. Each evaporation pond will be designed to contain one year of wastewater discharge and use will be alternated each year accordingly. After undergoing the evaporation process, the accumulated bottom solids will be analyzed and disposed in an appropriate waste disposal facility in accordance with applicable laws and regulations. As the wastewater in the evaporation ponds would attract wildlife in a desert environment, the applicant has proposed to design the ponds to discourage wildlife use by constructing perimeter fencing and installing wire mesh screens above the ponds.

The liner system will be installed on the side slopes and bottom of the pond. The ponds will be designed to accommodate the design requirements of Title 27 including two feet of freeboard and direct rainfall on the ponds from the 1000-year, 24-hour rain event. The inboard side slope will be at a slope of 2-feet horizontally for every vertical foot (or flatter). The outboard side slope will be at a slope of 3-feet horizontally for every 1 vertical foot (or flatter). The berm width at the crest will be approximately 10-feet. The horizontal interior dimensions of the evaporation pond(s) at the toe of the slope will be approximately 105-feet by 210-feet respectively, with a total storage of up to 3 million gallons each.

The Leak Collection and Removal System (LCRS) will be compliant with Title 27Section 20340 requirements. One option for the LCRS is to install a geonet drainage layer, with an option for non-woven geotextile, to be used in the leak detection and collection layer between the primary and secondary liners. The base of the evaporation pond leak detection and collection layer will slope at a minimum inclination of 1 percent towards a leak detection and collection sump, located at the lowest point in the pond. The water in the collection sump will drain by gravity to a monitoring well that is constructed for each evaporation pond (one well per pond). Automated pneumatic pumping systems in the monitoring wells will automatically return water collected in the sump to that evaporation pond, which in turn minimizes the hydraulic pressures across the secondary liners and, therefore, minimizes the risk of leakage through the secondary liner. Leakage rates will be measured using a flow totalizer. The collection sump, pipe, and monitoring well, will include prefabricated and field-fabricated HDPE components with water tight, extrusion welded and wedge-welded seams and penetrations. The liner system will be installed in accordance with current practices. Destructive and non-destructive testing procedures will be used to verify sump and penetration tightness and continuity.

The construction quality assurance program will include compaction testing of the subgrade and electrical leak location surveys to be conducted on both the primary and secondary lining systems (HDPE liner and concrete). Unsuitable subgrade soil will be re-compacted until it meets the specification of the geotechnical engineer. Any leaks detected by the electrical surveys will be repaired in accordance with the manufacturer's instructions, and re-tested with electrical leak-location methods, prior to installing the immediately overlying layer of the liner system.

SECTION 5 EVAPORATION POND OPERATION AND MAINTENANCE

Wastewater from the Project will be discharged to the lined evaporation pond on a continuous basis. The water level in the pond will be maintained at least two feet below the top of the pond at all times. Wastewater discharge to the pond will cease if the water level reaches an elevation of two feet below the elevation of the top of the pond. The pond will have a permanent vertical freeboard-measurement rod installed from the bottom of the pond and extending vertically to an elevation greater than the top of the surrounding berm. To allow visual determination of freeboard in the pond, and of the sediment/sludge depth when the pond is sufficiently dry, the freeboard-measurement rods will include permanent labeled markings at intervals of 0.5 vertical foot beginning at the elevation of the lowest point at the top of the surrounding berm and continuing to the design bottom elevation of the pond. The rods will also contain a prominent marking at the two-foot freeboard level (i.e., at the design capacity of the pond).

Sediment/sludge will be removed from the pond on an as-needed basis to maintain the necessary capacity of the pond. Removed sediment/sludge will be disposed of or re-used in accordance with all applicable legal requirements.

If any leaks in the primary or secondary geomembrane become apparent due to increased production in LCRS sump(s) or the pan lysimeter(s), respectively, corrective action measures will be implemented to identify the location of the leaks and to repair them.

SECTION 6 LEAK DETECTION MONITORING PLAN

Groundwater is present at a depth greater than 300 feet from the ground surface at Well #3 based upon the well drilling program completed for Well #3 (proposed production well for the Project). Groundwater levels at the evaporation pond locations within the main services complex located south of the railroad have not been measured. The vadose zone above the first encountered groundwater consists of a sequence of interbedded sediments and basalt flows. Some of the sediments in the vadose zone are fine grained. Currently it is assumed that based upon these surface conditions there is a very low likelihood that leakage from the evaporation ponds would be detected within the proposed lifespan of the Project (approximately 30 years). Therefore, rather than installing a groundwater monitoring network it is proposed that a series of lysimeters be installed beneath the liner system to monitor the presence of free water in the vadose zone. This alternative approach to monitoring wells is more appropriate for identifying leakage from the evaporation ponds and will allow such an occurrence to be remedied prior to potential affects to groundwater. Groundwater quality data from the production well can be used to establish background water quality data for the site.

Three options are presented in this report for evaluating the effectiveness of the evaporation pond function. The preferred option, Option A, is to utilize lysimeters near the surface of the ponds that will allow relatively quick detection of any potential leak or contaminant in the area. Option B is to use vadose zone monitoring wells to monitor for the absence/presence of water in the vadose zone. Option C is to use traditional groundwater wells to monitor and detect potential contaminants from a leak in the evaporation.

6.1 OPTION A: LYSIMETER ALTERNATIVE (PREFERRED)

Based upon a discussion with the Lahontan Regional Water Quality Control Board, the construction of a vadose zone monitoring system (lysimeters) beneath the two lined evaporation ponds to detect any undesirable leachate from the ponds may be a viable option due to the anticipated significant depth to first encountered groundwater at the proposed pond location. However, if lysimeters are not allowed to be used then other options have been presented for monitoring leakage from the evaporation ponds.

6.2 OPTION B: VADOSE ZONE MONITORING WELL ALTERNATIVE

The option includes the use of vadose zone monitoring wells to monitor for the absence/presence of water within the vadose zone with reporting of the results of the monitoring. With this option, vadose zone monitoring wells would be constructed to a clay or low permeability layer with screening in the last five feet to monitor for the presence of water from potential leaks from the evaporation ponds.

6.3 OPTION C: GROUNDWATER MONITORING WELL ALTERNATIVE

6.3.1 Installation and Monitoring

Should Options A or B not be considered sufficient for leak detection and monitoring, this alternative would proposes installation of new groundwater monitoring wells in the vicinity of the proposed evaporation ponds.. Three groundwater monitoring wells screened within first-encountered groundwater would be proposed for the evaporation ponds. The groundwater analyses will be conducted to evaluate the

quality of groundwater to serve as a baseline for preconstruction. Prior to drilling, each location will be cleared of potential utilities by hand augering to a depth of 5-feet. Drilling will be accomplished using a 9-inch diameter steel casing. Soil sampling will be conducted at approximately 10-foot intervals to describe the soil characteristics in accordance with the Unified Soil Classification System (USCS) and identify the depth of the water table. The anticipated total depth of each well is approximately 300 to 500-feet bgs. The well casing will consist of 4-inch diameter, steel material in 50-foot of 0.020-inch slots.

A Monterey #3 filter pack sand will be placed in the annular space to approximately 5-feet above the screen interval. The well will be surged to allow the sand pack to settle before placement of the annular seal. A three-foot bentonite seal will be placed above the filter pack. The remainder of the annular space will be backfilled with volclay grout to a level of three feet below the ground surface. The remaining three feet will be filled with concrete into which a 2-foot stand pipe will be placed into a 2-foot square concrete pad. A locking cap will be placed on top of the well casing to secure the well to unauthorized entry. Each well will be labeled with a well identification number. Because the soil is not anticipated to be contaminated, drill cuttings will be placed and spread on the ground surface at the completion of drilling. The wells will be developed using a development rig by surging and bailing until the water is free of fine sediment. Water generated during development will be placed in a portable water tank.

In accordance with Geotracker requirements, a California-registered land surveyor will measure the horizontal location of each of the three wells to an accuracy of less than one meter, and the vertical elevation of the top of casing of each well to an accuracy of less than 0.01 foot. Following installation, the top-of-casing elevations and locations will be surveyed by a professional surveyor. Top-of-casing elevations will be surveyed to the nearest 0.01-foot. The northing and easting of each well location will be surveyed to the nearest 0.1-foot.

