

ATTACHMENT 1  
AGREEMENT FOR SERVICES OF INDEPENDENT CONTRACTOR

## AGREEMENT FOR SERVICES OF INDEPENDENT CONTRACTOR

**THIS AGREEMENT** (hereafter Agreement) is made by and between the County of Santa Barbara, a political subdivision of the State of California (hereafter COUNTY) and Marine Research Specialists with an address at 3140 Telegraph Road, Suite A, Ventura, California 93003-3238 (hereafter CONTRACTOR) wherein CONTRACTOR agrees to provide and COUNTY agrees to accept the services specified herein.

**WHEREAS**, CONTRACTOR represents that it is specially trained, skilled, experienced, and competent to perform the special services required by COUNTY and COUNTY desires to retain the services of CONTRACTOR pursuant to the terms, covenants, and conditions herein set forth;

**NOW, THEREFORE**, in consideration of the mutual covenants and conditions contained herein, the parties agree as follows:

### **1. DESIGNATED REPRESENTATIVE**

Susan Curtis at phone number (805) 568-3573 is the representative of COUNTY and will administer this Agreement for and on behalf of COUNTY. Luis F. Perez at phone number (805) 289-3920 is the authorized representative for CONTRACTOR. Changes in designated representatives shall be made only after advance written notice to the other party.

### **2. NOTICES**

Any notice or consent required or permitted to be given under this Agreement shall be given to the respective parties in writing, by personal delivery or facsimile, or with postage prepaid by first class mail, registered or certified mail, or express courier service, as follows:

To COUNTY: Susan Curtis, County of Santa Barbara, Planning & Development Department, 123 E. Anapamu Street, Santa Barbara, CA 93101, Fax (805) 568-2030

To CONTRACTOR: Luis F. Perez, Marine Research Specialists, 3140 Telegraph Road, Suite A, Ventura, California 93003-3238, Fax (805) 289-3935

or at such other address or to such other person that the parties may from time to time designate in accordance with this Notices section. If sent by first class mail, notices and consents under this section shall be deemed to be received five (5) days following their deposit in the U.S. mail. This Notices section shall not be construed as meaning that either party agrees to service of process except as required by applicable law.

### **3. SCOPE OF SERVICES**

CONTRACTOR agrees to provide services to COUNTY in accordance with EXHIBIT A attached hereto and incorporated herein by reference.

### **4. TERM**

CONTRACTOR shall commence performance on June 3, 2014 and end performance upon completion, but no later than June 30, 2015 unless otherwise directed by COUNTY or unless earlier terminated.

## **5. COMPENSATION OF CONTRACTOR**

In full consideration for CONTRACTOR's services, CONTRACTOR shall be paid for performance under this Agreement in accordance with the terms of EXHIBIT B attached hereto and incorporated herein by reference. Billing shall be made by invoice, which shall include the contract number assigned by COUNTY and which is delivered to the address given in Section 2 NOTICES above following completion of the increments identified on EXHIBIT B. Unless otherwise specified on EXHIBIT B, payment shall be net thirty (30) days from presentation of invoice.

## **6. INDEPENDENT CONTRACTOR**

It is mutually understood and agreed that CONTRACTOR (including any and all of its officers, agents, and employees), shall perform all of its services under this Agreement as an independent contractor as to COUNTY and not as an officer, agent, servant, employee, joint venturer, partner, or associate of COUNTY. Furthermore, COUNTY shall have no right to control, supervise, or direct the manner or method by which CONTRACTOR shall perform its work and function. However, COUNTY shall retain the right to administer this Agreement so as to verify that CONTRACTOR is performing its obligations in accordance with the terms and conditions hereof. CONTRACTOR understands and acknowledges that it shall not be entitled to any of the benefits of a COUNTY employee, including but not limited to vacation, sick leave, administrative leave, health insurance, disability insurance, retirement, unemployment insurance, workers' compensation and protection of tenure. CONTRACTOR shall be solely liable and responsible for providing to, or on behalf of, its employees all legally-required employee benefits. In addition, CONTRACTOR shall be solely responsible and save COUNTY harmless from all matters relating to payment of CONTRACTOR's employees, including compliance with Social Security withholding and all other regulations governing such matters. It is acknowledged that during the term of this Agreement, CONTRACTOR may be providing services to others unrelated to the COUNTY or to this Agreement.

## **7. STANDARD OF PERFORMANCE**

CONTRACTOR represents that it has the skills, expertise, and licenses/permits necessary to perform the services required under this Agreement. Accordingly, CONTRACTOR shall perform all such services in the manner and according to the standards observed by a competent practitioner of the same profession in which CONTRACTOR is engaged. All products of whatsoever nature, which CONTRACTOR delivers to COUNTY pursuant to this Agreement, shall be prepared in a first class and workmanlike manner and shall conform to the standards of quality normally observed by a person practicing in CONTRACTOR's profession. CONTRACTOR shall correct or revise any errors or omissions, at COUNTY'S request without additional compensation. Permits and/or licenses shall be obtained and maintained by CONTRACTOR without additional compensation.

## **8. DEBARMENT AND SUSPENSION**

CONTRACTOR certifies to COUNTY that it and its employees and principals are not debarred, suspended, or otherwise excluded from or ineligible for, participation in federal, state, or county government contracts. CONTRACTOR certifies that it shall not contract with a subcontractor that is so debarred or suspended.

## **9. TAXES**

CONTRACTOR shall pay all taxes, levies, duties, and assessments of every nature due in connection with any work under this Agreement and shall make any and all payroll deductions required by law. COUNTY shall not be responsible for paying any taxes on CONTRACTOR's behalf, and should COUNTY be required to do so by state, federal, or local taxing agencies, CONTRACTOR agrees to promptly reimburse COUNTY for the full value of such paid taxes plus interest and penalty, if any. These taxes shall include, but not be limited to, the following: FICA (Social Security), unemployment insurance contributions, income tax, disability insurance, and workers' compensation insurance.

## **10. CONFLICT OF INTEREST**

CONTRACTOR covenants that CONTRACTOR presently has no employment or interest and shall not acquire any employment or interest, direct or indirect, including any interest in any business, property, or source of income, which would conflict in any manner or degree with the performance of services required to be performed under this Agreement. CONTRACTOR further covenants that in the performance of this Agreement, no person having any such interest shall be employed by CONTRACTOR. COUNTY retains the right to waive a conflict of interest disclosed by CONTRACTOR if COUNTY determines it to be immaterial, and such waiver is only effective if provided by COUNTY to CONTRACTOR in writing.

The term "organizational conflict of interest" means that a relationship exists whereby CONTRACTOR has interests which may diminish the capacity to give impartial, technically sound, objective assistance and advice or may otherwise result in a biased work product or may result in an unfair competitive advantage. CONTRACTOR agrees that if an organizational conflict of interest is discovered with respect to this CONTRACT, CONTRACTOR shall make an immediate and full disclosure in writing to COUNTY which shall include a description of the action which the CONTRACTOR has taken or proposes to take to avoid, eliminate or neutralize the conflict. COUNTY may, however, terminate the CONTRACT if it could be in the best interests of the COUNTY.

## **11. OWNERSHIP OF DOCUMENTS AND INTELLECTUAL PROPERTY**

COUNTY shall be the owner of the following items incidental to this Agreement upon production, whether or not completed: all data collected, all documents of any type whatsoever, all photos, designs, sound or audiovisual recordings, software code, inventions, technologies, and other materials, and any material necessary for the practical use of such items, from the time of collection and/or production whether or not performance under this Agreement is completed or terminated prior to completion. CONTRACTOR shall not release any of such items to other parties except after prior written approval of COUNTY.

Unless otherwise specified in Exhibit A, CONTRACTOR hereby assigns to COUNTY all copyright, patent, and other intellectual property and proprietary rights to all data, documents, reports, photos, designs, sound or audiovisual recordings, software code, inventions, technologies, and other materials prepared or provided by CONTRACTOR pursuant to this Agreement (collectively referred to as "Copyrightable Works and Inventions"). COUNTY shall have the unrestricted authority to copy, adapt, perform, display, publish, disclose, distribute, create derivative works from, and otherwise use in whole or in part, any Copyrightable Works and Inventions. CONTRACTOR agrees to take such actions and execute and deliver such documents as may be needed to validate, protect and confirm the rights and assignments provided hereunder. CONTRACTOR warrants that any Copyrightable Works and Inventions and other items provided under this Agreement will not infringe upon any intellectual property or proprietary rights of any third party. CONTRACTOR at its own expense shall defend, indemnify, and hold harmless COUNTY against any claim that any Copyrightable Works or Inventions or other items provided by CONTRACTOR hereunder infringe upon intellectual or other proprietary rights of a third party, and CONTRACTOR shall pay any damages, costs, settlement amounts, and fees (including attorneys' fees) that may be incurred by COUNTY in connection with any such claims. This Ownership of Documents and Intellectual Property provision shall survive expiration or termination of this Agreement.

## **12. NO PUBLICITY OR ENDORSEMENT**

CONTRACTOR shall not use COUNTY's name or logo or any variation of such name or logo in any publicity, advertising or promotional materials. CONTRACTOR shall not use COUNTY's name or logo in any manner that would give the appearance that the COUNTY is endorsing CONTRACTOR. CONTRACTOR shall not in any way contract on behalf of or in the name of COUNTY. CONTRACTOR shall not release any informational pamphlets, notices, press



releases, research reports, or similar public notices concerning the COUNTY or its projects, without obtaining the prior written approval of COUNTY.

**13. COUNTY PROPERTY AND INFORMATION**

All of COUNTY's property, documents, and information provided for CONTRACTOR's use in connection with the services shall remain COUNTY's property, and CONTRACTOR shall return any such items whenever requested by COUNTY and whenever required according to the Termination section of this Agreement. CONTRACTOR may use such items only in connection with providing the services. CONTRACTOR shall not disseminate any COUNTY property, documents, or information without COUNTY's prior written consent.

**14. RECORDS, AUDIT, AND REVIEW**

CONTRACTOR shall keep such business records pursuant to this Agreement as would be kept by a reasonably prudent practitioner of CONTRACTOR's profession and shall maintain such records for at least four (4) years following the termination of this Agreement. All accounting records shall be kept in accordance with generally accepted accounting principles. COUNTY shall have the right to audit and review all such documents and records at any time during CONTRACTOR's regular business hours or upon reasonable notice. In addition, if this Agreement exceeds ten thousand dollars (\$10,000.00), CONTRACTOR shall be subject to the examination and audit of the California State Auditor, at the request of the COUNTY or as part of any audit of the COUNTY, for a period of three (3) years after final payment under the Agreement (Cal. Govt. Code Section 8546.7). CONTRACTOR shall participate in any audits and reviews, whether by COUNTY or the State, at no charge to COUNTY.

If federal, state or COUNTY audit exceptions are made relating to this Agreement, CONTRACTOR shall reimburse all costs incurred by federal, state, and/or COUNTY governments associated with defending against the audit exceptions or performing any audits or follow-up audits, including but not limited to: audit fees, court costs, attorneys' fees based upon a reasonable hourly amount for attorneys in the community, travel costs, penalty assessments and all other costs of whatever nature. Immediately upon notification from COUNTY, CONTRACTOR shall reimburse the amount of the audit exceptions and any other related costs directly to COUNTY as specified by COUNTY in the notification.

**15. INDEMNIFICATION AND INSURANCE**

CONTRACTOR agrees to the indemnification and insurance provisions as set forth in EXHIBIT C attached hereto and incorporated herein by reference.

**16. NONDISCRIMINATION**

COUNTY hereby notifies CONTRACTOR that COUNTY's Unlawful Discrimination Ordinance (Article XIII of Chapter 2 of the Santa Barbara County Code) applies to this Agreement and is incorporated herein by this reference with the same force and effect as if the ordinance were specifically set out herein and CONTRACTOR agrees to comply with said ordinance.

**17. NONEXCLUSIVE AGREEMENT**

CONTRACTOR understands that this is not an exclusive Agreement and that COUNTY shall have the right to negotiate with and enter into contracts with others providing the same or similar services as those provided by CONTRACTOR as the COUNTY desires.

## 18. NON-ASSIGNMENT

CONTRACTOR shall not assign, transfer or subcontract this Agreement or any of its rights or obligations under this Agreement without the prior written consent of COUNTY and any attempt to so assign, subcontract or transfer without such consent shall be void and without legal effect and shall constitute grounds for termination.

CONTRACTOR is authorized to subcontract with subcontractors identified in Contractor's Proposal. CONTRACTOR shall be fully responsible for all services performed by its subcontractor. CONTRACTOR shall secure from its subcontractor all rights for COUNTY in this Agreement, including audit rights. The Contractor's proposal is attached as Appendix 1 of Exhibit A.

## 19. TERMINATION

- A. By COUNTY. COUNTY may, by written notice to CONTRACTOR, terminate this Agreement in whole or in part at any time, whether for COUNTY's convenience, for nonappropriation of funds, or because of the failure of CONTRACTOR to fulfill the obligations herein.
1. **For Convenience.** COUNTY may terminate this Agreement in whole or in part upon thirty (30) days written notice. During the thirty (30) day period, CONTRACTOR shall, as directed by COUNTY, wind down and cease its services as quickly and efficiently as reasonably possible, without performing unnecessary services or activities and by minimizing negative effects on COUNTY from such winding down and cessation of services.
  2. **For Nonappropriation of Funds.** Notwithstanding any other provision of this Agreement, in the event that no funds or insufficient funds are appropriated or budgeted by federal, state or COUNTY governments, or funds are not otherwise available for payments in the fiscal year(s) covered by the term of this Agreement, then COUNTY will notify CONTRACTOR of such occurrence and COUNTY may terminate or suspend this Agreement in whole or in part, with or without a prior notice period. Subsequent to termination of this Agreement under this provision, COUNTY shall have no obligation to make payments with regard to the remainder of the term.
  3. **For Cause.** Should CONTRACTOR default in the performance of this Agreement or materially breach any of its provisions, COUNTY may, at COUNTY's sole option, terminate or suspend this Agreement in whole or in part by written notice. Upon receipt of notice, CONTRACTOR shall immediately discontinue all services affected (unless the notice directs otherwise) and notify COUNTY as to the status of its performance. The date of termination shall be the date the notice is received by CONTRACTOR, unless the notice directs otherwise.
- B. By CONTRACTOR. Should COUNTY fail to pay CONTRACTOR all or any part of the payment set forth in EXHIBIT B, CONTRACTOR may, at CONTRACTOR's option terminate this Agreement if such failure is not remedied by COUNTY within thirty (30) days of written notice to COUNTY of such late payment.
- C. Upon termination, CONTRACTOR shall deliver to COUNTY all data, estimates, graphs, summaries, reports, and all other property, records, documents or papers as may have been accumulated or produced by CONTRACTOR in performing this Agreement, whether completed or in process, except such items as COUNTY may, by written permission, permit CONTRACTOR to retain. Notwithstanding any other payment provision of this Agreement, COUNTY shall pay CONTRACTOR for satisfactory services performed to the date of termination to include a prorated amount of compensation due hereunder less payments, if any, previously made. In no event shall CONTRACTOR be paid an amount in excess of the full price under this Agreement nor for profit on unperformed portions of service.

CONTRACTOR shall furnish to COUNTY such financial information as in the judgment of COUNTY is necessary to determine the reasonable value of the services rendered by CONTRACTOR. In the event of a dispute as to the reasonable value of the services rendered by CONTRACTOR, the decision of COUNTY shall be final. The foregoing is cumulative and shall not affect any right or remedy which COUNTY may have in law or equity.

20. **SECTION HEADINGS**

The headings of the several sections, and any Table of Contents appended hereto, shall be solely for convenience of reference and shall not affect the meaning, construction or effect hereof.

21. **SEVERABILITY**

If any one or more of the provisions contained herein shall for any reason be held to be invalid, illegal or unenforceable in any respect, then such provision or provisions shall be deemed severable from the remaining provisions hereof, and such invalidity, illegality or unenforceability shall not affect any other provision hereof, and this Agreement shall be construed as if such invalid, illegal or unenforceable provision had never been contained herein.

22. **REMEDIES NOT EXCLUSIVE**

No remedy herein conferred upon or reserved to COUNTY is intended to be exclusive of any other remedy or remedies, and each and every such remedy, to the extent permitted by law, shall be cumulative and in addition to any other remedy given hereunder or now or hereafter existing at law or in equity or otherwise.

23. **TIME IS OF THE ESSENCE**

Time is of the essence in this Agreement and each covenant and term is a condition herein.

24. **NO WAIVER OF DEFAULT**

No delay or omission of COUNTY to exercise any right or power arising upon the occurrence of any event of default shall impair any such right or power or shall be construed to be a waiver of any such default or an acquiescence therein; and every power and remedy given by this Agreement to COUNTY shall be exercised from time to time and as often as may be deemed expedient in the sole discretion of COUNTY.

25. **ENTIRE AGREEMENT AND AMENDMENT**

In conjunction with the matters considered herein, this Agreement contains the entire understanding and agreement of the parties and there have been no promises, representations, agreements, warranties or undertakings by any of the parties, either oral or written, of any character or nature hereafter binding except as set forth herein. This Agreement may be altered, amended or modified only by an instrument in writing, executed by the parties to this Agreement and by no other means. Each party waives their future right to claim, contest or assert that this Agreement was modified, canceled, superseded, or changed by any oral agreements, course of conduct, waiver or estoppel.

26. **SUCCESSORS AND ASSIGNS**

All representations, covenants and warranties set forth in this Agreement, by or on behalf of, or for the benefit of any or all of the parties hereto, shall be binding upon and inure to the benefit of such party, its successors and assigns.

## **27. COMPLIANCE WITH LAW**

CONTRACTOR shall, at its sole cost and expense, comply with all County, State and Federal ordinances and statutes now in force or which may hereafter be in force with regard to this Agreement. The judgment of any court of competent jurisdiction, or the admission of CONTRACTOR in any action or proceeding against CONTRACTOR, whether COUNTY is a party thereto or not, that CONTRACTOR has violated any such ordinance or statute, shall be conclusive of that fact as between CONTRACTOR and COUNTY.

## **28. CALIFORNIA LAW AND JURISDICTION**

This Agreement shall be governed by the laws of the State of California. Any litigation regarding this Agreement or its contents shall be filed in the County of Santa Barbara, if in state court, or in the federal district court nearest to Santa Barbara County, if in federal court.

## **29. EXECUTION OF COUNTERPARTS**

This Agreement may be executed in any number of counterparts and each of such counterparts shall for all purposes be deemed to be an original; and all such counterparts, or as many of them as the parties shall preserve undestroyed, shall together constitute one and the same instrument.

## **30. AUTHORITY**

All signatories and parties to this Agreement warrant and represent that they have the power and authority to enter into this Agreement in the names, titles and capacities herein stated and on behalf of any entities, persons, or firms represented or purported to be represented by such entity(ies), person(s), or firm(s) and that all formal requirements necessary or required by any state and/or federal law in order to enter into this Agreement have been fully complied with. Furthermore, by entering into this Agreement, CONTRACTOR hereby warrants that it shall not have breached the terms or conditions of any other contract or agreement to which CONTRACTOR is obligated, which breach would have a material effect hereon.

## **31. SURVIVAL**

All provisions of this Agreement which by their nature are intended to survive the termination or expiration of this Agreement shall survive such termination or expiration.

## **32. PRECEDENCE**

In the event of conflict between the provisions contained in the numbered sections of this Agreement and the provisions contained in the Exhibits, the provisions of the Exhibits shall prevail over those in the numbered sections.

## **33. HANDLING OF PROPRIETARY INFORMATION**

CONTRACTOR understands and agrees that certain materials which may be provided may be classified and conspicuously labelled as proprietary confidential information. That material is to be subject to the following special provisions:

- A. All reasonable steps will be taken to prevent disclosure of the material to any person except those personnel of CONTRACTOR working on the project who have a need to use the material.
- B. Should a disclosure of confidential information be made, CONTRACTOR shall immediately upon discovery notify COUNTY of such disclosure.
- C. Upon conclusion of CONTRACTOR'S work, CONTRACTOR shall return all copies of the material direct to party providing such material. CONTRACTOR shall contact COUNTY to obtain the name of the specific party authorized to receive the material.

**34. IMMATERIAL CHANGES**

CONTRACTOR and COUNTY agree that immaterial changes to the work program (time frame and mutually agreeable work program changes which will not result in a change to the total contract amount) may be authorized by Planning and Development Director, or designee in writing, and will not constitute an amendment to the Agreement.

**35. NEWS RELEASES/INTERVIEWS**

CONTRACTOR agrees for itself, its agents, employees and subcontractors, it will not communicate with representatives of the communications media concerning the subject matter of this Agreement without prior written approval of the COUNTY Project Coordinator. The term "Project Coordinator" shall mean a Planning and Development Department employee. CONTRACTOR further agrees that all media requests for communication will be referred to COUNTY'S responsible personnel.

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Agreement for Services of Independent Contractor between the **County of Santa Barbara** and Marine Research Specialists

**IN WITNESS WHEREOF**, the parties have executed this Agreement to be effective on the date executed by COUNTY.

**ATTEST:**

Mona Miyasato  
County Executive Officer  
Clerk of the Board

**COUNTY OF SANTA BARBARA:**

By: \_\_\_\_\_  
Deputy Clerk

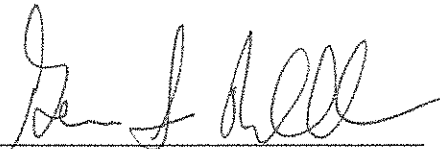
By: \_\_\_\_\_  
Chair, Board of Supervisors

Date: \_\_\_\_\_

**RECOMMENDED FOR APPROVAL:**

Glenn Russell, Ph.D

**CONTRACTOR:**

By:   
Department Head

By:   
Authorized Representative

Name: Luis F. Perez

Title: Project Manager

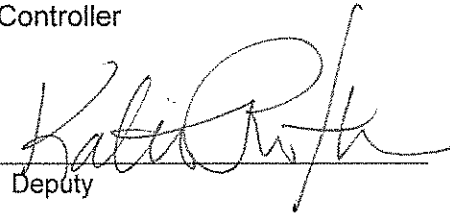
**APPROVED AS TO FORM:**

Michael C. Ghizzoni  
County Counsel

By:   
Deputy County Counsel

**APPROVED AS TO ACCOUNTING FORM:**

Robert W. Geis, CPA  
Auditor-Controller

By:   
Deputy

**APPROVED AS TO FORM:**

Ray Aromatorio

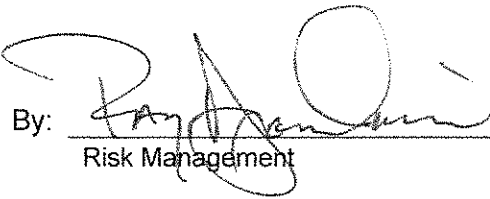
By:   
Risk Management

EXHIBIT A

STATEMENT OF WORK

APPENDIX 1: Proposal for Preparation of the Pacific Coast Energy Company Orcutt Hill Resource Enhancement Plan Project Environmental Impact Report is incorporated herein by reference. The Proposal describes the Environmental Impact Report scope of work which includes the following: consultant qualifications and experience, key personnel and project management program, study methodology, document preparation, project schedule, and cost estimate.

Luis F. Perez, Greg Chittick, Steve Radis, Edward (Ted) Mullen, Perry Russell, Karen Foster, Tom Olson, and Brittney Stephens shall be the individual(s) personally responsible for providing all services hereunder. CONTRACTOR may not substitute other persons without the prior written approval of CONTRACTOR's Designated Representative, as stated in Section 1 of the Agreement.

**Suspension for Convenience.** COUNTY may, without cause, order CONTRACTOR in writing to suspend, delay, or interrupt the services under this Agreement in whole or in part for up to 30 days per suspension. COUNTY shall incur no liability for suspension under this provision and suspension shall not constitute a breach of this Agreement.

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EXHIBIT B

PAYMENT ARRANGEMENTS  
Periodic Compensation at Selected Milestones

- A. For CONTRACTOR services to be rendered under this Agreement, CONTRACTOR shall be paid a total contract amount, including cost reimbursements, not to exceed \$ 205,534.00.
- B. Payment for services and /or reimbursement of costs shall be made upon CONTRACTOR's satisfactory performance, based upon the scope and methodology contained in EXHIBIT A, Appendix 1 as determined by COUNTY.
- C. Upon completion of the work for each milestone and/or delivery to COUNTY of item(s) specified below, CONTRACTOR shall submit to the COUNTY DESIGNATED REPRESENTATIVE an invoice or certified claim on the County Treasury for the service performed in accomplishing each milestone. These invoices or certified claims must cite the assigned Board Contract Number. COUNTY DESIGNATED REPRESENTATIVE shall evaluate the quality of the service performed and/or item(s) delivered and if found to be satisfactory shall initiate payment processing. COUNTY shall pay invoices or claims for satisfactory work within 30 days of receipt of correct and complete invoices or claims from CONTRACTOR.

Percentage of Total Contract Amount OR Maximum Amount Chargeable	Milestone Description
\$51,172.00	Task 1 – Kick-off, Peer Review, Project Description, Alternatives & Environmental Setting, Meetings, Other Direct Costs
\$61,832.00	Task 2 – Administrative Draft Environmental Impact Report and Technical Studies, Meetings, Other Direct Costs
\$28,072.00	Task 3 – Public Draft Environmental Impact Report and Technical Appendices, Meetings, Other Direct Costs
\$24,727.00	Task 4 – Public Workshop, Summary of Public Workshop Comments, Response to Comments, Administrative Final Environmental Impact Report
\$39,731.00	Task 5 – Draft Final Environmental Impact Report, Public Hearing, Final Environmental Impact Report, Meetings, Other Direct Costs, Contingency

The final milestone payment above shall not be made until all services have been completed and item(s) as specified in EXHIBIT A have been delivered and found to be satisfactory.

- D. COUNTY's failure to discover or object to any unsatisfactory work or billings prior to payment will not constitute a waiver of COUNTY's right to require CONTRACTOR to correct such work or billings or seek any other legal remedy.



## EXHIBIT C

### Indemnification and Insurance Requirements (For Professional Contracts)

#### INDEMNIFICATION

CONTRACTOR agrees to indemnify, defend (with counsel reasonably approved by COUNTY) and hold harmless COUNTY and its officers, officials, employees, agents and volunteers from and against any and all claims, actions, losses, damages, judgments and/or liabilities arising out of this Agreement from any cause whatsoever, including the acts, errors or omissions of any person or entity and for any costs or expenses (including but not limited to attorneys' fees) incurred by COUNTY on account of any claim except where such indemnification is prohibited by law. CONTRACTOR's indemnification obligation applies to COUNTY's active as well as passive negligence but does not apply to COUNTY's sole negligence or willful misconduct.

#### NOTIFICATION OF ACCIDENTS AND SURVIVAL OF INDEMNIFICATION PROVISIONS

CONTRACTOR shall notify COUNTY immediately in the event of any accident or injury arising out of or in connection with this Agreement. The indemnification provisions in this Agreement shall survive any expiration or termination of this Agreement.

#### INSURANCE

CONTRACTOR shall procure and maintain for the duration of this Agreement insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder and the results of that work by the CONTRACTOR, his agents, representatives, employees or subcontractors.

##### A. Minimum Scope of Insurance

Coverage shall be at least as broad as:

1. **Commercial General Liability (CGL):** Insurance Services Office (ISO) Form CG 00 01 covering CGL on an "occurrence" basis, including products-completed operations, personal & advertising injury, with limits no less than \$1,000,000 per occurrence and \$2,000,000 in the aggregate.
2. **Automobile Liability:** ISO Form Number CA 00 01 covering any auto (Code 1), or if CONTRACTOR has no owned autos, hired, (Code 8) and non-owned autos (Code 9), with limit no less than \$1,000,000 per accident for bodily injury and property damage.
3. **Workers' Compensation:** as required by the State of California, with Statutory Limits, and Employer's Liability Insurance with limit of no less than \$1,000,000 per accident for bodily injury or disease.
4. **Professional Liability (Errors and Omissions)** Insurance appropriate to the CONTRACTOR'S profession, with limit of no less than \$1,000,000 per occurrence or claim, \$2,000,000 aggregate.

If the CONTRACTOR maintains higher limits than the minimums shown above, the COUNTY requires and shall be entitled to coverage for the higher limits maintained by the CONTRACTOR. Any available insurance proceeds in excess of the specified minimum limits of insurance and coverage shall be available to the COUNTY.

##### B. Other Insurance Provisions

The insurance policies are to contain, or be endorsed to contain, the following provisions:

1. **Additional Insured** – COUNTY, its officers, officials, employees, agents and volunteers are to be covered as additional insureds on the CGL policy with respect to liability arising out of work or operations performed by or on behalf of the CONTRACTOR including materials, parts, or equipment furnished in connection with such work or operations. General liability coverage can be provided in the form of an endorsement to the CONTRACTOR's insurance at least as broad as ISO Form CG 20 10 11 85 or if not available, through the addition of both CG 20 10 and CG 20 37 if a later edition is used).
2. **Primary Coverage** – For any claims related to this Agreement, the CONTRACTOR's insurance coverage shall be primary insurance as respects the COUNTY, its officers, officials, employees, agents and volunteers. Any insurance or self-insurance maintained by the COUNTY, its officers, officials, employees, agents or volunteers shall be excess of the CONTRACTOR's insurance and shall not contribute with it.
3. **Notice of Cancellation** – Each insurance policy required above shall provide that coverage shall not be canceled, except with notice to the COUNTY.
4. **Waiver of Subrogation Rights** – CONTRACTOR hereby grants to COUNTY a waiver of any right to subrogation which any insurer of said CONTRACTOR may acquire against the COUNTY by virtue of the payment of any loss under such insurance. CONTRACTOR agrees to obtain any endorsement that may be necessary to effect this waiver of subrogation, but this provision applies regardless of whether or not the COUNTY has received a waiver of subrogation endorsement from the insurer.
5. **Deductibles and Self-Insured Retention** – Any deductibles or self-insured retentions must be declared to and approved by the COUNTY. The COUNTY may require the CONTRACTOR to purchase coverage with a lower deductible or retention or provide proof of ability to pay losses and related investigations, claim administration, and defense expenses within the retention.
6. **Acceptability of Insurers** – Unless otherwise approved by Risk Management, insurance shall be written by insurers authorized to do business in the State of California and with a minimum A.M. Best's Insurance Guide rating of "A- VII".
7. **Verification of Coverage** – CONTRACTOR shall furnish the COUNTY with proof of insurance, original certificates and amendatory endorsements as required by this Agreement. The proof of insurance, certificates and endorsements are to be received and approved by the COUNTY before work commences. However, failure to obtain the required documents prior to the work beginning shall not waive the CONTRACTOR's obligation to provide them. The CONTRACTOR shall furnish evidence of renewal of coverage throughout the term of the Agreement. The COUNTY reserves the right to require complete, certified copies of all required insurance policies, including endorsements required by these specifications, at any time.
8. **Failure to Procure Coverage** – In the event that any policy of insurance required under this Agreement does not comply with the requirements, is not procured, or is canceled and not replaced, COUNTY has the right but not the obligation or duty to terminate the Agreement. Maintenance of required insurance coverage is a material element of the Agreement and failure to maintain or renew such coverage or to provide evidence of renewal may be treated by COUNTY as a material breach of contract.
9. **Subcontractors** – CONTRACTOR shall require and verify that all subcontractors maintain insurance meeting all the requirements stated herein, and CONTRACTOR shall ensure that COUNTY is an additional insured on insurance required from subcontractors.

10. **Claims Made Policies** – If any of the required policies provide coverage on a claims-made basis:

- i. The Retroactive Date must be shown and must be before the date of the contract or the beginning of contract work.
- ii. Insurance must be maintained and evidence of insurance must be provided for at least five (5) years after completion of contract work.
- iii. If coverage is canceled or non-renewed, and not replaced with another claims-made policy form with a Retroactive Date prior to the contract effective date, the CONTRACTOR must purchase "extended reporting" coverage for a minimum of five (5) years after completion of contract work.

11. **Special Risks or Circumstances** – COUNTY reserves the right to modify these requirements, including limits, based on the nature of the risk, prior experience, insurer, coverage, or other special circumstances.

Any change requiring additional types of insurance coverage or higher coverage limits must be made by amendment to this Agreement. CONTRACTOR agrees to execute any such amendment within thirty (30) days of receipt.

Any failure, actual or alleged, on the part of COUNTY to monitor or enforce compliance with any of the insurance and indemnification requirements will not be deemed as a waiver of any rights on the part of COUNTY.



# CERTIFICATE OF LIABILITY INSURANCE

MARIRES-03

JOYV

DATE (MM/DD/YYYY)

5/19/2014

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PRODUCER License #0D04053 Brown & Brown Insurance License # 0D04053 P.O. Box 61010 Santa Barbara, CA 93160-1010	(805) 965-0071	CONTACT NAME: Yvonne Jones PHONE (A/C, No., Ext.): (805) 690-2631 FAX (A/C, No.): (805) 690-2731 E-MAIL ADDRESS: yjones@bbofca.com
INSURER(S) AFFORDING COVERAGE:		NAIC #
INSURER A: Continental Casualty Company		
INSURER B: National Fire Insurance Company of Hartford		
INSURER C: Valley Forge Insurance Company		
INSURER D: Houston Casualty Company		
INSURER E:		
INSURER F:		

INSURED  
Marine Research Specialists  
3140 Telegraph Road, Suite A  
Ventura, CA 93003-3223

## COVERAGES

## CERTIFICATE NUMBER:

## REVISION NUMBER:

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INSR LTR	TYPE OF INSURANCE	ADDITIONAL SUBROGATION RIGHTS	POLICY NUMBER	POLICY EFF. DATE (MM/DD/YYYY)	POLICY EXP. DATE (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 checked="" type="checkbox"/> POLICY <input type="checkbox"/> PRO. SECT. <input type="checkbox"/> LOC.	<input checked="" type="checkbox"/>	B2077184660	4/20/2014	4/20/2015	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 300,000 MED EXP (Any one person) \$ 10,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000 \$
B	AUTOMOBILE LIABILITY <input type="checkbox"/> ANY AUTO-ALL OWNED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> NON-OWNED AUTOS		B2077184660	4/20/2014	4/20/2015	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (PER ACCIDENT) \$ \$
C	<input checked="" type="checkbox"/> UMBRELLA LIAB <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS-MADE DED. <input checked="" type="checkbox"/> RETENTION \$ 10,000		B2083993460	4/20/2014	4/20/2015	EACH OCCURRENCE \$ 1,000,000 AGGREGATE \$ 1,000,000 \$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY: ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory In NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N	N/A			WC STATUTORY LIMITS OTHER E.L. EACH ACCIDENT \$ E.L. DISEASE - EA EMPLOYEE \$ E.L. DISEASE - POLICY LIMIT \$
D	Professional Liability		HCC1320779	7/16/2013	7/16/2014	Aggregate/Each Claim 1,000,000/1,000,000
D	Professional Liability		HCC1320779	7/16/2013	7/16/2014	Deductible 35,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

Certificate Holder is Named as Additional Insured under the General Liability per attached SB-146932-Ed. 06/2011.

## CERTIFICATE HOLDER

## CANCELLATION

County of Santa Barbara  
123 East Anapamu Street  
Santa Barbara, CA 93101-

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

*Yvonne Jones*

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P.O. BOX 8192, PLEASANTON, CA 94588

CERTIFICATE OF WORKERS' COMPENSATION INSURANCE

ISSUE DATE: 07-01-2013

GROUP:  
POLICY NUMBER: 9061910-2013  
CERTIFICATE ID: 2  
CERTIFICATE EXPIRES: 07-01-2014  
07-01-2013/07-01-2014

COUNTY OF SANTA BARBARA  
PLEANNING & DEVELOPMENT  
123 E ANAPAMU ST  
SANTA BARBARA CA 93101-2025

SC

This is to certify that we have issued a valid Workers' Compensation insurance policy in a form approved by the California Insurance Commissioner to the employer named below for the policy period indicated.

