

**STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION**

STAFF REPORT FOR REGULAR MEETING OF MARCH 14-15, 2012
Prepared February 10, 2012

ITEM NUMBER: 21

SUBJECT: Executive Officer's Report to the Board

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This item presents a brief discussion of issues that may interest the Board. Upon request, staff can provide more detailed information about any particular item.

WATER QUALITY CERTIFICATIONS

[Kim Sanders 805/542-4721]

The tables on the following pages list applications received and certifications issued from December 15, 2011 – February 6, 2012.

WATER QUALITY CERTIFICATIONS

[Kim Sanders 805/542-4771]

401 Water Quality Certification Applications Received December 15, 2011 – February 6, 2012.

Applicant	Date Received	Project Title	Project Purpose	Location	County	Receiving Water	Total Impact ¹	Status
Central Coast Water Authority - Ron Cline	12/19/11	Reach II Winter Stabilization Project	Place rock armor along an exposed section of water supply pipeline to temporarily protect it from damage or rupture during high river flows until the pipeline can be buried below channel scour.	Cachuma Village	Santa Barbara	Santa Ynez River	0.04 acres	Cert. about to be issued
County of San Luis Obispo Dept. of Public Works - Dave Flynn, Deputy Director	1/10/12	Arroyo Grande Creek Channel Waterway Management Program	Manage vegetation and sediment and raise levee to improve flood control capacity.	Un-incorporated San Luis Obispo County	San Luis Obispo	Los Berros Creek, Arroyo Grande Creek	13.68 acres	Under staff review
California Department of Transportation - Cathy Stettler	1/12/12	Culvert Replacement at SR 58 PM 40.9	Replace existing 18-inch diameter pipe culvert with three 36-inch culverts to prevent water from overtopping onto the roadway.	Santa Margarita	San Luis Obispo	Trout Creek, Shell Creek	0.014 acres	Incomplete application
Union Pacific Railroad - Mark McCune	1/17/12	UPRR SBAR 291.33 Narlon Bridge Replacement Project	Replace existing deteriorating 720-foot open-deck steel bridge crossing with a new 760-foot steel bridge.	Vandenberg Air Force Base	Santa Barbara	San Antonio Creek	0.04 acres	Under staff review

Applicant	Date Received	Project Title	Project Purpose	Location	County	Receiving Water	Total Impact ¹	Status
County of San Luis Obispo Dept. of Public Works - Dave Flynn, Deputy Director	1/18/12	Mehlschau Road Bridge Erosion Countermeasure Project	Remove an existing overside drain pipe and headwall and install a new swale, overside drain pipe, and riprap field to prevent erosion of roadway and sub grade.	Nipomo	San Luis Obispo	Arroyo Grande Creek	0.00109 acres	Under staff review
Granite Construction Company - Amy Shanahan	1/19/12	Freeman Quarry Expansion Project	Install an emergency spillway, stabilized outlet, and a riprap dissipation device to enlarge an existing desilting basin as part of a larger project to expand the existing Freeman Quarry from 61 to 151 acres.	Gilroy	Santa Clara	Tick Creek	0.048 acres	Incomplete application
California Army National Guard - 1 LT David Ruiz	1/24/12	Training Area Hotel 88M Trail Rehabilitation	Construct a Motor Transport Operators Course including trail rehabilitation, armoring three stream crossings, outloping, installing rolling dips and rock weir sedimentation traps, trail re-alignment, berm removal, and gully repair.	Camp San Luis Obispo	San Luis Obispo	Chorro Creek	0.014 acres	Under staff review
County of San Luis Obispo Dept. of Public Works - Dave Flynn, Deputy Director	1/25/12	Templeton Road Widening Project	Widen road shoulders, replace culverts, replace an existing corrugated metal pipe culvert with a concrete box culvert, and shift approximately 700 feet of the waterway south by 8 feet.	Templeton	San Luis Obispo	unnamed tributary to Salinas River	0.05 acres	Under staff review
California American Water Company - John Kilpatrick	1/31/12	Carmel River Reroute and San Clemente Dam Removal	Remove San Clemente Dam and Old Carmel River Dam and reroute the Carmel River into San Clemente Creek to avoid seismic risks to dam, improve fish passage, and improve habitat.	Carmel Valley	Monterey	Carmel River, San Clemente Creek, Western Tributary, Eastern Tributary, San Clemente Reservoir	28.61 acres	Under staff review

^[1] Total Impact includes both temporary and permanent impacts to riparian, streambed, and/or wetland environments within federal jurisdiction.

401 Water Quality Certifications Issued December 15, 2011 – February 6, 2012.

Applicant	Date Certified	Project Title	Project Purpose	Location	County	Receiving Water	Total Impact ¹
Monterey Bay Aquarium Research Institute Pier - Kers Clausen (Clausen Engineers)	12/19/11	Monterey Bay Aquarium Research Institute Pier Replacement	Demolish and replace pier with 1200 square foot addition and 1200 square foot removal on adjacent site.	Moss Landing	Monterey	Monterey Bay	0.8 acres
City of Santa Barbara Waterfront Department - Karl Treiberg	12/28/11	Santa Barbara Waterfront Area Sediment Management Program	Continued periodic maintenance dredging, deposition, grading, and beach grooming for Santa Barbara harbor and surrounding beaches and waterfront area.	Santa Barbara	Santa Barbara	Pacific Ocean	varies annually
City of San Luis Obispo - Freddy Otte	1/6/12	Sediment Removal in San Luis Obispo Creek and Prefumo Creek Bypass Channels	Remove sediment from bypass channels to restore conveyance capacities during storm and flood events.	San Luis Obispo	San Luis Obispo	San Luis Obispo Creek and Prefumo Creek	1.31 acres
Chevron Environmental Management Company - Greg Underwood	1/27/12	Casmalia Mineral Fee and Tompkins Lease Remediation	Excavate and remove petroleum hydrocarbon-containing soils from former oil well features, pipelines, and three concrete footings.	Casmalia	Santa Barbara	Shuman Creek	4.29 acres
PG&E - Christina Holstine	1/31/12	Crazy Horse Canyon Switching Station Project	Improve electric service reliability and increase operational flexibility for the central and	East of Prunedale	Monterey	Gabilan Creek	0.025 acres

Applicant	Date Certified	Project Title	Project Purpose	Location	County	Receiving Water	Total Impact ¹
			northern areas of Monterey County and northern San Benito County.				

^[1] Total Impact includes both temporary and permanent impacts to riparian, streambed, and/or wetland environments within federal jurisdiction.

This item presents a brief discussion of issues that may interest the Board. Upon request, staff can provide more detailed information about any particular item.

Perchlorate Groundwater Cleanup, Olin Corporation, Santa Clara County/Llagas Groundwater Basin

[Dean Thomas: 805/549-3690]

Summary: This update provides background information on perchlorate, including its fate and transport, health effects, regulatory health and cleanup standards, and groundwater treatment options. This report also provides the status of perchlorate cleanup efforts at the Olin facility located at 425 Tennant Avenue in Morgan Hill. This report serves as an update for both the Water Board and the public on the cleanup project's status.

Perchlorate concentrations associated with the Olin cleanup case continue to decrease throughout the Llagas Subbasin due to successful onsite soil remediation, operation of the onsite groundwater/hydraulic containment and treatment system, and attenuation through natural physical processes of dilution and dispersion. Currently, nine domestic supply wells exceed the drinking water standard for perchlorate in the Llagas Subbasin as compared to 188 wells during the first quarter of 2004.

Olin will begin hydraulic containment and treatment of the offsite groundwater perchlorate plume this year in the intermediate aquifer, with system startup and shakedown currently scheduled for mid-2012. Additionally, Water Board staff conditionally concurred with Olin's pilot study to evaluate a novel approach for containing and water quality objective for perchlorate in the lower deep aquifer.

Background Perchlorate Information

Perchlorate (ClO₄⁻) occurs both naturally and as a man-made chemical. One-third of all perchlorate use in the United States is in California and 90 percent of California's perchlorate use is related to the aerospace industry. There are three major man-made sources of perchlorate in the United States:

- Ammonium perchlorate, used as an oxidizer in solid rocket propellants,
- Sodium perchlorate, used in slurry explosives, and
- Potassium perchlorate, used in road flares and air bag inflation systems.

Perchlorate salts occur naturally and their abundance correlates with the dryness of the climate. Probability maps in a recent publication (Fram, M., and Belitz, K., December 2010, Probability of Detecting Perchlorate under Natural Conditions in Deep

Groundwater in California and the Southwestern United States (<http://ca.water.usgs.gov>) indicate that the probability of detecting naturally occurring perchlorate above 0.1 micrograms per liter ($\mu\text{g/L}$) in deeper aquifers in coastal groundwater basins of California is greater than sixty percent, and the probability of detecting perchlorate at a concentration of approximately 1 $\mu\text{g/L}$ is one to five percent.

Fate and Transport

Perchlorate is a highly soluble, mobile compound that dissolves and moves with water. For comparison, perchlorate has similar chemical properties in water as nitrate because it is stable in oxygenated water, chemically degrades in anoxic water, and does not adhere to soil particles. Thus, as with nitrate, large perchlorate groundwater plumes can form in permeable and oxygenated aquifers.

Health Effects

Perchlorate interferes with the natural function of the thyroid gland by inhibiting the uptake of iodide. Iodide is an essential component of thyroid hormones, which are needed for prenatal and postnatal growth and development, as well as for normal body metabolism. Doctors used potassium perchlorate until recently to treat hyperthyroidism related to Graves disease, and it is still used diagnostically to test thyroid hormone production in some clinical settings.

Regulatory Standards

Perchlorate is a regulated drinking water pollutant in California, with a maximum contaminant level (MCL) of six micrograms per liter ($\mu\text{g/L}$), effective October 18, 2007. Currently, no federal drinking water MCL for perchlorate exists.

Recent studies have led the California Office of Environmental Health Hazard Assessment (OEHHA) to recommend that the Public Health Goal (PHG) for perchlorate be lowered from six $\mu\text{g/L}$ to one $\mu\text{g/L}$. OEHHA is recommending a lower PHG because of new toxicological information about the effects of perchlorate on infants. The draft PHG is currently under public review. A PHG is not an enforceable standard. State law requires the California Department of Public Health to use a PHG as guidance in developing MCLs, which is the enforceable state standard for drinking water that public water systems must meet. Therefore, if a PHG of one $\mu\text{g/L}$ is established by OEHHA, this will not affect the MCL unless the California Department of Public Health conducts an evaluation and recommends a change to the MCL.

Treatment Methods

Perchlorate treatment in water is complicated because the perchlorate anion does not respond to typical treatment techniques due to its fundamental physical and chemical nature. Currently, ion exchange is the most common treatment technology for removing perchlorate from groundwater and is used at the Olin site. Biological degradation, thermal treatment, and, more recently, phytoremediation have been used for perchlorate treatment at other cleanup sites.

Site Background

The former Olin Corporation Facility (Olin) is a 13-acre parcel located in southern Morgan Hill in Santa Clara County. Olin and Standard Fusee used potassium perchlorate to manufacture flares from 1956 to 1995 at this facility. Perchlorate was first detected at the site in August 2000 during a due diligence investigation by a potential buyer, and following additional assessment, in 2003, Olin discovered that perchlorate

had migrated offsite. Since February 2001, Olin has continued to investigate, monitor, and clean up perchlorate impacts from this site.

Dissolved perchlorate migrated into groundwater below the site, resulting in a perchlorate plume that, at its largest, extended approximately 9.5 miles southeast of the site and to a depth of over 500 feet. Perchlorate has degraded groundwater in the shallow, intermediate, and deep aquifer zones of the Llagas Subbasin. Olin's extensive hydrogeological investigations show a division of the Llagas Subbasin sediments into three main aquifers 1) the shallow aquifer (surface to approximately 50 feet below ground surface [bgs]), 2) the intermediate aquifer (approximately 70 to 180 feet bgs), and 3) the deep aquifer (approximately 200 feet bgs to a maximum of over 500 feet bgs). The intermediate and deep aquifers are further subdivided into three water-bearing units apiece (upper, middle, and lower). The basin's alluvial sediments overlie relatively impermeable slope debris and bedrock at a maximum depth of over 500 feet beneath the center axis of the Llagas Subbasin southeast of the site. In general, regional groundwater flow is toward the southeast, except near large-capacity pumping wells where strong, localized hydraulic gradient reversals exist in the deeper aquifers. The most comprehensive hydrogeologic site conceptual model is included in Olin's January 29, 2010, Annual Cleanup Progress Report and Characterization Update, Olin/Standard Fusee Site, 425 Tennant Avenue, Morgan Hill, California (2009 Characterization Report located at: http://geotracker.waterboards.ca.gov/esi/uploads/geo_report/5633332610/SL0608756247.PDF)

Most of the groundwater extracted for municipal, agricultural, and domestic use comes from the intermediate aquifer occurring between 70 and 200 feet below ground surface, including a substantial number of private domestic wells throughout the rural portions of this basin.

Site Investigation and Cleanup Efforts

In response to the discovery of perchlorate in groundwater in 2000, and pursuant to requirements issued by the Central Coast Water Board's Executive Officer (including several 13267 requirements and Cleanup and Abatement Order R3-2005-0014), Olin conducted groundwater plume characterization and monitoring, onsite soil investigations, and cleaned up the perchlorate source area with excavation and onsite biological treatment for shallow soils, and insitu biological treatment for deeper soils. Olin successfully completed onsite soil cleanup in 2006. Olin also installed a groundwater extraction and treatment system and began its operation in 2004 to capture and treat perchlorate in the shallow and intermediate aquifer before it mobilized beyond the Site property boundary.

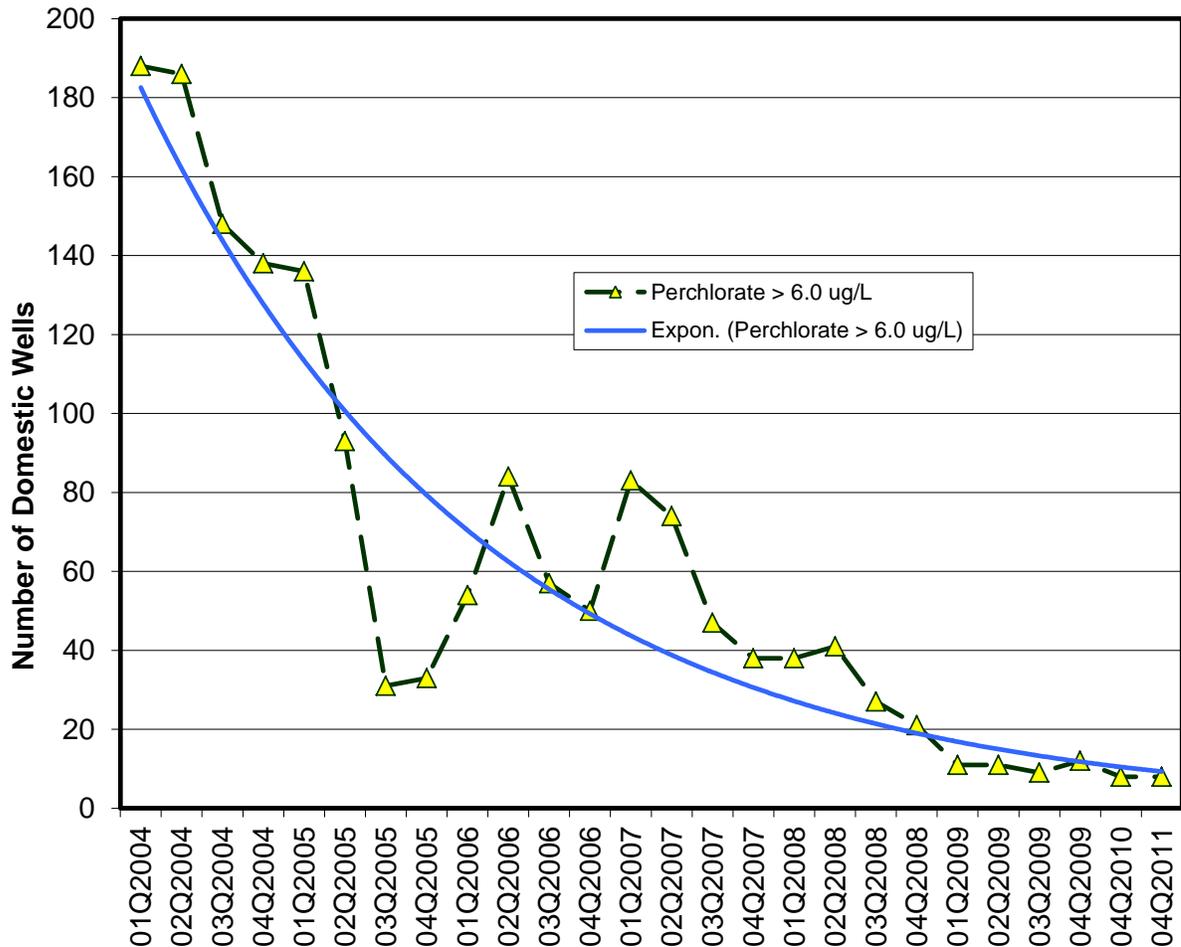
In December 2007, the Central Coast Water Board's Executive Officer issued Cleanup and Abatement Order (Order) No. R3-2007-0077 (following a public hearing for the item) which required completion of all necessary characterization and investigation activities and implementation of remedial actions (hydraulic control and clean up) associated with the perchlorate release from the site. This Order requires Olin to cleanup perchlorate to background levels, and acknowledges a phased approach where Olin is required to actively cleanup and contain Priority Zone A (groundwater with perchlorate concentrations greater than 24.5 µg/L) in the deep aquifer and both Priority Zone A and Priority Zone B (groundwater with perchlorate concentrations greater than 11 µg/L) in the intermediate aquifer. The increased requirements for the intermediate aquifer reflect

that nearly all of the water supply wells in the area are screened in this aquifer zone. Olin's phased cleanup strategy consists of hydraulic containment and treatment of groundwater in the area of highest concentrations (plume core as identified above), in combination with monitored attenuation for those areas with lower perchlorate concentrations. This Order also includes a schedule for active cleanup and containment of perchlorate in the intermediate aquifer but does not specify a schedule for initiation of cleanup for the lower deep aquifer.