At least one of the three groundwater monitoring wells will be installed at least four months prior to commencement of wastewater discharge to the lined evaporation pond. To provide a background data set, the well will be monitored at least four times prior to the commencement of wastewater discharge. The first monitoring event will occur at least one week after well development is finished. The following three monitoring events will be spaced at least one month apart from each other.

For each monitoring event, the well will be monitored in accordance with the following procedure:

- Prior to purging the water level in each well will be measured using an electronic water-level indicator to the nearest 0.01 foot.
- An electric sounder will be used to measure the depth to water and the total depth of the well prior to purging.
- The monitoring well will be purged with an electric submersible pump or a disposable bailer until: (1) at least three well-casing volumes are removed and the field-measured pH, electrical conductivity (EC), and temperature of the purged groundwater stabilize within 10-percent for three successive measurements; or (2) the removal of water exceeds the well's recharge capacity, causing the well to go dry, in which case at least 15-minutes will be allowed for the well to recharge prior to sampling. The purged groundwater will be placed on the ground surface near the well in a manner that promotes infiltration without erosion.

- Each well will be purged of three borehole volumes. Water samples will be collected using disposable polyethylene bailers.
- After purging is completed at each well, a groundwater sample will be collected directly from the bailer or the pump's discharge tubing into laboratory-supplied bottles that contain appropriate preservatives.
- The sample will be labeled and placed immediately on ice in a cooler (at 4 ^{o}C) for delivery to the laboratory for analysis. Chain of custody procedures will be maintained for all samples collected for delivery to a state-certified hazardous materials laboratory for analyses.
- The analyses will be performed in accordance with recommended holding times, containers and preservatives by a state-certified laboratory. The first sampling event will include the full suite of California Code of Regulations (CCR) Title 22 analytes specified in Tables 6443 1 -A, 64444-A, 64449-A and 64449-B.
- All down-hole, non-disposable sampling equipment, including the pump, will be decontaminated between each well using a mild solution of Liquinox, rinsed in purified water, and air dried.

Groundwater samples will be analyzed by a California-accredited laboratory using U.S. Environmental Protection Agency (USEPA) or other standard methods for the following constituents and parameters: pH, EC, total dissolved solids (TDS), total alkalinity, hardness, bicarbonate, calcium, carbonate, chloride, magnesium, nitrate, potassium, silica, sodium, sulfate, and CAM-17 metals.

6.3.2 Disposal Plan

Because the well locations will be located in areas where there has been no previous property use or contamination, the soil cuttings will be placed on plastic sheeting during the drilling program. Once the well is installed, the cuttings will be spread on the ground surface adjacent to each well and the plastic sheeting will be properly disposed.

Water generated from well development and purge water from the first sampling event will be stored in a portable tank. Purge water from each of the subsequent sampling events will be stored on site in 55-gallon Department of Transportation-approved drums. A sample of the water in the portable tank and composite samples from the drums for each sampling event will be submitted to a state-certified laboratory for analysis to evaluate options for disposal. The analyses to be conducted will include the following:

- Title 22 metals by EPA Series 6000/7000
- Total petroleum hydrocarbons (TPH extended range C6 to C44) by modified EPA Method 8015
- VOCs by EPA Method 8260
- Perchlorate by EPA Method 314.0

A copy of the laboratory data will be provided to the RWQCB to provide authorization to discharge the wastewater to the ground surface. If the water does not meet discharge criteria, other alternatives for disposal of the water will be considered and identified.

6.3.3 Data Evaluation and Report Preparation

The initial report will include the results of the first sampling event and will describe the field procedures for the installation of the wells. Analytical and groundwater elevation data will be tabulated and the laboratory analytical report will be appended to the report. A figure showing groundwater elevation contours will also be included. Subsequent monitoring reports will include a description of sampling procedures and an evaluation of trends in the concentrations of the detected analytes. The water samples collected will be analyzed according to the provisions for monitoring presented in the September 1993 Standard Provisions and Reporting Requirements for Waste Discharge Requirements. These provisions address sampling and analytical methods, quality assurance/quality control, and the analysis of data.

6.3.4 Preliminary Closure Plan

The following preliminary closure information complies with Title 27 for closure standards for units other than landfills (21400. SWRCB - Closure Requirements for Surface Impoundments. [C15: Section 2582])

The strategy to close the Project will consist of the following measures:

(a)

- Conducting pre-closure activities such as final closure and restoration planning that addresses the "as-found" site conditions at the start of the Project;
- Remove Free Liquids — All free liquid remaining in a surface impoundment at the time of closure shall be removed and discharged at an approved waste management unit (Unit). All residual liquid shall be treated to eliminate free liquid.
- Demolition of the above-ground structures (dismantling and removal of improvements and materials) in a phased approach while still using some items until close to the end of the Project;
- Demolition and removal of below-ground facilities (underground utilities) as needed to meet the closure goals;
- Soils cleanup, if needed, with special attention applied to evaporation pond and hazardous materials use/storage areas to ensure that clean closure is achieved;
- Disposal of materials in appropriate facilities for treatment/disposal or recycling; and
- Re-contouring of lines and grades to match the natural gradient and function.

(b) Options — Following removal and treatment of liquid waste, impoundments shall be closed in one of two ways, as approved by the RWQCB.

(1) Mandatory Clean-Closure Attempt — Unless the discharger demonstrates, and the RWQCB finds, that it is infeasible to attempt clean-closure of the impoundment, then all residual wastes, including sludges, precipitates, settled solids, and liner materials contaminated by wastes, shall be completely removed from the impoundment and discharged to an approved Unit. Remaining containment features shall be inspected for contamination and, if not contaminated, can be dismantled. Any natural geologic materials beneath or adjacent to the closed impoundment that have been contaminated shall be removed

for disposal at an appropriate Unit. For surface impoundments that are successfully clean-closed, as herein described, the RWQCB shall declare the Unit no longer subject to the SWRCB-promulgated requirements of this title. If, after reasonable attempts to remove such contaminated materials, the discharger demonstrates that removal of all remaining contamination is infeasible, the surface impoundment shall be closed as a landfill or land treatment unit, as appropriate, pursuant to (b)(2).

(2) Fallback Closure Options — In cases where clean-closure [under (b)(1)] is infeasible, the discharger shall propose for RWQCB approval either:

(A) Closure As a Landfill — that all residual wastes, including sludges, precipitates, settled solids, and liner materials, shall be compacted, and the Unit shall be closed as a landfill pursuant to section 21090, provided that the closed Unit meets applicable standards for landfill Units in Articles 3 and 4 of Subchapter 2, Chapter 3, Subdivision 1 of this division (section 20240 et seq.), and further provided that the moisture content of residual wastes, including sludges, does not exceed the moisture holding capacity of the waste either before or after closure; or

(B) Closure As an LTU — for surface impoundments which contain only decomposable wastes at closure, that the Unit be closed as a land treatment unit under section 21420(a)(2 - 4).

Authority cited: Section 1058, Water Code. Reference: Section 13172, Water Code; Section 43103, Public Resources Code.

