

APPENDIX 1

PROPOSAL FOR PREPARATION OF THE PACIFIC COAST ENERGY COMPANY
ORCUTT HILL RESOURCE ENHANCEMENT PLAN PROJECT
ENVIRONMENTAL IMPACT REPORT



New Pumping Unit



New Steam Generator



New Steam Header



New Steam Generator and Feedwater Pumps

Photo Source: www.ergcalifornia.com

Proposal

To Prepare an

Environmental Impact Report

for the

ERG Operating Company West Cat Canyon Revitalization Plan Project

Prepared for



County of Santa Barbara Planning and Development

December 23, 2014



**Santa Barbara County Planning and Development Department
RFP: Environmental Impact Report for ERG Operating Company
West Cat Canyon Revitalization Plan
Selection Criteria (RFP Selection Process Page 10)**



Criterion/Proposal Section	Compliance with Criterion	Demonstrated Experience
<p>Responsiveness to this Request for Proposals; quality and creativity of proposal</p> <p><i>See entire Proposal.</i></p>	<ul style="list-style-type: none"> ■ Proposal responds to all RFP requirements. ■ Streamlined proposal, but with sufficient detail. ■ Proposal highlights key information. 	<p>Excellent Client References</p> <ul style="list-style-type: none"> ■ County of Santa Barbara, Planning & Development ■ County of San Luis Obispo Planning & Building ■ EDF Renewable Energy
<p>Cost effectiveness</p> <p><i>See Proposal Sections 3 and 4, and Cost Proposal.</i></p>	<ul style="list-style-type: none"> ■ Effective combination of senior and lower-level staff to provide cost effective, compliant document. ■ Team has recent and relevant oil and gas project experience to provide value-added expertise. ■ Experienced team - no "learning curve." 	<p>Santa Barbara County P&D Oil & Gas and Energy</p> <ul style="list-style-type: none"> ■ PXP Tranquillon Ridge Project EIR ■ Lompoc Wind Project EIR ■ Gaviota Marine Terminal/Chevron Tankering Project SEIR/EIS ■ Exxon Tankering Application from Gaviota SEIR
<p>Commitment and ability to meet or expedite the project schedule specified above</p> <p><i>See Proposal Sections 1, 2, 3 and 5.</i></p>	<ul style="list-style-type: none"> ■ Right mix of technical expertise and relevant recent experience to meet or improve RFP schedule. ■ Excellent working relationship among team members to successfully complete EIR. ■ Team can begin work immediately. 	<p>Other Oil and Gas</p> <ul style="list-style-type: none"> ■ SB 4 EIR (California) ■ BLM Hollister Oil and Gas EIS (Northern California) ■ City of Culver City, Inglewood Oil Field (Los Angeles County) ■ City of Hermosa Beach, Oil and Gas Site Risk analysis ■ CA DOC, CEQA Compliance ■ Cabrillo Port LNG Deepwater Port Project EIR/S review ■ City of Long Beach LNG Import Project EIR/S review ■ Federal Oil & Gas Leases Offshore Santa Barbara, Ventura, and San Luis Obispo Counties ■ Kinder Morgan Concord to Sacramento Pipeline EIR ■ Kinder Morgan Carson to Norwalk Pipeline EIR ■ Pacific Pipeline EIR and EIS/SEIR ■ San Joaquin Refining Company HRA (San Joaquin Refining Co) ■ Kirby Hills Natural Gas Storage Facility (Solano County) ■ PG&E Line 401 Capacity Loops Project Gas Pipeline Installation (Shasta & Modoc Counties) ■ Yellowstone Pipeline, Missoula to Thompson Falls Reroute, EIS (Montana)
<p>Experience of firm and personnel on similar projects</p> <p><i>See Proposal Sections 1, 2 and 3.</i></p>	<ul style="list-style-type: none"> ■ Aspen has been applying CEQA to oil and gas projects for more than 20 years. ■ Aspen - thorough knowledge of proposed DOGGR regulations/SB4 and recent oil and gas projects. ■ ioMosaic – leading provider of safety and risk management services for oil and gas projects. ■ GTC – worked on PXP Tranquillon Ridge project with Aspen, and City of Culver oil and gas project. ■ Team has worked together on numerous previous projects. 	
<p>Qualifications of project manager and technical personnel</p> <p><i>See Proposal Sections 1, 2 & 3, and Appendix A.</i></p>	<ul style="list-style-type: none"> ■ Project Manager was County Energy Specialist and has more than 25 years of experience. ■ Team members currently working on environmental review of oil and gas projects. ■ Technical leads are recognized experts in their respective fields. 	
<p>Firm's flexibility and willingness to work closely with P&D and other County staff</p> <p><i>See Proposal Sections 2, 3 and 6.</i></p>	<ul style="list-style-type: none"> ■ Project Manager is a Santa Barbara local and is available for unlimited meetings with the County. ■ Aspen has demonstrated flexibility and willingness to work closely with the County through our successful completion of past projects. 	

TECHNICAL PROPOSAL

**to Prepare Environmental Impact Report
for the
ERG Operating Company West Cat Canyon
Revitalization Plan Project**

14PPP-00000-00001

14DVP-00000-00009

**Presented to:
County of Santa Barbara
Planning and Development
Energy & Minerals Division**

**Prepared by:
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December 23, 2014

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1. Introduction

The Aspen Environmental Group (Aspen) Team is pleased to respond to the County of Santa Barbara Planning and Development Department's Request for Proposal (RFP) dated October 23, 2014 to prepare an Environmental Impact Report (EIR) for the ERG Operating Company West Cat Canyon Revitalization Plan.

Aspen has an unparalleled record of conducting California Environmental Quality Act (CEQA) compliance for complex and controversial energy and infrastructure projects for our clients throughout California and the western U.S., including the County of Santa Barbara. The Aspen Team is particularly well qualified to prepare this EIR because of our extensive experience conducting both environmental analysis and monitoring as well as performing local review of oil and gas projects and production plans. Coupled with our comprehensive oil and gas knowledge, Aspen has recognized experts in risk of upset, biological resources, and air quality and greenhouse gas analyses, among other environmental disciplines.

The organization of our proposal is shown in the text box to the right, with the Technical and Cost Proposals as separate documents. This Introduction (Section 1) specifically discusses our project understanding, project approach, and introduces our well-qualified team.

PROPOSAL ORGANIZATION

A. Technical Proposal

- Introduction
- Qualifications
- Personnel
- Study Methodology
- Schedule
- References

B. Cost Proposal - presented as a separate document, as identified in the RFP

1.1 Project Understanding

According to the RFP and West Cat Canyon Revitalization Plan (WCCRP) and Development Plan Project Description (dated 09/05/14), ERG Operating Company LLC (ERG or Applicant) has submitted the WCCRP to the County to expand development on its property and lease holdings within the Cat Canyon oilfield. The oilfield is located seven miles southeast of Santa Maria in Northern Santa Barbara County. The proposed project includes the following:

- Development and operation of 233 new thermally enhanced (cyclic steaming) production wells;
- Development of 11 new well pad locations and the expansion and use of 91 existing pad locations for a total of 102 well and equipment pads;
- Reactivation of four historic steam generators, which were permitted and operated under previous Production Plans; each of the generators would have a maximum operational capacity of 85 mmBTU/hr;
- Expansion of nine existing equipment areas and production facilities to accommodate appurtenant equipment;
- Construction and operation of various inner-field piping needed to service the existing and proposed wells; and
- Replacement of an existing Public Utility Commission (PUC) natural gas pipeline (approximately 3.5 miles long).

1.1.1 Project Background

The Project Site is located in the Cat Canyon Oil Field, near the communities of Gary and Sisquoc, which has been used for oil production purposes for more than 100 years. The Cat Canyon Oil Field is a State-designated oil field whose boundaries are defined by the California Department of Conservation, Division of Oil, Gas and Geothermal Resources, and covers over 26,440 acres and includes nearly 1,600 active and idle oil wells. Existing oil well pads and access roads have been developed throughout the project area to facilitate several decades of oilfield activity. The Cat Canyon oilfield contains approximately 1,600 active and idle oil wells, approximately 500 of those wells are located on leases associated with the Project. The existing wells are sited on approximately 260 pads and nine leases spread throughout ERG's West Cat Canyon landholdings. The Project site consists predominantly of rolling hills with some steep slopes. In addition to oil production operations, the Project property is used for cattle grazing, dry farming, and beekeeping.

The Project is located within the Agricultural II (AG-II) zone district. In accordance with Land Use Development Code Table 2-1 and Section 35.5, oil and gas extraction is an allowed use within the AG-II zone district. No change in existing land use designation and/or zone district is proposed as part of the Project. Land uses surrounding the Project Site include oil and gas production and grazing to the north, south, east, and west, and agriculture (a vineyard) further to the south and west.

All proposed Project facilities would be located within an approximately 73-acre portion of the Applicant's 8,054-acre West Cat Canyon property holdings. Newly proposed project development will only disturb approximately 21.11 acres of the proposed Project area. Of the total project disturbance 4.04 acres will be temporary disturbance for the upgrade of the PUC gas pipeline and 17.07 acres of permanent pad and road disturbance for the WCCRP. The proposed new Project production wells would be located on previously graded well pads whenever feasible. The sites are generally level or gently sloping, at an elevation that ranges between approximately 700 to 1,200 feet above sea level.

The Applicant's West Cat Canyon leases contain approximately 314 active or idle thermal oil wells using cyclic steaming and/or steam flood operations to enhance production from the Sisquoc formation at depths ranging from 2,000 to 3,000 feet. Cyclic steaming consists of injecting steam into the wells for a period of time (usually a number of days). The steam is then allowed to "soak" in the wells for an additional period of time (again a number of days) before the wells are produced. While the first set of wells is soaking, steam injection moves to the next set of wells in the field. The process is repeated until all wells in the field have been steamed, after which the cycle is repeated on a periodic basis. Steam flood operations include the constant injection of steam into a set number of steam injection wells. This steam flooding heats up the surrounding geologic reservoir and the heated oil is extracted from production wells in the immediate vicinity. Current steaming operations occur pursuant to existing Oil Drilling and Production Plans originally approved by the County of Santa Barbara between 1984 and 1988 (84-PP-6, 85-PP-2, 85-PP-8, 85-PP-12 and 87-PP-2).

1.2 Approach

The Aspen Team has reviewed the RFP, ERG’s application materials (dated 06/03/14 and 09/05/14), and County of Santa Barbara Planning and Development memos (dated 09/13/11 and 11/10/11), as well as the current County Oil & Gas Policies and Regulations. In addition to project specific information gathering, Aspen has been tracking oil and gas development and industry practices throughout the State, including Santa Barbara County.

Aspen tracks oil and gas development in Santa Barbara County

“Seven million dollars may indeed buy a victory tonight, but that victory will be short-lived. We leave this campaign with a veritable army,”

Election night quote from Santa Barbara Independent, November 5, 2014

Based on extensive past experience, we understand the oil and gas leasing and drilling issues and regulations, and also know the importance of preparing a complete and objective report of the proposed project’s environmental consequences that is legally defensible under CEQA. The intent of the EIR is to provide an informational document for the public and County decision-makers. The EIR will include clear discussions that identify project setting, applicable thresholds of significance, and project impacts. Where a particular impact is identified as potentially significant, the EIR will present comprehensive mitigation measures to avoid or reduce the impact to the maximum extent feasible. In addition to preparation of the EIR analysis, the Aspen Team has participated in numerous Planning Commission and Board of Supervisors public hearings and we understand the

importance of clearly and succinctly presenting the project and the EIR analysis as well as how to answer questions in a clear and concise manner.

Our study methodology for accomplishing the work program is discussed in Section 4.

Aspen has never lost a CEQA challenge.

1.3 Project Team

Aspen will manage the Aspen Team and serve as the prime consultant for preparing the EIR. Aspen has assembled its team so we can provide the County of Santa Barbara the most knowledgeable and efficient team for the WCCRP analysis. The team will be managed by experienced senior Project Manager, **Vida Strong** with over 20 years of proven experience managing CEQA documents for oil and gas projects and with directly relevant experience from the Tranquillon Ridge Project EIR she successfully managed for the County.

In addition, Aspen will be supported by two highly experienced and specialized subconsultant firms. Geotechnical Consultants, Inc. will assist with preparing the Geology/Geologic Hazards and Groundwater discussions, and ioMosaic Corporation will assist with preparing the Risk of Upset discussion for the EIR. Each of the firms is further described below.

1.3.1 Aspen Environmental Group

Aspen Environmental Group is an expert interdisciplinary environmental services firm that is headquartered in Agoura Hills and has additional offices in Sacramento, San Francisco, Inland

Empire, Palm Springs, and Phoenix. Aspen was founded in 1990 and incorporated in 1991, and continues to grow as an expert interdisciplinary environmental and engineering services firm, specializing in the management of environmental assessment efforts under CEQA and National Environmental Policy Act (NEPA) in support of agency permitting for infrastructure and public works projects, especially energy- and oil and gas-related projects. Aspen also provides a variety of technical services related to environmental assessment, planning, and regulatory compliance. Aspen's staff is comprised of a broad cross-section of experienced professionals in engineering and the physical, earth, life, and social sciences. In addition to our management role as Prime Contractor, Aspen provides a team of experienced resource specialists and engineers in the fields of air quality and greenhouse gas emissions, biological and cultural resources, water resources and land use/policy consistency, among others. The experience and qualifications of these specialists are described in Section 3 of this proposal.

1.3.2 Geotechnical Consultants, Inc.

Geotechnical Consultants, Inc. (GTC) has provided consulting services in geotechnical engineering, engineering geology, and hydrogeology for over 40 years. The firm has capably supported Aspen for many years, including work on the PXP Tranquillon Ridge EIR. They have applied their expertise in these disciplines to a wide range of infrastructure projects including oil and gas facilities, pipelines, and pump stations. Their geotechnical work includes research; geologic field mapping; aerial photo interpretation; subsurface exploration using drilling and trenching methods and cone penetration testing; land and marine geophysical surveys; in-situ and laboratory testing; geologic, engineering, and seismic risk analyses; and construction observation and testing. GTC has conducted the geotechnical investigations for the PXP Tranquillon Ridge EIR, Celeron-All American Pipeline, Pt. Arguello Pipeline alignment, and the Exxon Corral-Los Flores Onshore Facility. In addition, GTC has conducted environmental assessments and prepared documentation for Geology, Geologic Hazards, Groundwater, Soils, and Hazardous Materials sections for numerous EIR's/EIS's including the Pacific Pipeline Project, Gaviota to Long Beach alignment.

1.3.3 ioMosaic Corporation

ioMosaic Corporation (ioMosaic) is a leading provider of safety and risk management consulting services and will cover the risk of upset analysis for the WCCRP EIR. Since the early 1970's, ioMosaic has conducted many landmark studies including investigation of the Bhopal disaster, an audit of the Trans-Alaska pipeline brought about by congressional whistle blowers, and the safety of CNG powered vehicles in tunnels. ioMosaic staff has authored more than ten industry guidelines and effective practices for managing process safety and chemical reactivity and are recognized industry experts in the oil and gas field, especially for LNG and pipeline safety. ioMosaic worked on the risk of upset analysis for the Tranquillon Ridge EIR with Aspen and is currently working with Aspen to prepare a programmatic EIR on well stimulation techniques on behalf of the Department of Conservation, as required by Senate Bill 4.

2. Qualifications

Aspen, as prime contractor for this project, has assembled a team of specialized experts to meet the specific needs of this project. We have carefully selected the ideal team combining Aspen’s oil and gas, and CEQA experience with our subcontractors’ specialty experience that covers all of the issue areas mentioned in the RFP. All Aspen Team members have recent and relevant experience and/or are among the most noted experts in their field. Many team members have completed projects in the project area. The team includes Aspen as the Prime Contractor and two specialty subcontractors. This section includes a summary of the qualifications and experience of the Aspen Team.

2.1 Aspen Team

Exhibit 1 presents the role of each firm on the Aspen Team, along with additional firm information requested in the RFP.

Exhibit 1. Aspen Team Firms			
Firm Name	Project Role	Tax Identification Number	Percentage of Contribution
Aspen Environmental Group	Prime Contractor; Project Management; Air Quality, Greenhouse Gases and Climate Change; Biological Resources; Cultural Resources; Water Resources; Noise, Transportation, Land Use/Policy Consistency, Document Production; Technical Oversight; and Quality Assurance	95-4337914	80%
Geotechnical Consultants, Inc.	Geologic Processes, Geologic Hazards, and Groundwater		10%
ioMosaic	Risk of Upset		10%

2.1.1 Aspen Environmental Group

Aspen was founded in 1990 and incorporated in July of 1991 as a C corporation in California. The company currently has over 60 employees. Aspen is managed by its President, Dr. Hamid Rastegar, who is one of the company’s original founders. Aspen is headquartered in Agoura Hills, California, and has additional offices in San Francisco, Sacramento, Upland, and Palm Springs in California and in Phoenix, Arizona. Dr. Rastegar’s corporate management is directly supported by three Vice Presidents located in Agoura Hills, San Francisco, and Sacramento; each is responsible for the daily operation of their respective offices as well as their designated satellite offices. Aspen continues to grow as an expert interdisciplinary environmental consulting firm, specializing in the management of environmental review efforts almost exclusively for State, federal, and local agencies. Aspen’s staff is comprised of a broad cross-section of experienced professionals in engineering and the physical, earth, life, and social sciences.

Aspen is working with the City of Culver City in preparing an oil and gas drilling ordinance and the review of the Baldwin Hills Community Standards District EIR; and currently preparing an EIR for the Department of Conservation assessing oil and gas well stimulation treatments throughout CA.

Aspen has successfully completed numerous CEQA documents for local agencies during its 23 year existence and is able to provide any assistance required by the County during the EIR process. Aspen is a full service environmental assessment firm with proven effective management of complex, high profile projects, including effective management of subcontractor teams, analysis of technically complex issues, and publicly visible projects. Aspen is experienced in preparing environmental analyses for oil and gas projects, and has an established reputation for high-quality CEQA documents and analysis. Aspen prepared the *Tranquillon Ridge Oil and Gas Development Project EIR*, the *Gaviota Marine Terminal EIR/EIS and Supplemental EIR/EIS*, and the Air Quality Technical Report for the *Molino Gas Project* for the County's Energy Division. In addition to this, Aspen is currently working with the City of Culver City in preparing an ordinance that addresses oil and gas drilling in the **Inglewood Oil Field** (County of Los Angeles); and is preparing an **EIR for the CA Department of Conservation** assessing oil and gas well stimulation treatments throughout California.

Aspen CEQA Experience

Aspen has extensive experience in conducting environmental review of projects in accordance with CEQA. We regularly serve in the role of prime contractor to local, State, and federal agencies and applicants, and routinely manage a team of specialists in conducting detailed and comprehensive environmental impact analyses for a wide range of projects. Depending on the needs of a given project, Aspen's project management and CEQA experience is complemented by the expertise and experience of specialized subcontractors.

Aspen's CEQA expertise and experience has been gained over many years and includes the full range of CEQA-compliance functions. Aspen has conducted CEQA review for many types of infrastructure, public works, and industrial projects including the following types of CEQA activities:

- Preparation of Initial Studies (IS), Negative Declarations, Mitigated Negative Declarations (MND), and Draft and Final EIRs;
- Preparation and distribution of required notices, including Notices of Preparation, Notices of Completion, and Notices of Determination;
- Preparation of project descriptions and formulation of feasible alternatives;
- Field studies and research;
- Engineering evaluation of projects to determine specific impact parameters;
- Feasibility studies of alternatives and mitigation measures;
- Mitigation measure development, evaluation, implementation, and mitigation monitoring; and
- Public participation, including website creation and maintenance, notices for mail and media, public workshops and hearings, fact sheets and brochures, graphic displays, and non-English language materials.

Aspen Oil and Gas Experience

Aspen has significant experience conducting analysis of oil and gas projects, including exploration, transportation, refining, and storage. The following information presents a selection of projects

either recently completed or ongoing that are directly relevant to the proposed EIR for the WCCRP.

- **PXP Tranquillon Ridge Oil and Gas Development Project EIR.** Aspen prepared an EIR for the County of Santa Barbara Energy Division on the proposed PXP Tranquillon Ridge Project, which involved the development of oil and gas wells from Platform Irene into the Tranquillon Ridge Field, located in State waters, using extended reach drilling technology. Platform Irene is located in federal waters and is currently used to develop and produce the Point Pedernales Field also located in federal waters. At Platform Irene, the produced oil and gas from the Tranquillon Ridge Field was proposed to be commingled with the Point Pedernales oil and gas, and sent ashore via existing pipelines from Platform Irene to the Lompoc Oil and Gas Plant (LOGP), located just north of Lompoc. The project description expected a total life of 30 years and as a result, the EIR analysis addressed the extension of life of Platform Irene, existing pipelines, and LOGP, including offshore oil spill impacts. In addition, the EIR included an analysis of an onshore drilling alternative.
- Review of County of Los Angeles EIR for the Baldwin Hills Community Standards District and Preparation of a City Drilling Ordinance. Under contract to the City of Culver City, Aspen reviewed the EIR for the Baldwin Hills Community Standards District (CSD) prepared by the County of LA. The EIR considered the preparation and establishment of a CSD for the Inglewood Oil Field, which included standards and measures that would be applied to any future oil and gas drilling project within the oil field. The EIR evaluated existing and future oil operations in the Inglewood Oil Field and identified additional development standards and regulations that should be included in the CSD to mitigate the impacts of drilling on the surrounding communities. Aspen reviewed the EIR for technical accuracy and CEQA compliance, and the results of the EIR review were provided to the City as comments suitable for submission to the County. In addition, Aspen reviewed the City’s existing oil and gas requirements and prepared a draft oil and gas drilling ordinance for the City. Aspen continues to work with the City of Culver City in the development of an oil and gas drilling ordinance and on other issues or studies related to the portion of the Inglewood oil field within the City’s jurisdiction.
- **Oil and Gas Well Stimulation Treatments in California.** Under contract to the California Department of Conservation , Aspen is currently preparing an EIR assessing oil and gas well stimulation treatments throughout California, as required by Public Resources Code Section 3161 (b)(3) and (4) (Senate Bill 4 [Pavley]), as signed into law on September 20, 2013. Section 3161 (b)(3) and (4) requires the Division of Oil, Gas and Geothermal Resources (DOGGR) to evaluate the impacts of well stimulation treatments that may occur from either existing or future oil and gas wells, including hydraulic fracturing and acid well stimulation. Aspen prepared the EIR’s Notice of Preparation, which was released in November 2013, and in December 2013 and January 2014 was responsible for all logistics, execution and facilitation of five public scoping meetings that were held throughout the State. The EIR will evaluate well stimulation treatments geographically according to DOGGR’s six administrative Districts; the evaluation is currently anticipated to include analysis of the seventeen subject areas provided in Appendix G of the State CEQA Guidelines, as well as risk of upset/worker and public safety, environmental justice, offshore marine biological resources, and coastal processes and marine water quality. The Draft EIR is currently scheduled to be released in winter 2014.

Public Resources Code Section 3157, as added by Senate Bill 4: “Well stimulation treatments **do not include steam flooding, water flooding, or cyclic steaming** and are not treated as such under existing or proposed State regulations.

Exhibit 2 provides a selected list of Aspen’s additional experience with oil and gas projects.

Exhibit 2. Aspen Oil and Gas Experience

Project Name/ Lead Agency	Key Project Features
<p>Gaviota Marine Terminal/Chevron Tankering Project Supplemental EIR/EIS</p> <p><i>County of Santa Barbara, Energy Division</i></p>	<ul style="list-style-type: none"> Completed a 2,000-page joint EIR/EIS for a Joint Review Panel consisting of the CA State Lands Commission (CSLC), Santa Barbara County, the US Army Corps of Engineers (USACE), and CA EPA. Evaluated offshore and onshore impacts of converting the Gaviota Transportation Company's Interim Marine Terminal in the western Santa Barbara Channel to permanent status. Key issues included tanker safety, oil spill scenarios, marine resources impacts, and air quality/air toxics. Required extensive coordination of Aspen's study team with the Joint Review Panel consisting of the CSLC, USACE, and California Coastal Commission. Over 100 mitigation measures were developed, along with Mitigation Monitoring Plans.
<p>Exxon Tankering Application from Gaviota (proposal withdrawn), Subsequent EIR</p> <p><i>County of Santa Barbara, Energy Division</i></p>	<ul style="list-style-type: none"> Prepared the Initial Study for a Subsequent EIR to the EIR/EIS in support of the County's consideration of an Exxon application to tanker 50,000 barrels of oil per day from Santa Barbara to Los Angeles (LA). Required extensive air quality and health risk assessment (HRA) modeling, as well as updates to oil spill models and impact analyses. Work prior to project cancellation included substantial air quality work; completed work elements included development of a detailed air dispersion modeling protocol in coordination with Santa Barbara APCD in order to conduct modeling for worst hour and annual air quality, as well as a comprehensive HRA. Substantial analysis of the proposed tankers and oceanographic and meteorological conditions in preparation for oil spill modeling and analysis.
<p>CEQA Compliance Assessment</p> <p><i>California Department of Conservation, DOGGR</i></p>	<ul style="list-style-type: none"> Prepared a comprehensive assessment of the DOGGR's compliance with CEQA when issuing well drilling permits. Assessment considered lead and responsible agency roles, applicable regulatory processes, environmental compliance, and oil and gas permitting processes in Kern County. Report provided program options to the DOGGR regarding measures that could be taken to bring their existing well permitting practices into compliance with CEQA. The assessment included consideration of over 37 plans, regulatory documents, reports; contact with industry groups, environmental organizations, and other interested parties. Also, prepared an extensive Initial Study as part of this assessment project.
<p>City of Hermosa Beach Oil and Gas Site Risk Analysis</p> <p><i>City of Hermosa Beach</i></p>	<ul style="list-style-type: none"> Performed a critical review of the project's Risk Analysis and summarized the latest scientific findings of effects of low concentrations of hydrogen sulfide (H₂S) on human health. Aspen (with Bercha Group as our Subconsultant) evaluated the public risks associated with the Macpherson Oil Project, including a review of the previous risk assessments prepared for the subject project. Preparation of an Integrated Risk Assessment and preparation of a bibliography and summary of findings of studies on the health effects of chronic, low level H₂S exposure. Document review covered the choice of scenarios, methodologies, level of detail, risk acceptability criteria and their application, and a few individual parameter assessments through comparison with data from other sources.
<p>Cabrillo Port LNG Deepwater Port Project EIR/S Review</p> <p><i>City of Oxnard</i></p>	<ul style="list-style-type: none"> Provided expert EIR/EIS review services for Cabrillo Port, for proposed floating storage and regasification unit to be moored in federal waters approximately 14 miles offshore of Ventura County, CA. Attention was given to issues of concern to the City, including system safety and construction impacts. Prepared and presented findings of the review to the Oxnard City Council. Report identified various deficiencies in the Draft EIR/EIS and the need for additional information and analysis; was appended to the City's official comment letter on the Draft EIR/EIS. Prepared separate report describing how well the Draft EIR/EIS addressed the City's comments submitted in response to NOP/NOI.
<p>City of Long Beach LNG Import Project EIS/R Review</p> <p><i>City of Long Beach</i></p>	<ul style="list-style-type: none"> Reviewed the Draft EIS/EIR and provided comments on the adequacy of the Draft EIS/EIR in terms of compliance with the requirements of NEPA and CEQA. Focused on issues of concern to the City of Long Beach and its citizens, and provided comments on the completeness, accuracy, and technical adequacy of the Draft EIS/EIR evaluation of these issues. Assisted the City with the review of the General Conformity Determination and Port Master Plan Amendment.

Exhibit 2. Aspen Oil and Gas Experience

Project Name/ Lead Agency	Key Project Features
Federal Oil and Gas Leases Offshore Santa Barbara, Ventura and San Luis Obispo Counties <i>MMS/USDOJ</i>	<ul style="list-style-type: none"> • Multidisciplinary Environmental Information Document and ten Federal Coastal Consistency Determinations for the Minerals Management Service (MMS)/U.S. Department of the Interior (DOI) that evaluated the potential effects of development of the currently undeveloped Federal oil and gas leases offshore Santa Barbara, Ventura, and San Luis Obispo Counties, California. • Addressed both lease-specific potential impacts and cumulative impacts for the period 2006 through 2030. • Technical review and preparation of text regarding near- and long-term activities that may occur on the Pacific Outer Continental Shelf, and provided principal authorship of the CA Coastal Act policy consistency analyses for inclusion in the project's ten Lease/Unit-specific Coastal Consistency Determinations.
Kinder Morgan Concord to Sacramento Pipeline EIR <i>CSLC</i>	<ul style="list-style-type: none"> • Prepared an EIR for a proposed 70-mile petroleum products pipeline from Concord (Contra Costa County) to West Sacramento (Yolo County). The EIR included a comprehensive pipeline risk assessment. • Other issues of major importance were hydrological and biological resources, because the pipeline route crossed sensitive habitats near the Sacramento-San Joaquin Delta.
Kinder Morgan Carson to Norwalk Pipeline EIR <i>CPUC</i>	<ul style="list-style-type: none"> • Prepared an EIR for the Santa Fe Pacific 13-mile petroleum products pipeline project through urban Los Angeles (including the Cities of Carson, Long Beach, Bellflower, Norwalk, Artesia, and Cerritos). • Seven alternative route segments were fully analyzed within each issue area and compared to the equivalent portions of the proposed pipeline route. • Selected to conduct the Mitigation Monitoring, Compliance, and Reporting Program for construction of the Carson-Norwalk Pipeline.
Pacific Pipeline EIR and EIS/SEIR <i>CPUC</i>	<p>Pacific Pipeline Project, Gaviota to Ventura Co., EIR.</p> <ul style="list-style-type: none"> • Original EIR evaluated an oil pipeline from coastal Santa Barbara County to the LA Basin, via coastal Ventura County and the Santa Clara River Valley. • Monitored compliance with approval and mitigation requirements during construction. <p>Pacific Pipeline Project, Kern County to Los Angeles Refineries EIS/SEIR</p> <ul style="list-style-type: none"> • Revised project, evaluated in an EIS and Subsequent EIR, started in the southern San Joaquin Valley and followed Interstate 5 over Tejon Pass and joined the originally proposed route at Castaic Junction in LA County. • Required coordination with three counties, 20 cities, and many regional, State, and federal agencies, including the Angeles National Forest and USACE. • Document withstood legal challenge by ARCO and the City of Los Angeles in the CA Supreme Court. • Monitored compliance with approval and mitigation requirements during construction.
San Joaquin Refining Company HRA <i>San Joaquin Refining Company</i>	<ul style="list-style-type: none"> • Met San Joaquin Valley Unified Air Pollution Control District requirements. • Created table of maximum calculated risk for 15 sensitive receptors (using ACE2588 model). • Dispersion modeling using ISCST model. • Analyzed emissions and reported the toxicology for each substance. • Risk analysis included pathway specific data files for plant products, animal products, mothers' milk, and water ingestion
Kirby Hills Natural Gas Storage Facility <i>CPUC</i>	<ul style="list-style-type: none"> • Prepared the IS/MND which involved the conversion of a depleted gas reservoir into a storage facility for resale of natural gas. Project as proposed had the capacity to temporarily store seven billion cubic feet of natural gas and inject or withdraw up to 100 million cubic feet per day. • Prepared the Subsequent IS/MND for the Kirby Hills Phase II expansion project, which involved the drilling of 15 new wells, and the conversion of four abandoned wells to observation wells. Phase II increased natural gas injection and withdrawal capacity by 350 million cubic feet per day. • Key issues in the environmental review included traffic, risk of upset, wetland communities (Suisun Marsh), and special-status species. • Monitored compliance with approval and mitigation requirements during construction, including monitoring of the development wells.