This policy is not subject to cancellation by the Fund except upon 30 days advance written notice to the employer.

We will also give you 30 days advance notice should this policy be cancelled prior to its normal expiration.

This certificate of insurance is not an insurance policy and does not amend, extend or alter the coverage afforded by the policy listed herein. Notwithstanding any requirement, term or condition of any contract or other document with respect to which this certificate of insurance may be issued or to which it may pertain, the insurance afforded by the policy described herein is subject to all the terms, exclusions, and conditions, of such policy.

Authorized Representative

President and CEO

EMPLOYER'S LIABILITY LIMIT INCLUDING DEFENSE COSTS: \$1,000,000 PER OCCURRENCE.

ENDORSEMENT #2065 ENTITLED CERTIFICATE HOLDERS' NOTICE EFFECTIVE 07-01-2013 IS ATTACHED TO AND FORMS A PART OF THIS POLICY.

ENDORSEMENT #2570 ENTITLED WAIVER OF SUBROGATION EFFECTIVE 2013-07-01 IS ATTACHED TO AND FORMS A PART OF THIS POLICY. THIRD PARTY NAME: COUNTY OF SANTA BARBARA

EMPLOYER

MARINE RESEARCH SPECIALISTS (A CORP)  
3140 TELEGRAPH RD STE A  
VENTURA CA 93003

SC

[P1D,SL]

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## WAIVER OF SUBROGATION NOTICE

Enclosed is your copy of a certificate of insurance on which the certificate holder required a waiver of subrogation:

1. Please be advised that a waiver of subrogation requires that a 3% surcharge will be applied by State Fund ONLY to the premium assessed on the payroll of your employees earned while engaged in work for that certificate holder who requested the waiver. (Note: if you have no employee payroll on that job, then there is no charge.)
2. To apply the 3% surcharge, you must also agree to maintain accurately segregated payroll records for employees engaged in work on job/s for the certificate holder who has the waiver. The payroll records are subject to verification by an auditor.

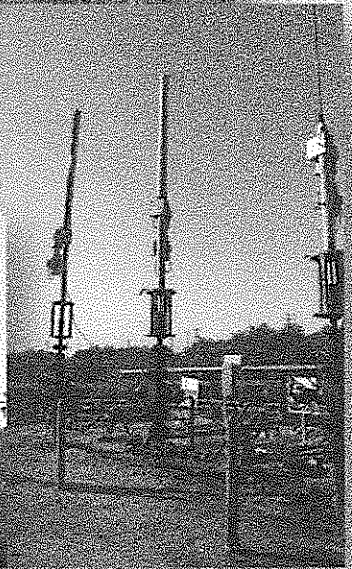
### Example:

Payroll for job:	\$5,000.00	
Sample Rate:	13.30%	
	-----	
Regular Premium equals:	\$ 665.00	
Surcharge:	3.00%	
	-----	
Additional Waiver charge:	\$ 19.95	
Total premium equals	\$ 684.95	(665.00 + 19.95)

APPENDIX 1

AGREEMENT FOR SERVICES BETWEEN THE COUNTY OF SANTA BARBARA AND  
MARINE RESEARCH SPECIALISTS FOR THE ORCUTT HILL RESOURCE  
ENHANCEMENT PLAN PROJECT

**Proposal for Preparation of the  
Pacific Coast Energy Company  
Orcutt Hill Resource Enhancement Plan Project  
Environmental Impact Report**



**Prepared By:**

**mrs**

Marine Research Specialists  
3140 Telegraph Road, Suite A  
Ventura, CA 93003

April 2014

**Prepared For:**

County of Santa Barbara  
123 E. Anapamu Street  
Santa Barbara, CA 93101



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## 1.0 Introduction

Marine Research Specialists (MRS) is pleased to submit this proposal to the County of Santa Barbara (County) to prepare an Environmental Impact Report (EIR) for the Pacific Coast Energy Company (PCEC) Orcutt Hill Resource Enhancement Plan (Project). This proposal has been written to comply with all of the requirements specified in the Request for Proposal (RFP) dated February 25, 2014.

This section includes an overview of the Project, a summary of the proposed scope of work, a summary of MRS's qualifications, an introduction to the subcontractors included on our team, and an explanation of the proposal structure.

### 1.1 Proposed PCEC Orcutt Hill Resource Enhancement Plan Project

PCEC proposes to add 96 new wells to their existing 96 Diatomite cyclic steamed well operation at Orcutt Hill. The proposed Project would result in a total of 192 Diatomite cyclic steamed wells and an Oil Drilling and Production Plan (ODPP) permit from the County which would supersede the current PCEC ODPP (County Case No. 05PPP-00000-00001), which permits the existing 96 Diatomite cyclic steamed well operation. The proposed project includes the following:

- 96 new wells and ancillary equipment on previously disturbed locations, a booster pad on an undisturbed location, and an equipment pad on an undisturbed location.
- Approximately 7,400 linear feet of new above ground pipelines located along existing oilfield roads and/or existing pipeline corridors.
- Drilling of up to 48 wells (25% of total Diatomite wells) on alternate locations on any of the approved well sites (pods) if any of the 192 (existing and proposed) Diatomite wells prove to be uneconomic.
- Permit the existing (currently 93) oil seep receptacles (cans) and associated French drains previously installed under Emergency Permits approved by the County.
- A proposed Supplemental Pollution Control Plan to serve as a comprehensive set of best practices for responding to future seeps and surface expressions.

Access would continue to be provided off of East Rice Ranch Road, Graciosa Road, and U.S. Highway 101. The property is a 4,024.7 acre parcel zoned Agricultural-II-100 (AG-II-100) and shown as Assessor's Parcel Number 101-020-074. The Project is located at 1555 Orcutt Hill Road and is within the State-designated Orcutt Oil Field and is in the County Fourth

Supervisory District. The parcel would continue to be served by Santa Barbara County Fire Protection District.

## **1.2 Summary of the Proposed Scope of Work**

The objective of the Project is to prepare an EIR that meets all of the requirements of the County of Santa Barbara and complies with all the requirements of the California Environmental Quality Act (CEQA). The EIR also needs to be written so that it can be easily understood by the public and the decision makers, and at the same time be legally defensible.

The scope of work for the EIR will involve the following major tasks:

- Peer review all documents submitted by the applicant and utilize in the EIR as deemed appropriate;
- Prepare an EIR Style Guide for approval by the County;
- Prepare a Project Description;
- Prepare a description of alternatives to the Project and conduct an alternatives screening analysis;
- Develop a baseline environmental setting for the study area via document review and field work;
- Assess the impact of the Project and selected alternatives and develop mitigation measures as needed;
- Assess the cumulative project impacts;
- Prepare Administrative and Public Draft EIRs;
- Prepare a Supplemental Pollution Control Plan for seeps and surface expressions;
- Prepare Administrative and Final EIRs that include responses to comments; and,
- Assist the County with various public meetings, workshops and hearings.

MRS is committed to working closely with the County on this Project and assuring that the final scope of work meets all of the County requirements. MRS is also committed to the public process, an integral part of CEQA. One of the main objectives of the EIR process is to ensure that the public has adequate input into the development of the scope of the EIR and that all relevant issues raised by the public are thoroughly evaluated in the EIR.

## **1.3 Summary of MRS Qualifications**

MRS will provide the County with a group of highly qualified technical experts who understand complex oil and gas development. This knowledge is coupled with a strong understanding of CEQA. Together these skill sets enable MRS to produce high-quality EIRs for oil and gas development projects.

MRS staff has prepared more than 90 environmental reviews for oil and gas development projects. In particular, MRS has provided specialized services in the areas of system safety and risk of upset, air quality, water quality, noise, land use, aesthetics, and fire protection. MRS specializes in preparing CEQA documents for complex, controversial oil and gas industrial projects. No CEQA document prepared by MRS staff members has ever been found inadequate by a court of law.

MRS staff has a long history of providing specialized services to local, state, and Federal government agencies for development projects. MRS staff has also provided environmental review services to a number of private companies. MRS is currently providing environmental review services for the City of Whittier, City of Morro Bay, County of Los Angeles, County of San Luis Obispo, Santa Barbara County, Kern County, City of Hermosa Beach, California State Lands Commission, California Coastal Commission, and the Bureau of Ocean Energy Management (BOEM).

MRS has been working in Santa Barbara County for a number of years, specifically conducting environmental review and compliance for oil and gas development projects located in the County. Recent EIR projects in the County by MRS include the Santa Maria Energy Oil Drilling and Production Project, the ERG Foxen Petroleum Pipeline, the Venoco Line 96 Modification Pipeline Project, and the Venoco Ellwood Marine Terminal Lease Renewal Project.

#### **1.4 The MRS Team**

Given the unique nature of the Project site and the need for local knowledge to assess environmental impacts, MRS assembled a team of highly qualified professionals. MRS has selected LEIDOS/SAIC, a diversified high-technology research, environmental and engineering company, to provide Geology, Water Resources/Wastewater, and Archaeological/Historic Resources expertise. For specific expertise for the Santa Barbara population of California Tiger Salamander (CTS), MRS has selected Tom Olson of Garcia and Associates. Mr. Olson has a U.S. Fish and Wildlife Service permit for CTS and extensive CTS experience in Santa Barbara County. These firms have been chosen for their knowledge and expertise in their specific issue areas, and their proven ability to produce extremely high quality work that will meet the requirements of the County and CEQA.

#### **1.5 Proposal Structure**

Our proposal includes a comprehensive discussion of our approach to this Project. The proposal has been divided into eight major sections.

*Section 1 – Introduction:* This section briefly discusses the Project and the team’s approach to the Project. This section also introduces the firms on the proposed MRS team.

***Section 2 – Qualifications and Experience:*** This section recognizes the capabilities of the firms on the project team. It provides a brief history of the firms, their relevant experience, and the organizational structure of the firms.

***Section 3 – Personnel and Project Management:*** This section details the proposed organizational structure for the project team. The section discusses the project management team, as well as all of the key staff members. Brief resumes of the key staff are provided in this section. Appendix A provides more detailed resumes of the key staff. This section also discusses MRS's approach to managing EIR projects. The topics covered in this section include management team roles and responsibilities, program management and control systems, communication, and management of subcontractors.

***Section 4 – Study Methodology:*** The first part of this section provides an overview of our technical approach to preparing EIRs and addresses the development of the project description, alternative analysis, preparing issue area baselines, impact assessments, cumulative impacts, mitigation measures, mitigation monitoring plans, and residual impact analyses. The second part of this section discusses in detail MRS's approach to each of the issue areas reviewed in the EIR.

***Section 5 – Document Preparation:*** This section discusses the tools that MRS has developed for preparing and coordinating all activities associated with document production.

***Section 6 – Schedule:*** This section presents a detailed schedule for the Project, which identifies the key tasks, deliverable dates, County and public reviews, and public hearings and workshops.

***Section 7 – References:*** This section provides a list of references for the proposed project manager.

***Cost Quotation and Budget Summary:*** This cost proposal is presented separately from the technical proposal. This section presents the detailed cost estimate for the Project by issue area and task. This section also identifies the assumptions used in developing the cost estimate.

## 2.0 Qualifications and Experience

This section of the document provides a summary of the team's qualifications and experience. This section also presents information on each firm's organizational structure, capabilities, history, and recent relevant experience.

### 2.1 Marine Research Specialists

Marine Research Specialists (MRS) is a small environmental consulting firm based in Ventura, California. MRS has a board of directors; a team of senior staff including the president/chief executive officer and the chief financial officer who manage day-to-day operations. The Project Manager reports to the president of the firm.

MRS is exceptionally qualified to assist the County of Santa Barbara (County) with the PCEC Orcutt Hill Resource Enhancement Plan Project. MRS staff has an outstanding record of success in preparing California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) documents for complex and often controversial industrial permitting projects in central and southern California. MRS staff has prepared more than 90 Environmental Impact Reports (EIR) and/or Environmental Impact Statements (EIS) and related technical studies during the past 30 years.

MRS is very experienced in managing large, contentious projects. MRS staff has logged more than 2,000 hours in public hearings in support of local and State agencies in California. MRS's local staff is well known and respected by many decision makers in Southern California.

Since 1984, MRS staff has worked with local agencies in California to support industry and the regulatory community with major permitting projects. Since that time, the major focus of our work in southern California has been assessing environmental impacts for industrial development projects. We have been able to combine the very broad range of MRS's Land Use, Environmental, Health, and Safety (EHS) and technological expertise with a strong local presence to address the complex issues often associated with these types of projects. MRS consistently works for both industry and regulators, making us uniquely qualified to assist with complex permitting projects. MRS is well known for expertise in atmospheric sciences, land use, system safety, risk of upset, air quality, health risk assessment, noise, aesthetics and fire protection. In fact, MRS staff has conducted most of the offshore oil and gas development safety assessments done for Santa Barbara County, where a significant amount of offshore oil and gas development has occurred in the last 100 years.

MRS staff has recently completed a number of onshore oil development EIRs. These include the E&B Oil Production Project for the City of Hermosa Beach, the Whittier Development Project for the City of Whittier, the Baldwin Hills Development for the County of Los Angeles, and the Excelaron Project for San Luis Obispo County. Recent onshore oil development EIRs for Santa

Barbara County include the Santa Maria Energy Production Plan and Development Plan Project, the ERG Foxen Petroleum Pipeline, and the Venoco Line 96 Modification Pipeline Project.

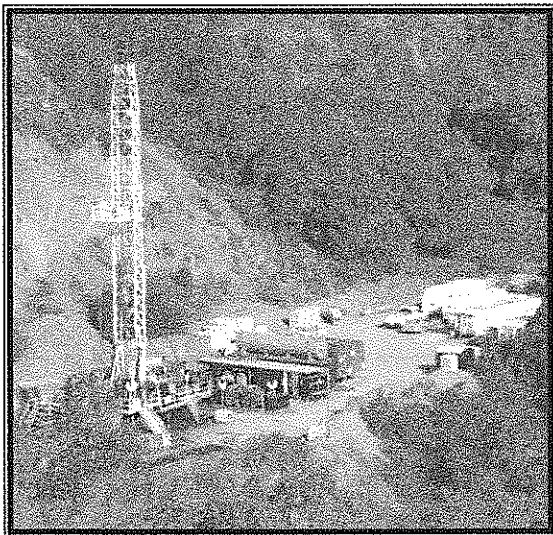
MRS staff has a long history of providing specialized services to State and local agencies covering energy projects. MRS has never had a CEQA document found inadequate by a court of law, despite the fact that a number of the CEQA documents we prepared were for controversial projects subject to challenge. MRS's specialization in preparing CEQA documents for complex, controversial industrial projects has included for the County of Los Angeles, updating the regulatory framework of the Inglewood Oil Field; for Santa Barbara County, focusing on oil and gas development projects handled by the Energy Division; and for San Luis Obispo County, focusing on the controversial Excelaron Project, Avila Beach and Guadalupe Oil Field cleanup projects, as well as the Nacimiento Water Pipeline Project and the Diablo Canyon Independent Spent Fuel Storage Installation Project.

MRS has also provided valuable services to the City of Carson, City of Carpinteria, the California Coastal Commission, the California Energy Commission, the Regional Water Quality Control Board, the South Coast Air Quality Management District, the City of Adelanto, Contra Costa County, the Bureau of Land Management, and the Bureau of Ocean Energy Management.

Some of MRS staff's recent experiences further highlight their unique problem-solving capabilities.

**Whittier Main Oil Field EIR. *City of Whittier***

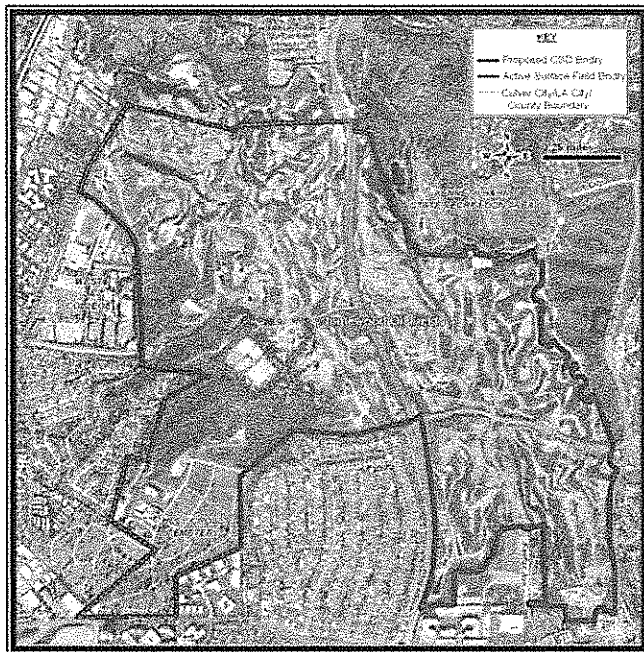
MRS prepared an EIR for a proposed oil development project in the Puente Hills Landfill Native Habitat Preserve for the City of Whittier. The majority of the land encompassing the oil field was purchased from Chevron and Unocal with Measure A funds to preserve the land as open space and wildlife habitat. The land is currently managed for the City by the Puente Hills Landfill



Native Habitat Preservation Authority, a joint-powers agency whose members include the City of Whittier, County of Los Angeles, Los Angeles County Sanitation District, and Hacienda Heights Improvement Association. On October 28, 2008, the City awarded a lease to Matrix Oil Corporation to resume oil and gas extraction from the site. The agreement leases the City's mineral rights underlying the Whittier Main Field to Matrix and provides Matrix certain rights, including drilling exploratory oil wells and extracting oil, gas, and other hydrocarbons from the land. Residential and commercial development surrounds the oil field on all sides.



As proposed, the fully developed project will consist of wells, oil processing, a gas plant, and oil loading facilities. The facilities will be physically within the Whittier Main Field on one site, used for drilling, production, and processing of oil and gas. Trucks will transport the oil from the site to an oil terminal for ultimate delivery to local Los Angeles area refineries during the testing phase, with a pipeline being constructed for the operational phase of the Project. The main environmental issues associated with this project were air quality, impacts to biological resources, traffic, noise, and risk of upset and hazardous materials. One of the unique aspects of this project is its location within a habitat preserve. This required a very thorough evaluation of the impacts of oil and gas development on the local habitat and wildlife as well as recreational issues. Also since commercial and residential development surround the site, the environmental analysis necessarily addressed the unique issues of risk of upset and health risk associated with oil and gas development projects. MRS worked closely with the City, Puente Hills Landfill Native Habitat Preservation Authority, and local neighborhood associations in preparing the EIR.



**Baldwin Hills Community Standards District EIR. Los Angeles County**

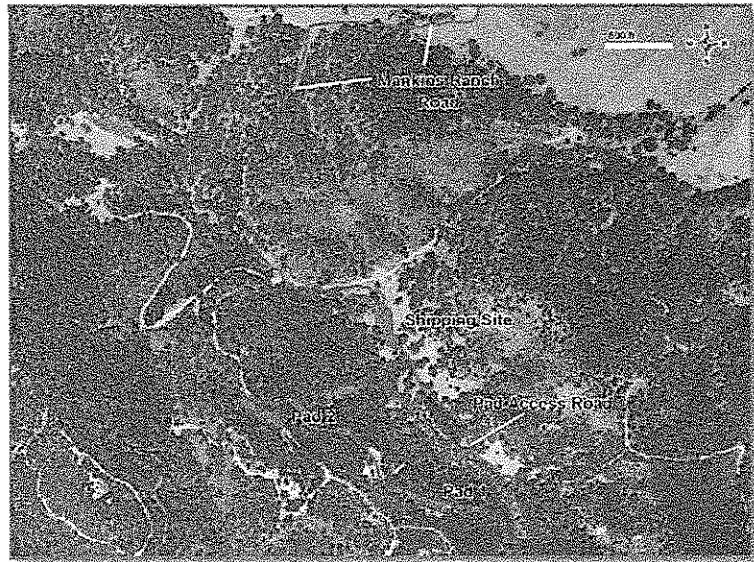
*Department of Regional Planning*

MRS was the lead consultant in preparing an EIR for a proposed Community Standards District (CSD) for the Baldwin Hills Oil Field in unincorporated portions of Los Angeles County. The purpose of the CSD is to develop regulations to control oil and gas development activities at an oil field in close proximity to residential areas. MRS managed a team of over 30 professionals to develop the EIR. The EIR evaluated a hypothetical development scenario for the oil field and then assessed the impacts of this development. Based upon the impacts

identified, a set of mitigation measures were developed to reduce the level of impacts to less than significant. MRS then used these mitigation measures to develop standards that were incorporated into the CSD. Some of the biggest issues associated with the project were public health, noise, site cleanup and remediation, air quality, and geology. MRS worked closely with the County of Los Angeles, the landowners, and the affected public in developing the EIR and the CSD. Over 20 public meetings were held with the community as part of this project. MRS used small neighborhood meetings to work with the community on the EIR and the CSD.

**Huasna Valley Oil Exploration and Production Project EIR (Excelaron Project), County of San Luis Obispo**

MRS was the lead consultant in preparing an EIR for the Huasna Valley Oil Exploration and Production Project for the County of San Luis Obispo. Excelaron leased more than one thousand net mineral acres in the Huasna Valley area, including the project site, and proposes exploring, testing, and possibly producing oil on the western edge of the Huasna Basin in an existing oilfield designated by the California Department of Oil, Gas and Geothermal Resources.

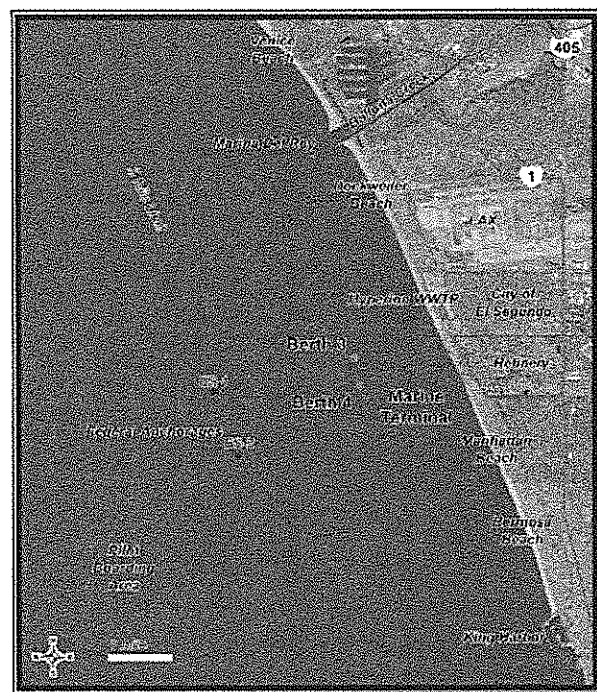


Although the project site is on private property, Excelaron obtained exclusive easements over the Mankins Ranch and Porter Ranch to access the area.

The four-phased project involved exploration and testing, production, cleanup and abandonment, and development. The project was denied by the Planning Commission and is currently under litigation unrelated to the environmental document.

**Chevron El Segundo Marine Terminal Lease Renewal Project EIR and Monitoring, California State Lands Commission**

MRS is currently spearheading the implementation of the Mitigation Monitoring Program for the Chevron El Segundo Marine Terminal. To date, MRS has conducted a successful annual audit, which involved a comprehensive file review of project-related reports, plans, and various documentation logs, as well as a field review of operations and maintenance procedures.



The Chevron El Segundo Marine Terminal Lease Renewal Project involved Chevron Products Company entering into a new 30-

year lease of tide and submerged state lands from the California State Lands Commission for continued operations at the Chevron El Segundo Marine Terminal. The Marine Terminal has been operating since 1911, when the adjacent refinery that it serves opened. The new lease allows Chevron to continue operating the Marine Terminal for a 30-year period from 2010 to 2040. The Project involved continuing current operations and implementing future maintenance activities as needed at the Marine Terminal through the year 2040.

MRS prepared the EIR after working successfully with both the client and applicant to create a document to their satisfaction. Although this Project is a continuation of the status quo, the EIR evaluated contemporary alternatives, such as using potential Pier 400 facilities in the Port of Los Angeles/Port of Long Beach. MRS also considered moving the berths into waters farther offshore and modifying the type of berth systems used.

**Carpinteria Field Redevelopment Project (Carone) EIR/EIS.** *California State Lands Commission*

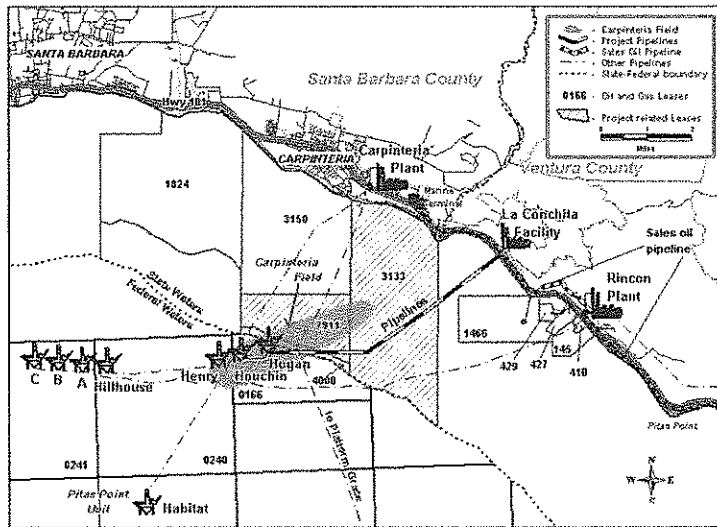


MRS is the lead consultant in preparing an EIR for the Carpinteria Field Redevelopment Project for the California State Lands Commission. The project proposes to redevelop State leases of the Carpinteria Field — specifically, State Leases PRC-4000, PRC-7911 (the former southern portion of the original lease PRC-3150), and PRC-3133 — from an existing oil and gas platform (Platform Hogan) located in Federal waters.

Platform Hogan is owned by Signal Hill Services and operated by Pacific Operators Offshore Incorporated. Carone Petroleum Corporation has signed a platform use agreement with Signal Hills Services that provides rights to use Platform Hogan for drilling activities, and to process any future State Leases' production at the La Conchita Oil and Gas Processing Facility.

The Carpinteria Field is located offshore of southern California, in the eastern part of the Santa Barbara Basin near the City of Carpinteria, California. The three State leases (PRC-4000, PRC-7911 and PRC-3133) are currently not redeveloped and not producing. However, the Carpinteria Field also covers portions of two Outer Continental Shelf (OCS) Federal leases, OCS-P 0166 and OCS-P 0240, which are currently producing.

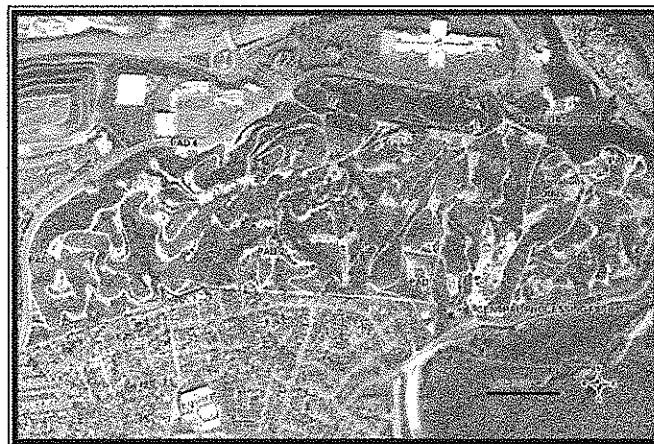
Carone Petroleum Corporation proposes limited redevelopment of State Leases PRC-4000, PRC-7911, and PRC-3133, which are estimated to contain sufficient recoverable reserves to enable commercial production. The goal of the development plan is to make full use of the existing hardware infrastructure and develop the remaining oil and gas reserves in the most economical way.



**Montebello Hills Specific Plan. Cook Hill Properties**

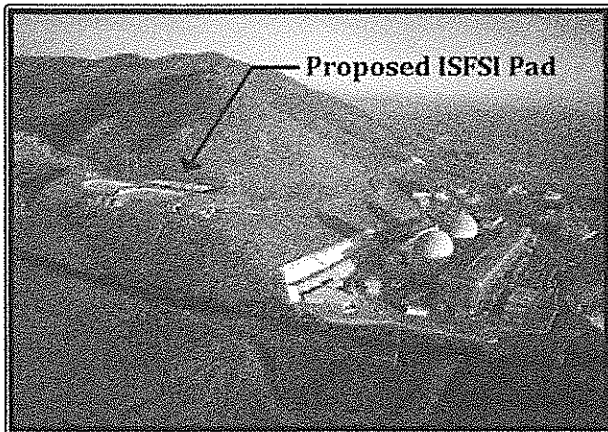
MRS served as the lead consultant for Cook Hill Properties in the preparation of technical reports related to the consolidation of the Montebello Oil Field operations. MRS’s analysis was part of an EIR covering a 1,200-home residential and commercial development as a portion of the 480-acre oil field.

The analysis examined air quality, health risk, noise, and visual impacts of consolidated oil operations on proposed residential developments. The consolidated oil operations combined several wells and operations from an existing oilfield at the site into a series of 8 well pads, constructing a new gas processing plant, and utilizing an existing oil processing facility.



The project also involved drilling several wells on pads close in proximity to residential developments. MRS assessed the impacts and developed numerous mitigation measures related to this drilling, including diesel particulate catalysts on all diesel drilling engines, limitations on drilling and workover locations and activities, biological measures to address impacts to coastal sage scrub and gnatcatchers, and using downhole pumps to limit well pumper noise.

The project involved close coordination with the U.S. Fish and Wildlife Service because the federally protected California Gnatcatcher populated the project site. In addition, key issue areas relevant to the project included traffic and public health.

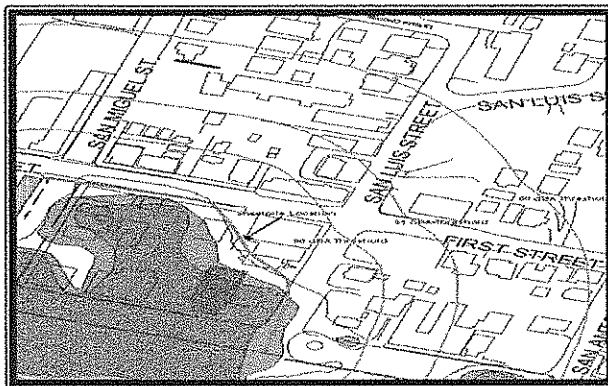


**Diablo Canyon ISFSI Project EIR. San Luis Obispo County**

MRS was the first consultant to prepare an EIR for a nuclear power plant. The project involved the installation of a long-term nuclear waste storage system. The EIR addressed a wide range of alternatives that covered various sites, as well as alternative storage technologies and designs. This was one of the most controversial projects permitted in California in the past 20 years.

The Public Draft EIR received more than 2,000 comments. The majority of these comments concerned safety, terrorism, and emergency response. Under Federal law, local and State governments are preempted from regulating or conditioning any safety aspects of nuclear facilities. The Applicant and the Nuclear Regulatory Commission (NRC) argued that the EIR could not address any of the safety issues. MRS took the position that the EIR was an informational document that required full disclosure, and, therefore, the safety impacts of the project had to be addressed. However, the document made it clear that only the NRC could implement the safety mitigation measures. One of the key safety mitigation measures developed as part of the EIR was to bury the storage casks to reduce the likelihood and consequences of a terrorist attack. While San Luis Obispo County could not require this mitigation measure, they did issue a letter to the NRC urging that the safety mitigation measures be implemented. The NRC is currently working with the Applicant to modify the project to bury the storage containers.

**Avila Beach Remediation Project EIR/EIS. San Luis Obispo County/RWQCB**



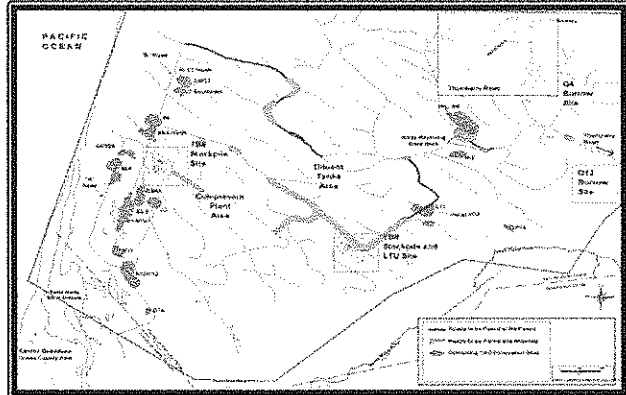
This was a complex remediation project executed by a large multi-disciplinary team. This project required evaluation of an intricate range of alternatives and the level and extent of contamination. This was an extremely contentious project since much of the contamination was under private homes, businesses, and the public beach. The Applicant proposed to leave most of the contamination in place and to use passive and

active systems to control the spread of the contamination. With this proposed project, there were very few environmental impacts, since the County determined that the baseline was the condition of the site at the time the NOP was released (i.e., the contamination was considered part of the baseline). MRS built a highly detailed ground water model and effectively demonstrated that under the proposed project the contamination would spread into new areas. As a result, MRS was

able to evaluate an alternative that would involve the full excavation of the contaminated material. The Final EIR determined that full excavation was the environmentally superior alternative, even though it had greater short-term impacts. San Luis Obispo County and the Applicant adopted the full excavation alternative. As a result of the work done on the EIR, the town of Avila Beach has now been completely cleaned up and major portions of the town have been rebuilt.

**Guadalupe Oil Field Remediation and Abandonment EIR. San Luis Obispo County/RWQCB**

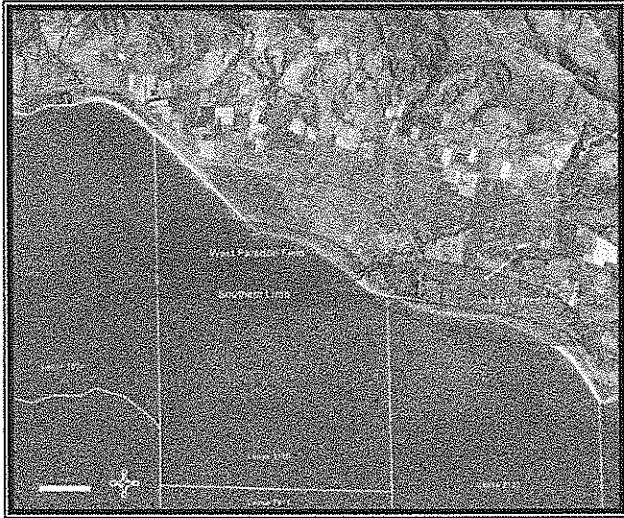
San Luis Obispo County asked MRS staff to prepare an EIR that evaluated environmental impacts associated with the remediation and abandonment of the Guadalupe Oil Field by Unocal. A necessary first component of this EIR analysis was to identify and develop alternative remedial actions to those proposed by Unocal for a range of cleanup levels. This presented a significant challenge because of the sensitivity of the site, the number of separate-phase diluent plumes (more than 60), and the lack of pilot-test data to verify that developing technologies would apply in the dune sands. This project presented a number of other significant challenges, including the lack of cleanup levels, diverse remediation technologies, and a moving baseline caused by ongoing emergency remediation efforts.



The complexity of the ground water contamination and the proximity to sensitive resources required development of a ground water model to evaluate the potential effects on water quality caused by the remedial actions. A MODFLOW computer simulation package simulated the ground water flow, and software package MTD3 simulated the contaminant fate and transport. The models were calibrated using present day data from monitoring wells at the site and run for four remedial scenarios: (1) no action; (2) Unocal's proposed project consisting of a mix of technologies including excavation and hydraulic containment; (3) complete source removal, assumed to be equivalent to excavation; and (4) a remedial alternative with a mix of technologies focusing on source removal, including excavation, hot water flooding, and enhanced bioremediation.

Environmental impact analyses were then assessed for 13 issue areas that evaluated potential impacts associated with the proposed remedial project and alternatives. Where significant environmental impacts were projected to occur, MRS developed mitigation measures to avoid or reduce the severity of the potential impact. Long-term effects of residual diluent, left in place following remediation, were also reviewed on a qualitative basis.