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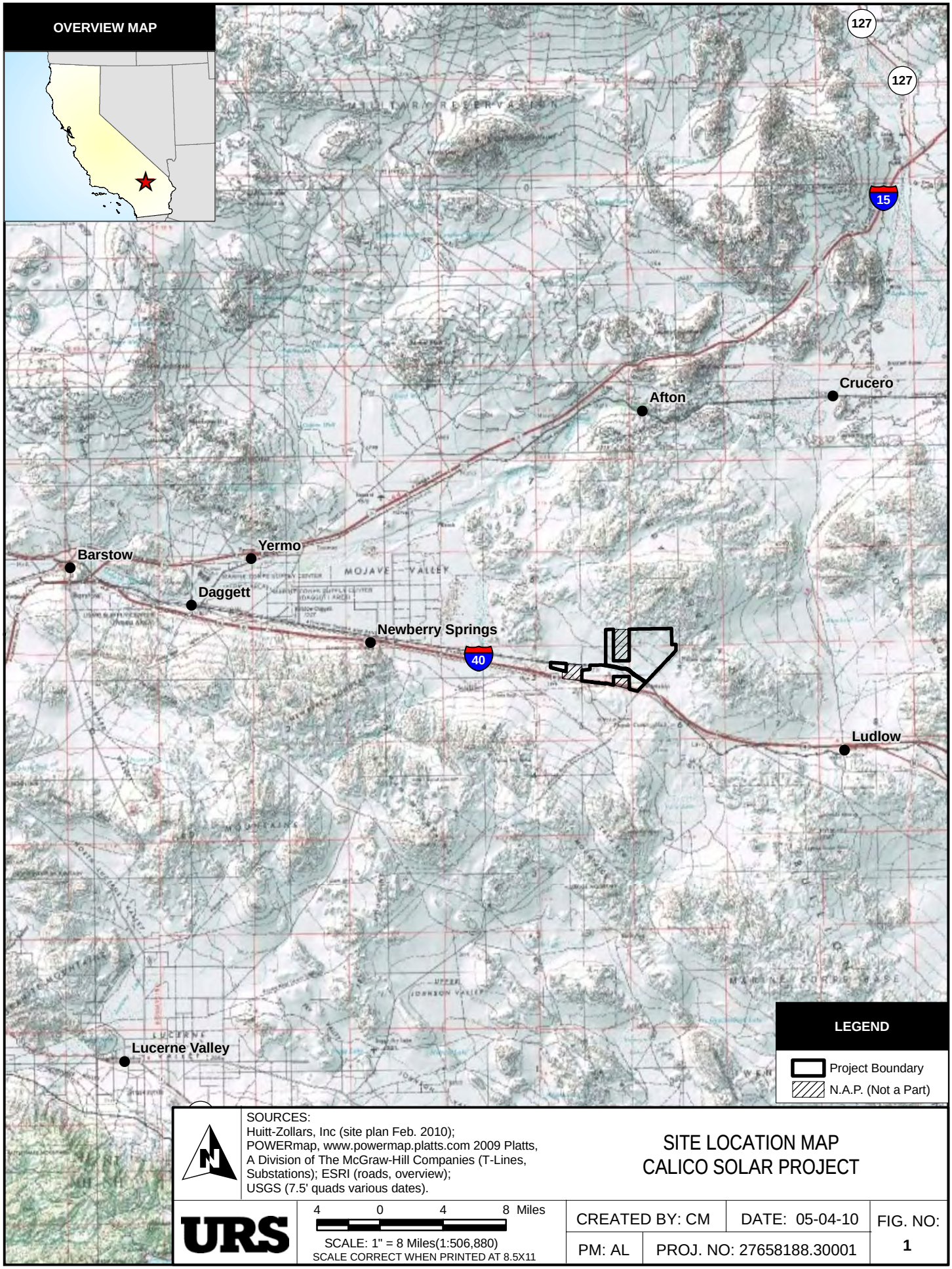

SOURCES:
Huitt-Zollars, Inc (site plan Feb. 2010);
POWERmap, www.powermap.platts.com 2009 Platts, A Division of The McGraw-Hill Companies (T-Lines, Substations); ESRI (roads, overview);
USGS (7.5' quads various dates).

SITE LOCATION MAP
CALICO SOLAR PROJECT

URS

4 0 4 8 Miles

SCALE: 1" = 8 Miles(1:506,880)
SCALE CORRECT WHEN PRINTED AT 8.5X11

CREATED BY: CM	DATE: 05-04-10	FIG. NO:
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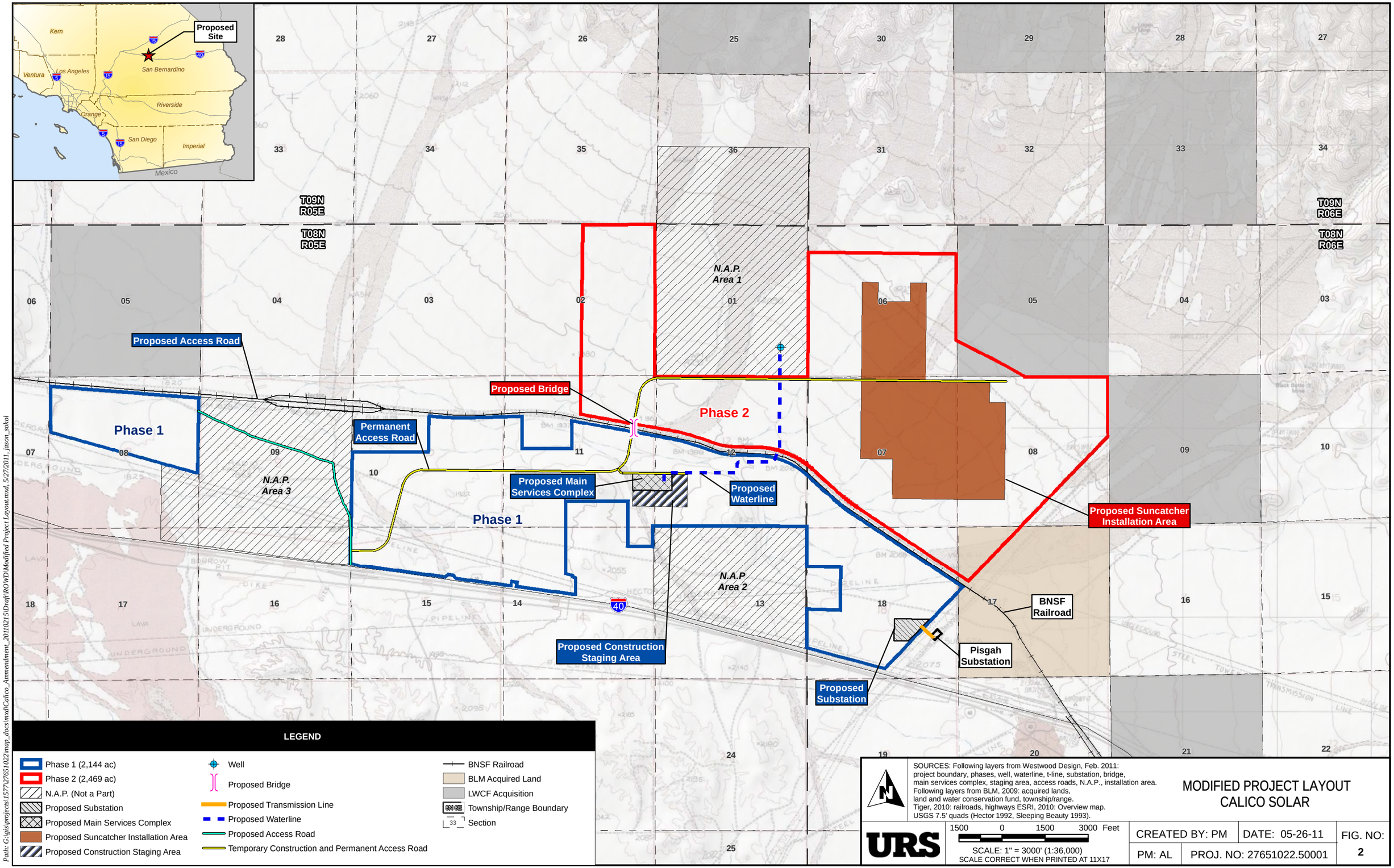

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CADY MOUNTAINS

UNNAMED FAULT

UNNAMED FAULT

ABANDONED MINE WORKS

BLACK BUTTE MINE

N.A.P.

Phase 2

Phase 1

N.A.P.

Phase 1

N.A.P.