Exhibit 2. Aspen Oil and Gas Experience

Project Name/ Lead Agency	Key Project Features
PG&E Line 401 Capacity Loops Project Gas Pipeline Installation <i>CPUC</i>	<ul style="list-style-type: none"> Aspen implemented the Mitigation Monitoring, Compliance, and Reporting Program for PG&E's Capacity Loops Project in Modoc and Shasta County. This project was permitted under the PG&E/PGT Project constructed in the early 1990s and involved the installation of a natural gas pipeline within Modoc National Forest and rugged, private lands within Shasta County containing sensitive cultural and biological resources, respectively. Extensive timber harvesting was also conducted as part of the clearing effort for this project. Numerous federal and State agencies were involved in the permitting of the project.
Molino Gas Project EIR <i>County of Santa Barbara, Energy Division (Subconsultant to Arthur D. Little, Inc.)</i>	<ul style="list-style-type: none"> Subcontractor to Arthur D. Little, Inc. in preparation of an EIR for the Molino Gas Project which proposed to develop offshore gas fields from an onshore drilling location using extended reach drilling techniques. It was the first proposal in Santa Barbara County to drill into offshore reservoirs from an onshore location along the Gaviota coast. Molino Energy Company proposed to develop the gas resources in two phases. The first phase involved testing of the reservoir to assure that there were sufficient recoverable resources. The second phase involved the full development of the gas reservoir, and was to be pursued only if test results show that the reservoir was capable of supporting full production. Aspen conducted analyses for air quality, land use, recreation, and public policy consistency for this project and accompanying proposed Coastal Zoning Ordinance amendments.
Yellowstone Pipeline Missoula to Thompson Falls Reroute EIS <i>National Forest Service/Montana Department of Environmental Quality</i>	<ul style="list-style-type: none"> Preparation of an EIS to evaluate the impacts of Yellowstone Pipe Line Company's proposed 67-mile petroleum products pipeline. Project was highly controversial and included an extensive public participation program, including a series of scoping meetings throughout western Montana and northern Idaho. Four alternative pipeline routes were analyzed, as well as the No Action Alternative, which involved use of trains and trucks to transport petroleum products. Included 23 supporting technical reports (each between 50-500 pages) in issues such as groundwater, fisheries, air quality, and wildlife biology. Each technical report presented detailed mitigation measures and a Mitigation Monitoring Plan. Issues of concern were biological resources (including sensitive species such as the gray wolf and bald eagle), geologic hazards and erosion, surface and ground water quality, archaeological resources, and pipeline safety.

2.1.2 Geotechnical Consultants

Geotechnical Consultants, Inc. (GTC) will assist the Aspen Team in the area of geology processes, geologic hazards, and groundwater. GTC has provided consulting services in geotechnical engineering, engineering geology, and hydrogeology for 50 years. They have applied their expertise in these disciplines to a wide range of infrastructure projects including oil and gas facilities, pipelines, and pump stations. Their geotechnical work includes research; geologic field mapping; aerial photo interpretation; subsurface exploration using drilling and trenching methods and cone penetration testing; land and marine geophysical surveys; in-situ and laboratory testing; geologic, engineering, and seismic risk analyses; and construction observation and testing.

GTC has provided consulting services in geotechnical engineering, engineering geology, and hydrogeology for 50 years, and assisted Aspen in the review (geological and water resources) of the County of Los Angeles EIR for the Inglewood Oil Field.

Mr. James Thurber, who is part of the Aspen Team on this project, heads up the geologic and hydrogeologic group at GTC. Their main office is in San Francisco with a branch office in Lake Forest (Orange County). Mr. Thurber works out of their Lake Forest branch office.

GTC Oil and Gas Experience

GTC has conducted the geotechnical investigations for the Celeron-All American Pipeline, Pt. Arguello Pipeline alignment, and the Exxon Corral-Los Flores Onshore Facility. In addition, GTC has conducted environmental assessments and prepared documentation for Geology, Geologic Hazards, and Soils sections for numerous EIRs/EISs including the Pacific Pipeline Project, Santa Fe Pacific Pipeline EIR in Southern California, the Yellowstone Pipeline EIS; the Kinder Morgan Pipeline Replacement Project EIR, and Gaviota to Long Beach alignment.

GTC assisted Aspen in the review of the County of Los Angeles EIR for the Inglewood Oil Field. For this project, GTC evaluated the geological resources and water resources section of the EIR. GTC provided input regarding monitoring (benchmark surveys, high-precision GPS surveys, and Differential Interferometric Synthetic Aperture Radar) to detect and measure subsidence, uplift, and horizontal deflection, and identified additional mitigation measures to address gas migration and seeps, seismic activity, and groundwater protection.

A selection of GTC's oil and gas experience includes, but is not limited to the following projects:

- PXP Tranquillon Ridge Oil & Gas Development Project EIR, *Santa Barbara County Planning and Development, Energy Division*
- Knights Landing Gas Field Project, *Chevron Pipeline Company*
- Siting Feasibility Study for Pump Station and Tank Farm, *Southern California Pipeline System*
- Celeron-All American Pipeline, *Celeron-All American Pipeline*
- Hueneme Offshore Platform, *Mobil Oil Company*
- Geohazards Investigation for Pt. Arguello, *Chevron, USA, Inc.*
- Corral-Las Flores Onshore Facilities, *Pacific Offshore Pipeline Company*
- CEQA Compliance Assessment, *California Department of Conservation, DOGGR*

2.1.3 ioMosaic

Founded by former Arthur D. Little Inc. executives and senior staff, ioMosaic Corporation is the leading provider of safety and risk management consulting services for over 40 years. ioMosaic has the knowledge, experience, and resources to provide pressure relief system design services, quantitative risk assessments (QRA), and onsite training. As experts in safety and risk management, they assist clients in compliance with local, state, and federal proper process safety management regulations. Available consulting services provided by ioMosaic include but are not limited to liquefied natural gas (LNG) safety, pipeline safety, process engineering design and support, process hazard analysis (PHA), process safety management, QRA, and fire and explosion dynamics.

ioMosaic Corporation is the leading provider of safety and risk management consulting services; they are currently working with Aspen on the statewide evaluation of well stimulation treatments used in oil and gas well drilling.

Mr. Peter Stickle, a member of the Aspen Team, is a Senior Partner with ioMosaic. The company has three out-of-State office locations (New Hampshire, Texas, and Minnesota). They have effectively worked with Aspen on several projects including the PXP Tranquillon Ridge Project for

the County of Santa Barbara and they are currently supporting Aspen with the Department of Conservation contract that will evaluate well stimulation treatments within California.

ioMosaic Oil and Gas Experience

ioMosaic has conducted risk analyses for many oil and gas-related projects including onshore exploration and offshore drilling. ioMosaic experts have conducted QRAs and led PHAs for a number of national and international oil companies. These studies have included leading hazard and operability (HAZOP) studies, HAZOP refresher training, PHA revalidation, day-to-day project management for a period of five man-years (one and a half actual years) and QRA studies. Their QRA and HAZOP studies covered major U.S. oil and gas fields, including high-risk utility systems (e.g., fuel gas systems, waste heat recovery systems, and low-pressure flare/relief systems).

Specific California experience includes, but is not limited to:

- Risk assessments of hazardous liquid pipeline systems for compliance with 49 CFR195.542. The hazardous liquids included petroleum emulsion and treated crude oil, and the produced fluids originated from a sour field. During this assignment, safety engineers reviewed the information management data compiled by the operator, conducted a PHA, interviewed operations and technical staff, then surveyed the pipeline right-of-way and associated high consequence areas.
- Conducted a review and a QRA of a natural gas pipeline for the County of Santa Barbara
- Conducted a study to define the conditions for approval of re-drill permits for the City of Beverly Hills.
- Conducted a risk of upset and hazardous materials impact study for the Tranquillon Ridge Project in County of Santa Barbara as a subcontractor to Aspen.

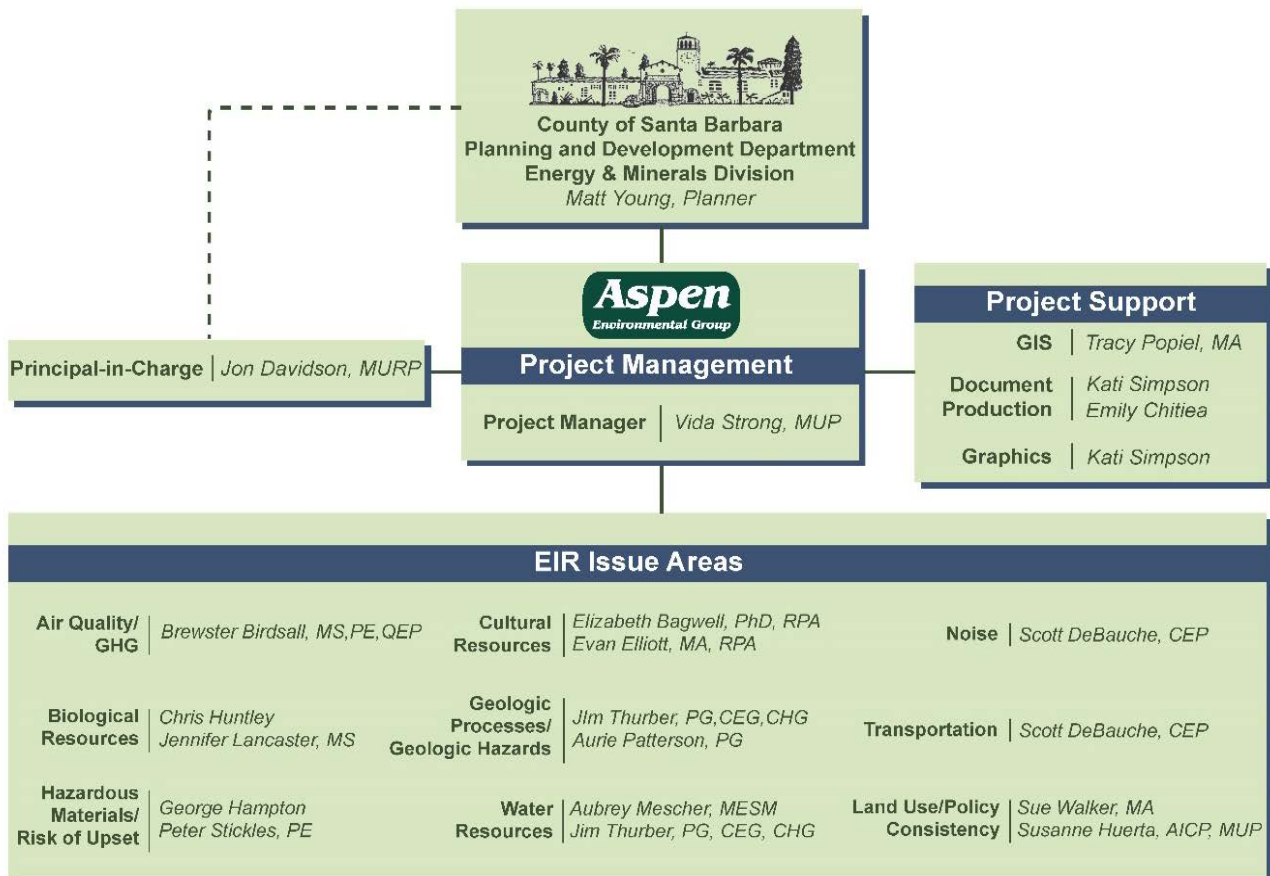
3. Personnel

3.1 Project Management and Coordination

Aspen has assembled a lean and efficient team to prepare the EIR for the WCCRP. The Aspen Team includes experts in the key areas identified in the RFP and includes staff with directly relevant experience with oil and gas drilling projects at the local and State level. This experience translates into a team that will efficiently prepare the environmental analysis for this project within a streamlined but comprehensive evaluation format. We will work closely with the County to ensure that the final product is not only well presented but also legally defensible.

The Aspen Team, Exhibit 3 (Organization Chart), will be managed by **Vida Strong MUP**, who brings extensive experience in project management and in working on oil and gas drilling projects for the County of Santa Barbara, including the PXP Tranquillon Ridge Project. Ms. Strong is a member of our Agoura Hills office but primarily works from a home office in Santa Barbara. She is a Senior Project Manager and will be the County’s primary point of contact during the contract performance period. Mr. **Jon Davidson, MURP**, Vice President of our Agoura Hills office will support Ms. Strong as the Principal-in-Charge. He will ensure that Ms. Strong is provided with all of the resources and staff required to complete all project-related tasks and efforts.

Exhibit 3. Organization Chart



Ms. Strong will also be supported by the resources available in our Agoura Hills office. This office provides extensive project support, in terms of computers, telecommunications, website service, word processing and editing, document production and distribution, finance and accounting, and contract administration and purchasing. Aspen has established protocols in place for rapid and efficient communication between Aspen Staff, subcontractors, and our clients. Ms. Strong has direct access to all of these support services and works with graphics, document production, and GIS resources effectively to ensure the efficient completion of project deliverables. In addition, Aspen has a dedicated staff of highly experienced GIS and graphics specialists that will work closely with Ms. Strong and the technical specialists for issue-specific information.

3.2 Key Personnel

As requested in the RFP, this section provides a summary of the qualifications of key staff presented on our team. Appendix A includes resumes where more detail is provided on staff qualifications. Exhibit 4 presents the percentage of time each key staff has on the project, as identified in the RFP. Aspen understands that any modifications to our proposed team during the contract performance period must first be approved by the County Planning and Development Department.

Jon Davidson, MURP

Proposed Role: Principal-in-Charge

Master of Urban and Regional Planning, 1985; BA Urban Planning, 1981

Mr. Davidson has over 30 years of experience in providing consulting services to government agencies. He has managed or had a major role in the preparation of more than 135 EIRs, EISs, and EAs. He will ensure that Ms. Strong has the resources she needs to complete the project.

Vida Strong, MUP

Proposed Role: Project Manager

Master of Urban Planning, 1991; BS Engineering, 1987

Ms. Strong has extensive experience in environmental engineering and project management, with an emphasis in CEQA and NEPA analyses and resultant mitigation monitoring of controversial development projects. She has been involved in the management and preparation of environmental documents for numerous industrial projects, requiring the critical application of alternatives development and screening criteria. She has knowledge of a broad range of issue areas and extensive experience with local, State, and federal agency coordination. Prior to joining Aspen, Ms. Strong was an Energy Specialist for the County of Santa Barbara Planning and Development Department's Energy Division, where she managed the permitting and environmental review of major oil and gas development projects and oversaw the implementation of mitigation monitoring plans.

Brewster Birdsall, MS, PE, QEP

Proposed Role: Air Quality and Greenhouse Gas

MS Civil Engineering, 1993; BS Mechanical Engineering, 1991; Professional Engineer (Mechanical, California #32565)

Mr. Birdsall is an engineer and environmental scientist with expertise in energy infrastructure siting in California. Mr. Birdsall specializes in the analysis of air quality and greenhouse gas (GHG) emissions from energy facilities. He has 18 years of experience in air permitting, site selection,

Exhibit 4. Summary of Project Team Roles and Estimated Hours			
Issue Area and Labor Category	Personnel	Individual Hours	Percent of Total Hours
Aspen Team			
<i>Project Management</i>			
Principal-in-Charge	Jon Davidson	2.00	0.14%
Project Manager	Vida Strong	180.00	12.36%
Associate, Other CEQA	Susanne Huerta	160.00	10.99%
Administrative	Administrative	40.00	2.75%
Billing	Project Management	9.00	0.62%
Contracts/Document Production	Emily Chitea	38.00	2.61%
Graphics	Kati Simpson/M.Tangard	54.00	3.71%
<i>PD/Cumulative/Alternatives</i>			
PD/Cumulative/Alternatives	Vida Strong	25.00	1.72%
Associate	Susanne Huerta	25.00	1.72%
<i>Air Quality/ Greenhouse Gas</i>			
Air Quality/Greenhouse Gas	Brewster Birdsall	126.00	8.65%
<i>Biological Resources</i>			
Biological Resources	Chris Huntley	25.00	1.72%
Biological Resources	Jennifer Lancaster	98.00	6.73%
Biological Resources	Tracy Popiel	14.00	0.96%
<i>Geologic Processes, Geologic Hazards, and Paleontology</i>			
Geology and Soils, Groundwater	James Thurber (GTC)	128.00	8.79%
Geology and Soils, Groundwater	Aurie Patterson (GTC)	130.00	8.93%
<i>Hazardous Materials/Risk of Upset</i>			
Haz. Materials/Risk of Upset	George Hampton	34.00	2.34%
Haz. Materials/Risk of Upset	Peter Stickles (ioMosaic)	136.00	9.34%
<i>Historic/Cultural Resources</i>			
Historic/Cultural Resources	Beth Bagwell	14.00	0.96%
Historic/Cultural Resources	Evan Elliott	58.00	3.98%
<i>Land Use/Policy Consistency</i>			
Land Use/Policy Consistency	Sue Walker	16.00	1.10%
Land Use/Policy Consistency	Susanne Huerta	50.00	3.43%
<i>Noise</i>			
Noise	Scott DeBauche	30.00	2.06%
<i>Transportation/Circulation</i>			
Transportation/Circulation	Scott DeBauche	26.00	1.79%
<i>Water Resources</i>			
Water Resources	Aubrey Mescher	38.00	2.61%
Total Hours		1456	100.00%

resource planning, and energy supply alternatives. Some of his recent experience includes providing: expert testimony on the topics of air quality and GHG related to conventional, solar, and geothermal power plants; energy use analysis for new municipal solid waste landfills; and impact analysis for major new electric transmission lines, renewable power plants, and offshore drilling. He is a California-licensed professional engineer and is certified as a Qualified Environmental Professional (QEP) by the Institute of Professional Environmental Practice.

Chris Huntley

Proposal Role: Biological Resources

BA Biology, 1992

Mr. Huntley has 16 years of experience with Aspen supporting and managing CEQA/NEPA projects. He has extensive experience conducting biological assessments, managing large-scale construction and restoration projects, and supporting our clients with permitting tasks including compliance with California Department of Fish and Wildlife 1600 and 2081 permits, US Fish and Wildlife Service Section 7 process, Regional Board 401 compliance, and US Army Corps 404 permits. Mr. Huntley also has experience working on projects that involve oil and gas pipelines and energy infrastructure. These include projects involving coastal power plants, natural gas and oil pipelines, and fuel metering stations.

Jennifer Lancaster, MS

Proposed Role: Biological Resources

MS Biology, 2005; BS Biology 2002

Ms. Lancaster has experience preparing CEQA and NEPA documents, federal and California Endangered Species Acts consultations (including the Section 7 process), and conducting siting assessments for renewable energy projects. Her recent work includes planning-level biological analyses in support of renewable energy opportunities and constraints analyses for local jurisdictions. She has 13 years of experience in botanical and wildlife field surveys and report preparation. Her experience includes native habitat restoration, rare plant field studies, laboratory analysis, experimental design, teaching, and logistical support for field surveys.

George Hampton

Proposed Role: Hazardous Materials

BA Geography, 1970

Mr. Hampton brings extensive environmental compliance and CEQA and NEPA experience. He worked previously with the Department of the Interior Bureau of Land Management, Office of Surface Mining and the Minerals Management Service. He has experience with oil and gas leasing, exploration, and development activities. He served as NEPA technical advisor and reviewer for the Unocal Tranquillon Ridge Oil and Gas Development Project EIR prepared by Arthur D. Little for the County of Santa Barbara, and later as an Aspen employee, he prepared the energy and minerals resources and fire protection/emergency services evaluation for this same project (PXP Tranquillon Ridge Oil and Gas Project EIR).

Peter Stickles, PE

Proposed Role: Risk of Upset

MS Mechanical Engineering, 1971; BS Chemical Engineering, 1964; Registered Professional Engineer (Commonwealth of Massachusetts)

Mr. Stickles is a senior partner at ioMosaic Corporation and has over 45 years of experience in the fields of chemical process safety, petroleum refining and petrochemical technology, and process design. Mr. Stickles' is currently working on a risk assessment for well stimulation statewide (California) and he was a major contributor on risk of upset assessment for the Tranquillon Ridge EIR that was managed by Aspen Project Manager Vida Strong.

Beth Bagwell, PhD, RPA

Proposed Role: Cultural Resources

PhD Anthropology, 2006; MA Anthropology, 1995; BA Anthropology and Creative Writing, 1991;
Register of Professional Archeologists

Dr. Bagwell has worked on numerous cultural resources projects in California, Arizona, Nevada, New Mexico, and internationally in Mexico. She has directed field projects of all kinds including survey, testing and data recovery. As part of these projects she has authored multiple documents including technical reports, testing plans, mitigation plans, and historic contexts. She also has extensive experience preparing environmental documents pursuant to NEPA, Section 106 of the National Historic Preservation Act (NHPA), Native American Graves Protection and Repatriation Act, and CEQA.

Evan B. Elliott, MA, RPA

Proposed Role: Cultural Resources

MA Cultural Resources Management, 2011; BA Anthropology, 2006; Register of Professional Archeologists

Mr. Elliott is responsible for Native American consultation, organizing and performing fieldwork, preparing cultural resources project reports and eligibility recommendations, and technical editing. He has experience preparing environmental documents pursuant to applicable federal, State and local regulations in California. These documents emphasize compliance with the NEPA, Sections 106 and 110 of the NHPA, Federal Land Policy and Management Act, and CEQA.

James Thurber, PG, CEG, CHG

Proposed Role: Geologic Processes/Geologic Hazards, Groundwater

MS Geology, 1982; BS Geology, 1978; BA Geography 1976; Professional Geologist #4197; Certified Engineering Geologist #1458; Certified Hydrogeologist #162 (California)

Mr. Thurber leads Geotechnical Consultants, Inc.'s (GTC) geologic and hydrogeologic efforts. He brings 28 years of experience focusing on geology, soils, environmental contamination, and groundwater resource areas in support of CEQA and NEPA documents. Mr. Thurber is a highly qualified geologist and hydrogeologist experienced in the assessment of site conditions, and in characterizing geologic and seismic settings for planning and design of new projects. He is currently serving as lead geologist and hydrogeologist for review of environmental documents for the County of Los Angeles Baldwin Hills Community Standards District and preparation of an oil and gas drilling ordinance for the City of Culver City in Los Angeles County.

Aurie Patterson, PG

Proposed Role: Geologic Processes/Geologic Hazards

BA Geology, 1989; Professional Geologist #7083

Ms. Patterson of GTC has more than 18 years of consulting experience focusing on geology, soils seismic hazards, mineral resources, and paleontologic resource issue areas under CEQA and NEPA. Ms. Patterson's project experience includes environmental studies for petroleum and water pipelines, power plants, transmission lines, and other projects. She served as lead geologist for the Concord-Sacramento Kinder-Morgan Oil Pipeline EIR and the Santa Fe Pacific Pipeline EIR.

Aubrey Meshcer, MESM

Proposed Role: Water Resources

Master of Environmental Science and Management, 2005; BA Environmental Studies and Film Theory, 2000

Ms. Mescher is a Water Resources Specialist with eight years of experience. She was a key contributor in the preparation of an oil and gas drilling ordinance for the City of Culver City in Los Angeles County. She has authored and served as technical review specialist for numerous Water Supply Assessments for renewable energy projects throughout California, per Senate Bills 610 and 267. She has prepared Hydrology/Water Quality analyses for infrastructure projects throughout California, including but not limited to: Ocotillo Express Wind Project (Imperial County), Desert Harvest Solar Project (Riverside County), California Valley Solar Ranch EIR (San Luis Obispo County), Topaz Solar Farm Project EIR (San Luis Obispo County), and Panoche Solar Project (San Benito County).

Scott Debauche, CEP

Proposed Role: Noise, Transportation

BS Urban Planning and Design, 1995; Certification: Board Certified Environmental Planner (#12040973)

Mr. Debauche is an environmental planner with 18 years of experience preparing NEPA and CEQA documents, planning reports, and analytical technical studies for a variety of large-scale infrastructure and civil projects. Through his work, Mr. Debauche serves as a technical specialist for noise and transportation, and construction-design issues. Mr. Debauche is currently working on the environmental evaluation of well stimulation treatments for a contract with the California Department of Conservation.

Sue Walker, MA

Proposed Role: Land Use/Policy Consistency

Master of Arts, Applied Geography, 1988; BA Physical Geography, 1983

Ms. Walker has over 24 years of experience in environmental consulting. Ms. Walker primarily functions as a Project Manager for both large- and small-scale multidisciplinary environmental review documents under the NEPA and CEQA. Ms. Walker additionally functions as a Senior Analyst and Issue Area Coordinator for land use and public policy analyses and related social science analyses. Ms. Walker is currently working on the Oil and Gas Well Stimulation Treatments in CA EIR for the Department of Conservation. She brings exceptional knowledge of the state's oil and gas well drilling regulations. She also brings significant experience working for the County of Santa Barbara Energy Division as a contract planner and as a consultant. Ms. Walker works from a home office in Goleta and has easy access to County offices.

Susanne Huerta, MUP, AICP

Proposed Role: Land Use/Policy Consistency

Master of Urban Planning, 2007; BA Geography, 2004; American Institute of Certified Planners

Ms. Huerta is an environmental planner with seven years of experience in environmental consulting, land use planning, and GIS analysis. At Aspen, Ms. Huerta conducts research and prepares environmental analyses in accordance with CEQA and NEPA. She specializes in land use and agricultural analysis, which includes policy consistency assessments and the use of GIS for spatial analysis. She is currently conducting the technical analysis for oil and gas well stimulation treatments under a contract with the California Department of Conservation as well as analyses for several energy infrastructure projects, including oil, gas and transmission line projects.

Tracy R. Popiel, MA

Proposed Role: GIS

MA Geography, 2013; BS Biology, 2007

Ms. Popiel supports many of Aspen's projects by analyzing spatial data and creating GIS-driven figures. She also has experience conducting general and focused botanical and wildlife surveys for special-status species including burrowing owl, badger, and desert tortoise.

4. Study Methodology

Aspen's proposed study methodology includes ten tasks consistent with the schedule presented on page 8 of the RFP. Our overall study methodology will maximize use of the Applicant-provided studies and application materials to eliminate any unnecessary data collection and review. Aspen's proposed approach also includes attendance at project meetings, the public comment hearing, and hearings before the Planning Commission and Board of Supervisors.

Aspen will prepare an EIR consistent with the format identified in the RFP. We are prepared to provide the County with a streamlined but thorough assessment of the project that is legally and technically defensible. Aspen will use site maps and graphics as needed to prepare an easily understood and CEQA-compliant document.

4.1 Task 1 – NOP and Scoping Documentation

Aspen will work closely with the County to prepare the Notice of Preparation (NOP) for the project. Aspen will prepare the NOP consistent with the CEQA Guidelines and will provide the notice in a format acceptable to the County. This scope includes the preparation of a concise project description and an initial assessment of key issues with no Initial Study. Consistent with CEQA, if an EIR will be prepared for a project the NOP does not need to include an Initial Study.

Per the County's RFP, Aspen will submit one reproducible unbound copy, 15 bound copies and 15 electronic copies on CDs, and an additional electronic copy on CD to the County of the NOP. The NOP will be submitted within 20 working days of the County Notice to Proceed.

4.2 Task 2 - Written Summary of Comments at the Scoping Meeting

The Aspen Project Manager and one other team member will attend the project scoping meeting. After the scoping meeting, Aspen will provide a written summary of comments received at the meeting within 5 working days of the meeting. The summary will be provided to the County electronically either by email or on compact disc.

4.3 Task 3 – Project Description, Environmental Setting and Alternatives

The Project Description will describe the proposed drilling project with sufficient detail to allow for thorough evaluation in the EIR. The Project Description will identify the Applicant, the Applicant's objectives, the County's objectives, and the proposed project's underlying purpose and need. The description will include the location of the Cat Canyon Oil Field, including a listing of all affected parcels and their current General Plan land use designations and zoning. A discussion outlining the Applicant's proposed mitigation measures will also be included to ensure that readers understand what environmental controls have been incorporated into the proposed project by design.