**Venoco Paredon Project EIR. City of Carpinteria**

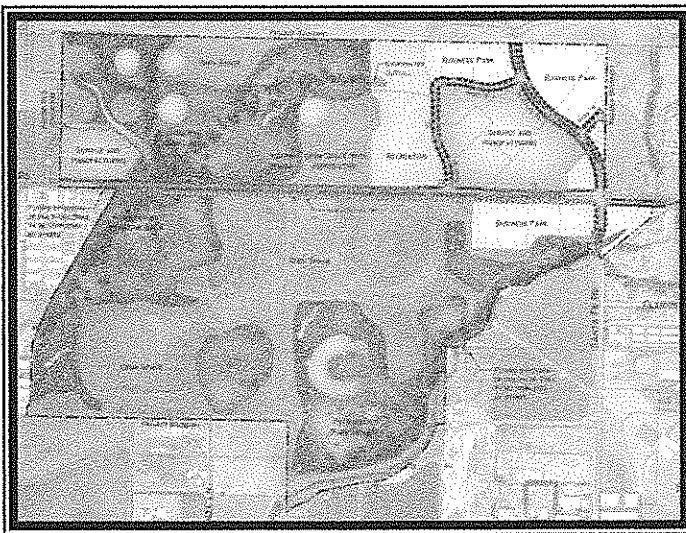
MRS prepared an EIR that assessed the impacts of the Paredon Project proposed by Venoco Inc. in Carpinteria. Venoco proposed to develop new oil and gas reserves from their existing Carpinteria Oil and Gas Processing Facility. The Project included drilling and exploration well and testing production through temporary facilities. If this exploratory drilling confirmed the commercial viability of development, Venoco proposed installation of permanent drilling facilities and modifications to their

existing facilities. These modifications included drilling as many as 35 wells from a drilling pad on the existing facilities, producing up to 11,000 BOPD and 22 MMSCFD of gas from the new wells, and shipping up to 11,000 BOPD through existing pipelines.

For this EIR, MRS examined several alternatives to the Project, including drilling from existing offshore and onshore locations and drilling with a less powerful, short rig. MRS also scrutinized impacts of the Project and potential impacts of alternatives to the Project.

**Chevron Tank Farm Remediation and Development Project EIR . County of San Luis Obispo and City of San Luis Obispo**

MRS is currently working with the County of San Luis Obispo and the City of San Luis Obispo to review a project to remediate and develop the San Luis Obispo Tank Farm, currently owned by Chevron. The 332-acre project site is now primarily vacant; it stores crude oil transported



from the San Joaquin Valley via pipeline from 1910 until the early 1980s. Following two lightning strikes in 1926, explosions, release, and fire created several surface occurrences (i.e., expressions) of highly weathered and burnt petroleum present on the ground today. Although some operations resumed, several reservoirs never returned to service.

Chevron intends to remediate the site to address site contamination issues, restore and improve the ecological

function of the habitat, and develop portions of the site consistent with a proposed land use plan. Chevron's proposal includes development for a business park, recreational use, and open space.

The site's inclusion in the City's Airport Area Specific Plan complicates the proposed project because the Specific Plan anticipates annexing the site and the San Luis Obispo County Regional Airport. Due to potential lengthy approval times for long-term development and phasing plans with City annexation, Chevron filed land division applications with both the City and the County. Chevron presented two distinct development options to provide alternatives if the annexation is not successful.

MRS is evaluating the remediation project as well as both the City and County development options and suitable alternatives in this EIR, which includes a baseline site analysis and baseline environmental settings in addition to peer review of existing documentation.

### **Carson to Torrance Hydrogen Pipeline EIR.** *The Cities of Carson and Torrance*

MRS staff prepared an EIR for the Cities of Carson and Torrance that addressed the impacts associated with the installation and operation of a 10-inch gaseous hydrogen pipeline. The major issue areas covered in this EIR included safety and risk of upset, fire protection and emergency response, traffic, noise, air quality, and environmental justice. The pipeline route passed through a number of residential neighborhoods and there was considerable concern about safety and the potential for fires and explosions in the event of a pipeline leak or rupture. MRS developed a Quantitative Risk Analysis for the pipeline project and found significant safety impacts. MRS worked with the local fire departments and the Applicant to modify the project to include a number of excess flow valves that would limit the volume of hydrogen released in the event of an accident. MRS also reduced the likelihood of a release by burying the pipeline deeper in certain areas and increasing the thickness of the pipeline wall. Both the Cities of Carson and Torrance required the implementation of all the safety mitigation measures discussed above and the Applicant submitted a letter to the City councils prior to the hearings in support of the mitigation measures.

As described above, the combination of local government experience and relevant oil and gas industry expertise qualifies MRS to assist the County of Santa Barbara in preparing this EIR.

## **2.2 Leidos/SAIC**

Leidos/SAIC is a diversified high-technology research, environmental, and engineering company, with an office in Carpinteria, California. The company offers a broad range of expertise in the areas of environmental systems and engineering, energy assets, information technology, systems integration, telecommunications, national and international security, health systems and services, transportation, and space technology. Leidos/SAIC has more than 41,000 employees in more than 150 cities worldwide. Founded in 1969, Leidos/SAIC is currently a *Fortune 500* company with more than \$11 billion in annual sales.



Leidos/SAIC's office in Carpinteria is part of the Energy, Environment & Infrastructure Business Unit and is a key component of Leidos/SAIC's environmental program, supported by professionals experienced in environmental, cultural, biological, physical, economic and social sciences, and related disciplines.

The Leidos/SAIC Carpinteria staff has been providing environmental services to Central and South Coast clients for more than 30 years. A focus of the regional practice has been the analysis of onshore and offshore oil and gas projects. The Leidos/SAIC team has extensive local and regional experience in key issues including water resources, geology, and wastewater. Other key areas of expertise include preparation of CEQA and NEPA compliance reports for a wide range of projects throughout the Central Coast and Southern California. Expertise in managing multidisciplinary environmental projects and in field research, coupled with extensive experience in the region, make the Leidos/SAIC team well-suited to support these on-call environmental services.

Some of Leidos/SAIC's recent experience working with MRS includes:

### **Matrix Oil, Whittier Main Oil Field Development Project EIR**

SAIC was a subcontractor on this work to MRS. The proposed Whittier Oil Field Project would involve establishing a new drilling pad for multi-well, directional oil and gas exploration drilling within the Whittier Oil Field, located within the Puente Hills Landfill Native Habitat Preserve, in the City of Whittier, Los Angeles County. The drill site is located on a hillside with an adjacent creek. New access roads and a production pipeline through a residential area would also be constructed. SAIC assessed potential impacts to geological resources, water resources, and wastewater.

### **Baldwin Hills, Inglewood Oil Field, PXP Well Drilling Program EIR**

SAIC was a subcontractor on this work to MRS. The proposed Inglewood Oil Field , PXP Well Drilling Program involved continued operations over the next 20 years, including extracting oil and gas, processing the crude oil to remove water, and processing the gas to remove hydrogen sulfide and gas liquids. Water injection is used within the field to mobilize the oil and gas in the subsurface. The highly condensed oil field is surrounded on all sides by residential and commercial properties in the Los Angeles area. SAIC assessed potential impacts to geological resources, water resources, biological resources, and cultural resources.

## **2.3 Garcia and Associates**

Tom Olson of Garcia and Associates is a Wildlife Biologist and project manager with over 25 years of experience in natural resources management, regulatory permitting, and mitigation planning. His expertise includes planning, conducting and directing biological resources studies, including literature and field surveys for terrestrial fauna and flora. He is also adept at developing mitigation plans and negotiating mitigation requirements. Mr. Olson is well

experienced in preparing Biological Assessments for federal- and state-listed threatened and endangered species. Mr. Olson has a U.S. Fish and Wildlife California Tiger Salamander (CTS) permit and extensive experience with CTS in Santa Barbara County.

Some of Mr. Olson's recent experience working with CTS includes:

**Escolle Lease, Orcutt vicinity, CA Permitted CTS Biologist**

Conducted three years of drift fence surveys and two years of aquatic surveys in advance of a Chevron oilfield remediation project on the Escolle Lease. Up to seven different drift fence arrays were surveyed for more than 90 nights over the three years. Prior to trapping, assisted in the California tiger salamander (CTS) habitat evaluation study. Prepared annual and end-of-project reports.

**Laguna County Sanitation District, Orcutt vicinity, CA Permitted CTS Biologist**

Evaluated proposed expansion areas and existing facility sites as habitat for CTS. Helped design trapping plan for Storrer Environmental Services. Assisted in trap installation and checking of traps during the first year of study. Found adult CTS in trap. Weighed, measured, described, and photographed the CTS before releasing it. Because presence was confirmed, the study was discontinued at that point.

**Cal Lands Oilfield Lease, Santa Maria, CA: Permitted CTS Biologist**

Assisted in study design, trap installation, and checking of traps for Storrer Environmental Services on the Cal Lands oilfield lease in advance of a remediation project. Involved in the first two years of the study.

**United California Lease, southwest of Santa Maria, CA: Permitted CTS Biologist**

Conducted habitat evaluation of the lease, as well as three years of aquatic surveys for CTS before and during oilfield remediation. Conducted pre-construction surveys and construction monitoring for CTS and other special-status wildlife species. Prepared weekly and annual reports.

### 3.0 Key Personnel and Project Management Program

This section of the proposal presents a summary of the key personnel who will work on the PCEC Orcutt Hill Resource Enhancement Plan EIR (Project) and provides an overview of the project management program.

#### 3.1 Key Personnel

MRS selected a specialized team for this assignment based on the project type, location, affected resources, and the key issues concerning the public. To complement MRS's expertise, team members from Leidos/SAIC and Garcia and Associates will be used.

MRS will manage the work for this assignment from their Ventura office:

Marine Research Specialists  
3140 Telegraph Road, Suite A  
Ventura, CA 93003  
805.289.3920

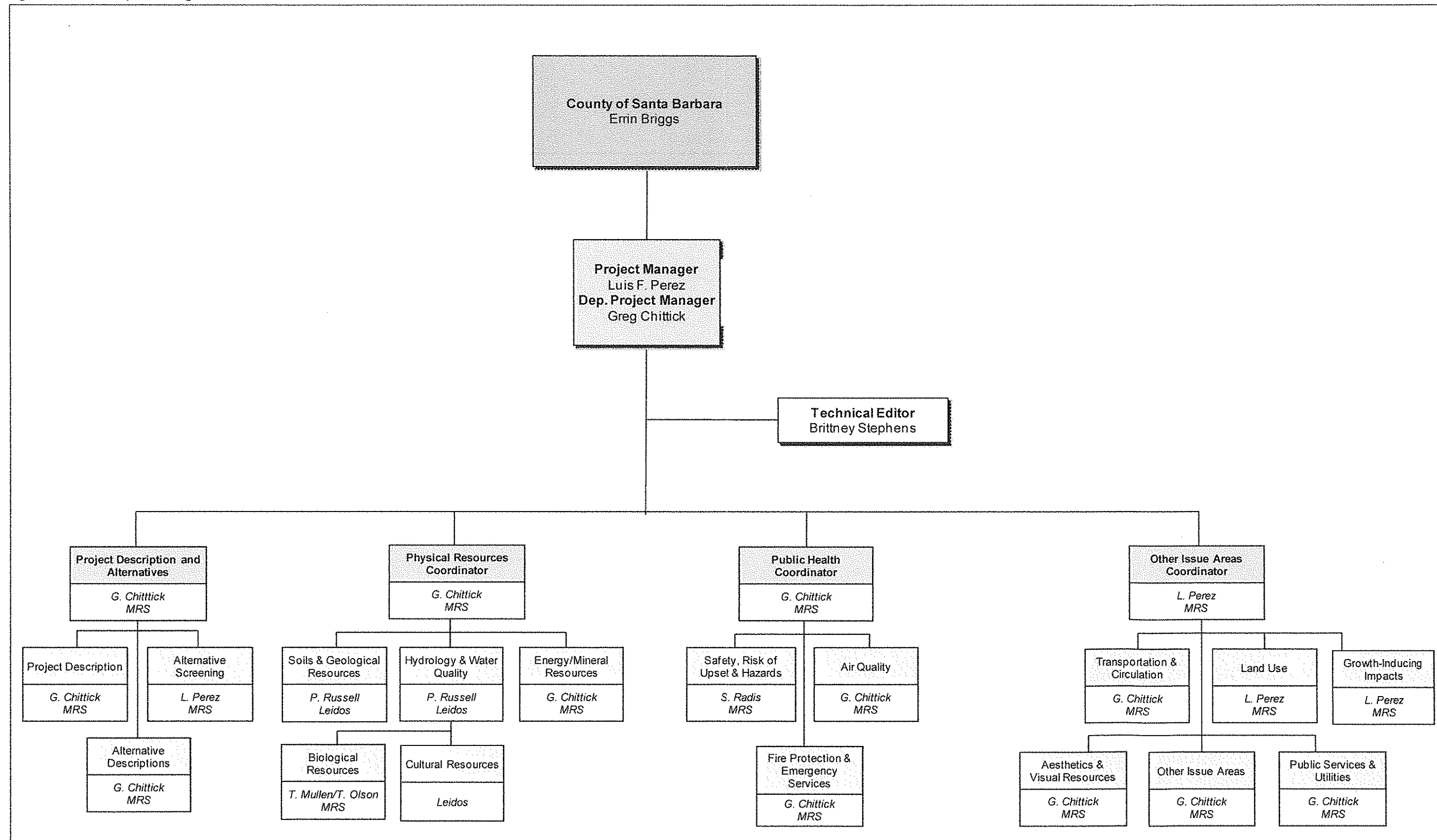
All MRS staff members can be reached at this location.

Figure 3.1 is the organizational structure for managing this project and identifies key team members and their areas of responsibility. Brief biographical sketches of the key team members highlight their relevant experience working on similar environmental review projects. More detailed resumes for the key staff are located in Appendix A.

**Mr. Luis Perez, MRS**, will be the Project Manager for this assignment and will be responsible for monitoring technical progress on each task, reviewing and approving documents prior to submission to the County, monitoring financial and schedule control, assuring compliance with all aspects of the contract, instituting corrective action if necessary, and providing overall quality control. He will also act as an Issue Area Coordinator for the Other Issue Area tasks. Mr. Perez has worked on complex CEQA and NEPA projects for the past 24 years. During that time, he has been Project Manager for complex environmental documents for oil and gas that have included the Whittier Main Oil Field, the Baldwin Hills Oil Field Community Services District, Pacific Pipeline Project, the Molino Gas Project, the Texaco Gaviota Pipeline Abandonment Project, the Unocal Cojo Marine Terminal Abandonment and Remediation Project, the Gaviota Marine Terminal Abandonment, the Exxon Marine Tankering Application, the Chevron Tankering Applications, and the Venoco Paredon Project, among others.

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Figure 3-1 Proposed Organizational Chart



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### 3.0 Key Personnel and Project Management Program

Mr. Perez has extensive public agency experience working for Santa Barbara County, which included interpretation of land use and environmental policies and regulations for large development projects, recommendations to decision-makers, and public presentations. Mr. Perez led the permitting efforts for many of the projects mentioned above and maintains a high quality-control standard for all projects within his responsibility. Mr. Perez also led the County's efforts in the environmental review, permitting, and compliance of the Shell Molino Canada de la Huerta PCB Remediation Project, the ARCO Alegria Restoration and Remediation Project, and the Texaco Gaviota Gas Plant Remediation Project.

Mr. Perez will manage the day-to-day activities and oversee issue areas of the environmental document. Mr. Perez has extensive project management experience both with the County of Santa Barbara Energy Division and MRS. Mr. Perez participated in project management seminars, performance management training, contract management, budgeting, and many other management trainings while working for the County. Mr. Perez also earned a Master's degree in Management that focused on management of complex projects, conflict resolution, group dynamics, and budgeting.

Mr. Perez received his M.A. degree in Organizational Management from Fielding Graduate University and received a B.A. in Environmental Science and Public Relations from Northern Arizona University.

In addition to the review by the Technical Editor, Mr. Perez will take special care in ensuring that every piece of documentation receives redundant review and quality control. As a previous government employee with the County of Santa Barbara, Mr. Perez clearly understands that all documents representing a public agency are necessarily of the highest quality, and he is committed to delivering this quality. In the majority of cases, written documents are a public agency's only exposure to the public and, as such, they should always reflect the highest level of professionalism.

**Mr. Greg Chittick, MRS,** will serve as the Deputy Project Manager and will be the Issue Area Coordinator for the Project Description and Alternatives, Physical Resources, and Public Health tasks. Mr. Chittick is a senior engineer with more than 24 years experience in quantitative analysis of environmental impacts. He has conducted air quality analysis, fire protection analysis, analysis of noise impacts, visual impacts, traffic impacts, environmental justice impacts, and prepared computerized maps with geographical information systems related to a number of oil and gas projects including the Santa Maria Energy Project, El Segundo Marine Terminal Lease Renewal & Monitoring Project, the Baldwin Hills Oil Field CSD & Monitoring Project, Paredon Project, Whittier Main Oil Field Project, Molino Gas Development Project, and the Carone Oil and Gas Development Project.

Mr. Chittick developed assessments examining the risks associated with a proposed odorant station in Carpinteria. Mr. Chittick has also been involved with numerous risk assessment

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### 3.0 Key Personnel and Project Management Program

analyses associated with accidental releases of toxic and flammable materials, including a community-wide health risk analysis in Alaska, toxic and flammable risk assessments for Carone, Ellwood Marine Terminal, Baldwin Hills, and the Carpinteria Odorant project, as well as transportation risk assessments. Mr. Chittick also conducted noise modeling for the City of Carpinteria Venoco Paredon Project.

Mr. Chittick received his M.S. in Mechanical and Environmental Engineering from University of California at Berkeley and a B.S. in Mechanical Engineering from the University of California at Santa Barbara.

*Mr. Steve Radis, MRS*, will be the Principal Investigator for the Safety, Risk of Upset, and Hazards task. Mr. Radis is a principal with extensive experience in hazards and hazardous materials. His expertise also includes meteorological modeling and analysis, physical oceanographic modeling and analysis, consequence and risk analysis, fire and explosion dynamics, hazard evaluation, external events analysis, fault tree analysis, and model development. Mr. Radis has worked on a wide variety of studies for utilities, commercial, and government clients involving meteorological modeling, quantitative risk assessments, health risk assessments, consequence analysis, risk management, air quality modeling (inert/photochemical pollutants, toxic air contaminants), and EIRs and EISs.

He has managed several successful CEQA-related projects for San Luis Obispo County, the South Coast Air Quality Management District, and Santa Barbara County Department of Planning and Development. Mr. Radis was the Project Manager for San Luis Obispo County's Avila Beach Cleanup Project EIR/EIS and Nacimiento Water Project EIR. He has over 20 years experience in the field of risk modeling and health risk assessment and more than 25 years experience conducting meteorological and climatological studies. Mr. Radis has prepared air quality, system safety, public health, and noise impact assessments for numerous EIR and EIS, including the recent Diablo Canyon Independent Spent Fuel Storage Installation and Steam Generator Replacement Projects. Mr. Radis has extensive experience in the assessment of criteria pollutants, air toxics (and health risk assessments), acid deposition studies and photochemical modeling. In addition, Mr. Radis has conducted more than 30 health risk assessments, many for site remediation activities for oil and gas facilities.

For the California Coastal Commission (CCC), Mr. Radis prepared an independent, qualified third-party review of certain hazard analysis aspects of a proposed exploration and production project submitted by Macpherson Oil Company (Macpherson) to the CCC as part of Application E-96-28 for a coastal development permit (CDP). Based on the initial review, a wide variety of safety issues associated with the proposed project were identified. Macpherson amended their CDP application to address some of the concerns that were raised in the draft report, as well as clarified some potential inconsistencies between their CDP application and their project as originally permitted by the City of Hermosa Beach. The amended CDP included changes to



### 3.0 Key Personnel and Project Management Program

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crude oil pipeline transportation, and end use of produced gas since produced gas would not likely meet the Southern California Gas Company hydrogen sulfide limit of 4 ppm during the entire lifetime of the project without the installation of gas sweetening equipment and further environmental review.

Mr. Radis received his M.A. and B.A. degrees in Climatology from California State University, Northridge.

**Mr. Edward (Ted) Mullen, MRS**, will be the Principal Investigator for the Biological Resources section. He is an experienced biologist and technical contributor with 18 years of experience that includes preparing baseline biological resource studies, habitat evaluations, regulatory compliance, and environmental impact assessment under the CEQA and NEPA. Mr. Mullen's wildlife expertise includes birds, amphibians, and reptiles of southern California. He has federal permits to sample and handle the California red-legged frog and has conducted numerous protocol surveys for this species.

Additionally, Mr. Mullen has conducted field surveys in more than 20 states for sensitive species and prepared management plans for tidewater goby, desert tortoise, southwestern pond turtle, American badger, San Joaquin kit fox, light-footed clapper rail, Belding's savannah sparrow, western snowy plover, southwestern willow flycatcher and burrowing owl. Mr. Mullen managed the biological surveys (e.g., sensitive species, native grasslands, wetlands) and survey report for numerous wildlife biological sections for EIR. All of these projects included the assessment of wildlife habitat and importance to sensitive species.

Mr. Mullen is a recognized expert on sensitive biological resources, and has developed and implemented feasible measures consistent with USFWS requirements. He has worked on a large number of oil and gas development projects including the Baldwin Hills CSD EIR, the Whittier Main Oil Field EIR, the Paredon Development EIR, and the Molino Gas Development EIR among others.

Mr. Mullen received his M.A. in Biological Sciences from the University of California, Santa Barbara and a B.S. in Biology from Loyola Marymount University.

**Mr. Perry Russell, Leidos/SAIC**, will be the Principal Investigator for Hydrology and Water Quality, Mineral Resources, Soils and Geological Resources, and Water and Wastewater. He has 26 years experience as a geologist, including 17 years preparing technical sections for CEQA documents. Technical sections completed by Mr. Russell include geological resources, water resources, wastewater, hazardous materials, and safety, related to a number of oil and gas projects, including the Orcutt Oil Field Expansion Project, the Venoco Paredon Project, the Matrix Oil Whittier Main Oil Field Project, the PXP Inglewood Oil Field Expansion Project, the Venoco Line 96 Project, the Venoco Ellwood Marine Terminal Abandonment Project, the Tranquillon Ridge Offshore Drilling Project, and the Molino Gas Development Project. He also

prepared sections for the Plains All American Pipeline, L.P., Pier 400, Berth 408 Project, in the Port of Los Angeles. Mr. Russell is a California Professional Geologist, California Certified Engineering Geologist, and has several years experience as a petroleum geologist. Mr. Russell has also completed projects in San Luis Obispo County, including an EIR associated with a proposed temporary storage facility for radioactive waste at the Diablo Canyon Nuclear Power Plant.

*Karen Foster, Ph.D., RPA, Leidos/SAIC*, will serve as Principal Investigator for Cultural Resources. Dr. Foster is also the Cultural Resource Manager for Leidos' Carpinteria office and a faunal (animal bone and shellfish) analysis specialist with over 20 years of archaeological project experience, in compliance with Sections 106 and 110 of the National Historic Preservation Act, the National Environmental Policy Act, and the California Environmental Quality Act. She has conducted or managed cultural resource CEQA projects for proposed wind farms in Kern County; development projects in the Port of Los Angeles; expansion of the Simi Valley Landfill; water supply projects at Tejon Ranch, Castaic Lake, and along the Santa Ana River; as well as many other projects. NEPA work includes projects on MCB Camp Pendleton, MCAS Miramar, MCAS Yuma, MCLB Barstow, Bob Stump Training Range Complex, MCMWTC Bridgeport, NTC Fort Irwin, NAS Fallon, Los Angeles AFB, USFS Humboldt-Toiyabe National Forest, USFS Cleveland National Forest, and BLM El Centro region. Her experience encompasses all phases of archaeological fieldwork, including archaeological surveys, site significance and evaluation testing, data recovery mitigation programs, archaeological monitoring projects, and preparation of Integrated Cultural Resource Management Plans (ICRMP). In addition to her faunal analysis expertise, Dr. Foster is an expert in the interpretation of coastal hunter/gatherer groups, North American and Andean prehistory, and archaeological artifact curation. Dr. Foster not only is an experienced cultural resources manager, she also understands how these studies relate to larger environmental issues and regulatory requirements. Dr. Foster is a Registered Professional Archaeologist (RPA).

*Mr. Tom Olson, Garcia and Associates*, will be Principal Investigator for the California Tiger Salamander Resource. Mr. Olson is a Wildlife Biologist and project manager with over 25 years of experience in natural resources management, regulatory permitting, and mitigation planning. His expertise includes planning, conducting and directing biological resources studies, including literature and field surveys for terrestrial fauna and flora. He is also adept at developing mitigation plans and negotiating mitigation requirements. Mr. Olson is well experienced in preparing Biological Assessments for federal- and state-listed threatened and endangered species.

#### **3.2.1 Management Team Roles and Responsibilities**

MRS uses a three-tiered approach to managing environmental review projects. The first tier is the Project Manager and Deputy Project Manager who will provide day-to-day direction to the team and who will interact with the County on a regular basis. The second level consists of the

Issue Area Coordinators who are responsible for overseeing the development of their respective issue areas. The third level is the Principal Investigators, or technical experts, who will conduct a large amount of the work. The Issue Area Coordinators are responsible for managing the technical experts within their issue areas.

#### **Project Manager**

Mr. Luis Perez, the Project Manager, and Mr. Greg Chittick, Deputy Project Manager, will be responsible for the following major activities:

1. *Compliance with County Guidance.* Including regular working sessions with the County regarding the overall progress of the study.
2. *Contract Compliance.* Systematic review of the contract to make certain that the individual provisions and commitments are being met.
3. *Progress Reporting.* Includes preparation of the status reports, which will contain information on the technical progress as well as the project expenditures.
4. *Budget Tracking.* Includes monitoring expenditures on a week-to-week basis and reporting this information.
5. *Interdisciplinary Coordination.* Involves the identification of cross-disciplinary impacts and the coordination of information flow among the various issue areas.
6. *Staffing Adequacy.* Ensures that key staff is available when their input and participation are required.
7. *Management of Subcontractors.* Includes establishing contractual agreements, as well as tracking deliverables and billing, to assure the coordination of subcontractor activities.
8. *Quality Control.* Includes the review of all quality assurance guidelines and will provide a quality control function on the preparation of the environmental or technical review document.
9. *Report Production Control.* Includes the organization of production requirements for the numerous draft and final report deliverables. These major deliverables will be coordinated by MRS's Ventura Office.

#### **Issue Area Coordinators**

Serving as front line managers, the Issue Area Coordinators will direct the technical work of the Principal Investigators for their respective issue areas. Their responsibilities will include:

- Review and approval of work plans, schedules, and budgets for their Principal Investigators;
- Development of quality assurance guidelines for all field work being conducted by their Principal Investigators;

- Review and quality control of the technical documentation developed by their Principal Investigators;
- Preparation of the document sections that cover the coordinators' respective issue areas; and,
- Preparation of monthly progress reports for their respective issue areas.

#### 3.2.2 Project Management and Control Systems

Project management, which will span the entire life of the Project, is extremely important due to the controversial nature of the Project, the large number of interested parties, and the complexity of the technical issues. Project management will provide the necessary interface among the County, other responsible agencies, and the consultant Project team. Formal communication with the County will center on time-designated progress reports, the deliverables agreed upon, and the program of scheduled meetings. At a minimum, MRS recommends monthly meetings with the County to review progress and discuss issues. There will be times when more frequent meetings will be required. MRS will work closely with the County for the duration of the Project to ensure that progress is carefully tracked, attention is drawn to any difficulties encountered, and the project is conducted in a highly professional manner.

During the course of a project, MRS's proven program management system and its associated defined controls will ensure consistent control of program costs, schedule, staffing, technical performance, deliverables, and subcontractors. The program management and control systems will ensure that the quality of the work will meet or exceed all the County's contract requirements. Figure 3-2 depicts the key planning and control processes used on a weekly and monthly basis to support program management of both individual tasks and the overall project. The individual program control methods and systems that comprise this approach are described below.

#### **Quality Assurance/Quality Control**

In every project, MRS aims to provide the client with a high quality product that meets expectations, all applicable professional standards, and regulatory requirements. To meet this quality standard, Quality Assurance/Quality Control (QA/QC) procedures are developed for each project during the planning stage. MRS uses a number of management techniques for assuring and controlling the quality of the work product. In the area of QA, the major focus is on staff integration, communication, and the development of QA guidelines for field work and document production. In addition, a comprehensive case management plan is prepared that serves as a blueprint for monitoring and tracking the progress of the project. MRS's QC program uses a multi-tiered approach to assure that all work products are of the highest quality and meet or exceed all of the County's contractual requirements. Each major component of the QA/QC program is described below.

#### Case Management Plan

MRS developed a “Case Management Plan Handbook” to ensure projects are managed in a way that provides clients with value-added professional services and accepted business practices to satisfy that client’s needs. This plan requires a seven-point management plan that is developed for each assignment. The seven elements of this plan are:

- Work Scope;
- Staffing;
- Schedule;
- Budgeting;
- Communication;
- Staff Development; and
- Quality Assurance.

Once developed, the management plan becomes a living document, which serves as a communication tool for the client and the project team. The document is also used to track the technical progress of the project and the expenses on a weekly basis.

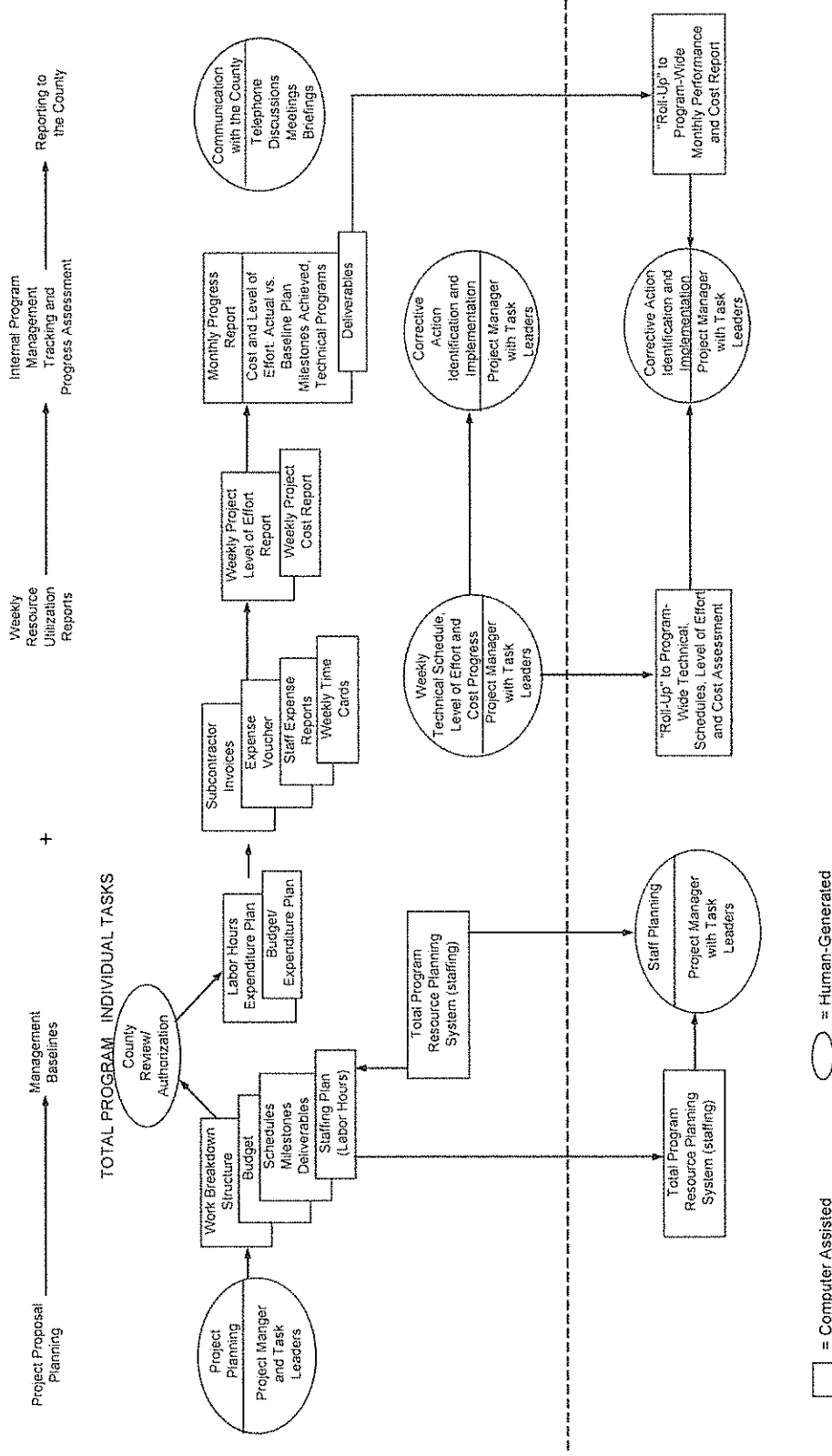
#### Staff Integration Meetings

To facilitate coordination of the assessments and communication among staff members, MRS established a program of biweekly planning and coordination meetings based an agenda developed and circulated in advance. The Project Manager will conduct these meetings to review work in progress, plans, and schedules and to ensure effective communication among the project team and with the County. The objective of these meetings is to ensure that the quality of communication—internal and external—is enhanced whenever possible.

#### Monthly Status Reviews

Because of the complexity and schedule constraints for environmental review projects MRS will conduct formal monthly status review meetings for Issue Area Coordinators to meet with the Project Manager for a technical, schedule, and budgetary assessment of progress. Monthly status reviews provide a forum for discussion and peer review of the quality of the work, which often leads to important improvements in performance from the widest possible sharing of information.

Figure 3-2 Program Management System Flow Diagram



#### Problem Anticipation and Management

MRS recognizes problem anticipation and management as an explicit aspect of its Project Management Plan for this assignment. Unanticipated problems occur despite the best planning and intention. On task orders, MRS recognizes its obligation to anticipate, identify, and resolve all problems—technical, managerial and financial—as quickly as possible. Problems may be identified during the planning, execution, review, and reporting phases of the project. They can most often be avoided by thoroughly planning the program; realistically budgeting time, labor and costs; clearly communicating with County staff; and closely monitoring the actual performance of the MRS staff and any associated subcontractors.

Problems will be most often identified by project staff as they work on the project. They may be practical problems (e.g., conditions experienced at field sites delay test operations) or conceptual problems relating to the steps in the technical approach. Many of them can be quickly solved by the involved staff members. Problems that cannot be solved in this way will be brought to the immediate attention of the Project Manager, who will then decide the best way to resolve the issue.

The Project Manager will present persistent problems to senior management at MRS for assistance in problem resolution to assure that contract performance meets all County expectations and standards. Table 3-1 summarizes potential problem areas and the management methods MRS uses to identify and resolve them at the earliest possible time.

#### Quality Assurance Guidelines

Quality assurance guidelines will be developed for fieldwork activities, as necessary, as well as for document preparation. The development of QA guidelines for fieldwork will help to ensure that all fieldwork is done in a consistent manner; that the information collected is of the highest quality; and that the information collected meets the objectives of the fieldwork program. The QA guidelines for fieldwork will be developed by the Issue Area Coordinators. These guidelines will be reviewed by the Project Manager and will then be discussed and reviewed with the appropriate case team members.

A quality assurance guideline will also be developed for the document preparation activities. This will cover the preparation of technical appendices as well as the environmental or technical document. During the first month of a project, a document preparation manual, or style guide, will be developed to provide a detailed outline of the final report, a set of word processing templates that detail the style and structure of the report and technical appendices, a list of acceptable acronyms, and a standard format for figures and tables. This document will be submitted to the County for review and comment and then distributed to the project team. Please see Section 5.0, Document Preparation, for additional discussion of the Style Guide.