Decreasing Trends in Perchlorate Concentrations in the Llagas Subbasin

Residents, agricultural operations, businesses, and communities near the former Olin site rely solely on groundwater for domestic, municipal, agricultural, and industrial supply purposes. Olin began monitoring perchlorate in offsite domestic supply wells in 2004. Since offsite monitoring of domestic wells began, perchlorate concentrations have decreased throughout the Llagas Subbasin, particularly south of Middle Avenue (approximately 1.5 miles south of the site). Historically, over 800 domestic supply wells, predominantly screened in the intermediate aquifer, exhibited perchlorate impacts. In the first quarter of 2004, 188 domestic supply wells had perchlorate concentrations greater than the MCL (6 µg/L); this number has declined to nine domestic supply wells with perchlorate above the MCL in 2011. The graph below shows the decreasing trend in the number of domestic wells with perchlorate concentrations exceeding the MCL over the past seven years of monitoring. Nearly all of the wells with perchlorate above MCL are within a mile and a half of the former Olin site, within the plume core area. The overall decreasing trends demonstrate that attenuation resulting from onsite soil remediation, onsite groundwater containment and treatment, and natural physical processes (such as dilution) have resulted in decreasing perchlorate concentrations throughout the Llagas Subbasin over the last seven years. The graph shows a "leveling off" of the number of wells remaining in the replacement water program at eight to ten wells. The remaining wells occur near a secondary source of perchlorate that persists in low permeable soils (e.g., A-B aquitard consisting of clays and silts) above the intermediate aquifer. Olin is scheduled to begin the Aquifer Containment and Cleanup System (ACS) in late spring to begin removal of perchlorate greater than 11 µg/L in the intermediate aquifer and from this secondary source.

Domestic Wells >MCL



Attachment 1 shows the reduction in the perchlorate groundwater plume in the intermediate aquifer (70 to 200 feet below the surface) from 2007 to 2011. The sequence of figures in Attachment 1 shows a significant reduction in the size of the perchlorate plume outside the area of the plume core (south of the area with perchlorate concentrations above 24.5 $\mu\text{g/L}$ within 1.5 miles south of the site and colored red). We expect the decrease in perchlorate concentrations to accelerate after startup of the ACS in mid-2012. The ACS targets Priority Zones A and B (perchlorate concentrations greater than 11 $\mu\text{g/L}$) with intermediate aquifer extraction well IEW-1R. However, as concentrations approach lower levels (around 4 $\mu\text{g/L}$), concentration declines may slow down due to the influence of other potential background perchlorate sources and typical "flat lining" behavior of groundwater cleanup systems. Going forward, there may be short-term localized increases in perchlorate concentration during high precipitation years due to an increase in mobilization (flushing) of perchlorate in the unsaturated zone and A-B aquitard above the intermediate aquifer.

Replacement Water Service

Olin is required to provide replacement water (e.g., bottled water or wellhead treatment) to well owners and tenants whose drinking water wells have perchlorate concentrations

greater than 6.0 µg/L. Currently, Olin provides bottled drinking water to users of three domestic supply wells, and conducts post-bottled water termination monitoring at 17 domestic supply well locations where each well's perchlorate concentration has consistently dropped below 6.0 µg/L. Olin provides bottled water in accordance with Water Board Cleanup and Abatement Order No. R3-2004-0101 (CAO No. R3-2004-0101), as revised by the State Water Resources Control Board in its Order WQ 2005-0007 (State Water Board Order) and Water Board staff's letters dated October 6, 2006, December 8, 2006, and April 23, 2010. In accordance with these Orders, Olin may terminate replacement water service, with Executive Officer concurrence, for users of wells that have four consecutive quarters of perchlorate results less than or equal to 6.0 µg/L.

After replacement water service is terminated, Olin is required to monitor perchlorate in those wells in accordance with the requirements of the State Water Board Order. Since CAO No. R3-2004-0101 was issued to Olin (July 2004), approximately 180 wells have met the bottled water termination criteria in accordance with State Water Board Order requirements, because each of these wells had exhibited at least four consecutive quarters with perchlorate concentrations below the MCL. As with each of these previous bottled water terminations, Water Board staff will continue to review and evaluate all data submitted by Olin that is associated with bottled water terminations and post-bottled water termination monitoring. Additionally, Water Board staff evaluates monitoring data submitted in accordance with the monitoring and reporting program (separate from post-bottled water termination monitoring) to determine if concentrations continue to decline even in areas that are no longer monitored through the post-bottled water termination monitoring requirements.

Domestic Supply Well Ion Exchange Systems

In addition to providing bottled water to well users, as described above, Olin continues to operate and maintain ion exchange systems on five private domestic supply wells and these systems continue to remove perchlorate as designed. All domestic supply wells that are actively used as a potable water source and have perchlorate concentrations above 7.9 µg/L are equipped with ion exchange systems, with the exception of two wells. Of these exceptions, Olin has provided funding for one well owner to connect to the San Martin municipal water system. The other well has bacteria counts that exceed Santa Clara County recommendations. The well owner needs to address the bacteria issue prior to Olin installing an ion exchange system. All of the domestic wellhead treatment systems are located within one mile southeast and downgradient of the Olin site within the "plume core" area. Olin also pays for ion-exchange wellhead treatment at one San Martin municipal well. Olin has not installed any new ion exchange systems since December 2006.

Status of Cleanup Activities and Compliance with Cleanup and Abatement Order No. R3-2007-0077

Onsite Groundwater Treatment System – After discovery of perchlorate in offsite wells in 2003, the Executive Officer required Olin to initiate operation of the onsite groundwater treatment system (GWTS). Olin began operation of the GWTS on April 7, 2004. Olin designed the system to extract perchlorate-impacted groundwater from the shallow and the upper-intermediate aquifers at the southern (downgradient) boundary of the site. Olin treats the extracted water with a perchlorate-specific ion exchange process after which the treated groundwater is reinjected into the shallow aquifer along the northern

(upgradient) portion of the site. As discussed above, in 2006, Olin successfully completed the onsite soil cleanup using enhanced bioremediation methods.

Since 2004, operation of the onsite GWTS coupled with successful onsite soil remediation, have effectively decreased the mass and concentration of perchlorate in the shallow aquifer beneath and downgradient of the site. As of December 2011, Olin has treated over 285 million gallons of groundwater and removed 108 pounds of perchlorate from onsite groundwater. Based on analytical data from the groundwater treatment system influent, this represents an average extracted perchlorate concentration of approximately 45 µg/L. Olin operates the GWTS according to an Executive Officer-approved April 9, 2010 GWTS Operations Protocol (http://geotracker.waterboards.ca.gov/regulators/deliverable_documents/9060185074/GWTS%20Operations%20Protocol.pdf) that allows for shutting down well pumping operation according to perchlorate concentrations in sentinel wells and the onsite extraction wells. As of summer 2011, perchlorate concentrations in the shallow aquifer at the site boundary have decreased to Priority Zone B concentrations (11 µg/L). This concentration falls below trigger levels for effective perchlorate reduction in this aquifer, and therefore Olin is operating only the upper intermediate extraction well; should concentrations rebound in the shallow aquifer above the trigger level, the shallow aquifer extraction system will be restarted.

Groundwater Investigations – For the purposes of focusing on the implementation of groundwater cleanup southeast of the site, Water Board staff concluded in 2009, that after numerous groundwater investigation phases, delineation of the perchlorate plume in the shallow, intermediate, and deep aquifers is sufficient to proceed with a phased cleanup strategy. However, Olin has since installed additional monitoring wells in the intermediate and deep aquifers to further characterize the perchlorate plume and monitor performance of ACS extraction wells. It should be noted that compared to similar projects with larger scale and higher complexity statewide and nationally, this project achieved complete characterization in a relatively short period of time.

Offsite Aquifer Cleanup Status – CAO R3-2007-0077 outlines a phased cleanup approach and schedule for Olin to first address the intermediate aquifer's cleanup in the plume core, and subsequently address cleanup of the deep aquifer after Olin's completion of characterization activities in the lower deep aquifer (characterization now complete). The first phase of cleanup originally consisted of extracting groundwater from intermediate aquifer extraction well IEW-1, conveying the water via a buried pipeline approximately 1.5 miles north to the Site, treating it using ion exchange, followed by recharging it into the shallow aquifer for beneficial reuse.

Revised ACS Design

In April 2011, Olin submitted the 100% Design Report for the ACS. The 100% Design Report includes onsite treatment system expansion by 500 square feet to accommodate larger treatment vessels, an office/control room, three new onsite injection wells, pumping from IEW-1R (located approximately 5,300 feet from the onsite treatment system) at 400 gallons per minute, and pumping from deep aquifer extraction well DEW-1 (located approximately 5,600 feet from the onsite treatment system) at 120 gallons per minute, at a predicted influent perchlorate concentration of 21 µg/L. DEW-1 is screened and designed to contain and cleanup perchlorate from the upper and middle-deep aquifer units at perchlorate concentrations above 24.5 µg/L (Priority Zone A). The ACS 100% Design Report did not address perchlorate in the lower deep aquifer. Instead, in

an April 2011 work plan, Olin proposed a novel pilot study (Pilot Study) for hydraulically containing the northward migration of perchlorate in the lower deep aquifer and to evaluate if this new technology can address perchlorate in the lower deep aquifer. The Pilot Study is described in more detail below.

Relocation of IEW-1

In early 2011, Olin installed and tested a new intermediate aquifer extraction well (IEW-1R) in order to optimize containment and capture of perchlorate at the downgradient boundary of Priority Zone B (11 µg/L perchlorate and greater). The perchlorate plume has contracted northward making the original location (IEW-1) less efficient. Additionally, the City of Morgan Hill is in the process of extending Butterfield Boulevard and a regional detention basin near the former IEW-1 location (See more details about the City of Morgan Hill project at: <http://www.morgan-hill.ca.gov/DocumentView.aspx?DID=3776>). The new location provides for better hydraulic containment opportunities, minimizes interference and associated construction traffic challenges from regional detention basin, and also has a lower nitrate concentration, providing for lower potential reinjection impact.

Reinjection of Treated Groundwater under Order No. R3-2011-0209

Water Board staff used the 100% Design Report and associated feasibility studies to develop draft Waste Discharge Requirements (WDR) for treated effluent discharged from the ACS. The site specific WDR was required to address the anti-degradation issues resulting from the reinjection of treated groundwater containing nitrates at concentrations above those of the receiving water. The WDR establishes discharge/effluent limits for nitrate due to elevated concentrations in groundwater originating mainly from agricultural sources in the area. The Water Board adopted WDR Order No. R3-2011-0209 for the ACS discharge and the associated California Environmental Quality Act (CEQA) resolution for the ACS project during the July 2011 Board Meeting, allowing Olin to obtain the necessary local permits to construct and begin operation of the offsite ACS. The approved schedule calls for completion and startup of the ACS in mid-2012. Permits have taken Olin longer to obtain than originally anticipated, resulting in construction delays. However, Water Board staff anticipates significant cleanup progress for the intermediate, upper, and middle deep aquifers starting this year.

Pilot Study for Cleanup and Containment of Lower Deep Aquifer

After thorough review and consultation with the City of Morgan Hill and the Santa Clara Valley Water District, Central Coast Water Board staff conditionally concurred with Olin's Pilot Study for addressing perchlorate in the lower deep aquifer. The associated work plan describes how Olin plans to install up to two wells that will allow perchlorate-free groundwater from the intermediate aquifer to flow into the perchlorate impacted lower deep aquifer under natural hydraulic conditions. The proposed well(s) allows groundwater to flow under the ambient downward gradient (without the need for an electrical pump) to create a hydraulic barrier (preventing perchlorate from migrating toward City of Morgan Hill supply wells in the north) and also reducing the perchlorate concentrations via dilution and dispersion processes. Olin and Water Board staff will evaluate the results of the initial Pilot Study to determine whether Olin can implement this technology as a full-scale remedy for reducing perchlorate concentrations in the lower deep aquifer. The Pilot Study work plan schedule calls for its implementation within nine months of Executive Officer's approval. The lower deep aquifer is not commonly used as a drinking water supply and no well is under threat of impact from the

perchlorate plume in the lower deep aquifer (the closest drinking water supply well is located approximately 4,300 feet from the perchlorate plume), and there are no supply wells currently planned for this area, allowing time to evaluate the results provided by this Pilot Study.

Perchlorate Community Advisory Group

The Perchlorate Community Advisory Group (PCAG) last met on May 20, 2011. The PCAG meets semiannually or annually in San Martin. The advisory group provides a forum for public discussion of the perchlorate impacts to groundwater and potential solutions. Water Board staff solicits advisory group input at key decision points in the investigation and cleanup process and continues to update the public through participation at each PCAG meeting.

Olin Reports and Correspondence can be accessed on our website at:

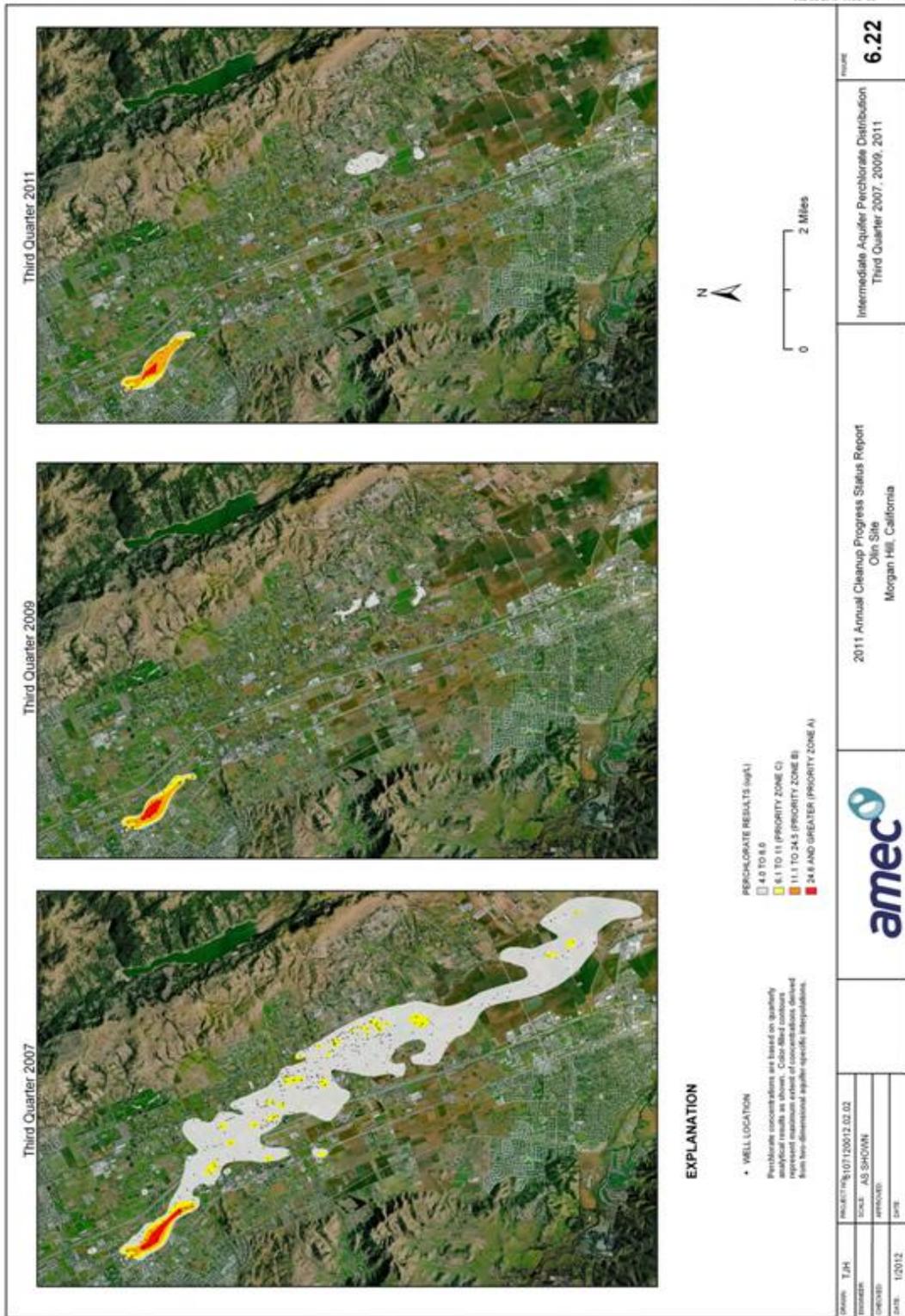
<http://www.swrcb.ca.gov/rwqcb3/Facilities/Olin%20Perchlorate/Olinsite.htm>

or on our GeoTracker website at:

https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=SL0608756247

Conclusion

The Olin groundwater cleanup effort will initiate active remediation this year in all aquifer units within the offsite plume core area. Active remediation will hydraulically contain the perchlorate plume and remove perchlorate from the drinking water (intermediate) aquifer. Central Coast Water Board staff will also continue to work with Olin to effectively manage the replacement water program to protect users of the perchlorate impacted drinking water resource.