Project Site

- *Cat Canyon Oil Field*
- *~1,600 active and idle wells*
- *~500 of these wells on ERG leases*
- *~314 wells use cyclic steaming*
- *Property also used for cattle grazing, dry farming, and beekeeping*

The Project Description’s “Environmental Setting” will provide a narrative of the project area’s existing conditions, from which the EIR’s resource/issue area-specific “baseline” discussions will be built upon. The text will include descriptions of the proposed project area’s geography and topography, climate, transportation network, aesthetic qualities, land use patterns and practices, habitat types and surface water hydrology. Aspen’s Project Manager will conduct a site visit, with prior approval of and coordination with the County and Applicant, to confirm site conditions for the project description. This site visit may be combined with the issue-area specific visits described in Section 4.2 Task 2.

Based on the RFP, the analysis will consider the No Project Alternative, Reduced Alternative, and other alternatives as appropriate. Aspen’s Project Manager, will work closely with Energy & Minerals Division staff, and based on initial consideration of potential significant impacts determine if any other alternatives should be considered in the analysis. Consistent with CEQA, the alternatives will be considered in lesser detail than the proposed project.

The Project Description, Environmental Setting, and description of project alternatives will be submitted to the County within 25 working days after the scoping meeting. Aspen will provide this deliverable in electronic format either on compact disc or by email.

4.4 Task 4 – Administrative Draft EIR and Technical Studies

Aspen will prepare an EIR that will address the eight key issues identified by the County in the RFP and evaluated in the Notice of Preparation prepared for the project. We will address all required elements in the EIR and will prepare an outline consistent with the County’s desired format for the EIR as part of this task. As noted earlier, we will use available Applicant-provided studies in the EIR and we will use the County’s “Environmental Thresholds and Guidelines Manual” (2008) and other recently adopted requirements and regulations for the impact evaluation. The impact analysis will also consider all Applicant proposed mitigation measures, as well as other applicable County standards and conditions of approval.

For adverse and significant impacts, appropriate mitigation measures will be developed to reduce their significance to the degree possible. Mitigation measures will be clearly numbered to correspond to their respective impact criteria. The effectiveness of each mitigation measure will be discussed, and the level of impact significance after mitigation is applied will be identified.

The Aspen Project Manager will be available to attend staff meetings requested by the Energy & Minerals Division staff in Santa Barbara; given Ms. Strong’s Santa Barbara location this is easy to do. Our scope also includes participation by two technical team members, up to three meetings each, participating by phone (conference call) if needed.

EIR Outline

- 1. Executive Summary*
- 2. Introduction*
- 3. Project Description*
- 4. Impact Analysis*
 - a. Impact Analysis Approach*
 - b. Environmental Setting*
 - c. Regulatory Setting*
 - d. Impacts and Mitigation*
 - e. Cumulative Impacts*
- 5. Alternatives*
- 6. Other CEQA Considerations*
- 7. Organizations and persons consulted/Preparers*
- 8. References*
- 9. Appendices*

Per the County's RFP, Aspen will submit one reproducible unbound copy, three bound copies and one electronic copy on CD to County for review and comment. All versions of the EIR, including the Administrative Draft EIR, will be printed double-sided on recycled paper and spiral bound. All electronic submittals prepared in Adobe Acrobat will be divided into chapters and files sizes that are compatible with Planning and Development's computers and readily downloaded to the County's website. The Administrative Draft EIR and technical studies will be submitted to the County within 80 working days after the scoping meeting.

4.4.1 Air Quality/Greenhouse Gases

Background and Issues

Air quality includes the analyses of criteria pollutants, air toxics and potential health risks, odors and consistency of the project with the regional air quality management plan. These analyses rely on a clear definition of the baseline emissions of existing sources and the net emissions increases caused by the Project. The primary criteria air pollutants of concern are: ozone, particulate matter (PM10/PM2.5), and the precursors, including nitrogen oxides and volatile organic compounds.

Emissions increases would be caused by grading and site development phases, including new well pads, new well drilling, and a gas pipeline replacement, followed by the long-term operation of 233 new thermally enhanced wells, including four new larger-capacity steam generators.

Air Quality

Issue: Potential to Conflict with or Obstruct Implementation of Clean Air Plan

The Applicant's holdings are experiencing a trend in production growth that is at odds with the assumptions of declining or flat production in the County's established air quality management plan. The AQ Technical Report (p.6) notes that: "ERG's West Cat Canyon crude oil production has steadily risen from approximately one hundred and thirty (130) barrels per day in 2010 to approximately thirty-four hundred (3,400) barrels per day in 2014." This 2014 daily average rate of crude production represents approximately 1.2 million barrels annually. Increasing emissions from oil and gas production beyond the level of activity assumed by the air quality management plan could obstruct implementation of the Clean Air Plan.

The Santa Barbara County APCD adopted the 2007 and 2010 Clean Air Plans including assumptions of gradually decreasing production and decreasing activity in the oil and gas sector. However, as part of the Draft 2013 Clean Air Plan (still under review), the APCD would change the growth factors to assume no growth in petroleum production and no growth in activity through 2030. Because the proposed Production Plan would permit the development of 233 new thermal wells to increase production, the EIR must include a detailed analysis of Clean Air Plan consistency. Increasing production would also be a cumulative concern, in light of projects at Orcutt Hill, and elsewhere in Cat Canyon and in the County. Aspen's analysis of air quality plan consistency will identify the APCD's growth assumptions in the EIR and identify feasible controls to mitigate any emissions found to conflict with or obstruct implementation of the Clean Air Plan.

Greenhouse Gases (GHG)

Issue: Thresholds of Significance and APCD Environmental Review Guidelines for GHG in CEQA

The County and the APCD have long-recognized the potential for GHG emissions to contribute to long-term global climate change. Since at least 2008, the APCD has strongly recommended that CEQA lead agencies recommend the implementation of all feasible mitigation measures to reduce the emissions of GHG as a means of reducing cumulative impacts. The APCD has struggled since 2011 with setting a preferred threshold of significance, and over these years, the APCD has been evaluating the various optional approaches for CEQA lead agencies to use in making significance determinations. Four basic options remained under consideration at a public workshop on December 3, 2014, with public comments due by January 9, 2015. One option under consideration is to use “performance-based” measures derived from the Cap and Trade Program along with mitigation in the form of submitting Cap and Trade allowances.

Aspen has been tracking the evolution of CEQA threshold recommendations for many years across the state, and we have advised California’s major energy agencies on ways to successfully address GHG in CEQA documents. If necessary, we can advise the County on the suitability of the various threshold options still under APCD consideration.

Issue: Compliance under Cap and Trade Program and Mitigating Uncovered Emissions.

The owner/operator of the oil field must surrender compliance obligations under the ARB Cap and Trade program. The quantity required is based on the level of GHG emissions determined under the statewide reporting requirements. Our review of the GHG emissions reported by: “ERG Operating Company, LLC. 750 Santa Maria Basin” (ARB ID # 104458) shows actual 2013 emissions of 58,557 MT/yr CO₂e, and almost all (57,746 MT/yr) are covered by the Cap and Trade program. This compliance obligation is much lower than the baseline GHG emissions in the Air Quality Technical Report (Table 15) of 146,239 MT/yr. Identifying the applicability of the reporting and Cap and Trade requirements to the various types of project sources will be a focus of our work.

The EIR will detail the types of project sources that are subject to a Cap and Trade compliance obligation (e.g., stationary sources, point sources) versus those that are not (e.g., leaks that are difficult to quantify, mobile sources). The project would cause GHG emissions increases from covered as well as uncovered sources, and the EIR will disclose those emissions separately. Based on the EIR inventory of GHG emissions, feasible mitigation will be identified, if necessary to go beyond compliance with mandatory programs, to reduce, avoid, or offset those emissions that occur over the County’s presumed 10,000 MT/yr threshold.

Environmental Setting

Aspen will summarize relevant background air quality data, State and federal ambient air quality attainment status of the air basin. The GHG assessment will provide a summary of the area’s climate and the potential long-term impacts of climate change. Specific air quality and meteorological conditions pertinent to the project site, such as prevailing wind direction, will also be summarized as needed.

Aspen will also summarize the applicable federal, State and local air quality and GHG regulatory requirements that are applicable to the project. This will include a summary of the latest

approved AQMD Air Quality Management Plan and the Draft 2013 Clean Air Plan, applicable AQMD rules and regulations, Statewide regulations and programs for GHG, and relevant local plan policies for air quality and GHG relevant to oil field development.

The topic of global climate change and GHG emissions will appear in a separate section within the EIR. The primary GHG sources are from fuel use that results primarily in carbon dioxide (CO₂) and from leaks and fugitive escape of CO₂ and methane (CH₄), a potent GHG, as a result of oil and gas well development, production, storage, transportation, and handling systems. Aspen has the expertise to clearly and correctly analyze the topic of GHG from the proposed oil and gas operation in the CEQA context.

Impacts and Mitigation Measures

Air quality and GHG significance criteria recommended by the APCD will be presented and followed. These significance criteria will include criteria pollutant regional emissions thresholds and interim GHG emissions. The potential for odor impacts, namely due to hydrogen sulfide (H₂S), will also be assessed.

Air Quality

Our proposed approach includes:

- Aspen will provide an independent and detailed technical review of the Applicant's emissions inventories, calculation methods, dispersion modeling, and exposure levels. Our review may warrant one round of discovery through data requests to obtain information necessary to confirm data and conclusions in the Applicant's material, or if the Applicant's emission factors or activity estimates appear to be unreasonable or unsupported. Currently, it is not assumed that a new refined air dispersion modeling analysis will be required to confirm the project's air quality impacts or the results of the applicant's Health Risk Assessment (HRA).
- Aspen will summarize relevant background air quality data, state and federal ambient air quality attainment status of the air basin. Specific air quality and meteorological conditions pertinent to the project site, such as prevailing wind direction, will also be summarized as needed.
- Aspen will summarize the applicable federal, State and local air quality regulatory requirements that are applicable to the project and related sources. This will include a summary of the latest approved AQMD Air Quality Management Plan and the Draft 2013 Clean Air Plan (still under review), and a summary of applicable AQMD rules and regulations.
- Aspen will quantify the baseline emissions from existing operations. This involves identifying the applicable air permit limits and actual historic emissions as reported to the APCD.
- Aspen will describe the County's approach (Environmental Thresholds and Guidelines Manual, 2008), including the significance thresholds recommended by the APCD (Environmental Review Guidelines, Revised November 2000; Scope and Content of Air Quality Sections, Updated March 2014).
- Following the independent review of Applicant materials, Aspen will disclose the levels of emissions increases from all project activities and compare the increases with the significance thresholds. Aspen will confirm that emissions quantifications use the latest ARB EMFAC and OFFROAD emissions factors, and other established methodologies, such as the USEPA's Compilation of Air Pollutant Emission Factors (AP-42) and oil and gas industry methodologies. Validation, where necessary, will be calculated by spreadsheet, or with other emissions estimating tools such as the CalEEMod software.

- Site preparation, including well drilling and pipeline installation, will have the potential for short-term criteria pollutant impacts from vehicle and heavy equipment use. Additionally, emissions include odors and air toxics associated with well completion and fugitive leaks. Over the long-term operating phase of the project, additional emissions will occur from oil production and processing, including fugitive emissions from piping components and tanks, from transport via truck and pipeline, and from onsite and offsite vehicle travel.
- In addition to the project's direct and indirect operating emissions there is the issue of the emissions from the downstream end-use of the oil and gas products that would be produced by the project. This downstream product use issue will be discussed and quantified. Information will also be provided to provide context on the demand for the end-use products that would otherwise need to be met.
- Odor impacts will be assessed based on a description of the potential for the project to contribute to a change in emissions from sources that may result in odor complaints, namely due to hydrogen sulfide (H₂S). The potential health risks from toxic air contaminants will be characterized with data from dispersion modeling on the concentrations of air pollutants likely to occur at the nearest sensitive receptors.
- Criteria pollutant and toxic air contaminant cumulative impacts will be determined based on the cumulative project list developed for this project. Cumulative localized and air toxics impacts will be evaluated qualitatively, with a review of area-wide effects of other sources including anticipated drilling and oil and gas development in the Cat Canyon Oil Field.
- Should a significant impact be identified, Aspen will identify appropriate mitigation measures, such as recommending additional pollution control systems. The selected mitigation measures will be formulated in a manner that will allow easy incorporation into a subsequent mitigation monitoring plan.

GHG

Our proposed approach includes:

- Aspen will provide an independent and detailed technical review and peer-review of the Applicant's GHG emissions inventories, calculation methods, and characterization of the baseline, site development, and long-term operation scenarios.
- Confirming GHG emissions will be accomplished by following the latest approved methodologies and emissions factors from CARB Mandatory Reporting Program and the USEPA Greenhouse Gas Reporting Program (40 CFR Part 98, Subpart W) requirements. Aspen will also identify progress on rulemaking by CARB on the Proposed Regulation to Reduce Methane Emissions from Oil and Natural Gas Operations (anticipated 2015) and other recent work to address CH₄ leakage from oil and gas production. Confirmation of the applicant's emissions estimates and the associated emissions impacts during development and long-term operation of the new wells will be a focus of our work.
- Aspen will summarize the applicable federal, State and local GHG regulatory programs that are relevant to the project and oil field development. This will provide the necessary background on understanding what types of GHG emissions are covered by programs such as Cap and Trade or the Low Carbon Fuel Standard, how the emissions are covered, and what emissions are not covered.
- The GHG assessment will provide a summary of climate change indicators relevant to the region and the potential long-term impacts of climate change.
- Aspen will describe the GHG significance threshold selected by the County, the basis for the threshold, and how the threshold relates to the regulatory programs for GHG control, including Cap

and Trade, and other programs that achieve reductions through carbon offset registries. (Thresholds are separately discussed below.)

- The GHG emissions increases will be quantified, including emissions from site preparation, well drilling, well completion, and pipeline installation and the long-term operations. Emissions will occur from fuel use by vehicles and mobile equipment, steam production, oil and gas equipment venting and leaks, waste handling, and oil and gas production, processing, and transport.
- The GHG emissions from the downstream end-use of the oil and gas products that would be produced by the project will be discussed, with information on how the Cap and Trade and Low Carbon Fuel Standard regulatory programs apply.
- Should a significant impact be identified, Aspen will identify appropriate mitigation measures, such as surrendering and retiring surplus offsets, implementing best performance standards, or setting energy efficiency targets or energy supply specifications, like using electricity from the grid for certain equipment.

4.4.2 Biological Resources

Background and Issues

The proposed expansion of existing ERG operations with the proposed WCCRP will occur in both previously disturbed areas, where existing oil operations are currently conducted, and in undisturbed areas adjacent to active operations. In some locations pipelines, new pads, equipment staging areas, and new wells will disturb limited amounts of native vegetation. Native habitats that may be subject to disturbance are described in the 2014 West Cat Canyon Production Plan Biological Assessment (including the 2014 Addendum) and include coastal sage scrub, desert almond scrub, southern willow scrub, valley needlegrass grassland, blue wild rye meadow, coast live oak woodland, and annual grassland. Other communities including bush mallow scrub, coyote bush scrub, silver bush lupine scrub and salt grass flats may also be affected. Desert almond scrub, southern willow scrub, blue elderberry stands, blue wild rye meadow, and valley needlegrass grassland are considered sensitive by the California Department of Fish and Wildlife (CDFW). Oak woodlands support a variety of sensitive species and are afforded special protection by local ordinances and the CDFW.

Aspen biologists reviewed the Biological Assessment and consider the document to provide a thorough and accurate discussion of the biological resources that may be affected by the project. Surveys were generally conducted during appropriate times, and detected a wide variety of sensitive and common plants and wildlife. Information in the Biological Assessment was derived from database and literature review coupled with extensive field surveys.

Aspen is extremely familiar with the project region and is experienced with the biological resources that are documented or have the potential to occur on-site. Aspen generally concurs with the assessment for California tiger salamander as described in the Biological Assessment. Aspen biologists will verify site and topographical conditions to support the conclusions identified in the Biological Assessment.

Environmental Setting

Aspen considers most of the information contained in the Biological Assessment to be valid and will use this data in the proposed CEQA analysis. Prior to visiting the site, Aspen's biologists will

conduct a review of available literature and species databases (California Natural Diversity Database, California Native Plant Society, herbarium and museum records, U.S. Fish and Wildlife Service (USFWS) critical habitat maps); review available reports and relevant biological technical studies completed in the study area; and consult with local experts and resource agency staff. We will then utilize the existing survey data and conduct a one-day reconnaissance-level survey to verify the information provided in the Biological Assessment. Aspen biologists will also assess the site to determine if any supplemental data collection will be required to support the CEQA documentation process. If we determine that additional species-specific surveys are needed, we will provide a memorandum to the County identifying the specific survey types, the expected timing of the surveys, and the rationale for their implementation. Ultimately, survey protocols and strategies will be determined in coordination with the County and applicable resource agencies, including the CDFW, USFWS and/or the U.S. Army Corps of Engineers, as appropriate. If required, it is assumed that all additional survey work will be completed by the Applicant. However, Aspen is available and qualified to perform any additional survey work that may be required to support the CEQA documentation process as an optional task.

Impacts and Mitigation Measures

Aspen will prepare an objective, science-based impact analysis for biological resources resulting from the expansion and operation of the proposed project, and assess the feasibility of existing and Applicant-proposed mitigation measures for short-term and long-term impacts. The goal of the biological resource section is to provide a concise, legally defensible document that thoughtfully discloses direct and indirect impacts to biological resources and provides feasible mitigation measures that effectively balance resource protection with development goals. Our approach to the biological resources analysis includes:

- **Baseline Conditions Update.** This task will primarily rely on the 2014 Biological Assessments with focused reference to additional pertinent literature and any data obtained through local resource agency contacts. A one-day reconnaissance-level survey to verify the information provided in the Biological Assessment will be conducted, including survey of any additional sites not included in the Biological Assessment, as applicable. Internal coordination with the Aspen Team and the County will ensure a common understanding of operational conditions. We will also update the baseline data to include any species overlooked by the Applicant. Several rare gastropods are known from the region and may occur in this area. These include several non-listed shoulderband snails.
- **Impact Analysis Update.** This will be developed primarily through the baseline update that determines the context in which impacts will be addressed from the ongoing operation of the facility.
- **Mitigation Measures.** The 2014 Biological Assessment provided a series of recommended mitigation measures. Aspen will critically review these measures, revise as needed, or add new measures to develop legally defensible mitigation to minimize impacts to the extent feasible under CEQA.

4.4.3 Hazardous Materials/Risk of Upset

Our approach in preparing the EIR discussion of Hazardous Materials and Risk of Upset will begin with a comprehensive review of the County's Environmental Thresholds and Guideline Manual (2008), the Safety Element Supplement, the project business plan and Spill Prevention Control and Countermeasure Plan (SPCC Plan), any incident reports, and any other supporting documentation provided by the Applicant. The Hazardous Materials and Risk of Upset analyses

will also be prepared in coordination with other EIR sections (Air Quality, Geologic Hazards/Groundwater, and Fire Protection).

Background and Issues

Hazardous Materials: The Cat Canyon Oil Field has been in operation for over 100 years. As a result, there is a potential that Project site grading may encounter soil contamination from previous oil exploration and production activities. Sites with known and potential contamination near the Project site and pipeline alignments will be identified to better define where hazardous waste contaminated sites may occur in relation to proposed drilling sites. The primary reasons for defining hazardous sites are to protect worker health and safety and to minimize exposure to hazardous materials during construction and waste handling. Where they are encountered, contaminated soil may qualify as hazardous waste, requiring handling and disposal according to local, State, and federal regulations.

Risk of Upset: Risk is the product of two variables: the frequency of an event occurring and the consequences from the event. The proposed Project will introduce risks to the public and environment, primarily due to the unintentional release of natural gas and/or crude oil and the possible subsequent risk of fire and explosion. Drilling operations present a hazard due to the placement of a well-bore through potentially pressurized reservoirs resulting in possible blowouts and flammable releases. This section will assess the potential for risk of fire, explosion, spill and upset, and risks of hydrogen sulfide (H₂S) exposure.

Environmental Setting

Aspen will prepare thorough descriptions of the regional and local setting relevant to the proposed Project, including discussion of known and suspected contamination sites, soil types, and the presence of shallow groundwater. In addition, any additional environmental assessment reports provided by the Applicant will be reviewed and incorporated into the EIR analysis, as applicable. The environmental setting will disclose baseline release frequency and consequence data obtained from a literature review. Aspen will also request operator safety records and Santa Barbara County Fire Department inspection records for this assessment.

Hazardous materials stored and used on the project site are expected to include crude oil and natural gas, and substances such as corrosion inhibitors, solvents, lubricants, coolants and welding gases. The EIR environmental setting will include information about hazardous material use and storage on the project site as obtained from the field operator. Information from the applicant would also be obtained to describe employee training requirements and the maintenance of on-site emergency response equipment. Baseline conditions occurring under the SPCC Plan would also be discussed, including all procedures, methods and equipment to assist in preventing the accidental discharge of oil and other oil-containing substances.

Impacts and Mitigation Measures

Hazardous Materials. Construction and operation of the proposed project may potentially result in hazard impacts related to encountering or causing environmental contamination. Aspen will assess the direct and indirect effects of the project, and develop appropriate project-specific mitigation strategies where needed to avoid adverse impacts. The impacts and mitigation section

will include: a summary of applicable plans and regulations, the significance criteria, a discussion of potential impacts from existing contamination or use of hazardous materials during the proposed oil well drilling and site development. Appropriate mitigation measures will be incorporated for identified significant impacts. Modifications to the existing Business Plan and the SPCC Plan to include equipment and hazardous materials used by the proposed project may be required by the Santa Barbara County Fire Department. The impact analysis will discuss the potential for upset incidents and unintentional releases.

Risk of Upset. Aspects of the project that can increase the potential for an accident, or the consequences from an accident, include the existing land uses, pipeline network, seismic faults, terrain, and atmospheric conditions (stability and wind speed) will be analyzed. The main objective of the Risk of Upset analysis is to disclose to the public and decision-makers, the project potential for serious accidents, to assess the safety and environmental risks of spill events, and to develop mitigation measures that could reduce these risks. This evaluation will consider the potential for risks using existing available information. The assessment will also consider incident reports in determining the potential for accidents at the project site. Fire hazards and the potential for explosions may be potential hazards that need to be addressed based on review of existing information regarding the project site and oil field operations. If needed, mitigation will be designed to clearly delineate recommendations for process safety and controls.

The scope of work consists on determining the incremental risk of injury to workers and the public (acute risks) associated with WCCRP development scenarios and alternatives to include:

- Drilling and completion of potential new wells including stimulation treatment using cyclical steam injection;
- Use of existing wells including stimulation treatment using cyclical steam injection;
- Steam generation from recycled produced water using refurbished exiting steam generators;
- Transportation of recovered oil by truck to Philips 66 Tank Battery;
- Releases of hazardous materials including water treatment chemicals, natural gas and crude oil due to casing failure, blowouts, spills; and
- Releases due to gathering system and interconnecting piping leakage, and production processing facility upsets.

4.4.4 Geologic Processes/Geologic Hazards

Background and Issues

The Geology and Soils section will describe effects related to geology, soils, and seismic hazards that have the potential to be caused by implementation of the ERG Operating Company West Cat Canyon Revitalization Plan and Development Plan. The WCCRP Project would include construction and modification of well pads, drilling of new wells, construction of associated in-field gathering pipelines, access roads, and replacement of the PUC Gas Pipeline between SR135 and the southern ERG lease boundary. The EIR section will address existing environmental conditions in the affected area, identify and analyze environmental impacts of construction and operation of the proposed WCCRP Project, and would include recommended measures to reduce or avoid adverse impacts anticipated from Project construction and operation. In addition,

existing laws and regulations relevant to geology, soils, and seismic hazards will be described. In some cases, compliance with these existing laws and regulations may reduce or avoid certain impacts that might otherwise occur with the implementation of the Project.

Existing geology and soils information from previous Development Plans and other existing and supplemental data from the Applicant will be relied on for Geologic Processes/Geologic Hazards section. Additional research will include local geology and soils information, seismic and geologic hazards, and oil field conditions related to natural oil seeps or oil spills and leaks that have resulted in soil contamination. A key issue of the WCCRP is the potential for cyclic steam enhanced recovery to cause new oil seeps or leaks within old wells (active and abandoned) where the casing or seals are unable to sustain the injection pressures. Although the anticipated cyclic steam injection will not require great pressures and the production zones in the Sisquoc Formation are 2,000 to 3,000 feet deep, seepage pathways could develop along faults or nearby wells. DOGGR will be contacted to research field history, well condition including casing corrosion/pressure test results, and occurrence of natural seeps. Additional sources of information include, but are not limited to: geologic and seismic reports and maps published by the United States Geological Survey (USGS), California Geological Survey; soil reports and data published by the Natural Resources Conservation Service; and hazardous material and soil contamination data from the RWQCB, DTSC, and DOGGR. Published Journal articles and other online sources will also be researched. The literature review will be supplemented by an analysis of aerial photographs and topographic maps of the area to verify geomorphic features associated with geologic hazards such as landslides.

Environmental Setting

The Cat Canyon Oil Field is located in northern Santa Barbara County in the Solomon Hills. ERG's WCCRP lease area occurs in the Sisquoc, East, and Central Areas of the Field as defined by DOGGR; the new well pads, access roads, and well drilling are planned for the East and Sisquoc Areas. Cat Canyon Oil Field production began following drilling of the discovery well to 3,200 feet in 1908. Topography of the Project area ranges from gently sloping terrain along and near the drainage bottom to moderately to steeply slopes along the canyon walls with elevations ranging from approximately 500 to 1,000 feet above sea level. The sloping hillside terrain is currently cut by numerous graded well pads and access roads.

The Project area is primarily underlain by Pliocene age Careaga sandstone, Pliocene-Miocene age Sisquoc Formation, which is in turn underlain by late Miocene age Monterey formation. Within the Cat Canyon Oil Field petroleum production occurs in structural and sedimentary traps within the Sisquoc and Monterey formations. Ground disturbing activities related to construction of new roads and drilling pads will occur in alluvium, terrace deposits, and the Paso Robles Formation, all of which are predominantly sandstone, conglomerate and minor claystone. Soils overlying these surface geologic units reflect the character of the underlying sediments and will likely be susceptible to erosion. Areas of clayey soils could be expansive which could cause damage to facilities due to shrinking and swelling with moisture changes. Landslides occur locally in the Solomon Hills; small slumps and landslides occur on steeper hillsides. Other unsuitable soil conditions include corrosive soils, erodible soils, and contaminated soils. The historic and current

use of the site as producing oil field may have resulted in soil contamination from oil field activities, including known or unknown pipeline leaks, spills, and equipment leaks.

The Project area is located in an area of relatively low seismicity in central California; however, the San Andreas Fault Zone is located approximately 38 miles east of the Project area. Additionally several significant potentially active Quaternary faults are located within the Project vicinity: the Hosgri, Nacimiento, Foxen Canyon, East and West Huasna, Casmalia, and Rinconada faults. Several smaller Quaternary faults, including the Bradley Canyon, Garey, and unnamed faults pass through or very near the WCCRP Project area. Despite the presence of these faults near the Project, no known active faults cross the site and estimated groundshaking is low to moderate.

Impacts and Mitigation Measures

Geologic and soil conditions will be evaluated with respect to the impacts the Project could have on local geology, as well as the impact that specific geologic and seismic hazards and soil conditions may have upon the proposed Project. Potential issues in the project area will likely include geologic hazards such as erosion, slope instability, and unsuitable soil conditions. Although seismic hazards such as liquefaction and strong seismic groundshaking are unlikely to occur in the Project area, the potential for these impacts will be addressed to provide a comprehensive discussion of this issue area. The Project area is located in areas with locally steep canyon sides where grading for new well pads and access roads could cause erosion and slope instability. Recent and historic incidents of oil seeps, pipeline failure, or casing leaks will be evaluated as possible indicators of future incidents that may occur during enhanced recovery. New or increased flow from natural seeps and possible casing failures of idle or active wells could result in petroleum discharges at the ground surface. Our geotechnical expert will work with our risk of upset specialist to address claims that steam injection pressures could potentially induce seismic activity.

The significance of all impacts will be determined on the basis thresholds of significance in the CEQA guidelines. Based on review of the previous EIRs and supplemental data, geologic, soils, and seismic hazards for the Project alignment will be analyzed. Potential effects of the proposed Project will be assessed and compared with effects of proposed Project alternatives. In order to reduce any identified impacts to less than significant, existing Mitigation Measures from earlier current EIRs on steam injection, or new measures will be incorporated and modified as appropriate to mitigate impacts resulting from construction and operation of the WCCRP and Development Plan.

4.4.5 Historic/Cultural Resources

Aspen will prepare the Historic Resources section of the EIR based on a limited pedestrian survey and the peer-review of the Central Coast Archaeological Research Consultants (CCARC) 2014 report examining well pad and facility locations and the Heritage Discoveries Inc. (HDI) 2013 report examining the pipeline route. As identified in the RFP, expanded production will take place on 102 well and equipment pads, nine equipment areas and production facilities, and inner field piping routes within the Cat Canyon Oil Field. It will also include the replacement of the 3.5 mile long PUC natural gas pipeline.

Background and Issues

The proposed project is located in northern Santa Barbara County between Soloman Canyon and the Santa Maria Valley, approximately 20 miles east of the Pacific Ocean. In prehistoric times, the proposed project area was part of the territory of the Purismeno branch of Chumash speaking people. Based on previous research, prehistoric archaeological sites are most often found in close proximity to water, such as rivers, creeks, lakes, or natural springs, fairly level slopes as on mesas or floodplains, marsh/wetland areas, and drainage confluences. In addition, hardened oil from seeps in the Santa Barbara area, called asphaltum, was mined extensively in prehistoric times. This material was essential for repairing, gluing, and waterproofing tasks. Based on this information, the Orcutt Community Plan EIR completed (1995) identifies the Solomon Hills, as well as nearby creek corridors, as archaeologically sensitive.