#### **Cost and Schedule Control**

MRS maintains cost, schedule, and resource control via a four step process. First, cost and schedule baselines are established, against which actual cost and schedule performance can subsequently be compared. Second, cost and schedule data are collected and reported on a weekly basis to the Project Manager. Third, actual performance is compared against baseline plans, identifying any deviations from plan. Fourth, deviations in cost or schedule performance are discussed internally and, if necessary, with County staff and corrective actions are taken. Each step is described below in more detail.

#### Establishing Cost and Schedule Baselines

MRS's internal program management system requires a comprehensive planning process at the initiation of each project to establish baselines against which to monitor expenditures, staffing, and progress. For each project, MRS establishes a task plan of individual work elements. For each work element, MRS will develop direct labor hours by individual staff members, non-labor expenses, and a schedule. This will serve as the project-specific proposal.

Once these data are developed and entered into the program, MRS will use their project management system to generate baselines for each task and its component work elements. This baseline will assist in staff planning, and most importantly, assist the Project Manager by providing a computer-aided graphic comparison of actual labor utilization and expenditures against the baseline, revealing labor or cost variance.



3.0 Key Personnel and Project Management Program

Table 3-1 Approach to Problem Identification, Management, and Resolution

Potential Problem	Method of Identification				Possible Corrective Action
	Discussion with the County	Communication to Project Manager by Staff	Team Meetings	Progress Review by Project Manager	
<i>Change in County Requirements</i> <ul style="list-style-type: none"> <li>• Accelerated delivery</li> <li>• Modification of scope</li> </ul>	<ul style="list-style-type: none"> <li>•</li> <li>•</li> </ul>				<p>Expand staff; accelerate schedule.</p> <p>Hold team meeting; revise staffing; revise schedule and budget as necessary.</p>
<i>Slippage in Schedule</i>	•	•	•	•	Expand staffing; revise schedule in consultation with the County.
<i>Attrition of Personnel</i>		•	•		Execute backup plan for key staff; utilize existing resource pool.
<i>Cost Growth</i>	•	•	•	•	Absorb cost growth if no change in scope of work.
<i>Quality of Work</i>	•	•	•	•	Immediate meeting of Project Manager and appropriate Issue Area Coordinators; possible staffing changes.
<i>Subcontractor Performance</i>		•	•		Immediate discussions between Project Manager and Subcontractor; implement specific corrective action plan.
<i>Delay in Review Process at the County</i>	•				Hold in-person review to expedite review schedule; accelerate the response to comment schedule.

#### Documenting Actual Cost and Schedule Performance

The basic input document that initiates cost and labor hour documentation and control is the Weekly Time Card. Each project is assigned a unique identification number, and hours worked each week on each project are recorded by staff members and entered into the company's computerized accounting system. Similarly, direct expenses are recorded on standard company expense report forms or other charge vouchers and charged to each project as incurred. The company's standard accounting system provides weekly and monthly summaries of expenditures to date and the balance remaining for any given project. These data are useful for monitoring project financial status. The system also produces an expense breakdown report for each project.

#### Comparing Actual Performance against Baseline Performance

On a periodic basis, the Project Manager will assess actual performance against baseline plans by estimating technical progress in terms of percent completion. Technical performance measurement will be based on quantitative measures where possible (e.g., number of sub-tasks completed, number of drawings completed) and otherwise on professional judgment. For cost control, the company's program management system can also be compared manually. For schedule control, progress and schedule monitoring will be based on bi-weekly meetings between the Project Manager and the Issue Area Coordinators, where estimates of the percentage of work completed can be compared with the baseline schedule.

#### Taking Corrective Action

Identifying deviations from baseline plans at the earliest possible time and taking appropriate corrective actions help maintain cost control. Corrective actions depend on the nature of the cost deviation and the reasons behind it. For minor deviations, corrective actions may include:

- Setting new lower targets for final cost, if expenditures are lower than expected;
- Identifying alternate methods for accomplishing contract objectives; and
- Amending the statement of work to define the best use of remaining funds.

If delays in the schedule arise during the course of the project, the Project Manager will discuss the situation with the County and apply similar corrective actions to recover and maintain the schedule.

### **3.2.3 Communications Procedures**

Communication is a critical component in the analysis of a large, complex, and information-intensive project. Given the large number of issue areas typically covered by environmental review projects, cross-discipline communication is also extremely important. MRS's project management communication procedures are designed to accomplish the following objectives:

- Specify the formal communication and documentation procedures to be used by all team members;

- Institute a uniform method of recording actions and maintaining reference files;
- Assure appropriate data flow to and between team members; and
- Control the flow of data from the field to the Principal Investigators.

Transfer of information occurs on a daily basis via the one-on-one communication between Principal Investigators and Issue Area Coordinators. In addition, weekly meetings disseminate technical information such as baseline data, project description information, as well as information pertinent to multi-disciplinary environmental review projects.

MRS has a formal process for tracking and disseminating information and data for large projects. A centralized recordkeeping system maintains all data relevant to the project. Each piece of information is given a unique tracking number and placed in a central file. A computerized database is maintained noting all the information in central files, a method of organization which allows team members to electronically scan the information database and request copies of information. In addition, hard copies of the database are regularly printed and distributed to the project team.

As part of a typical environmental project, MRS develops fact sheets covering site history, project description, and alternatives, as well as cumulative projects. These fact sheets will contain information that is needed by the Principal Investigators to assess impacts and develop mitigation measures. The use of fact sheets assures that all project team members have consistent information on which to base impact assessments and mitigation measures.

#### **3.2.4 Management of Subcontractors**

MRS has a long history of using subcontractors on assignments to enhance in-house capabilities. MRS has developed a comprehensive system for managing subcontractors. Each subcontractor will be issued a purchase order that defines the scope of their work, the deliverables and due dates, and the associated cost estimate. The purchase order also contains the required billing and progress reporting instructions. These purchase orders serve as contracts with each of the subcontractors.

Each subcontractor will be required to submit a final work plan to MRS. The appropriate Issue Area Coordinator and the Project Manager will review the work plans. The work plan will include the scope of the study, a list of deliverables and due dates, estimated budgets for professional services and expenses, and a QA/QC program for assuring the highest quality work.

In addition, the Issue Area Coordinators will be responsible for monitoring the performance of each subcontractor who reports to them. The monitoring activities will include daily communication and monthly meetings—a combination that will both assess progress relative to schedule and budget and will forecast work activities expected to occur during the next month. This information will be communicated to the Project Manager in our monthly status reviews.

### 3.0 Key Personnel and Project Management Program

MRS's working relationship with subcontractors is based on the principle that subcontractors are extensions of in-house staff. Subcontractors will have unlimited access to all project data and project library information, and they will be provided office space and support in the MRS Ventura office. Subcontractors will also be given access to MRS's in-house computer network which allows for easy entry to email, documents, reports, and data. This in-house computer network can also be remotely accessed by subcontractors and staff.

## 4.0 Study Methodology

This chapter discusses Marine Research Specialists' (MRS) approach to preparing the Environmental Impact Report (EIR) for the PCEC Orcutt Hill Resource Enhancement Plan EIR (Project). Throughout the Project, MRS will take direction from the County of Santa Barbara (County) and follow the County's EIR standards, practices, and guideline documents including the *Santa Barbara County Environmental Thresholds and Guidelines Manual* and the *Santa Barbara County Guidelines for the Implementation of the California Environmental Quality Act (CEQA) of 1970* consistent with the CEQA Guidelines issued by the State Office of Planning and Research. MRS will peer-review and utilize the existing documentation previously prepared and submitted to the County by the applicant for the proposed project. This peer-review will focus on adequacy and technical accuracy of the information. These documents include:

- *ENVIRON International Corporation, 2013: Air Quality Technical Report, PCEC Orcutt Hill Resource Enhancement Plan (OHREP);*
- *ENVIRON International Corporation, 2013: Climate Change Technical Report, PCEC Orcutt Hill Resource Enhancement Plan;*
- *Sage Institute, 2013: Orcutt Hill Resource Enhancement Plan Biological Assessment;*
- *Statistical Research, Inc., October 2013: Archaeological Resource Inventory and Impact Assessment (Technical Report 13-68);*
- *Statistical Research, Inc., October 2013: Report on Recordation and Evaluation of Archaeological Resources at Seep Can Locations on Pacific Coast Energy Company LP Property in the Orcutt Hill Area, Santa Barbara County, California (Technical Report 13-75); and,*
- *AMEC Environment & Infrastructure, Inc., July 2013: Report of Geologic Evaluation for Environmental Impact Report, Proposed Orcutt Hill Resource Enhancement Plan Project, Orcutt Oilfield.*

MRS will assist the County in identifying the necessary sequencing of additional technical studies deemed necessary to complete the environmental analysis and to ensure interactive production of the EIR. Additional technical studies would include those necessary to determine potential impacts from the installation of potential future seep cans not analyzed in the existing documentation.

The main purposes of the EIR include:

- Evaluating the environmental impacts associated with the Applicant's Project;
- Developing feasible alternatives that meet most of the basic objectives of the Project and can potentially eliminate significant impacts caused by the Project; and
- Developing mitigation measures that can reduce the level of significance of impacts associated with the Project and the alternatives.

The results of the EIR analysis will be used by the public and governmental agencies in making decisions regarding the Project.

This section of the proposal is divided into two major sections. The first section provides a general discussion of the proposed approach to each of the major tasks listed in the Request for Proposals (RFP). The second section presents the detailed scope and approach to each of the environmental issue areas.

#### **4.1 General Approach to Project Tasks**

This section briefly discusses the proposed approach to each of the major tasks listed in the RFP and typically part of an EIR process.

##### **4.1.1 Project Management Program**

MRS specializes in the management of complex, multi-disciplinary projects that are similar to the Project. MRS staff has many years of experience in project management and offers a very strong project management component as part of this proposal. Section 3.2 provides a detailed project management program for the Project. Section 6.0 provides a detailed Project schedule that would be used as part of the management program to track progress.

##### **4.1.2 Project Description and Alternatives**

This section of the proposal discusses the proposed approach to the development of the project description and the alternatives analysis.

##### **Project Description**

MRS will develop the project description based upon the information the Applicant has submitted so far and will continue to submit as part of the Planning Application with the County. There are a number of data that will be necessary for the proposed project description and evaluation of the impacts. The project description chapter will address the need for the Project, as well as the Applicant's proposed objectives and actions to implement the Project. The project description will be dissected into construction activities, drilling operations, and production. As part of the production operations, the cyclic steaming process will be discussed along with the seep can/French drain infrastructure. The project description will include an approach for a

Supplemental Pollution Control Plan to serve as a comprehensive set of best practices for responding to future seeps and surface expressions.

As MRS begins developing the project description chapter, staff will work closely with the Applicant and the County to assure that the project description accurately reflects the Project. It is likely that as the project description is developed, additional information will be needed from the Applicant. MRS will submit data request forms to the County that describe in detail the data needed and the reason for the request. These requests will also include a due date for the information to maintain the overall schedule.

Once a draft project description is developed, MRS will submit it to the County for review and comment. MRS will suggest that the Applicant is given an opportunity to review the project description to assure that it accurately reflects their Project. This is extremely important since the project description data will serve as the basis for assessing the impacts associated with the Project.

#### **Alternatives Analysis**

The CEQA Guidelines, Section 15126.6, requires an EIR to describe a reasonable range of alternatives to a project or to the location of a project which could feasibly attain its basic objectives and evaluate the comparative merits of the alternatives. CEQA Guidelines, Section 15126.6, provides direction for the discussion of alternatives to the proposed project. This section requires:

- *A description of “a range of reasonable alternatives to the project, or to the location of a project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives;” [15126.6(a)]*
- *Setting forth alternatives that “shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project;” [15126.6(f)]*
- *A discussion of the “No Project” alternative, and “if the environmentally superior alternative is the ‘no project’ alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives;” [15126.6(e)(2)] and*
- *A discussion and analysis of alternative locations “that would substantially lessen any of the significant effects of the project need to be considered for inclusion in the EIR.” [15126.6(f)(2)(B)]*

For this EIR, it is critical to develop a defensible alternatives analysis that meets the following objectives:

- The alternatives analysis is comprehensive enough to assure that it has looked at a reasonable range of feasible alternatives to the proposed action; and
- The alternatives analyzed throughout the document are limited to only those that could feasibly attain the Applicant's basic objectives for the Project, and that have the ability to reduce significant impacts associated with the proposed action.

In order to accomplish these objectives, MRS proposes an alternative screening analysis. An alternative screening analysis provides the basis for selecting alternatives that meet the second objective listed above, provides a detailed explanation of why other alternatives were rejected from further analysis, and assures that only feasible alternatives that can reduce significant impacts and meet the basic objectives of the project are evaluated and compared in the EIR.

This screening methodology also uses the "*rule of reason*" approach to alternatives as discussed in CEQA (Guidelines Section 15126.6(f)). The rule of reason approach has been defined to require that EIRs address a range of feasible alternatives that have the potential to diminish or avoid adverse environmental impacts. In defining the feasibility of alternatives, the CEQA Guidelines state:

Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site (Section 15126.6(f)(1)).

If an alternative is found to be technically infeasible, then it would be dropped from further consideration. Typically, this is the primary feasibility factor used to eliminate an alternative without further screening analysis. For example, other onshore locations for the drilling operations may be found infeasible given the current state of the technology and the need to be close to the area associated with production for a field that utilizes steam extraction.

In addition, CEQA states that alternatives should "*attain most of the basic objectives of the project*" (Section 15126.6(a)). If an alternative is found to not obtain the basic objective, then it would also be eliminated.

The use of a screening analysis for the alternatives ensures that the full spectrum of environmental concerns is adequately represented and that a reasonable choice of alternatives is selected for evaluation in the EIR.

Using this approach, the alternatives analysis section of the EIR will include: (1) a brief description of a range of reasonable alternatives to the Project; (2) a screening analysis that summarizes and compares the significant environmental effects of the Project and each



alternative; and (3) an environmental analysis of the alternatives that were selected for further consideration in the EIR.

Alternatives examined will include, at a minimum, the No Project Alternative and a Reduced Project Alternative (that would include fewer wells drilled). In addition, a consolidated alternative may be reasonable to reduce the area of impact and consolidate the construction and operations into a smaller area, thereby reducing biological impacts.

The alternatives that are selected for further consideration will be evaluated in the impacts and mitigation sections of the EIR and organized by issue area. This more detailed alternatives impact and mitigation analysis would follow the impact and mitigation section for the Project.

The Alternatives section will be prepared and submitted to the County along with the Project Description and Environmental Settings sections.

### 4.1.3 Peer Review

The Applicant for this project has prepared several studies that provide a considerable amount of information associated with the baseline conditions at the site as well as the impacts of the proposed project. These documents will be peer-reviewed before the information is used as part of the baseline section of the EIR. One of the first tasks that will be undertaken will be a comprehensive review of the Applicant prepared documents. This peer-review will focus on adequacy and technical accuracy of the information. These documents include:

- *ENVIRON International Corporation, 2013: Air Quality Technical Report, PCEC Orcutt Hill Resource Enhancement Plan (OHREP);*
- *ENVIRON International Corporation, 2013: Climate Change Technical Report, PCEC Orcutt Hill Resource Enhancement Plan;*
- *Sage Institute, 2013: Orcutt Hill Resource Enhancement Plan Biological Assessment;*
- *Statistical Research, Inc., October 2013: Archaeological Resource Inventory and Impact Assessment (Technical Report 13-68);*
- *Statistical Research, Inc., October 2013: Report on Recordation and Evaluation of Archaeological Resources at Seep Can Locations on Pacific Coast Energy Company LP Property in the Orcutt Hill Area, Santa Barbara County, California (Technical Report 13-75); and,*
- *AMEC Environment & Infrastructure, Inc., July 2013: Report of Geologic Evaluation for Environmental Impact Report, Proposed Orcutt Hill Resource Enhancement Plan Project, Orcutt Oilfield.*

#### 4.1.4 Additional Technical Studies

MRS will work with the County to identify and complete any additional technical studies deemed necessary to complete the environmental analysis. Additional technical studies may include those necessary to determine potential impacts from the installation of the additional and potential future seep cans not included in the previous technical documentation submitted for the project.

Based on a preliminary assessment, the documents provided by the Applicant and listed above satisfy most of the data needs associated with the EIR preparation. Air Quality and GHG analysis, while containing sufficient information, uses the BAU approach and includes a number of assumptions related to the BAU scenario. As per the recent SME Project County Supervisors decision, a threshold of 10,000 MT would need to be assessed, requiring some re-analysis. This is discussed further in the Air Quality section below.

#### 4.1.5 Administrative Draft EIR

Preparing the Administrative Draft EIR would constitute the majority of the work effort. One of the first tasks will be to develop a Style Guide for the EIR that provides a detailed outline of the document and formatting information. The requirements for maps and figures would be detailed in the Style Guide along with a list of appropriate acronyms. More information regarding the Style Guide is provided in Section 5.0, Document Preparation. A draft Style Guide will be submitted to the County for review and comment. Once the County has approved the Style Guide, MRS will issue the Style Guide and Microsoft Word document templates to the project team.

The major task for the Administrative Draft EIR is analyzing the environmental issue areas identified in the NOP and the final scoping document. In the Administrative Draft EIR, each environmental issue area will contain the following major sections:

- Environmental Setting (Baseline);
- Impact and Mitigation Assessment (Project and Alternatives);
- Cumulative Impacts; and
- Mitigation Monitoring Plan.

The overall approach to the development of each of these major sections is discussed further in the following sections. Section 4.2 details the methodology that will be used for each of the issue areas.

#### **Environmental Setting**

For most issue areas, the baseline information is expected to be developed from previous studies in the area, including technical studies, field investigations, long-term monitoring activities,

regulatory requirements, other EIRs, and new studies as needed. The sources of information will likely include state and local agencies, reports prepared for the Applicant, and previous CEQA documents prepared within the study area. Where data gaps are identified, MRS will conduct further surveys and field investigations to fill those gaps. MRS assumes that some field surveys will be necessary to verify existing data and obtain data on the 9 additional seep can installations not included in the previous studies, including additional archaeological assessments for example, prepared by the Applicant.

The environmental setting section of the EIR will also include a regulatory setting section for each of the relevant issue areas.

MRS proposes to submit a draft of the environmental setting section of the EIR to the County for review and comment prior to the release of the Administrative Draft EIR (see Section 6.0, Project Schedule, for more information).

#### **Impact Assessments for the Project and Alternatives**

One of the most important tasks in evaluating impacts is developing a set of well-defined significance criteria (or environmental thresholds) for each of the issue areas evaluated in the EIR. MRS proposes to develop the significance criteria prior to the assessment of impacts and to agree on these with the County in advance. The significance criteria will be submitted along with the environmental setting sections. Where available, significance criteria will be based upon existing County environmental thresholds. Where criteria do not exist, they will be developed based on criteria used in previous EIRs or existing CEQA Guidelines. With well-defined criteria, the impacts can be classified in terms of significance with a greater degree of confidence. For this project MRS proposes to classify the impacts into the following categories:

- **Construction:** Impacts associated with construction activities;
- **Drilling:** Impacts associated with the drilling of wells; and
- **Operations:** Impacts due to the operation of new facilities including operation of the seep can installations.

The approach to the impact assessment for each issue area is discussed in more detail in Sections 4.2 and 4.3.

#### **Mitigation Measures and Residual Impacts for the Project and Alternatives**

One of the major goals of an EIR is identifying potential impacts and then developing reasonable, feasible, and effective mitigation measures to reduce the impacts to insignificance. During the course of preparing an EIR, mitigation measures are identified by issue area. Coordination between issue areas is important; otherwise mitigation measures in one issue area are not carried through into other issue areas to determine if any residual impacts exist. In order to facilitate the coordination of impacts and mitigation measures, MRS proposes a Mitigation/Engineering Coordinator to ensure consistency of the mitigation measures. MRS also

proposes a number of workshops with the project team to discuss impacts and mitigation measures. In addition, each issue area section will have a sub-section discussing the potential impacts of other issue area mitigation measures on that issue area. This approach assures that each mitigation measure is evaluated thoroughly and all the potential residual impacts are addressed for each of the issue areas. Recent court cases have emphasized the importance of examining the impacts not only of the proposed project, but also of the mitigation measures themselves.

For those impacts identified as significant, MRS will develop mitigation measures that will reduce the level of significance, if possible. The mitigation measures that MRS develops may be design changes, technology-based measures, new or revised management systems for project operation, or administrative procedures to ensure that certain processes or environmental conditions are carefully monitored. The mitigation measures will address primary and secondary impacts associated with the Project.

In the approach to evaluation of impacts, MRS will distinguish between impacts before and after mitigation. Significant impacts that cannot be mitigated to a level of insignificance will be categorized as Class I impacts. Class II impacts are those that are significant prior to mitigation, but can be mitigated to a level of insignificance. Class III impacts are adverse but not significant prior to mitigation. For Class III impacts, mitigation measures may be recommended if they could reduce the adversity of the impact. Class IV impacts are beneficial impacts.

#### **Cumulative Impacts**

The cumulative impact portion of the assessment is designed to address the cumulative impacts associated with reasonable, foreseeable projects within the study area. One of the first steps in the cumulative analysis will be to work with the County and other agencies in developing a cumulative projects list.

MRS proposes to work with the County and other responsible agencies to determine which of these projects should be included in the cumulative analysis. Using this information, a cumulative projects description will be developed, which will detail all projects on the cumulative list. The cumulative projects description will be submitted first to the County for review and approval, and then to the project team.

As an example, cumulative projects, such as the recently approved SME project proposed for the oil field to the immediate south of the proposed project area, could have overlapping impacts related to air quality and health risk and these will be assessed in the cumulatives analysis within the air quality issue area.

#### **Mitigation Monitoring Plan**

The mitigation measures and the mitigation monitoring plans developed for each issue area will be consolidated into a comprehensive mitigation monitoring plan. The monitoring plan will

identify all mitigation monitoring requirements placed on the County and other agencies and also the reporting requirements of the Applicant. The need for subsequent verification by on-site inspection will also be defined in the monitoring program, together with any post-construction monitoring that may be required to evaluate the effectiveness of the mitigation measures and a dispute resolution procedure in the event the monitoring program generates disputes between the relevant agency and the Applicant.

The mitigation monitoring and reporting plan will provide a list, by topic, of all proposed mitigation measures. For each measure, a summary will list the requirements of the proposed measure and what, if any, approvals are needed from various agencies. The plan will also include a table of the following information:

- Impact;
- Mitigation measure and ID number;
- Location;
- Action required by the Applicant;
- Monitoring or reporting mechanisms;
- Timing of mitigation measure implementation;
- Effectiveness/compliance criteria;
- Party responsible for verification;
- Method of verification; and
- Monitoring and reporting schedule.

These mitigation monitoring criteria will be developed for each mitigation measure in each issue area. The draft mitigation monitoring plan will be provided to the County at the same time as the Administrative Draft EIR. A summary of the plan will be included in the Executive Summary of the EIR.

MRS has extensive experience not only in preparing EIRs, but also in monitoring the effectiveness of the mitigation measures after the EIR is finalized and the project moves forward. Some examples include at the Inglewood Oil Field in Los Angeles (for the County of Los Angeles) and at the Chevron El Segundo Refinery Marine Terminal (for the California State Lands Commission). This "in-field" experience allows for the development of mitigation measures that are feasible and can be applied and monitored effectively.

#### **Comparison of Alternatives**

As required by CEQA, MRS will determine the environmentally superior alternative. The determination of the environmentally superior alternative will be performed by conducting a

comparative analysis of all issue areas of the mitigated impacts for each alternative evaluated throughout the document. Alternatives that are unfeasible, would not reduce significant impacts over the Project, or would not meet the Project objectives, will be dropped from further consideration and will not be included in the comparison of alternatives.

**Administrative Draft Deliverable**

MRS will provide the County with one reproducible unbound copy, three bound copies, and one electronic copy on compact disc, with files divided into chapters.

**4.1.6 Prepare Public Draft EIR**

Preparation of the Public Draft EIR will incorporate all of the comments received from the County on the Administrative Draft EIR and produce a “camera ready” copy of the EIR for final review by the County. Once the County has signed off on the “camera ready” document, MRS will be responsible for printing and mailing the Public Draft EIR. MRS will print bound copies of the Public Draft. (This number will be adjusted as needed; MRS will revise the cost estimates if the County determines that more or less copies are necessary.) These copies will be spiral bound. MRS will also provide the County with one unbound reproducible master copy and electronic copies on CD. MRS has a large-scale CD/DVD printer which enables the production of 100s of CDs if needed. MRS will work with the County to make sure that the Public Draft EIR is available online for download. As part of the mailing process, MRS will complete the Notice of Completion and file it with the State Clearinghouse.

**Public Draft Deliverable**

MRS will provide the County with one reproducible unbound copy, 25 bound copies, 25 electronic copies on compact discs, and one electronic copy on compact disc with files divided into chapters and in searchable pdf format.

**4.1.7 Prepare Public Hearing Summary Comments and Response to Comments**

MRS will also produce one reproducible unbound copy and one electronic copy of the comments received at the public hearing on the Draft EIR as well as the response to comments on the DEIR. The response to comments will also be included as an appendix in the FEIR.

**4.1.8 Prepare Administrative Final EIR**

At the close of the public comment period on the Draft EIR, MRS will prepare the Administrative Final EIR. This task involves preparing written responses to all the comments received on the Public Draft EIR and modifying the EIR document as needed to address the comments.

All the comment letters received on the Public Draft EIR will be numbered with unique codes. The Project Manager and the Issue Area Coordinators will assign responsibility for responding to the comments. The draft responses for each comment will be assembled into a Response to

Comments section that will be added to the EIR. The EIR will be modified as required by the comments. Areas of the EIR that are modified in response to the comments will be marked with revision marks. As needed, the Response to Comments section will guide the reader to changes in the EIR and to additional information in the EIR that addresses the comment.

MRS will submit an Administrative Final EIR to the County that includes all of the responses to comments, as well as all of the changes to the Public Draft EIR. This will allow the County to review the responses and confirm that the appropriate changes were made to the EIR. In developing the cost estimates for response to comments, MRS assumes that no new analyses will be required to prepare the responses to comments or the Administrative Final EIR.

**Administrative Draft Deliverable**

MRS will provide the County with one reproducible unbound copy, three bound copies, and three electronic copies on compact discs with files divided into chapters.

**4.1.9 Prepare Proposed Draft Final EIR**

Preparation of the Proposed Final EIR will incorporate all of the comments received from the County on the Administrative Final EIR; the Proposed Final EIR will also include the Response to Comments section. MRS will produce a “camera ready” copy of the EIR for final review by the County. Once the County has signed off on the “camera ready” document, MRS will be responsible for printing and mailing the Proposed Final EIR. MRS will be responsible for printing bound copies of the Proposed Final. These copies will be spiral bound. MRS will also provide the County with one unbound reproducible master copy and a reproducible electronic copy on CD. MRS will also work with the County to make sure that the Proposed Final EIR is available online for download. As part of the mailing process, MRS will complete the Notice of Determination and file it with the State Clearinghouse. MRS will also work with the County to assure that the filing fees are filed with the California Department of Fish and Wildlife.

**Final Draft Deliverable**

For the Draft Final MRS will provide the County with one reproducible unbound copy, 20 bound copies, 20 electronic copies on compact discs, and two electronic copy on compact disc with files divided into chapters. For the Final EIR MRS will provide the County with one reproducible unbound copy, five bound copies, one electronic copy on compact discs, and two electronic copies on compact discs with files divided into chapters.

**4.1.10 Public Meetings and Hearings**

In developing the costs for this project, MRS assumed that team members will participate in three public meeting/hearings/workshops. MRS will be responsible for developing presentations for these meetings/hearings/workshops. MRS will also be responsible for developing the agenda for all of the public meetings and documenting the results.

The MRS team will attend (and assist County in planning & coordinating ) one public workshop, designed for informal Q&A centered around key environmental issues (air quality and biological resources). Public workshops are valuable for helping the public in understanding the EIR and are generally held near the project site (in Santa Maria) after the DEIR has been issued.

MRS will be available at the County's discretion for the possibility of additional workshops in smaller settings as part of the scoping process and/or DEIR outreach. MRS has assumed that the County will be responsible for recording and transcribing the meetings, if needed, for the official record.

This proposal also assumes that MRS staff will be available for an initial kick-off meeting at the project site and 4 meetings during the course of the project at the Santa Barbara County P&D offices.

#### **4.1.11 Assistance with Findings/Staff Reports**

MRS included time to assist the County with the preparation of various sections of staff reports. The sections where MRS will provide assistance to the County include CEQA and policy findings, conditions of approval, EIR certification resolution, and any statement of overriding consideration.

## **4.2 Issue Area Study Methodology**

The remainder of this section presents the proposed approach and study methodology for each of the issue areas.

### **4.2.1 Air Quality**

This section presents the scope and approach for assessing potential air quality impacts associated with the Project, alternatives, and cumulative projects.

#### **General Approach and Methodology**

The general approach to the air quality assessment will be to focus on both baseline conditions and impacts associated with the Project and alternatives in accordance with requirements and guidelines established by the County and the Santa Barbara County Air Pollution Control District (SBCAPCD). The Applicant has prepared studies addressing the criteria, toxic and GHG emissions and these will be assessed for the inclusion of all emissions sources, the use of the correct equations and emission factors and the appropriate approach. MRS will assess both short term construction emissions and long term emissions from the operation of the proposed project. Construction emissions include those associated with the development of the new wells/equipment sites (grading, cut/fill movement), installation of new oil wells, and proposed pipelines. Long term operational emissions would result from the operation of the new cyclic steam wells, increased operations of project related equipment (both baseline and new equipment), increased operations at the three existing steam fired generators, emissions from



potential new seep cans, and increased emissions from the existing tank battery due to increased throughput.

MRS will assess the potential impacts from emissions of criteria pollutants against the criteria specified in the County *Environmental Thresholds and Guidelines Manual* and applicable SBCAPCD criteria, as well as State and Federal ambient air quality standards. MRS will seek guidance from the SBCAPCD on the assessment of impacts from any toxic air pollutant sources that are identified. Regulations ensuing from the Clean Air Act Amendments of 1990 will also be considered. MRS will develop mitigation measures in accordance with the current SBCAPCD Rules and Regulations, the County's grading ordinance, Clean Air Plan, and CEQA Handbook. MRS will review the Applicant studies to ensure toxic emissions and impacts use the California Air Resources Board (CARB) models and methods and submittals to the SBCAPCD associated with the Project. Emission equations and emission factors associated with the CalEEMod program, version 2013.2.2, and EMFAC2011 (for mobile sources) will be assessed.

MRS's analysis will consist of reviewing the project and alternative development scenarios, developing emissions inventories for these scenarios, modeling the impacts where appropriate, and developing mitigation measures for the significant impacts. MRS will then develop a mitigation monitoring plan for the mitigation measures. Analysis of cumulative impacts will consider future activities at the affected facilities and other projects in the area.

#### **Baseline Environmental Setting**

MRS will characterize the existing air quality and meteorological conditions to provide an environmental setting that the Project emissions will impact. The existing and projected air quality will be described for the area. The attainment status in regards to the Ambient Air Quality Standards, particularly for ozone (for State and Federal standards) and particulate matter (for State standards), will indicate the area's most sensitive to increases in ambient concentrations of the air pollutants.

The environmental setting will include characterization of the area with regard to the existing air quality, the regional meteorology, and the applicable air regulations. Much of this information has already been compiled in the following technical report prepared for the project by the applicant:

- *ENVIRON International Corporation, 2013: Air Quality Technical Report, PCEC Orcutt Hill Resource Enhancement Plan (OHREP).*

As noted in Section 4.1.4 above, MRS will peer review the Air Quality Technical Report for adequacy and technical accuracy and update and refine existing data as it applies to this Project.

MRS will review Federal, State, and county air quality regulations to identify those items that apply to the Project, based on the preliminary issues identified in the RFP and other potential

issues such as toxic emissions. MRS will identify pending regulations that might affect the Project through discussions with regulatory agencies.

MRS will prepare a detailed description of the baseline air pollutant concentrations and trends in the region based on data from local air quality monitoring stations. Data from the SBCAPCD air monitoring station network will be utilized and regional toxic air contaminant concentrations and trends will also be characterized based on available data from the SBCAPCD. These various sources will be aggregated into a comprehensive database to characterize site-specific background conditions for pollutants.

The baseline will also include an assessment of the potential for odor and an assessment of violations and complaints at other oil fields and an analysis of the potential sources of odors and their frequencies. This analysis may lead to mitigation measures, which would reduce the potential for odors.

### **Impact Assessment of the Project and Alternatives**

The development of technically sound emissions inventories for the Project will be one of the most important aspects of the air quality assessment. Emissions from all equipment used in construction and operations, including pumps, compressors, mobile equipment, fugitive dust and other miscellaneous sources, will be estimated using the appropriate emission factors from the SBCAPCD, EPA's AP-42, and ARB emission factors as well as the CalEEMod version 2013.2.2 program. For any source of toxic air contaminants, MRS will estimate emissions using the appropriate ARB or EPA emission factors and source speciation profiles and the CAPCOA Technical Guidance document developed for estimating toxic emissions for the Hot Spots program and the EPA Superfund Guidance documents.

MRS will also assess emissions of green-house gasses for all construction processes and operations utilizing the CARB Mandatory reporting requirements, CalEEMod and other sources as needed. Estimates of GHG emissions have already been compiled by the Applicant in their studies.

Air quality modeling related to operational inert, non-toxic pollutants is not anticipated based on the fact that the new oil well motors would be electric driven. However, if any given segment or phase of the Project exceeds the County emissions significance threshold or appears to impact sensitive receptors, air quality modeling will be utilized to establish the potential significance of the activity.

MRS will review the Applicant analysis for toxic emissions using the most recent version of the Hotspots Analysis and Reporting Program (HARP) developed by CARB for the stationary facilities. Meteorological conditions, emission factors, and emission sources' parameters (e.g., stack dimensions, gas velocities, exhaust temperatures, equipment coordinates) used in the modeling will be developed.

### **Seeps**

The EIR will review the air quality calculations and impact assessment of the seep can installations contained in the *Air Quality Technical Report, PCEC Orcutt Hill Resource Enhancement Plan* and conduct additional calculations and assessment for any seep cans that were installed subsequent to the completion of the report or that may develop in the future.

### **Greenhouse Gases**

MRS will assess emissions of greenhouse gasses (GHG) for all construction activities and operations. Much of this information has already been compiled in the following technical report prepared for the project by the applicant:

- *ENVIRON International Corporation, 2013: Climate Change Technical Report, PCEC Orcutt Hill Resource Enhancement Plan.*

As noted in Section 4.1.4 above, MRS will peer review the Climate Change Technical Report for adequacy and technical accuracy and update and refine existing data as it applies to this Project. GHG emissions will be quantified in the same manner as criteria pollutants, with emission factors and tabulated in columns. Regulatory requirements will address recent GHG emission regulation, such as AB 32 and developments at the SBCAPCD. MRS will address GHGs including carbon dioxide (from combustion), methane (from combustion and fugitive emissions), nitrous oxide, and hydro fluorocarbons. MRS will also assess GHG emissions from both direct (located on-site) and indirect (from mobile sources and electricity generation) sources and will address life-cycle issues such as transportation.

The Applicant calculations indicate the current annual GHG emissions total about 57,000 MTCO<sub>2e</sub>, with the proposed project adding about 42,000 MTCO<sub>2e</sub> in 2020 (mostly from steam generation). This places the field activities within the CARB Cap-and-Trade program. The Applicant analysis utilized a BAU approach that may not be applicable at this time. With the recent Supervisors decision on the SME project and activities by both the SBCAPCD and the County P&D in developing guidance for assessing GHG impacts, the determination of the thresholds for GHG and the associated mitigation measures will need to be closely coordinated with the County and the APCD. MRS has a good working relationship with the SBCAPCD and coordination with both agencies on this important issue are will be critical. Assessment of a number of factors, including; the carbon intensity of the crude oil produced; the role of the existing Monterrey production; the use of field gas and flaring; all play in to the complicated analysis of GHG emissions and the assessment of impacts. MRS has extensive experience in GHG assessments.