PISGAH FAULT

LAVIC LAKE FAULTS

LAVA

Windmill

Hector

ATCHISON TOPEKA

Pisgah

PIPELINE

LEGEND

Calico Solar Project Footprint

N.A.P (Not A Part)

EXPLANATION

SEDIMENTARY AND VOLCANIC ROCKS

Qs, Qc, Qa, Qf

Surficial sediments
Qrs, river sand
Qrg, river terrace gravel
Qs, windblown sand
Qc, clay
Qa, alluvium
Qf, alluvial fan gravel

Qb

Basalt of Pisgah flow

UNCONFORMITY

Qoa, Qog

Older surficial sediments
Qoa, older alluvium
Qog, older gravel

UNCONFORMITY

Qof

Older fanglomerate and gravel

QTc

Claystone

UNCONFORMITY

QTb

Basalt southeast of Pisgah

UNCONFORMITY

Tvf, Taf, Tbf, Tgf

Coarse sedimentary rocks
Tvf, volcanic fanglomerate
Taf, andesitic fanglomerate
Tbf, basaltic fanglomerate
Tgf, granitic fanglomerate

UNCONFORMITY

Ts, Tsb

Finer sedimentary rocks
Ts, sandstone and claystone
Tsb, basalt

Trt, Rtf

Rhyolitic volcanic rocks
Trt, rhyolitic tuff
Trf, rhyolitic felsite

Tai, Tap, Tab, Tbi

Intrusive volcanic rocks
Tai, andesitic rocks, intrusive
Tap, andesitic porphyry intrusive
Tah, andesitic porphyry, hydrothermally leached
Tbi, basalt intrusive

Tv, Tbb, Tfb, Ta, Tab, Tt, Tbb, Tg, Tss, Tl

Volcanic and sedimentary rocks
Tb, basalt
Tbb, basalt breccia
Tfb, fanglomerate of basaltic detritus
Ta, andesite
Tab, andesitic breccia
Tt, tuff breccia
Tfa, fanglomerate of andesitic rocks
Tg, cobble gravel
Tss, sandstone
Tl, limestone

UNCONFORMITY

PLUTONIC, HYPABYSSAL, AND METAVOLCANIC IGNEOUS ROCKS

Diorite dikes

gqm

Granite to quartz monzonite

Granite

Aplite dikes

Metavolcanic rocks

SOURCES:
Westwood Design (site plan Feb 2011);
USGS/Dibblee (Geologic map of Cady Mountains quad 1963);
URS (CR survey Jan. 2010).

SITE GEOLOGIC MAP
CALICO SOLAR

URS

0.5 0 0.5 1 Miles

SCALE: 1" = 1 Mile (1:63,360)
SCALE CORRECT WHEN PRINTED AT 11X17

CREATED BY: CD	DATE: 05-26-11	FIG. NO: 3
PM: AL	PROJ. NO: 27651022.50001	

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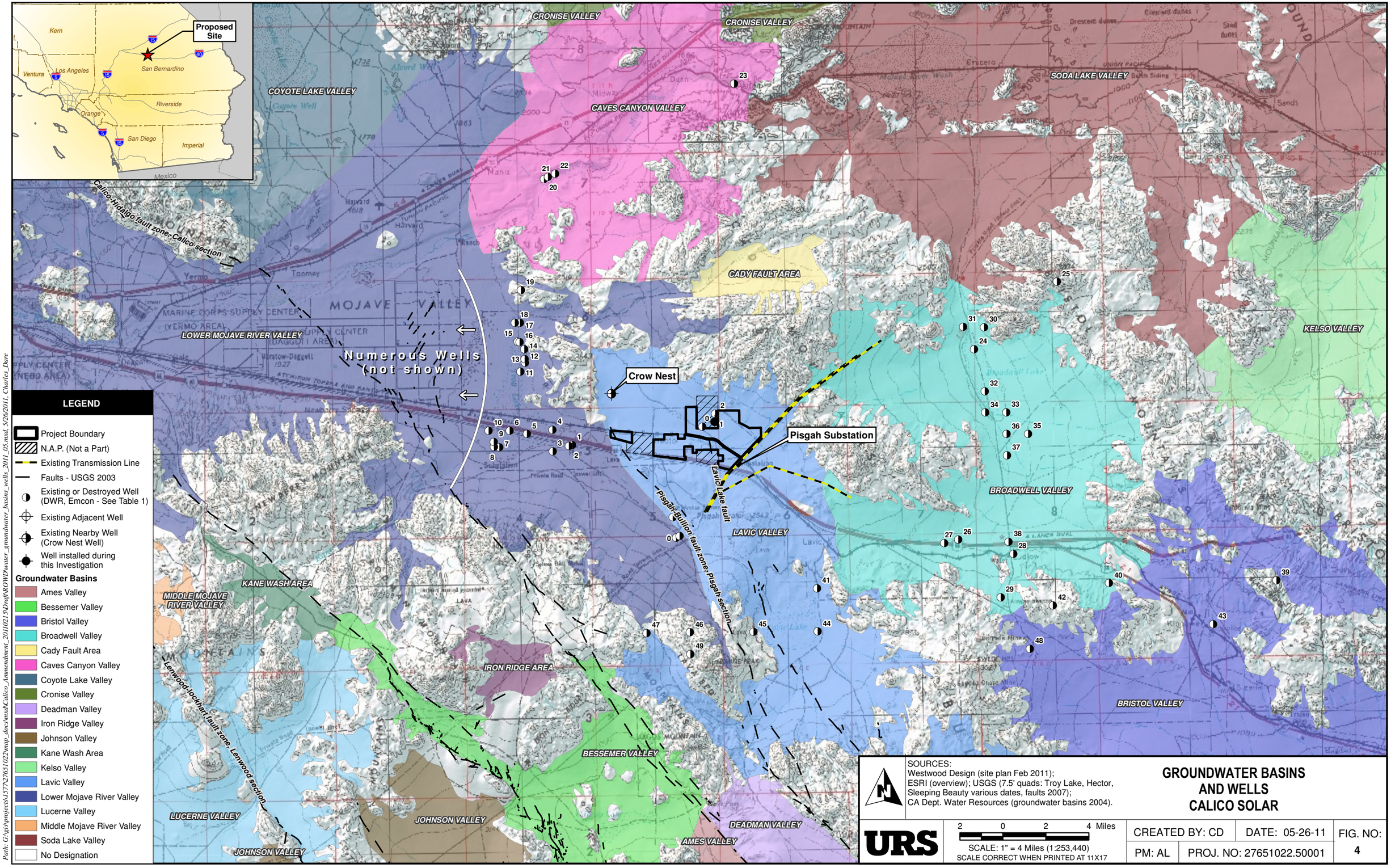

LEGEND

- Project Boundary
- N.A.P. (Not a Part)
- Existing Transmission Line
- Faults - USGS 2003
- Existing or Destroyed Well (DWR, Emcon - See Table 1)
- Existing Adjacent Well
- Existing Nearby Well (Crow Nest Well)
- Well installed during this Investigation

Groundwater Basins

- Ames Valley
- Bessemer Valley
- Bristol Valley
- Broadwell Valley
- Cady Fault Area
- Caves Canyon Valley
- Coyote Lake Valley
- Cronise Valley
- Deadman Valley
- Iron Ridge Valley
- Johnson Valley
- Kane Wash Area
- Kelso Valley
- Lavic Valley
- Lower Mojave River Valley
- Lucerne Valley
- Middle Mojave River Valley
- Soda Lake Valley
- No Designation

SOURCES:
Westwood Design (site plan Feb 2011);
ESRI (overview); USGS (7.5' quads: Troy Lake, Hector, Sleeping Beauty various dates, faults 2007);
CA Dept. Water Resources (groundwater basins 2004).