In historic times the proposed project area was first occupied in the 1870s by homesteading families that planted fruit orchards. However, beginning in the 1908, the area has been the focus of long-term oil exploration. Cat Canyon Oil Field once included worker housing, a school, and transport infrastructure including rail lines. While only a few isolated artifacts were found in the surveyed areas, other research in the vicinity has identified small prehistoric artifact scatters, historic domestic structures and trash associated with both domestic and oilfield contexts. Based on this information, additional historic structures and buried historic archaeological deposits may still be present in the proposed project area.

Environmental Setting

Aspen will use existing reports to prepare the environmental setting for Historic Resources. Based on our review of the report by CCARC, 9 well pad locations were not examined. In addition, the HDI report does not address the potential for buried resources along the pipeline route. Therefore some supplemental cultural resources work may be needed. To address this issue, Aspen proposes to conduct the following tasks:

- Conduct a limited pedestrian survey of the 9 well pads which were not examined by CCARC. If encountered, all potentially significant cultural resources, including previously recorded cultural resources, will be documented on State of California Department of Parks and Recreation Primary and Archaeological Site Forms (DPR 523 [1995]).
- Site locations will be plotted on the appropriate 7.5' USGS quadrangle using data collected with a Trimble GeoXT 2005 Series handheld Global Positioning System (GPS) unit with sub-meter accuracy. Site or locality maps will be prepared using this same GPS unit. Digital photographs of each site or cultural feature will also be taken. This will be a Non-Collection Survey; as such, no artifacts will be collected from the surface during the survey.
- Conduct a brief desk-top study of the pipeline route to identify the location of areas of high sensitivity for buried cultural resources.
- Aspen will prepare a summary of non-confidential information regarding the Historic Resources assessment for inclusion in the EIR, and will prepare a separate technical report for submittal to the County with more specific information. Aspen will include a brief description of the supplemental survey area and results, methods, survey results, and preliminary assessment of California Register of Historical Resources (CRHR) eligibility, and recommendations for mitigation measures and further cultural resources management. The results of the desk-top buried resource sensitivity study will also

be included in this technical report. No additional records searches or consultation with local Native American tribes will be included, as the CCARC or HDI reports are assumed to be sufficient.

Impacts and Mitigation Measures

Resources will be analyzed for significance based on the State CEQA and Santa Barbara County guidelines regarding what constitutes a significant impact on cultural resources. Assessment of the significance of cultural resources according to Santa Barbara County guidelines involves a detailed rating system derived from a three phase process: Phase 1 involves a literature search and a ground survey, Phase 2 consists of significance determination, and Phase 3 identifies mitigation measures. The criteria considered in Phase 2 are described in the County Environmental Thresholds Manual and consist of features such as age, integrity, and associations of the site.

This analysis will be used to determine whether the project may adversely affect the significance of a historic resource. Project-specific impacts include direct and indirect impacts. Direct impacts result from land modification directly and immediately caused by the construction, landscaping, operation, or maintenance of a facility. Indirect impacts also occur as a result of a specific project, but do not result from intentional ground disturbance. Common indirect impacts include erosion, unauthorized artifact collecting, and vandalism.

Feasible mitigation will be identified for each resource, based on the type of project impact, and the extent to which the proposed improvement may encroach on the resource. Emphasis will be on avoiding all resources, to the extent that feasible project redesign will not result in ancillary increased impacts (i.e., increased grading of unstable slopes, removal of sensitive biological resources, etc.). Where complete avoidance of cultural resources does not appear to be feasible, additional fieldwork may be identified as mitigation. This may include an Extended Phase 1 Investigation using shovel test pits (STPs) to precisely define subsurface site boundaries. Additional mitigation for resource impacts could include construction monitoring, and a pre-construction meeting with the monitor and construction personnel to discuss the importance of resources and improper collection of artifacts, etc.

The ability of mitigation to feasibly mitigate potential impacts on each of the archaeological resources will be clearly discussed to avoid any perception of “deferring mitigation” subsequent to decision-maker approvals. This will ensure that the mitigation is deemed legally defensible in light of the Madera decision (Madera Oversight Coalition, Inc. v. County of Madera [2011] 199 Cal.App.4th 48).

4.4.6 Transportation

Background and Issues

Because traffic volumes are generated under existing field operations, the analysis will focus on the incremental contribution of traffic from proposed activities (baseline plus project traffic conditions). According to the Applicant’s traffic study, the proposed surface activities would not generate new traffic volumes and truck movements that could adversely impact existing levels of service (LOS) and applicable performance standards of the circulation network. During construction, 2 trucks and 20 passenger one-way vehicle trips would occur per day. Oilfield

expansion would generate 58 truck and 116 passenger one-way vehicle trips per day. During maintenance or an emergency, 42 one-way truck trips would occur per day.

Aspen's preliminary review of the applicant's traffic study for the proposed project found it to be adequate for preparation of the baseline with project analysis. However, additional information may be required with respect to assessing cumulative traffic impacts. Aspen would work with the County and applicant's traffic consultant to ensure that a "future with project plus cumulative" traffic scenario is adequately analyzed.

Environmental Setting

Environmental setting information will be based on the Applicant's traffic study for all study area intersections and roadway segments. All study area intersections and road segments will be inventoried with regard to such physical characteristics as number of lanes, types of traffic control devices, driveway/access locations, and presence of any pedestrian/bicycle lanes. County staff will first be consulted to confirm that the study area intersections and roadway segments included in the Applicant's traffic study, environmental setting study area, and analysis appropriately address all transportation locations of concerns in the project area.

Impacts and Mitigation Measures

Based on Aspen's preliminary review of the Applicant's traffic study, construction and operational traffic associated with the proposed project may not have a significant impact on existing transportation and traffic conditions. To address the potential for traffic congestion, the assessment will rely on the traffic study to quantify the number of daily trips generated and their distribution and routes, and then consider how "with project" traffic will effect before and after conditions on study area roadways and intersections (i.e., conditions with and without proposed project). Furthermore, Aspen will work with the County to determine the need for evaluating potential increased wear and damage to study area roadway segments and any need for mitigation ensuring fair-share contribution of the project.

The proposed project would not displace public parking or result in temporary lane closures from equipment staging and employee parking needs. Therefore, these issues would not generate any adverse impacts. While not considered a significant issue, the analysis will discuss applicable bicycle/pedestrian routes along study area roadway segments and intersections. If necessary, potential mitigation may include the Applicant working with the County to develop and approve a traffic control plan to mitigate potential impacts.

4.4.7 Noise

Background and Issues

The noise and vibration analysis will focus on potential adverse impacts from temporary construction-type noise (including vehicle noise) and permanent stationary noise sources. Aspen's approach to noise and vibration will begin with a comprehensive review of the noise technical study provided by the Applicant. Our preliminary review of the report identified the applicant's study defers to the typical equipment noise levels identified within the Final Mitigated Negative Declaration for the North Garey Oil Project. Therefore, a detailed review of this CEQA

document is necessary to determine adequacy and applicability of information into this project analysis.

Before assessing noise impacts from proposed activities, details such as predicted decibel levels, duration, etc. for each activity will be verified in comparison to the location of adjacent noise sensitive receptors. The noise and vibration analysis will identify specific recommendations and noise mitigation components to reduce adverse impacts to the extent feasible. Such measures may include ensuring all noise sources have enough distance from receptors to minimize noise and vibration, use of sound walls or other attenuation, and limiting the hours of activities.

Environmental Setting

The EIR environmental setting will begin by documenting the ambient noise levels of the project area. Because ambient noise levels are not presented in the applicant noise study, it is recommended up to five (5) ambient noise measurements be taken at the residential locations identified in the applicant's noise study, Attachment 1. The environmental setting for noise will also identify all applicable noise performance standards identified in applicable plans and policies.

Impacts and Mitigation Measures

The EIR will utilize information as feasible from the applicant's noise study, Final Mitigated Negative Declaration for the North Garey Oil Project, and/or additional information requested from the applicant. The noise and vibration analysis will consider all aspects of construction, from equipment use to project-related traffic along travel routes proximate to the work areas. Finally, the noise and vibration analysis will consider all concerns presented during public scoping.

A preliminary review of the applicant noise study shows predicted noise of the Project was compared against County noise thresholds. Based on the distance of adjacent residences, attenuation of noise at these locations was compared against the County's 65 dBA Community Noise Equivalent Level (CNEL) threshold. However, these noise levels were not compared against ambient noise measurements at these sensitive receptor locations. If necessary, the noise analysis would provide additional site-specific noise analyses at each location against ambient noise measurements. This analysis would also consider noise and vibration from mobile equipment should the travel routes occur more proximate to these residences than well pads. Feasible mitigation and an assessment of the effectiveness of proposed noise reduction features, monitoring plans, and other noise and vibration attenuation measures will be presented.

4.4.8 Water Resources

Background and Issues

Aspen will provide a thorough discussion of all potential issues related to water and hydrology, including but not limited to water supply, stormwater runoff, groundwater recharge, and surface and groundwater quality. Aspen water resources specialists will also coordinate with biologists and geologists, to ensure that all potential impacts are appropriately characterized. Potential issues include:

- **Surface Water Drainage.** The project's internal drainage system and the volumes and locations of containment areas will be identified to assess the potential for impacts to drainage and runoff patterns.
- **Surface Water Quality.** Drilling, grading and excavation activities may result in erosion and sedimentation across the project site, particularly if precipitation effects occur. In addition, heavy equipment and machinery could potentially result in an accidental release of hazardous materials.
- **Water Supply.** All water used for steam generation will be obtained from the brine water presently produced by field operations on the Project property. No fresh water from any source is used in steam generation. Prior to conversion to steam, the water is treated in ERG's existing Recruit Softwater Plant. Once the produced water is converted to steam by the generators the steam is transported to various wells via steam pipelines and manifolds. Uses of fresh groundwater on the site will be limited to domestic services such as landscape irrigation, office restrooms, and other uses. The EIR will assess the project's water requirements and water source, and will recommend project-specific mitigation measures if necessary to reduce or avoid impacts.
- **Groundwater Resources and Quality.** Project drilling and other activities may affect underlying groundwater resources; the water resources section of the EIR will assess the project's potential to affect groundwater supply and groundwater resources. Local farms rely on fresh groundwater for domestic and irrigation uses. However, several local water supply wells are located less than 4,000 feet from the new and existing oil wells. One water well within the oil field is only 170 to 550 feet from three oil wells. Generally the water wells are much shallower than the oil well producing zones. However, with the use of cyclic steam injection it may be possible for steam and steam-water-oil mixtures to migrate vertically along fractures or faults and reach the freshwater aquifer(s) resulting in potential adverse effects to groundwater quality; for instance, the disruption of contaminated subsurface soil may degrade groundwater quality through re-suspension, and possibly through conveyance to the surface. The water resources section of the EIR will assess all project activities against existing conditions in the project area to accurately characterize how groundwater resources and quality could be affected.

Environmental Setting

Aspen will prepare thorough descriptions of the regional and local hydrologic setting relevant to the proposed project, including discussion of watersheds, surface water drainages and runoff patterns, groundwater resources, and water quality (surface and subsurface). The environmental setting will be prepared based on a review of published maps and information to characterize the topography, areas of previous grading and spoils, and the location of drainages, creeks, and springs.

Local residence and growers rely on groundwater as their sole source of fresh, potable water. Shallow and deep water wells tap aquifers in the Santa Maria Groundwater Basin for domestic and extensive agricultural uses in the Sisquoc Valley and surrounding hills. The Santa Maria Valley Management Area (SMVMA) monitors the Santa Maria Groundwater Basin that includes a network of shallow and deep monitoring wells. Golden State Water Company supplies water to the community of Sisquoc with locally produced groundwater. SMVMA monitors two deep groundwater wells and three shallow wells in the Sisquoc Valley area. Several irrigation supply wells located in Sisquoc Valley tap the aquifers of the alluvial deposits and Paso Robles Formation. Other private wells are located in the hills near the oil field likely intercept sandstone aquifers in the Paso Robles Formation.

Groundwater information and data from the Applicant, if available, will be reviewed. Well records, water level data, and water quality information will be researched for potable supply wells near Sisquoc and surrounding rural residences, growers, and livestock wells. Santa Maria Valley Management Area, Golden State Water Company, and California Department of Public Health will be contacted to obtain available data, reports, and records.

Impacts and Mitigation Measures

Hydrogeologic conditions and the local fresh groundwater resources will be evaluated with respect to the impacts the Project may have on local water supplies and quality. Recognizing that the Project will not be using fresh groundwater for steam generation and will not significantly increase the limited groundwater pumping for office restrooms and landscape irrigation, direct impacts to the local groundwater supply are not anticipated. However, nearby wells could be impacted if oil seeps or spills to the ground contaminate stream channels and groundwater recharge areas. In addition, fresh aquifers could be contaminated if steep injection results in steam-oil-water mixtures following geologic pathways or leak from damaged oil well casings and seals. Contamination of aquifers could significantly impact water quality and result in loss of the local fresh groundwater resource for growers, ranchers, and nearby residences, as well as the community of Sisquoc.

Aspen will assess all potential direct and indirect effects of the project, and develop appropriate mitigation strategies where needed to avoid adverse impacts. Guidance documents will be reviewed to determine potential impacts to water and hydrology associated with the project.

Impact assessment will include but is not limited to the following: review the project description and available studies to determine how project features and activities could affect hydrology and water quality of the project area; evaluation of the potential alterations of proposed drainage improvements and drainage patterns; assessment of groundwater supply availability and quality, including evaluation of groundwater depth against project construction and operation practices to determine the likelihood of introducing hazardous materials to groundwater; and close consideration of drilling operations that could adversely affect groundwater resources.

Aspen will develop project-specific mitigation measures as necessary to avoid adverse impacts. Mitigation strategies may include the use of best management practices to ensure high-quality discharge of production water. If the impact analysis demonstrates that the project has a potential to impact groundwater resources, we may recommend implementation of a groundwater monitoring and reporting plan to ensure the continued integrity of local groundwater supplies.

4.4.9 Cumulative Impacts

As required by CEQA Guidelines Section 15130, cumulative impacts will be discussed for each of the eight issue areas. The cumulative assessment will use similar threshold of significance to those identified for the project-specific analysis and will consider past, present, and reasonably foreseeable future projects. If significant impacts are identified, Aspen will develop mitigation to reduce impacts. This assessment will be qualitative except for GHG emissions, which are already evaluated in a context of their cumulative impacts to global climate change. As noted in the RFP,

the surrounding oil and gas development on other oil and gas leases in the vicinity will be considered in the cumulative analysis.

4.4.10 Alternatives

Alternatives will be designed to avoid and/or substantially reduce any impacts that cannot otherwise be mitigated to a level below significance. At this time and based on the County's initial evaluation of impacts, Air Quality/GHG, Geology/Groundwater, and Hazardous Materials/Risk of Upset are considered the primary issue areas that may need to be addressed. This analysis will consider the No Project Alternative, Reduced Alternative, and other alternatives as appropriate and to be developed in consultation with County staff. The alternatives discussion will include an analysis of environmental impacts of each alternative considered, along with a comparative analysis (matrix) to distinguish the relative effects of each alternative and its relationship to project objectives. The alternatives analysis will also identify the "environmentally superior alternative" as required by State CEQA Guidelines Section 15126.6e (2).

4.4.11 Land Use/Policy Consistency

In addition to the technical analyses presented in Sections 4.3.1 through 4.3.8, Aspen will prepare an analysis of the Project's consistency with adopted plans and policies of the County's Comprehensive Plan and Land Use and Development Code (LUDC). Aspen understands that this analysis will be used to support County Staff during preparation of its Staff Report for decision makers, and would also serve to comply with State CEQA Guidelines Section 15125(d). Per State CEQA Guidelines Section 15382, an inconsistency with adopted land use policy is only considered significant if that inconsistency would cause an adverse and significant impact on one or more of the physical attributes associated with the area affected by the Project.

Upon completion of the Project Description and establishment of both the Applicant's vested, or permitted rights and baseline conditions, Aspen will collect from the County's website all applicable Elements and related Supplements of the Comprehensive Plan and prepare a two-column table that contains, in the first column, a listing of all relevant policies and goals and, in the second column, an assessment of whether or not the Project can be found consistent with each of them. The assessment will be based upon the conclusions of EIR's various technical analyses and impact conclusions. Key Elements and Supplements are anticipated to include the:

- Open Space Element
- Agricultural Element
- Environmental Resource Management Element
- Conservation Element and related Oak Tree Supplement
- Circulation Element
- Energy Element
- Seismic Safety and Safety Element and Safety Element Supplement
- Land Use Element and related Air Quality Supplement

Prior to starting the consistency analysis, Aspen will provide a draft of the table to County Staff to ensure that all applicable Elements and Supplements and their related policies and goals are satisfactorily accounted for. It is assumed that all of the documents needed from the County's website can be readily used for "select, copy and paste" into a Word-formatted file.

In addition to the above, an assessment of the Project's consistency with the County's LUDC will be prepared. Aspen understands that the Project property is zoned AG-II. In accordance with Land Use Development Code Table 2-1 and Section 35.5, oil and gas extraction is an allowed use within the AG-II zone district. No change in existing land use designation and/or zone district is proposed as part of the Project.

4.4.12 Other CEQA Considerations

In addition to the topics noted above, the EIR will address the other environmental topics required by CEQA and will summarize the issue areas identified by the County as being less than significant. This section will address the following:

- **Significant Environmental Effects Which Cannot Be Avoided if the Project Is Implemented.** If identified, this section will briefly describe any significant unavoidable impacts resulting from the EIR analyses. If no significant unavoidable impacts are identified then this section will include a brief statement regarding the conclusions or findings of the EIR.
- **Significant Irreversible Changes Which Would Be Involved.** Section 15126.2(c) of the CEQA Guidelines requires a discussion of any significant irreversible changes caused by implementation of the project. This section will discuss the use of any non-renewable resources, secondary impacts, and irreversible changes.
- **Growth-Inducing Impacts.** Under CEQA, a project may be growth inducing if it directly or indirectly fosters economic or population growth or the construction of additional housing, removes obstacles to population growth, overtaxes community service facilities, or otherwise facilitates activities that cause significant environmental effects.
- **Effects Found Not to be Significant.** This discussion will be a summary of the issues identified as not being significant. As identified in the RFP, the issues considered in this summary discussion include:
 - Aesthetics/Visual Resources
 - Agricultural Resources
 - Energy
 - Fire Protection
 - Land Use
 - Public Facilities
 - Recreation

4.5 Task 5 – Draft EIR and Technical Appendices

Aspen will obtain all comments on the Administrative Draft EIR from the County's Project Manager, who will compile one set of unified comments for use in revising the document. Aspen will complete revisions to the Administrative Draft EIR in conformance with the County's comments and the agreed-upon scope of services and schedule. As illustrated in Exhibit 5, Aspen will provide the Draft EIR within 20 working days of receiving the County's final comments on the Administrative Draft EIR.

Aspen assumes that Energy & Minerals Division staff will be responsible for all distribution and noticing of the Draft EIR, including filings with the State Clearinghouse and posting on Planning and Development's website. Aspen will provide one (1) reproducible unbound copy, twenty-five (25) bound copies, twenty-five (25) electronic copies on CD, and one (1) electronic copy of the Draft EIR on CD with the document divided into chapters and technical appendices, and in a searchable pdf format.

4.6 Task 6 – Written Summary of Public Hearing Comments

Aspen understands that one Public Comment Hearing on the Draft EIR will be conducted during the public and agency review period in Santa Maria. The Aspen Project Manager will attend this hearing. Aspen assumes that a brief summary presentation of project-related issues, impacts and public and agency comments will be prepared for the hearing, contingent upon further coordination with the Energy & Minerals Division Project Manager.

Aspen will prepare a summary of the comments received on the Draft EIR during the Public Comment Hearing five (5) working days after the hearing (see Exhibits 5 and 6 in Section 5). The summary will contain a description of the Public Comment Hearing's date, time, location and duration, as well as the summary of comments that were expressed. Per the County's RFP, Aspen will submit one reproducible unbound copy and one electronic copy of the summary comments either on CD or emailed to the Energy & Minerals Division.

4.7 Task 7 – Responses to Comments on Draft EIR

Aspen will prepare and submit written responses to comments received on the Draft EIR 30 working days after the close of the public comment period. Aspen will work closely with the Energy & Minerals Division Project Manager to ensure that all comments received are properly identified and logged according to type of commenter (e.g., agencies, special interest groups, and individuals) so that they can be easily tracked and retrieved. Aspen will organize all of the comment letters received and review each letter to appropriately identify each specific comment contained within it. Individual comments will then be categorized according to their resource/issue-specific focus, and each appropriate technical analyst will then be provided with the comments that require his or her technical expertise for responses. Once the draft responses to comments are complete, Aspen technical staff will submit their responses to the Aspen Project Manager who will coordinate the compilation of responses and ensure that the responses adequately address the comments in a clear, concise, and unbiased manner.

Responses that are within our proposal's scope and budget consist of explanations, elaborations, or clarifications of the data contained in the Draft EIR. If responses to comments cause the need for new analyses, the assessment of additional issues or alternatives, or the evaluation of substantial changes to either the project or the geographic area of study, a commensurate contract amendment and/or schedule revision will likely be requested.

Consistent with the RFP, Aspen will submit one reproducible unbound copy of the responses and one electronic copy on CD or emailed to Energy & Minerals Division staff.

4.8 Task 8 – Administrative Final EIR

Aspen will prepare and submit an Administrative Final EIR within 30 working days of receipt of the County's final comments on the Draft EIR's written responses to comments. Following receipt of the County's comments, Aspen will revise the text of the Draft EIR according to public and agency comments. All text revisions will be made in "strike-out and underline" mode so that all text changes are readily visible and understood. The Administrative Final EIR will contain a Mitigation Monitoring and Reporting Program for the project that includes each proposed

mitigation measure, the timing of its implementation, and the parties responsible for its implementation and reporting.

Aspen will submit one reproducible unbound copy, three bound copies and three electronic copies of the Administrative Final EIR on CD with the files divided into chapters. As noted under Task 6 (Written Responses to Comments), should preparation of the Administrative Final EIR require substantial new analyses such as the evaluation of additional alternatives, a greater geographic study area, or new resource-specific/issue areas, a contract and scope amendment and/or schedule revision may be requested.

4.9 Task 9 – Draft Final EIR

Aspen will prepare and submit the Draft Final EIR within 20 working days of receipt of all final County comments on the Administrative Draft EIR. Aspen will provide one (1) reproducible unbound copy, twenty (20) bound copies, and twenty (20) electronic copies on CD and two (2) electronic copies of the Draft Final EIR on CD with files divided into chapters.

Aspen assumes that Energy & Minerals Division staff will be responsible for all document distribution and noticing, including posting on Planning and Development’s website. Aspen additionally assumes that Energy & Minerals Division staff will be responsible for preparation of the document’s Findings of Fact and Statement of Overriding Considerations (if necessary). We routinely prepare these types of decision-making documents for our clients, and fully understand their legal and technical requirements; we will be happy to complete them for you with approval of a commensurate scope and budget modification.

Aspen assumes that one Planning Commission Hearing on the Project will be conducted in Santa Maria. The Aspen Project Manager will attend this hearing, as well as up to three technical specialists as requested by the County. Given the potential for controversial public input, we recommend that our air quality/GHG, geologist/hydrogeologist, and risk of upset technical experts attend as appropriate; however, this list can be modified based on project needs. Aspen assumes that a brief summary presentation of project-related issues, impacts and public and agency comments will be prepared for the hearing, contingent upon further coordination with the Energy & Minerals Division Project Manager.

4.10 Task 10 – Final EIR

Should decision makers recommend revisions to the Draft Final EIR, Aspen will prepare a Final EIR to reflect those suggestions. Should these recommendations involve additional in-depth analyses, re-analyses or new or expanded alternatives, a commensurate cost amendment may be requested. All modifications to the text of the Draft Final EIR will be made in “strike-out and underline” mode so that all revisions are readily seen and clearly understood. Per the County’s RFP, one unbound reproducible copy, five (5) bound copies, one (1) electronic copy on CD, and two (2) electronic copies of the Final EIR on CD with the document divided into chapters will be submitted to the Energy & Minerals Division Project Manager. Aspen will submit the Final EIR within 15 working days after the final decision-maker action.

As noted above, we assume that Energy & Minerals Division will be responsible for all document distribution and noticing, including posting on Planning and Development’s website.

5. Schedule

As requested in the RFP, Aspen has prepared a schedule consistent with the Deliverables and Proposed Project Schedule presented in the RFP. Exhibit 5 provides project tasks with the deliverables and timeframes provided for each task. Exhibit 6 provides our estimated schedule for completion and finalization of the EIR in a graphic format.

Aspen is fully committed to meeting or expediting this schedule, and will ensure that all Team members and resources are available as identified in this proposal. Aspen often works on expedited schedules, and we can confidently state that we will achieve all project milestones and deliverables on time and within budget.

Exhibit 5. Deliverables and Timeframes		
Tasks	Deliverables	Timeframes
Task 1: Notice of Preparation and Scoping Documentation	1 reproducible unbound 15 bound copies 15 electronic copies on CD 1 electronic copy on CD	20 working days from Notice to Proceed
Task 2: Written Summary of Comments at the Scoping Meeting	1 electronic copy on CD or email	5 working days after scoping meeting
Task 3: Project Description, Environmental Setting, and Description of Project Alternatives	1 electronic copy on CD or email	25 working days after scoping meeting
Task 4: Administrative Draft EIR and Technical Studies	1 reproducible unbound 3 bound copies 1 CD – searchable	80 working days after scoping meeting
Task 5: Draft EIR and Technical Appendices	1 reproducible unbound 25 bound copies 25 electronic (CDs) 1 CD – searchable	20 working days after final comments on Admin Draft
Task 6: Written Summary of Comments at the Public Hearing on the Draft EIR	1 reproducible unbound 1 electronic copy on CD or email	5 working days after public comment hearing
Task 7: Responses to Comments on Draft EIR	1 reproducible unbound 1 electronic on CD or email	30 working days after close of comment period
Task 8: Administrative Final EIR	1 reproducible unbound 3 bound copies 3 CDs – searchable	30 working days after receipt of County's final comments on response to comments
Task 9: Draft Final EIR	1 reproducible unbound 20 bound copies 20 electronic (CDs) 2 CDs – searchable	20 working days after receipt of the County's final comments on Admin Final EIR
Task 10: Final EIR	1 reproducible unbound 5 bound 1 electronic copy on CD 2 CDs – searchable	15 working days after final action

Exhibit 6. Project Schedule

	Jan 2015	Feb 2015	Mar 2015	Apr 2015	May 2015	Jun 2015	Jul 2015	Aug 2015	Sep 2015	Oct 2015	Nov 2015	Dec 2015	Jan 2016
Notice to Proceed	█												
Task 1: Notice of Preparation and Scoping Documentation		█	█										
Task 2: Written Summary of Comments at the Scoping Meeting			█										
Task 3: Project Description, Environmental Setting, and Description of Project Alternatives			█	█									
Task 4: Administrative Draft EIR and Technical Studies			█	█	█	█							
Task 5: Draft EIR and Technical Appendices						█	█	█	█				
Task 6: Written Summary of Comments at the Public Hearing on the Draft EIR								█	█				
Task 7: Responses to Comments on Draft EIR									█	█			
Task 8: Administrative Final EIR										█	█	█	
Task 9: Draft Final EIR												█	
Task 10: Final EIR													█
Public Meetings and Hearings			●					●					●

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Schedule Notes

- Scoping Hearing
- Public Comment Hearing
- Planning Commission Hearing
- █ Aspen Preparation
- █ P&D Review, Comment & Noticing/Distribution
- █ 45-day public review period for Draft EIR

The Schedule assumes that meetings with P&D staff will be conducted at the request of staff.

If the Planning Commission decision is appealed to the Board of Supervisors, then the Final EIR will be prepared after the Board meeting.

6. References

This section provides references who can attest to the performance of Aspen's past work and project leadership. Aspen has received excellent feedback on our work on behalf of our clients and we encourage the County to discuss our performance with personnel from these agencies and company. We are confident that the responses from these references will be very positive. The high quality of work performed by the Aspen Team is illustrated in the numerous environmental documents we have completed for our clients throughout the State. This work has been publicly recognized by the Association for Environmental Professionals (AEP) and the American Planning Association (APA).

6.1 Client References

- 1) **Mr. Kevin Drude**
Deputy Director, Energy Division
County of Santa Barbara, Planning and Development
123 East Anapamu Street
Santa Barbara, CA 93101
Phone: 805-568-2519

- 2) **Mr. Steve McMasters**
Senior Planner
San Luis Obispo County, Planning and Building Department
976 Osos Street, Room 200
San Luis Obispo, CA 93408
Phone: 805-781-5096

- 3) **Mr. Ian Black**
Senior Solar Developer
EDF Renewable Energy
Phone: (925) 365-3731

- Awards from AEP and APA
- **Outstanding Environmental Analysis Document Award** for the Panoche Valley Solar Farm Project EIR (AEP)
- **Outstanding Environmental Analysis Document Award** for the Jefferson-Martin 230-kV Transmission Project EIR (AEP)
- **Outstanding Environmental Document Award** for the New Schools Construction Program EIR (APA)
- **Outstanding Environmental Analysis Document Award** for the Ocotillo Wind Energy Facility EIS/EIR (AEP)

Appendix A

Aspen Team Resumes

Jon Davidson, MURP

Vida Strong, MUP

Brewster Birdsall, MS, PE, QEP

Chris Huntley

Jennifer Lancaster, MS

George Hampton

Peter Stickle, PE

Elizabeth Bagwell, PhD, RPA

Evan Elliott, MA, RPA

Jim Thurber, PG, CEG, CHG

Aurie Patterson, PG

Aubrey Mescher, MESM

Scott Debauche, CEP

Sue Walker, MA

Susanne Huerta, MUP, AICP

Tracy Popiel, MA



Academic Background

Master of Urban and Regional Planning, California State Polytechnic University, Pomona, 1985
BA, Urban Planning, University of Washington, 1981

Professional Experience

Jon Davidson is an environmental professional with more than 33 years of experience in providing consulting services to government agencies. Mr. Davidson has managed or had a major role in the preparation of more than 135 EIRs, EISs, and EAs, and has prepared over 30 plans and planning studies, including land use studies, general plans, specific plans, redevelopment plans, and site plans. He has a diverse background in land use planning, policy formulation, environmental review, technical writing, public presentation, and project management.