Attachment 1: Intermediate Aquifer Perchlorate Plume Maps

ACTIVE AND ABANDONED OIL PIPELINES IN THE CENTRAL COAST REGION
[Rich Chandler 805/542-4627, Thea Tryon 805/542-4776, and
John Robertson 805/542-4630]

This report provides: 1) a general overview on the history of oil pipelines in the Central Coast Region, 2) details on the various agencies that oversee oil pipelines in California, 3) a brief summary of historic and current pipeline design, construction, abandonment and decommissioning procedures, 4) a summary of investigation and/or cleanup of pipeline releases overseen by the Central Coast Water Board, other government agencies, and pipeline operators, 5) a brief explanation of the Site Cleanup Program's prioritization criteria and how we address high, medium, and low priority sites, including pipeline discharge sites, with our staff resources, and 6) a summary of planned additional evaluations and actions regarding potential impacts from active and abandoned pipelines.

BACKGROUND

On July 20, 2011, Andrew Christie, Director of the Sierra Club's Santa Lucia Chapter, submitted a letter to the Executive Officer of the Central Coast Water Board (Attachment 1). In his letter, Mr. Christie commends the Water Board staff for their actions related to a pipeline cleanup along the Nipomo Creek in south San Luis Obispo County and asks several questions about leak detection related to abandoned oil pipelines and the Water Board's authority in such cases.

During the September 1, 2011 Water Board meeting, Mr. Andrew Christie addressed the Central Coast Water Board regarding the enrollment of the Nipomo Creek pipeline cleanup along the ConocoPhillips Pipeline under the General Waiver for Specific Types of Discharges (Resolution No. R3-2008-0010). Under this enrollment, ConocoPhillips temporarily operated a groundwater treatment system to remove petroleum hydrocarbons from extracted groundwater during excavation activities. ConocoPhillips successfully completed excavation activities and the treatment system is no longer on site.

In his September 1, 2011 comments, Mr. Christie complimented Water Board staff on moving forward with cleanup of soil and groundwater under Nipomo Creek and also requested additional information regarding his July 20, 2011 correspondence. In his letter Mr. Christie requested inspection of the 3.5-mile section of pipeline running alongside Nipomo Creek in the railroad right-of-way to determine if the abandoned pipeline poses a threat to the environment, and suggested that this section of pipeline could be "pulled up for inspection with minimal impact to riparian habitat or other CEQA concerns." In the letter, and in his comments to the Water Board at the September 1, 2011 meeting, Mr. Christie also expressed concerns that there may be other undiscovered leaks from crude oil pipelines in our region. Following Mr. Christie's comments, the Water Board directed staff to provide an update in a future Executive Officer report with staff's recommendations for addressing leaks from oil pipelines and to provide additional information on any programs ConocoPhillips implements to evaluate abandoned pipelines. Water Board members also requested that information clarifying what agencies have regulatory oversight authority over pipelines, and pipeline abandonment and decommissioning procedures also be included in the report.

In response to both Mr. Christie's questions and comments from the Central Coast Water Board at the September Board meeting, rather than focus on the Nipomo Creek pipeline section and associated cleanup, Water Board staff took a larger perspective and evaluated all the comments with respect to active and inactive hydrocarbon pipelines throughout the Central Coast Region. Staff conducted an extensive information gathering effort to 1) better understand the overlapping authority in pipeline regulations for both inactive and active pipelines, 2) determine availability of maps showing active and/or inactive pipeline locations throughout the region, and 3) Identify historic and current procedures for abandoning and decommissioning pipelines.

Additionally, as part of this effort, Water Board staff contacted several oil companies to determine what ongoing and planned characterization and risk evaluation work exists, with respect to hydrocarbon pipelines in the Central Coast Region. Water Board staff also contacted other state and local agencies charged with oversight of pipeline regulation to better define the layers of pipeline oversight responsibility. We contacted and gathered information from the following agencies and companies:

- California State Fire Marshall,
- California Department of Fish and Game, Office of Spill Prevention and Response,
- California Department of Oil, Gas, and Geothermal Resources,
- Santa Barbara County, Fire Department,
- Santa Barbara County, Planning and Development Energy Division,
- Monterey County, Health Department,
- San Luis Obispo County, Environmental Health Services,
- Chevron Environmental Management Company
- ConocoPhillips

Water Board staff is committed towards cleaning up pipeline discharges that pose significant threats to water quality and the environment. We have historically committed and continue to commit a very significant portion of our groundwater staff's time towards pipeline cleanups, and this commitment of resources has resulted in the elimination of threats from a large number of pipeline leak sites throughout the region at locations that include Avila Beach, Guadalupe, San Luis Obispo, and most recently, Nipomo (petroleum infrastructure is concentrated in the southern half of our region). We will continue evaluating and requiring cleanup of pipeline sites where these sites pose significant threat to human health and surface- and groundwater quality, relative to the other groundwater cleanup projects we oversee.

Central Coast Water Board staff included much of the information gathered and presented in this staff report as part of our response letter (dated February 17, 2012 and included as Attachment 2) to Mr. Christie's collective comments. As mentioned above, staff considered a region-wide perspective with respect to pipeline discharges, instead of a Nipomo-specific point of view paralleling Mr. Christie's questions. As a result of the information gathering associated with this larger perspective, both our February 17, 2012 response letter and this staff report took longer in development.

HISTORY OF OIL PIPELINES IN THE CENTRAL COAST REGION

The discovery of oil in Kern County in the late 19th century resulted in a long history of oil production in California. At the start of the 20th century, crude oil was valued primarily for

the heavier products and refining was oriented towards the production of heating oil and lubricants. However, in the early 1900's, with growing automobile use, gasoline became a much more important commodity.

Around 1910, Union Oil Company of California (dba Unocal, and now merged with Chevron) made a strategic alliance with a group of small oil producers to build pipelines from the Kern County oil fields to Union Oil's Santa Maria Refinery in southern San Luis Obispo County. From there, Union Oil transported partially refined crude oil via tanker from Unocal's Avila Marine Terminal and via pipeline to the San Francisco Bay area. Limited information is available showing historic oil pipeline locations, but cleanup investigations indicate that alignments typically coincide with many existing active pipelines. Based on information from a 1984 Santa Barbara County (County) oil transportation study there were three major pipelines that moved crude oil from the County to refineries outside of the county. The three primary pipelines serve a regional purpose and are considered the environmentally superior mode of transporting regionally-produced oil (relative to marine terminals and tankering). The three primary pipelines in the Santa Barbara County area in existence in 1984 were:

- Celeron/All American Pipeline – Transported crude oil from Las Flores Canyon and Gaviota north to the Santa Barbara/San Luis Obispo county line and then east through Cuyama to Kern County where oil could continue on to other pipeline systems for delivery to refineries.
- Unocal Crude Oil Pipeline – Transported crude oil from Lompoc Dehydration Facility north to Unocal's Santa Maria refinery near Nipomo in San Luis Obispo County and then on to the San Francisco Bay area refining center or to marine terminals.
- Chevron Carpinteria Pipeline – Transported crude oil from Chevron's Carpinteria processing facility south and fed into Mobil's Rincon pipeline in Ventura County which connects with refineries in the Los Angeles area.

In a September 22, 2004 County Planning Commission staff report for amendments to the County's oil transportation policies and regulations¹, County staff stated "...In the past 20 years, largely as a result of the 1984 policies and ordinances, the County's oil transportation infrastructure has metamorphosed from a hybrid of tankering² and insufficient pipeline system, to a robust common carrier pipeline system³ with capacity to transport oil far in excess of current production needs...". The 2004 County staff report included the following description and figure (Attachment 3) of the existing County pipeline network in 2004:

- All American Pipeline (AAPL) was built in the late 1980s. The pipeline runs from the South Coast to Kern County, where it connects to common carrier and proprietary lines to refining centers in the Los Angeles and San Francisco Bay areas. AAPL began operating as a common carrier in 1991 immediately before offshore production began the rapid rise to its 1995 peak. AAPL soon became

¹ http://www.countyofsb.org/energy/documents/policies/04_09-22PC%20Staff%20Report.pdf

² Tankering - A ship, plane, or truck constructed to transport liquids, such as oil, in bulk.

³ Common carrier - A pipeline that is openly available for transportation of oil. Oil companies that want to move oil contract for space on a common carrier oil pipeline. Pipelines must allocate space to all shippers who meet their conditions of service. The Federal Energy Regulatory Commission regulates the rates that an interstate pipeline can charge for its services.

- the backbone of South Coast oil transportation system, carrying all the oil produced from Point Arguello project and ExxonMobil's consolidated processing facility at Las Flores Canyon.
- The Sisquoc Pipeline began operating in 1992, and is a common carrier pipeline connecting AAPL with the Point Pedernales pipeline (ConocoPhillips Line 300), running north to the Santa Maria upgrader refinery in San Luis Obispo County, and then on to the Rodeo and Avon refineries in the San Francisco Bay area.
 - Pacific Pipeline began operating in 1999 as a common-carrier designed to carry heavy crude from Kern County to Los Angeles refineries.
 - In addition to the new pipelines, several pipelines that were proprietary (or common carrier serving a single operator) in 1984 now operate as common carriers. These include the ConocoPhillips northern lines, ConocoPhillips and Shell lines southbound from Ventura, and Pacific Line 63 southbound from Kern County.

Attachment 3 also includes a 2010 Santa Barbara County energy division map that illustrates the current pipeline system and associated facilities.

In addition to pipelines that transport crude oil (e.g., unprocessed oil) and refined products (e.g., gasoline, jet fuel, home heating oil, and diesel fuel) across the Central Coast Region, there are numerous pipelines that transport oil within oil fields that operate in the region. These pipelines connect individual oil wells to storage tanks and other oil field facilities. Major active oil fields in the Central Coast Region include the San Ardo, Arroyo Grande, Santa Maria Valley, Russell Ranch, South Cuyama, Cat Canyon, Orcutt, Casmalia, Lompoc, Ellwood, and Summerland Fields. Locations of oil fields in the Central Coast Region are shown in the map included in Attachment 4. Additional pipelines, oil fields, and associated facilities that are now decommissioned include the Guadalupe Oil Field, Avila Tank Farm, and the former Unocal Tank Farm on Tank Farm Road in San Luis Obispo.

REGULATION OF OIL PIPELINES

There are two general types of energy pipelines, oil pipelines⁴ and natural gas pipelines. This report focuses only on oil pipelines regulations and does not include a discussion of the many additional regulations for natural gas pipelines. During the peak period of pipeline construction (1960s), several states, counties, and municipalities adopted regulations for liquid pipelines in their areas. Because of the many local conflicting or inconsistent regulations, the pipeline industry appeared before the Senate in 1964 to request a single federal regulation. In 1967, the Federal Code of Regulations added new regulations for the design, construction, maintenance, and operations of liquid pipelines. The authority to oversee these regulations was given to the Department of Transportation (DOT). In 1972, the Secretary of Transportation delegated the authority for oversight over liquid pipelines to the Federal Office of Pipeline Safety (OPS). In 1981, the California State Fire Marshall became the acting agent for OPS to ensure compliance with federal and state pipeline regulations. In 2004, the Pipeline and Hazardous Material Safety Administration (PHMSA) was created to provide a more focused research organization and establish a separate operating administration for the federal government.

⁴ Within the oil pipeline network there can be both crude oil (e.g., unprocessed oil) lines and refined product (e.g., gasoline, jet fuel, home heating oil, and diesel fuel) lines. Most of the primary pipelines in the Central Coast Region transport crude oil.

Current Federal Regulations for Active Pipelines

DOT is the primary regulatory agency for the operation of both oil and natural gas pipelines pursuant to two statutes: the Hazardous Liquid Pipeline Safety Act of 1979 and the Natural Gas Pipeline Safety Act of 1978. Within DOT, the PHMSA, through the OPS, administers the national regulatory program to assure safe transportation of natural gas, petroleum (oil), and other hazardous materials by pipeline. The Federal pipeline safety regulations (1) assure safety in design, construction, inspection, testing, operation, and maintenance of pipeline facilities and in the siting, construction, operation, and maintenance of liquefied natural gas facilities; (2) sets out parameters for administering the pipeline safety program; and (3) delineate requirements for onshore oil pipeline leak mitigation and emergency response plans. State Pipeline Safety programs (administered by the State Fire Marshal) adopt the federal regulations and may issue more stringent regulations for intrastate pipeline operators under state law. The regulations are published in the Code of Federal Regulations, 49 CFR Parts 195-199⁵.

Current California Regulations for Active Pipelines

Since 1981, the State Fire Marshal regulates the safety and operation of approximately 5,500 miles of active intrastate⁶ hazardous liquid⁷ transportation pipelines and acts as an agent of the OPS concerning the inspection of more than 2,000 miles of interstate⁸ pipelines. State Fire Marshal staff inspects, tests, and investigates to ensure compliance with all federal and state laws (California Code of Regulations, Government Code, Sections 51010 to 51019⁹).

The California Division of Oil, Gas, and Geothermal Resources (DOGGR) has regulatory authority over all oil, gas, and geothermal exploration and production operations in the state. As a part of this authority, DOGGR has responsibility for regulating flowlines¹⁰, gathering lines, and other in-field pipelines used to transport crude oil, natural gas, and other fluids. DOGGR's pipeline jurisdiction ends at the administrative boundary of an oil field, which is usually the point where ownership of oil or gas is transferred to a pipeline company or oil shipper. On January 29, 2011, the Office of Administrative Law adopted California Code of Regulations, Title 14, Division 2, Chapter 4, Section 1774.2¹¹, which requires operators to develop a pipeline management plan for all pipelines by January 29, 2013. The pipeline management plan must include the following: (1) A listing of information on each pipeline including, but not limited to: pipeline type, grade, actual or estimated installation date of pipeline, design and operating pressures, and any available leak, repair, inspection and testing history. (2) A description of the testing method and schedule for all pipelines. The pipeline management plan is required for all pipelines with the exception of those pipelines that are either removed or purged of oil and filled with an inert fluid.

⁵ See http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&tpl=/ecfrbrowse/Title49/49cfr195_main_02.tpl

⁶ Intrastate – Relating to or existing within the boundaries of a state.

⁷ Includes petroleum, petroleum products, or anhydrous ammonia.

⁸ Interstate – Involving, existing between, or connecting two or more states.

⁹ See <http://osfm.fire.ca.gov/pipeline/pdf/regulation/cacodes.pdf>

¹⁰ A flowline means any pipeline that connects a well with a gathering line or header. A gathering line means any pipeline that transports liquid hydrocarbons between any of the following: multiple wells, a testing facility, a treating and production facility, a storage facility or a custody transfer facility. A header means a chamber from which fluid is distributed to or from smaller pipelines.

¹¹ ftp://ftp.consrv.ca.gov/pub/oil/publications/PRC04_January_11.pdf

Environmental Oversight of Discharges from Pipelines

The Regional Water Board, California Department of Fish and Game, Office of Spill Prevention and Response, and other local agencies (e.g., County Environmental Health Departments, County Fire Departments) typically provide regulatory oversight on pipelines only following a discharge. Historic releases from pipelines are usually identified during the course of underground utility work or other subsurface construction activities near former pipelines. When a business, state agency, or individual discovers evidence of a leak from a pipeline (including an abandoned pipeline), they are required by law to report the leak to the California Emergency Management Agency (Cal EMA). Cal EMA serves as the central point in state government for the reporting of spills, unauthorized releases, or other accidental releases and coordinates the notification of the appropriate state and local administering agencies that may be required to respond to those spills and, unauthorized or accidental releases. Typically, the State Fire Marshall and local fire department respond to leaks from active pipelines until the immediate threat to life is mitigated. However, historic leaks and leaks from inactive pipelines are typically handled by local county agencies (for soil-only impacts), while Regional Water Boards respond to spills that involve or potentially involve surface water and/or groundwater, and Fish and Game, Office of Spill Prevention and Response responds when there is a threat to aquatic habitat and wildlife.