GROUNDWATER BASINS AND WELLS CALICO SOLAR

URS

2 0 2 4 Miles

SCALE: 1" = 4 Miles (1:253,440)
SCALE CORRECT WHEN PRINTED AT 11X17

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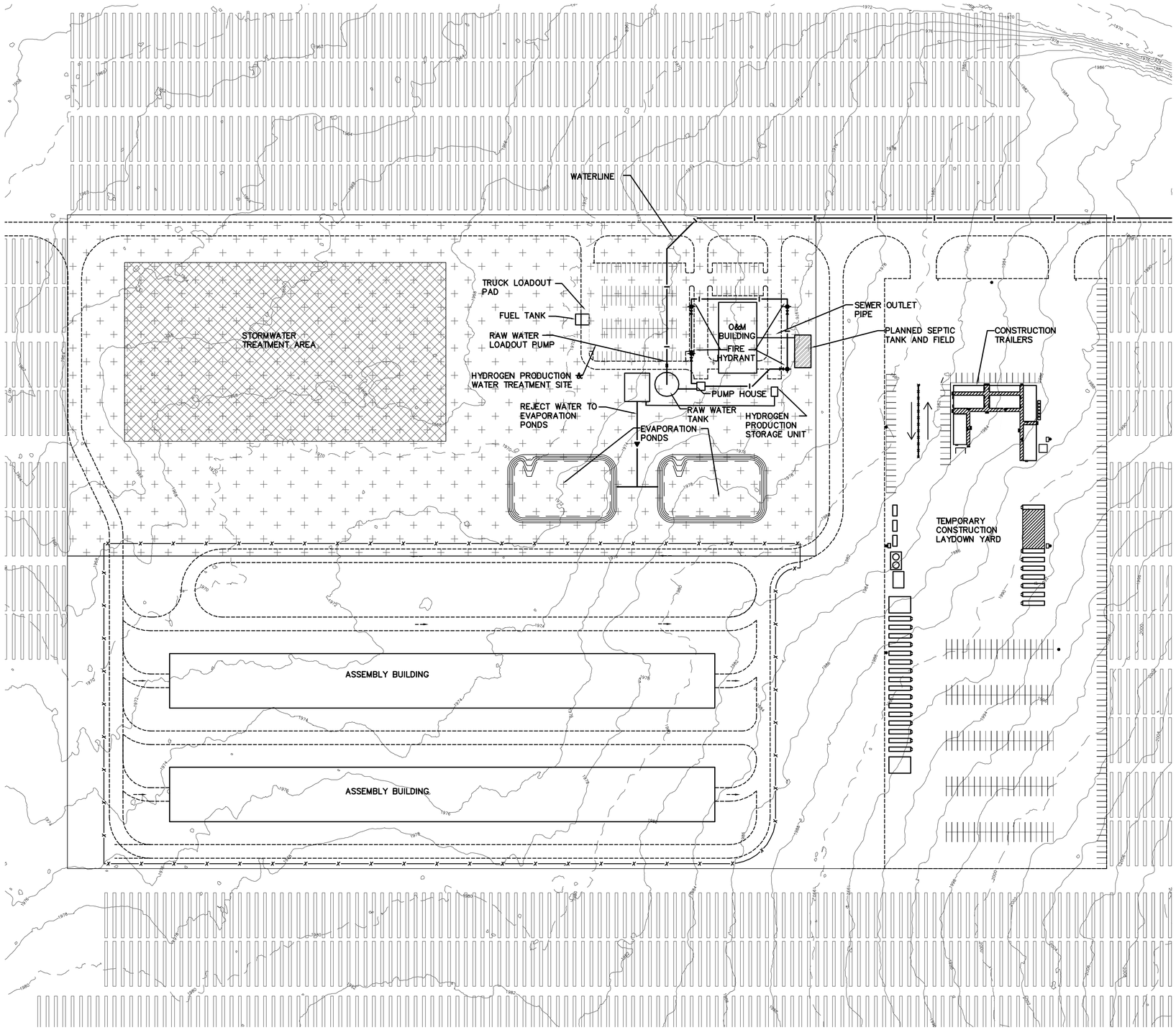


LEGEND:

- TYPICAL MAIN SERVICE COMPLEX ACCESS ROAD
- PHASE I TYPICAL TRACKER ROW
- EXISTING 2' CONTOURS
- EXISTING 10' CONTOURS (980)
- MAIN SERVICE COMPLEX
- STORMWATER TREATMENT AREA

N

0' 100' 200' 300'

20101055-10SPF03.dwg

Date: 01/28/10 Sheet: 1 OF 1

Westwood Professional Services, Inc.
7699 Anagram Drive
Eden Prairie, MN 55344

PHONE 952-937-5150
FAX 952-937-5822
TOLL FREE 1-888-937-5150

www.westwoodps.com

Revisions:

Designed: ADC
Checked: DDB
Drawn: ADC
Record Drawing by/date:

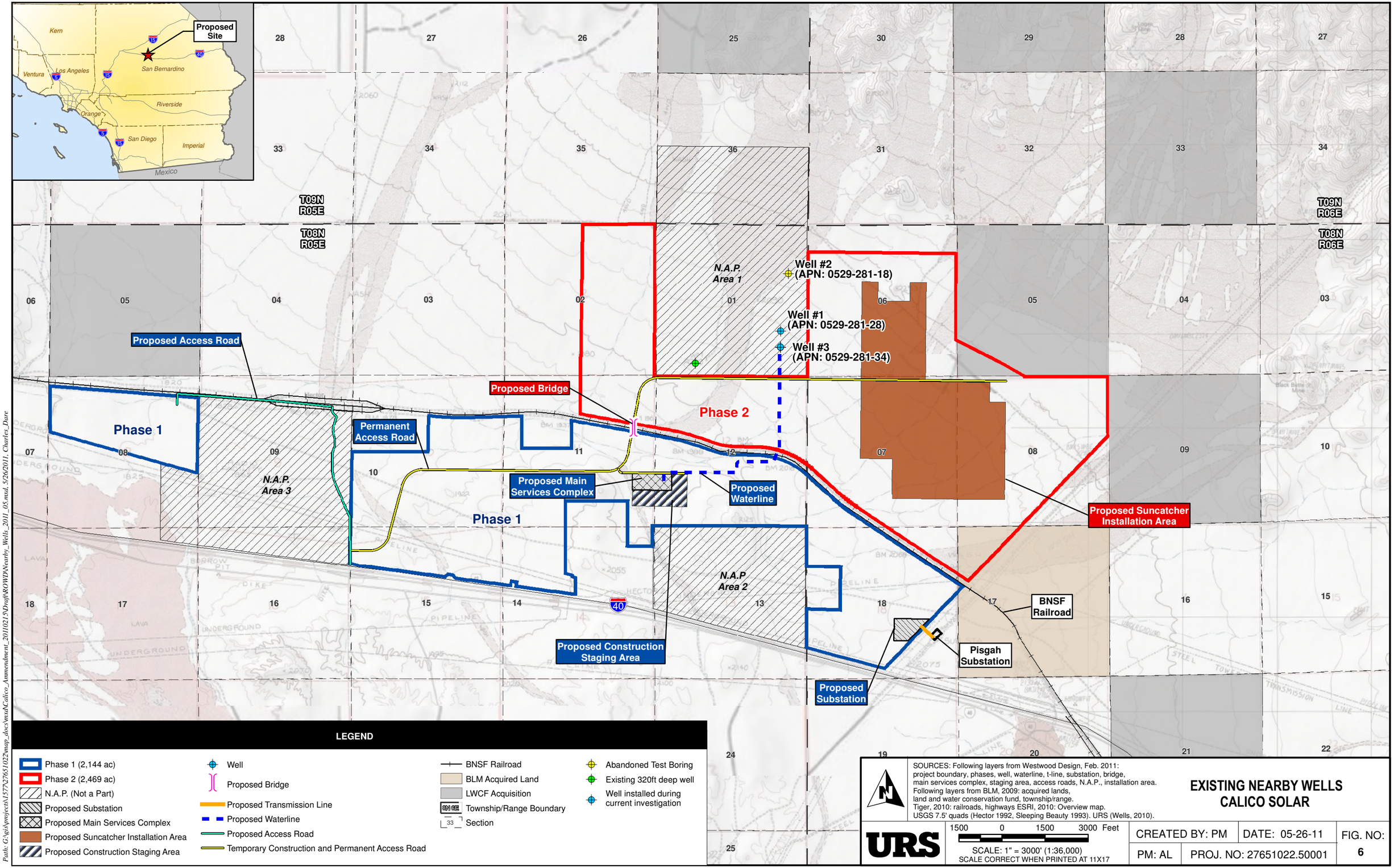
Prepared for:

kRoad
2600 10th Street
Suite 635
Berkeley, CA 94710

Calico Solar
San Bernardino County, California

Main Service Complex and Temporary Laydown Yard

Figure 2-5



SOURCES: Following layers from Westwood Design, Feb. 2011: project boundary, phases, well, waterline, t-line, substation, bridge, main services complex, staging area, access roads, N.A.P., installation area. Following layers from BLM, 2009: acquired lands, land and water conservation fund, township/range. Tiger, 2010: railroads, highways ESRI, 2010: Overview map. USGS 7.5' quads (Hector 1992, Sleeping Beauty 1993). URS (Wells, 2010).