Aspen Environmental Group.....1997-present

Mr. Davidson is Vice President for Aspen’s southern California operations. He also manages the preparation of environment impact reports/statements, performs impact analyses on a variety of issues, and manages support for environmental planning projects.

- **Coolwater-Lugo Transmission Project EIR/EIS.** Project manager for an EIR/EIS for the California Public Utilities Commission (CPUC) and Bureau of Land Management for a 64-mile 500-kV and 220-kV transmission line and substation in the upper Mojave Desert.
- **Tehachapi Renewable Transmission Project EIR/EIS.** Project Manager for the preparation of an EIR/EIS for the CPUC and USDA Forest Service for an extensive series of transmission system upgrades spanning Kern, Los Angeles, and San Bernardino Counties. These upgrades increase transmission system capacity and reliability in order to allow wind energy generated in the Tehachapi area to be delivered to California load centers.
- **Antelope-Pardee 500-kV Transmission Project EIR/EIS.** Project Manager for the preparation of a joint EIR/EIS for the CPUC and USDA Forest Service for a 25.6-mile 500-kV transmission line proposed by Southern California Edison to serve wind power projects in the Tehachapi area in Kern County and Antelope Valley in Los Angeles County.
- **Antelope Transmission Project, Segments 2 and 3, EIR.** Project Manager for the preparation of an EIR for the CPUC for a new transmission line project. The project included 46.6 miles of 500-kV line, 9.6 miles of 220-kV line, and two new substations. The project was proposed by Southern California Edison to serve future wind energy projects in the Tehachapi and Mojave areas of Kern County.
- **Deputy Program Manager, California Department of Water Resources (DWR) Contract to Provide Environmental and Technical Support Services for Southern Region Projects.** Deputy Program Manager for a contract to provide on-call environmental assessment, compliance, and monitoring services for projects associated with the State Water Project in southern California. In this role, he developed work programs and budgets for new task orders, made task order manager assignments, and oversaw the quality of products and services to DWR.
- **Program Manager, Los Angeles Department of Water and Power (LADWP) Environmental Assessment Services Contract.** Program Manager for two multi-year contracts to provide CEQA/NEPA compliance, permitting, and mitigation monitoring for LADWP water and power projects.
- **Program Manager, US Army Corps of Engineers Miscellaneous Environmental Services Contracts.** Program Manager for three consecutive multi-year environmental services contract with the Los



Angeles District. He also manages environmental impact analyses for flood control, riparian restoration, and water resources projects:

- **San Onofre Nuclear Generating Station (SONGS) Steam Generator Replacement Project EIR.** Project Manager for the preparation of an EIR for the CPUC for a project that would replace the steam generators at SONGS Units 2 and 3. The original steam generators needed to be replaced because they were degraded from stress and corrosion cracking, and other maintenance difficulties. Replacement was necessary to allow the continued operation of the plant through the end of the current NRC license period for each unit.
- **Monterey Accelerated Research System (MARS) Cabled Observatory EIR/EIS.** Project Manager for the preparation of an EIR/EIS for the California State Lands Commission and the Monterey Bay National Marine Sanctuary for an advanced undersea cabled observatory in Monterey Bay that provides researchers with long-term, real-time data access to deep-sea benthic communities and ocean processes. The project consists of a science node located on the sea floor 51 km off the coast of Monterey Bay. The node is connected to shore by a cable that provides electricity to power undersea experiments and a fiber optic cable to transmit data to shore.
- **Yellowstone Pipeline Reroute EIS.** Performed critical review and technical editing of Specialist Reports covering Socioeconomics, Public Services, and Minority and Low-Income Populations in western Montana and northern Idaho for a petroleum products pipeline and related facilities. He also prepared the sections of the EIS relating to these issue areas.
- **Program Manager, Los Angeles Unified School District Environmental Document Contract.** Program Manager for environmental services to the Los Angeles Unified School District. Assisted the District in completing CEQA review for a major new school building program.

EIP Associates..... 1993-1996

At EIP Associates, Mr. Davidson was a senior project manager for the preparation of EIRs. He prepared EIRs for a wide variety of projects, including land development projects, public policy plans, and public works projects.

Willdan Associates 1984-1993 and 1996-1997

Mr. Davidson advanced from Assistant Planner to Principal Planner while at Willdan Associates. He worked on urban planning projects for municipal agencies and also prepared numerous EIRs.

Previous Experience

From 1982 to 1984, Mr. Davidson worked at Urban Futures, Incorporated, where he assisted in redevelopment plan formulation and the preparation of planning studies and EIRs. In 1981, Mr. Davidson worked as an intern with the City of Seattle’s Office of Neighborhood Planning.

Professional Affiliations

- American Planning Association
- Association of Environmental Professionals



Academic Background

Master of Urban Planning, San Jose State University, 1991

BS, Engineering, California Polytechnic State University, San Luis Obispo, 1987

Professional Experience

Ms. Strong has extensive experience in environmental engineering and project management, with an emphasis in the application of CEQA and NEPA in analysis and resultant mitigation monitoring of controversial development projects. She has managed the mitigation monitoring, compliance, and reporting programs for numerous industrial projects on behalf of the permitting agencies. In addition, she has been involved in the management and preparation of environmental documents for numerous industrial projects, requiring the critical application of alternatives development and screening criteria, knowledge of a broad range of issue areas, and extensive local, State, and federal agency coordination. Prior to joining Aspen Environmental Group, Ms. Strong was an Energy Specialist for the Santa Barbara County Planning and Development Department's Energy Division, where she managed the permitting and environmental review of major oil and gas development projects and proposals, and oversaw the implementation of mitigation monitoring plans.

Aspen Environmental Group.....1994-present

Ms. Strong's relevant Santa Barbara County, CEQA management, and oil and gas experience includes the following:

- **Project Manager, PXP Tranquillon Ridge Development Project EIR.** Under contract to Santa Barbara County, Energy Division, Ms. Strong managed the preparation of an EIR for the proposed PXP Tranquillon Ridge Development Project. This project involves extended reach drilling from Platform Irene in federal waters into the Tranquillon Ridge Field located in State waters. Oil emulsion and gas production would be transported from Platform Irene in existing pipelines to the Lompoc Oil and Gas Plant (LOGP). The EIR focuses on the potential impacts associated with the extended reach drilling activities and extension of life of Platform Irene, the existing pipelines, and LOGP. The development of an onshore drilling facility and associated pipelines is also being assessed as an alternative. Issue areas of concern include system safety/risk of upset, marine biology and water quality, fisheries, terrestrial biology, hydrological resources, cultural resources, air quality, land use, noise, and traffic.
- **Project Manager, Lompoc Wind Energy Project Final EIR.** Under contract to Santa Barbara County, Energy Division, Ms. Strong managed the preparation of the Final EIR for the proposed Lompoc Wind Energy Project. This project involves the installation of 65 wind turbines and associated facilities including an approximately 9-mile 115-kV power line, electrical collection and distribution lines, substation, meteorological towers, onsite access roads and road improvements, communication system, and operation and maintenance facility. The EIR focuses on the potential impacts associated with project construction and operation. Operational issues of concern include avian mortality and long-term visual impacts associated with project facilities within a rural environment.
- **Project Manager, Programmatic Analysis for the Tehachapi Wind Resource Area.** Under contract to the California Public Utilities Commission, Ms. Strong managed the preparation of the Programmatic Analysis for development of approximately 4,500 MW of wind generation within the Tehachapi Wind Resource Area (TWRA), as part of the Tehachapi Renewable Transmission Project EIR/S. The TWRA is located in Kern County and is considered the largest wind resource area in California, situated at the southern end of the San Joaquin Valley and spreading into the adjacent Mojave Desert. The TWRA

study area was established using the Kern County Zoning Ordinance, the locations of existing transmission systems and wind farms, the CEC annual wind power density map, land uses and flight restriction zones in the area, and assistance from Kern County. A programmatic analysis was then conducted for wind development within the TWRA boundary using the Kern County Significance Criteria, the Kern County General Plan, and information from existing and proposed wind farms in the area.

- **Project Manager, Lodi Gas Kirby Hills Natural Gas Storage Facility Project.** Under contract to the CPUC, Ms. Strong managed the mitigation monitoring, compliance, and reporting program for Lodi Gas' natural gas storage project, Phases 1 and 2, in Solano County. Phase 1 construction was completed from May 2006 through October 2007, and involved the installation of necessary piping and compression and metering facilities to utilize a depleted underground gas reservoir for natural gas storage. Phase 2 construction, which allows for additional well development and associated facility enhancements, was conducted from May 2008 through August 2009. As Project Manager, Ms. Strong is responsible for the field monitoring effort, Notice to Proceed and Variance Request recommendations sent to CPUC, agency coordination, and Weekly Reporting.
- **Deputy Program Manager, PG&E Line 401 Capacity Loops Project.** Under Aspen's environmental services contract with CPUC, Ms. Strong managed the mitigation monitoring, compliance, and reporting program for PG&E's Capacity Loops Project in Modoc and Shasta County. This project was permitted under the PG&E/PGT Project constructed in the early 1990s and involved the installation of a 14-mile natural gas pipeline within Modoc National Forest and rugged, private lands within Shasta County containing sensitive cultural and biological resources, respectively. Extensive timber harvesting was also conducted as part of the clearing effort for this project. Given the federal lands and sensitive resources present, numerous federal and State agencies were involved in the permitting of the project. Ms. Strong analyzed and prepared the recommendations for Notices to Proceed and Variance Requests, and maintained communications with CPUC and other interested agencies, including Weekly Report submittals.
- **Alpine Natural Gas Project Mitigation Monitoring Program, CPUC.** Ms. Strong was the Project Manager for this monitoring and compliance project for construction of Phase I of a 27-mile natural gas pipeline and distribution system in a rural residential area of Calaveras County, under contract to the California Public Utilities Commission. Ms. Strong's responsibilities include management of environmental monitor(s) and coordination with lead agencies and pipeline owner/contractors.
- **Kinder Morgan Carson-Norwalk Pipeline Mitigation Monitoring, Compliance, and Reporting Program.** Ms. Strong served as Deputy Project Manager for this monitoring and compliance project for construction of a 14-mile products pipeline in southern California, under contract to the CPUC. She managed construction compliance issues, coordinated with the environmental manager for Kinder Morgan Energy Partners, and prepared monthly reports for the project's Internet web site.
- **Pacific Pipeline Mitigation Monitoring, Compliance, and Reporting Program.** Ms. Strong served as Deputy Program Manager for this monitoring and compliance project for construction of a 132-mile crude oil pipeline in southern California, which included the installation of a parallel fiber optic network, under contract to the CPUC and the Angeles National Forest. This pipeline was constructed by separate crews at seven pipeline sub-segments and eight stations. Her primary responsibilities on this program included estimation of budgetary and monitor requirements; coordination of technical reviews and decisions on applicant variance requests; securement and deployment of environmental monitors; and coordination with lead agencies and pipeline owner/contractors.
- **Alturas Transmission Line Project EIR/EIS.** Ms. Strong served as Deputy Project Manager for the EIR/EIS on Sierra Pacific Power Company's Alturas Transmission Line Project. This EIR/EIS, completed



for the CPUC and the US Bureau of Land Management in November 1995, addressed the impacts of a proposed 165-mile, 345 kV intertie between Alturas, California, and Reno, Nevada. It included consideration of numerous route alternatives in northeastern California and northwestern Nevada as well as other electric power transmission, generation and conservation alternatives. Ms. Strong’s responsibilities included description of the proposed project and alternatives, characterization of project parameters for impact analysis, definition of controversial energy supply and demand issues, coordination with electrical power transmission experts, assistance in management of team subcontractors, and document preparation and production coordination.

- **MacPherson Oil Project Integrated Risk Assessment, City of Hermosa Beach.** Ms. Strong served as Project Manager for the preparation of an Integrated Risk Assessment for the MacPherson Oil Project, under contract to the City of Hermosa Beach. Under this contract, she managed the critique of system safety studies completed for the project. As a result of the critique, an Integrated Risk Assessment was prepared to fully analyze the potential public safety impacts resulting from the project.

Previous Employment..... 1987-1994

Ms. Strong was an Energy Specialist for the Santa Barbara County Planning and Development Department, Energy Division, Santa Barbara (1991-1994). In this position, she managed various permitting and CEQA/NEPA related reviews, and Operation and Condition Compliance Monitoring. Her projects included:

- **Mobil Clearview.** Worked directly with Mobil Oil Co. on development of a project description to meet County application processing needs (environmental review, policy consistency determination, etc.) during the initial pre-application review. Representing the County as the Lead Agency for this complicated and controversial project, she:
 - Coordinated the environmental review needs of the various permitting agencies, including the County, State Lands Commission, California Coastal Commission, and US Army Corps of Engineers
 - Served as the primary media contact
 - Monitored State legislation on conversion of State leases to sanctuary status and UCSB purchase of project site.
- **Mobil Ellwood Oil and Gas Processing Plant/Marine Terminal.** Ms. Strong managed permitting and environmental review of proposed facility modifications and sites designated as legal nonconforming uses within recreational and residential zoning districts; she coordinated multi-agency review as required. She also monitored compliance with County permit conditions and worked with Mobil and various County agencies on plan updates (Emergency Response Plan, Fire Protection Plan).
- **Marine Tanker Transport Review.** Managed permitting and environmental review of offshore oil producers' request to tanker Point Arguello crude oil from Gaviota to Los Angeles, including:
 - Worked directly with SEIR/EIS consultant (Aspen) on completion of environmental document (certified Final SEIR/EIS) that required a major change to the project description after release of the Draft EIR/EIS.
 - Worked directly with the various permitting agencies (State Lands Commission, California Coastal Commission) on completion of environmental review, permitting needs, and appeal review.
 - Developed staff report, including staff recommendations, conditions, findings and background. Reviewed and analyzed crude oil transportation options (mode, route, destination) and economics.
 - Project work included interface with County Counsel, Board of Supervisors, and Chevron USA.

- **Emergency Tankering Application Review.** Managed review and analysis of crude oil transportation options (mode, route, destinations) versus Local Coastal Program/Coastal Zoning Ordinance definitions of emergency, and regional and statewide needs. This project also required extensive interface with the County Counsel and news media.
- **Gas Re-Injection Feasibility Analysis.** In support of the Tri-Party Agreement between Chevron, US Minerals Management Service (MMS), and Santa Barbara County on the limitation of pipeline transport of sour gas, Ms. Strong provided consultation to Chevron on behalf of the County on study preparation. Issues addressed included reservoir modeling, system safety, economics, and environmental impacts and benefits. Ms. Strong also worked with MMS regarding Re-Injection Study development and compliance with the Tri-Party Agreement. Further, she monitored offshore producers' compliance with this agreement, including stipulations regarding hydrogen sulfide concentration, pressure operating limits for sour gas pipeline operation and maintenance, and agency reporting requirements.
- **Oil and Gas Processing Facility Permitting.** Ms. Strong monitored compliance with County permit conditions for Chevron's Pt. Arguello oil and gas processing facility. She coordinated the System Safety and Reliability Review Committee (including County Departments of Building and Safety, Environmental Health Services, Air Pollution Control District, and Office of Emergency Services) in its review of facility and operational modifications. She also worked with the California Regional Water Quality Control Board on produced water discharge, and managed the Environmental Quality Assurance Program field monitor.



Academic Background

MS, Civil Engineering, Colorado State University, 1993
BS with High Honors, Mechanical Engineering, Lehigh University, 1991

Professional Experience

Mr. Birdsall is an engineer and environmental scientist who specializes in air quality and greenhouse gas (GHG) analyses for energy infrastructure and land development projects. He has 19 years of consulting experience focusing on technical oversight, climate change, air resources, and air quality and noise-impact modeling, and assessment under the California Environmental Quality Act (CEQA), National Environmental Policy Act (NEPA), and the Clean Air Act.

Aspen Environmental Group.....2001-present

Mr. Birdsall’s project experience at Aspen includes the following:

Analysis of Oil and Gas Well Stimulation Treatments in California EIR, Department of Conservation (2013-present). Mr. Birdsall is preparing the air quality and GHG impact assessments in an EIR evaluating oil and gas well stimulation treatments throughout California, as required by Public Resources Code Section 3161 (b)(3) and (4) (Senate Bill 4 [Pavley]), as signed into law on September 20, 2013. Section 3161 (b)(3) and (4) requires the Division of Oil, Gas and Geothermal Resources (DOGGR) to evaluate the impacts of well stimulation treatments that may occur from either existing or future oil and gas wells, including hydraulic fracturing, acid fracturing and acid matrix stimulation.

San Luis Obispo County Renewable Energy Streamlining Program and EIR (2013). Analysis of electric transmission and distribution systems and interconnection processes for a county-wide Opportunities and Constraints Technical Study to determine Renewable Energy Development Areas for siting of small-scale renewable energy. The analysis would be used for updating or establishing renewable energy policies, a Renewable Energy Combining Designation for the County General Plan Open Space Element, and a Renewable Energy Ordinance in a process funded by the CEC.

Siting Cases for CEC – Review of Applications to Construct Power Plants. Mr. Birdsall assists the California Energy Commission (CEC) as a technical specialist by reviewing and providing testimony on Applications for Certification (AFC) for new power plants throughout California, including natural gas-fired combined cycle, peaking, solar, and geothermal facilities. As a contractor for the Engineering Office of the Siting, Transmission, and Environmental Protection Division, he has provided precedent-setting testimony for the CEC on the implementation of the California Global Warming Solutions Act of 2006 (AB 32) in the electricity sector. These assessments cover the potential effects of new power plants on overall electricity system operation, achieving California goals in reducing greenhouse gas emissions, avoiding deterioration of air resources, and developing plans to offset emissions.

For the **California Public Utilities Commission:**

- **Long-Term Procurement Plan Guidelines and Renewable Portfolio Standard Implementation (2008-2011).** Developed timelines of permitting and identified barriers to implementing the 33 percent Renewable Portfolio Standard (RPS), including ranking and screening of available energy resources. Surveyed historical transmission build-out timelines, based on experiences of the California Independent System Operator (CAISO), CPUC, and other cooperating agencies. Mapped and scored renewable resources from the Renewable Energy Transmission Initiative (RETI) process and CPUC

Energy Division database for environmental concern and permitting risk based on location to sensitive resources and agency requirements.

- **West of Devers Upgrade (2013-present).** Coordinator for transmission planning and engineering alternatives in the environmental review of network improvements to interconnect desert-area generation to the Los Angeles basin. Assessing air quality and GHG impacts.
- **San Onofre Nuclear Generating Station and Diablo Canyon Power Plant, Steam Generator Replacement Projects (2004-2005).** Deputy Project Manager for two comprehensive Environmental Impact Reports to fulfill CEQA requirements for major investments in the Diablo Canyon and SONGS nuclear power plants, with analyses of potential shutdown, replacement facilities, and extension of life.

South San Joaquin Irrigation District, Plan to Provide Retail Electric Service (2005-2006, 2010-present). Project manager for full environmental analyses for new provider of electric distribution service. Topics of assessment include how GHG emissions and energy conservation programs could be affected by change in system ownership, assessment of concurrent Municipal Services Review and Sphere of Influence, and analysis of Community Choice Aggregation (CCA) and as an alternative to allowing a change in retail electric service provider in southern San Joaquin County.

Burning Man 2012-2016 Environmental Assessment, BLM (2011-2012). Developed technical memoranda on community noise, air quality, and a greenhouse gas emissions inventory for the annual Burning Man Event for the five-year review conducted by the BLM Winnemucca Field Office and Black Rock City LLC.

Northern Sonoma County Air Pollution Control District and Sonoma County, Wildhorse and Buckeye Geothermal Power Plant Projects (2011-2012). Assessed GHG impacts of new renewable energy facilities and air quality effects of two new geothermal power plants in the Geysers resource area, with complex dispersion modeling.

San Luis Obispo County, California Valley Solar Ranch and Topaz Solar Farm (2008-2011). Noise, air quality, and climate change review for utility-scale solar power generators on Carrizo Plain.

Santa Barbara County, Energy Division, Lompoc Wind Energy Project (2008-2009). Peer-review of noise analysis and control plan for new 97 MW wind energy facility in rural Santa Barbara County.

Santa Barbara County, Energy Division, PXP Tranquillon Ridge Development Project (2006-2009). Air quality, noise, and energy use assessment for extended reach drilling into the Tranquillon Ridge Field in State waters including oil emulsion and gas processing at the Lompoc Oil and Gas Plant.

City of Richmond, Department of Planning and Building, Review of Environmental Documents (2006-2009). Peer-review services and technical support to city planners on refinery upgrades and replacement projects, primarily for air quality, health risks, energy use, and mitigation of greenhouse gases and climate change. Identified strategies to inventory refinery emissions and mitigating actions to offset project-related emissions, with a goal of no net increase.

City of Long Beach, Department of Planning and Building, Review of LNG Import Facility (2005-2006). Coordinated a critical review and provided technical support for review of the environmental impact assessments related to a proposed liquefied natural gas import facility within the Port of Long Beach.

California State Lands Commission, Concord-Sacramento Pipeline (2002-2003). Provided technical analysis of air quality and noise effects of constructing a new 20-inch, 70-mile petroleum products pipeline, including upgrades to storage tank facilities in Concord and distribution systems in West Sacramento.

Presidio Trust, Presidio of San Francisco (2002-2011). Analyzed climate change, air quality, and noise impacts within the Golden Gate National Recreation Area for various demolition, rehabilitation, and infill



construction. Provided technical support and peer review of tunnel and highway noise and vibration for the South Access to the Golden Gate Bridge, Doyle Drive Reconstruction through the Presidio of San Francisco. Developed mitigation to protect natural sounds consistent with National Park Service policy.

EIP Associates..... 1998-2001

As a Senior Environmental Scientist at **EIP Associates**, Mr. Birdsall performed comprehensive analyses of air quality and noise impacts for Environmental Impact Reports/Statements and independent studies.

Trinity Consultants 1994-1998

Mr. Birdsall prepared compliance strategies, evaluated modeled impacts, and negotiated air permits while a Project Supervisor at **Trinity Consultants**, an environmental firm specializing in air quality. Mr. Birdsall advised clients in the industries of municipal solid waste landfills and landfill gas to energy, independent power production, open-pit metallic mineral mining, major natural gas pipelines, and upstream natural gas processing.

- **Browning-Ferris Gas Services.** Coordinated nationwide Title V program implementation, secured numerous new source and operating permits, supported rollout of federal new source performance standards for municipal solid waste landfills and landfill gas to energy facilities.
- **Newmont Mining Joint Venture, Batu Hijau Project.** Environmental impact studies for open-pit metallic mineral mining facility and independent power production facility. Included noise assessment for “greenfield” power plant and air quality impacts evaluation in complex, coastal terrain.
- **Questar Pipeline, TransColorado Pipeline Project.** Secured new source permits for air quality effects related to construction and operation of major natural gas pipeline including compressor stations.
- **Coastal Field Services, Altamont Gas Plant.** Negotiated Title V operating permits for upstream natural gas processing plant and associated field compressor stations.
- **Solvay Soda Ash Joint Venture.** Developed particulate matter modeling protocol with the State of Wyoming’s air quality management agency.

Additional Training and Courses

- Panelist, Offsets for Environmental Mitigation, Navigating the American Carbon World 2014
- Climate Change, A New Age for Land Use Planning, U.C. Davis Extension
- Expert Witness Training, California Energy Commission
- Co-Instructor, Air Permitting Issues for Municipal Solid Waste Landfills, Trinity Consultants
- Fundamentals of New Source Review Workshop, Air and Waste Management Association
- Title V and Compliance Assurance Monitoring Workshops, Air and Waste Management Association
- NATO Advanced Studies Institute, Wind Climates in Cities

Professional Affiliations and Awards

- Professional Engineer (Mechanical, California #32565)
- Qualified Environmental Professional, Institute of Professional Environmental Practice (#03030005)
- 2001 Outstanding Performance Award presented by the California Energy Commission
- Air and Waste Management Association since 1994
- Tau Beta Pi, National Engineering Honor Society



Academic Background

Graduate Studies, Biology, California State University Northridge
BA, Biology, University of California at Santa Cruz, 1992

Professional Experience

Mr. Huntley has 16 years of experience with Aspen supporting and managing CEQA/NEPA projects including EIR/EIS, IS/MND, EA, BE/BA, and BA documents. In addition, Mr. Huntley has extensive experience conducting biological assessments, managing large-scale construction and restoration projects, and supporting agency clients with permitting tasks including compliance with California Department of Fish and Wildlife (CDFW) 1600 and 2081 permits, US Fish and Wildlife Service (USFWS) Section 7 process, Regional Board 401 compliance, and US Army Corps (Corps) 404 permits. Mr. Huntley has experience working on oil and gas pipelines, refineries, and energy infrastructure projects.

Aspen Environmental Group.....1998-present

PROJECTS INVOLVING REMEDIATION OR SOIL CONTAMINATION

- **California Energy Commission (CEC) Coastal Power Plant Study, Deputy Project Manager/Biologist.** Conducted biological surveys at 21 coastal power plants as part of the CEC’s coastal power plant study. Site visits characterized habitat within the footprint of the power plant, landscaping, and identified potential environmental and permitting issues associated with potential expansion of the power plants.
- **Pacific Pipeline Project EIR/EIS for the U.S. Forest Service, Angeles National Forest, and the California Public Utilities Commission, Environmental Monitor.** Served as an Environmental Monitor and supervised mitigation monitoring for all sensitive resources for a construction segment along a 132-mile crude oil pipeline within southern California. Project included the documentation that the pipeline owner managed and removed contaminated soils from multiple locations including two existing refineries in El Segundo and Wilmington, CA.
- **Line 401 PG&E Redwood Expansion Project, CPUC, Lead Environmental Monitor.** Under contract to the California Public Utilities Commission (CPUC), Mr. Huntley acted as Lead Environmental Monitor and supervised two environmental monitors in the field on the implementation of the CPUC’s conditions of approval for construction of this 14-mile natural gas pipeline. Responsibilities included: supervision, guidance and development of environmental monitors, onsite field monitoring, compliance review and mitigation development of pre-construction plans, and mitigation compliance documentation. Other duties included review of variance and temporary extra work space (TEWS) requests; recommendations for CPUC issuance of Notices to Proceed with construction and variance approvals; approval of TEWS requests; preparation of weekly reports for all monitoring activity; and coordination with PG&E, construction managers and subcontractors, local municipalities, affected and interested agencies and the public.
- **Level 3 Fiber Optics Network Construction Monitoring and Supplemental Environmental Review Program, CPUC, Environmental Monitor.** Mr. Huntley’s duties included inspection of several southern California segments including Santa Barbara to Burbank, San Bernardino, Corona to Atwood and San Diego to the California/Arizona state line. Environmental compliance during construction addressed biological and cultural resource, air and water quality, traffic control, and public utilities. Other tasks included maintaining daily documentation, review of pre-construction miti-

gation measures, weekly reporting of compliance activities, and coordination with Level 3 personnel and subcontractors, and affected agencies.

- **CEC Hydroelectric Power Plant Inventory Study, Deputy Project Manager/Natural Resources Analyst.** Mr. Huntley coordinated a team that collected power and environmental data on over 200 hydroelectric power plants located in California. Physical power data included electrical output, system upgrades, water storage capacity and peaking availability. Environmental information included developing a data base addressing sensitive species issues, fish screens and ladders, monitoring parameters and a map of known hydroelectric facilities and barriers to anadromous fish passage. Mr. Huntley also obtained water use information on thermal power plants in support of the CEC's bi-annual environmental performance report.
- **Salton Sea Debris Removal Project, Los Angeles Department of Water and Power, Project Manager/Biologist.** Mr. Huntley conducted Phase I, II, and III burrowing owl surveys at several sites scheduled for clean-up in the Imperial Valley. Mr. Huntley managed the monitoring of clean-up activities and developed mitigation strategies to comply with State and local permit requirements regarding the protection of this species.
- **Fort Irwin Environmental Baseline Survey Reports US Army Corps of Engineers, Project Manager/Biologist.** Mr. Huntley managed the preparation of two Environmental Baseline Survey reports near Fort Irwin, San Bernardino County to support the land acquisition of over 95 parcels by the US Army for the Fort Irwin National Training Center. Mr. Huntley conducted site investigations, documented existing biological conditions and managed the preparation of the report.
- **Santa Maria Levee Improvement Project Environmental Assessment and Biological Technical Report U.S. Army Corps of Engineers, Biologist.**
- **Hidden Hills Solar Energy Generating Station, Biologist.**
- **Palen Solar Energy Generating Station, Biologist.**
- **Calico Solar Project (formerly SES Solar One Project), Biologist.**
- **Santa Fe Pacific Pipeline, CPUC, Environmental Monitor.**
- **Topaz Solar Farm EIR, San Luis Obispo County, Issue Area Coordinator/Biologist.**
- **California Valley Solar Ranch EIR, San Luis Obispo County, Issue Area Coordinator/Biologist (2009-2011).**
- **California Energy Commission Emergency Siting Team, Power Plant Development, Compliance Project Manager.**
- **Newhall Ranch Project, California Department of Fish and Game (2005-2009), Biological Coordinator and CDFW Reviewer.**
- **Calico Solar Project (formerly SES Solar One Project), California Energy Commission, Biologist (2009-2010).**
- **Palmdale Hybrid Power Plant, California Energy Commission, Biologist (2009-2011).**
- **Rice Solar Energy Project, California Energy Commission, Biologist (2009-2010).**
- **Panoche Valley Solar Farm EIR, County of San Benito, Biologist (2010).**



Academic Background

MS, Biology, California State University, Northridge, 2005
BS, Biology, University of California, Riverside, 2002

Professional Experience

Ms. Lancaster has seven years of experience at Aspen Environmental Group preparing documents in compliance with the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA), as well as NEPA/CEQA joint documents. She is also experienced with supporting agency clients through the Section 7 process and compliance with the federal and California Endangered Species Acts, as well as participating in environmental policy working groups on behalf of agency clients. She has 13 years of experience in botanical and wildlife field surveys and report preparation. Her biological background includes native habitat restoration, rare plant field studies, laboratory analysis, experimental design, teaching, and logistical support for field surveys.