DESIGN, CONSTRUCTION, ABANDONMENT, AND DECOMMISSIONING OF OIL PIPELINES

The first pipelines were short and basic, to get oil from drill holes to nearby tanks or refineries. In the 1860's as the pipeline business grew, quality control of pipe manufacture became a necessity and the quality and type of metal for pipes improved from wrought iron to steel. Originally, oil companies typically installed pipelines at depths ranging from 18 inches to 10 feet below ground surface. The steel pipelines were typically encased in a protective coating composed of primer, coal tar, and asbestos-containing felt material (ACM). When pipeline operations ceased, the operators took the pipelines out of commission. Information on the degree and method of decommissioning is limited and likely varied; in some instances pipeline owners removed the pipelines, while in others they remain in place¹².

Currently, oil pipelines are made from steel or plastic tubes with inner diameter typically from 4 to 48 inches and most pipelines are typically buried at a depth of about three to six feet. Since adoption of State and Federal regulation, specific requirements are prescribed for constructing new pipeline systems, and for relocating, replacing, or otherwise changing existing pipeline systems. Since 1991, the State and Federal regulation also require all new pipelines to be designed and constructed to include a means for leak detection¹³ and cathodic protection¹⁴ and each operator must provide

¹² From Chevron's February 16, 2010 letter to the California Energy Commission (Attachment 6).

¹³ Two types of tests are used to assure pipeline integrity. In a hydrostatic test, the petroleum product or hazardous liquid is removed from the pipe and replaced with water. The pipeline is pressurized to 125 percent of the maximum pipeline operating pressure and tested for loss of pressure. Another method of pipeline testing is by using devices called "smart pigs." The "pig" is an internal inspection device that travels through the pipeline carrying sensors, data processing electronics and data storage. The data is retrieved from the pig after the trip through a pipeline segment and analyzed to reveal the condition of the pipeline.

¹⁴ Cathodic protection is a technique used to control corrosion of a metal surface.

leak mitigation and emergency response plans and equipment for State Fire Marshal review and approval.

Design and Construction of New Pipelines¹⁵

The design and construction of a pipeline for the most part occurs in three stages. During the pre-construction phase, highly trained engineers work to design a system that meets the needs of producers and shippers in moving their product to the marketplace. At the same time, pipeline employees who specialize in planning work minimize the impact of construction projects on the environment and begin California Environmental Quality Act (CEQA) documentation, in addition to consulting with communities and landowners along the route about the project. Every pipeline project planning team must meet federal and state requirements, obtain necessary permits and respond to local concerns. Land or right-of-way agents, hired by the pipeline operator, also work with potential landowners to secure easement rights to place the pipeline along the selected route.

Typically, the actual construction phase of a project occurs in the shortest amount of time. But the construction phase can only begin after route selection, easement negotiations, environmental permitting, and many other pre-construction actions have been completed. Before the pipe can be buried, the pipeline right-of-way must be cleared and prepared for construction. Once ready, the pipeline is carefully placed in the pre-dug trench or bored under waterways or roads. If trenching is involved, the trench is filled and post-construction restoration begins.

The post-construction phase of any project addresses several aspects including restoring the surface of the land affected by the trenching. Work then begins to reconstruct the surface of the land. Before the pipeline is placed into service, the pipe and components are again tested in the field with a water pressure, weld x-rays and a variety of other inspection tests. Each stage of this process is overseen by qualified inspectors to ensure compliance with the engineering plan, codes, permit conditions, landowner and easement agreements, and regulatory requirements.

Current Abandonment and Decommissioning Procedures of Pipelines

The State Fire Marshal must formally approve any proposed pipeline abandonment plan prior to oil companies initiating pipeline abandonment activities. Both the State Fire Marshal and DOGGR require out-of-service or abandoned pipelines to be effectively cleaned of all hazardous liquids and refilled with an inert fluid. These requirements are outlined in 49 CFR 195.59 and California Code of Regulations, Title 14, Section 1776.

Buried pipelines are typically abandoned in-place or removed. Some common oil pipeline abandonment procedures conducted in Santa Barbara County (as documented in their October 25, 2000 Abandonment of Oil and Gas Fields Offshore Santa Barbara County and Related Infrastructure report) include:

- Removal of pipelines typically includes the following process:
 - Pipelines are drained of oil and flushed with water,
 - The buried pipeline is excavated, and cut into smaller segments,
 - The ends of the remaining pipelines are capped, and

¹⁵ See <http://www.pipeline101.com/Design/index.html>

- Removed pipeline and any impacted flushing water or excavated soils are hauled away and properly disposed.
- In-place abandonment of pipeline typically includes the following process:
 - Pipelines are drained of oil and flushed with water or a device called a "pig" is inserted into the pipe and driven by a liquid or gaseous propellant to clean the pipeline, and
 - Pipeline ends are properly capped and the pipeline is filled with either cement, sand, expanding foam, nitrogen gas, corrosion-inhibiting water, or other gas or fluid that retards corrosion in the line.

INVESTIGATION AND CLEANUP OF OIL PIPELINE RELEASE SITES IN THE CENTRAL COAST REGION

The Central Coast Water Board oversees pipeline discharge sites where waste has, or reasonably could have impaired water quality. The local county agency (i.e., county health agency, county fire, etc.) typically oversees cleanup at pipeline release sites where only soil has been impacted by waste. At more complex sites, Water Board staff works with other local and state agencies to ensure appropriate technical review and permitting of cleanup activities and ensure that cleanup targets are met. In addition, some pipeline operators have pro-actively performed, or are currently performing, assessment, and investigation of inactive pipelines to determine if potential threats to the environment exist.

Central Coast Water Board-Lead Pipeline Sites

Central Coast Water Board staff currently provides regulatory oversight on 31 oil pipeline release sites along major transmission lines, at oil storage (e.g., tank farms) and transport facilities, and within oil fields. This includes 15 cleanup cases that are located along the pipeline that Union Oil constructed in the early 1900s to transport crude oil from oilfields in the San Joaquin Valley to the former Santa Maria refinery (now owned and operated by ConocoPhillips and known as the ConocoPhillips pipeline). Table 1 of Attachment 5 lists active oil-related cleanup sites under the jurisdiction of the Central Coast Water Board.

Due to the relatively high viscosity¹⁶ of crude oil and its tendency to adhere to soil particles, the lateral and vertical extent of pollution from pipeline discharges is typically limited and localized, although refined product (i.e., gasoline, diesel, distillate, etc.) leaks tend to spread more readily. Evaluation of crude oil pipeline discharges within the region confirms the limited extent of hydrocarbon migration. Recent Central Coast Water Board staff inquiries with oil companies and local agencies also corroborate these observations. Refined product pipeline discharges, although much less frequent, can pose a significant threat to surface and groundwater resources, due to both lower viscosity and higher toxicity relative to crude oil.

Crude oil pipeline discharges rarely pose a threat to groundwater supply wells, based on historic cleanup cases. To date, Central Coast Water Board staff is not aware of any water supply well impacts from these sites. However, these discharges can pose a significant threat to surface water. For example, ConocoPhillips observed impacts to surface water in Nipomo Creek in southern San Luis Obispo County and in Tassajara Creek in northern San Luis Obispo County. ConocoPhillips discovered the discharge at Nipomo Creek during replacement of a currently active section of pipeline that runs

¹⁶ Viscosity describes a fluid's internal resistance to flow.

adjacent to the abandoned section. Prior to the remediation activities of the observed discharge, Central Coast Water Board staff inspected the area along the pipeline alignment in Nipomo from Tefft Street to the Dana Adobe (approximately three miles, the same pipeline section referenced in Mr. Christie's July 20, 2011 letter) in June 2009, including the creek bed and banks of Nipomo Creek, and found no seepage or other surface evidence of crude oil releases along this section of the pipeline. Central Coast Water Board staff directed ConocoPhillips to clean up the crude oil release due to potential stream erosion exposing hydrocarbon-impacted soil beneath Nipomo Creek. ConocoPhillips removed a portion of the pollution beneath the creek bed by excavation in October and November of 2011, and placed an impermeable barrier over remaining pollution to prevent future impacts to the creek. For scale, this excavation removed approximately 4,200 cubic yards of material, of which 2,100 yards was waste and sent to an appropriate landfill for disposal. The cleanup activities at the Nipomo Creek site were successful and following restoration of the creek banks, this remedial effort will be complete. Additional information on the cleanup activities is available on Geotracker at: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=SL0607907605

As mentioned above, ConocoPhillips also observed impacts to surface water in Tassajara Creek, and performed remedial actions including capping two seeps with a three-inch layer of Gunite® at that location in 1998. ConocoPhillips will perform additional remediation work (i.e., additional capping) at Tassajara Creek to remedy seepage (droplets and sheen, last observed July 2011). Additional information on this cleanup project is available on Geotracker at: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=SL0607917586

Central Coast Water Board staff has also successfully closed ten oil pipeline release sites. These sites are listed in Table 2 of Attachment 5. The Central Coast Water Board invested significant staff resources on the investigation and cleanup efforts in Avila Beach¹⁷ and Morro Bay Chevron Estero Marine Terminal¹⁸ sites to get these sites to closure. Additionally, Water Board staff continues to expend significant staff resources on cleanup work at the Guadalupe and Avila Tank Farm sites, two of our highest priority cleanup sites in the Site Cleanup Program.

- At the Guadalupe site, Unocal-owned pipelines and tanks leaked an estimated 18 million gallons of diluent (a petroleum derivative pumped into heavy crude oil fields to make the oil flow at lower viscosity) under the Guadalupe-Nipomo Dunes and the adjacent ocean front between the mid-1950s and 1994. For scale, this release is approximately three times larger than the Santa Barbara Channel oil spill in 1969. Since the mid-1990s, Central Coast Water Board staff continues oversight on more than a decade worth of excavation and other active remediation efforts by Unocal/Chevron to clean up this oil field. In compliance with Central Coast Water Board requirements, Unocal/Chevron has excavated

¹⁷ Oil pipelines under Avila Beach's Front Street leaked diesel, crude oil, and gasoline into soil and groundwater beneath portions of the town. These discharges occurred episodically during the period from approximately 1940 until 1996. The Water Board directed Unocal to clean up the primary Front Street plume in an excavation project that lasted from 1998 until 2000. This excavation resulted in the removal of 200,000 cubic yards of soil and the demolition and sheet piling of 8.3 acres covering portions of both the town and beach. Unocal removed thousands of feet of pipeline and abandoned additional sections in place.

¹⁸ Water Board staff required excavation work at the former Chevron Estero facility and Chevron either removed or properly abandoned in place over 5,580 linear feet of oil pipeline.

- 25 impacted areas at the Guadalupe oilfield and Water Board staff continues to work with Chevron to address the remaining water quality issues.
- At the Avila Tank Farm site, Unocal utilized this site as the tidewater gathering location for pipeline transfers of crude oil and semi-refined petroleum products for 90 years (1906-1996). In addition to supporting petroleum pipeline and bulk storage operations, at various times this site included a small refinery and bulk plant for storing and distributing refined fuels to Central Coast retail outlets. Water Board staff continues to work with Chevron to complete assessment and cleanup activities at this site.

As with all of our sites, including the pipeline release sites, we will continue to work on priority oil-related sites to ensure human health and the environment are protected and these sites are moved to closure.

County-Lead Pipeline Sites

Crude oil releases that impact soil without groundwater impacts are typically regulated by county agencies. For example, the County of Santa Barbara Fire Department oversees approximately 123 active cleanup sites and has closed approximately 112 sites through their Oilfield Decommissioning Program. The County of San Luis Obispo Environmental Health Department closed approximately seven cases and is still actively working on approximately five pipeline-related, soil-only release sites. The Monterey County Environmental Health Department confirmed working on only one pipeline-related case. Although these sites are soil only cases, when these agencies discover a potential threat to water quality, the case is referred to the Central Coast Water Board (e.g., Nipomo Creek site).

Inactive and Decommissioned Oil Pipelines Investigations by Pipeline Operators

During recent discussions with ConocoPhillips and Chevron Environmental Management Company representatives, both companies indicated they have programs to investigate old abandoned pipeline locations, evaluate potential releases from abandoned pipelines, and implement remediation plans to put the pipelines in a condition that are safe for the environment. ConocoPhillips currently implements a program in Kern County and plans to implement the program in San Luis Obispo County in 2012. Chevron representatives indicated that they have completed some investigations for some of their inactive and decommissioned pipelines in the Central Coast region. Chevron also indicated that it has partially completed assessment on: 1) cataloguing the inactive pipelines for which they are responsible, 2) conducting field assessments of those pipelines to determine if they still contain liquids, and 3) removing or leaving the abandoned pipelines back in a condition that is safe for the environment. Central Coast water Board staff will be following up on this with both companies.

CLEANUP SITE PRIORITIZATION BASED ON THREAT

In addition to oil pipeline discharge sites, the Central Coast Water Board Site Cleanup Program staff addresses groundwater cleanups for spill sites that include industrial and chemical manufacturing, metal plating, former dry cleaners, and oil refining. This program currently has more sites than staff capacity to work on them. As a result, staff must prioritize sites to stay focused on the most important sites, those that pose the greatest risks to human health (i.e., inhalation and drinking water exposure) and water quality. As discussed in the Priorities, Performance Measurement, and Results staff report for the July 14, 2011 Board Meeting, Site Cleanup Program staff have gone through a prioritization effort that identifies the highest priority sites, such that we can

focus limited resources on reducing the risk at these sites. All sites are ranked based on the following criteria: 1) risk to human health and the environment, 2) site hydrogeologic and waste complexity, and 3) level of public participation. Using these criteria, each site is ranked high, medium, or low priority. Based on the number of sites, staff typically spends 90 percent of their time on high and medium priority sites with the majority of staff's time being spent on the high priority sites. Of the Central Coast Water Board-lead pipeline release sites, two sites are high priority sites (Guadalupe Oil Field and Avila Tank Farm), three are medium priority (Nipomo Creek Pipeline, Tassajara Creek, Tract 1259), and the remaining sites are low priority and not currently worked on due to the absence of a threat to human health and low threat to water quality. Central Coast Water Board staff will continue to evaluate pipeline release sites relative to other groundwater cleanup sites, both as new sites become known, and as we reduce risk at existing sites, to re-establish and focus on our highest priorities. At present, most of the existing pipeline sites are lower risk and therefore lower priority. Attachment 5, Table 1 provides a list of each of the Central Coast Water Board-lead active pipeline cleanup sites, along with the site's ranking of high, medium, or low priority.

FURTHER ASSESSMENT OF POTENTIAL INACTIVE/ABANDONED PIPELINE RELEASES

Central Coast Water Board staff has communicated with operators of active and inactive/abandoned oil pipelines, the State Fire Marshal, and other local agencies within the Central Coast Region to assess the potential threat to water quality posed by active and inactive oil pipelines. Going forward, Central Coast Water Board staff plan to issue requirements to pipeline owners and operators in the region to submit the following information:

- Locations of active and any inactive/abandoned pipelines,
- Any risk/liability evaluation strategy or models for assessing where leaks may have occurred, or are most likely to occur, in active and inactive/abandoned pipelines,
- Any environmental assessment or remediation in progress or completed for discharges from active and inactive/abandoned pipelines, and
- Abandonment procedures for inactive pipelines, along with locations and results where these procedures have been applied.

Central Coast Water Board staff plans to use this information to help determine if previously unknown potential threats to human health and water quality exist from inactive and abandoned pipeline discharges, and if these potential cases warrant cleanup action. Staff will continue to obtain information from the State Fire Marshal and other state and local agencies to determine what actions these agencies take and what available information these agencies have on abandoned pipelines and abandonment procedures in the region. Central Coast Water Board staff will also evaluate abandonment procedures, the feasibility of removing or appropriately abandoning sections of inactive pipelines based on human health and water quality threat, methods for assessing and predicting possible historical release locations from pipelines, and discharge response protocols to determine if these provide adequate protection for water quality.

Water Board staff currently requires assessment and cleanup at known high priority pipeline release sites and will be assessing whether the threat to water quality posed by active and abandoned pipelines warrants additional investigation, pipeline removal,

and/or cleanup actions. We will also continue to evaluate how this work fits in with our overall organizational and Site Cleanup Program priorities.

ATTACHMENTS

Attachment 1: Correspondence from Mr. Andrew Christie, Sierra Club, Santa Lucia Chapter, dated July 20, 2011

Attachment 2: Central Coast Water Board staff response letter to Mr. Andrew Christie's letter, dated February 17, 2012

Attachment 3: 1984 Map of Oil Pipelines in the Central Coast Region and 2010 Map of Oil Pipelines and Associated Oil and Gas Facilities.

Attachment 4: Oil Fields in the Central Coast Region

Attachment 5: Summary Tables of Oil Pipeline Cleanup Sites

Attachment 6: February 16, 2010 Chevron Environmental Management Company letter to the California Energy Commission regarding the Mariposa Energy Project

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Attachment 1: Correspondence from Mr. Andrew Christie, Sierra Club, Santa Lucia Chapter



SANTA LUCIA CHAPTER
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<http://www.sierraclub.org/chapters/santalucia>



July 20, 2011

Roger Briggs, Executive Director
Central Coast Regional Water Quality Control Board
895 Aerovista Place, Suite 101
San Luis Obispo CA 93401-7906

Dear Mr. Briggs,

Noting the Water Board's commendable action last year in ordering the clean-up of soil under Nipomo Creek impacted by the Conoco oil transfer line, we are wondering what the chances are of getting an answer to the question of how many more leaks -- especially in the abandoned 100-year-old line, not just the active line -- have yet to be discovered? Our understanding is it's not possible to simply run a pig through the old lines to check for leaks as with active lines.