EXISTING NEARBY WELLS CALICO SOLAR

URS

1500 0 1500 3000 Feet

SCALE: 1" = 3000' (1:36,000)
SCALE CORRECT WHEN PRINTED AT 11X17

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INTRODUCTION

This application package constitutes a Report of Waste Discharge (ROWD) pursuant to California Water Code Section 13260. Section 13260 states that persons discharging or proposing to discharge waste that could affect the quality of the waters of the State, other than into a community sewer system, shall file a ROWD containing information which may be required by the appropriate Regional Water Quality Control Board (RWQCB).

This package is to be used to start the application process for all waste discharge requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permits* issued by a RWQCB except:

a) Those landfill facilities that must use a joint Solid Waste Facility Permit Application Form, California Integrated Waste Management Board Form E-1-77; and
b) General WDRs or general NPDES permits that use a Notice of Intent to comply or specify the use of an alternative application form designed for that permit.

This application package contains:

1. Application/General Information Form for WDRs and NPDES Permits [Form 200 (10/97)].
2. Application/General Information Instructions.

Instructions

Instructions are provided to assist you with completion of the application. If you are unable to find the answers to your questions or need assistance with the completion of the application package, please contact your RWQCB representative. *The RWQCBs strongly recommend that you make initial telephone or personal contact with RWQCB regulatory staff to discuss a proposed new discharge before submitting your application.* The RWQCB representative will be able to answer procedural and annual fee related questions that you may have. (See map and telephone numbers inside of application cover.)

All dischargers regulated under WDRs and NPDES permits must pay an annual fee, except dairies, which pay a filing fee only. The RWQCB will notify you of your annual fee based on an evaluation of your proposed discharge. Please do NOT submit a check for your first annual fee or filing fee until requested to do so by a RWQCB representative. Dischargers applying for reissuance (renewal) of an existing NPDES permit or update of an existing WDR will be billed through the annual fee billing system and are therefore requested NOT to submit a check with their application. Checks should be made payable to the State Water Resources Control Board.

Additional Information Requirements

A RWQCB representative will notify you within 30 days of receipt of the application form and any supplemental documents whether your application is complete. If your application is incomplete, the RWQCB representative will send you a detailed list of discharge specific information necessary to complete the application process. The completion date of your application is normally the date when all required information, including the correct fee, is received by the RWQCB.

*** NPDES PERMITS:** If you are applying for a permit to discharge to surface water, you will need an NPDES permit which is issued under both State and Federal law and may be required to complete one or more of the following Federal NPDES permit application forms: Short Form A, Standard Form A, Forms 1, 2B, 2C, 2D, 2E, and 2F. These forms may be obtained at a RWQCB office or can be ordered from the National Center for Environmental Publications and Information at (513) 891-6561.

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

State of California
Regional Water Quality Control Board

APPLICATION/REPORT OF WASTE DISCHARGE
GENERAL INFORMATION FORM FOR
WASTE DISCHARGE REQUIREMENTS OR NPDES PERMIT

INSTRUCTIONS

FOR COMPLETING THE APPLICATION/REPORT OF WASTE DISCHARGE GENERAL INFORMATION FORM FOR: WASTE DISCHARGE REQUIREMENTS/NPDES PERMIT

If you have any questions on the completion of any part of the application, please contact your RWQCB representative. A map of RWQCB locations, addresses, and telephone numbers is located on the reverse side of the application cover.

I. FACILITY INFORMATION

You must provide the factual information listed below for ALL owners, operators, and locations and, where appropriate, for ALL general partners and lease holders.

A. FACILITY:
Legal name, physical address including the county, person to contact, and phone number at the facility. (**NO P.O. Box numbers!** If no address exists, use street and nearest cross street.)

B. FACILITY OWNER:
Legal owner, address, person to contact, and phone number. Also include the owner's Federal Tax Identification Number.

OWNER TYPE:
Check the appropriate Owner Type. The legal owner will be named in the WDRs/NPDES permit.

C. FACILITY OPERATOR (The agency or business, not the person):
If applicable, the name, address, person to contact, and telephone number for the facility operator. Check the appropriate Operator Type. If identical to B. above, enter "same as owner".

D. OWNER OF THE LAND:
Legal owner of the land(s) where the facility is located, address, person to contact, and phone number. Check the appropriate Owner Type. If identical to B. above, enter "same as owner".

E. ADDRESS WHERE LEGAL NOTICE MAY BE SERVED:
Address where legal notice may be served, person to contact, and phone number. If identical to B. above, enter "same as owner".

F. BILLING ADDRESS
Address where annual fee invoices should be sent, person to contact, and phone number. If identical to B. above, enter "same as owner".

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

State of California
Regional Water Quality Control Board

APPLICATION/REPORT OF WASTE DISCHARGE GENERAL INFORMATION FORM FOR WASTE DISCHARGE REQUIREMENTS OR NPDES PERMIT

II. TYPE OF DISCHARGE

Check the appropriate box to describe whether the waste will be discharged to: A. Land, or B. Surface Water.

Check the appropriate box(es) which best describe the activities at your facility.

Hazardous Waste - **If you check the Hazardous Waste box,** STOP **and contact a representative of the RWQCB for further instructions.**

Landfills - **A separate form, APPLICATION FOR SOLID WASTE FACILITY PERMIT/WASTE DISCHARGE REQUIREMENTS, California Integrated Waste Management Board Form E-1-77, may be required. Contact a RWQCB representative to help determine the appropriate form for your discharge.**

III. LOCATION OF THE FACILITY

1. Enter the Assessor's Parcel Number(s) (APN), which is located on the property tax bill. The number can also be obtained from the County Assessor's Office. Indicate the APN for both the facility and the discharge point.

2. Enter the Latitude of the entrance to the proposed/existing facility and of the discharge point. Latitude and longitude information can be obtained from a U.S. Geological Survey quadrangle topographic map. Other maps may also contain this information.

3. Enter the Longitude of the entrance to the proposed/existing facility and of the discharge point.

IV. REASON FOR FILING

NEW DISCHARGE OR FACILITY:
A discharge or facility that is proposed but does not now exist, or that does not yet have WDRs or an NPDES permit.

CHANGE IN DESIGN OR OPERATION:
A material change in design or operation from existing discharge requirements. Final determination of whether the reported change is material will be made by the RWQCB.

CHANGE IN QUANTITY/TYPE OF DISCHARGE:
A material change in characteristics of the waste from existing discharge requirements. Final determination of whether the reported change would have a significant effect will be made by the RWQCB.

CHANGE IN OWNERSHIP/OPERATOR:
Change of legal owner of the facility. Complete Parts I, III, and IV only and contact the RWQCB to determine if additional information is required.

WASTE DISCHARGE REQUIREMENTS UPDATE OR NPDES PERMIT REISSUANCE:
WDRs must be updated periodically to reflect changing technology standards and conditions. A new application is required to reissue an NPDES permit which has expired.

OTHER:
If there is a reason other than the ones listed, please describe the reason on the space provided. (If more space is needed, attach a separate sheet.)

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

State of California
Regional Water Quality Control Board

APPLICATION/REPORT OF WASTE DISCHARGE GENERAL INFORMATION FORM FOR WASTE DISCHARGE REQUIREMENTS OR NPDES PERMIT

V. CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

It should be emphasized that communication with the appropriate RWQCB staff is vital before starting the CEQA documentation, and is recommended before completing this application. There are Basin Plan issues which may complicate the CEQA effort, and RWQCB staff may be able to help in providing the needed information to complete the CEQA documentation.

Name the Lead Agency responsible for completion of CEQA requirements for the project, i.e., completion and certification of CEQA documentation.

Check YES or NO. Has a public agency determined that the proposed project is exempt from CEQA?
If the answer is YES, state the basis for the exemption and the name of the agency supplying the exemption on the space provided. (Remember that, if extra space is needed, use an extra sheet of paper, but be sure to indicate the attached sheet under Section VII. Other.)