Aspen Environmental Group.....2007-present

Select project experience at Aspen includes the following:

- **Lake Gregory Dam Rehabilitation Project, San Bernardino County Special Districts Department, Deputy Project Manager (2014-present).** Ms. Lancaster is serving as Deputy Project Manager for this project. Lake Gregory is located in the San Bernardino Mountains approximately 14 miles north of the City of San Bernardino in the community of Crestline. The Lake Gregory Dam Rehabilitation Project consists of the construction of physical improvements to the dam, earthen material hauling and processing, relocation of utilities on Lake Drive, and interim traffic detour routes. Four project alternatives will be analyzed; the proposed project is the option approved by the State of California, Department of Water Resources, Division of Safety of Dams. Aspen is preparing an EIR, MMRP, and supporting technical studies.
- **Santa Margarita Quarry Expansion Project, County of San Luis Obispo Department of Planning and Building, Biologist (2013 – Present).** Ms. Lancaster is preparing the biological resources analysis for the EIR for this mining expansion project.
- **Huntington Beach Energy Project, California Energy Commission (CEC), Biologist (2013 – present).** Ms. Lancaster is preparing the biological resources impacts assessment for this 939 MW natural gas-fired power plant in coastal Orange County that will replace the existing Huntington Beach Generating Station. Important biological issues for this project include indirect impacts to nearby wetlands and preserves, including noise and vibration impacts to listed birds (e.g., clapper rail).
- **Alamitos Energy Center, CEC, Biologist (2014 – present).** Ms. Lancaster is preparing the biological resources impacts assessment for this 1,936 MW natural gas-fired power plant in Long Beach, CA that will replace the existing Alamitos Generating Station. Important biological issues for this project include indirect impacts to nearby wetlands and preserves, including noise and vibration impacts to listed birds and green sea turtles.
- **San Luis Obispo Renewable Energy Streamlining Program (RESP), San Luis Obispo County, Biologist (2013-present).** Ms. Lancaster is leading the assessment of biological resources for this project. The RESP involves analyzing and mapping opportunities and constraints for renewable energy siting and revising County plans and policies to streamline development of appropriately sited renewable energy facilities.



- **Alta-Oak Creek Mojave Supplement, Kern County, Biologist (2011).** Ms. Lancaster prepared the biological resources analysis of the SEIR for a proposed infill to the existing Alta Oak Cree-Mojave Project, a wind energy development in the Mojave region of Kern County. Key issues included potential impacts to birds and bats from the wind turbines as well as potential impacts to desert tortoise, Mohave ground squirrel, California condor, and golden eagle.
- **Morgan Hills Wind Energy Project, Kern County, Biologist (2011).** Ms. Lancaster prepared the biological resources analysis of the EIR for a proposed 230-MW wind energy generation facility in the Mojave region of Kern County. Key issues included potential impacts to birds and bats from the wind turbines as well as potential impacts to California condor and golden eagle.
- **North Sky River Wind Project and Jawbone Wind Energy Project, Kern County, Biologist (2010-2011).** Ms. Lancaster prepared the biological resources analysis of the EIR for a proposed 250-MW wind energy generation facility in the Mojave region of Kern County. Key issues included potential impacts to birds and bats from the wind turbines as well as potential impacts to desert tortoise, Mohave ground squirrel, California condor, and golden eagle.
- **Alta–Oak Creek Mojave Project, Kern County, Issue Area Coordinator (2008-2009).** Ms. Lancaster was Issue Area Coordinator for Natural Resources and prepared the biological resources analysis of this Initial Study and EIR evaluating a proposed 800 MW wind development in the Tehachapi Wind Resource Area. Key issues included potential impacts to birds and bats from the wind turbines as well as potential impacts to desert tortoise, California condor, Swainson’s hawk, golden eagle, and Bakersfield cactus.
- **Eagle Rock Aggregate Terminal Project, POLB, Biologist (2011-2013).** Ms. Lancaster prepared the terrestrial biological resources analysis of the EIS/EIR for a proposed sand, gravel, and granite aggregate receiving, storage, and distribution terminal located within the Port of Long Beach. The U.S. Army Corps of Engineers (Corps) is the NEPA Lead Agency and the City of Long Beach, acting by and through its Board of Harbor Commissioners for the Port of Long Beach, is the CEQA Lead Agency. Key issues included potential impacts to marine and shore birds, including the peregrine falcon, which nests nearby in the Port.
- **Sulex Demolition Project, Port of Long Beach (POLB), Biologist (2009-2011).** Ms. Lancaster prepared the biological resources, cultural resources, agricultural resources, mineral resources, and population & housing analyses of the Sulex Demolition Project Negative Declaration and Initial Study. The project included the demolition of site improvements installed by Sulex, Inc. for sulfur pelletizing operations, which have been decommissioned for several years. The objective of the project was to fulfill the conditions of lease termination, returning the site to a state agreed upon by the POLB and Sulex, Inc.

Biology Instructor, Los Angeles and Ventura Community College Districts 2005-2007

Biological Science Technician, National Park Service, Santa Monica Mountains 2002-2003

Restoration Intern, Sedgwick Reserve, Santa Barbara County2001



Academic Background

BA, Geography, Emporia State University, 1970

Professional Experience

Mr. Hampton is an environmental professional with more than 40 years of experience. He worked previously with the Department of the Interior, for the Bureau of Land Management (BLM), Office of Surface Mining (OSM), and the Minerals Management Service (MMS). Mr. Hampton served as Senior Environmental Scientist and was a NEPA compliance expert responsible for coordinating the preparation and review of numerous NEPA compliance documents (EISs, EAs and CERs). He has coordinated environmental documents on national and regional levels for BLM and MMS offshore oil and gas programs and mineral lease sales in the Pacific (southern, central, and northern California) and Gulf of Mexico regions.

Aspen Environmental Group.....2002-present

Mr. Hampton joined Aspen in July 2002 as a Project Manager for both large- and small-scale multi-disciplinary environmental review documents under the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). Mr. Hampton served as the NEPA review specialist for numerous Aspen projects. His relevant experience for this proposal is identified below.

- **Tranquillon Ridge Oil and Gas Project EIR, Santa Barbara County.** Mr. Hampton was responsible for preparing the energy and minerals resources and fire protection/emergency services evaluation for the Tranquillon Ridge project in Santa Barbara. The project involved construction of or modifications to an oil and gas drilling and production platform, an oil dehydration and gas processing facility, three pipelines for oil, gas and water, a power supply system, a 12-inch sales gas pipeline, and three onshore produced water disposal lines.

Minerals Management Service, Pacific OCS Region 2000-2002

Mr. Hampton was transferred from the Gulf of Mexico Region to the Pacific Region to help coordinate the preparation of the *EIS for Delineation Drilling Activities in Federal Waters Offshore Santa Barbara County*. Relevant activities that Mr. Hampton was involved in include:

- **Review and comment on Tranquillon Ridge Oil and Gas Development Project EIR** prepared by Arthur D. Little for the County of Santa Barbara Planning and Development.

Minerals Management Service, Gulf of Mexico Region..... 1993-2000

Mr. Hampton was Senior Environmental Scientist with the MMS Gulf of Mexico Region. He coordinated or had a major role in the preparation of NEPA documents for several large projects, including:

- **Coordinated Eight Lease Sale EISs for the Central and Western Gulf of Mexico (offshore Texas, Louisiana, Mississippi, and Alabama)** which included offshore oil and gas development lease sales (152, 155, 157, 161, 166, 168, 169, and 171). Lease sales 169 and 171 were the first ever multi-sale environmental documents prepared by MMS. Mr. Hampton received the Interior Department’s second-highest award for this accomplishment.
- **Prepared Environmental assessments for Central Gulf of Mexico Lease Sales 172, 175, and 178** (these EAs were the follow-up documents prepared as part of the regional multi-sale EIS process).

- **Prepared Environmental assessment for Western Gulf of Mexico Lease Sales 174 and 177** (these EAs were the follow-up documents prepared as part of the regional multi-sale EIS process).
- **Gulf of Mexico Regional EIS coordinator for the Comprehensive five-year OCS Oil and Gas Leasing Program EIS for 1997-2002 and 2002-2007.**

Minerals Management Service/Bureau of Land Management, Pacific Region 1981-1993

Mr. Hampton was a Social Scientist/Environmental Coordinator with the MMS Pacific Region. He has extensive relative experience in the preparation of NEPA documents for oil and gas projects, including:

- **Four Lease Sale EISs** for offshore oil and gas development lease sales (68, 73, 80, & 95) offshore California.
- **Pacific Regional EIS coordinator** for the Comprehensive five-year OCS Oil and Gas Leasing Program EIS for 1987-1992 and 1992-1997.
- **MMS regional representative on the Southern California Association of Governments Task Force** for preparation of the Open Space Element of the Southern California Comprehensive Plan.

Office of Surface Mining, Division of Abandoned Mined Lands, Region IV..... 1978-1981

Mr. Hampton served as the regional environmental analyst for the Office of Surface Mining (OSM), Division of Abandoned Mined Lands (AML), Federal Reclamation Programs Branch. The objectives of the AML program were to protect the public health, safety, and general welfare from the extreme dangers and the adverse effects of past coal mining practices (acid mine drainage, subsidence, abandoned dangerous highwalls and strip pits, abandoned open mine shafts, and burning abandoned gob piles).

Training

- Successful CEQA Compliance, UCLA Extension Public Policy Program, 2001
- Assessing Cumulative Impacts, ETCI, Inc, 1999
- Applying the NEPA Process, Shipley Environmental, 1998
- Writing Effective NEPA Documents, Shipley Environmental, 1998
- Seminar for New Managers, Western Senior Executive Center, 1992
- Managing the NEPA Process, Shipley Associates, 1987
- Environmental Documents Workshop, Shipley Associates, 1982
- Methods of Environmental Impact Analysis, OPM, 1980
- Introduction to BLM Planning System, BLM, 1976
- Regional Planning for Public Land Managers, U of Wisconsin (short course), 1975

Honors and Awards

- US Department of the Interior Meritorious Service Award, 2000
- US Department of the Interior Excellence of Service Award, 1987
- US Department of the Interior Unit Award, 1976
- US Department of the Interior Star Award, (1996, 1997, 1998, 1999, 2001)
- Minerals Management Unit Award, 1988
- Special Achievement Award, BLM (1974,1979), OSM (1980), MMS (1987, 1990, 1992)
- Quality Step Increase, OSM (1981), MMS (1983, 1984, 1992, 1993)

R. Peter Stickles, P.E.

Senior Partner

Summary

Mr. Stickles is a senior partner at ioMosaic Corporation and has over 50 years experience in the fields of chemical process safety, petroleum refining and petrochemical technology, and process design having previously worked for Arthur D. Little, Inc., and Stone & Webster Engineering. Prior to joining ioMosaic Corporation, Mr. Stickles' roles in the process safety field have included facilitation of process hazard analyses, quantitative risk assessment, fault tree analysis, process safety management training course development, reliability analysis, and management of the process safety management business area for Arthur D. Little, Inc.

Pressure Relief and Flare System Design

Mr. Stickles' assignments include various studies in the chemical, petrochemical and petroleum refining industries. He is experienced with the concepts behind pressure relief and flare system design, as well as relevant codes and practices. His knowledge ranges from relief system data gathering, isometric sketching, emergency relief system contingency analysis and flare system evaluation. He has also analyzed maximizing existing flare and vent header systems utilizing risk-based applications of high integrity pressure protection systems (HIPPS).

Fault Tree and Quantitative Risk Analysis

Mr. Stickles' expertise encompasses quantitative risk analysis techniques including consequence and fault tree analysis (FTA) and quantitative risk assessment (QRA). These skills have recently been applied to:

- Leading a QRA study of an LNG storage and re-vaporization facility located in Canada
- Preparing a FTA of dust explosions in a flour storage bin
- Conducting a FTA of deflagration potential in a polystyrene solvent recovery system
- Performs SIL validations for safety instrumented systems (SIS) using FT methodology as recommended in ANSI/ISA 84.00.01-2004
- Evaluated the incident frequency of tube failures in black liquor boilers to assess the risk of boiler explosion

Hazard Identification

Mr. Stickles has facilitated numerous process hazard analyses (PHAs) using various hazard identification techniques, including hazard and operability (HAZOP), failure mode and effects analysis (FMEA), and What-if technique. Some examples include the following:

- What-if PHA of dust handling systems at two food processing plants
- HAZOP PHA of a nitric acid/ammonium nitrate plant

- HAZOP PHA of a Gulf Coast LNG receiving and re-vaporizing terminal
- HAZOP review of a sodium vaporization system
- HAZOP PHA of a carbon black test furnace setup
- Mr. Stickles is also an instructor for PHA courses offered by ioMosaic Corporation

Process Safety Management Auditing

Mr. Stickles has participated in many process safety management (PSM) audits on a variety of chemical, petroleum, and metal processing facilities to ensure compliance with OSHA 1910.119 regulations. Recent audits included facilities producing polystyrene, ethylene dichloride (EDC)/polyvinyl chloride (PVC), primary aluminum, steel and coke making, and refined petroleum products. On most compliance audits, he reviews the implementation of the company's mechanical integrity program.

Upstream Experience

- Lead PHAs of oil/gas processing facilities for exploration/production division of major international petroleum company
- Member of internal investigative team reviewing company implementation of Operations Integrity Management Systems (OIMS)
- Review of well safety shutoff valve (SSOV) mechanical integrity (MI) and state mandatory testing program of production company
- Team leader for Alyaska Pipeline Co. environmental and safety performance review initiated by whistle blowers to US Congress
- Risk surveys of oil/gas processing facilities in Western Canada
- Lead PHA of GasFrac™ fracturing technology for reservoir stimulation
- Process Hazard Analysis of onshore and offshore oil and gas facilities
- Major contributor on risk assessment for proposed Tranquillon Ridge reservoir development
- Major contributor on risk assessment for well stimulation in the state of California
- For the Santa Barbara county, prepared qualitative risk assessment of the proposed extension of the inspection interval (Continuance of Departure) for the Hermosa-Gaviota Pt. Arguello Natural Gas Pipeline (PANGL), operated by Plains Exploration and Production Co. (PXP)
- Participant on oil transportation alternatives study for California (Arthur D. Little)

Other Relevant and Engineering Experience

While at ioMosaic, Mr. Stickles was a major contributor on risk assessment for the Environmental Impact Report (EIR) of the Clearwater Port Deepwater Port Project. The project consisted on a review of the Independent Risk Assessment (IRA) that addressed potential risks associated with the unloading, transfer, storage, handling and regasification of LNG. In addition, a risk assessment of the onshore natural gas pipeline facilities was completed.

Mr. Stickles completed an independent safety, risk and compliance review of the Sound Energy Solutions (SES) LNG project in Long Beach for the California Energy Commission (CEC). The CEC was designated by the Governor of California as the state agency to consult with the Federal Energy Regulatory Commission (FERC) regarding the application.



Mr. Stickles had eight years experience with Stone & Webster Engineering Corporation as a process engineer. His responsibilities included detailed design of chemical plants based on the thermal cracking of hydrocarbons. A major portion of his experience was associated with the design of high-temperature cracking furnaces including effluent heat recovery and quenching systems. This required a basic knowledge of cracking mechanisms, kinetics, and heat transfer. His responsibility in this area included specification of fired heaters, heat exchangers, and high-pressure steam generating equipment. As a pyrolysis specialist, he evaluated cracking operations at ethylene plants of several major oil companies.

While at Stone & Webster Engineering Corporation, Mr. Stickles was also responsible for startup of the pyrolysis furnace section of a heavy liquids cracker at Gulf Oil's olefin plant in Verenne, Quebec. He participated in the design and startup of a first of its kind alpha olefin plant based on a process developed by Gulf. As part of the Ultra Selective Cracking (USC) process development team, he supervised the analytical work associated with a semi-commercial development unit in England.

Litigation Support

- In two separate cases, Mr. Stickles developed expert opinions and was deposed on matters relating to the applicability of OSHA Process Safety Management regulation 29CFR 1910.119 and the extent to which failure to follow all provisions contributed to industrial accidents involving fire and explosion.
- He has also developed and provided expert testimony on behalf of a major energy company before the Australian Royal Commission investigating the Longford Gas Plant explosion.
- He participated in a case involving a local gas distribution company (LDC) and Fleet Bank, by assessing the condition of the equipment at two liquefied natural gas (LNG) storage and send-out terminals operated by the LDC. He performed a visual external inspection of the facilities and reviewed maintenance and decommissioning activities to assess the asset value. The law firm was Ropes and Gray.
- Mr. Stickles helped prepare defense arguments for contractor M.W. Kellogg, when they were implicated in the explosion of the polyethylene plant of Phillips Petroleum in Deer Park, Texas. Kellogg was eventually dropped as a defendant in the case.
- In the aftermath of an explosion at a nitroparaffins plant, he worked for the operating company side in preparing arguments to show that the owner was deficient in implementing its responsibility under the company's responsible care program.
- In a rate adjustment case involving a mid-west LDC, Mr. Stickles performed a reliability analysis of the LDC's different gas supply options and prepared rebuttal testimony regarding the appropriateness of use of their existing peak shaving facilities. He testified regarding the unreliability of natural gas transmission pipelines.
- He participated in the discovery and analysis of the root causes of the explosion of an H-Oil unit at a New Jersey refinery. The analysis eventually led to a settlement between the owner and the industrial insurer.

Professional Affiliations

Fellow, American Institute of Chemical Engineers (AIChE)



Education and Licensing

- Registered Professional Engineer, Commonwealth of Massachusetts (1968)
- M.S., Mechanical Engineering, Northeastern University (1971)
- B.S., Chemical Engineering, Northeastern University (1964)



Academic Background

PhD, Anthropology (Archaeology), University of New Mexico, 2006
MA, Anthropology (Archaeology), UC Berkeley, 1995
Certificate in Archaeological Technology, Cabrillo College, 1994
BA, Anthropology and Creative Writing, UC Santa Cruz, 1991

Professional Experience

Dr. Bagwell is Aspen’s senior cultural resources specialist. She has been conducting field work, researching, analyzing, and writing about archaeology and anthropology since 1991. Dr. Bagwell is directly responsible for preparing cultural resources project budgets and schedules, as well as providing quality control measures to ensure that projects are completed on time and within budget. She provides quality review for all cultural resources project reports to ensure the adequacy of the reports and the appropriateness of eligibility recommendations, and provides recommendations for the avoidance or treatment of cultural resources. She has experience preparing environmental documents pursuant to applicable federal, state and local regulations in California, Arizona, Nevada, New Mexico, and internationally in Mexico. These documents emphasize compliance with the National Environmental Policy Act (NEPA), Section 106 of the National Historic Preservation Act (NHPA), Native American Graves Protection and Repatriation Act (NAGPRA), and California Environmental Quality Act (CEQA). Dr. Bagwell is a Registered Professional Archaeologist who meets the Secretary of the Interior’s qualification criteria as an archaeologist.

Aspen Environmental Group.....2009-present

Oil and Gas Projects

- **Evaluation of Oil and Gas Well Stimulation Treatments in California EIR (2014-present).** Under contract with the California Department of Conservation, Dr. Bagwell is the senior author and supervisor of teams which wrote cultural resources and paleontological technical reports and document sections for an Environmental Impact Report (EIR) evaluating oil and gas well stimulation treatments throughout California. The Division of Oil, Gas and Geothermal Resources (DOGGR) is required to evaluate the impacts of well stimulation treatments that may occur from either existing or future oil and gas wells, including hydraulic fracturing, acid fracturing and acid matrix stimulation. The EIR will evaluate well stimulation treatments geographically according to DOGGR’s six administrative Districts, and will include both programmatic and project-specific levels of analysis. In addition to preparation of the EIR, Aspen is assisting the Department of Conservation with the coordination and facilitation of public workshops, as well as project-related public and agency noticing.
- **Hydrogen Energy California Power Plant, Cultural Resources Staff Assessment (2010-present).** Dr. Bagwell serves as technical staff for the analysis of impacts to prehistoric cultural resources from the 890-acre 250 MW integrated gasification combined cycle power generating facility in Kern County seven miles west of Bakersfield. Important cultural resource issues include the potential for buried prehistoric resources within the facility footprint and along the extensive linear corridors. This project is the first of its kind in California, requiring close coordination with other agencies including the Department of Energy (DOE) and California Department of Conservation Division of Oil, Gas, and Geothermal Resources (DOGGR).
- **Alamitos Energy Center Project, Cultural Resources Staff Assessment (2014-present).** This proposed project is a natural-gas fired, fast starting, combined-cycle gas turbines, air-cooled

electrical generating facility with a net generating capacity of 1,936 megawatt (MW). Dr. Bagwell is the work authorization manager and technical reviewer of the Architectural History portion of the Cultural Resources Staff Assessment.

- **Redondo Beach Energy Project, Architectural History Technical Report (2013-present).** This proposed project is a natural-gas fired, combined-cycle, air-cooled electrical generating facility with a net generating capacity of 496 megawatt (MW), Dr. Bagwell is the work authorization manager and technical reviewer of the analysis which evaluated the Redondo Beach Generating Station (RBGS) Administration, Unit 1 and SEA Lab buildings for eligibility for listing on California Register of Historical Resources (CRHR).

CEQA Lead Agencies

- **County of San Bernadino, Mission Channel and Zanja Creek Routine Maintenance Project, Technical Report and Mitigated Negative Declaration (2014-present).** Under contract with the Department of Public Works, Flood Control District Dr. Bagwell is currently managing a cultural resources record search, and is the co-author a technical report and IS/MND sections associated with vegetation management, channel shaping, slope repairs and sediment removal along approximately 8 miles of the Mission Channel/Zanja Creek in Redlands, CA. The Mission Channel/Zanja Creek was built in 1819 and is listed on the National Register of Historic Places.
- **County of San Bernadino, Donnell Basin, Initial Study and Mitigated Negative Declaration (2013-present).** Under contract with the Department of Public Works, Flood Control District Dr. Bagwell is currently managing a cultural resources reconnaissance survey, and is the co-author a technical report and IS/MND sections associated with improvements to Donnell Basin, a 63 acre regional flood control detention basin located in the City of Twentynine Palms.
- **Inyo County Renewable Energy General Plan Amendment and Programmatic EIR (2013-present).** The County is proposing to amend their General Plan to designate lands for renewable energy development. Dr. Bagwell manages cultural resources staff members as they conduct an Opportunities and Constraints Technical Study involving resource sensitivity maps of the County and write EIR sections.
- **San Luis Obsipo County, Santa Margarita Quarry Expansion Project, EIR (2013-present).** The Santa Margarita Quarry is an aggregate quarry along the Salinas River in San Luis Obispo County. The project proposes to expand existing operations by approximately 50 acres. Dr. Bagwell serves as a technical reviewer for cultural resources and paleontology, and is currently managing the Native American outreach effort.
- **San Luis Obsipo County, California Valley Solar Ranch, Compliance (2011 to 2013).** The CVSR project is a 250 MW solar photovoltaic power plant on the Carrizo Plain in rural San Luis Obispo County. The solar arrays for the project will cover nearly 2,000 acres. Dr. Bagwell served as a technical reviewer for cultural resources and paleontology during the compliance process.
- **Port of Long Beach, Eagle Rock Aggregate Terminal Project, Initial Study (2011).** Dr. Bagwell served as technical staff conducting analyses of impacts to cultural resources and paleontology resulting from the construction and operation of a sand, gravel and granite construction aggregate receiving, storage and distribution terminal at a privately held parcel within the Port of Long Beach.



Academic Background

MA, Cultural Resources Management (Archaeology), Sonoma State University, 2011
BA, Anthropology (Archaeology), UC Berkeley, 2006

Professional Experience

Mr. Elliott has over ten years of experience performing fieldwork, research, analysis, and writing about archaeology and anthropology. He is responsible for preparing cultural resources portions of environmental documents, field and desktop project reports, and resource eligibility recommendations, as well as organizing and performing fieldwork, performing Native American consultation, GIS analysis and sensitivity modelling, and technical editing. Mr. Elliott is experienced in preparing environmental documents pursuant to applicable federal, state, and local regulations in California. These documents emphasize compliance with the National Environmental Policy Act (NEPA), Section 106 and Section 110 of the National Historic Preservation Act (NHPA), Federal Land Policy and Management Act (FLPMA), and California Environmental Quality Act (CEQA). Mr. Elliott is a Registered Professional Archaeologist who meets the Secretary of the Interior's Professional Qualification Standards as an archaeologist and has specialized knowledge in the history and prehistory of California.

Oil and Gas Projects

- **Senate Bill 4 Analysis of Oil and Gas Well Stimulation Treatments in California (2014).** This project consisted of a programmatic EIR for all the counties in California that contain active oil and natural gas wells and project-level case studies of three active oil fields to produce recommendations for regulations of oil and gas well stimulation. Under contract with the Department of Conservation Division of Oil, Gas, and Geothermal Resources, Mr. Elliott supervised the project-level cultural resources inventory for the Sespe and Inglewood fields, researched and wrote the cultural chapters for the programmatic EIR, and was a co-author of the paleontology EIR sections.
- **Avila Point Senate Bill 18 Native American Consultation (2014).** The designation and restoration of a former industrial property on the coast into open space by Chevron Land and Development Company triggered the need for San Luis Obispo County to engage in consultation with local Native American groups on the project. Mr. Elliott is providing support for the County during SB18 consultation meetings with representatives of seven Native American groups.
- **Chevron KLM Pipeline Replacement Project, Contra Costa County (2013).** While working for Pacific Legacy, under contract with Padre Associates, Mr. Elliott authored the cultural resources technical report that contributed to the Initial Study for a parcel to be used as a construction staging area for crews working on replacing a portion of the Chevron KLM Pipeline in Contra Costa County.

County Projects

- **Lake Gregory Dam Rehabilitation Project (2014).** The seismic safety of the Lake Gregory Dam necessitated the removal material from downstream and other areas to construct a new 25-foot earthen buttress at the toe of the dam to strengthen it. Additionally, this involved the removal of trees, vegetation, and existing rock from the downstream slope of the dam and installation of a drainage system for groundwater and lake water. Under contract with the San Bernardino County Special Districts Department, Mr. Elliott managed subcontractors, reviewed cultural resources and paleontological technical reports and the California Register eligibility evaluation for the Lake Gregory Dam and authored the cultural resources and paleontological sections of the EIR.
- **Donnell Basin Improvement Project (2014).** This project involved the construction and maintenance of a series of improvements to the existing Donnell Basin, a 63-acre regional flood control detention

basin located in the City of Twentynine Palms, in San Bernardino County. Under contract with San Bernardino County Department of Public Works, Flood Control District, Mr. Elliott was a co-author of the cultural resources technical report and the cultural resources section of the IS/MND for this project. Important cultural issues included indirect impacts to a lithic quarry and built environment resources, and the potential for buried historic and prehistoric resources in the project area.

- **Santa Margarita Quarry Reclamation Project, San Luis Obispo County (2014).** This project involved a planned expansion and future reclamation to the existing Santa Margarita Quarry, near Atascadero, San Luis Obispo County. Under contract with the San Luis Obispo County, Mr. Elliott reviewed CEQA compliance documents and technical reports and prepared the cultural resources sections of the EIR.
- **Inyo County Renewable Energy Generation Plan Amendment (2014).** This project consisted of a programmatic EIR to inform an amendment to the Inyo County General Plan regarding the permitting of renewable energy projects. Mr. Elliott developed a cultural resources sensitivity model for Solar Energy Development Areas and was the author of the cultural resources EIR sections.
- **Oakmont Waste Water Treatment Plant Project, Sonoma County (2011).** As part of an Initial Study conducted by Winzler & Kelly for a Sonoma County Water Agency wastewater facility, while working for the Anthropological Studies Center (ASC), Mr. Elliott prepared a cultural resources report for a waste water treatment project in Santa Rosa, CA. This included the construction of a grey water facility by the Oakmont Golf Course and the use of grey water for irrigation. Mr. Elliott provided Winzler & Kelly with Native American consultation, a Class I cultural resources study, and potential mitigation measures for the project.
- **Central Subway Project, San Francisco, CA (2010-2011).** The construction of a new Muni line by the San Francisco Municipal Transit Authority required archaeological monitoring and mitigation as part of the Final Supplemental Environmental Impact Statement/Supplemental Environmental Impact Report of this project. Working for the ASC, Mr. Elliott contributed to the monitoring, excavation, and artifact analysis, including the excavation of portions of CA-SFR-114, a large prehistoric shellmound under 4th Street.

Other CEQA Lead Agency Projects

- **Willits Bypass Project, Mendocino County, CA (2013).** The Caltrans and the Federal Highway Administration proposed to construct a new segment of U.S. 101 in order to bypass the City of Willits, in Mendocino County, California. Biological mitigation within the FEIS/EIR required the purchase of oak woodland mitigation parcels. While working for Pacific Legacy, Mr. Elliott participated in the survey of parcels totaling 110 acres that Caltrans purchased for this purpose.
- **San Luis Low Point Improvement Project, Santa Clara and Merced Counties (2012-2013).** Under contract with the Santa Clara Valley Water District; while working for Pacific Legacy, Mr. Elliott contributed to the cultural section of the Environmental Impact Statement for improvements to the San Luis Reservoir regarding low water level intakes. Mr. Elliott directed the intensive survey of 1100 acre area potentially affected by this dredging. After completing the field component, he conducted GIS analysis, contributed to the technical report, and was an author on the cultural resources portion of the EIR.

Professional Affiliations and Training

- Register of Professional Archaeologists #989585
- Section 106 for Experienced Practitioners, National Preservation Institute, 2014
- Field Osteology Training Workshop, SCA Annual Meeting 2012



JAMES E. THURBER, P.G., C.E.G., C.HG.