We believe an inspection of the 3 ½ mile section running alongside the creek in the railroad ROW should yield valuable data not for that location but should also give us some idea of how concerned the community should be about this potential problem in transfer lines of similar vintage throughout the watershed. At this Nipomo Creek segment, we would think the line could be pulled up for inspection with minimal impact to riparian habitat or other CEQA concerns.

Can the Water Board order such an action? And would a Final Clean-Up Agreement on the Nipomo Creek spill that did not so stipulate preclude it from doing so?

Thank you for your time,

Andrew Christie
Chapter Director



California Regional Water Quality Control Board Central Coast Region



Matthew Rodriguez
Secretary for
Environmental Protection

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Edmund G. Brown Jr.
Governor

February 17, 2012

Mr. Andrew Christie
Sierra Club, Santa Lucia Chapter
P.O. Box 15755
San Luis Obispo, CA 93406
sierraclub8@gmail.com

Dear Mr. Christie:

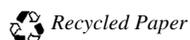
SITE CLEANUP PROGRAM: RELEASES FROM OIL PIPELINES IN THE CENTRAL COAST REGION

Central Coast Regional Water Quality Control Board (Central Coast Water Board) staff reviewed your correspondence dated July 20, 2011 and your comments from the September 1, 2011 Central Coast Water Board meeting. In follow up to your letter, John Robertson of my staff spoke with you by phone during the last week of November. Your collective comments focused on the potential environmental impacts that known and potential pipeline releases may have on the Nipomo Creek watershed. We also reviewed the questions by our Water Board members from the September meeting. In responding to these questions, we took a larger perspective and evaluated your comments with respect to active and inactive hydrocarbon pipelines throughout the Central Coast Region.

We share your focus and commitment towards cleaning up pipeline discharges that pose significant threats to water quality and the environment. To that end, we have committed a very significant portion of our groundwater staff's time towards pipeline cleanups, and this commitment of resources has resulted in the elimination of threats from a large number of pipeline leak sites throughout the region at locations that include Avila Beach, Guadalupe, San Luis Obispo, and most recently, Nipomo. We will continue evaluating and requiring cleanup of pipeline sites where these sites pose significant threat to human health, and surface water and groundwater quality, relative to the other groundwater cleanup projects we oversee.

In reviewing your letter and Board meeting comments, as well as those by the Regional Board members, Central Coast Water Board staff conducted an extensive information gathering effort to better understand the overlapping authority in active and inactive pipeline regulation. Central Coast Water Board staff also contacted two major oil companies to determine what ongoing and planned characterization and risk evaluation

California Environmental Protection Agency



Item No. 21, Attachment 2
March 14-15, 2012

work exists, with respect to hydrocarbon pipelines in the Central Coast Region. Additionally, staff contacted numerous state and local agencies charged with oversight of pipeline regulation to better define the layers of pipeline oversight responsibility. This information gathering effort required significant time and we wanted to include as much as possible in this response letter, explaining the delay in responding to your original letter.

Based on this information gathering effort, this letter: 1) provides a brief history of oil pipelines in the Central Coast Region, 2) details the various agencies that oversee oil pipelines in California, 3) provides a summary of investigation and/or cleanup of pipeline releases overseen by the Central Coast Water Board, other government agencies, and pipeline operators, 4) briefly explains our cleanup site prioritization criteria and how we address high, medium, and low priority sites with our staff resources, 5) answers site-specific questions pertaining to the Nipomo Creek cleanup, and 6) provides a summary of planned additional evaluation and actions regarding potential impacts from active and abandoned pipelines.

HISTORY OF OIL PIPELINES IN THE CENTRAL COAST REGION

Around 1910, Union Oil Company of California (dba Unocal, and now merged with Chevron) made an alliance with a group of small oil producers to build pipelines from the Kern County oil fields to Union Oil's Santa Maria Refinery in southern San Luis Obispo County. From there, Union Oil transported partially refined crude oil via tanker from Unocal's Avila Marine Terminal and via pipeline to the San Francisco Bay area. Limited information is available showing historic oil pipeline locations, but cleanup investigations indicate that alignments typically coincide with existing active pipelines.

In a September 22, 2004 Santa Barbara County (County) Planning Commission staff report discussing amendments to the County's Oil Transportation Policies and Regulations¹, County staff stated "...In the past 20 years, largely as a result of the 1984 policies and ordinances, the County's oil transportation infrastructure has metamorphosed from a hybrid of tankering and insufficient pipeline system, to a robust common carrier pipeline system with capacity to transport oil far in excess of current production needs...". The 2004 County Planning Commission staff report included the following description and a figure (Attachment 1) of the existing Santa Barbara County pipeline network in 2004:

- All American Pipeline (AAPL) was built in the late 1980s. The pipeline runs from the South Coast to Kern County, where it connects to common carrier and proprietary lines to refining centers in the Los Angeles and San Francisco Bay areas. It began operating as a common carrier in 1991 immediately before offshore production began the rapid rise to its 1995 peak. AAPL soon became the backbone of South Coast oil transportation system, carrying all the oil

¹ http://www.countyofsb.org/energy/documents/policies/04_09-22PC%20Staff%20Report.pdf

produced from Point Arguello project and ExxonMobil's consolidated processing facility at Las Flores Canyon.

- The Sisquoc Pipeline began operating in 1992. It is a common carrier pipeline which connects AAPL with the Point Pedernales pipeline (ConocoPhillips Line 300), running north to the Santa Maria upgrader refinery in San Luis Obispo County, and then on to the Rodeo and Avon refineries in the San Francisco Bay area.
- Pacific Pipeline began operating in 1999 as a common-carrier designed to carry heavy crude from Kern County to Los Angeles refineries.
- In addition to the new pipelines, several pipelines that were proprietary (or common carrier serving a single operator) in 1984 now operate as common carriers. These include the ConocoPhillips northern lines, ConocoPhillips and Shell lines southbound from Ventura, and Pacific Line 63 southbound from Kern County.

In addition to pipelines that transport crude oil (e.g., unprocessed oil) and refined products (e.g., gasoline, jet fuel, home heating oil, and diesel fuel) across the Central Coast Region, there are numerous pipelines that transport oil within oil fields that operate in the region. These pipelines connect individual oil wells to storage tanks and other oil field facilities. Major active oil fields in the Central Coast Region include the San Ardo, Arroyo Grande, Santa Maria Valley, Russell Ranch, South Cuyama, Cat Canyon, Orcutt, Casmalia, Lompoc, Ellwood, and Summerland Fields. Locations of oil fields in the Central Coast Region are shown on the map in Attachment 2. Additional pipeline, oil field, and associated facilities that are now decommissioned include the Guadalupe Oil Field, Avila Tank Farm, and the former Unocal Tank Farm on Tank Farm Road in San Luis Obispo.

REGULATION OF OIL PIPELINES

Current Federal Regulations for Active Pipelines

The Department of Transportation (DOT) is the primary regulatory agency for the operation of both oil and natural gas pipelines. Within DOT, the Pipeline and Hazardous Material Safety Administration (PHMSA), through the Federal Office of Pipeline Safety (OPS), administers the national regulatory program to assure safe transportation of natural gas, petroleum (oil), and other hazardous materials by pipeline. State Pipeline Safety programs (administered by State Fire Marshal) adopt the federal regulations and may issue more stringent regulations for intrastate pipeline operators under state law. The regulations are published in the Code of Federal Regulations, 49 CFR Parts 195-199.

During the peak period of pipeline construction (1960s), several states, counties, and municipalities adopted regulations for liquid pipelines in their areas. Because of local conflicting or inconsistent regulations, the pipeline industry appeared before the Senate in 1964 to request a single federal regulation. In 1967, the Federal Code of Regulations added new regulations for the design, construction, maintenance, and

operations of liquid pipelines. The authority to oversee these regulations was given to the DOT. In 1972, the Secretary of Transportation delegated the authority for oversight over liquid pipelines to the OPS. In 1981, the California State Fire Marshall became the acting agent for OPS to ensure compliance with federal and state pipeline regulations. In 2004, the PHMSA was created to provide a more focused research organization and establish a separate operating administration for the federal government.

Current California Regulations for Active Pipelines

Since 1981, the California State Fire Marshal regulates the safety and operation of approximately 5,500 miles of active intrastate hazardous liquid transportation pipelines and acts as an agent of the Federal Office of Pipeline Safety concerning the inspection of more than 2,000 miles of interstate pipelines. The California State Fire Marshal staff inspects, tests, and investigates to ensure compliance with all federal and state laws (California Code of Regulations Sections 51010 to 51019).

The California Division of Oil, Gas, and Geothermal Resources (DOGGR) has regulatory authority over all oil, gas, and geothermal exploration and production operations in the State. As a part of this authority, DOGGR has responsibility for regulating flowlines, gathering lines, and other in-field pipelines used to transport crude oil, natural gas, and other fluids. DOGGR's pipeline jurisdiction ends at the administrative boundary of an oil field, which is usually the point where ownership of oil or gas is transferred to a pipeline company or oil shipper.

Environmental Oversight of Discharges from Pipelines

The Regional Water Quality Control Boards, California Department of Fish and Game Office of Spill Prevention and Response, and other local agencies (e.g., County Environmental Health Departments, County Fire Departments) typically provide regulatory oversight on pipelines only following a discharge. Historic releases from pipelines are usually identified during the course of underground utility work or other subsurface construction activities near former pipelines, or when they are exposed through erosion. When a business, state agency, or individual discovers evidence of a leak from a pipeline (including an abandoned pipeline), they are required by law to report the leak to the California Emergency Management Agency (Cal EMA). Cal EMA serves as the central point in state government for the reporting of spills, unauthorized releases, or other accidental releases and coordinates the notification of the appropriate state and local administering agencies that may be required to respond to those spills and, unauthorized or accidental releases. Typically, the State Fire Marshall and local fire department respond to leaks from active pipelines until the immediate threat to life is mitigated. However, historic leaks and leaks from inactive pipelines are typically handled by local county agencies (for soil-only impacts), while Water Boards respond to spills that involve or potentially involve surface water and/or groundwater, and Fish and Game's Office of Spill Prevention and Response responds when there is a threat to aquatic habitat and wildlife.

INVESTIGATION AND CLEANUP OF OIL PIPELINE RELEASE SITES IN THE CENTRAL COAST REGION

The Central Coast Water Board oversees pipeline sites where waste has, or reasonably could have impaired water quality. The local county agency (i.e., county health agency, county fire, etc.) typically oversees cleanup at release sites where only soil is impacted by waste. At more complex sites, Central Coast Water Board staff works with other local and state agencies to ensure appropriate technical review, permitting of cleanup activities, and ensure cleanup goals are met. In addition, some pipeline operators have pro-actively performed, or are currently performing, assessment and investigation of inactive pipelines. We provide a summary of these investigations below.

Central Coast Water Board-Lead Pipeline Discharge Sites

Central Coast Water Board staff currently provides oversight on 31 oil pipeline release sites along major transmission lines, at oil storage and transport facilities, and within oil fields. This includes 16 cleanup cases that are located along the Union Oil's original pipeline right-of-way used to transport crude oil from oilfields in the San Joaquin Valley to the former Santa Maria refinery (now owned and operated by ConocoPhillips) on the Nipomo Mesa. Attachment 3, Table 1 lists active oil-related cleanup sites under the jurisdiction of the Central Coast Water Board.

Due to the viscosity of the crude oil and crude oil's tendency to adhere to soil particles, the lateral and vertical extent of pollution from pipeline discharges is typically limited and localized, although refined product (i.e., gasoline, diesel, distillate, etc.) leaks tend to spread more readily. Evaluation of crude oil pipeline discharges within the region confirms the limited extent of hydrocarbon migration. Recent Water Board staff inquiries with oil companies and local agencies corroborate these observations. Refined product pipeline discharges, although much less frequent, can pose a significant threat to surface and groundwater resources, due to both lower viscosity and higher toxicity relative to crude oil.

Crude oil pipeline discharges rarely pose a threat to groundwater supply wells, based on historic cleanup cases. To date, Central Coast Water Board staff is not aware of any water supply well impacts from these sites. However, these discharges can pose significant threat to surface water. ConocoPhillips observed impacts to surface water at the Tassajara Creek pipeline site, and performed remedial actions including capping two seeps with a three-inch layer of Gunitite[®] at that location in 1998. ConocoPhillips will perform additional remediation work (i.e., additional capping) at Tassajara Creek to remedy seepage (droplets and sheen, last observed July 2011). The California Department of Fish & Game assisted and advised Central Coast Water Board staff in all phases of assessment and remediation on this site. ConocoPhillips' consultant, Stantech Consulting, inspects Tassajara Creek quarterly and submits reports to the Central Coast Water Board.

Site Prioritization Based on Threat

In addition to pipeline discharge sites, the Central Coast Water Board's Site Cleanup Program staff addresses groundwater cleanups for spill sites that include industrial and chemical manufacturing, metal plating, former dry cleaners, and oil refining. This program currently has more sites than we have staff capacity to work on them. As a result, we must prioritize our sites to stay focused on the most important sites, those that pose the greatest risks to human health (i.e., inhalation and drinking water exposure) and water quality. Attachment 3, Table 1 provides a list of the active pipeline cleanup sites regulated by the Central Coast Water Board, along with the site's ranking based on risk criteria (described in the next paragraph).

Our primary goal through these prioritization efforts is to identify our highest priority sites, such that we can focus our limited resources on reducing the risk at these sites. Success in risk reduction efforts ultimately makes these cleanup sites lower priority cases. We rank all of our sites based on the following criteria: 1) risk to human health and the environment, 2) site hydrogeologic and waste complexity, and 3) level of public participation. Using these criteria, each site is ranked high, medium, or low priority. Based on the number of sites we have, staff typically spends 90 percent of their time on high and medium priority sites with the majority of staff's time being focused on reducing health and environmental risk for the high priority sites. Of the pipeline release sites we oversee, two rank as high priority sites (Guadalupe Oil Field, Avila Tank Farm), three are medium priority (Nipomo Creek Pipeline, Tassajara Creek, Tract 1259), and the remaining sites are low priority and not currently worked on due to the absence of a threat to human health and low threat to water quality. We will continue to evaluate pipeline release sites relative to other groundwater cleanup sites, both as new sites become known, and as we reduce risk at existing sites, to re-establish and focus on our highest priorities. At present, most of the existing pipeline sites are lower risk and therefore lower priority.

Responses to Site-Specific Questions

Your July 20, 2011 correspondence specifically inquired about the Nipomo Creek Pipeline cleanup site. In 2003, ConocoPhillips discovered that a section of abandoned pipeline located adjacent to Nipomo Creek near the Dana Adobe had leaked at some unknown date. ConocoPhillips discovered the discharge during replacement of a currently active section of pipeline that runs adjacent to the abandoned section. Recently, ConocoPhillips conducted a major cleanup action in Nipomo Creek, under requirements issued by the Central Coast Water Board's Executive Officer. The cleanup was necessary due to potential stream erosion exposing hydrocarbon-impacted soil beneath the creek. ConocoPhillips removed much of the pollution beneath the creek bed by excavation in October and November of 2011 and placed an impermeable barrier over remaining pollution to prevent future impacts to the creek. The impermeable barrier (Armorflex[®]) consists of an interlocking matrix of concrete blocks connected by a series of cables that was packed with, and capped with native

soil². Following restoration of the creek banks, this remedial effort will be complete. Prior to the remediation activities, Central Coast Water Board staff inspected the area along the pipeline alignment in Nipomo from Tefft Street to the Dana Adobe (covering approximately 3 miles, including the pipeline section referenced in your letter) in June 2009, including the creek bed and banks of Nipomo Creek, and found no seepage or other surface evidence of crude oil releases along this section of the pipeline. Central Coast Water Board staff directed ConocoPhillips to clean up this crude oil release due to potential stream erosion exposing hydrocarbon-impacted soil beneath Nipomo Creek.

The subsequent cleanup activities at the Nipomo Creek site were successful and Central Coast Water Board staff would like to acknowledge all the hard work by other parties. For example, the excavation at the Nipomo Creek site required co-operation from the landowners and other stakeholders such as local Native Americans, and required numerous permits from other agencies including California Department of Fish and Game, Army Corps of Engineers, U.S. Fish and Wildlife Service, and San Luis Obispo County Planning and Building. Acquiring the necessary access agreements and permits for the project took over one year and all parties understood the urgency for the remediation project and fast-tracked reviews of the permit applications. Had the project been slightly larger in scope, a full California Environmental Quality Act (CEQA) assessment (environmental impact report) would have been required. The excavation work also temporarily caused a major impact to riparian habitat as seen in the following photograph taken on November 10, 2011. However, the cleanup was successful and site restoration is in progress.