### **Mitigation Measures**

MRS will quantify impacts associated with both temporary construction and long-term operational activities. For significant impacts, emissions from the Project will need to be mitigated. Generally, for non-attainment pollutants, mitigation measures will be based on the

guidance by the County and the SBCAPCD, the County grading ordinance and recently prepared EIRs for similar projects (particularly related to GHGs). The EIR will include a discussion of feasible mitigation measures to reduce or offset GHG emissions.

### **Cumulative Impacts**

Cumulative air quality impacts associated with other projects in the area are of primary interest to County regulators and planners especially with the stringent requirements for emissions controls required in non-attainment areas under the California Clean Air Act. MRS will estimate cumulative emissions for pollutants for all proposed projects in the vicinity of the Project. These emissions will be obtained from previous EIR/EIS documents for similar projects, permits issued by the County and the SBAPCD, and the recent Clean Air Plan. Inquiries will be made with regulatory agencies to identify any proposed projects for the area, particularly for the SME Project approved to the immediate south of the project site.

### **4.2.2 Biological Resources**

This section presents the scope and approach for assessing the biological impacts of the Project, alternatives, and cumulative projects.

#### **General Approach and Methodology**

The biological resources analysis will begin with a comprehensive review of all relevant background materials including those related to sensitive habitats or species that might be impacted by the Project. This will include peer review of the technical study listed below prepared on behalf of the Applicant in support of the Project.

- *Sage Institute, 2013: Orcutt Hill Resource Enhancement Plan Biological Assessment (both the Biological Assessment and the Seeps Biological Assessment).*

MRS biologists will conduct two to three days of field reconnaissance-level surveys of the Project site to field truth the existing conditions information found in the Sage Biological Assessment. Additional information will be obtained, if necessary, from the California Natural Diversity Database (CNDDDB), California Native Plant Society (CNPS), California Department of Fish and Game (CDFG), U.S. Fish and Wildlife Service (USFWS), regional conservation planning documents, and existing biological resource documentation for other local projects. The reports will be evaluated for general content, accuracy, and consistency with local, state, and federal regulatory requirements.

The Biological Resources section of the Draft EIR will contain a description of the site's biological attributes (derived largely from the background review as noted above), as well as individual narratives on the current status of sensitive and special status plants, animals, and habitats, if any.

Field verification will confirm the accuracy of resource maps and identify the need for additional or revised mapping. Additional mapping is not included in the scope of work for this proposal.

### **Baseline Environmental Setting**

The environmental setting will provide adequate information to accurately and comprehensively address potential Project impacts, but rely on existing information to the maximum extent feasible. Existing information will be augmented by a broader background search for relevant sources of information, which may include other environmental studies in the Project area, searches of museum collections, consults with local biologists familiar with the flora and fauna of the project area, and a more current review of the California Natural Diversity Database. Consultation with state and federal wildlife agencies (California Department of Fish and Wildlife, U.S. Fish and Wildlife Service) will be made as appropriate on specific issue areas such as wetlands and State and Federal listed species.

Biological resources include terrestrial habitats and biota, including sensitive and non-sensitive vegetation communities, plants, and wildlife. The baseline conditions will include a discussion of biological resources including oak trees, oak woodland, native grassland habitat, Waters of the U.S., central maritime chaparral, southern bishop pine forest, sensitive plant species, and sensitive wildlife species that will include at the least, California tiger salamander, legless lizards, coast horned lizards, migratory bird nesting, and raptors.

Central maritime chaparral is a natural community of special concern and supports several sensitive plant species that could be located anywhere this community is present. MRS biologists will field check the Sage habitat mapping to ensure that this and other sensitive communities are appropriately portrayed in habitat mapping and subsequent impact calculations.

### **California Tiger Salamander (CTS)**

CTS breeding pond (ORCU-12) is located within 2,200 feet of portions of the proposed Project. Garcia & Associates biologists will field truth data provided by Sage and will pay special attention in the field to assess the topography, vegetation communities, presence of small mammal burrows, and other constituent elements of CTS habitat in the area of the proposed project to adequately assess impacts to this federally listed species. Prior to conducting a field survey, Garcia & Associates will review available data base and literature relevant to the project. Such sources would include the California Natural Diversity Data Base (CNDDDB), the U.S. Fish and Wildlife Service (USFWS) 2010 CTS map, the Biological Assessment report prepared by Sage Institute, and other applicable reports.

During the field investigations, Garcia & Associates will review the project site (including all facilities and areas of disturbance that are part of the project), focusing on the suitability of habitat for CTS. Habitats on and near the project site would be described, including the amount and type of existing human-caused disturbances. The relative amount of small mammal burrows (potential upland habitat for CTS) would be assessed. Habitats and topography between the site

and CTS ponds within 1.4 miles would be evaluated and described. Representative photos would be taken.

**Impact Assessment of the Project and Alternatives**

The EIR will include a thorough discussion of potential impacts to biological resources that could result from the proposed actions, including impacts to areas along the proposed connecting oil pipeline corridors. Direct, indirect, and cumulative impacts will be analyzed consistent with criteria set forth by CEQA. MRS will discuss impacts in context with local land use policies and ordinances. Both short- and long-term impacts to biological resources will be considered for all four phases of the Project. The analysis will specifically focus on Project actions, including operation and maintenance of the oil field. An evaluation of monitoring and maintenance components of the Project will determine the possibility of long-term impacts.

Project alternatives will be individually evaluated and compared in terms of their relative impacts, both deleterious and beneficial, to biological resources. A discussion of the disadvantages and merits of each alternative will be provided. The biological assessment will also serve as input to develop a potential alternative related to a consolidated area, if applicable or possible, in order to minimize the impacts to biological resources.

A discussion of residual impacts of the Project that are expected to remain after implementation of recommended mitigation measures will be included.

**Seeps**

The EIR will review the survey and impact evaluation of the seep can installations contained in the *Orcutt Hill Resource Enhancement Plan Seeps Biological Assessment*, conduct additional surveys and impact evaluations for the seep can installations not contained in the previous assessment, and discuss the potential for future oil seeps and seep can installations to impact Biological Resources.

**Mitigation Measures**

Mitigation proposed as part of the Project design will be evaluated for adequacy, efficacy and consistency with accepted standards. MRS will develop additional measures designed to avoid or offset significant impacts to biological resources as necessary. Mitigation measures will be consistent with the planning and land use documents adopted by the County including the *County Environmental Thresholds and Guidelines Manual* and *Guidelines for the Implementation of the California Environmental Quality Act of 1970*. A discussion of residual impacts of the Project that are expected to remain after implementation of recommended mitigation measures, if any, will be included.

Measures to improve or enhance site restoration, habitat rehabilitation, and resource management plans will be included as mitigation, as appropriate.

### **Cumulative Impact Assessment**

Cumulative impacts will be evaluated from local and regional perspectives. Development projects approved, pending, or planned for the Project area will be considered in the cumulative impact analysis. The County planning division will be contacted regarding projects in the vicinity.

#### **4.2.3 Hazardous Materials/Risk of Upset**

This section presents the scope and approach for assessing potential safety and public risk impacts associated with the Project, alternatives and cumulative projects.

#### **General Approach and Methodology**

The Project would increase the number of potentially hazardous activities to the area by increasing the number of wells and the introduction of new equipment. A baseline data set to be used for the hazardous materials/risk of upset analysis (i.e., Risk Assessment) will be developed in collaboration with existing subject data. The Risk Assessment will evaluate the potential changes in risk associated with the proposed activities and alternatives. The analysis will utilize established risk guidelines to evaluate the significance of potential incremental risk increases/decreases associated with the Project and alternatives. The analysis will focus on evaluating the proposed production, processing, and storage, use and transportation of hazardous materials.

Assessment of Risks will include consideration and factors associated with human behavior, safety culture and potential mitigating effects of a safety and environmental mitigation program (SEMP).

The significance of potential impacts will be quantified using significance criteria for public safety. These criteria would be used for potential toxic exposure, fires, and explosions as well as transportation risk. Santa Barbara County adopted Public Safety Thresholds in August, 1999. The thresholds provide three zones – green, amber, and red – for guiding a determination of significance or insignificance, based on the estimated frequency and consequences of an accident. In addition, a Safety Element Supplement was adopted in February 2000 (Board of Supervisors Resolution 00-56) covering hazardous materials (Santa Barbara County 2000). The objective of the Safety Element is to define unacceptable risk in a manner that guides consistent and sound land-use decisions involving hazardous facilities. As part of this objective, the County has defined criteria applicable to new development as well as modifications to existing development if those modifications increase risk. MRS will evaluate the proposed project impacts with the criteria above and if potentially significant impacts are identified, mitigation measures will be proposed, where possible, to reduce the impact to a level of insignificance.

#### **Seeps/ Supplemental Pollution Control Plan**

The Hazardous Materials/Risk of Upset section will address the potential impacts associated with the past and potential future installation of oil seeps and seep can installation. MRS will assess

the draft Supplemental Pollution Control Plan (Plan) developed by the Applicant for the approach on procedures and protocols for monitoring, assessing, controlling, and reporting of seeps for County review and comment. The Plan should include the existing seeps/seep can installations and procedures for potential future seeps. MRS will assess the coordination of the Plan with the County, California Department of Oil, Gas and Geothermal Resources (DOGGR), California Department of Fish and Wildlife (CDFW) and PCEC to ensure the Plan addresses the environmental and permitting requirements of the relevant agencies and is consistent with the technical feasibility of PCEC operations.

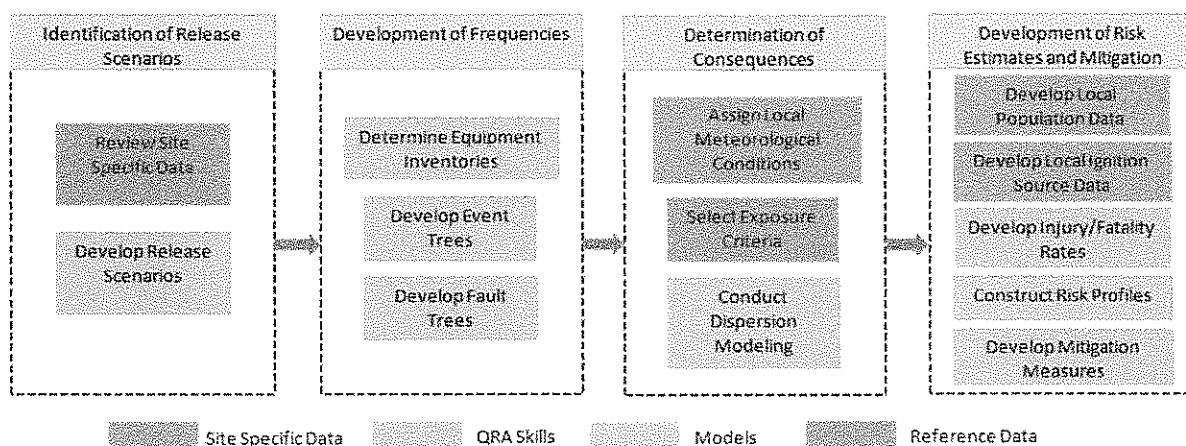
**Impact Assessment of the Project and Alternatives**

The risk of upset section has been divided into two parts. The first part addresses the risks associated with the proposed facility and the impact of upset scenarios on nearby sensitive receptors (e.g., residences, schools and hospitals); the second part addresses increases in risks due to oil spills associated with seeps and crude oil transportation.

Risks Associated with Facilities

In order to establish the baseline risk for the proposed facilities, MRS will assess the potential for the project site activities to produce offsite impacts. If offsite impacts are possible, MRS will conduct a QRA according to the recommendations of the Center for Chemical Process Safety and the Health and Safety Executive of the United Kingdom. These guidelines have been used before as the basis for other QRAs conducted for oil and gas facilities in Los Angeles County. Figure 4-1 shows the steps involved in developing a QRA.

**Figure 4-1 Steps Involved in Developing a Quantitative Risk Assessment**



The development of the QRA will involve five major tasks:



- Identifying release scenarios;
- Developing probabilities of occurrence for each release scenario;
- Determining the consequences of each release scenario;
- Developing risk profiles for the proposed facilities; and
- Developing risk-reducing measures.

At this time, it does not appear that a QRA will be needed as all of the field components are located far enough away from sensitive receptors.

#### Risks Associated with Oil Releases

Oil releases into the environment can produce impacts to biological resources as well as hydrological resources. Releases could be associated with accidental scenarios where piping ruptures. Although seeps are not technically classified as a releases as per DOGGR, they can impact biological or hydrological resources in the area. Increases in crude oil production levels would increase the potential spill sizes if a pipeline rupture were to occur. Increases in seep activity could increase the potential for impacts to biological or hydrological resources. These impacts will be assessed in both the risk of upset issue area and the biological and hydrological issue areas.

#### **Mitigation Measures**

MRS will propose mitigation measures for each hazard that has the potential to impact public safety or increase the volume or frequency of crude oil releases. The mitigation measures will be evaluated in terms of feasibility, adequacy, and, most importantly, effectiveness. Risk-reducing measures may include setbacks from residential areas to ensure that the receptors are outside of the thermal or vapor cloud impact zones; automatic shut-off valves; leak detection systems; hydrogen sulfide ambient detection and shutdown systems or drilling protection measures such as drilling flares.

#### **Cumulative Impacts**

The cumulative impact analysis will consider future oil and gas development projects, as well as the expansion of existing oil and gas facilities in the region. While unlikely, the cumulative analysis will also evaluate the cumulative risk associated with future development in the immediate vicinity (i.e., any location where potential risks can overlap). As an example, the SME project proposes installing a pipeline in the area. If additional crude oil were to be transported and a spill could affect the same drainages, there could be cumulative impacts and these would need to be examined.

#### 4.2.4 Historic Resources

This section presents the scope and approach for assessing impacts for historic and archeological resources on the Project, alternatives, and cumulative projects.

##### **General Approach and Methodology**

To evaluate historic resources as required by CEQA for the Project, MRS will peer review the following reports prepared by the applicant for the project for completeness and technical accuracy:

- *Statistical Research, Inc., October 2013: Archaeological Resource Inventory and Impact Assessment (Technical Report 13-68);*
- *Statistical Research, Inc., October 2013: Report on Recordation and Evaluation of Archaeological Resources at Seep Can Locations on Pacific Coast Energy Company LP Property in the Orcutt Hill Area, Santa Barbara County, California (Technical Report 13-75).*

MRS will complete additional background research and undertake site inspections to augment the previous studies as necessary to determine potential Project impacts. Specifically, MRS will complete archaeological assessments on the 9 seep can locations that were not included in the technical report noted above.

##### **Baseline Environmental Setting**

MRS will review the above technical reports to confirm the environmental setting discussion provides adequate information to accurately and comprehensively address potential Project impacts. If necessary, existing information will be augmented by a broader background search for relevant sources of information, which may include other studies in the Project area.

##### **Impact Assessment of the Project and Alternatives**

As part of the peer review of the existing reports, MRS will make a determination on the conclusions of the Phase I archeological survey completed for the proposed Project. MRS will contact the County should results of the peer review of the existing documentation or the analysis of the additional seep can locations result in a determination of the potential for significant impacts to historic or archaeological resources contrary to the less than significant potential determination of the existing documentation.

##### **Seeps**

As noted above, MRS will conduct additional archaeological assessments on the 9 seep can locations that were not included in the previous technical report. The EIR will also address the potential for future oil seeps and seep can installations impacts on Historic Resources.

##### **Mitigation Measures**

MRS acknowledges the existing documentation has determined the proposed Project and existing seep can locations would not have a significant potential to result impacts to historic or

archaeological resources. Should the analysis for the 9 seep can locations not included in the previous studies reach the same conclusion, mitigation measures may not be necessary. However, should the peer review of the existing documentation or the additional studies determine the potential for a significant impact, MRS will develop mitigation measures to treat significant archaeological resources that cannot be feasibly avoided by the Project activities. Development of mitigation measures will be consistent with the guidance provided in the County's *Environmental Thresholds and Guidelines Manual* and *Guidelines for the Implementation of the California Environmental Quality Act of 1970* documents.

Likewise, cumulative cultural resources impacts resulting from the Project in combination with similar past, present, and probable future projects in the vicinity will be considered. All analysis will be summarized in the Technical Report and appropriate EIR sections.

### 4.2.5 Geologic Processes/Geologic Hazards

To evaluate geologic processes/geologic hazards as required by CEQA for the Project, MRS will peer review the following report prepared by the applicant for the project for completeness and technical accuracy:

- *AMEC Environment & Infrastructure, Inc., July 2013: Report of Geologic Evaluation for Environmental Impact Report, Proposed Orcutt Hill Resource Enhancement Plan Project, Orcutt Oilfield.*

This section presents the scope and approach for assessing potential soils and geological resources impacts associated with the Project, alternatives, and cumulative projects.

#### **General Approach and Methodology**

The *Report of Geologic Evaluation for Environmental Impact Report* will be reviewed and evaluated to assess hazards ranging from seismic regime to expansive soils at the Project site.

Geologic hazards at the site may include liquefaction, lateral spreading, seismic settlement, and high groundwater along areas within tributary and alluvial basins.

MRS will review other available reports prepared for the site and surrounding area to assess the regional and local geologic conditions. Available published geologic and geotechnical data for the site and surrounding area available from the State and other sources will be reviewed and assessed. In addition, MRS will perform, if needed, a detailed site reconnaissance to assess available and existing conditions.

Upon completion of the analysis, MRS will prepare a technical section for the CEQA documentation and Special Environmental Studies related to the Project addressing all geologic and geotechnical Hazards, potential impacts and available mitigation measures.

### **Baseline Environmental Setting**

The baseline environmental setting will include the following:

- Review of published geologic and topographic maps, published geologic reports, the Santa Barbara County Seismic Safety and Safety Element, other EIRs completed for projects in the vicinity of the site, and a recently prepared, site-specific geology report by AMEC (2013);
- Description of the regional and local geologic setting, including stratigraphy, soils, faulting, and earthquakes; and
- Characterization of natural and steam injection induced oil seeps to form a basis for analysis in other issue areas such as water quality and air quality.

### **Impact Assessment of the Project and Alternatives**

A detailed analysis of impacts associated with facility expansion and extension of ongoing operations will be provided. No geologic impacts are anticipated with respect to normal operating conditions. However, increasing production would extend the risk of geologic hazards, resulting in potential upsets of the facilities.

Potential geologic hazards, such as seismically induced ground shaking and erosion will be discussed in general terms with respect to potential infrastructure failure. We will base this assessment on probabilities of infrastructure failure derived by the Hazardous Materials/Risk of Upset assessment for the EIR.

Proposed increased production from the existing facility could result in oil spills due to seismically induced ground failure or other geologic hazards, such as corrosion or excessive erosion. Remediation of such spills would, in turn, potentially cause soil erosion-induced water quality impacts to water courses. Similarly, grading for proposed drilling pads, multiphase booster pad, pipeline corridors, and access to new potential surface expressions of oil could potentially cause soil erosion-induced water quality impacts.

The criteria that will be used to determine whether the proposed project has the potential for significant geologic impacts will be the Notice of Preparation.

Examples of impacts that will be addressed include:

- Affects from several potentially active and active faults in the project region; and
- Potential for construction to increase slope failures and cause erosion induced sedimentation of on-site and downstream creeks and drainages.

The assessment of probabilities of infrastructure failure derived by the Hazardous Materials/Risk of Upset assessment will be included in the EIR. Expanding the production facilities will also require continued monitoring and pipeline replacement activities. The impacts assessment will therefore include an evaluation of pipeline and production facility upgrade “dig-ups” due to damaged pipeline sections, or soil remediation due to infrastructure spills. Potential impacts will also include those associated with erosion from removal of vegetation, and the excavation of contaminated sediments.

Flooding and water quality impacts related to potential petroleum related spills and leaks, including naturally occurring oil seeps, will be addressed in the Water Resources section.

### **Mitigation Measures**

MRS will develop mitigation measures to reduce impacts associated with geologic hazards or topographic alteration as needed. Mitigation for reducing the effects of significant impacts will also be developed emphasizing reinjection of produced water to control potential subsidence, conveyance of surface water runoff during operations, and establishment of erosion control measures such as silt fences to minimize sedimentation entering nearby drainages.

### **Cumulative Impacts**

Cumulative impacts to geological resources associated with the Project and other foreseeable projects also will be evaluated. Possible sources of impacts will be similar to those associated with the Project; however, the severity of the impact may be altered by the influence of other existing or planned projects. Given the local nature of the geological impacts of the Project it is likely that few cumulative impacts will be identified.

### **4.2.6 Fire Protection and Emergency Services**

This section presents the scope and approach for assessing the potential fire protection and emergency services impacts associated with the Project, alternatives, and cumulative projects.

#### **General Approach and Methodology**

Facility equipment and fire suppression systems will be evaluated for the Project and alternatives. The risk of upset analysis (i.e., Risk Assessment) discussed in the Safety, Risk of Upset, and Hazards section will be used to evaluate potential scenarios that could require the use of fire suppression equipment, or impact processing equipment, and ultimately place additional demands on fire protection or emergency services.

Mitigation measures will be developed to reduce potentially significant impacts to a level of insignificance.

#### **Baseline Environmental Setting**

The baseline will discuss the current emergency response times and capabilities that exist to respond to a fire, oil spill or any other emergency. In addition, the area is classified as a High Fire Hazard area for wildfire risk.

### **Impact Assessment of the Project and Alternatives**

The impact section will be coupled closely with the risk of upset impact section and the traffic and circulation impact section. The results from the risk of upset analysis will provide an estimate of the increased risk of a fire, explosion, oil spill, or other emergency that could result from facility operations. The analysis will also provide information on the hazard zones associated with potential accidents. MRS will examine all new equipment to assure there is adequate spacing to help prevent fires and impacts on adjacent equipment. The risk of upset section will also look at the maximum oil spills, including those from oil seeps, and address the adequacy of containment systems. As part of the fire protection services analysis, MRS will address compliance with API guidelines and NFPA requirements, with a particular focus on the adequacy of the fire suppression systems, include adequate firewater supplies. MRS proposes to work closely with the County Fire Department in developing this analysis including a review of any fire protection plans that addresses the fire protection equipment, hydrant and water availability locations, and hazardous material storage sites.

In addition, issues related to wildfire risks, including setbacks, brush clearance and maintenance related to brush clearance, will be addressed.

The significance of potential impacts will be qualified using significance criteria that focus on compliance with NFPA requirements and API guidelines and the ability to adequately respond to an emergency.

### **Mitigation Measures**

If potentially significant impacts are identified, mitigation measures will be proposed, where possible, to reduce the impact to a level of insignificance. MRS will identify practical, feasible measures to mitigate the adverse impacts of the Project and alternatives on fire protection and emergency services. For each measure, a discussion will be provided as to whether the mitigation measure would, by itself or in concert with other proposed measures identified in this analysis, fully or partially mitigate the impact it addresses. Mitigation measures will be developed in consultation with the County and responsible agencies as appropriate.

### **Cumulative Impacts**

MRS will determine whether other projects may coincide with facility construction and operational activities and thereby increase demand for fire protection and emergency services. Cumulative long-term impacts will also address future activities in the Project area. Potential long-term impacts will ultimately depend on the location and time frame associated with the cumulative projects.

#### **4.2.7 Water Resources**

This section presents the scope and approach for assessing potential hydrology and water quality impacts associated with the Project, alternatives, and cumulative projects.

### **General Approach and Methodology**

MRS will identify the proposed project water use, both for drilling of the new wells and for operation of the cyclic steaming process, and recommend mitigation for the Project. The analysis will assess the impacts of the Project on the groundwater, surface water, and hydrologic characteristics of the surrounding area.

### **Baseline Environmental Setting**

The baseline section will provide a description of the groundwater and surface water features within the vicinity of the Project and identification and mapping of significant drainage courses and watersheds in the study area. Information will also discuss the stormwater runoff patterns of the proposed development site.

The baseline environmental setting will describe the following:

- Regional and local hydrologic setting, including the encompassing watersheds, groundwater, surface water runoff, and general water quality;
- Review of published hydrologic maps, published geologic/hydrologic reports, as well as resources available at the County of Santa Barbara; and
- Field reconnaissance by the geologist to supplement the results of the background research that will characterize surficial variables such as topography, areas of previous grading and spoils, and location and surface condition of drainages and creeks.

The criteria that will be used to determine whether the proposed Project has the potential for significant onshore water quality impacts will be based on the Notice of Preparation.

### **Impact Assessment of the Project and Alternatives**

This section of the EIR will assess project specific impacts; specifically, changes in impacts to water resources and drainage associated with construction and operation of the Project, including surface and groundwater quality, drainage, flood hazards, and impacts associated with contaminated soil from surface expressions or seeps.

Oil and gas production, processing, and transport could result in oil spills due to geologic hazards, mechanical failure, structural failure, or human error. Such spills could potentially result in water quality impacts to creeks and shallow groundwater.

Drilling of the proposed new wells and re-drills would require approximately 300 barrels (0.038 acre feet) of freshwater per well, resulting in a water demand of approximately 5.5 acre feet, which would be secured from two off-site private wells owned by Pacific Coast Energy Company (PCEC) and transported through existing pipelines. Cyclic steam operations use an average of 7,000 barrels of recycled brine water per day from existing oil field operations for

steam production. Therefore, the project would not result in an increase in fresh water use for steam production. These water supply issues will be addressed in the EIR.

The impact analysis will focus on 1) water supply impacts and 2) water quality impacts associated with oil production, processing, and transportation activities. Proposed increases in drilling and oil production could increase the risk of potential upsets of components of the facility and increase the risk of adverse water quality impacts to groundwater and creeks. The analysis will include:

- A discussion of water supply and demand related to drilling and steam production;
- Potential for violation of water quality standards (surface or groundwater) as a result of crude oil spillage resulting from natural (i.e., corrosion, weathering, fatigue, or erosion) or manmade alteration of the facilities; and
- A discussion of a proposed Supplemental Stormwater Pollution Prevention Plan, which would establish procedures and protocols for monitoring, assessing, controlling, and reporting surface expressions and seeps.

Erosion and potential siltation of onsite and downstream creeks will be addressed primarily in the Geological Resources section.

### **Seeps**

The Careaga sandstone overlies the Diatomite formation at the site. Steam injection has resulted in oil being pushed to the ground surface, creating surface expressions of oil from the Careaga sandstone. In addition, the area is prone to naturally occurring seeps, which are generally low energy, non-eruptive, non-explosive leakage, which result in slow oil seepage to the ground surface generally from the Careaga formation. The oil associated with these seeps or surface expressions has been localized and has in some cases drained into dry gullies or channels. PCEC has constructed 93 seep cans, which act as sumps in which the seeping oil can be contained and from which the oil can be pumped to production facilities. French drains feed some of these seep cans. PCEC has modified their drilling and steam injection parameters, leading to a reduction in the number of new seeps developing. These surface expressions, if not contained properly, could possibly migrate to nearby creeks and drainages, creating potentially significant water quality impacts. This water quality issue will be addressed in the EIR.

### **Mitigation Measures**

MRS will provide a discussion of mitigation measures that could be imposed on the Project to minimize potential impacts related to hydrology and water quality. At a minimum, a combination of structural and non-structural Best Management Practices during construction and operation of the Project would be implemented, such as:

- Erosion and sedimentation control;



- Good housekeeping;
- Litter management;
- Compliance with construction and industrial stormwater permit;
- Dust control; and,
- On-site detention for peak flows.

Further, the EIR would utilize the existing project's Storm Water Pollution Prevention Plan (SWPPP) to assess the potential impacts of the proposed project.

### **Cumulative Impacts**

MRS will assess the potential cumulative hydrology and water quality impacts associated with the Project and other identified development projects recently completed, planned, or reasonably foreseeable in the area.

### **4.2.8 Aesthetics and Visual Resources**

This section presents the scope and approach for assessing the potential aesthetic and visual resources impacts of the Project, alternatives, and cumulative projects.

#### **General Approach and Methodology**

The proposed Project is not expected to cause significant impacts to aesthetics or visual resources. The proposed Project is located entirely within the Orcutt Oil Field and is not generally visible from adjacent public roads such as Highway 101. The nearest residence is approximately 1.4 miles north of the Project area. MRS will provide a summary analysis documenting the requisite components of an EIR pursuant to CEQA requirements for aesthetic and visual resources.

#### **Baseline Environmental Setting**

MRS will document the baseline environmental setting and include photographs from applicable public viewing locations. MRS will describe the existing visual environment based on a standardized and widely-accepted federal visual resource management methodology.

#### **Impact Assessment of the Project and Alternatives**

MRS will review the Project for impacts to aesthetics and visual resources. MRS will conduct a screening level viewshed analysis to determine the locations from which processing equipment, tanks and drilling rigs might be visible. MRS will also assess the increased night lighting due to the Project and estimate the extent of illumination generated by the facilities on the surrounding area. While the safety lighting required for night operations is mandatory and would be shielded, the increased light glare could generate impacts.

MRS will also assess the visual impacts associated with the Project alternatives that are identified for further analysis as part of the alternative screening.

### **Mitigation Measures**

MRS will identify mitigation measures, as appropriate, including screening of processing and drilling areas from view using vegetation and walls.

### **Cumulative Impacts**

MRS will assess the potential cumulative visual impacts associated with the Project and other identified projects recently completed, planned, or reasonably foreseeable in the area. For example, other proposed construction projects in the area may contribute cumulatively to visual impacts due to the use of cranes or other large construction equipment.

## **4.2.9 Energy and Mineral Resources**

This section presents the scope and approach for assessing the potential energy impacts of the Project, alternatives, and cumulative projects.

### **General Approach and Methodology**

With the development of any oil and gas resource, a large amount of energy is consumed and produced. Drilling operations, processing, and transportation require electricity and diesel fuel. Energy is produced in the form of natural gas and oil, which is refined to produce gasoline, diesel fuel, jet fuel, and other fuels. The overall approach to this section will be to determine the increased consumption of energy that would occur with the Project or alternatives. This energy consumption would be compared with the amount of energy that would be produced by the Project. As per recent legal decisions, Appendix F to the CEQA Guidelines will be addressed and included in the assessment.

The Project will be a net producer of energy (e.g., natural gas and crude oil). However, this energy production will not serve to increase the demand for natural gas or crude oil, but rather will serve to replace natural gas and crude oil supplies from other places. Given that California is lacking in crude and natural gas, it is possible that the crude and natural gas production will displace other material being imported from outside of California.

### **Baseline Environmental Setting**

The baseline section will discuss the current energy use and production in California and the study area. The crude oil and natural gas demand data will be developed from various California Energy Commission reports. The baseline section will discuss current subsurface hydrocarbons conditions provided in maps, historical well data, offset operations, prior studies, seismic data, and other documentation.

### **Impact Assessment of the Project and Alternatives**

Based upon the equipment list for the Project, the construction requirements, the processing throughput, and the transportation needs, MRS will estimate the energy consumption of the Project. Energy consumption will be estimated for electricity, diesel fuel, and natural gas. This will then be compared to the estimated natural gas and oil production. As with all oil and gas

development projects, the amount of energy produced will exceed the amount of energy that is consumed. MRS will conduct a similar analysis for the alternatives.

### **Mitigation Measures**

Given that the Project will be a net producer of energy it is unlikely that any significant impacts will be identified and, therefore, there will likely be no mitigation measures. It is possible that energy conservation measures could be identified that would reduce the overall consumption of energy for the Project. That said, the discussion of energy impacts related to greenhouse gas emissions and the identification of feasible methods to offset these impacts will be fully addressed in the Air Quality section of the EIR.

MRS will identify mitigation measures, as appropriate. If potentially significant impacts are identified, mitigation measures will be proposed, where possible, to reduce the impact to a level of insignificance. MRS will identify practical, feasible measures to mitigate the adverse impacts of the Project and alternatives on mineral resources.

### **Cumulative Impacts**

Given that energy consumption is limited to a specific project and the impacts do not overlap with other projects, typically there would not be cumulative energy impacts. However, the list of cumulative projects will be addressed for potential cumulative energy impacts.

#### **4.2.10 Land Use/Growth Inducement**

This section presents the scope and approach for assessing the potential land use impacts of the Project, alternatives, and cumulative projects.

### **General Approach and Methodology**

The land use and policy consistency analysis issue area will include consideration of the direct and indirect impacts associated with the Project activities in terms of effects on existing, planned, and future land uses in the Project vicinity. This section would build on the impact analyses from other issue areas to determine consistency with governing land use policies and to identify potential incompatibilities with surrounding land uses.

Several land use concerns are closely related to or result from impacts arising in other issue areas, such as public safety, air quality, visual resources, noise, and transportation and circulation. MRS proposes to utilize a multi-disciplinary approach to the land use analysis. Impacts identified in other issue areas would be combined and translated into land use conflicts and constraints through close consultation with other issue area specialists and agency representatives. This comprehensive analysis would provide the necessary basis for evaluating the short- and long-term conflicts of the Project with nearby uses and for assessing policy compliance.

MRS will assess the potential land use impacts associated with the Project. MRS will establish the baseline setting and governing land use policies and ordinances. MRS will then assess the Project's potential impacts and compatibility with the existing and potential future land uses in the area. MRS will also analyze the Project's consistency with the governing land use plans and policies.

### **Comprehensive Plan/County Land Use Policies**

MRS understands that County staff will prepare the policy consistency analysis as part of the staff report for the proposed Project. The DEIR will contain a preliminary list and initial review of County policies applicable to the Project.

### **Baseline Environmental Setting**

The Project site is located on land zoned AG-II with an Agricultural Commercial (AC) land use designation. Oil development is a permitted use in the AG-II zone district as detailed in Chapter 35352 of the County Land Use Development Code. PCEC operates existing oil production activities on the project site under an Oil Drilling Production Plan (05PPP-00000-00001), the proposed Project will require a new Oil Drilling Production Plan which will supersede the existing permit.

MRS will establish the baseline environmental setting by reviewing the County's Land Use Development Code, maps, and aeriels and visiting sites to establish the zoning and land uses of the parcels in the vicinity of the Project site. MRS will also conduct ground-truthing by driving and walking the vicinity.

### **Impact Assessment of the Project and Alternatives**

MRS will review the compatibility of the Project with the existing and proposed land uses in the vicinity, and will address the consistency of the Project with the County's Land Use Development Code. As described above, MRS will use a multi-disciplinary approach to assessing land use impacts.

### **Mitigation Measures**

The most likely impacts to land use would originate from significant impacts to public health and safety, and the environment due to accidental releases. Mitigation measures would be developed in close coordination with other issue areas. The primary task of the land use mitigation section is to assess the effectiveness of these interdisciplinary mitigation measures in reducing or avoiding land use impacts. Where possible, feasible measures to eliminate land use impacts and to avoid preclusion of future land uses would be developed and evaluated. Residual effects would be evaluated in cases where mitigation measures would not completely eliminate impacts.

### **Cumulative Impacts**

MRS will assess the potential cumulative land use impacts associated with the Project and other identified development projects recently completed, planned, or reasonably foreseeable in the area.

#### 4.2.11 Transportation and Circulation

This section presents the scope and approach for assessing the transportation and circulation impacts of the Project, alternatives, and cumulative projects.

##### **General Approach and Methodology**

Although the proposed Project is not expected to have transportation impacts, transportation and circulation issues will be assessed by examining the worker-related commuter traffic, the trucks used for delivering construction equipment and the trucks used for delivering and hauling construction materials and wastes. Although this impact may be relatively short-term, the workers' vehicles and trucks hauling equipment and/or material traveling to and from the site could have an adverse effect on traffic flow and safety.

The study area will include the Santa Barbara County roadway networks that could be affected by the project and alternatives as they pertain to construction and operations-related traffic. The study area will also include potential parking areas for workers' vehicles. Transportation impacts would be compared to the significant threshold criteria in the County's *Environmental Thresholds and Guidelines Manual*.

##### **Baseline Environmental Setting**

Access to the proposed Project site is from East Rice Ranch Road through a private gated road. Additional access routes to the Project include a private gated road off of U.S. 101 1.2 miles south of Clark Avenue and a private gated road at Graciosa Road two miles south of the State Route 135 and Highway 1 interchange. MRS will establish the baseline environmental setting by reviewing various County resources, plans, maps, and aerials to ensure that all potentially affected recreational resources are identified.