GEOTECHNICAL CONSULTANTS, INC.
Geotechnical Engineering • Geology • Hydrogeology

Statement of Qualifications

James Thurber leads Geotechnical Consultants, Inc.'s geologic and hydrogeologic efforts. He brings with him 24 years of experience and an in-depth knowledge of the development, protection, and management of municipal groundwater resources. Mr. Thurber is actively involved engineering geology, hydrogeology and hazardous material assessments for numerous local and regional environmental impact reports. Mr. Thurber's EIR experience includes long linear pipelines and transmission lines, thermal and solar power plants, highways, dams, new schools, and large redevelopment projects. He is experienced with hazardous waste investigations and site characterization for leaking underground fuel tanks, industrial facilities and solid waste landfills. Mr. Thurber is a highly qualified geologist and hydrogeologist, experienced in the assessment of site conditions related to past and current use of hazardous materials and environmental contamination. Mr. Thurber is experienced in the impact analysis of hazardous materials for large planning projects and preparing appropriate and applicable mitigation measures. Mr. Thurber has performed hazardous material assessments, for redevelopment projects, schools, long pipeline projects, and highways. Mr. Thurber is also experienced in characterizing geologic and seismic settings for planning and design of new projects.

EDUCATION AND REGISTRATION

Colorado State University, M.S., Geology, 1982

California State University, Northridge,
B.S., Geology, 1978

California State University, Northridge,
B.A., Geography, 1976

Professional Geologist No.4197, State of California

Certified Engineering Geologist No.1458,
State of California

Certified Hydrogeologist No.162, State of California

MEMBERSHIP

National Ground Water Association

American Water Works Association

EXPERIENCE

GEOTECHNICAL CONSULTANTS, INC. Mr. Thurber joined the firm in 1985 and works in GTC's Lake Forest office.

• **City of Culver City, Inglewood Oil Field EIR Review Project.** Provided technical review of the Baldwin Hills Community Services District Ordinance and EIR related to increased oil well drilling and enhanced recovery techniques at the Inglewood Oil Field. Subsequently, we assisted with preparation of the draft Well Drilling Ordinance for the City of Culver City. Key issues include proximity of the oil field to the Newport Inglewood Fault and areas of historic ground subsidence within the oil field. GTC developed recommendations for ground surface monitoring to detect subsidence and/or uplift potentially resulting from water flood and hydraulic fracturing enhanced recovery techniques being used in the oil field. GTC provided review of the Hydraulic Fracturing Study to evaluate potential impacts to ground movement, induced seismicity, and groundwater resources in the adjacent groundwater basins.

• **Tranquillon Ridge Development Project Geology, Soils, and Seismic Hazards EIR Sections.** Prepared the geology, soils and seismic hazard sections for the EIR Update. The project consists of improvements at the Lompoc Oil and Gas Plant and Valve Site #2, underground power line, and new oil pipelines. The project site is located along beach, river and hillside areas of the Santa Maria Basin. Onshore and offshore faults present a seismic setting where large earthquakes would result in strong ground shaking. Seismic hazards include liquefaction, earthquake-induced slope instability, and tsunami wave run-up extending great distances in the Santa Ynez River valley.

• **Initial Study to Evaluate the Division of Oil, Gas, and Geothermal Resources' California Environmental Quality Act (CEQA) Compliance Program.** Assisted with the evaluation of the existing CEQA compliance process related to the drilling of new oil, gas and injection wells. This Initial Study evaluated the DOGGR CEQA Compliance Program (Program) for oil and gas well drilling in Kern County. The Program includes the revision of DOGGR's CEQA regulations that are applicable statewide and the assessment of environmental issues associated with oil and gas well drilling in Kern County. We provided analysis of the impacts related to geology, soils and seismic hazards; hazardous materials; and groundwater resources. The potential impacts considered included drilling, operation and maintenance of new oil and gas wells and the drilling and destruction of non-producing wells.



JAMES E. THURBER, P.G., C.E.G., C.HG.

- **California Energy Commission, Staff Assessments Technical Assistance in Application for Certification Review.** Geotechnical Consultants Inc. is assisting Aspen Environmental Group and CEC in evaluation of new power plant applications throughout the State. Mr. Thurber is serving as a Project Hydrogeologist for the issue area of groundwater for cooling and potable supply.

- **Kinder Morgan Concord to Sacramento Pipeline EIR.** Project manager for the geology and environmental contamination sections of an EIR evaluating a proposed 70-mile long refined petroleum products pipeline for the California State Lands Commission. Analysis included consideration of potential impacts from active fault crossings, landslides, liquefaction, existing soil and groundwater contamination, and from potential pipeline accidents in Contra Costa, Solano, and Yolo Counties.

- **SCE Antelope-Pardee Transmission Segment 1, Los Angeles County, California.** We are analyzing geology, soils, and seismic issues for five alternative alignments, each measuring about 25 miles long. In addition, we are evaluating environmental contamination along these alignments, particularly the underground portions. These alignments traverse high desert, and mountainous areas, and the San Andreas rift zone.

- **Santa Fe Pacific Pipeline, Carson to Norwalk Pipeline EIR.** Prepared the geology, soils, seismic hazards, and hazardous material environmental analysis along three alternative routes of a 14-mile petroleum products pipeline. The project included major storage and pumping facilities at the Watson Station in Carson and the Norwalk Station. The pipeline alignment traversed numerous environmental contamination sites that required identification and screening to identify reasonable alignment alternatives. Crossings at Compton Creek, the Los Angeles River and San Gabriel River presented geotechnical issues related to liquefaction and constructability. Seismic hazards related to ground shaking and surface rupture of the Newport-Inglewood fault were analyzed.

- **California Public Utility Commission, Sunrise Powerlink EIR/EIS.** Geotechnical Consultants is conducting the analysis of the environmental impacts of geology, soils, seismicity and environmental contamination for the 80-mile long 230 and 500kV transmission line project. The project alignment crosses the Superstition Hills, Earthquake Valley and Elsinore fault zones in Imperial and San Diego counties.

- **Groundwater Staff Assessment.** Conducted the analyses of groundwater issues for domestic supply and cooling at the Morro Bay Power Plant (MBPP) and the San

Joaquin Valley Energy Center (SJVEC). Provided written testimony for the staff assessments of MBPP and SJVEC, and provided oral testimony at the MBPP hearings.

- **Compliance Review.** Provided support for CEC staff evaluating preliminary well design and estimates of groundwater production and aquifer storage and recovery for the High Desert Power Plant. As Project Hydrogeologist, assisted with review of aquifer test planning, analysis of aquifer test results, and well interference calculations for the Blythe Energy Power Plant.

- **Jefferson-Martin 230 kV Transmission Line EIR.** Mr. Thurber is the Associate Geologist overseeing preparation of the geology and environmental contamination sections of the EIR. This EIR is being prepared for the California Public Utilities Commission (CPUC) to evaluate a proposed 27-mile 230 kV transmission line in San Mateo County. The project will also include construction of a new transition station and modifications to two existing substations.

- **Miguel-Mission 230 kV #2 EIR.** Mr. Thurber is the Associate Geologist overseeing preparation of the geology and environmental contamination sections of the EIR. The project is being prepared for the California Public Utilities Commission (CPUC) to evaluate a proposed 35 mile lone 230 kV circuit within an existing transmission line ROW between Miguel and Mission substations in San Diego County. In addition, the Miguel Substation and Mission Substation would be modified to accommodate the new 230 kV transmission circuit.

- **Bolsa Chica Water Line EIR.** Prepared geology, seismicity, groundwater resources and hazardous materials sections of the Bolsa Chica Water Line Environmental Impact Report. This project was prepared for the CPUC to evaluate a proposed water transmission line through the City of Huntington Beach for use by Southern California Water Company. Provided analysis of significant impacts from geologic hazards, hazardous materials, use of groundwater resources, and developed mitigation measures.



JAMES E. THURBER, P.G., C.E.G., C.HG.

Environmental Impact Technical Studies

Adelante Eastside Redevelopment Project, Los Angeles, California
Level 3 Communications Network, California Public Utilities Commission, Ca
Isabel Avenue Extension, Livermore, California
North County Landfill Siting Study, San Diego County, California
Imperial Redevelopment Project, San Diego, California
Cajon Pipeline, San Bernardino and Los Angeles Counties, California
Pacific Pipeline, Santa Barbara, Ventura and Los Angeles Counties, Ca
North Park Redevelopment Project, San Diego, Ca
San Ysidro Redevelopment Project, San Diego, Ca

Municipal Water Wells

Well 14 and 15, 99th Street Well Field, City of Los Angeles, California
Well Nos.19, 20, 21, 22, 23, 24 and 25, Orange, California
Well Nos.1B, 8, 9 and 11, Mesa Consolidated Water District, Costa Mesa, Ca.
Water Well Rehabilitation, Mesa Consolidated Water District, Well Nos.4, 5, 7 and 8, Costa Mesa, California
Vandenberg Well, City of Tustin, California
Wells IDP-1 through IDP-4, Irvine Desalter Project, Orange County Water District, Irvine, California
Sebastopol Road and Occidental Road Wells, Santa Rosa, California
Ball and Boisseranc Wells, Buena Park, California

Well 2363 and 2201, USMC Camp Pendleton Air Base, Oceanside, California

Injection/Recharge Wells

Injection Wells I24 and I25, Well Development and Aquifer Testing, Talbert Seawater Barrier, Orange County Water District, Fountain Valley, California
Injection Well Clusters I26, I27 and I28, Talbert Seawater Barrier, Orange County Water District, Fountain Valley, California

Groundwater Monitoring, Site Characterization Studies

Nested Monitoring Wells, Sunset Gap, Orange County Water District, Seal Beach, California
Nested Monitoring Wells, Sonoma County Water

Agency, Windsor, California
Nested Monitoring Wells, Orange County Water District, Newport Mesa, Orange County, California
West Waterman Canyon Portal, Inland Feeder Tunnel, San Bernardino, Ca.
San Pasqual Valley, San Diego, California
Mesa Consolidated Water District/Orange County Water District, Deep Multi-Port Monitoring Well, Costa Mesa, California
Calabasas Landfill, Calabasas, California
Puente Hills Landfill, Whittier, California
Los Alamitos AFRC Landfill, Los Alamitos, Ca
Domtar Gypsum, Inc., Vernon, California
Culver City Motor Clinic, Culver City, California
Norwalk Dump, Norwalk, California
Stinnes-Western Chemical Corporation, Vernon, California
Cooper Drum Company, South El Monte, California
George Air Force Base, Adelanto, California
Palomar Airport Landfill, Carlsbad, California



AURIE PATTERSON, P.G.

GEOTECHNICAL CONSULTANTS, INC.

Geotechnical Engineering • Geology • Hydrogeology

Statement of Qualifications

Ms. Patterson has performed data research, aerial photo interpretation, site inspection, and analysis for the preparation of EIR, EIS, and IS/MND technical sections for the issue areas of geologic/geotechnical hazards, faulting and seismic hazards, hazardous materials, groundwater, and mineral resources. Ms. Patterson's project experience includes environmental studies for solar facilities, wind farms, petroleum and water pipelines, power plants, transmission lines, communications systems, transportation, schools, and redevelopment projects. She has prepared Phase I Environmental Site Assessments for large solar facilities and long linear transmission projects. Her experience also includes hydrogeologic studies to determine aquifer parameters, water well planning and siting, well design, and management of well construction for municipal water supplies and monitoring of groundwater. Ms. Patterson has conducted research, data review, soil sampling, geologic logging of exploratory borings, fault logging and evaluation, installation and sampling of monitoring wells, and formation logging of deep water supply wells.

EDUCATION AND REGISTRATION

San Jose State University, B.A., Geology, 1989

San Diego State University, Graduate Study in Geology, 1990-1993

Professional Geologist No. 7083, State of California

EXPERIENCE

GEOTECHNICAL CONSULTANTS, INC. Ms. Patterson joined the firm in 1995 and works in GTC's Lake Forest office.

• **Sespe Creek Flood Control Improvements Project, Santa Paula, California.** Researched and analyzed geology, soils, seismic hazards, and paleontologic resources to evaluate impacts related to the planned flood control improvements along the lower Sespe Creek. Geologic and seismic hazards include erosion, fault rupture, ground shaking, and liquefaction. Paleontologic resource potential is moderate for the alluvium and alluvial terrace deposits in the project area.

• **California Rivers Parkway Project, Ventura River, Meiners Oaks, California.** Researched and analyzed geology, soils, and paleontologic resources to evaluate impacts related to the planned flood control

improvements along the Ventura River. Geologic and seismic hazards include erosion, fault rupture, ground shaking, and liquefaction. Paleontologic resource potential is high for the Sespe Formation which underlies the alluvial deposits in the project area.

• **California Valley Solar Ranch, San Luis Obispo County, California.** Analyzed geology, soil, and seismic hazards for a 2,000 acre photovoltaic solar plant located adjacent to the San Andreas fault, with transmission tie-line crossing the fault zone.

• **Panoche Valley Solar Farm Project, San Benito County, California.** Analyzed geology, soils, mineral resources, erosion, and seismic hazards for a 420MW utility-scale solar photovoltaic facility located on 4,800 acres of valley land surrounded by the Panoche Hills and San Benito Mountain.

• **Topaz Solar Farm Project, San Luis Obispo County, California.** Analyzed geology, soil, and seismic hazards and prepared EIR section for an approximately 5,300 acre photovoltaic (PV) solar farm in the California Valley area in unincorporated eastern San Luis Obispo County.

• **Valley Oak Solar Farm, Kings County, California.** Prepared a Phase I Environmental Site Assessment for a 3,000 acre photovoltaic solar facility located on active farmland with intensive historic pesticide use, air strip, and farm equipment maintenance areas.

• **SCE Tehachapi Renewable Transmission Project EIR/EIS, Kern, Los Angeles, and San Bernardino Counties, California.** Aurie conducted the environmental impacts analysis and prepared the corresponding EIR sections for the issue areas of environmental contamination, geology, soils, and seismic issues for the proposed 159-mile long 500kV transmission line and several alternative alignments extending from Tehachapi across Antelope Valley, across the San Gabriel Mountains and San Gabriel Valley to Mesa Substation in Montebello, and then east across the Montebello, Puente, and Chino Hills to Mira Loma Substation in the City of Ontario. Aurie also prepared the Supplemental EIS sections related to changes in the project description and the occurrence of the Station Fire for the portions of the project within the Angeles National Forest.

• **Sunrise Powerlink Project EIR/EIS, Imperial and San Diego Counties, California.** Conducted the environmental impacts analysis and prepared the corresponding EIR/EIS sections for the issue areas of geology, soils, seismicity and environmental contamination for the 150-mile long transmission line that extends from the Salton trough, over the Peninsula



AURIE PATTERSON, P.G.

Ranges and into the Coastal terraces. The environmental analysis is evaluating five alternatives and potential new in-area power generation. Hazardous materials and unexploded military ordinance sites are also being identified and evaluated for project impacts.

• **Devers-Palo Verde No. 2 Transmission Line Project EIR/EIS, southwestern Arizona to San Bernardino County, California.** Conducted analysis of geology, soils, seismic, and environmental contamination issues for the proposed project and several alignment alternatives. The project consisted of approximately 230 miles of new transmission line, 48 miles of upgraded transmission line, and one new substation. Prepared EIR/EIS sections for the project which discussed setting, potential impacts, and provided mitigation measures. Provide support during construction to review compliance with mitigation measures.

• **Kinder Morgan Concord to Sacramento Pipeline EIR.** Prepared the geology, soils, and seismic hazards sections of an EIR evaluating a proposed 70-mile long refined petroleum products pipeline for the California State Lands Commission. Analysis included consideration of potential impacts from active fault crossings, landslides, liquefaction, existing soil and groundwater contamination, and from potential pipeline accidents in Contra Costa, Solano, and Yolo Counties.

• **SCE Antelope-Pardee Transmission Segment 1, Los Angeles County, California.** We analyzed geology, soils, and seismic issues for five alternative alignments, each measuring about 25 miles long. In addition, we are evaluating environmental contamination along these alignments, particularly the underground portions. These alignments traverse high desert, and mountainous areas, and the San Andreas rift zone.

• **Santa Fe Pacific Pipeline, Carson to Norwalk Pipeline EIR.** Prepared the geology, soils, seismic hazards, and hazardous material environmental analysis along three alternative routes of a 14-mile petroleum products pipeline. The project included major storage and pumping facilities at the Watson Station in Carson and the Norwalk Station. The pipeline alignment traversed numerous environmental contamination sites that required identification and screening to identify reasonable alignment alternatives. Crossings at Compton Creek, the Los Angeles River and San Gabriel River presented geotechnical issues related to liquefaction and constructability. Seismic hazards related to ground shaking and surface rupture of the Newport-Inglewood fault were analyzed.

• **California Public Utility Commission, Sunrise Powerlink EIR/EIS.** Geotechnical Consultants conducted the analysis of the environmental impacts of geology, soils, seismicity and environmental contamination for the 80-mile long 230 and 500kV transmission line project. The project alignment crosses the Superstition Hills, Earthquake Valley and Elsinore fault zones in Imperial and San Diego counties.

• **Miguel-Mission 230 kV #2 EIR.** Ms. Patterson prepared the geology and environmental contamination sections of the project EIR. The project EIR evaluated a 35 mile long 230 kV circuit within an existing transmission line ROW between Miguel and Mission substations in San Diego County. In addition, the Miguel Substation and Mission Substation would be modified to accommodate the new 230 kV transmission circuit.

• **Bolsa Chica Water Line EIR.** Prepared geology, seismicity, and hazardous materials sections of the Bolsa Chica Water Line EIR. This project was prepared for the CPUC to evaluate a proposed water transmission line through the City of Huntington Beach for use by Southern California Water Company. Provided analysis of significant impacts from geologic hazards, hazardous materials, use of groundwater resources, and developed mitigation measures.



AURIE PATTERSON, P.G.

Environmental Impact Technical Studies

Adelante Eastside Redevelopment Project, Los Angeles, California
Level 3 Communications Network, California Public Utilities Commission, Ca
Isabel Avenue Extension, Livermore, California
North County Landfill Siting Study, San Diego County, California
Imperial Redevelopment Project, San Diego, California
Cajon Pipeline, San Bernardino and Los Angeles Counties, California
Pacific Pipeline, Santa Barbara, Ventura and Los Angeles Counties, Ca
North Park Redevelopment Project, San Diego, Ca
San Ysidro Redevelopment Project, San Diego, Ca

Municipal Water Wells

Well 14 and 15, 99th Street Well Field, City of Los Angeles, California
Well Nos.19, 20, 21, 22, 23, 24 and 25, Orange, California
Well Nos.1B, 8, 9 and 11, Mesa Consolidated Water District, Costa Mesa, Ca.
Water Well Rehabilitation, Mesa Consolidated Water District, Well Nos.4, 5, 7 and 8, Costa Mesa, California
Vandenberg Well, City of Tustin, California
Wells IDP-1 through IDP-4, Irvine Desalter Project, Orange County Water District, Irvine, California
Sebastopol Road and Occidental Road Wells, Santa Rosa, California
Ball and Boisseranc Wells, Buena Park, California

Well 2363 and 2201, USMC Camp Pendleton Air Base, Oceanside, California

Injection/Recharge Wells

Injection Wells I24 and I25, Well Development and Aquifer Testing, Talbert Seawater Barrier, Orange County Water District, Fountain Valley, California
Injection Well Clusters I26, I27 and I28, Talbert Seawater Barrier, Orange County Water District, Fountain Valley, California

Groundwater Monitoring, Site Characterization Studies

Nested Monitoring Wells, Sunset Gap, Orange County Water District, Seal Beach, California

Nested Monitoring Wells, Sonoma County Water Agency, Windsor, California
Nested Monitoring Wells, Orange County Water District, Newport Mesa, Orange County, California
West Waterman Canyon Portal, Inland Feeder Tunnel, San Bernardino, Ca.
San Pasqual Valley, San Diego, California
Mesa Consolidated Water District/Orange County Water District, Deep Multi-Port Monitoring Well, Costa Mesa, California
Calabasas Landfill, Calabasas, California
Puente Hills Landfill, Whittier, California
Los Alamitos AFRC Landfill, Los Alamitos, Ca
Domtar Gypsum, Inc., Vernon, California
Culver City Motor Clinic, Culver City, California
Norwalk Dump, Norwalk, California
Stinnes-Western Chemical Corporation, Vernon, California

Cooper Drum Company, South El Monte, California
George Air Force Base, Adelanto, California
Palomar Airport Landfill, Carlsbad, California

PUBLICATIONS

Patterson, A.C. and T.K. Rockwell, 1993, Paleoseismology of the Whittier Fault based on 3-Dimensional Trenching at Olinda Oil Field, Orange County, Southern California: GSA Abstracts with Programs, Cordilleran Section, v. 25, no. 5, p. 131.

Patterson, A.C. and T.K. Rockwell, in preparation, Timing of Past Earthquakes on the Whittier Fault, Olinda Oil Field, Orange County, California: to be submitted to GSA Bulletin.



Academic Background

Master of Environmental Science and Management, University of California Santa Barbara, 2005
Bachelor of Arts, Environmental Studies and Film Theory, Emory University, 2000

Professional Experience

Ms. Mescher is a Water Resources Specialist and Project Manager with a multidisciplinary background in the environmental sciences, who has been working with Aspen since 2005. Ms. Mescher specializes in the physical science issue area of water resources, including expertise relevant to groundwater, hydrogeology, water quality, and relevant laws and regulations, as well as the analysis of recreational resources and opportunities. Ms. Mescher has prepared technical analyses for numerous projects under CEQA and NEPA, including flood control, water infrastructure, and renewable energy projects throughout California. Some of Ms. Mescher's key experiences are summarized below.

Aspen Environmental Group..... 2005-2006 and 2007-present

- **Baldwin Hills Community Standards District (CSD), City of Culver City (2009).** Technical Specialist for the review of a County of Los Angeles environmental document and preparation of an oil and gas drilling ordinance for the City of Culver City in Los Angeles County. Ms. Mescher reviewed the technical comments on the Baldwin Hills Community Standards District EIR prepared by the County of Los Angeles for the Inglewood Oil Field, including evaluation of the County's proposed CSD (drilling ordinance), which the County revised based on public comments. The City used the review comments as part of their formal comments submitted on the County's EIR and CSD.
- **Tehachapi Renewable Transmission Line Project (TRTP) EIS/EIR, CPUC and USDA Forest Service (2007-2012).** Ms. Mescher prepared analysis for the environmental issue area of Wilderness and Recreation, and provided extensive assistance in the preparation of the Hydrology and Water Quality analysis for a joint EIR/EIS for the California Public Utilities Commission (CPUC) and USDA Forest Service. Ms. Mescher also assisted in development of the Project Description and alternatives to the proposed project, as well as a Specialist Report for Hydrology and Water Quality. Ms. Mescher provided technical expertise in the analysis of erosion and sedimentation effects for a Supplemental Draft EIS (SDEIS) that was prepared after the Station Fire, which burned 251 square miles of the Angeles National Forest in 2009. In addition, project changes affecting NFS lands, including new structure types, helicopter staging and support areas, wire setup site locations, alternate access roads, and changes in the project schedule were analyzed in the SDEIS. The SDEIS was published April 30, 2010. This project passed through numerous jurisdictions, and garnered a high level of public awareness and controversy. Ms. Mescher assisted in the preparation and implementation of all public meetings held for the project, and provided written responses to hundreds of comments collected during the comment period.
- **SDG&E Sunrise Powerlink Transmission Project Water Availability Study (2010).** Under a \$14 million contract to the CPUC, and under a Memorandum of Understanding with the Bureau of Land Management (BLM), an EIR/EIS was prepared for a highly controversial 150-mile transmission line from Imperial County to coastal San Diego County. Following publication of the Final EIR/EIS in October 2008, the Applicant (SDG&E) prepared a Water Availability Study. Ms. Mescher provided technical review and feedback of this study, with particular attention to existing water supply and uses, and how the Project could affect water availability to other users in the project area.
- **Thousand Palms Flood Control Project Subsequent EIR/ Subsequent EIS, Riverside County (2011 - present).** Ms. Mescher is the Project Manager and Hydrology/Water Quality Specialist for this

Subsequent Environmental Impact Report (SEIR) / Subsequent Environmental Impact Statement (SEIS) for this proposed flood control improvement project located in the Thousand Palms area of Riverside County. The proposed project includes a series of levees and channels to direct stormwater flows from the Indio Mountains away from developed areas and into an existing stormwater conveyance system, to protect community areas from flooding hazards. In addition to serving as Project Manager, Ms. Mescher is also preparing several technical analyses for the SEIR/SEIS, including Hydrology and Water Quality, and Topography, Geology, and Soils.

- **Whitewater River Basin Flood Control Project SEA/MND, Riverside County (2007-2011).** Ms. Mescher served as Project Manager and Hydrology/Water Quality Specialist in the preparation of a Supplemental Environmental Assessment (SEA) for this proposed flood control project, described above. The SEA was tiered off of an EIS/EIR prepared for the project in 2000, with the U.S. Army Corps of Engineers as NEPA Lead Agency and the Coachella Valley Water District as CEQA Lead Agency. Ms. Mescher also prepared several technical analyses, including Hydrology and Water Quality, and Topography, Geology, and Soils.
- **Rimforest Storm Drain Project EIR, San Bernardino County (2012 – present).** Ms. Mescher is the Deputy Project Manager and Hydrology Specialist for this EIR, prepared for a unique flood control improvement project which involves a series of upgrades to existing stormwater drainage facilities in order to re-direct stormwater flow throughout the mountain community of Rimforest, and mediate significant historic erosion and landslide issues in the area. Ms. Mescher is also preparing technical analysis for Hydrology and Water Quality, as well as Geology and Soils.
- **Senate Bill 610 Water Supply Assessments (2010-present).** Ms. Mescher has managed the preparation of multiple Water Supply Assessments (WSAs) under California Water Code as amended by Senate Bills (SB) 610 and SB 267, for a variety of large-scale and complex projects throughout California, including: Topaz Solar Farm and California Valley Solar Ranch in San Luis Obispo County, Solargen Panoche Valley Solar Farm in San Benito County, and Antelope Valley Solar Farm in Kern County. Ms. Mescher has also provided expert technical review of WSAs prepared other parties and suggested revisions to ensure California Water Code compliance for these WSAs, which included: Ocotillo Express Wind Energy Project in Imperial County, Morgan Hills Wind Energy Project in Kern County, Alta East Wind Project in Kern County, and Alta Wind Infill II Project in Kern County.
- **Total Terminals International (TTI) Grain Export Terminal Installation Project IS/NOP and Focused EIR, Port of Long Beach (2011-present).** Ms. Mescher served as Deputy Project Manager and Hydrology/Water Quality Specialist in the preparation of the TTI Grain Export Terminal Installation Project IS/NOP and a Focused EIR. Ms. Mescher is providing continued support in responses to comments, Findings of Fact, Statement of Overriding Considerations, Mitigation Monitoring and Reporting Program, and Environmental Controls documents for the POLB.
- **Sespe Creek Levee Improvements Project IS/EA, Ventura County (2011 – present).** Ms. Mescher is the Deputy Project Manager and Hydrology/Water Quality Specialist in the preparation of an IS/EA for the modification of the Sespe Creek 2 (SC-2) portion of the Sespe Creek Levee system, located on Ventura County Watershed Protection District (VCWPD) lands adjacent to the City of Fillmore. As Deputy Project Manager, Ms. Mescher is responsible for coordinating project design details with the VCWPD, and providing support in various areas of project management. Ms. Mescher is also preparing several technical analyses, including Hydrology and Water Quality.

Professional Affiliations

- Water Leaders Class, 2014 (Water Education Foundation)
- California Association of Environmental Professionals, 2003 – present (Channel Counties Chapter)



Academic Background and Credentials

BS, Urban Planning and Design, University of Minnesota, 1995

Board Certified Environmental Planner (CEP) #12040973

U.S. Council of Engineering & Scientific Specialty Boards/ABCEP

Professional Experience

Mr. Debauche is an environmental planner with 18 years of experience preparing NEPA and CEQA documents, planning reports, and analytical technical studies for a variety of large-scale infrastructure and civil projects. Through his work, Mr. Debauche serves as a technical specialist for Hazards and Hazardous Materials, Noise, Transportation, and Air Quality issues. The projects described below briefly highlight his experience to evaluate these issues within a draft Environmental Impact Report for the ERG Operating Company West Cat Canyon Revitalization Plan Project.

Aspen Environmental Group 2001-present

Oil and Gas Projects

- **Statewide Well Stimulation Treatments for Enhanced Oil and Gas Production and Recovery (Fracking) Regulations Under Senate Bill 4.** Under contract to the California Division of Oil, Gas, and Geothermal Resources (DOGGR), Mr. Debauche is part of a small team of specialists evaluating the environmental impacts and effectiveness of proposed permanent regulations to govern oil and gas well stimulation treatment throughout the State. This effort includes the preparation of a programmatic EIS/EIR for statewide well stimulation practice.
- **Los Angeles County Baldwin Hills Oil Field Community Standards District EIR Review and Noise Ordinance Preparation, Los Angeles County, CA.** Served as the City of Culver City Technical Specialist reviewing the Los Angeles County Baldwin Hills Oils Field Community Standards District EIR Noise analysis and policy mechanisms which guided the expansion and future operations of the existing Baldwin Hills Oil Field. Upon completion of environmental review, Mr. Debauche then prepared the Noise section of the newly enacted City of Culver City Community Standards District overlay zone restricting noise generation by the Baldwin Hills Oil Field on the residents of Culver City.
- **Hydrogen Energy California Power Plant Project, Kern County, CA. For the California Energy Commission, Mr. Debauche is a technical specialist analyzing** the proposed HECA project, which includes a 400-megawatt (MW) power plant that would produce hydrogen to fuel a combustion turbine. The gasification component of the plant would capture carbon dioxide, which would be transported and used for enhanced oil recovery (EOR) and sequestration in the adjacent Elk Hills Oil Field. The project would also capture and harness the remaining hydrogen to produce approximately 1 million tons of fertilizer for domestic use.