² See the May 21, 2010 Corrective Action Plan for the Nipomo Creek Pipeline located at https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/4967561125/SL0607907605.PDF



To date, Central Coast Water Board staff has successfully closed ten oil pipeline release sites. These sites are listed in Table 2 of Attachment 3. One of these closed sites is the Avila Beach main plume site. A series of oil pipelines beneath Front Street in Avila Beach at various times discharged diesel, crude oil, and gasoline during a period from approximately 1940 until 1996. The Central Coast Water Board directed Unocal to clean up the primary Front Street plume in an excavation project that lasted from 1998 until 2000. Additionally, Central Coast Water Board staff continues with cleanup work on the Guadalupe site, continuing more than a decade worth of excavation projects and other remediation efforts at this location. Between the mid-1950s and 1994, Unocal-owned pipelines and tanks leaked an estimated 18 million gallons of diluent (a petroleum derivative pumped into heavy crude oil fields to make the oil flow with lower viscosity) under the Guadalupe-Nipomo Dunes and the adjacent ocean front. For scale, this release is approximately three times larger than the Santa Barbara Channel oil spill in 1969. Since the mid-1990s, Central Coast Water Board staff has directed Unocal/Chevron to actively clean up the various portions of the site that pose risk to surface water and groundwater. As part of the cleanup, Unocal/Chevron has done extensive habitat restoration and received praise from the Sierra Club, among others, for their efforts. Central Coast Water Board staff has overseen the excavation of 25 impacted areas at the Guadalupe Oil Field and continues to work with Chevron to address water quality issues at this site. Central Coast Water Board staff has also enforced requirements for excavation work at the former Chevron Estero facility and in several additional locations in Avila Beach. We will continue to work on priority oil-related sites to ensure human health and the environment are protected, and continue moving these sites to closure.

In your letter, you asked, "At this Nipomo Creek segment, we would think the line could be pulled up for inspection with minimal impact to riparian habitat or other CEQA concerns. Can the Water Board order such an action? And would a Final Clean-Up Agreement on the Nipomo Creek spill that did not so stipulate preclude it from doing so?"

Based on knowledge from the existing Nipomo Creek cleanup project, an effort on the scale suggested in your comments would likely trigger an Environmental Impact Report, although we recommend that you inquire with the San Luis Obispo County Planning Department staff for a more definitive answer, as a project of this scope would span the authorities of numerous agencies, the Central Coast Water Board being only one. The Central Coast Water Board has the authority to require cleanup and abatement of discharges that impact, threaten, or have the potential to threaten surface water or groundwater. Removal of pipelines, where they meet these conditions of impacting or threatening to impact water quality, is one of many potential strategies for abating discharges or threatened discharges, however Water Board authority is limited in specifying exact methods for cleanup. A "Final Clean-Up Agreement", assuming this refers to a Corrective Action Plan, if effective, will remediate the threat to water quality, making further action (i.e., pipeline removal) unnecessary. However, as with any cleanup site, if implementation of the Corrective Action Plan proves inadequate, further cleanup action will likely be required.

County and City-Lead Pipeline Discharge Sites

County departments typically oversee cleanup of oil-related, soil-only cases. For example, the Santa Barbara County Fire Department oversees approximately 123 active cleanup sites and has closed approximately 112 sites through their Oilfield Decommissioning Program. The County of San Luis Obispo Environmental Health Department closed approximately seven cases and is still actively working on approximately five pipeline-related, soil-only release sites. Monterey County Environmental Health Department confirmed working on only one pipeline-related case. Although these sites are soil-only cases, when these agencies discover potential water quality issues, the case is referred to the Central Coast Water Board (e.g., Nipomo Creek site).

Inactive and Decommissioned Oil Pipeline Investigations by Pipeline Operators

As part of developing responses to your comments and those of the Central Coast Water Board members from the September 1, 2011 meeting, Central Coast Water Board staff contacted two major oil pipeline operators working within the Central Coast Region. ConocoPhillips and Chevron Environmental Management Company representatives informed Central Coast Water Board staff that both companies have programs that determine locations of old abandoned pipelines, investigate potential releases from abandoned pipelines, and implement remediation plans to put the pipelines in a condition that is safe for the environment. ConocoPhillips currently implements a program in Kern County and plans to expand the program to San Luis Obispo County in 2012. Chevron representatives indicated that they have completed

investigations of some inactive and decommissioned pipelines in the Central Coast region for which they are responsible. Chevron activities include: 1) cataloguing the inactive pipelines for which they are responsible, 2) conducting field assessments of those pipelines to determine if they still contain liquids, and 3) removing or leaving the abandoned pipelines in a condition that is safe for the environment.

FURTHER ASSESSMENT OF POTENTIAL INACTIVE/ABANDONED PIPELINE RELEASES

To better understand the location and potential environmental risk associated with oil pipelines in the region, Central Coast Water Board staff communicated with operators of active and inactive/abandoned oil pipelines, State Fire Marshal, and other local agencies. Central Coast Water Board staff plans to issue requests for information from all major pipeline operators/owners (both active and inactive/abandoned) in the Central Coast Region to gather information on any pipeline assessment work completed to date to help us determine if previously unknown potential threats to human health and water quality exist from inactive and abandoned pipelines. Central Coast Water Boards staff will also continue to obtain information from State Fire Marshal and other state and local agencies to determine what actions these agencies take and what available information these agencies have on abandoned pipelines in our region. We will use this information to:

- Identify additional locations of inactive/abandoned pipelines,
- Determine existing leak environmental evaluation and response protocols,
- Identify any information from these environmental evaluations showing potential threats to human health and/or the environment,
- Evaluate potential methods for assessing/predicting possible historical release locations from pipelines, and assessing the feasibility of removing or appropriately abandoning sections of inactive pipelines,
- Evaluate/implement appropriate pipeline abandonment methods for inactive/abandoned pipelines, and
- Determine whether further investigation of these pipelines is warranted, based on the priority of each of these individual sites relative to other existing cleanup cases.

Central Coast Water Board staff discussions with pipeline operators and owners will continue, along with associated assessment and cleanup actions. We will also prepare an item for the Executive Officer's Report for the March 15, 2012 Central Coast Water Board meeting in San Luis Obispo. This report will provide the information included in this letter, along with a summary of the subsequent findings and next steps, which may include requiring additional assessment work, if such work is determined to be feasible and warranted, with relation to our overall organizational priorities as presented at our July 14, 2012 Water Board meeting

(http://www.swrcb.ca.gov/rwgcb3/board_info/agendas/2011/July/Item_18/18_att1.pdf) and as discussed briefly above.

CONCLUSION

Central Coast Water Board staff appreciates and shares your concern about potential water quality impacts from hydrocarbon pipelines in the Central Coast Region. The Central Coast Water Board has spent considerable staff resources towards the cleanup of priority oil discharges, and will continue to require assessment and cleanup at known high priority pipeline release sites. Staff will also continue assessing whether the threat to water quality posed by active and abandoned pipelines warrants additional investigation, pipeline removal, and/or cleanup actions on a site-by-site basis. The Sierra Club Santa Lucia Chapter has been added to our list of interested parties for the Nipomo Creek site and will also be notified of any future reports presented to our Board relating to hydrocarbon pipeline issues.

Thank you, Andrew, for your letter, questions, and commitment to protecting water quality. If you have further questions, please contact **Rich Chandler at (805) 542-4627**, Thea Tryon at (805) 542-4776, or John Robertson at (805) 542-4630.

Sincerely,

for Roger W. Briggs
Executive Officer

Attachment 1: Map of Oil Pipelines in the Central Coast Region, from September 22, 2004 Santa Barbara County Planning Commission staff report

Attachment 2: Locations of Oil Fields in the Central Coast Region

Attachment 3: Summary Tables for Active and Closed Central Coast Water Board Oil Pipeline Cleanup Sites

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cc:

<p>Mr. Bob Gorham Office of the State Fire Marshal 3950 Paramount Boulevard, Suite 210 Lakewood, CA 90712</p>	<p>Ms. Pat Abel California Division of Oil, Gas, and Geothermal Resources 4800 Stockdale Hwy., Suite 417 Bakersfield, CA 93309-0279</p>
<p>Ms. Sandra Burkhart Western States Petroleum Association P.O. Box 21108 Santa Barbara, California 93121</p>	<p>Mr. Frank Cummings Aera Energy 10000 Ming Avenue Bakersfield, CA 93311</p>

Mr. Troy Haudeberg Chevron Pipe Line Company 16301 Trojan Way La Mirada, CA 90638	Mr. Brian Gibbs ConocoPhillips 3900 Kilroy Airport Way #210 Long Beach, CA 90806
Mr. Dan Fischman ConocoPhillips 3900 Kilroy Airport Way #210 Long Beach, CA 90806	Mr. Larry Alexander Crimson Pipeline LP 2459 Redondo Avenue Long Beach, CA 90755
Mr. Don Quinn Kinder Morgan 1100 Town & Country Road Orange, CA 92868	Mr. Bruce Johnston Pacific Operators Offshore LLC 1145 Eugenia Place #200 Carpinteria, CA 93013
Mr. Robert Marsalek Plains Exploration & Production 201 South Broadway Orcutt, CA 93455	Mr. Ronald Klarc Rincon Island LP 5750 West Pacific Coast Highway Ventura, CA 93001
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Mr. Ken Frank Chevron Environmental Management Company KenFrank@chevron.com	Mr. John Robertson Central Coast Water Board jrobertson@waterboards.ca.gov

Attachment I Map of Oil Pipelines in the Central Coast Region

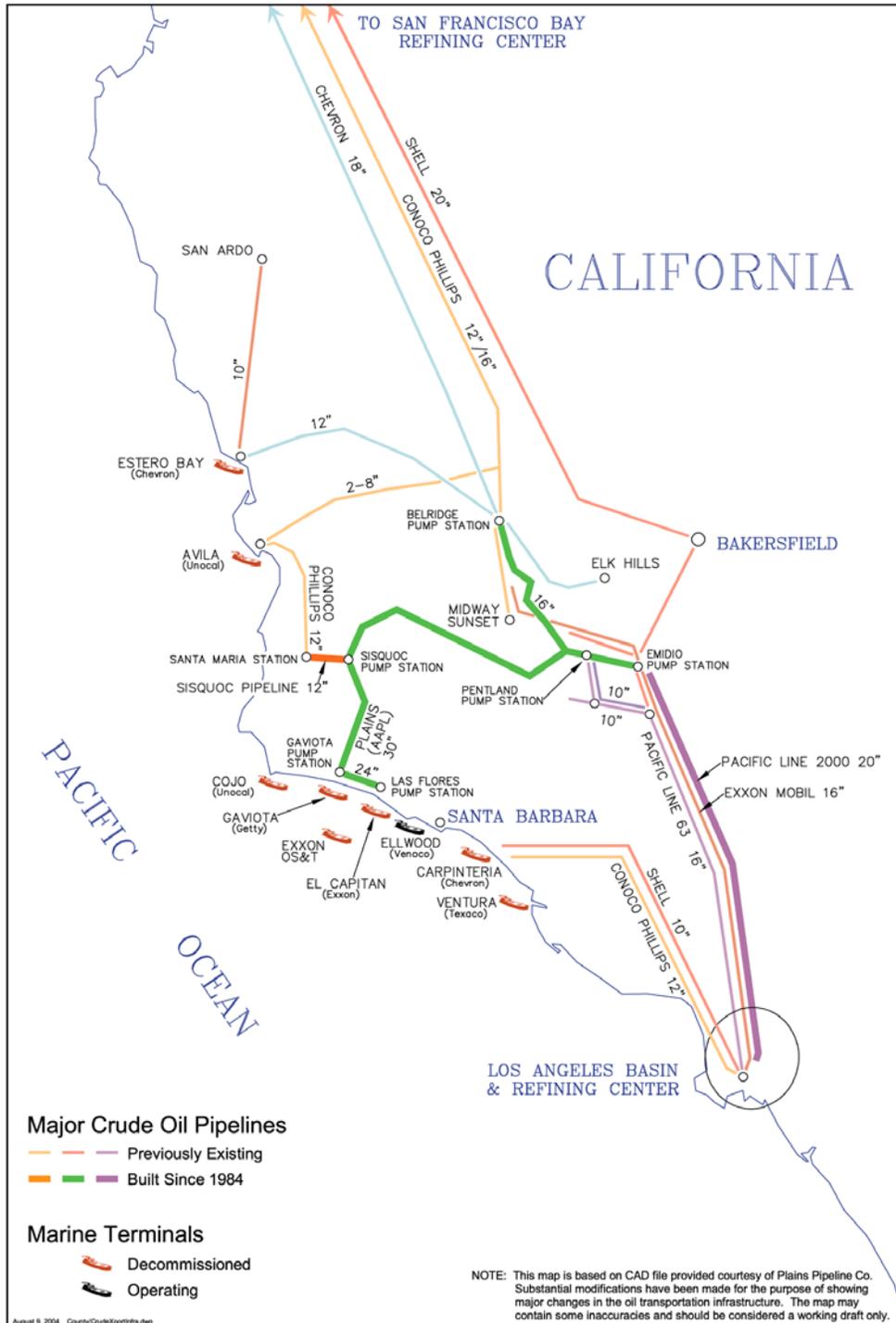
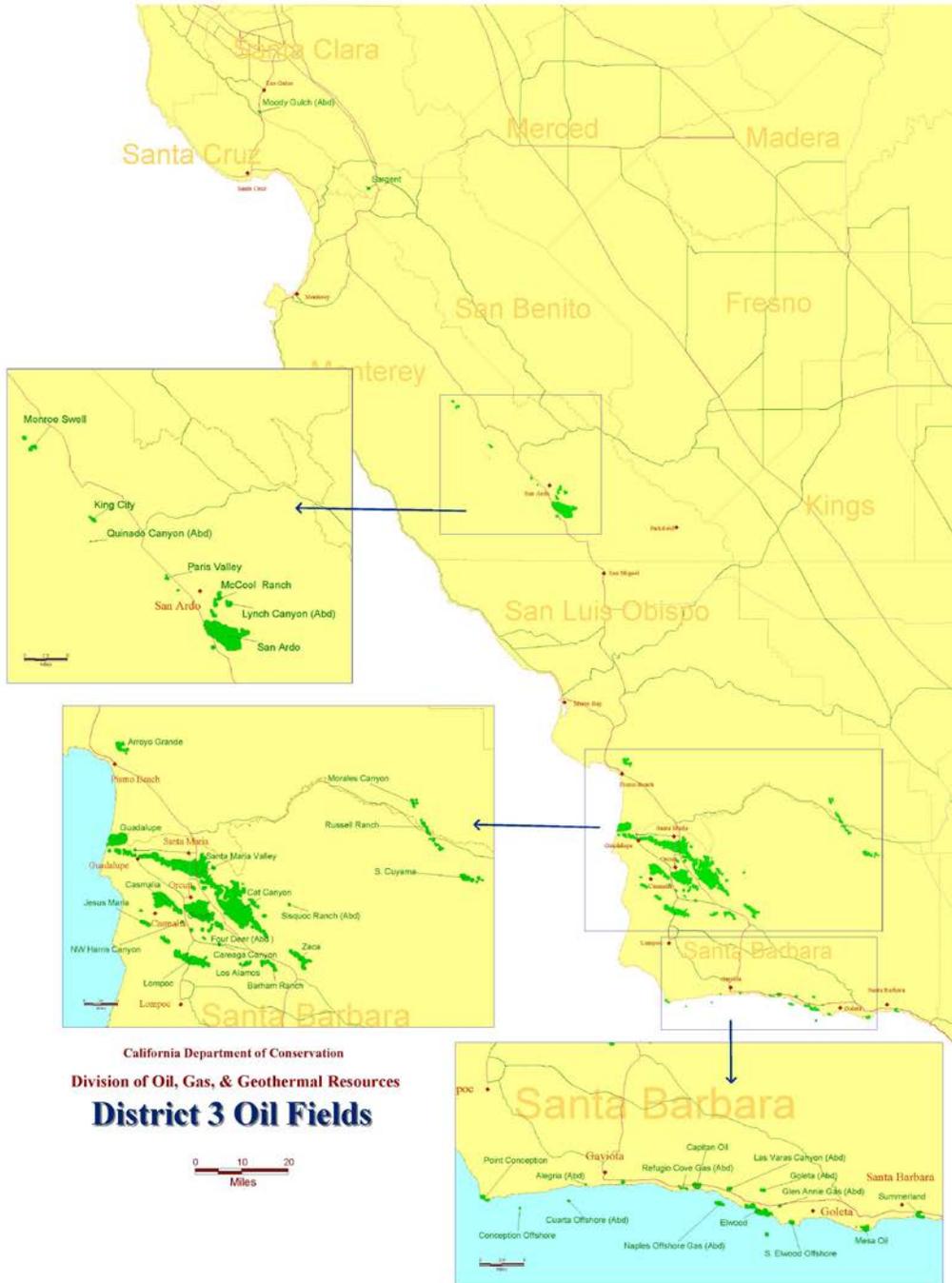


Figure 1. Crude Oil Transportation Infrastructure -- Changes 1984-2004.