##### **Impact Assessment of the Project and Alternatives**

MRS will review the Project for impacts to transportation and circulation resources. Short term construction traffic would be generated by the proposed Project. Long term impacts to traffic and circulation resources are not expected to be significant because the Project is not expected to require additional employees and oil generated by the Project would be shipped off site using existing pipelines.

##### **Mitigation Measures**

Mitigations may include limits on traffic or limits on construction activities to avoid peak traffic periods. Cumulative projects will also be examined in the area to assess cumulative traffic impacts

#### **4.2.12 Public Facilities**

This section presents the scope and approach for assessing the Project and alternative impacts for public services and utilities.

##### **General Approach and Methodology**

The public services and utilities section of an EIR typically addresses a suite of local government- and district-provided services, including water supply, wastewater treatment, solid waste disposal, schools, libraries, police and fire protection, and emergency response. Given the nature of the Project, fire protection and emergency response services will be addressed in a separate section of the EIR. Equally, Water and Wastewater are addressed in separate sections of this proposal and would be considered as separate sections of the EIR.

The Project is not expected to result in a significant increase (greater than 3 percent) in the population of Project area. Therefore, the population-driven public services (i.e., schools, libraries, police protection) would not be expected to experience impacts and would not be addressed in the EIR. If, however, the results of the Scoping Hearing indicate that there may be impacts to these services, MRS will include them in the analysis.

##### **Baseline Environmental Setting**

MRS will establish the baseline environmental setting by determining which providers currently service the area and contacting them to identify system constraints and excess capacity. MRS will also determine which landfills currently service the area and contacting them to identify system constraints and excess capacity for both solid waste and hazardous materials that may need to be disposed at specialized landfills. .

##### **Impact Assessment of the Project and Alternatives**

MRS will assess the proposed increase in potentially hazardous and non-hazardous solid waste generation against the available capacity. MRS will determine the impacts associated with the continued operations of the oil field for the expected life of the Project.

MRS will also assess the public service and utilities impacts associated with the Project alternatives, including a no project alternative. Under the No Project Alternative, the Project would not occur and there would be no changes at the existing Project site.

##### **Mitigation Measures**

MRS will identify mitigation measures, as appropriate. These may include procedures to minimize the generation of solid waste.

##### **Cumulative Impact Assessment**

MRS will assess the potential cumulative public services and utilities impacts associated with the Project and other identified development projects recently completed, planned, or reasonably foreseeable in the area.

### 4.3 Other Issue Areas

Potential impacts from the following issue areas, Noise, Agricultural Resources, and Recreational Resources are expected to be less than significant. The nearest sensitive receptor to potential Project noise is approximately 1.4 miles away. The proposed Project would result in activities similar to the existing oil field operations and would not conflict with ongoing agricultural activities. The Project site is not located near or designated for recreational activity. Therefore, Noise, Agricultural Resource, and Recreational Resource issues will be analyzed using a summary approach.

#### 4.3.1 Noise

This section presents the scope and approach for assessing the potential noise and vibration impacts related to the Project, alternatives, and cumulative projects.

##### **General Approach and Methodology**

Due to the fact that the project site is located in an rural area and the nearest sensitive receptor is approximately 1.4 miles away, noise impacts from the proposed project are not expected to be significant. Construction and operations activities for the Project and alternatives would have the potential to increase noise levels in the vicinity of the site. The noise impact analysis will focus on construction, drilling, and operational noise as compared to County, State and Federal thresholds.

Equipment specific noise data will be utilized where appropriate. Some activities might be conducted over a 24 hour per day basis, which could increase the potential for nighttime impacts to areas as it is normally quieter during the night.

##### **Baseline Environmental Setting**

The project site is located in a rural area with the major source of noise the existing oil operations. The proposed Project will generate noise from sources consistent with those existing operations but impacts to sensitive receptors, including residential areas, recreational facilities, and environmentally sensitive areas are not expected due to the 1.4 mile distance to the nearest sensitive receptor.

##### **Impact Assessment of the Project and Alternatives**

MRS will discuss noise impacts on the basis of the change in the ambient noise environment in the study area that would be caused by construction, transportation, drilling, and operational activities. The various elements of the project will be evaluated to determine which of them will influence ambient noise levels. The next step will be to determine how much change will be expected. The analysis will proceed as follows:

- Identify noise levels and the duration of the Project for sensitive receptor locations in the noise study area utilizing existing equipment-specific noise level databases and measurement studies;

- Determine the elements of the Project that will cause a noticeable change over the measured background noise levels generated by construction and operation activities and associated traffic;
- Evaluate projected noise levels and incremental noise increases against appropriate significance criteria;
- Evaluate potential conflicts as a result of noise on surrounding land uses.

In noise studies that MRS has conducted for other oil and gas projects, construction and operation noise is modeled using an existing procedure, such as the one developed for the EPA titled “Regulation of Construction Activity Noise,” in which construction equipment source levels are defined and combined with information on distance to receiver, duration of equipment usage, and operating characteristics. These methods define peak and average noise exposure levels (Leq and CNEL). MRS obtains source noise levels from available technical literature and previous equipment measurements conducted by MRS on other oil field operations. Traffic noise is modeled using an existing procedure, such as the Federal Highway Administration’s “Traffic Noise Prediction Model,” a highway noise model which analyzes trucking impacts to community noise levels.

Regarding the Project, the alternatives analysis will examine the potential impacts associated with the identified alternatives. The noise impacts of the alternatives will be assigned a significance level and will also be compared to those from the Project.

### **Mitigation Measures**

MRS has documented mitigation measures specific to drilling for a number of drilling projects, including the Baldwin Hills Oil Field EIR Project, which were drilling in close proximity to residential areas. Studies conducted by MRS indicate that these measures can substantially reduce noise levels from drilling operations. Although the proposed Project is not expected to produce significant noise impacts, MRS will develop mitigation measures if the noise analysis results deem them necessary.

### **Cumulative Impacts**

MRS will assess the potential cumulative noise impacts associated with the Project and other identified development projects recently completed, planned, or reasonably foreseeable in the area.

### **4.3.2 Agricultural Resources**

This section presents the scope and approach for assessing the potential agricultural resources impacts of the Project, alternatives, and cumulative projects.



### **General Approach and Methodology**

The proposed Project is not expected to cause significant impacts to agricultural resources. The proposed Project is located entirely within the Orcutt Oil Field with current agricultural uses cattle grazing and bee keeping. The Project site does not contain prime agricultural soils and is not considered a location suitable for row crops or other agricultural uses. The proposed Project would be located primarily on previously disturbed areas and thus would not displace any potential agricultural uses. The proposed Project is consistent with the existing use of the Project site. MRS will provide a summary analysis documenting the requisite components of an EIR pursuant to CEQA requirements for agricultural resources.

### **4.3.3 Recreational Resources**

This section presents the scope and approach for assessing the potential recreational impacts of the Project, alternatives, and cumulative projects.

#### **General Approach and Methodology**

The proposed Project is not expected to have direct impacts to recreational resources due to the fact that the Project site is not near any properties or features designated by the County for public recreational use and the site is private property not available to the general public.

#### **Baseline Environmental Setting**

MRS will establish the baseline environmental setting by reviewing various County resources, plans, maps, and aerials to ensure that all potentially affected recreational resources are identified.

#### **Impact Assessment of the Project and Alternatives**

MRS will review the Project for impacts to recreational resources. Potential recreational impacts would be associated with impacts from reduced or relocated parking, noise, odors, visual, and accidental oil spills precluding use of resources and visually soiling the affected areas. Further, an oil spill, even when cleaned up, can result in a negative public perception of the recreational resources. Recreational impacts could also be associated with the visual intrusion of the drilling rig, increased lighting, and construction noise.

#### **Mitigation Measures**

The most likely impacts to recreational resources would originate from impacts to public health and safety and the environment due to accidental releases. Typically, the mitigation measures identified to minimize the impacts in the resource areas of safety and risk of upset, air quality, hazardous materials and public health, and geology will also serve to minimize recreational impacts. Further, mitigation measures identified in the visual and noise areas may also serve to minimize impacts to recreation.

#### **Cumulative Impacts**

MRS will assess the potential cumulative recreation impacts associated with the Project and other identified projects recently completed, planned, or reasonably foreseeable in the area.

#### 4.4 Growth Inducement

This section presents the scope and approach for assessing the Project, alternative, and cumulative impacts for growth inducement.

##### **General Approach and Methodology**

MRS will generate the growth inducement section of the EIR by reviewing existing information in previous environmental documents, as well as researching and analyzing new information generated in other issue area sections and through outside sources, such as the U.S. Census Bureau. By synthesizing all of this information, MRS will recommend mitigation for the Project.

The general approach to the growth inducement assessment will be to focus on both baseline conditions and impacts associated with the Project and alternatives.

##### **Baseline Environmental Setting**

Previous environmental documents and information generated through other sources will serve as the baseline environmental setting for the Project.

##### **Impact Assessment of the Project and Alternatives**

MRS will evaluate impact assessments provided in previous environmental documents. In analyzing the Project, the following impact criteria will be used to determine whether or not the Project is to be considered growth inducing:

- The project removes an impediment to growth through the establishment of an essential public service or the provision of new access to an area;
- Economic expansion, population growth, or the construction of additional housing occurs in the surrounding environment in response to economic characteristics of the project; and
- The project establishes a precedent setting action, such as a change in zoning or general plan amendment approval, that makes it easier for future projects to gain approval.

##### **Mitigation Measures**

MRS will evaluate proposed mitigation measures identified in other issue area sections of the EIR and will enhance or modify proposed mitigation measures, if necessary.

##### **Cumulative Impact Assessment**

MRS will assess the potential cumulative growth inducement impacts associated with the Project and other identified development Projects recently completed, planned, or reasonably foreseeable in the area.

#### 4.5 Other Topics

In addition to the issue area analyses above, the EIR will address the other environmental topics required by CEQA, including:

- Significant Environmental Effects Which Cannot be Avoided if the Project is Implemented; and
- Significant Irreversible Changes Which Would be Involved.

MRS will provide a summary of Significant Environmental Effects and Proposed Mitigation Measures.

## 5.0 Document Preparation

This section discusses the approach and management systems that Marine Research Specialists (MRS) uses in preparing environmental review documentation. The section is divided into six main parts which present document format; writing and production responsibilities and quality control; high volume report production, word processing and computing capability; interaction and review cycles; and base maps and Geographic Information Systems (GIS). The final part presents a proposed outline for the PCEC Orcutt Hill Resource Enhancement Plan EIR (Project).

### 5.1 Document Format

In the preparation of environmental review documentation, it is imperative that sound, defensible documents be produced that are “user friendly” and can be understood by the public and local decision makers. In many ways these two goals are mutually exclusive since in order to make a document defensible, it must contain the detailed technical information required to defend the document. On the other hand, it is this detailed technical information that frequently overwhelms the public and decision makers. MRS has developed an approach that meets both goals specified above. Our approach involves the preparation of a concise, reader-friendly main document written to be read by the public and decision makers. This main document would contain cross-references to technical appendices that contain all required technical information. This document format approach allows the more informed reader to quickly access the additional information in the technical appendices.

The two major components to producing a concise document are the presentation format and the text wording. If a document is presented properly and has adequate indexing and internal cross-referencing, access to the information is easier and, therefore, the document is more user-friendly. This environmental documentation is packaged in a spiral binder. Each chapter will have coding in the upper right hand corner of each page. The document will contain a table of contents and an index. The text will be presented using a three-digit numbering system with subheadings. The style guide, which is discussed below, will serve as the basis for controlling the document format. The technical appendices will use the same format as the main document.

The environmental documentation will be produced from MRS’s Ventura office. This office has consistently produced over 15,000 pages of documentation per year for the past 14 years and routinely generates documents that are 1,000 pages or larger.

### 5.2 Writing and Production Responsibilities and Quality Control

The Project Manager and Deputy Project Manager will coordinate overall report production activities. They will be assisted by the Office Manager, who directs the actual support staff activities. These activities will be directed out of the Ventura office.

The Issue Area Coordinators will have writing responsibility for their respective technical areas. The Issue Area Coordinators provide primary quality control on the material prepared by the subconsultants. For the overall project, the Project Manager, the Deputy Project Manager and the Technical Editor will serve as the quality control checks. More information on quality control can be found in Section 3.0, Personnel and Project Management.

MRS will develop a Style Guide for all documentation that will assist in quality assurance for document preparation. At the onset of a project, a Style Guide will be developed to reflect all California Environmental Quality Act (CEQA) and regulatory agency document compliance requirements. The Style Guide will emphasize preparing documentation that must provide disclosure and serve both for public review and policy decision making. The Style Guide will help ensure that documents are concise and well presented. The Guide will set document format requirements and approved abbreviations. It will contain a standard graphics format for tables and figures as well as the necessary base map guidelines. The Technical Editor will participate actively in preparing the Style Guide.

### **5.3 High Volume Report Production, Word Processing, and Computing Capability**

MRS has demonstrated the required capabilities for high-volume report production on previous environmental review assignments with comparable schedules. Reports will be prepared on Windows-based PCs using Microsoft Word. All copies of this EIR will be double-sided, printed in color on recycled paper and spiral bound. The numerous technical and draft reports will be input into the system by hand or through telecommunication capabilities. MRS's computer network system is capable of communicating with other types of word processing systems, as well as software converting, so it can communicate with the word processing equipment at subcontractors' offices. The word processing system in the MRS Ventura office can also handle document transfer via ftp from other systems. The office is also equipped with scanners and optical character recognition software, which allow paper documents to be converted to word processing text.

In the production of large documents, the importance of a competent support staff is critical. This includes both word processing operators and graphic artists. MRS staff have been producing large EIR/EISs, as well as other environmental documents, for more than 14 years and have developed a very efficient system for producing and tracking up to 100 word processing documents for as many as ten volumes. All are edited four times for technical content and three for proper format.

The MRS Ventura office is equipped with high quality printers, including a Konica networked color photocopier, large format plotters and CD/DVD large-volume printers/burners.

MRS's system is also capable of telecommunicating final text and tables via internet to various printing shops that handle desktop publishing.

#### 5.4 Interactions and Review Cycle

The emphasis of MRS's overall approach to document writing and production is interaction with the County. Such interaction will take place continuously throughout the project through a review cycle involving specific preplanned working sessions. Draft report deliverables will be provided to the County for review and comment.

Follow-up working sessions will be scheduled between the County and the key members of the project team to review these report deliverables and make changes based on County comments. The overall approach will be a collaborative one, with the project team and the County working on the document together. MRS recognizes that throughout this process, their ultimate responsibility as the prime contractor is to prepare fully responsive, and defensible, documentation on a timely basis that meets the needs and requirements of the County.

#### 5.5 Base Maps and Geographic Information Systems

Base maps used in environmental review projects for field work and report graphics will involve electronic formats of USGS and NOAA maps at scales of 1:24,000 to 1:100,000 and 1:250,000 and aerial photographs of the proposed project area. Copies of all maps relevant to each discipline will be distributed to team members at the start of the project to provide a common basis for discussion across disciplines. These maps will become report quality base maps summarizing baseline information, project facility locations, impacts, and suggested mitigation measures. All mapping information will be compiled and produced in a GIS format to allow for manipulation and production of different maps of the gathered information.

Typically during environmental review projects, original data are developed for the project study area. These data are entered into electronic layers in a GIS system in both AutoCAD and MapInfo or ArcView systems. The data are stored in individual layers, such as roads, topography, biology, plume areas, etc. Each layer can be individually controlled and updated allowing for an almost infinite variation in the maps. Typical layers often include:

- Land use and zoning;
- Depth to groundwater;
- USGS monitoring wells;
- Threatened and endangered plants;
- Vegetation and wildlife habitats;
- Geology;
- Recreation areas;
- Roads;
- Study area locations;
- Hydrologic features; and
- Field facilities.

All maps produced electronically shall use the UTM projection (North American Datum 1983) and shall be available in both ArcInfo shapefile format. This will allow for the interchange of electronic maps between parties with minimal incompatibilities.

In addition, terrain information will be utilized where needed. Terrain is maintained in the GIS systems and can be used to produce realist viewpoints from any location or can be used to produce 3D flybys of an area.

In addition, photo editing software, such as Adobe Photoshop, will be used to produce realistic photo simulations, if warranted, associated with the visual impact analysis. The GIS system produces quantitative estimates of feature characteristics from any viewing location and these characteristics are developed into photo simulations of post-project conditions utilizing current area photographs. The GIS system also allows for the development of “viewshed” maps, which enable the feature characteristics, such a feature height, to be assessed from any location within the terrain. This enables analysis of whether the drilling rig will be visible, for example, from a specific location.

## **5.6 Proposed EIR Outline**

The EIR will evaluate the proposed project and alternatives and their potential impacts in accordance with all the requirements of CEQA and other applicable laws, regulations, and guidelines. The preliminary outline of the EIR is as follows:

- Executive Summary
- Impact Summary Tables
- Section 1.0 Introduction
- Section 2.0 Project Description
- Section 3.0 Alternative Project Description/Screening Analysis
- Section 4.0 Cumulative Projects Description
- Section 5.0 Environmental Impact Analysis
  - 5.1 Safety, Risk of Upset, and Hazards
    - 5.1.1 Environmental Setting
    - 5.1.2 Regulatory Setting
    - 5.1.3 Significance Criteria
    - 5.1.4 Proposed Project Impacts and Mitigation Measures
    - 5.1.5 Alternative Impacts and Mitigation Measures
    - 5.1.6 Cumulative Impacts
    - 5.1.7 Mitigation Monitoring Plan
  - 5.2 Air Quality
  - 5.3 Soils and Geological Resources
  - 5.4 Biological Resources
  - 5.5 Water Resources

- 5.6 Transportation and Circulation
- 5.7 Land Use
- 5.9 Cultural/Historical Resources
- 5.10 Public Services Utilities and Solid Waste
- 5.11 Fire Protection and Emergency Services
- 5.12 Energy and Mineral Resources
- 5.13 Aesthetics and Visual Resources
- 5.14 Noise
- 5.15 Agricultural Resources
- 5.16 Recreational Resources
- Section 6.0 Comparison of Proposed Project and Alternatives/Conclusions
- Section 7.0 Other CEQA-Mandated Sections
  - 7.1 Unavoidable Significant Adverse Effects
  - 7.2 Beneficial Impacts
  - 7.3 Significant Irreversible Environmental Changes
  - 7.4 Growth Inducing Impacts
- Section 8.0 Summary of Mitigation Measures and Mitigation Monitoring Plan
- Section 9.0 References
- Section 10.0 Comment Letters and Responses to Comments
- Section 11.0 List of EIR Preparers
- Section 12.0 Agencies and Individuals Consulted During Preparation of the EIR
- Technical Appendices



## 6.0 Project Schedule

This section of the proposal provides a schedule for the PCEC Orcutt Hill Resource Enhancement Plan EIR Project (Project) and lists the proposed deliverables to the County of Santa Barbara (County). A detailed project schedule is presented, along with a discussion of the basis for the proposed time frame. All the proposed deliverables for the Project are shown in the schedule.

### 6.1 Proposed Schedule

The Project schedule in Table 6-1 provides a comprehensive indication of the organization and preparation that has been given to the management plan. All relevant Project milestones and deadlines are identified, allotting time for fieldwork and analysis, document writing, and County review of draft documents. Table 6-1 lists the key milestone dates from the proposed schedule.

**Table 6-1 Key Milestone Schedule**

Milestone	Schedule
Draft EIR Style Guide	5 working days from County authorization to proceed
Draft Project Description	10 working days from County authorization to proceed
Draft Alternative Descriptions/Screening Analysis	10 working days from County authorization to proceed
Draft Environmental Setting Sections	10 working days from County authorization to proceed
Administrative Draft EIR Technical Studies	45 working days from County authorization to proceed
Technical Studies	45 working days from County authorization to proceed
Public Draft EIR	15 working days from receipt of County's final comments on Admin Draft EIR
Technical Appendices	15 working days from receipt of County's final comments on Admin Draft EIR
Public Workshop on EIR	--
Summary of Comments of Public Hearing on DEIR	10 working days from date of public comment hearing
Response to Comments on DEIR	15 working days after close of public comment period
Administrative Final EIR	15 working days from receipt of County's final comments on Draft EIR comments
Draft Final EIR	15 working days from receipt of County's final comments on Admin Final EIR
Public Hearing	--
Final EIR	10 working days from final decision maker action

## 7.0 References

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Additional references for the Project Manager or for any of the key team members can be provided upon request.

**Appendix A – Key Staff Resumes**

**LUIS F. PEREZ**

Mr. Perez is a Senior Project Manager with MRS. Before joining MRS, Mr. Perez acquired extensive public agency experience working for Santa Barbara County, which included interpretation of land use and environmental policies and regulations for large development projects, recommendations to decision-makers and public presentations. He was an Energy Specialist with the Santa Barbara County Energy Division for 16 years, working on permitting and environmental review for onshore and offshore oil and gas projects. He has worked in his field for almost 20 years. Mr. Perez is involved with the management and preparation of environmental studies, primarily focusing on the implementation of CEQA for oil and gas development projects in California.

Mr. Perez has been involved in oil and gas development projects in California since 1991. His major areas of expertise are in project management, environmental review, and land use issues of major oil and gas development and transportation projects. Mr. Perez has extensive experience in the preparation of environmental documents, staff reports for decision-makers, presentation for decision-makers, public workshops and hearings. Some of his assignments have included the following:

Mr. Perez was the government liaison for the permitting and compliance of the construction of the Cano Limon-Rio Zulia Pipeline Project in Colombia, South America for Mannesmann Anlagenbau, AG. The project involved coordination with multiple agencies, preparation of documents, emergency response preparedness training, and environmental restoration.

**PROFESSIONAL EXPERIENCE**

Mr. Perez was the Project Manager for multiple oil and gas development projects for the County of Santa Barbara. Those projects included:

The Pacific Pipeline Project, which was a proposal for construction of a pipeline from the Gaviota Area to refineries in Los Angeles. The Molino Gas Development Project, which was the first project approved for drilling from an onshore location into an offshore reservoir. The Chevron Point Arguello Project, which included three platforms, oil and gas pipeline and an onshore processing facility. Mr. Perez reviewed applications, conducted environmental review and processed permits for various proposals, including Marine Tankering, Process Reconfiguration, and the Rocky Point Unit drilling project, among others.

Mr. Perez was also the Project Manager for a number of decommissioning of oil and gas projects that had reached the end of their economic life. Those projects included the abandonment of the Texaco Pipeline through Hollister Ranch, the decommissioning of the Unocal Cojo Marine Terminal and the decommissioning of the Texaco Gaviota Gas Plant, among others. All these projects entailed application review for completeness, environmental review and permitting before decision-makers. In addition, Mr. Perez led the team effort required to oversee the compliance with mitigation required for the execution of the different projects.

Mr. Perez was also a Project Manager for a number of remediation projects undertaken in the County of Santa Barbara, including the Calresources/Aera PCB Remediation project at Canada de la Huerta, the ARCO Gaviota Gas Plant remediation project, the Texaco Gaviota Gas Plant remediation project, and

represented Santa Barbara County in the review of the remediation efforts at the Guadalupe Oil Field in the boundary with San Luis Obispo County.

Mr. Perez was the lead for the County of Santa Barbara in the development, management and supervision of the Telecommunications Permit Program. This effort included permit processing and environmental review for over 150 telecommunication facilities from six different carriers, development of new zoning ordinance, commission hearings, billings and subcontract management. Mr. Perez also participated in the permitting of two telecommunications cable projects for Level 3 communications and AT&T.

While working for the County, Mr. Perez was also tasked with the management and supervision of the contract to provide Oil and Gas permitting and compliance services to the City of Goleta by Santa Barbara County. The efforts included to manage and supervise teams, report writing, public hearings and presentations for the Venoco Full Field Development Project, the Venoco Grace Unit, Venoco State Lease 421 Repairs, and Venoco Line 96 SCADA system.

Mr. Perez also managed the contract to provide Oil and Gas permitting and compliance services to the City of Carpinteria by Santa Barbara County, which included application completeness review, policy considerations, preparation of environmental documents for the Venoco Pardon Project and the Odorant Station Relocation Project.

Mr. Perez has also acquired significant experience in the implementation and compliance of oil and gas and construction projects by overseeing the operation of the All American Pipeline Project, The Chevron Point Arguello Project, the Gaviota Marine Terminal Project, the Exxon Santa Ynez Unit Project, the Santa Maria Asphalt Refinery, and the Molino Gas project, among others.

While working for MRS, Mr. Perez has worked on the preparation of the Whittier Main Oil Field EIR, Pardon EIR, the Baldwin Hills Community Standards District EIR, the Conoco-Phillips Santa Maria Refinery Expansion EIR, the Chevron El Segundo Marine Terminal Lease Extension EIR, the Guadalupe Oil field Fencing Plan, Air Products Hydrogen pipelines in Contra Costa County and Torrance, the preparation of the Venoco Full Field Development Project EIR, and the permitting of the Montebello Hills Specific Plan, among others.

Mr. Perez received his M.A. in Organizational Management from Fielding Graduate University and received a B.A. in Environmental Science and Public Relations from Northern Arizona University.

## GREG CHITTICK

Mr. Chittick is a Senior Engineer and Scientist with Marine Research Specialists with more than 25 years of experience specializing in safety, risk, air quality analysis, noise, aesthetics, transportation and GIS systems. At MRS, he has been involved in preparing air quality studies and environmental impact assessments, environmental technology studies, computer mapping analysis, modeling accidental releases of hazardous materials, and conducting risk analysis studies for small and large facilities.

In 1985, Mr. Chittick received a B.S. in Mechanical Engineering from the University of California at Santa Barbara; in 1987, he received an M.S. in Mechanical and Environmental Engineering from the University of California at Berkeley. Mr. Chittick previously worked for ARCO at the Ellwood Onshore Facility and at Lawrence Berkeley Laboratory on studies related to building energy efficiency. Mr. Chittick also worked for more than 10 years with Arthur D. Little, Inc., based in Boston, on risk and EIR analysis. Mr. Chittick is a member of the American Society of Mechanical Engineers, Southern California Association of Risk Analysis, the Chlorine Institute, and the International Institute of Ammonia Refrigeration.

Mr. Chittick's areas of expertise include:

### ENVIRONMENTAL IMPACT ASSESSMENT

- Mr. Chittick has managed a number of environmental impact studies, including analysis on pipeline transportation of crude oil and oil and gas processing facilities. These projects were all related to CEQA.
- Mr. Chittick has performed impact analysis related to EIR and EIS projects in a number of different impact areas including risk and hazardous materials, air quality, traffic analyses, noise analysis, visual impacts, and environmental justice.
- Mr. Chittick has completed numerous air quality analyses for over 30 CEQA documents over the past 20 years. Analysis have included assessment of criteria pollutants, including emissions from hydrocarbon impacted soil handling activities associated with the Guadalupe project; toxic pollutants, including AB2588 health risk assessments; CO hot spots analysis and greenhouse gas emissions analysis, including electrical grid assessments; and indirect emissions. Modeling conducted as part of these analyses included ISC, AERMOD, SLAB, HARP, CALINE4, and CALEEMOD, among numerous others.
- Mr. Chittick conducted greenhouse gas and emissions analysis of housing projects including mitigations involved land use and in-fill issues associated with pedestrian, bike, and public transportation, and the use of LEED and Energy Star features in housing design to reduce energy use, criteria and greenhouse gas emissions. Modeling was conducted associated with Title 24 building efficiency models to quantify the impact of building features, such as high efficiency appliances, windows, and insulation, on overall energy use and greenhouse gas emissions.
- Mr. Chittick assessed risk impacts using QRA techniques on oil and gas projects, hydrogen plants and pipelines, offshore drilling, and production units as well as pipelines and marine terminals.

Risk analysis examines risks to public health as well as the quantitative analysis of oil spill probabilities and impacts to the environment.

- Mr. Chittick utilized spill modeling and trajectory models with winds and currents to estimate the probability and extent of spill impacts on numerous projects.
- Mr. Chittick's traffic impact experience includes analysis of level of concern and intersection traffic flow changes due to project related increases in traffic volumes utilizing the Intersection Capacity Utilization approach and the Highway Capacity Manual software.
- His experience with noise analysis has included impacts of increased traffic, construction equipment operations, as well as in-field measurements of noise levels. Analysis included modeling of noise generated from a range of equipment, including assessing the attenuation of noise levels over barriers and terrain and assessing the effectiveness of a range of noise mitigation methods, utilizing the SoundPlan modeling software. The analysis included the development of location-specific models to assess potential noise impacts.
- His experience with visual impacts have been conducted with visual simulations of proposed projects, including oil and gas processing plant equipment removals and additions, grading and land contouring impacts on visual resources, drill rig impacts. Mr. Chittick conducted extensive visual analysis including viewpoint analysis, 3D flythrough assessment, and visual simulations. Viewpoint assessments involve the development of maps showing locations of areas where towers and drilling rigs are visible over complex terrain and manmade features. 3D simulations have included the assessment of terrorist risk on Diablo Canyon nuclear power plant and the location of storage casks to minimize view and target accessibility. Mr. Chittick has conducted numerous visual simulations of proposed development projects for CEQA documents, placing drilling rigs, tanks, storage areas, building, vegetation, roadways and other objects within visual simulations. His visual impacts analysis has utilized BLM VRM, USDA SMS, and US DOT VRM assessment techniques.
- Mr. Chittick has also conducted fire protection and emergency response analysis associated with a number of oil and gas project EIRs in Santa Barbara County. All included analysis of pertinent issues, including water supply and demand estimates and availability of emergency response and mutual aid assistance. He also examined and compared projects to applicable codes and guideline, including IRI, ANSI, and NFPA.

#### RISK ANALYSIS

- Mr. Chittick has prepared risk management plans for compliance with the California CalARP programs and the previous Risk Management and Prevention Program and California and Federal RMP programs. He has also developed and audited programs related to the Federal and State OSHA PSM programs. His work expertise includes the oil and gas industry, offshore environments, Alaska North Slope facilities, the food processing industry, gas distribution and odorant facilities, and water treatment plants. This expertise involves performing the HAZOP studies, conducting incident investigations, preparation of the offsite consequence analysis,



examination of facility detection and monitoring systems, emergency response and equipment histories and integrity, and community demographic data.

- Mr. Chittick has conducted quantitative risk analysis for a large range of fixed facility and transportation related projects, including oil and gas processing, ammonia refrigeration, ammonia storage related to SCR, gas liquids storage, transportation of hazardous materials, water treatment facilities, and crude oil marine terminals, transportation of gas liquids and ammonia on highways and pipeline transportation of crude oils. His studies have included developing QRA models, FN curves and mitigation measures to reduce risk impacts.
- Mr. Chittick has conducted numerous fault tree analyses on a range of facilities, including crude oil tanker transportation, offshore LNG terminal operations, offshore crude oil terminal operations, gas processing plants, gas liquids storage and transportation facilities, truck, rail and pipeline transportation systems, and ammonia refrigeration systems.
- Mr. Chittick has conducted numerous chemical release and dispersion modeling analyses, including releases of hydrogen, ammonia, gas liquids, hydrocarbons, produced gas containing hydrogen sulfide, and vapor from spilled combustible liquids, including crude oil. Models include SuperChems, SLAB, ISC, Aloha, and multi-component models.

#### GEOGRAPHIC INFORMATION SYSTEMS

- Mr. Chittick utilizes GIS analysis in almost all projects that he has been involved. GIS enables the accurate analysis of populations, impact zones, and spatial relationships between project components that are critical to high quality reports.
- Mr. Chittick implemented and managed database and Geographic Information System requirements for a multi-million dollar EIR on a 3,000 acre petroleum product cleanup project, GIS for large pipeline projects and for numerous EIR and risk assessments. GIS systems have included pipeline routes, soil sampling results, groundwater monitoring data, terrain, biological features, sensitive plant locations, geologic features, groundwater contours, aerial photographs, groundwater and soil plume delineations, equipment locations, refinery building locations and blast impacts, 3D terrain analysis and volume calculations, census data mapping, and sensitive receptor locations related to disaster emergency response and coordination.

He has extensive experience with PC and Macintosh computers, including software and hardware expertise, networking, programming, installation, and optimization. Projects include customized macro/program development, database development, AutoCAD drawings and graphics, and computer GIS mapping analysis including demographic data analysis.

#### PUBLICATIONS

*Risk Management Program Handbook, Accidental Release Prevention Under the 1990 Clean Air Act*, Contributing author, Thompson Publishing Group, Washington DC, August 1997.

*Chemical Incident Data Helps Facilities Manage RMP*, Contributing author, Thompson Publishing Group.

## STEVEN RADIS

Before joining MRS as a Principal, Mr. Radis was a Principal in Arthur D. Little, Inc.'s Environmental Health & Safety Practice located in the Santa Barbara and Ventura, California, offices. His expertise includes consequence and risk analysis, fire and explosion dynamics, hazard evaluation, external events analysis, fault tree analysis, meteorological modeling and analysis, physical oceanographic modeling and analysis, and model development. Mr. Radis has worked on a wide variety of studies for utilities, commercial, and government clients involving meteorological modeling, quantitative risk assessments, health risk assessments, consequence analysis, risk management, and air quality modeling (inert/photochemical pollutants, toxic air contaminants).

Since 1984 Mr. Radis has been involved in the preparation of CEQA and NEPA studies for a wide variety of facilities including power generating facilities (coal, fuel oil, natural gas, geothermal, hazardous waste), hazardous waste disposal facilities (chemical and nuclear), crude oil and natural gas transmission pipelines and distribution networks, oil and gas development projects, and military development or conversion projects. Mr. Radis has managed a majority of these projects and was also responsible for analysis of the system safety, public health, and air quality issue areas.

Mr. Radis has worked on the development of several numerical models, including the development of or revisions to several accidental release models, an oil spill model, a multi-component pool model, atmospheric diffusion models, an integrated human exposure and health risk assessment model, and several meteorological models.

Mr. Radis has prepared several transportation risk analyses for Santa Barbara County to evaluate the risks associated with the transportation of ammonia, natural gas liquids (NGL) and liquefied petroleum gases (LPG). The studies evaluated alternative transportation routes, tankers and a wide variety of transportation safety measures that could be implemented by the County. Two of these studies evaluated county-wide transportation issues, while numerous other studies evaluated project-specific transportation issues.

### PROFESSIONAL EXPERIENCE

His experience includes the following:

- For the County of Santa Barbara, Mr. Radis was the Project Manager for the Ellwood Pipeline, Inc. (EPI) Line 96 Modification Project EIR. The project included the installation of a new pipeline to redirect the transportation of processed crude oil from the Ellwood Onshore Facility (EOF) to the existing Plains Pipeline, L.P. (PPLP) Coastal Pipeline. The redirection of the pipeline allowed for the decommissioning of the Ellwood Marine Terminal, which was the last marine oil terminal in Santa Barbara County.
- Mr. Radis completed a safety and vulnerability analysis of the Diablo Canyon Power Plant (DCPP) and the San Onofre Nuclear Generating Station (SONGS) Steam Generator Replacement Projects for the California Public Utilities Commission. The EIR analyses evaluated a range of equipment and operational failure modes and quantitatively evaluated the associated radiological consequences of core damage accidents and releases. Failure modes, release mechanisms and consequences associated with terrorist attacks were also evaluated.