Hazards and Hazardous Materials Analyses

- **Avila Point Project, San Luis Obispo County, CA.** Under contract to San Luis Obispo County, Mr. Debauche is conducting the hazards analysis under CEQA for the remediation of an exhausted Chevron oil tank farm, rezoning the property from industrial to recreation, and construction of a resort to include a restaurant, spa, shops, cottages, hotel rooms and related facilities.
- **Lake Gregory Dam Rehabilitation Project, San Bernardino County, CA.** Dam stabilization including the removal of existing rock and foundation material at the base of the dam, and construction of a new earthen buttress and placement of new slope protection.

- **El Casco System Project, Riverside County, CA.** For the California Public Utilities Commission, Mr. Debauche evaluated SCE's 115 kV subtransmission line from Banning Substation westward toward the new El Casco Substation.
- **Renewable Energy Streamlining Program General Plan Element, San Luis Obispo County, CA.** As a senior technical specialist, Mr. Debauche is evaluating the reuse of Superfund and other hazardous material site for renewable energy opportunities and constraints within this technical study.

Noise Analyses

- **Coolwater Lugo Transmission Project, Riverside and San Bernardino Counties, CA.** Under contract to the California Public Utilities Commission (CPUC), Mr. Debauche is analyzing noise impacts of Southern California Edison's (SCE) proposed 75-miles of new 500- and 220-kilovolt (kV) transmission line.
- **Alta East Wind Project EIS/EIR, Kern County, CA.** Prepared the noise analysis for 120 wind turbine generators, their ancillary facilities, and approximately 20 miles of supporting transmission line infrastructure located on both Kern County and BLM lands.
- **Donnell Basin Flood Control Project, San Bernardino County, CA.** For the San Bernardino County Department of Public Works, this project included the construction and maintenance of a series of improvements to the existing Donnell Basin to increase its capacity and provide downstream flood hazard protection.

Transportation and Traffic Analyses

- **Santa Margarita Quarry Expansion Project, San Luis Obispo County, CA.** This project expands the existing surface mine by adding an additional 369 acres to the existing entitled mining footprint and buffer area and extends the estimated duration of mining activities by approximately 59 years.
- **CleanTech Hazardous Waste Treatment Facility Permit, Irwindale, CA.** Mr. Debauche evaluated the traffic associated with this project, which collects and tests 1.5 million gallons per month of used oil from offsite generators, which is then filtered and treated at the proposed CleanTech facility and sent offsite for new use.
- **Little Rock Reservoir Sediment Removal Project, Los Angeles County, CA.** Construction of a grade control structure and removal of 1,000,000 cubic yards of sediment within Palmdale Water District's Little Rock Reservoir to restore original water storage capacity and flood control design.
- **Mulholland Pumping Station and Lower Hollywood Reservoir Outlet Chlorination Station Project, Los Angeles County, CA.** Mr. Debauche was the traffic analyst for the construction of a new pumping/chlorination station within the LADWP's Hollywood Reservoir Complex located in the Hollywood Hills.

Air Quality Analyses

- **Liberty Energy Power Plant, Riverside County, CA.** Construction of a new biomass power plant, which includes three power generation units to produce 17.5 MW of electricity utilizing a bubbling fluidized bed gasifier boiler to generate steam.
- **Tehachapi Renewable Transmission Project (TRTP Segments 4 through 11), Kern, Los Angeles, and San Bernardino Counties, CA.** SCE's 173-miles (of which 42-miles traversed US Forest Service lands) of new and upgraded 500 kV electric transmission lines and substations to deliver electricity generated from new wind energy projects in eastern Kern County.
- **DC Electrode Project, Los Angeles County, CA.** For the Los Angeles Department of Water and Power (LADWP), Mr. Debauche evaluated construction emissions from this new electrode distribution line from West Los Angeles to the Pacific Ocean stopping point in Malibu up the Pacific Coast Highway and extending into the Pacific Ocean.



Academic Background

MA, Applied Geography, City University of New York, 1988
BA, Physical Geography, University of Colorado at Boulder, 1983

Professional Experience

Ms. Walker joined Aspen Environmental Group in 2000, and has over 24 years of experience in environmental consulting. Ms. Walker primarily functions as a Project Manager for both large- and small-scale multidisciplinary environmental review documents under the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA). Ms. Walker additionally functions as a Senior Analyst and Issue Area Coordinator for land use and public policy analyses and related social science analyses. A selection of Ms. Walker’s project-specific efforts is provided below.

Aspen Environmental Group.....2000-present

- **Analysis of Oil and Gas Well Stimulation Treatments in California, California Department of Conservation, Project Manager.** Ms. Walker is serving the Project Manager for an Environmental Impact Report (EIR) evaluating oil and gas well stimulation treatments throughout California, as required by Public Resources Code Section 3161 (b)(3) and (4) (e.g., Senate Bill 4 [Pavley]). Sections 3161 (b)(3) and (4) require the Division of Oil, Gas and Geothermal Resources (DOGGR) to evaluate the impacts of well stimulation treatments that may occur from either existing or future oil and gas wells, including hydraulic fracturing, acid fracturing and acid matrix stimulation. The EIR will evaluate well stimulation treatments geographically according to DOGGR’s six administrative Districts, and will include a programmatic analysis of the seventeen subject areas provided in Appendix G of the State CEQA Guidelines, as well as risk of upset/worker and public safety, environmental justice, coastal and marine biological resources, commercial and recreational fishing, and coastal processes and marine water quality. In addition to preparation of the EIR, Aspen has assisted the Department of Conservation with the coordination and facilitation of public scoping meetings, and will be assisting with the coordination and facilitation of public workshops on the Draft EIR.
- **Santa Margarita Quarry Expansion Project, County of San Luis Obispo Department of Planning and Building, Project Manager.** Ms. Walker is currently managing an EIR that is being prepared for proposal to extend the operational life and expand the footprint of an existing aggregate quarry and processing facility located near the community of Santa Margarita in San Luis Obispo County. The proposed project additionally includes amendments to, and evaluation of, the facility's Reclamation Plan. Ms. Walker is responsible for all aspects of the technical team's management, serves as the primary point of contact with the County, provides senior technical and QA/QC review of all administrative, draft and final documents and participates in technical meetings, public meetings and decision making hearings. Ms. Walker is also serving as the senior analyst for the EIR's land use and public policy analysis.
- **California Valley Solar Ranch Project, County of San Luis Obispo Department of Planning and Building, Senior Analyst.** Ms. Walker served as a senior analyst for an EIR addressing a proposed 250-MW photovoltaic solar power plant in the Carrizo Plain of eastern San Luis Obispo County. The EIR also includes analysis of a proposed surface aggregate mine on property adjacent to the proposed solar project. Ms. Walker prepared the document’s land use and recreation analysis, including a comprehensive policy consistency analysis of San Luis Obispo County’s General Plan and related zoning ordinances. Ms. Walker additionally prepared a “stand alone” analysis of historic

agricultural uses and patterns in the project area based upon examination and assessment of a suite of aerial photographs taken over an approximate 40-year time frame.

- **Topaz Solar Farm Project, County of San Luis Obispo Department of Planning and Building, Senior Analyst.** Ms. Walker functioned as a senior analyst for an EIR prepared for a proposed 550-MW photovoltaic solar power plant in the Carrizo Plain of eastern San Luis Obispo County. She prepared the EIR's land use, recreation and public policy consistency analyses, completed an analysis of past agricultural uses and practices within the project area over an approximate 40-year period, and developed and analyzed an extensive suite of on-site project alternatives through design re-configurations and generating capacity reductions.
- **Baldwin Hills Community Standards District, City of Culver City, Senior Analyst.** Ms. Walker served as a senior analyst for technical review of an EIR addressing a proposed Community Standards District for onshore oil well drilling and production in the Baldwin Hills area of Los Angeles County. Ms. Walker was responsible for review and comment on the Draft EIR's Project Description, land use, recreation and environmental justice sections, and preparing responses to the Final EIR's responses to comments on the Draft EIR. She additionally prepared a stand-alone "white paper" on the onshore oil well drilling and operational regulations, permits, bonds and taxes required by the State and local jurisdictions (incorporated cities and counties) within southern California. She is currently providing senior review during the City of Culver City's development of a separate Community Standards District and permitting process for oil well drilling and operation within its jurisdictional boundaries.
- **Tranquillon Ridge Oil and Gas Development Project, Santa Barbara County, Senior Analyst.** Ms. Walker served as a senior technical analyst for an EIR addressing proposed oil and gas development of the Tranquillon Ridge oil and gas field, located in State waters offshore northern Santa Barbara County. Ms. Walker completed the EIR's analyses for visual resources/aesthetics, land use and public policy, and recreation. Ms. Walker additionally assisted with development of the EIR's off- and on-shore cumulative project listings and descriptions, as well as completion of multiple resource/issue-specific technical analyses for the EIR's cumulative impacts assessment.
- **Environmental Information Document and Coastal Consistency Determinations for Federal Oil and Gas Leases Offshore Santa Barbara, Ventura and San Luis Obispo Counties, US Department of the Interior, Minerals Management Service, Project Manager.** Ms. Walker served as the Project Manager for preparation of a multidisciplinary Environmental Information Document (EID) and ten federal Coastal Consistency Determinations that evaluated the potential effects of future development of the undeveloped federal oil and gas leases offshore Santa Barbara, Ventura and San Luis Obispo Counties. The documents addressed both lease-specific and cumulative impacts for the period 2006 through 2030. In addition to overall project management and coordination, Ms. Walker was responsible for senior technical review and the preparation of text regarding near- and long-term activities that may occur on the Pacific Outer Continental Shelf, and was a principal author of the California Coastal Act policy consistency analyses prepared for each of the project's Lease/Unit-specific Coastal Consistency Determinations.
- **Kern County Oil and Gas Development Permitting Evaluation and Initial Study, California Division of Oil, Gas and Geothermal Resources (DOGGR), Senior Analyst.** Ms. Walker served as a senior analyst for an evaluation of the local and State permitting processes for new oil and gas development projects within Kern County. Ms. Walker provided technical analyses of various regulatory, policy, and resource-specific issues, and also assisted with overall facilitation of the project's evaluation during agency, industry, and special interest group meetings and workshops. Subsequent to this effort, Ms. Walker served as a senior analyst for an Initial Study evaluating a proposed program for

DOGGR's compliance with CEQA for oil and gas drilling in Kern County. Ms. Walker revised DOGGR's regulations for CEQA compliance and prepared the agricultural resources and land use and planning analyses of the project's Initial Study.

Previous Experience, 1989-1999

Prior to joining Aspen Environmental Group Ms. Walker served as a Project Manager at Dames & Moore (1989-1997), and as a contract planner with the Energy Division of the Santa Barbara County Planning and Development Department (1997-1999). A selection of the projects she worked on during this period is provided below.

- **Point Pedernales Project Hydrogen Sulfide Increase.** Ms. Walker was responsible for completion of an Initial Study and EIR Addendum, and coordination of a Quantitative Risk Analysis for a proposed hydrogen sulfide concentration increase in the 23-mile off- to onshore natural gas pipeline of the Point Pedernales Project.
- **Point Pedernales Project Condition Effectiveness Review.** Ms. Walker completed a comprehensive Preliminary Screening Analysis assessing the effectiveness of the 192 conditions associated with the Santa Barbara County Final Development Plan for the Pt. Pedernales Project.
- **Point Pedernales Project Permit Modifications.** Ms. Walker completed the analysis and regulatory processing of multiple Final Development Plan Substantial Conformity Determinations and a Final Development Plan Director's Amendment for proposed modifications to the Pt. Pedernales Project.
- **Point Pedernales Project Regulatory Compliance.** Ms. Walker was responsible for the compliance tracking and enforcement of the 192 Final Development Plan conditions associated with the Pt. Pedernales Project.
- **Torch Lompoc Gas Processing Facility.** Ms. Walker was responsible for the oversight and coordination of the final regulatory technical reviews and approvals required for commissioning and operation of a natural gas processing plant located in northern Santa Barbara County.
- **California Offshore Oil and Gas Resources Study.** Ms. Walker served as the Assistant Project Manager for the preparation of an extensive inter-disciplinary study evaluating the potential environmental, engineering, and socioeconomic constraints associated with various levels of offshore oil and gas development in Ventura, Santa Barbara, and San Luis Obispo Counties. She additionally served as the document's land use and policy consistency analyst and was responsible for management of its Geographic Information System (GIS) implementation.
- **Santa Barbara County Groundwater Element.** Ms. Walker served as the project manager for a Public Draft revision and Final Programmatic EIR addressing the proposed adoption and implementation of a Groundwater Element into the Santa Barbara County Comprehensive General Plan.
- **Vista Del Mar School Relocation and Water Supply Pipeline.** Ms. Walker served as the Project Manager for preparation of a series of Supplemental and Addenda EIRs for construction of a proposed elementary school and water supply pipeline located within the Coastal Zone of central Santa Barbara County.
- **Mobil M-70 Pipeline Replacement.** Ms. Walker assisted with the overall coordination and preparation of an EIS/EIR addressing the replacement of a 92-mile crude oil pipeline located between Lebec and Torrance. She additionally served as the document's land use and policy consistency analyst.
- **Kern River Natural Gas Pipeline.** Ms. Walker served as a Principal Investigator during the pre-construction preparation of compliance implementation plans, as well as construction-phase develop-

ment and implementation of multiple databases tracking the environmental monitoring and regulatory permit compliance of a 904-mile natural gas pipeline traversing the states of Wyoming, Utah, Nevada, and California.

- **Hercules Remediation Project.** Ms. Walker assessed the federal, State, and local regulatory permit acquisition requirements for the remedial clean-up of an extensive petrochemical spill associated with the Hercules Oil and Gas Development Project located in Santa Barbara County.
- **Santa Barbara North County Siting Study.** Ms. Walker completed the land use analysis and oil and gas facility infrastructure “baseline” section for a siting and constraints study focused on the potential alternatives available for the construction and operation of a new consolidated oil and gas processing facility in northern Santa Barbara County.

Professional Affiliations

- Association of Environmental Professionals

Certificates/Awards

- Darkenwald Award for outstanding academic achievement by a first year graduate student (City University of New York, Department of Geography and Geology, 1987).



Academic Background

Master of Urban Planning, New York University, 2007
BA, Geography, University of California, Los Angeles, 2004

Professional Experience

Ms. Huerta is an Environmental Planner with seven years of experience in environmental consulting and GIS analysis. At Aspen Environmental Group, Ms. Huerta conducts research and prepares environmental analyses in accordance with CEQA and NEPA. She specializes in land use and agricultural analysis, which includes policy consistency assessments and the use of GIS for spatial analysis. She is currently conducting the technical analysis for several energy infrastructure projects, including oil, gas and transmission line projects.

Aspen Environmental Group.....2007-present

Oil and Gas Projects Experience

- **Oil and Gas Well Stimulation Treatments in California, Land Use Specialist (2013-Present).** Under contract to the California Department of Conservation (DOC), Aspen is currently preparing an EIR assessing oil and gas well stimulation treatments throughout California. Section 3161 (b)(3) and (4) requires the Division of Oil, Gas and Geothermal Resources (DOGGR) to evaluate the impacts of well stimulation treatments that may occur from either existing or future oil and gas wells, including hydraulic fracturing and acid well stimulation. Ms Huerta has researched applicable land use policies and regulations, and will prepare the land use and recreation sections for the EIR.
- **Avila Point Project, San Luis Obispo County, Deputy Project Manager (2013-Present).** The proposed project includes CEQA analysis for remediation activities associated with the Avila Tank Farm property, proposed land use and coastal plan amendments, and a redevelopment project. As Deputy Project Manager, Ms. Huerta will participate in the first phase of this project which includes agency coordination, public participation, and preparation of the Initial Study and Notice of Preparation. As part of the second phase of this project, Ms. Huerta will assist in coordinating the preparation of the EIR, and she will also prepare the technical analysis for recreational resources.
- **Oakley Generating Station, California Energy Commission (CEC), Contra Costa County (2010-2011).** As a Staff Professional for the CEC, Ms. Huerta prepared the Land Use Staff Assessment for a natural gas-fired, combined-cycle electrical generating facility rated at a nominal generating capacity of 624 MW. The Land Use section included an analysis of compatibility with existing land uses, policy consistency, and agricultural resources.
- **Willow Pass Generating Station, Pittsburg (2009).** As a Staff Professional for the CEC, Ms. Huerta prepared the the Land Use Staff Assessment for a new, approximately 550-MW dry-cooled, natural gas-fired electric power facility proposed by Mirant. The Land Use section included an analysis of compatibility with existing land uses, policy consistency, and agricultural resources.
- **Baldwin Hills Community Standards District (CSD), City of Culver City, Technical Specialist (2009).** As a Technical Specialist for the review of a County of Los Angeles environmental document and preparation of an oil and gas drilling ordinance for the City of Culver City in Los Angeles County, Ms. Huerta reviewed the technical comments on the Baldwin Hills Community Standards District EIR prepared by the County of Los Angeles for the Inglewood Oil Field. The technical review included the evaluation of the County’s proposed CSD (drilling ordinance), which the County revised based on public comments.

Other CEQA Experience

- **Coolwater Lugo Transmission Project EIR/EIS, CPUC/BLM, Technical Analyst (Present)**
- **Santa Margarita Quarry, San Luis Obispo County, Technical Specialist (Present)**
- **Topaz Solar Farm, San Luis Obispo County, Project Management Assistant (2009-2014)**
- **Thousand Palms Flood Control Project Subsequent EIR/EIS, USACE and Coachella Valley Water District, Technical Specialist (2011 – present)**
- **Donnell Basin Environmental Documents & Regulatory Permits, San Bernardino County, Technical Specialist (2012 – present)**
- **Rimforest Storm Drain EIR, San Bernardino County, Technical Specialist (2011)**
- **Littlerock Reservoir Sediment Removal Project EIS/EIR, Palmdale Water District and Forest Service, CA (2012-Present)**
- **Tehachapi Renewable Transmission Project (TRTP Segments 4 through 11) EIR/EIS, CPUC and USDA Forest Service, Technical Specialist (2007-2010)**
- **California Valley Solar Ranch Project EIR, San Luis Obispo County, Technical Specialist (2009-2010)**
- **Alta East Wind Project EIR/EIS, Kern County, Technical Specialist (2011-present)**
- **Downs Substation Expansion Project Initial Study (IS)/Mitigated Negative Declaration (MND), CPUC, Technical Specialist (2010-2013)**
- **Sespe Creek Levee Improvements Project IS, Ventura County Watershed Protection District, Technical Analyst (2012)**
- **Ocotillo Express Wind Project EIR/EIS, Imperial County, Technical Specialist (2010-2012)**
- **Morgan Hills Wind Energy Project, Kern County, Deputy Project Manager (2011)**
- **North Sky River Wind Energy Project and Jawbone Wind Energy Project EIR, Kern County, Technical Specialist (2010-2011)**
- **Pacific Wind Project EIR, Kern County, Technical Specialist (2009-2010)**
- **California River Parkways Trailhead Project IS/MND, Ventura County Watershed Protection District, Technical Specialist (2009)**
- **Alta–Oak Creek Mojave Project EIR, Kern County, Technical Specialist (2008-2009)**

Professional Certifications/Affiliations

- **American Institute of Certified Planners, Certificate Number 026358**
- **American Planning Association**

Additional Training and Courses

- **Continuing education courses for AICP Certification Maintenance**
- **Successful CEQA Compliance (February 2009)**
- **CEQA Basics Workshop Series (November 2008)**
- **Advanced courses in ArcGIS**
- **Graduate courses in Environmental Impact Assessment and Environmental Policy**

Academic Background

MA, Geography, California State University, Northridge, 2013.
BS, Biology, California State University, Fullerton, 2007.

Professional Experience

Tracy R. Popiel (formerly Valentovich) has 6 years of experiencing working with geographic information systems (GIS) in the environmental field and is currently working at Aspen's Agoura Hills office. Ms. Popiel also has 8 years of experience as a biologist. Her professional interests include creating cartography that is aesthetically pleasing yet easy to read, spatial analysis, and geospatial field data collection and management. She is active in the professional biological and GIS communities and supplements her education through courses, symposia, and presentations in GIS, botany, and biological survey methods.

Aspen Environmental Group..... 2011 – Present

Ms. Popiel has performed GIS analysis and created map documents for many linear transmission, wind and solar energy, and habitat restoration and mitigation projects. A partial list of recent projects includes:

- **Analysis of Oil and Gas Well Stimulation Treatments in California (SB-4) EIR, Dept. of Conservation (2014 – present).** Ms. Popiel was part of a small team of GIS specialists who supported this effort by gathering and organizing needed GIS data, performing spatial analyses, and creating over 100 maps for the EIR, including those for Alternatives, biological resources, and hydrological resource issue areas.
- **San Luis Transmission Project, Western Area Power Administration (2013 – present).** Ms. Popiel is the primary GIS specialist working on data management, analysis, and cartographic products associated with the San Luis Transmission Project. She also supports field staff with data collection needs, including map books and GPS support.
- **San Luis Obispo County Renewable Energy Streamlining Program, San Luis Obispo County (2013 – present).** Ms. Popiel is the lead GIS specialist performing spatial analysis in support of an Opportunities and Constraints Technical Study, which includes coordinating data sharing with public agencies, analyzing land use and resources data, and creating all cartographic products for this project. She is also the lead GIS specialist working on maps for the programmatic EIR.
- **Littlerock Reservoir Sediment Removal Project EIS/EIR, Palmdale Water District (2011-present).** Ms. Popiel performed 3D analysis on topographic data collected via unmanned aerial vehicles to estimate changes in sediment load within the reservoir. Ms. Popiel has performed arroyo toad and botanical surveys of the project area and access roads, and she was involved in producing the biological resource documents for the DEIS. Ms. Popiel produced all of the biological figures associated with this project.
- **Coolwater-Lugo Transmission Project, CPUC (2013 – present).** Ms. Popiel has assisted in gathering data and creating and editing maps for the biological technical report and EIR.
- **On-call Access Road Maintenance Projects, Western Area Power Administration, Desert Southwest Region, (2011 – present).** Ms. Popiel is the lead GIS specialist responsible for all cartographic products associated with 22 task orders, including vegetation and habitat mapping

and GIS analysis for multiple federal waters delineations reports. She was a member of the team conducting wildlife and botanical surveys of the access roads along selected portions of WAPA transmission lines throughout Southern California, Nevada, and Arizona. Ms. Popiel collected GPS field data for desert tortoise encounters and sign, and was responsible for post-processing the data. Among these projects are recent Environmental Assessments for the Parker-Davis System, Parker-Headgate Rebuild, and Electric District 2 – Saguaro 2 Projects.

- **On-call GIS-based Analyses, Western Area Power Administration, Sierra Nevada Region, (2012 – present).** Ms. Popiel has worked on various supporting aspects of transmission line projects, including creating KMZ files in response to Western data requests, as well as creating on-demand map documents. Ms. Popiel has performed LiDAR, GIS, and video analysis and has produced map documents in support of a variety of Western projects.
- **Desert Renewable Energy Conservation Plan (DRECP) EIS/EIR, California Energy Commission, (2013 - present).** Ms. Popiel utilized various resource data sources to analyze impacted environments from all project alternatives. She used this analysis to provide information for section authors, in support of the EIS/EIR.
- **Mesa Wind Repower Project EA, Brookfield Renewables (2013 – present).** As a biologist, Ms. Popiel conducted a jurisdictional delineation of state and federal waters on the site. This included all field and writing tasks, and as a GIS specialist, she also collected all data and created all figures for this project. Ms. Popiel also provided all of the GIS services in support of the Biological Resources report.
- **Patrol Map Books, Western Area Power Administration, Sierra Nevada Region, (2012).** Ms. Popiel played an integral role on a small team of GIS specialists who created revised map book products for Western’s Central Valley Project (CVP) and California-Oregon Transmission project (COTP) using the latest GIS field-verified data. Tasks included manipulating annotation, geodatabase organization, and meticulous review of cartographic data covering 1400 miles of transmission line and 300 miles of access roads.
- **Tehachapi Renewable Transmission Project EIS/EIR, California Public Utilities Commission, (2012 – present).** Ms. Popiel revised figures for the Final EIS/EIR, and provided GIS support to section authors and the construction monitor team. She also worked with biologists to evaluate bird survey results.
- **Desert Harvest Solar Project EIS - Permits and Planning, enXco, (2011-2012).** Ms. Popiel performed duties as both a biologist and GIS specialist in support of this project. As a biologist, Ms. Popiel was a member of a team who performed protocol desert tortoise and botanical surveys of project alternatives; as a GIS specialist, she collected and post-processed data, and created all of the figures needed for the Permits and Planning tasks of this project.
- **Devers-Palo Verde No. 2 Transmission Line Project EIS/EIR Habitat Mitigation Plan, (2012).** Ms. Popiel worked as a biologist to evaluate the Habitat Mitigation Plan, which included visiting potential mitigation sites. She has also utilized her skills to access GIS data in support of Habitat Mitigation Plan analysis.

Appendix B

Aspen Insurance Certificate



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 12/11/2014

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Risk Strategies Company 21700 Oxnard Street Suite 870 Woodland Hills CA 91367	CONTACT NAME: Peggy Scamaldo PHONE (A/C, No, Ext): (818) 857-5010 FAX (A/C, No): (818) 274-0325 E-MAIL ADDRESS: pscamaldo@risk-strategies.com	
	INSURER(S) AFFORDING COVERAGE NAIC #	
INSURED Aspen Environmental Group 5020 Chesebro Road #200 Agoura Hills CA 91301	INSURER A: Evanston Ins Co	
	INSURER B: Philadelphia Indemnity	
	INSURER C: Travelers Ind Co of CT 25682	
	INSURER D:	
	INSURER E:	
	INSURER F:	

COVERAGES **CERTIFICATE NUMBER:** CL1491983424 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	GENERAL LIABILITY <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC			13PKGWE00220	9/27/2013	9/27/2015	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 500,000 MED EXP (Any one person) \$ 25,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000
	AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO ALL OWNED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS <input checked="" type="checkbox"/> SCHEDULED AUTOS NON-OWNED AUTOS			PHPK1218011	9/27/2014	9/27/2015	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
A	<input checked="" type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED RETENTION \$			13EFXWE00065	9/27/2013	9/27/2015	EACH OCCURRENCE \$ 4,000,000 AGGREGATE \$ 4,000,000
C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below		N/A	UB3932T02A	7/1/2014	7/1/2015	<input checked="" type="checkbox"/> WC STATUTORY LIMITS <input type="checkbox"/> OTHER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000
A	Professional & Pollution Liability			13PKGWE00220	9/27/2013	9/27/2015	\$1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)
 Re: ERG Operating Company West Cat Canyon Revitalization Plan Project. Case Nos. 14PPP-00000-00001 & 14VP-00000-0009. The County of Santa Barbara, its officers, agents and employees are included as Additional Insureds as required by written contract.

CERTIFICATE HOLDER County of Santa Barbara Planning and Development 123 E. Anapamy Street Santa Barbara, CA 93101	CANCELLATION SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
	AUTHORIZED REPRESENTATIVE Michael Christian/MAS <i>MAS Christian</i>



EVANSTON INSURANCE COMPANY

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED WITH PRIMARY AND NON-CONTRIBUTORY WORDING OWNERS, LESSEES OR CONTRACTORS (FORM C)

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE FORM

SCHEDULE

Name of Person or Organization:

Any person(s) or organization(s) to whom the insured agrees to provide Additional Insured with Primary and Non-Contributory status in a written contract signed by both parties and executed prior to the commencement of operations.

- A. Section II – Who Is An Insured** is amended to include as an additional insured the person(s) or organization(s) shown in the Schedule above, but only with respect to liability for "bodily injury", "property damage" or "personal and advertising injury" caused in whole or in part by:
1. Your acts or omissions; or
 2. The acts or omissions of those acting on your behalf; in the performance of your ongoing operations for the additional insured(s) scheduled above.
- B.** With respect to the insurance afforded to these additional insureds, the following additional exclusions apply:
- This insurance does not apply to "bodily injury", "property damage", or "personal and advertising injury" occurring after:
1. All work, including materials, parts or equipment furnished in connection with such work, on the project (other than service, maintenance or repairs) to be performed by or on behalf of the additional insured(s) at the location of the covered operations has been completed; or
 2. That portion of "your work" out of which the injury or damage arises has been put to its intended use by any person or organization other than another contractor or subcontractor engaged in performing operations for a principal as a part of the same project.
- C.** It is further agreed that coverage provided for the Additional Insured shown above shall be primary insurance and any other insurance maintained by the Additional Insured shall be excess and non-contributory, but only as respects any claim, loss or liability arising out of your operations, and only if such claim, loss or liability is determined to be solely your negligence or responsibility.

All other terms and conditions remain the same.

Appendix C

Exceptions to Services Contract

C. Exceptions to Services Contract

Aspen has reviewed the services contract included with the RFP in its entirety. If Aspen is awarded the contract to prepare an EIR for the ERG Operating Company West Cat Canyon Revitalization Plan Project, Aspen would like the County to consider the following exceptions (requested insertions are provided in **bold, italicized** text and deletions are displayed in ~~strikethrough~~ text) to Exhibit C of the proposed services contract (Standard Indemnification and Insurance Provisions):

- **Indemnification pertaining to Professional Services:**

CONTRACTOR shall indemnify and save harmless the COUNTY, its officers, agents and employees from any and all claims, demands, damages, costs, expenses (including attorney's fees, **but not including any consequential damages**), judgments or liabilities arising out of the negligent performance ~~or attempted performance~~ of the provisions hereof; including any willful or negligent act or omission to act on the part of the CONTRACTOR or his agents or employees or other independent contractors directly responsible to him to the fullest extent allowable by law. ***In no case shall the amount of damages or expenses found to be the responsibility of the CONTRACTOR exceed the contractor's errors and omission insurance coverage limits.***