Check YES or NO. Has the "Notice of Determination" been filed under CEQA? If YES, give the date the notice was filed and enclose a copy of the Notice of Determination and the Initial Study, Environmental Impact Report, or Negative Declaration. If NO, check the box of the expected type of CEQA document for this project, and include the expected date of completion using the timelines given under CEQA. The date of completion should be taken as the date that the Notice of Determination will be submitted. (If not known, write "Unknown")

VI. OTHER REQUIRED INFORMATION

To be approved, your application MUST include a COMPLETE characterization of the discharge. If the characterization is found to be incomplete, RWQCB staff will contact you and request that additional specific information be submitted.

This application MUST be accompanied by a site map. A USGS 7.5' Quadrangle map or a street map, if more appropriate, is sufficient for most applications.

VII. OTHER

If any of the answers on your application form need further explanation, attach a separate sheet. Please list any attachments with the titles and dates on the space provided.

VIII. CERTIFICATION

Certification by the owner of the facility or the operator of the facility, if the operator is different from the owner, is required. The appropriate person must sign the application form.
Acceptable signatures are:

1. **for a corporation,** a principal executive officer of at least the level of senior vice-president;
2. **for a partnership or individual (sole proprietorship),** a general partner or the proprietor;
3. **for a governmental or public agency,** either a principal executive officer or ranking elected/appointed official.

DISCHARGE SPECIFIC INFORMATION

In most cases, a request to supply additional discharge specific information will be sent to you by a representative of the RWQCB. If the RWQCB determines that additional discharge specific information is not needed to process your application, you will be so notified.

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

State of California
Regional Water Quality Control Board

APPLICATION/REPORT OF WASTE DISCHARGE
GENERAL INFORMATION FORM FOR
WASTE DISCHARGE REQUIREMENTS OR NPDES PERMIT

I. FACILITY INFORMATION

A. Facility:

Name: Calico Solar, LLP (K Road Power)			
Address:			
City:	County: San Bernardino	State: CA	Zip Code:
Contact Person: Daniel O'Shea		Telephone Number: 212.351.0518	

B. Facility Owner:

Name: Calico Solar, LLP (K Road Power)			Owner Type (Check One) 1. ☐ Individual 2. ☑ Corporation
Address: 295 Madison Ave, 37th Floor			3. ☐ Governmental Agency 4. ☐ Partnership
City: New York	State: NY	Zip Code: 10017	5. ☐ Other:
Contact Person: Daniel O'Shea		Telephone Number: 212.351.0518	Federal Tax ID:

C. Facility Operator (The agency or business, not the person):

Name:			Operator Type (Check One) 1. ☐ Individual 2. ☑ Corporation
Address: 295 Madison Ave, 37th Floor			3. ☐ Governmental Agency 4. ☐ Partnership
City: New York	State: NY	Zip Code: 10017	5. ☐ Other:
Contact Person: Daniel O'Shea		Telephone Number: 212.351.0518	

D. Owner of the Land:

Name: BLM, Private			Owner Type (Check One) 1. ☑ Individual 2. ☐ Corporation
Address:			3. ☑ Governmental Agency 4. ☐ Partnership
City: San Bernardino	State: CA	Zip Code:	5. ☐ Other:
Contact Person:		Telephone Number:	

E. Address Where Legal Notice May Be Served:

Address: 295 Madison Ave, 37th Floor		
City: New York	State: NY	Zip Code: 10017
Contact Person: Daniel O'Shea		Telephone Number: 212.351.0518

F. Billing Address:

Address: 295 Madison Ave, 37th Floor		
City: New York	State: NY	Zip Code: 10017
Contact Person: Daniel O'Shea		Telephone Number: 212.351.0518

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

State of California
Regional Water Quality Control Board

APPLICATION/REPORT OF WASTE DISCHARGE GENERAL INFORMATION FORM FOR WASTE DISCHARGE REQUIREMENTS OR NPDES PERMIT

II. TYPE OF DISCHARGE

Check Type of Discharge(s) Described in this Application (A or B):

☑ **A. WASTE DISCHARGE TO LAND** ☐ **B. WASTE DISCHARGE TO SURFACE WATER**

Check all that apply:

- ☐ Domestic/Municipal Wastewater Treatment and Disposal
- ☐ Cooling Water
- ☐ Mining
- ☐ Waste Pile
- ☐ Wastewater Reclamation
- ☐ Other, please describe: _____
- ☐ Animal Waste Solids
- ☐ Land Treatment Unit
- ☐ Dredge Material Disposal
- ☑ Surface Impoundment
- ☑ Industrial Process Wastewater
- ☐ Animal or Aquacultural Wastewater
- ☐ Biosolids/Residual
- ☐ Hazardous Waste (see instructions)
- ☐ Landfill (see instructions)
- ☐ Storm Water

III. LOCATION OF THE FACILITY

Describe the physical location of the facility.

1. Assessor's Parcel Number(s)	2. Latitude	3. Longitude
Facility:	**Facility:** 34.811	**Facility:** -116.404
Discharge Point:	**Discharge Point:** N/A	**Discharge Point:** N/A

IV. REASON FOR FILING

- ☑ New Discharge or Facility
- ☐ Change in Design or Operation
- ☐ Change in Quantity/Type of Discharge
- ☑ Changes in Ownership/Operator (see instructions)
- ☐ Waste Discharge Requirements Update or NPDES Permit Reissuance
- ☐ Other: _____

V. CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

Name of Lead Agency: California Engergy Commission, CEQA-equivalent process

Has a public agency determined that the proposed project is exempt from CEQA? ☐ **Yes** ☑ **No**

If Yes, state the basis for the exemption and the name of the agency supplying the exemption on the line below.

Basis for Exemption/Agency: _____

Has a "Notice of Determination" been filed under CEQA? ☐ **Yes** ☑ **No**

If Yes, enclose a copy of the CEQA document, Environmental Impact Report, or Negative Declaration. If no, identify the expected type of CEQA document and expected date of completion.

Expected CEQA Documents:

☐ **EIR** ☐ **Negative Declaration**

Expected CEQA Completion Date: CEQA equiv. Sept. 2011

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

State of California
Regional Water Quality Control Board

APPLICATION/REPORT OF WASTE DISCHARGE GENERAL INFORMATION FORM FOR WASTE DISCHARGE REQUIREMENTS OR NPDES PERMIT

VI. OTHER REQUIRED INFORMATION

Please provide a COMPLETE characterization of your discharge. A complete characterization includes, but is not limited to, design and actual flows, a list of constituents and the discharge concentration of each constituent, a list of other appropriate waste discharge characteristics, a description and schematic drawing of all treatment processes, a description of any Best Management Practices (BMPs) used, and a description of disposal methods.

Also include a site map showing the location of the facility and, if you are submitting this application for an NPDES permit, identify the surface water to which you propose to discharge. Please try to limit your maps to a scale of 1:24,000 (7.5' USGS Quadrangle) or a street map, if more appropriate.

VII. OTHER

Attach additional sheets to explain any responses which need clarification. List attachments with titles and dates below:

_____

_____

_____

You will be notified by a representative of the RWQCB within 30 days of receipt of your application. The notice will state if your application is complete or if there is additional information you must submit to complete your Application/Report of Waste Discharge, pursuant to Division 7, Section 13260 of the California Water Code.

VIII. CERTIFICATION

"I certify under penalty of law that this document, including all attachments and supplemental information, were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Print Name: Daniel O'Shea **Title:** _____

Signature: _____ **Date:** 5/31/11

FOR OFFICE USE ONLY

Date Form 200 Received:	Letter to Discharger:	Fee Amount Received:	Check #:

California Environmental Protection Agency
Bill of Rights for Environmental
Permit Applicants

California Environmental Protection Agency (Cal/EPA) recognizes that many complex issues must be addressed when pursuing reforms of environmental permits and that significant challenges remain. We have initiated reforms and intend to continue the effort to make environmental permitting more efficient, less costly, and to ensure that those seeking permits receive timely responses from the boards and departments of the Cal/EPA. To further this goal, Cal/EPA endorses the following precepts that form the basis of a permit applicant's "Bill of Rights."