Three new pipelines (shown in broad lines) facilitate transport of crude oil from Santa Barbara to refineries: Plains Pipeline (formerly AAPL); Pacific Line 2000; and the Sisquoc Pipeline interconnect. A number of marine terminals have been decommissioned in the Tri-County area while one remains in operation at Ellwood.

Attachment 2 – Locations of Oil Fields in the Central Coast Region



Attachment 3 – Summary Tables of Oil Pipeline Cleanup Sites

**TABLE 1:
ACTIVE OIL PIPELINE CLEANUP SITES
WITHIN THE CENTRAL COAST REGION**

SITE NAME	CURRENT OWNER	ADDRESS	CITY	COUNTY	PIPELINE	PRIORITY¹
Avila Beach East of San Luis Obispo Creek	Chevron	1238 Avila Beach Drive	Avila Beach	San Luis Obispo	Pipeline associated with Marine Terminal	Low*
Avila Beach Pier	Chevron	450 Front Street	Avila Beach	San Luis Obispo	Pipeline associated with Marine Terminal	Low
Avila Tank Farm	Chevron	10 San Rafael Street	Avila Beach	San Luis Obispo	Pipeline associated with Marine Terminal	High
ConocoPhillips (Former TOSCO/UNOCAL) Refinery, Santa Maria Facility	ConocoPhillips	2555 Willow Road	Arroyo Grande	San Luis Obispo	Pipeline associated with Tanks at Refinery	Low*
COP Pipeline at Call Canyon	Chevron	Highway 101	San Luis Obispo	San Luis Obispo	ConocoPhillips Pipeline	Low*
COP Pipeline at Gularte Canyon	Chevron	Old US 101 North	San Luis Obispo	San Luis Obispo	ConocoPhillips Pipeline	Low*
COP Pipeline at Highway 46	Chevron	Highway 46	Cholame	San Luis Obispo	ConocoPhillips Pipeline	Low*
COP Pipeline at San Luis Drive	Chevron	San Luis Drive	San Luis Obispo	San Luis Obispo	ConocoPhillips Pipeline	Low*
COP Pipeline at Tassajara Creek	Chevron	East Bank of Santa Margarita Creek	Santa Margarita	San Luis Obispo	ConocoPhillips Pipeline	Medium
ConocoPhillips RM&R site 05109	ConocoPhillips	US 101 at CA 58	Santa Margarita	San Luis Obispo	ConocoPhillips Pipeline	Low*
ConocoPhillips site # 3469	ConocoPhillips	Lucy Brown Road	Shandon	San Luis Obispo	ConocoPhillips Pipeline	Low*

SITE NAME	CURRENT OWNER	ADDRESS	CITY	COUNTY	PIPELINE	PRIORITY¹
Estero Bay Chevron Marine Terminal	Chevron	4000 HWY 1	Morro Bay	San Luis Obispo	Pipelines associated with Marine Terminal	Low*
Former UNOCAL (now Chevron) Government Point Production Facility	Chevron	1000 Cojo Bay Road	Gaviota	Santa Barbara	Pipelines associated with Tank Battery	Low*
Nipomo Creek Pipeline, Line 300 (RM&R SITE NO. 3788)	ConocoPhillips	671 Oakglen Avenue	Nipomo	San Luis Obispo	ConocoPhillips Pipeline	Medium
Pipeline- Santa Margarita to Tassajara Creek	ConocoPhillips	0 El Camino Real to Tassajara Creek Road	Santa Margarita	San Luis Obispo	ConocoPhillips Pipeline	Low*
Pismo Street & Morro Street Pipeline Release	ConocoPhillips	900 Pismo Street	San Luis Obispo	San Luis Obispo	ConocoPhillips Pipeline	Low*
Polonio Pass Pipeline	ConocoPhillips	0 Highway 46	Cholame	San Luis Obispo	ConocoPhillips Pipeline	Low*
PXP pipeline	Plains Exploration & Production	1 VAFB base and adjacent	Lompoc	Santa Barbara	PXP Pipeline	Low*
Santa Margarita Pump Station (ConocoPhillips)	ConocoPhillips	0 El Camino Real, North of Santa Margarita	Santa Margarita	San Luis Obispo	ConocoPhillips Pipeline	Low*
Santa Maria Refining Company - Asphalt Refinery	Greka	1660 Sinton Road	Santa Maria	Santa Barbara	Pipelines associated with Refinery	Low*
Shell California Lease (Cat Canyon Oilfield)	Shell Exploration & Production Company	6527 Dominion Road	Santa Maria	Santa Barbara	Pipelines within Oilfield	Low*
Shell United California Lease (Cat Canyon Oilfield)	Shell Exploration & Production Company	6527 Dominion Road	Santa Maria	Santa Barbara	Pipelines within Oilfield	Low*

SITE NAME	CURRENT OWNER	ADDRESS	CITY	COUNTY	PIPELINE	PRIORITY ¹
Tract 1259	Chevron	0 San Luis Drive	San Luis Obispo	San Luis Obispo	ConocoPhillips Pipeline	Medium
UNOCAL - Guadalupe Oilfield	Chevron	2184 Thornberry Road	Guadalupe	San Luis Obispo	Pipelines within Oilfield	High
UNOCAL - Pipeline - Tank Farm Road	Chevron	Tank Farm Road	San Luis Obispo	San Luis Obispo	Pipelines associated with Tank Battery	Low*
UNOCAL - Tank Farm Road - Bulk Storage	Chevron	276 Tank Farm Road	San Luis Obispo	San Luis Obispo	Pipelines associated with Tank Battery	Low*
UNOCAL - Guadalupe Beach Park Area	Thriftway	0 West end of Main Street	Guadalupe	Santa Barbara	Oil well/sump	Low*
UNOCAL - Old Pipeline No. 2	Chevron	4325 S. Higuera Street	San Luis Obispo	San Luis Obispo	ConocoPhillips Pipeline	Low*
UNOCAL - Elks Lane Pipeline	Chevron	0 Elks Lane	San Luis Obispo	San Luis Obispo	ConocoPhillips Pipeline	Low*
Vintage United California Lease - Bradley Canyon	Glenn Springs Holding, Inc.	6527 Dominion Road	Santa Maria	Santa Barbara	Pipeline within Oilfield	Low*
ConocoPhillips site # 4988	ConocoPhillips	Pismo street @ Higuera street	San Luis Obispo	San Luis Obispo	ConocoPhillips Pipeline	Low*

Notes:

1 Central Coast Water Board staff's internal prioritization scores rank sites high, medium, or low priority based on risk to human health and environment, site and waste complexity, and public participation.

*The sites that are scored "Low" represent sites that are very low in risk and are ready to close.

Attachment 3 – Summary Tables of Oil Pipeline Sites, continued

**TABLE 2
CLOSED OIL PIPELINE CLEANUP SITES
WITHIN THE CENTRAL COAST REGION**

SITE NAME	ADDRESS	CITY	COUNTY
Avila Beach West of San Luis Obispo Creek	3223 Avila Beach Drive	Avila Beach	San Luis Obispo
Cowan (former Serafino-Martinelli) Prop	East Prado Road	San Luis Obispo	San Luis Obispo
Former Martinelli Property	Prado Road	San Luis Obispo	San Luis Obispo
Mobil Estero Martine Terminal	4000 Highway 1	Morro Bay	San Luis Obispo
Thriftway Co. Main St. Well Site	Main St and the Pacific Ocean	Guadalupe	Santa Barbara
Unocal - Avila Beach Main Plume	1 Front St.	Avila Beach	San Luis Obispo
Unocal - Battles Gas Plant	1350 East Battles Road	Santa Maria	Santa Barbara
Unocal Gross Property Fleischer Lease	2951 Wildhaven Circle	Santa Maria	Santa Barbara
Unocal Leroy-Ferrari Lease	Main St.	Guadalupe	Santa Barbara
Unocal Signal-Bradley Lease	South of Betteravia	Santa Maria	Santa Barbara

Attachment 3 – 1984 Map of Oil Pipelines in the Central Coast Region and 2010 Map of Pipelines with Associated Oil and Gas Facilities

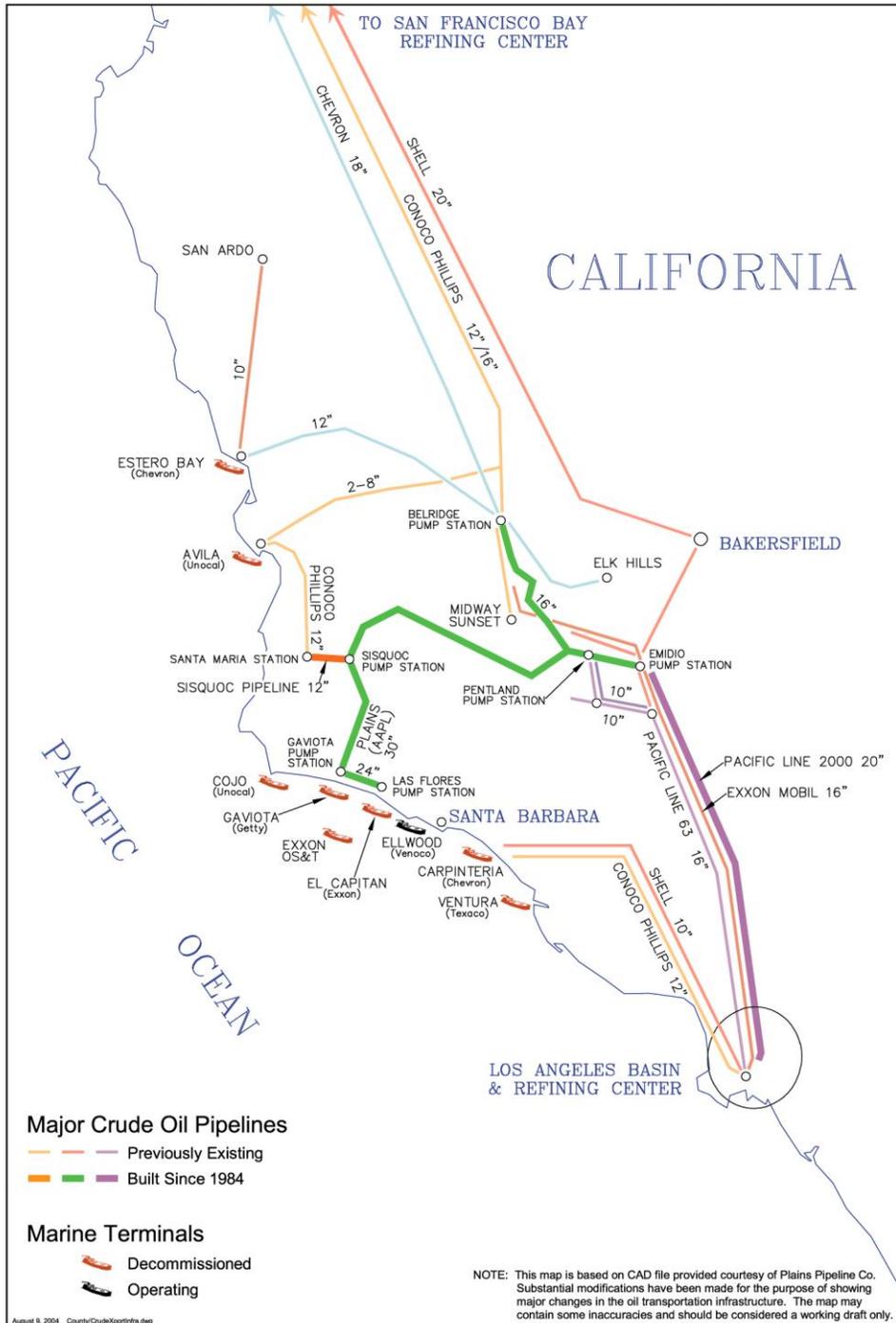
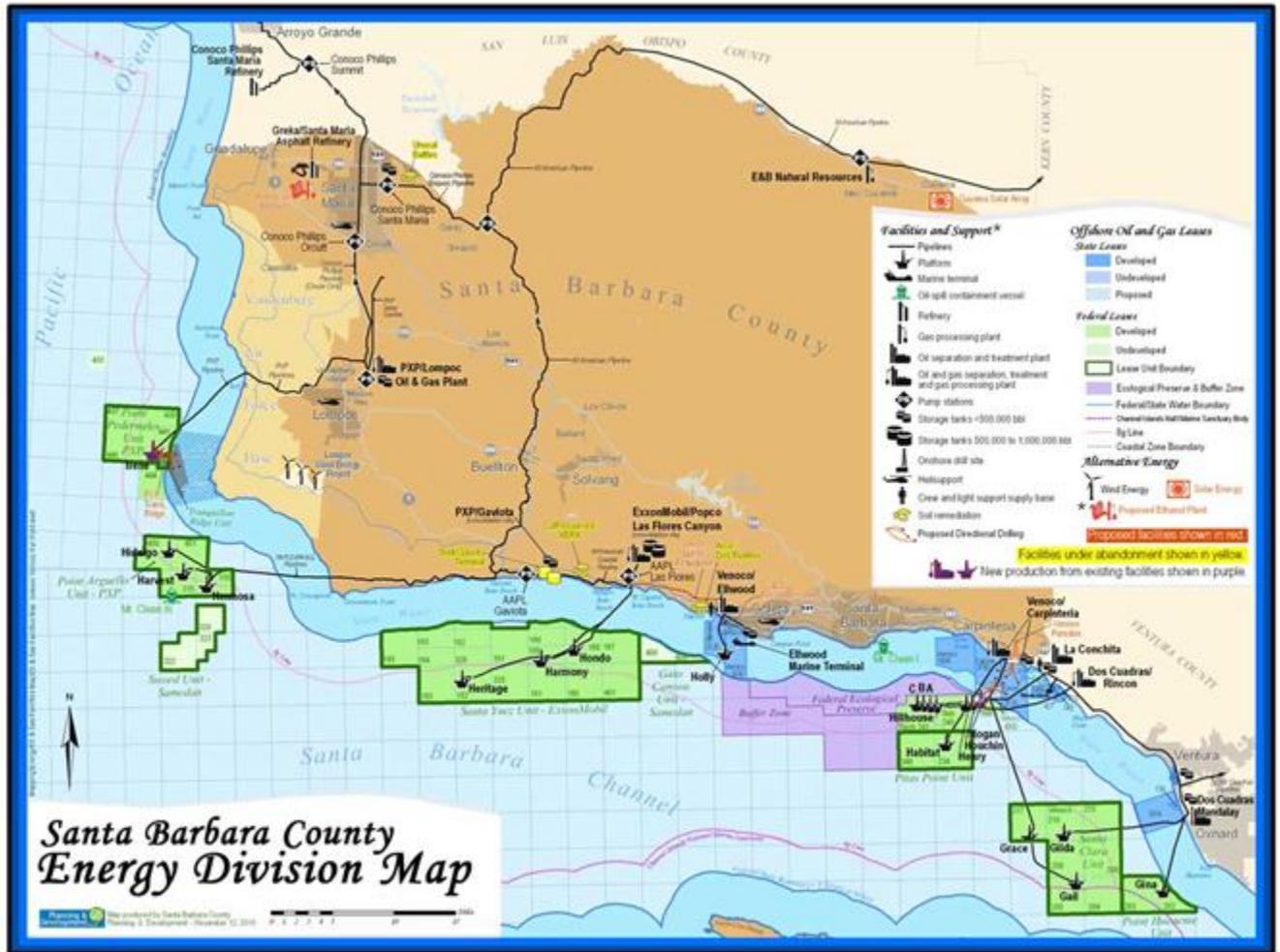
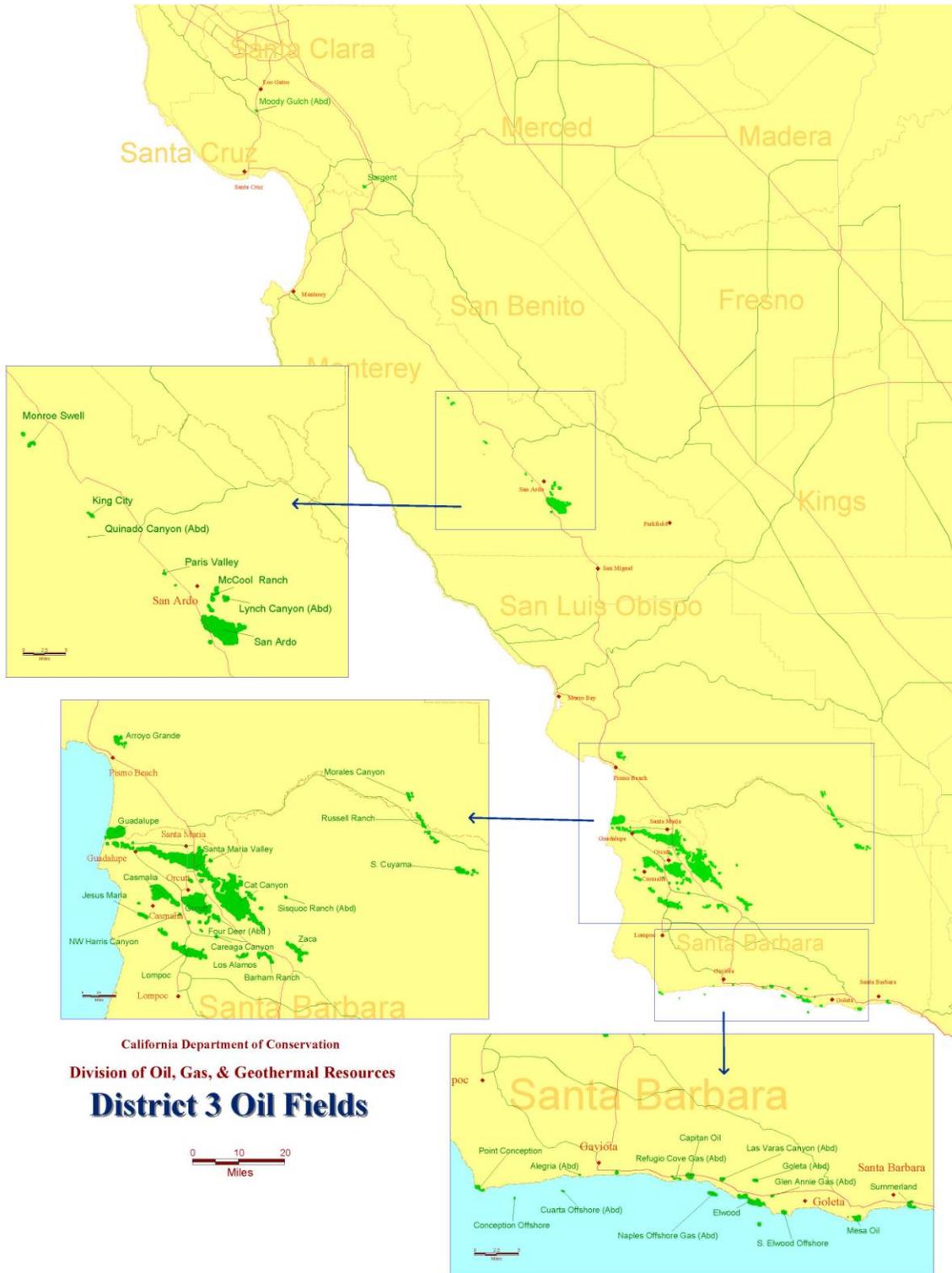


Figure 1. Crude Oil Transportation Infrastructure -- Changes 1984-2004.