- For the County of San Luis Obispo, Mr. Radis completed a safety and vulnerability analysis of the Diablo Canyon Power Plant (DCPP) Independent Spent Fuel Storage Installation (ISFSI). The EIR analysis evaluated a range of equipment and operational failure modes and quantitatively evaluated the associated radiological consequences of spent fuel pool and dry cask storage accidental releases. Failure modes, release mechanisms and consequences associated with terrorist attacks were also evaluated.
- Mr. Radis was the Project Manager and Public Safety coordinator for the Venoco Ellwood Marine Terminal Lease Renewal Project EIR that was prepared for the California State Lands Commission. This was the last marine oil terminal in Santa Barbara County and the continuing operation of the terminal is raising a lot of public outcry. Critical environmental issues included the increased risk of an accidental release of oil and its impact on marine and terrestrial water quality and biological resources, recreation, land use, and visual resources.
- For the California Coastal Commission, Mr. Radis provided technical assistance in the reviews of the BHP Billiton Liquefied Natural Gas (LNG) Cabrillo Port Project and the Port of Long Beach Sound Energy Solutions (SES) Long Beach LNG Project. The review of the proposed projects was focused on the adequacy and completeness of risk analysis, especially in terms of the safety review requirements of 49 CFR 193 Subpart B and NFPA Design Standard 59A. Mr. Radis also acted as a technical advisor to CCC staff on risk analysis, vapor dispersion modeling, etc., as well as identifying deficiencies, if any, in the analysis or recommended mitigation measures.
- Mr. Radis prepared the Marine Vessel Transportation and System Safety/Risk of Upset sections of the Pacific Energy Crude Oil Marine Terminal SEIS/EIR; a project that included construction of a marine terminal on Pier 400 in the Port of Los Angeles. The Marine Vessel Transportation analysis considers the specific type and number of vessels that currently visit the Port and pass by Pier 400, and evaluates the number and characteristics of tankers that would be calling at the new Pier 400 marine terminal after project implementation. The System Safety/Risk of Upset section evaluated potential oil spill risks, as well as fire and explosion hazards associated with marine vessels and terminal operations.
- For the California Coastal Commission, Mr. Radis prepared an independent, qualified third-party review of certain hazard analysis aspects of a proposed exploration and production project submitted by Macpherson Oil Company (MACPHERSON) to the CCC as part of Application E-96-28 for a coastal development permit (CDP). MACPHERSON had been selected by the City of Hermosa Beach to conduct exploratory drilling and production of hydrocarbons from the City Maintenance Yard. If the exploratory drilling and associated temporary production testing proved successful, MACPHERSON proposed to drill up to 30 wells from the City Maintenance Yard. Permanent tanks and production facilities would also be installed at the City Maintenance Yard site. Based on the initial review, a wide variety of safety issues associated with the proposed project, including:
  - Potential hydrogen sulfide hazards,
  - Additional hazard scenarios,
  - Project risk profiles,
  - Transportation risk,
  - Pipeline safety, and

- Concerns related to the abandoned Chevron pipeline.

MACPHERSON amended their CDP application to address some of the concerns that were raised in the draft report, as well as clarified some potential inconsistencies between their CDP application and their project as permitted by the City of Hermosa Beach. The amended CDP included changes to crude oil pipeline transportation, and end use of produced gas since produced gas would not likely meet the Southern California Gas Company hydrogen sulfide limit of 4 ppm during the entire lifetime of the project without the installation of gas sweetening equipment and further environmental review.

- Mr. Radis managed the preparation of an Environmental Impact Report for the Nacimiento Water Project. The EIR that evaluated environmental impacts associated with construction and operation of a 65-mile water pipeline and associated facilities in San Luis Obispo County. The pipeline would draw water from Nacimiento Reservoir and deliver it to various purveyors in the County. The pipeline would cross numerous jurisdictions and would affect a number of landowners and agencies. The proposed project included two equal options: (1) Raw Water Option that entailed construction of the pipeline and facilities that would deliver raw water to the purveyors; and (2) Treated Water Option that also entailed construction of a water treatment plant; in this case, potable water would be delivered to the purveyors. This EIR contained more than 800 pages, not including the Executive Summary and technical appendices. Over 140 mitigation measures were developed to lessen impacts from the proposed project.
- Mr. Radis was a Project Manager on the Point Pedernales Project Supplemental EIR that was prepared for Santa Barbara County. Mr. Radis was also the Principal Investigator for the Air Quality and Risk-of-Upset Project portions of the Supplemental EIR.
- Mr. Radis conducted system safety and reliability studies for several oil and gas projects for Santa Barbara County. These studies included hazard identification, external event and offsite consequence analyses. Facilities included oil and gas processing plants, offshore platforms, onshore production facilities, as well as sour gas and crude oil pipelines. QRAs were prepared for several of the projects.
- As part of an EIR/EIS for the Unocal Avila Beach Cleanup Project, Mr. Radis served as the Project Manager for San Luis Obispo County, California Regional Water Quality Control Board, and the U. S. Army Corps of Engineers. The EIR/EIS included the evaluation of site contamination and a variety of cleanup strategies, including air sparging/bioventing, solidification/stabilization, solvent flooding, steam stripping, excavation, and thermal desorption. Leaking Unocal Marine Terminal pipelines had resulted in approximately 400,000 gallons of petroleum hydrocarbon contamination beneath the town of Avila Beach and the adjacent beach and intertidal zone. San Luis Obispo County certified the EIR/EIS, and Mr. Radis assisted the Regional Water Quality Control Board in establishing cleanup levels for the site.
- Mr. Radis conducted oil spill modeling simulations for several oil and gas projects in California. These analyses included the simulation of multi-component land based spills, spills to rivers and creeks, as well as ocean and harbor spills. Local oil spill modeling projects include simulations of spills in the Ventura River and existing and proposed pipelines along the Ventura coastline.

- For the Center for Chemical Process Safety of the American Institute of Chemical Engineers, Mr. Radis co-authored a book entitled *Guidelines for Postrelease Mitigation Technology in the Chemical Process Industry*. As part of this effort, Mr. Radis quantitatively evaluated the effectiveness of a variety of hazardous chemical mitigation technologies.
- For a Texas-based law firm, Mr. Radis prepared an analysis of external events and provided expert testimony to the Texas Water Commission related to the safety of a hazardous waste disposal facility proposed for the Houston Ship Channel. This study included a review of past external events in the region and centered on hurricane, tornado, and storm surge hazards. The study required the development of a wind field model to simulate hurricanes passing over the site and to estimate potential maximum wind speeds and wind load on the proposed equipment, as well as projected changes in ship channel water levels.
- For a large Southern California utility, Mr. Radis evaluated the feasibility and system safety of converting a fuel oil pipeline distribution network into a regional crude oil and petroleum product storage and distribution system. An analysis of safety and environmental issues was prepared for the CPUC and the South Coast Air Quality Management District. Both agencies approved the conversion project, which is now operating at full capacity. An expansion of the pipeline system was evaluated to increase overall system pipeline throughput capacity, as well as to accommodate unit train and VLCC tanker deliveries.
- Mr. Radis has been involved in the preparation of EIR/EISs for a wide variety of facilities including power generating facilities (coal, fuel oil, natural gas, geothermal, hazardous waste), hazardous waste disposal facilities (chemical and nuclear), crude oil and natural gas transmission pipelines and distribution networks, oil and gas development projects, and military development or conversion projects. Mr. Radis has managed a majority of these projects and was also responsible for the system safety, public health, and air quality issue areas.
- For four Local Emergency Planning Committees in Alaska, Mr. Radis developed emergency response planning procedures through the preparation of a comprehensive regional hazard and risk analysis.
- For a large engineering company, Mr. Radis prepared a quantitative risk assessment for a LNG marine terminal and power plant project in Puerto Rico. The project included conducting a hazard assessment, fault tree analysis, consequence analysis, and quantitative risk analysis. An analysis of external events that could potentially affect the proposed facility was also conducted.
- Mr. Radis has worked on the development of several models, including the development or revisions to several accidental release models, an oil spill model, a multi-component pool model, atmospheric diffusion models, an integrated human exposure and health risk assessment model, and several meteorological models.

Mr. Radis earned his M.A. and B.A. degrees in Climatology from California State University, Northridge. He is a member of the American Meteorological Society and the Air and Waste Management Association.

## EDWARD B. MULLEN

Mr. Mullen joined Marine Research Specialists as a Senior Biologist in June of 2009. Before joining MRS, Mr. Mullen managed a team of nine biologists for Science Applications International Corporation, in Santa Barbara, California. Mr. Mullen has 19 years of experience in terrestrial ecology and environmental analysis. His experience as a Project Manager and technical contributor includes managing the Natural Resource sections of several California Environmental Quality Act documents and preparing baseline biological resource studies, habitat evaluations, regulatory compliance, and environmental impact assessment under the National Environmental Policy Act and CEQA.

Mr. Mullen has also managed large-scale monitoring programs with specific emphasis on issues concerning sensitive wildlife species. He has many years of experience with sensitive species protection plans and technical exchange meetings with industry and agency representatives. He conducted field surveys in more than 20 states and has conducted sensitive species surveys or prepared management plans for tidewater goby, desert tortoise, California red-legged frog, California tiger salamander, southwestern pond turtle, American badger, San Joaquin kit fox, light-footed clapper rail, Belding's savannah sparrow, western snowy plover, southwestern willow flycatcher, and burrowing owl. He managed the research and reporting on a desert tortoise mitigation project, managed biological resources inventories on Vandenberg AFB, supervised field crews on a pipeline project spanning three states, and participated in creating and implementing a monitoring plan for an extensive California pipeline project.

Mr. Mullen served as the Onsite Environmental Coordinator at the Unocal Guadalupe Oil Field in support of San Luis Obispo County, California Coastal Commission, California Department of Fish and Game, U.S. Fish and Wildlife Service, and the Regional Water Quality Control Board. Mr. Mullen managed the onsite monitoring efforts of the long-term oil field clean-up remediation project. His responsibilities included coordinating permit compliance, directing field monitors, and preparing status reports for all agencies on issues concerning water quality, listed species protection, wildlife and botanical resources, air quality, habitat protection, and remediation techniques. Listed species prevalent on the site and relative to day-to-day environmental decision-making included western snowy plover, California red-legged frog, tidewater goby, la Graciosa thistle, and Surf thistle.

Mr. Mullen received his M.A. in Biological Sciences from the University of California, Santa Barbara (1990) and his B.S. in Biology from Loyola Marymount University (1987).

### PROFESSIONAL EXPERIENCE

- From 2000 through 2009, Mr. Mullen managed the Natural Resource sections and contributed biological resources analyses to several complex environmental impact reports or general plans in compliance with CEQA for the Santa Barbara County Department of Planning and Development. The projects included:
  - The Mahoney Residents EIR in Santa Maria, California, which assessed the impacts of a housing development on California red-legged frogs and California tiger salamanders.
  - The Venoco Ellwood Full Field Development EIR, for which Mr. Mullen managed the SAIC team effort assessing new facilities at the Ellwood refinery

- The Venoco Paredon EIR, which assessed impacts to biological resources from new facilities and drilling at the Carpinteria refinery.
  - The St. Athanasius Orthodox Church Complex EIR in Goleta, California.
  - The Rice Ranch Specific Plan EIR, which assessed the impacts of 725 residential units, a school, and community park in the Orcutt Community in northern Santa Barbara County.
  - The Wye Specific Plan EIR, which assessed the impacts of 476 residential units, a neighborhood commercial site, and a school site in the Lompoc area of northern Santa Barbara County.
  - The Granite Construction Mining Expansion EIR, which assessed the expansion of aggregate mining facilities adjacent to the Santa Ynez River in Buellton, California.
  - The Sandpiper Residences EIR, which assessed an affordable residential development within biologically constrained wetland and native grass habitat areas.
  - The Bluffs at Mesa Oaks EIR, which evaluated residential development in northern Santa Barbara County and the Vandenberg Village area.
  - The Montecito Fire Protection District Fire Protection Plan, which was a long-term vegetation-management plan to reduce wildfire hazards in the incorporated area of Montecito.
- Mr. Mullen served as the Onsite Environmental Coordinator for the Chevron-Unocal Guadalupe Oil Field Remediation Project for the County of San Luis Obispo Department of Planning and Development. For this \$3 million project, Mr. Mullen coordinated and managed the mitigation monitoring program of a long-term, large-scale oil field clean-up project in support of San Luis Obispo County, California Coastal Commission, California Department of Fish and Game, U.S. Fish and Wildlife Service, and the Regional Water Quality Control Board. Responsibilities included coordinating permit compliance, directing field monitors, and preparing status reports for all agencies on issues concerning water quality, listed species protection, wildlife and botanical resources, air quality, habitat protection, and remediation techniques. Listed species that are prevalent on the site and relevant to day-to-day environmental decision-making included western snowy plover, California red-legged frog, tidewater goby, la Graciosa thistle, and Surf thistle.
  - Mr. Mullen prepared the revised biological baseline and analysis for the Lompoc Windfarm EIR for the County of Santa Barbara. This project, located in Lompoc, California, assessed the impact of the installation and operation of an 80-turbine wind farm on biological resources, specifically, avian and bat species.
  - Mr. Mullen managed the preparation of four Natural Resource sections (Biology, Archaeology, Geology, and Water Resources) of the PXP Baldwin Hills Community Standards District EIR for the County of Los Angeles. The EIR analyzed the effects of an application to establish a Community Standards District for the continued use of the Inglewood Oil Field.

- Mr. Mullen managed the preparation of more than 18 technical reports (e.g., biology, archaeology, visual, traffic, socioeconomic) for two separate Road enhancement/repair/reroute projects in Northern California for the Federal Highways Administration.
- Mr. Mullen managed several resource areas (e.g., biology, agriculture, geology, water resources) for the MRS-SAIC jointly prepared Guadalupe Ucnal Oil Field Restoration EIR to consider complex environmental issues for San Luis Obispo County.
- Mr. Mullen served as the Project Manager for the Legacy Estates Residential Tract Map Tiered EIR in Santa Barbara. This project involved the approval of a tentative tract map to subdivide a 16.67 acre site into 59 residential lots in the unincorporated area of Los Alamos in northern Santa Barbara County.
- Mr. Mullen provided biological resources support to SAIC staff at the Chevron Chemical Plant in the City of Richmond, California. His support included managing avian surveys and preparing the final report that detailed an impact analysis on wildlife exposure to contamination within the refinery.
- Mr. Mullen served as the Project Manager for the Air Products Hydrogen Pipeline Project in Contra Costa, California, for MRS. This project assessed a proposed 12-mile hydrogen pipeline in Contra Costa County and included surveying and mapping vegetation habitats, native trees, sensitive plant and wildlife species, and wetland delineations and waters of the U.S.
- Mr. Mullen served as the Project Manager for biological resource surveys and reporting for the Santa Barbara Ranch property to be used as part of the baseline EIR for the 484-acre site in Gaviota Coast in Santa Barbara County. He managed a team of biologists that conducted surveys for sensitive wildlife species, native grasslands, general vegetation, and rare plants; performed wetland delineation surveys; and prepared a vegetation habitat map of the site.
- Mr. Mullen provided on-call biological services for Union Asphalt Company between 2004 and 2006. These services included conducting avian surveys to establish for the Bradley Mining operations site and conducting sensitive wildlife surveys in support of permit application for continued mining within the Sisquoc River for the Garey Mining operations site.

#### ADDITIONAL TRAINING

- Desert Tortoise Handling Workshop, 1993.
- Mohave Ground Squirrel Cumulative Human Impact Evaluation Format Workshop sponsored by the California Department of Fish and Game, 1992.
- The Willow Flycatcher Workshop in San Diego, 1995.



## PUBLICATIONS AND PRESENTATIONS

Mullen, E.B. 1990. The Evolutionary Stability of Signals of White-Crowned Sparrows. Masters thesis, University of California, Santa Barbara.

\_\_\_\_\_. 1993. Survival of Relocated Tortoises: Feasibility of Relocating Tortoises as a Successful Mitigation Tool. Presented at the Conservation, Management, and Restoration of Tortoises and Turtles — An International Conference. American Museum of Natural History, July.

\_\_\_\_\_. 1993. Health and Condition Index of Relocated Tortoises: Feasibility of Relocating Tortoises as a Successful Mitigation Tool. Symposium Proceedings of the Desert Tortoise Council.

Ross, P. and E.B. Mullen. 1993. Terrain Use and Movement of Relocated Tortoises: Feasibility of Relocating Tortoises as a Successful Mitigation Tool. Symposium Proceedings of the Desert Tortoise Council.

Mullen, E.B. 1995. Wildlife Monitoring of Created Dune Swale Wetlands on the San Antonio Terrace, Vandenberg Air Force Base, California. Wetland Interagency Workshop on Wetlands.

\_\_\_\_\_. 1999. Analyzing the Success of Recommended Mitigation and Protection Measures for California Red-legged Frogs and California Tiger Salamanders. The Wildlife Society Western Section Annual Conference.

\_\_\_\_\_. 1999. Wildlife Monitoring of Created Wetland Habitat at Vandenberg Air Force Base, California. Presentation for the U.C. Santa Barbara University's Habitat Restoration Group.

\_\_\_\_\_. 1999. Analyzing the Success of Recommended Mitigation Measures for California Red-Legged Frogs and California Tiger Salamanders. Presented at the Annual Conference of The Wildlife Society's Western Division in Monterey, California, January 23.

**BRITTNEY STEPHENS**

Ms. Brittney Stephens serves as Technical Editor and Office Manager at MRS. Her role as support staff is pertinent to company-wide adherence of office standards. As Technical Editor, her responsibilities include the oversight of consistency within style parameters for safety and environmental projects, including Environmental Impact Reports and Annual Reports. She performs assignments relative to the organization and coordination of shared drives, editing and proofreading, word processing and formatting, and the modification and design of graphics. She controls all aspects of report production.

As Office Manager, Ms. Stephens assists with administrative, bookkeeping, marketing and human resources matters. She is proficient in multiple software programs within the Microsoft Office Suite and the Adobe Creative Suite.

Ms. Stephens earned a Bachelor of Science in Business Administration from Chapman University, with a concentration in Marketing. In her previous position as a website administrator, she produced myriad online marketing campaigns through Google and Yahoo while comprehensively managing an expansive online retail store and its order management operations.



## ***Perry W. Russell***

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M.S., Geological Sciences, California State University, Northridge, 1988

B.A., Geological Sciences, University of California, Santa Barbara, 1984

### **Professional Registrations**

California Professional Geologist (#5777), since 1993

California Certified Engineering Geologist (#1837), since 1993

### **Work Summary**

Mr. Russell has 27 years of experience as a professional geologist/hydrogeologist. Since 1995, Mr. Russell's focus has been on writing geology, water resources, wastewater, safety, and hazardous materials portions of environmental planning documents, in accordance with the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). Mr. Russell also completes various other tasks, including erosion control studies and third party reviews of geologic/seismic reports. He has also worked on a number of Formerly Used Defense Sites (FUDS), for the U.S. Army Corps of Engineers, in determining the potential for unexploded ordnance, hazardous waste, and other generally unsafe conditions remaining from prior use by the Department of Defense.

Mr. Russell began his career as an engineering geologist, working for several years completing geologic/seismic reports, landslide investigations, fault studies, and geologic monitoring at large grading/construction sites. Projects included large residential tracts, industrial/commercial developments, high-rise buildings, and corridor projects. Mr. Russell's experience also includes approximately 12 years of experience working on projects involving soil and groundwater contamination. He served as project geologist on a variety of hazardous waste type projects, including military installations, oil company properties, and commercial developments. Mr. Russell has also worked as a petroleum geologist, completing projects in California and Texas.

### **Professional Experience**

*Leidos (formerly a part of Science Applications International Corporation), Senior Geologist (1995 to Present)*

Completed geology, water resources, wastewater, safety, and hazardous materials/waste sections for numerous NEPA, CEQA, and joint documents including the following projects:

- Proposed expansion of the Orcutt Oil Field, near Orcutt, California. Primary issues involved potential grading induced siltation of an on-site creek, construction of a truck crossing within the creek, potential oil spills into the on-site creek, as well as several other creeks along an associated oil pipeline, frac outs during construction of the pipeline, water supply, and potential surface expressions of oil as a result of steam injection. (EIR)

## *Perry W. Russell*

- Proposed rail spur, crude oil unloading facility, pipeline, and associated infrastructure at the Phillips 66 Santa Maria Refinery, near Nipomo, California. Primary issues included water supply, seismic hazards, and surface water and groundwater quality impacts resulting from potential major oil spills. (EIR)
- Proposed Foxen Canyon oil pipeline in northern Santa Barbara County, to be constructed in association with proposed expansion of an existing oil field. Primary issues included potential seismic hazards and water quality impacts to the nearby Sisquoc River as a result of a potential major spill. (EIR)
- Proposed extended reach oil drilling and associated pipeline project within the City of Hermosa Beach, California. Primary issues included water supply, nearby active faults, and water quality impacts to the nearby Pacific Ocean as a result of a potential major spill. (EIR)
- Proposed upgrades to the Alon Bakersfield Refinery, in Bakersfield, California. Primary issues included proposed construction within a 100-year flood plain and surface water and groundwater quality impacts associated with a potential major oil spill. (EIR)
- Proposed continuation of exploration and production activities at Plains Exploration and Production Company's (PXP's) Inglewood Oil Field, in Inglewood, California. Primary issues involved potential movement on the underlying active Newport-Inglewood Fault, potential differential settlement associated with secondary recovery efforts, and potential gas migration to the surface along improperly sealed wells. (EIR)
- Proposed Matrix oil drilling project in a nature preserve, within the Whittier Hills of the Los Angeles basin. Primary issues involved drilling in proximity to multiple active faults, potential slope failure, and proximity to creeks. (EIR)
- Plains All American Pipeline, L.P., proposed Pier 400, Berth 408 Project, Port of Los Angeles. Primary issues involved tsunamis, potential pipeline rupture along the active Palos Verdes Fault, liquefaction, and subsurface contamination along the pipeline route. (EIR/EIS)
- Venoco's proposed Paredon onshore drilling project at the Carpinteria oil and gas processing facility. Primary issues involved the presence of a nearby active fault, potential groundwater contamination associated with waste re-injection, and potential spills into the nearby Pacific Ocean. (EIR)
- Venoco's proposed Line 96 pipeline from the Ellwood Onshore Facility to the All American Pipeline at Las Flores Canyon. Primary issues involved construction induced erosion and siltation along numerous creek crossings. (EIR)
- Proposed lease renewal of the Venoco Ellwood Marine Terminal, in Goleta, California. Primary issues involve the presence of the nearby active More Ranch Fault, potential wave-induced scour in the intertidal zone, as well as erosional impacts associated with future repair of a potentially ruptured oil and gas pipeline, affiliated with continued offshore production. (EIR)
- The Tranquillon Ridge offshore drilling project in northern Santa Barbara County. Primary issues involved erosional/water quality impacts associated with future repair of a potentially ruptured oil and gas pipeline, affiliated with continued offshore production. (EIR)
- A proposed oil and gas exploration project at Molino Canyon in Gaviota, California. The project included potential geologic impacts associated with hillside grading and excavation and potential hydrologic impacts associated with surface flow, local bedrock groundwater use, and wastewater injection. (EIR)

## *Perry W. Russell*

- Proposed temporary storage facility for radioactive waste at the Diablo Canyon Nuclear Power Plant in San Luis Obispo County, California. Primary issues involved the presence of a major active fault located within four miles of the facility, stability of a proposed large cut slope, and landslide encroachment along the seacliff. (EIR)
- Proposed impacts due to remediation of a service station related, MTBE soil and groundwater plume, which was in proximity to a city water supply well, adjacent to the proposed Morro Bay roundabout. (MND)

### *Other (non-NEPA/CEQA) work includes:*

- Completing an Erosion Control Plan for Navy training areas on San Clemente Island, off the coast of San Diego, on behalf of Naval Facilities Command Southwest.
- Completed a technical review of a geologic/seismic report for a gas storage facility in San Pedro, California, on behalf of the U.S. Environmental Protection Agency, Region IX.
- Completed site assessments for the Army Corps of Engineers at Formerly Used Defense Sites (FUDS), under the Defense Environmental Restoration Program. This program was created in response to the Comprehensive Environmental Restoration, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986, as a first step in remediating DOD hazards (i.e., subsurface contamination, unexploded ordnance). Site assessments included properties in San Luis Obispo, Santa Barbara, Orange, Riverside, and Los Angeles Counties of California, as well as in the vicinity of the Utah Testing and Training Range. These efforts involve performing site visits, reviewing historical documents, and interviewing people familiar with former site use to determine whether DOD-generated contamination or ordnance remained on the property.
- Participated in groundwater basin assessments, including determination of groundwater flow boundaries, determination of basin boundaries, and water budget evaluations, for the Nipomo Mesa basin in Santa Maria, California and the Bunker Hill/Lytle Creek basin in San Bernardino, California.
- Based on a field reconnaissance, provided recommendations to the Central Coast Water Authority (CCWA) regarding erosion control along the State Water pipeline, subsequent to the Vandenberg brushfire of Fall 2000.
- Contributed to development of recommended changes to land use policies, design standards, and related land use ordinances related to storm water quality in unincorporated urban areas of Santa Barbara County.
- Completed a preliminary geologic inspection of a residential property for possible incorporation into the adjacent Montecito Union School, in Montecito, California.

### *Douglas P. Imperato (Consulting Geologist), Petroleum/Environmental Geologist (1995 to 1998)*

On a part-time basis, completed oil and gas exploration projects in California's Sacramento Valley. Fields worked included Willows-Beehive and Sutter Buttes. Also, completed environmental assessments for a major insurance carrier of industrial properties.

### *Venoco, Inc., Petroleum Geologist (1995 to 1997)*

On a part-time basis, completed oil and gas exploration and development projects onshore and offshore California and onshore Texas. Oil and gas fields worked include Willows-Beehive and Grimes in the Sacramento Valley, the offshore Ellwood field near Santa Barbara, the Santa Clara field near Camarillo, and Big Mineral Creek in north Texas.

## ***Perry W. Russell***

### *Fugro West, Inc., Project Geologist (1989 to 1995)*

Project manager for an average of five to ten environmental assessment/remediation projects at any given time. Personal duties included proposal preparation, client interaction, field work scheduling and completion, report preparation, budgetary analyses, and concurrent marketing for additional work. Other projects included preparation of geology sections for environmental impact reports and a fault study associated with expansion of the Port of Los Angeles.

### *Leroy Crandall & Associates, Inc., Staff Geologist (now LAW/Crandall) (1987 to 1989)*

Performed geotechnical investigations and environmental assessments. Projects included fault trenching, slope stability evaluation, corridor studies, groundwater evaluations, geologic-seismic report preparation, and environmental site assessments.

### *Geosoils, Inc. and McCollum Geotechnical, Inc., Soils Technician and Staff Geologist (1986)*

Performed soils and geological analysis for single-family home and large cut-and-fill tract home grading operations.

## **Publications/Presentations**

1987. The Point Fermin Submarine Fan: A Small, Late Middle Miocene Age Fan Within the Monterey Formation, Russell, P.W. in Fischer, P.J., ed., Geology of the Palos Verdes Peninsula and San Pedro Bay: Pacific Section SEPM and AAPG, 1987, p. 31-46; **presented** at the 1987 National AAPG-SEPM Annual Meeting, Los Angeles, California.
1987. Russell, P.W. and Cherven, V.B. Glaucophanic-Rich Lithic Sandstone at Point Fermin, California. In Fischer, P.J., ed., Geology of the Palos Verdes Peninsula and San Pedro Bay: Pacific Section SEPM and AAPG, p. 53-56.
1986. Reservoir Geometry and Trapping Mechanism, Lindsey Slough Gas Field, Southern Sacramento Basin: AAPG, Abs. 1986, v. 70, no. 4, p. 465; **presented** at the 1986 AAPG-SEG Annual Meeting, Bakersfield, California.

## ***Karen Rasmussen Foster***

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Ph.D., Anthropology, University of California, Santa Barbara (1998)

M.A., Anthropology, University of California, Santa Barbara (1993)

B.A., Anthropology, University of California, Irvine (1989)

### **WORK SUMMARY**

Dr. Foster has been working in the field of archaeology for over 20 years and is a highly experienced SAIC Senior Project Manager for National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) projects. For the last 15 years, her focus has been conducting and managing cultural resource projects (e.g., Section 106/110 of the National Historic Preservation Act [NHPA]), NEPA, CEQA, and other environmental studies for federal and non-federal clients. She is currently Deputy Program Manager and Project Manager on the Naval Facilities Engineering Command Southwest (NAVFAC SW) In-water and Coastal Planning IDIQ contract for NEPA projects supporting Military Construction (MILCON), Base Realignment and Closure (BRAC), master planning, facilities planning, weapons system introductions, and facility improvement projects. She is an expert at the implementation of federal regulations regarding natural and cultural resources. Dr. Foster is also the Cultural Resource Manager for her office and a faunal (animal bone and shellfish) analysis specialist.

With respect to CEQA compliance, Dr. Foster has prepared or managed *Cultural Resource* sections for the following documents: Rising Tree Wind Farm EIR; Addison Wind Energy Project EIR; Port of Los Angeles Pacific Energy Project EIR; Simi Valley Landfill and Recycling Expansion EIR; Tejon Ranch Water Management and Exchange EIR; Santa Ana River Water Rights EIR and Phase I Cultural Resources Survey Report; Implementation of the Quantification Settlement Agreement PEIR; Earl Schmidt Filtration Plant Expansion EIR; Castaic Lake Water Agency -State Water Project Entitlement Transfer Project EIR; Simi Valley Landfill and Recycling Center EIR; Mammoth Pool Environmental Analysis; Mitigated Negative Declaration for the RMC Pacific Materials Construction Materials Park, Port of Redwood City; Six Agency Environmental Factors Report (EFR); Tranquillon Ridge Oil and Gas Development and Sisquoc Pipeline Bi-Directional Flow Projects EIR; Equillon-City of Clayton IS/ND; Global West Fiber Optic Cable Project EIR and Phase I Cultural Resources Survey Report; and Los Carneros Reservoir IS/ND.

NEPA work includes cultural resource projects on MCB Camp Pendleton, MCAS Miramar, MCAS Yuma, MCLB Barstow, Bob Stump Training Range Complex, MCMWTC Bridgeport, NTC Fort Irwin, NAS Fallon, Los Angeles AFB, USFS Humboldt-Toiyabe National Forest, USFS Cleveland National Forest, and BLM El Centro region. Her experience encompasses all phases of archaeological fieldwork, including archaeological surveys, site significance and evaluation testing, data recovery mitigation programs, archaeological monitoring projects, and preparation of Integrated Cultural Resource Management Plans (ICRMP). In addition to her faunal analysis expertise, Dr. Foster is an expert in the interpretation of coastal hunter/gatherer groups, North American and Andean prehistory, and archaeological artifact curation. Dr. Foster not only is an experienced cultural resources manager, she also understands how these studies relate to larger environmental issues and regulatory requirements.

**SELECTED PROFESSIONAL EXPERIENCE**

Leidos (formerly a part of Science Applications International Corporation) 1990 to 1992 intermittently, and January 1997 to Present: Project Manager/Senior Archaeologist.

**NEPA/CEQA Project Management**

Currently serving as the Deputy Program Manager on a multi-million dollar, long-term IDIQ contract with the United States Naval Facilities Engineering Command, Southwest (NAVFAC SW IDIQ [formerly SWDIV]). Some of the task orders under this contract and other contracts are noted below.

Served or currently serving as NEPA/CEQA Project Manager or Deputy Project Manager on the following projects:

- *Proposed Addison and Rising Tree Wind Farm Projects, Kern County, California.* Reviewed cultural resources baseline and mitigation sections of EIR (2013) for Kern County.
- *Rotary Wing and Tilt-Rotor Training EA (NAVFAC SW IDIQ).* This EA evaluated proposed USMC training operations on public lands in southern California (USFS Cleveland National Forest and BLM El Centro region). Potential issue areas included land use, recreation, air quality, biological and cultural resources, noise and aircraft operations/airspace. Also included extensive biological and cultural resources surveys and assistance with tribal coordination.
- *Stuart Mesa West Training and Conversion EA (NAVFAC SW IDIQ).* This EA will evaluate the potential environmental consequences resulting from a proposal to develop a new training area on MCB Camp Pendleton, California, that can accommodate combined land, air, and sea training operations. Also includes fairy shrimp surveys, cultural resources surveys, and noise modeling.
- *EIS for the West Coast Introduction of the MV-22 (MV-22 Basing EIS), California and Arizona, NAVFAC SW.* This EIS evaluated the West Coast introduction of the MV-22 to the 3rd and 4th Marine Aircraft Wings. Basing alternatives included three installations in California and Arizona, including MCAS Miramar, MCAS Camp Pendleton, and MCAS Yuma. The proposed action also included training and readiness operations and special exercise operations within at Marine Corps Base (MCB) Camp Pendleton, the Bob Stump Training Range Complex (Chocolate Mountain Aerial Bombing and Gunnery Range, Barry M. Goldwater Range [West], R-2510, and R-2512), Marine Corps Air Ground Combat Center (MCAGCC) Twentynine Palms, and various Military Training Routes (MTRs) in San Diego, San Bernardino, Riverside, Orange, and Imperial counties in California and Yuma County, Arizona. Major issue areas included air quality, biological and cultural resources, traffic, and noise and aircraft operations/airspace.
- *Disposal and Reuse of Naval Station Treasure Island Supplemental Impact Report (NAVFAC SW IDIQ).* Prepared a Supplemental Impact Report to determine whether or not the Navy needs to prepare a Supplemental EIS (SEIS) for the proposed action based on the description of the proposed action in the latest development plan for Treasure Island and Yerba Buena Island.
- *Naval Weapons Station Seal Beach Erosion Control Project (NAVFAC SW IDIQ).* Managed the preparation of a Coastal Consistency Negative Determination, Record of Non-Applicability, eelgrass and *Caulerpa* survey reports, United States Army Corps Nationwide Permit Pre-Construction Notification Form, 401 Water Quality Standards Certification form, and the Application for the Department of the Army Permit.



## Karen Foster

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- *Naval Weapons Station Seal Beach MOMAU Building 78 Project (NAVFAC SW IDIQ)*. Managed the preparation of a Coastal Consistency Negative Determination, Record of Non-Applicability, and air quality permit application for the South Coast Air Quality Management District.
- *Fiddler's Cove Marina Repairs and Improvements EA for the United States Navy, SWDIV, San Diego, California (SWDIV IDIQ)*. Managed the preparation of an EA that evaluated the potential environmental impacts associated with restoring the deteriorated marina facilities at Fiddler's Cove, Naval Amphibious Base (NAB) Coronado. Issue areas included benthic and aquatic habitat, threatened and endangered species, and water quality.
- *Improved Navy Lighterage System EA for the United States Navy, SWDIV, San Diego, California (SWDIV IDIQ)*. Managed the preparation of an EA to construct a Waterfront Command and Control Facility for Amphibious Construction Battalion One and facilities to support introduction of the Improved Navy Lighterage System at NAB Coronado. Issue areas included contaminated soils from an Installation Restoration (IR) site, benthic and aquatic habitat, threatened and endangered species, and traffic.
- *San Clemente Island Wastewater Treatment Plant EA for the United States Navy, SWDIV, San Diego, California (SWDIV IDIQ)*. The purpose of the proposed wastewater treatment plant outfall extension project was to replace the deteriorated landward outfall and modify it with a seaward extension to bring it into compliance with receiving water regulatory limits. Issue areas included water quality and marine biological issues.
- *Pier 12 Replacement EA and Sediment Testing at Naval Station San Diego, SWDIV, San Diego, California (SWDIV IDIQ)*. This EA evaluates the potential environmental impacts associated with demolishing an existing pier and replacing it with an upgraded pier that adequately meets berthing, logistics, and maintenance requirements of ships currently homeported in the San Diego region. Issue areas include air quality, water quality, Essential Fish Habitat, and public safety.
- *Disposal and Reuse of Naval Station Treasure Island EIS for the United States Navy, SWDIV, San Diego, California (SWDIV IDIQ)*. This EIS evaluated the potential environmental impacts associated with disposing surplus federal property at Naval Station Treasure Island (Treasure Island and Yerba Buena Island in San Francisco Bay) for subsequent reuse. Issue areas included traffic, cultural resources, mudflat habitat (eelgrass), and geological hazards. Also managed the preparation of the administrative record associated with the EIS.
- *Naval Base Point Loma Upgrades to Magnetic Silencing Facility for Advanced Degaussing Systems EA, SWDIV, San Diego, California (SWDIV IDIQ)*. This EA evaluated the potential environmental consequences of a proposed action to upgrade the Magnetic Silencing Facility. The purpose of the proposed action was to upgrade the existing facility so that it is capable of magnetic silencing support for newer class Navy surface vessels equipped with Advanced Degaussing Systems. Main issue areas included water quality, air quality, and marine resources.
- *San Francisco Bay Area Rapid Transit (BART) District Seismic Retrofit EA for BART, Caltrans, and the Federal Highway Association*. This EA analyzed the potential environmental impacts associated with the proposed seismic retrofit of the San Francisco BART system from the west portal of the Berkeley Hills Tunnel in Oakland to the Montgomery Street Station in San Francisco. Issue areas included dredging and dredged material disposal, cultural resources, transportation, threatened and endangered species, noise, aesthetics, and air quality.