1. Permit applicants have the right to assistance in understanding regulatory and permit requirements. All Cal/EPA programs maintain an Ombudsman to work directly with applicants. Permit Assistance Centers located throughout California have permit specialists from all the State, regional, and local agencies to identify permit requirements and assist in permit processing.

2. Permit applicants have the right to know the projected fees for review of applications, how any costs will be determined and billed, and procedures for resolving any disputes over fee billings.

3. Permit applicants have the right of access to complete and clearly written guidance documents that explain the regulatory requirements. Agencies must publish a list of all information required in a permit application and of criteria used to determine whether the submitted information is adequate.

4. Permit applicants have the right of timely completeness determinations for their applications. In general, agencies notify the applicant within 30 days of any deficiencies or determine that the application is complete. California Environmental Quality Act (CEQA) and public hearing requests may require additional information.

5. Permit applicants have the right to know exactly how their applications are deficient and what further information is needed to make their applications complete. Pursuant to California Government code Section 65944, after an application is accepted as complete, an agency may not request any new or additional information that was not specified in the original application.

6. Permit applicants have the right of a timely decision on their permit application. The agencies are required to establish time limits for permit reviews.

7. Permit applicants have the right to appeal permit review time limits by statute or administratively that have been violated without good cause. For state environmental agencies, appeals are made directly to the Cal/EPA Secretary or to a specific board. For local environmental agencies, appeals are generally made to the local governing board or, under certain circumstances, to Cal/EPA. Through this appeal, applicants may obtain a set date for a decision on their permit and, in some cases, a refund of all application fees (ask boards and departments for details).

8. Permit applicants have the right to work with a single lead agency where multiple environmental approvals are needed. For multiple permits, all agency actions can be consolidated under a lead agency. For site remediation, all applicable laws can be administered through a single agency.

9. Permit applicants have the right to know who will be reviewing their application and the time required to complete the full review process.

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Appendix B Attached Under Separate Cover

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT
COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
1-800-822-6228 – WWW.ENERGY.CA.GOV

FOR THE CALICO SOLAR PROJECT AMENDMENT

Docket No. 08-AFC-13C
PROOF OF SERVICE
(Revised 5/25/2011)

APPLICANT
Calico Solar, LLC
Daniel J. O'Shea
Managing Director
2600 10th Street, Suite 635
Berkeley, CA 94710
dano@kroadpower.com

CONSULTANT
URS Corporation
Angela Leiba
AFC Project Manager
4225 Executive Square, #1600
La Jolla, CA 92037
angela_leiba@URSCorp.com

APPLICANT'S COUNSEL
Allan J. Thompson
Attorney at Law
21 C Orinda Way #314
Orinda, CA 94563
allanori@comcast.net

Bingham McCutchen, LLP
Ella Foley Gannon, Partner
Three Embarcadero Center
San Francisco, CA 94111
e-mail service preferred
ella.gannon@bingham.com

INTERVENORS
Society for the Conservation of Bighorn Sheep
Bob Burke, Gary Thomas
1980 East Main St., #50
Barstow, CA 92311
e-mail service preferred
cameracoordinator@sheepsociety.com

Basin and Range Watch
Laura Cunningham,
Kevin Emmerich
P.O. Box 70
Beatty, NV 89003
e-mail service preferred
atomictoadranch@netzero.net

California Unions for Reliable Energy (CURE)
c/o: Tanya A. Gulesserian,
Marc D. Joseph
Adams Broadwell Joseph & Cardozo
601 Gateway Boulevard,
Ste. 1000
South San Francisco, CA 94080
e-mail service preferred
tgulesserian@adamsbroadwell.com

Patrick C. Jackson
600 Darwood Avenue
San Dimas, CA 91773
e-mail service preferred
ochsjack@earthlink.net

Sierra Club
Gloria D. Smith,
Travis Ritchie
85 Second Street, Second floor
San Francisco, CA 94105
e-mail service preferred
gloria.smith@sierraclub.org
travis.ritchie@sierraclub.org

Newberry Community Service District
c/o Wayne W. Weierbach
P.O. Box 206
Newberry Springs, CA 92365
e-mail service preferred
newberryCSD@gmail.com

Defenders of Wildlife
Kim Delfino, California Program Director
1303 J Street, Suite 270
Sacramento, California 95814
e-mail service preferred
kdelfino@defenders.org

Defenders of Wildlife
Jeff Aardahl, California Representative
46600 Old State Highway, Unit 13
Gualala, California 95445
e-mail service preferred
jaardahl@defenders.org

BNSF Railroad
Cynthia Lea Burch,
Helen B. Kim,
Anne Alexander
Katten Muchin Rosenman LLP
2029 Century Park East, Suite 2700
Los Angeles, CA 90067-3012
cynthia.burch@kattenlaw.com
helen.kim@kattenlaw.com
anne.alexander@kattenlaw.com

***County of San Bernardino**
Jean-Rene Basle, County Counsel
Bart W. Brizzee, Principal Assistant County Counsel
385 N. Arrowhead Avenue, 4th Fl.
San Bernardino, CA 92415-0140
bbrizzee@cc.sbcounty.gov

*indicates change

INTERESTED AGENCIES/ENTITIES/PERSONS

California ISO
e-recipient@caiso.com

BLM – Nevada State Office
Jim Stobaugh
P.O. Box 12000
Reno, NV 89520
jim_stobaugh@blm.gov

Bureau of Land Management
Rich Rotte, Project Manager
Barstow Field Office
2601 Barstow Road
Barstow, CA 92311
richard_rotte@blm.gov

California Department of
Fish & Game
Becky Jones
36431 41st Street East
Palmdale, CA 93552
dfgpalm@adelphia.net

County of San Bernardino
Ruth E. Stringer,
County Counsel
385 N. Arrowhead Avenue, 4th Floor
San Bernardino, CA 92415

BNSF Railroad
Steven A. Lamb
Katten Muchin Rosenman LLP
2029 Century Park East, Suite 2700
Los Angeles, CA 90067-3012
steven.lamb@kattenlaw.com

ENERGY COMMISSION

KAREN DOUGLAS
Commissioner and Presiding Member
kldougla@energy.state.ca.us

Galen Lemei
Adviser to Commissioner Douglas
glemei@energy.state.ca.us

ROBERT B. WEISENMILLER
Chairman and Associate Member
rweisenm@energy.state.ca.us

Eileen Allen
Adviser to Chairman Weisenmiller
eallen@energy.state.ca.us

Kourtney Vaccaro
Hearing Officer
kvaccaro@energy.state.ca.us

Kerry Willis
Staff Counsel
e-mail service preferred
kwillis@energy.state.ca.us

Stephen Adams
Co-Staff Counsel
e-mail service preferred
sadams@energy.state.ca.us

Craig Hoffman
Project Manager
e-mail service preferred
choffman@energy.state.ca.us

Jennifer Jennings
Public Adviser
e-mail service preferred
publicadviser@energy.state.ca.us

*indicates change

DECLARATION OF SERVICE

I, DarinNeufeld, declare that on May 31, 2011, I served by U.S. mail and filed copies of the attached letter, dated May 31, 2011. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at: **[www.energy.ca.gov/sitingcases/calicosolar/compliance/index.html]**.

The documents have been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

(***Check all that Apply***)

FOR SERVICE TO ALL OTHER PARTIES:

X sent electronically to all email addresses on the Proof of Service list;

____ by personal delivery;

____ by delivering on this date, for mailing with the United States Postal Service with first-class postage thereon fully prepaid, to the name and address of the person served, for mailing that same day in the ordinary course of business; that the envelope was sealed and placed for collection and mailing on that date to those addresses **NOT** marked "email preferred."

AND

FOR FILING WITH THE ENERGY COMMISSION:

X delivering an original paper copy and sending one electronic copy by e-mail to the address below (***preferred method***);

OR

____ depositing in the mail an original and 12 paper copies, as follows:

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 08-AFC-13C
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
docket@energy.state.ca.us

I declare under penalty of perjury that the foregoing is true and correct, that I am employed in the county where this mailing occurred, and that I am over the age of 18 years and not a party to the proceeding.

original signed by Darin Neufeld

*indicates change