## **Karen Foster**

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- *Implementation Agreement, Inadvertent Overrun Policy, and Related Federal Actions EIS for the United States Bureau of Reclamation.* This EIS described the potential environmental impacts of the execution of an Implementation Agreement that would commit the Secretary of Interior to making Colorado River water deliveries in accordance with the terms and conditions of the Agreement. This complex EIS analyzed impacts to hydrology and water quality, sensitive species (including those related to the Salton Sea), hydroelectric power, recreation, agricultural resources, environmental justice, cultural and tribal resources, air quality, and transboundary issues with Mexico.

### **NEPA/CEQA Analyses**

Performed a variety of planning analyses for the following NEPA, CEQA, or other environmental documents:

- Environmental Planning and Cultural Resources Task Manager for a Range Condition Assessment update for NAF El Centro associated with the Navy's Range Sustainability Environmental Program Assessment (RSEPA) program. The task included interviews with NAF El Centro staff and document reviews, and resulted in recommendations on the facility's current compliance with applicable environmental and cultural resources regulations.
- Supplemental EIS for the Disposal and Reuse Of Hunters Point Shipyard (*Cultural Resources, QA/QC*)
- EIS for the West Coast Basing of the MV-22 (*Cultural Resources, Public Health and Safety; Airfields and Airspace, Other NEPA Considerations*)
- Environmental Assessment for the 31 Area Land Use Change and Self Storage Facility on MCB Camp Pendleton (*Cultural Resources, QA/QC*)
- Environmental Assessment for the 33 Area BEQs and Parking Structure on MCB Camp Pendleton (*Cultural Resources, QA/QC*)
- Environmental Assessment for Range 108 EOD Training Facility at MCB Camp Pendleton (*Cultural Resources, QA/QC*)
- Fiddler's Cove Marina Repairs and Improvements EA (*Cultural Resources; Public Health and Safety; Public Facilities Access/Coastal Zone; Utilities; Other NEPA Considerations*).
- Improved Navy Lighterage System EA (*Cultural Resources; Public Health and Safety; Public Facilities Access/Coastal Zone; Other NEPA Considerations*)
- San Clemente Island Wastewater Treatment Plant EA (*Cultural Resources; Public Health and Safety; Utilities; Socioeconomics; Noise; Other NEPA Considerations*)
- San Clemente Island Wastewater Treatment Plant Increase in Maximum Allowable Discharge Volume EA (*Cultural Resources; Public Health and Safety*)
- Naval Base Point Loma Upgrades to Magnetic Silencing Facility for Advanced Degaussing Systems EA (*Cultural Resources; Safety and Environmental Health; Public Access*)
- Naval Air Station North Island Quay wall EA (*Cultural Resources; Safety and Environmental Health; Public Access*)

## **Karen Foster**

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- Marine Corps Base Camp Pendleton Assault Breacher Vehicle EA (*Public Health and Safety; Other NEPA Considerations*)
- Disposal and Reuse Of Naval Station Treasure Island EIS (*Land Use; Visual Resources; Socioeconomics; Public Services; Utilities*)
- Port of Los Angeles Pacific Energy EIS/EIR (*Land Use; Recreation; Population and Housing*)
- *Technical Team Member* specializing in federal compliance of natural and cultural resource regulations for the Range Sustainability Environmental Program Assessment (RSEPA). The RSEPA team developed a manual for the United States Navy to test the operational sustainability of their active terrestrial ranges. Test cases for the manual were conducted at San Clemente Island (SOCAL), Naval Air Station Fallon, and Virginia Capes (VACAPES).
- Prepared *Cultural Resource sections* for the following NEPA or joint NEPA/CEQA documents: Predator Force Structure Changes at Indian Springs Air Force Auxiliary Field Nevada EA; San Francisco BART District Seismic Retrofit EA; San Francisco Rock Removal EIS/EIR; Surface Warfare Engineering Facility EA for the Port Hueneme Division Naval Surface Warfare Center; Burke Property Housing Project at Travis Air Force Base EA; and Urban Warrior Advanced Warfighting Experiment EA.

### **Cultural Resources Manager**

Principal Investigator and/or Project Manager on a variety of archaeological investigations including the following:

- Project Manager for a Phase II site testing and evaluation investigation of 10 archaeological sites for the Stuart Mesa West Training and Conversion project on MCB Camp Pendleton.
- Project Manager for a Class III intensive archaeological field survey of 118 acres for 10 proposed military aircraft Landing Zones, on behalf of the USMC, in Riverside and Orange counties, California. The proposed Landing Zones are located in the Santa Ana Mountains within the Trabuco Ranger District of the Cleveland National Forest. The project included identification, recordation, and documentation of one newly recorded archaeological site (petroglyph) and one newly recorded isolated find.
- Project Manager for a Class III intensive field survey of 667 acres for 23 proposed military aircraft Landing Zones, on behalf of the USMC, in Imperial County, California. The proposed Landing Zones are located on Public Lands managed by the Bureau of Land Management (BLM), El Centro Field Office. The project included identification, recordation, and documentation of 37 newly recorded archaeological sites (prehistoric trail complexes, lithic scatters, and rock cairns) and 13 newly recorded isolated finds.
- Project Manager for an intensive pedestrian survey of approximately 1,047 acres (424 hectares) associated with the Marine Corps Mountain Warfare Training Center (MCMWTC) Military Training in Landing Zones Project, Mono County, California and Lyon and Mineral Counties, Nevada. The project area consists of 53 proposed military LZs situated in the Humboldt-Toiyabe National Forest, which operates on U.S. Forest Service land. The project included identification, recordation, and documentation of 21 newly recorded archaeological sites (prehistoric lithic scatters, historic camp sites, historic arboglyphs) and 32 newly recorded isolated finds.

## **Karen Foster**

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- Project Manager for an intensive pedestrian archaeological survey of approximately 88 acres on MCB Camp Pendleton for the expansion of the Marine Corps Tactical Systems Support Activity (MCTSSA) Cantonment Area on MCB Camp Pendleton, California.
- Project Manager for an intensive pedestrian archaeological survey of approximately 38 acres on MCB Camp Pendleton for a proposed undertaking at Range 108 consisting of the proposed construction of a new Explosive Ordnance Disposal (EOD) training facility and support facilities.
- Project Manager for various cultural resource studies related to the Fort MacArthur Historic District at the Los Angeles Air Force Base (LAAFB). Projects included updating the Integrated Cultural Resources Management Plan (ICRMP), a study investigating the potential for underground World War I or II bunkers at the Middle Reservation at LAAFB, and updating a brochure for a walking tour of the Historic District.
- Principal Investigator for a data recovery program to mitigate training-related impacts to archaeological sites located at the National Training Center (NTC) Fort Irwin, San Bernardino County, California. The project involves conducting data recovery excavations at five archaeological sites (CA-SBR-5002, -8291, -8292, -8296, -8301) eligible for inclusion on the National Register of Historic Places (NRHP) in compliance with Section 106 of NHPA.
- Principal Investigator for an archaeological testing project at the historic adobe ranch house at CA-SDI-812/H (Locus B) on Marine Corps Base Camp Pendleton, California. The project involved writing and implementing a *Health & Safety Plan* and coordinating with SAIC's Environmental Risk Subcommittee to mitigate the hazards of contracting Hantavirus during field excavations. Duties also included directing field excavations, overseeing laboratory processing of material, and drafting the final report.
- Principal Investigator for a data recovery investigation at CA-SDI-811, a large prehistoric site that will be disturbed during construction of the Sewage Treatment, Transmission, and Disposal Project (MCON-529) on Marine Corps Base Camp Pendleton, California. Duties included directing field excavations, overseeing laboratory processing of material, and drafting the final report.
- Principal Investigator or senior archaeologist on City of Santa Barbara Public Works/Redevelopment Agency projects, including an Extended Phase I Cultural Resource Study for the Proposed Lot 6 Parking Structure (Granada Garage) and subsequent archaeological monitoring; archaeological monitoring for the Haley Street Stormwater Project; a biological and cultural resources assessment for the Lower Westside/Los Baños del Mar Multimodal Pathway Project; a historical, cultural, and architectural assessment of the Alameda-Padre Serra/Los Olivos Roundabout and Pedestrian Study near the Santa Barbara Mission; various Phase I projects related to city sidewalk improvement throughout Santa Barbara; and a Phase I investigation for the proposed 235 State Street parking lot reconstruction.
- Project Manager for various biological and cultural resource projects at the Santa Barbara Zoological Gardens, including Extended Phase I Cultural Resource Investigations, archaeological and biological monitoring, and the preparation of a Comprehensive Archaeological Resources Assessment for the entire property.
- Principal Investigator for cultural resource investigations in Santa Barbara City/County, including Tajiguas Landfill expansion project; projects for the Santa Barbara City College; Fess Parker's Country Gardens Motel in Los Olivos; Chevron's Marketing Terminal Remediation in Carpinteria; Sandpiper Golf Course Remodeling in Goleta; Best Western Beachside Inn in Santa Barbara; North

**Karen Foster**

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Willow Springs Project in Goleta; Monastery of Poor  
developments for Seale and Couvillion properties.

Clares Mausoleum; and housing

**Cultural Resources Analyses**

Managed technical analyses on cultural resource projects, as follows:

- Provided detailed faunal analysis for numerous projects, including the Evaluation of Eight Archaeological Sites on MAGTFTC 29 Palms; Rincon Point Septic to Sewer Project Phase 2 Archaeological Significance Assessment at CA-SBA-1/CA-VEN-62; QAD Ortega Hill Campus Development Archaeological Mitigation Investigation at CA-SBA-16; Extended Phase 1 Assessment of CA-SBA-14 for the Caset-Landrum Lot Split in Carpinteria; Archaeological Excavations at CA-SBA-40 in Hope Ranch; Phase 2 Testing at CA-SBA-2499 for the Mountain View Residential Development; and Archaeological Excavations at CA-LAN-2058 for the Pacific Pipeline Project.
- Served as laboratory director and field archaeologist during archaeological excavations at CA-SBA-2419 at the Dos Pueblos Golf Course and during emergency cultural resource investigations at a proposed flood control debris basin on the Maria Ygnacio Creek in Santa Barbara County.

*Wilcoxon Archaeological Consultants, Archaeologist (1996 to 1997)*

Served as a field archaeologist on various projects in Santa Barbara County, California. Duties included archaeological survey, monitoring, field excavation, and laboratory analysis. Projects include the following:

- Installation of a 66 kV transmission line at the University of California, Santa Barbara
- Development of the Arco Dos Pueblos Golf Links Project, Goleta, California
- Caltrans' Highway 101/154 Expansion Project, Buellton, California
- Construction of the Las Cruces Cellular Site in Gaviota, California for GTE Mobilnet
- Installation of a fiber optics line for GST Telecommunications in Goleta, California

*Department of Anthropology, University of California, Santa Barbara, Doctoral Research (1992-1998)*

Managed and directed an academic research project in southern Peru, including writing (and winning) about \$25,000 in research grants from the National Science Foundation, the Wenner-Gren Foundation for Anthropological Research, and the University of California; managing project budgets; supervising field excavations and laboratory analyses; and producing a doctoral research report. The project included multiple field seasons in Peru, ranging from 3 to 6 months per field season.

*Department of Anthropology, University of California, Santa Barbara, Associate Professor (Summer 1996) and Teaching Assistant (1989 to 1995, intermittently)*

While an Associate Professor, served as an instructor for the "Archaeology of the Andean Preceramic" course, which covered the time period from the peopling of the new world until the adoption of agriculture and ceramic production in South America. Also served as a Teaching Assistant during seven academic quarters for classes such as "Introduction to Archaeology," "Introduction to Physical

## **Karen Foster**

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Anthropology,” “Laboratory Techniques in Archaeology,” and “Anthropological Approaches to Addiction.” For most classes, served as Head Teaching Assistant, supervising the other teaching assistants.

### *Repository for Archaeological and Ethnographic Collections, University of California, Santa Barbara, Assistant Curator (1991 to 1994)*

Ran the day-to-day operations of the curation facility. Supervised the collection management concerns of existing collections and oversaw the incorporation of new collections into the Repository. Also supervised undergraduate interns and taught them the basic curation skills necessary to work with archaeological collections. Managed various projects for the California Department of Transportation (Caltrans) that were designed to upgrade their existing collections to meet modern curation standards and authored brief reports detailing the results of the projects. Prepared the Ethnographic Summary manuscript for the Repository to comply with the Native American Graves Protection and Repatriation Act (NAGPRA) regulations.

### *Independent Contractor, Faunal Analyst (1992 to 1994 intermittently)*

Identified and analyzed fish remains from archaeological deposits for various companies and agencies, including Zooarchaeological Laboratory at the University of California, Los Angeles, Fugro-McClelland (West), Dames & Moore, and Macfarlane Archaeological Consultants. Prepared brief reports for each project.

### *The Keith Companies, Archaeologist (Summers 1988 and 1989)*

Participated as a field excavator and laboratory assistant while excavating shell midden deposits located in Southern California.

## **PROFESSIONAL AFFILIATIONS**

- Phi Beta Kappa
- Society for American Archaeology
- Register of Professional Archaeologists (RPA)
- Peruvian government recognized archaeologist

## **GRANTS AND FELLOWSHIPS**

- **National Science Foundation Dissertation Improvement Grant (1995-1996).** “Coastal Foragers of the South-Central Andes and the Process of Sedentarization.” Received this grant to pursue her dissertation fieldwork in Peru.
- **Albert Spaulding Fellowship in Archaeology (1994-1996).** The Department of Anthropology at UCSB awarded this fellowship two years in a row to help support her graduate studies.
- **Wenner-Gren Foundation for Anthropological Research Grant (1994-1995).** “Exploring Coastal Sedentism in the South-Central Andes.” Received funds from this organization to conduct archaeological excavations at a site in southern Peru.
- **Humanities/Social Science Research Program Grant (1994-1995, 1992-1993).** This UCSB research program provided funding for two seasons of fieldwork in Peru.

- **UCSB Graduate Student Fee Fellowship** (1995-1996,1993-1994), **University of California Fee Grant** (1993-1994, 1992-1993), **Continuing Graduate Student Fellowship** (1992-1993), and **University of California Regents Fellowship** (1989-1990). These fellowships and grants were designed to support the costs of graduate study.

### **REPORTS/PUBLICATIONS**

1998. *Exploring the Origins of Coastal Sedentism in the South-Central Andes*. Ph.D. dissertation. Department of Anthropology, University of California, Santa Barbara.
1993. *Exploring the Connection Between Rank and Diet: An Archaeological Test Case from the Northwest Coast*. Unpublished Master's thesis. Department of Anthropology, University of California, Santa Barbara.

Dr. Foster has prepared over 50 cultural resource management technical reports, including reports for Phase 1 archaeological surveys, Extended Phase 1 assessment programs, Phase 2 site significance and evaluation testing, Phase 3 data recovery mitigation programs, and archaeological monitoring projects.

### **PRESENTATIONS**

2001. *Phases of Archaeological Research in Santa Barbara*. Presentation to the Santa Barbara and San Luis Obispo Historic Landmarks Committees (based on an SAIC project for the Monastery of Poor Clares).
2000. *The Story of the Santa Barbara Mission's Neophyte Village and the Monastery of Poor Clares*. Presentation at the Santa Barbara Natural History Museum, sponsored by the Santa Barbara County Archaeological Society.
1998. *The Red Beach Site: 3,000 Years of Buried Prehistory*. Paper presented during the Society for California Archaeology's 32<sup>nd</sup> Annual meeting in San Diego, California.
1997. *Exploring Ancient Cultures of South America: The Study of Early Hunter-Gatherers in Southern Peru*. Presentation given at the Santa Barbara Museum of Natural History. Co-sponsored by the Santa Barbara County Archaeological Society.
1997. *Exploring Early Sedentism on the South Coast of Peru*. Paper presented during the South Americanist Network meeting in Pasadena, California.
1996. *Exploring the Origins of Coastal Sedentism in the South-Central Andes*. Paper presented during the Society for American Archaeology's 61<sup>st</sup> Annual Meeting in New Orleans, Louisiana.
1996. *Uncovering Chinchorro Burials in Ilo, Peru: Recent Excavations from Yara*. With R. Sutter. Paper presented during the Midwest Andean and Amazonian Meetings in Beloit, Wisconsin.
1996. *Chinchorro Populations in Southern Peru: New Evidence from the Site of Yara*. Paper presented to the Department of Anthropology, Brown Bag Series, University of California, Santa Barbara.
1995. *El Prececeramico en la Costa Norte de Ilo: Yara*. Paper presented (in Spanish) during the Patrimonio Cultural de Ilo Seminario in Ilo, Peru.

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1995. *Exploring Coastal Sedentism in the South-Central Andes: Old Fish Bone and Ancient Burials*. Paper presented to the Department of Anthropology, Brown Bag Series, University of California, Santa Barbara.
1993. *Exploring the Connection Between Status and the Sexy Salmon*. Paper presented to the Department of Anthropology, Brown Bag Series, University of California, Santa Barbara.





**Thomas E. Olson**  
*Central California Regional Manager*  
*Senior Biologist*

**EXPERTISE**

- Endangered Species Consultation
- Agency Negotiations and Mitigation Planning
- Biological Resources Management along Transportation and Linear Facilities
- Pre-construction Surveys for Species of Concern
- Environmental Compliance

**EDUCATION**

- Colorado State University: M.S. Wildlife Biology, 1980
- California Polytechnic State University: B.S. Natural Resources Management, 1977

**PROFESSIONAL HISTORY**

- **Wildlife Biologist**, Garcia and Associates (GANDA), 1998-Present
- **Senior Biologist/Env. Unit Leader**, Dames & Moore, Santa Barbara, CA, 1985-1998
- **Biological Technician**, U.S. Fish & Wildlife Service, Fort Collins, CO, 1983-1985
- **Independent Contractor**, Colorado State University, Fort Collins, CO, 1981-1983
- **Wildlife Technician**, Colorado Division of Wildlife, Fort Collins, CO, 1980-1981

**PERMITS AND CERTIFICATES**

- Certified Wildlife Biologist, The Wildlife Society, 1986
- Certificate of Professional Development, The Wildlife Society, 1995
- Trapping/Scientific collection permits from CA Department of Fish and Game
- U.S. Fish and Wildlife Service permit for California tiger salamander and California red-legged frog

**PROFESSIONAL PROFILE**

Mr. Olson is a Wildlife Biologist and project manager with over 25 years of experience in natural resources management, regulatory permitting, and mitigation planning. His expertise includes planning, conducting and directing biological resources studies, including literature and field surveys for terrestrial fauna and flora. He is also adept at developing mitigation plans and negotiating mitigation requirements. Mr. Olson is well experienced in preparing Biological Assessments for federal- and state-listed threatened and endangered species.

**REPRESENTATIVE EXPERIENCE**

**Escolle Lease, Orcutt vicinity, CA:** *Permitted California Tiger Salamander Biologist:* Conducted three years of drift fence surveys and two years of aquatic surveys in advance of a Chevron oilfield remediation project on the Escolle Lease. Up to seven different drift fence arrays were surveyed for more than 90 nights over the three years. Prior to trapping, assisted in the

California tiger salamander (CTS) habitat evaluation study. Prepared annual and end-of-project reports.

**Laguna County Sanitation District, Orcutt vicinity, CA:** *Permitted California Tiger Salamander Biologist:* Evaluated proposed expansion areas and existing facility sites as habitat for CTS. Helped design trapping plan for Storrer Environmental Services. Assisted in trap installation and checking of traps during the first year of study. Found adult CTS in trap. Weighted, measured, described, and photographed the CTS before releasing it. Because presence was confirmed, the study was discontinued at that point.

**Cal Lands Oilfield Lease, Santa Maria, CA:** *Permitted California Tiger Salamander Biologist:* Assisted in study design, trap installation, and checking of traps for Storrer Environmental Services on the Cal Lands oilfield lease in advance of a remediation project. Involved in the first two years of the study.

**United California Lease, southwest of Santa Maria, CA:** *Permitted California Tiger Salamander Biologist:* Conducted habitat evaluation of the lease, as well as three years of aquatic surveys for CTS before and during oilfield remediation. Conducted pre-construction surveys and construction monitoring for CTS and other special-status wildlife species. Prepared weekly and annual reports.

**State Route 246 Improvements Project, between Lompoc and Buellton, CA:** *Permitted California Tiger Salamander Biologist:* Conducted two years of drift fence and aquatic surveys for California tiger salamanders for a highway widening project along State Route 246 between Lompoc and Buellton in northern Santa Barbara County. The project was conducted for Storrer Environmental Services, and involved surveys at eight sites and more than 500 traps. CTS were captured in drift fence traps at three of the eight ponds. Handled CTS adults and larvae, recorded measurements and took photos of captures.

**La Purisima Golf Course, Lompoc, CA:** *Permitted California Tiger Salamander Biologist:* Conducted drift fence surveys for California tiger salamanders at the La Purisima Golf Course, east of Lompoc. The project included five lines of traps for a total of more than 250. CTS were captured in drift fence traps along two of the five trap lines. Handled CTS adults and larvae, recorded measurements and took photos of captures.

**Union Valley Parkway Project, Santa Maria, CA:** *Permitted California Tiger Salamander Biologist:* Assisted in California tiger salamander trapping survey at a detention basin as part of studies for the Union Valley Parkway. Monitored the installation of traps. Checked traps during mornings following precipitation events. Handled California red-legged frogs and other species incidentally caught in traps. Recorded data for all species captured.

Conducted pre-construction surveys and monitoring for CTS at the Chevron - Wylie Lease Oil Field Remediation Project in the Santa Maria Valley. Examined hundreds of small mammal burrows, many with the assistance of a fiber optic scope. Excavated and backfilled burrows after establishing non-occupancy by CTS. Monitored remediation sites during ground-disturbing activities by equipment to ensure no loss of CTS.

**Cabrillo to Santa Ynez Reconductoring Project, Santa Barbara County, CA:** *Task Manager for Biological Resources:* The project involved reconductoring and replacement of poles along a 14.8-mile long PG&E 115 kV line between Buellton and Lompoc, CA. The work was conducted for CH2M Hill, the prime contractor to PG &E. Pre-construction surveys and compliance monitoring were conducted over an 18-month schedule. Resources of concern included rare

plants, wetlands, riparian habitats, vernal pools, California tiger salamander, California red-legged frog, badger, burrowing owl, and nesting birds. Submitted weekly reports to agencies, including the California Public Utilities Commission, CDFG, USFWS, and U.S. Army Corps of Engineers.

**PG&E North Ranch Project, San Luis Obispo, CA.** *Project Manager:* Planned, directed, and conducted surveys of a coastal area opened to public access. The project is an ongoing multi-year study of the effects of public access and trail use by hikers on sensitive biological resources, sustainable agriculture, trail and road stability, and cultural resources. Special-status species with known and potential occurrences on the site include San Diego desert woodrat, California red-legged frog, peregrine falcon, American badger, silvery legless lizard, and coast horned lizard. Annual survey reports are submitted to PG&E for review, then submitted for review by the California Coastal Commission.

**PG&E Onshore Seismic Project, Diablo Canyon Nuclear Power Plant.** Task Manager for pre-construction surveys and construction monitoring of seismic node installation and Accelerated Weight Drop testing. Tasks included pre-construction surveys and construction monitoring for rare, threatened, and endangered species on- and off-site. Sensitive resources included rare plants, burrowing owl, nesting birds, California tiger salamander, and California red-legged frog.

**Field Surveys for U.S. Borax Inc., Southeastern Kern County CA.** *Project Manager:* Performed a variety of survey and permit compliance tasks involving biological resources at U.S. Borax's Boron Operations in Boron, CA. Conducted numerous pre-construction surveys for desert tortoise, burrowing owl, and Mohave ground squirrel prior to use of new project sites. Followed up with construction monitoring as the areas were put into service. Assisted with rescue of birds from tailings and evaporation ponds. Conducted comprehensive surveys of U.S. Borax's Conservation Easement Area and performed vegetation transects on the overburden slopes to assess the success of revegetation efforts. Prepared reports for each task.

**Alamo Pintado Road Intersection Improvements Project, Solvang, Santa Barbara County, CA.** *Project Manager/Senior Biologist:* Managed the technical studies for biological, cultural, and paleontological resources, as well as hazardous materials investigations. All surveys and reports followed Caltrans protocols. The project was conducted for Quincy Engineering, the prime contractor to the City of Solvang. It involved widening of the intersection and the bridge over Alamo Pintado Creek, and the construction of a roundabout. Surveys included protocol-level studies of steelhead, California red-legged frog, southwestern willow flycatcher, and least Bell's vireo. Prepared comprehensive Natural Environment Study report and negotiated mitigation requirements with California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, and Regional Water Quality Control Board. Project was put on hold prior to implementation due to budget constraints.

**Bridge Replacement Projects, Santa Barbara County, CA.** *Project Manager/Senior Biologist:* Two projects are currently in progress for the Santa Barbara County Department of Public Works, including all biological resources permitting efforts needed for the replacement of the Kinevan Road and Fernald Point Lane bridges. Both are old, single-lane bridges that are being replaced to provide safer vehicular access in the vicinities. Tasks included interactions with resource agencies, field surveys, and preparation of Natural Environment Study reports per Caltrans protocol, and acquisition of streambed alteration agreements from the California Department of Fish and Wildlife. Resources of concern included riparian habitats, southern tarplant, Gambel's watercress, southern California steelhead, tidewater goby, nesting birds, bats, least Bell's vireo, and southwestern willow flycatcher.



May 2, 2014

Mr. Errin Briggs  
Energy Specialist  
Energy & Minerals Division  
Santa Barbara County P&D Department  
123 E. Anapamu Street  
Santa Barbara, CA 93101

Re: Revised Proposal to Prepare the PCEC Orcutt Hill Resource Enhancement Plan EIR with Contingency

Dear Errin:

Marine Research Specialists (MRS) is pleased to submit this Revised Proposed Cost Estimate for the PCEC Orcutt Hill Resource Enhancement Plan Project EIR. We have made changes to our costing to reflect your input based on our conference call last Thursday, April 24, 2014 as well as an included cost contingency of 10% and a breakdown by billing milestone. In that vein, non-contingency costs have been reduced from the original amount of \$206,469 to the new revised cost of \$186,849. The changes in the attached detailed costing are related to a significantly reduced level of effort expected between the preparation of the Admin Draft EIR and the Public Draft EIR. We have also added a small budget for addressing issue areas that were not previously included in the budget such as Visual Resources, Agricultural Resources, Noise and Recreation.

The contingency factor of 10% adds \$18,685 into the project amount for a total contract amount of \$205,534.

Thank you again for inviting Marine Research Specialists to bid on this important project. We look forward to working with the Santa Barbara County Energy Division. If you have any questions, please do not hesitate to give either myself or Luis Perez a call at 805.289.3934.

Best Regards,

A handwritten signature in cursive script that reads 'Greg Chittick'.

Greg Chittick  
Senior Project Manager



Marine • Research • Specialists

Key Staff	Classification	Rate (\$/hr)	TASK 1		TASK 2		TASK 3		TASK 4		TASK 5		Total	
			Kick-off, Peer Review, PD, Alt, & Environmental Setting, Meetings, ODC		ADEIR & Technical Studies, Meetings, ODC		Public Draft EIR and Technical Appendices, Meetings, ODC		Public Workshop, Summary of PW Comments, Response to Comments, AFFIR,		Draft Final, Public Hearing, FEIR, Meetings, ODC + CONTINGENCY		Hours	Cost
			Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost		
<b>Direct Labor</b>														
<b>A. Project Description/Alternative Screening</b>														
G. Chittick	Senior Engineer	\$180.00	31	\$5,544	1	\$144	5	\$864	3	\$504	1	\$144	40	\$7,200
L. Perez	Project Manager	\$200.00	13	\$2,560	1	\$160	3	\$560	1	\$160	1	\$160	18	\$3,600
<b>Total Project Description and Alternatives</b>			44	\$8,104	2	\$304	8	\$1,424	4	\$664	2	\$304	58	\$10,800
<b>B. Safety and Risk of Upset/Hazards</b>														
G. Chittick	Senior Engineer	\$180.00	16	\$2,880	28	\$5,040	4	\$720	10	\$1,800	2	\$360	60	\$10,800
S. Radis	Principal I	\$200.00	10	\$1,900	18	\$3,500	0	\$0	2	\$400	0	\$0	29	\$5,800
<b>Total Safety and Risk of Upset</b>			26	\$4,780	46	\$8,540	4	\$720	12	\$2,200	2	\$360	89	\$16,600
<b>C. Air Quality</b>														
G. Chittick	Senior Engineer	\$180.00	33	\$5,904	43	\$7,704	13	\$2,304	17	\$3,024	9	\$1,584	114	\$20,520
S. Radis	Principal I	\$200.00	9	\$1,760	15	\$2,960	5	\$960	5	\$960	5	\$960	38	\$7,600
<b>Total Air Quality</b>			42	\$7,664	58	\$10,664	18	\$3,264	22	\$3,984	14	\$2,544	152	\$28,120
<b>D. Soils/Geological Resources</b>														
P. Russell (LEIDOS-SAIC)	Geologist	\$176.00	36	\$6,336	49	\$8,639	4	\$634	10	\$1,690	2	\$282	100	\$17,600
<b>Total Geological Resources</b>			36	\$6,336	49	\$8,639	4	\$634	10	\$1,690	2	\$282	100	\$17,600
<b>E. Biological Resources</b>														
T. Olson	Biologist	\$138	16	\$2,145	16	\$2,145	2	\$220	6	\$770	2	\$220	40	\$5,500
T. Mullen	Senior Biologist	\$190.00	9	\$1,672	15	\$2,812	3	\$532	9	\$1,672	3	\$532	38	\$7,220
<b>Total Biological Resources</b>			24	\$3,817	30	\$4,957	4	\$752	14	\$2,442	4	\$752	78	\$12,720
<b>F. Water Resources</b>														
P. Russell (LEIDOS-SAIC)	Geologist	\$176.00	11	\$1,883	19	\$3,291	3	\$563	3	\$563	3	\$563	39	\$6,864
<b>Total Water Resources</b>			11	\$1,883	19	\$3,291	3	\$563	3	\$563	3	\$563	39	\$6,864
<b>G. Transportation</b>														
G. Chittick	Senior Engineer	\$180.00	1	\$216	3	\$504	0	\$0	2	\$360	0	\$0	6	\$1,080
<b>Total Transportation</b>			1	\$216	3	\$504	0	\$0	2	\$360	0	\$0	6	\$1,080
<b>H. Land Use</b>														
L. Perez	Project Manager	\$200.00	5	\$1,000	7	\$1,400	2	\$400	2	\$400	2	\$400	18	\$3,600
<b>Total Land Use</b>			5	\$1,000	7	\$1,400	2	\$400	2	\$400	2	\$400	18	\$3,600
<b>I. Cultural Resources</b>														
K. Foster (Leidos-SAIC)	Archaeologist	\$165.00	23	\$3,795	21	\$3,465	2	\$330	2	\$330	2	\$330	50	\$8,250
<b>Total Cultural Resources</b>			23	\$3,795	21	\$3,465	2	\$330	2	\$330	2	\$330	50	\$8,250
<b>J. Public Services, Utilities, Solid Waste</b>														
G. Chittick	Senior Engineer	\$180.00	2	\$432	6	\$1,008	0	\$0	2	\$360	0	\$0	10	\$1,800
<b>Total Public Services and Utilities</b>			2	\$432	6	\$1,008	0	\$0	2	\$360	0	\$0	10	\$1,800

Key Staff	Classification	Rate (\$/hr)	TASK 1		TASK 2		TASK 3		TASK 4		TASK 5		Total	
			Total		Total		Total		Total		Total		Total	
			Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost
<b>K. Fire Protection and Emergency Services</b>														
G. Chittick	Senior Engineer	\$180.00	8	\$1,368	8	\$1,512	0	\$1,980	0	\$0	0	\$0	16	\$4,860
<b>Total Fire Protection and Emergency Services</b>			8	\$1,368	8	\$1,512	0	\$1,980	0	\$0	0	\$0	16	\$4,860
<b>L. Energy and Mineral Resources</b>														
G. Chittick	Senior Engineer	\$180.00	1	\$216	3	\$504	0	\$0	0	\$0	0	\$0	4	\$720
<b>Total Energy and Mineral Resources</b>			1	\$216	3	\$504	0	\$0	0	\$0	0	\$0	4	\$720
<b>M. Other: Visual/Ag/Noise/Rec</b>														
G. Chittick	Senior Engineer	\$180.00	2	\$432	6	\$1,008	2	\$360	1	\$180	1	\$180	12	\$2,160
L. Perez	Senior Project Manager	\$200.00	2	\$480	6	\$1,120	2	\$400	1	\$200	1	\$200	12	\$2,400
<b>Total Visual Resources and Aesthetics</b>			2	\$912	6	\$2,128	2	\$760	1	\$380	1	\$380	12	\$4,560
<b>N. Report Production</b>														
B. Stephens	Specialist I	\$90.00	10	\$900	14	\$1,260	16	\$1,440	12	\$1,080	16	\$1,440	68	\$6,120
G. Chittick	Senior Engineer	\$180.00	6	\$1,008	8	\$1,512	8	\$1,440	6	\$1,080	6	\$1,080	34	\$6,120
L. Perez	Senior Project Manager	\$200.00	4	\$880	6	\$1,120	6	\$1,200	4	\$800	4	\$800	24	\$4,800
<b>Total Report Production</b>			20	\$2,788	28	\$3,892	30	\$4,080	22	\$2,960	26	\$3,320	126	\$17,040
<b>O. Project Management</b>														
G. Chittick	Senior Engineer	\$180.00	16	\$2,808	24	\$4,248	22	\$3,888	22	\$3,888	18	\$3,168	100	\$18,000
L. Perez	Senior Project Manager	\$200.00	14	\$2,880	21	\$4,160	20	\$3,920	16	\$3,120	14	\$2,720	84	\$16,800
<b>Total Program Management</b>			30	\$5,688	44	\$8,408	41	\$7,808	37	\$7,008	31	\$5,888	184	\$34,800
<b>Total Direct Labor</b>			275	\$48,999	329	\$59,236	118	\$22,715	133	\$23,341	89	\$15,123	942	\$169,414
<b>Other Direct Costs</b>														
Travel				\$770	\$300	\$340	\$200	\$360	\$1,970					
Mailing				\$130	\$70	\$0	\$180	\$120	\$500					
Printing and Binding				\$395	\$590	\$4,230	\$830	\$4,880	\$10,925					
Communication				\$95	\$35	\$50	\$50	\$25	\$255					
Records Search				\$360	\$840	\$0	\$0	\$0	\$1,200					
Other Direct Costs Subs				\$150	\$350	\$0	\$0	\$0	\$500					
Miscellaneous				\$75	\$175	\$250	\$0	\$0	\$500					
G&A on Other Direct Costs				\$198	\$236	\$487	\$126	\$539	\$1,385					
<b>Total Other Direct Costs</b>				\$2,173	\$2,596	\$5,357	\$1,386	\$5,924	\$17,435					
<b>Total EIR Amount</b>				\$51,172	\$61,832	\$28,072	\$24,727	\$21,046	\$186,849					
<b>CONTINGENCY at 10%</b>								\$18,685	\$18,685					
<b>Total EIR with Contingency</b>				\$51,172	\$61,832	\$28,072	\$24,727	\$39,731	\$205,534					