Three new pipelines (shown in broad lines) facilitate transport of crude oil from Santa Barbara to refineries: Plains Pipeline (formerly AAPL); Pacific Line 2000; and the Sisquoc Pipeline interconnect. A number of marine terminals have been decommissioned in the Tri-County area while one remains in operation at Ellwood.



Attachment 4 – Oil Fields in the Central Coast Region



Attachment 5 – Summary Tables of Oil Pipeline Cleanup Sites

**TABLE 1:
ACTIVE OIL PIPELINE CLEANUP SITES WITHIN THE CENTRAL COAST REGION**

SITE NAME	CURRENT OWNER	ADDRESS	CITY	COUNTY	PIPELINE	PRIORITY¹
Avila Beach East of San Luis Obispo Creek	Chevron	1238 Avila Beach Drive	Avila Beach	San Luis Obispo	Pipeline associated with Marine Terminal	Low*
Avila Beach Pier	Chevron	450 Front Street	Avila Beach	San Luis Obispo	Pipeline associated with Marine Terminal	Low
Avila Tank Farm	Chevron	10 San Rafael Street	Avila Beach	San Luis Obispo	Pipeline associated with Marine Terminal	High
ConocoPhillips (Former TOSCO/UNOCAL) Refinery, Santa Maria Facility	ConocoPhillips	2555 Willow Road	Arroyo Grande	San Luis Obispo	Pipeline associated with Tanks at Refinery	Low*
COP Pipeline at Call Canyon	Chevron	Highway 101	San Luis Obispo	San Luis Obispo	ConocoPhillips Pipeline	Low*
COP Pipeline at Gularte Canyon	Chevron	Old US 101 North	San Luis Obispo	San Luis Obispo	ConocoPhillips Pipeline	Low*
COP Pipeline at Highway 46	Chevron	Highway 46	Cholame	San Luis Obispo	ConocoPhillips Pipeline	Low*
COP Pipeline at San Luis Drive	Chevron	San Luis Drive	San Luis Obispo	San Luis Obispo	ConocoPhillips Pipeline	Low*

SITE NAME	CURRENT OWNER	ADDRESS	CITY	COUNTY	PIPELINE	PRIORITY¹
COP Pipeline at Tassajara Creek	Chevron	East Bank of Santa Margarita Creek	Santa Margarita	San Luis Obispo	ConocoPhillips Pipeline	Medium
ConocoPhillips RM&R site 05109	ConocoPhillips	US 101 at CA 58	Santa Margarita	San Luis Obispo	ConocoPhillips Pipeline	Low*
ConocoPhillips site # 3469	ConocoPhillips	Lucy Brown Road	Shandon	San Luis Obispo	ConocoPhillips Pipeline	Low*
Estero Bay Chevron Marine Terminal	Chevron	4000 HWY 1	Morro Bay	San Luis Obispo	Pipelines associated with Marine Terminal	Low*
Former UNOCAL (now Chevron) Government Point Production Facility	Chevron	1000 Cojo Bay Road	Gaviota	Santa Barbara	Pipelines associated with Tank Battery	Low*
Nipomo Creek Pipeline, Line 300 (RM&R SITE NO. 3788)	ConocoPhillips	671 Oakglen Avenue	Nipomo	San Luis Obispo	ConocoPhillips Pipeline	Medium
Pipeline- Santa Margarita to Tassajara Creek	ConocoPhillips	0 El Camino Real to Tassajara Creek Road	Santa Margarita	San Luis Obispo	ConocoPhillips Pipeline	Low*
Pismo Street & Morro Street Pipeline Release	ConocoPhillips	900 Pismo Street	San Luis Obispo	San Luis Obispo	ConocoPhillips Pipeline	Low*
Polonio Pass Pipeline	ConocoPhillips	0 Highway 46	Cholame	San Luis Obispo	ConocoPhillips Pipeline	Low*
PXP pipeline	Plains Exploration & Production	1 VAFB base and adjacent	Lompoc	Santa Barbara	PXP Pipeline	Low*
Santa Margarita Pump Station (ConocoPhillips)	ConocoPhillips	El Camino Real, North of Santa Margarita	Santa Margarita	San Luis Obispo	ConocoPhillips Pipeline	Low*

SITE NAME	CURRENT OWNER	ADDRESS	CITY	COUNTY	PIPELINE	PRIORITY¹
Santa Maria Refining Company - Asphalt Refinery	Greka	1660 Sinton Road	Santa Maria	Santa Barbara	Pipelines associated with Refinery	Low*
Shell California Lease (Cat Canyon Oilfield)	Shell Exploration & Production Company	6527 Dominion Road	Santa Maria	Santa Barbara	Pipelines within Oilfield	Low*
Shell United California Lease (Cat Canyon Oilfield)	Shell Exploration & Production Company	6527 Dominion Road	Santa Maria	Santa Barbara	Pipelines within Oilfield	Low*
Tract 1259	Chevron	0 San Luis Drive	San Luis Obispo	San Luis Obispo	ConocoPhillips Pipeline	Medium
UNOCAL - Guadalupe Oilfield	Chevron	2184 Thornberry Road	Guadalupe	San Luis Obispo	Pipelines within Oilfield	High
UNOCAL - Pipeline - Tank Farm Road	Chevron	Tank Farm Road	San Luis Obispo	San Luis Obispo	Pipelines associated with Tank Battery	Low*
UNOCAL - Tank Farm Road - Bulk Storage	Chevron	276 Tank Farm Road	San Luis Obispo	San Luis Obispo	Pipelines associated with Tank Battery	Low*
UNOCAL - Guadalupe Beach Park Area	Thriftway	0 West end of Main Street	Guadalupe	Santa Barbara	Oil well/sump	Low*
UNOCAL - Old Pipeline No. 2	Chevron	4325 S. Higuera Street	San Luis Obispo	San Luis Obispo	ConocoPhillips Pipeline	Low*
UNOCAL - Elks Lane Pipeline	Chevron	0 Elks Lane	San Luis Obispo	San Luis Obispo	ConocoPhillips Pipeline	Low*

SITE NAME	CURRENT OWNER	ADDRESS	CITY	COUNTY	PIPELINE	PRIORITY ¹
Vintage United California Lease - Bradley Canyon	Glenn Springs Holding, Inc.	6527 Dominion Road	Santa Maria	Santa Barbara	Pipeline within Oilfield	Low*
ConocoPhillips site # 4988	ConocoPhillips	Pismo street @ Higuera street	San Luis Obispo	San Luis Obispo	ConocoPhillips Pipeline	Low*

Notes:

1 Central Coast Water Board staff's internal prioritization scores rank sites high, medium, or low priority based on risk to human health and environment, site and waste complexity, and public participation.

*The sites that are scored “*Low” represent sites that are very low in risk and are being evaluated for closure.

**TABLE 2
CLOSED OIL PIPELINE CLEANUP SITES WITHIN THE CENTRAL COAST REGION**

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Unocal Signal-Bradley Lease	South of Betteravia	Santa Maria	Santa Barbara



Lee Higgins, PG
Environmental Project
Manager

**Chevron Environmental
Management Company**
6111 Bollinger Canyon Road
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San Ramon, CA 94583
Tel (925) 543-2365
Fax (925) 543-2323
leehiggins@chevron.com

February 16, 2010

Stakeholder Correspondence–California Energy Commission

Craig Hoffman
Project Manager
California Energy Commission
1516 Ninth Street, MS 15
Sacramento, CA 95814-5512

DOCKET	
09-AFC-3	
DATE	FEB 16 2010
RECD.	FEB 16 2010

Subject: **Comments on the Mariposa Energy Project (09-AFC-03)
United States Army Corps of Engineers Wetland Delineation Amendment for the
Mariposa Energy Project – Field Verification Including the
Alternative Water Supply Pipeline Route**
Chevron Environmental Management Company
Historical Pipeline Portfolio–Bakersfield to Richmond

Dear Mr. Hoffman:

Chevron Environmental Management Company (CEMC) recently became aware of the Mariposa Energy Plant Project and the United States Army Corps of Engineers (USACE) Wetland Delineation Amendment, which proposes an Alternate Water Supply Pipeline (AWSP) route for the energy project. The purpose of this letter is to notify the California Energy Commission as to the location of formerly active crude-oil transportation pipelines with respect to the AWSP route location (Figure 1), and to provide information about the former pipelines. Information regarding the location and construction of these pipelines should be incorporated into the final engineering and environmental plans.

Portions of the former crude-oil pipelines known as the Old Valley Pipeline (OVP) and Tidewater Associated Oil Company (TAOC) systems existed within portions of the proposed AWSP route. Based on the USACE Wetland Delineation Amendment, the proposed AWSP route will parallel the former OVP and TAOC alignments along a 2.5-mile stretch of Byron Road in San Joaquin County.

The OVP was installed in the early 1900s and carried crude oil from the Kern River Oil Fields in and near Bakersfield to the Richmond Refinery until pipeline operations ceased in the 1940s. The TAOC system was also constructed in the early 1900s and transmitted crude oil from the southern San Joaquin Valley to the Bay Area until the 1970s.

The pipelines were originally installed at depths ranging from 18 inches to 10 feet below ground surface. The steel pipelines were typically encased in a protective coating composed of primer, coal tar, and asbestos-containing felt material (ACM). When pipeline operations ceased, the pipelines were taken out of commission. The degree and method of decommission varied; in some instances the pipelines were removed, while in others they remain in place.

Evidence of historic releases associated with the former OVP and TAOC systems is sometimes identified during the course of underground utility work and other subsurface construction activities near the former pipeline rights of ways (ROWs). Residual weathered crude oil associated with former OVP and TAOC pipeline operations can usually be observed visually; however, analytical testing is necessary to confirm the identity of the affected material. Analytical results from risk assessments performed by CEMC at numerous historical pipeline release sites confirm that soil affected by the historic release of crude oil from the pipelines is non-hazardous, and does not pose significant risks to human health.

Figure 1 illustrates the area where the proposed AWSP will coincide with the former OVP and TAOC ROWs. The proposed AWSP route transects two former CEMC investigation sites where releases related to the former OVP and TAOC pipelines have been documented. Please visit the California State Water Resources Control Board Geotracker website at <http://geotracker.swrcb.ca.gov/> for more information regarding the following sites:

- Mountain House Site #1 (site ID # SL0607789794)
- Mountain House Site #2 (site ID # SL0607797863)

CEMC recommends that the project proponent be prepared to address residual weathered crude oil, pipelines, and ACM from the former OVP and/or TAOC systems during subsurface construction activity. This potentiality is easily managed with some advanced planning. CEMC would appreciate being informed of progress regarding the proposed project, any encountered petroleum, pipelines, and pipeline-related ACM, and any additional planned construction and land development projects in the vicinity of the former OVP and TAOC ROWs.

For more information regarding these historic pipelines, please visit <http://www.hppinfo.com/>. If you have any questions, require additional information, or would like to request more detailed maps, please call SAIC consultants Tom Burns at (916) 979-3748 or Daniel Anzelon at (858) 826-3316.

Sincerely,



Lee Higgins

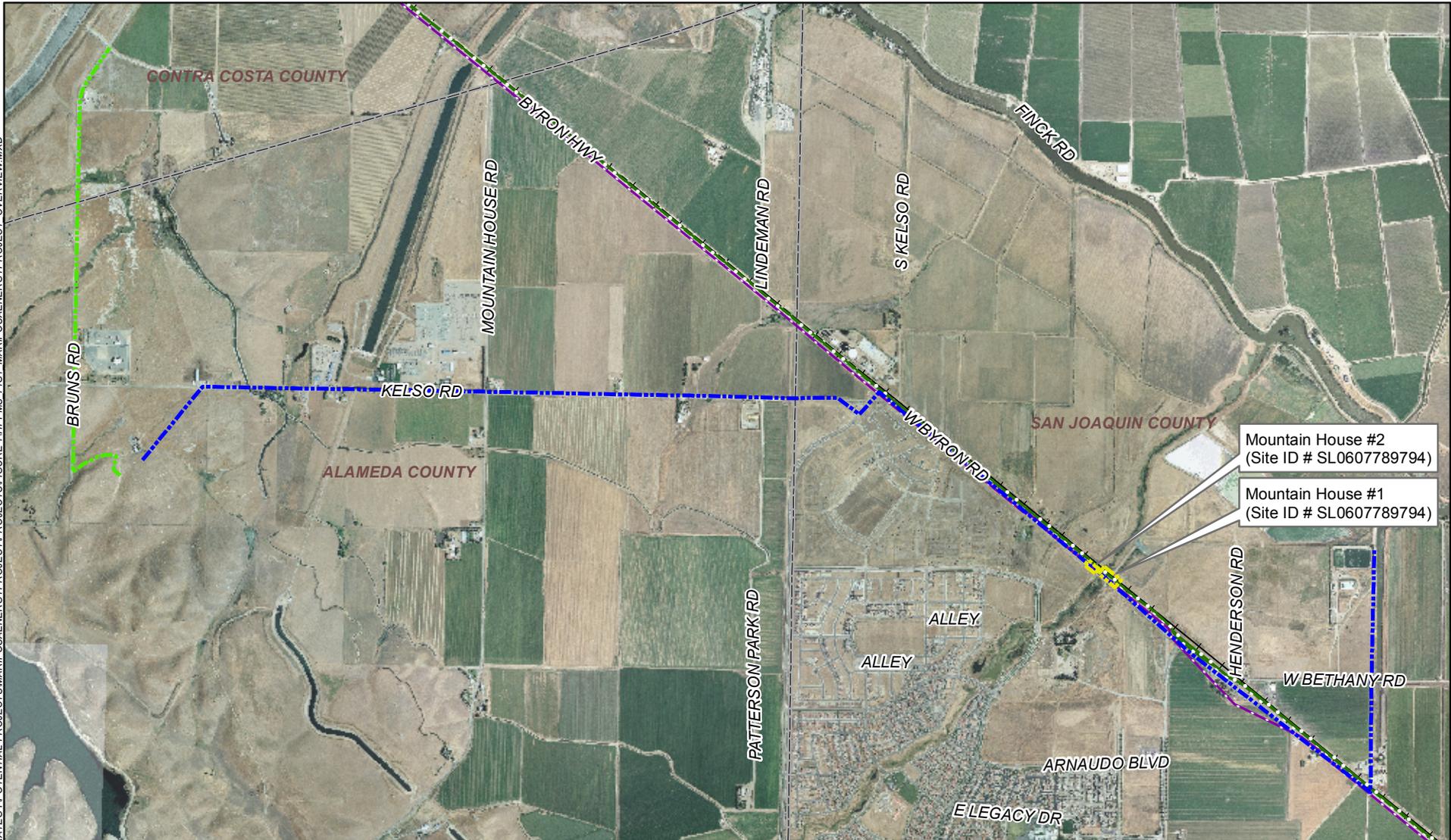
LPH/klg

Enclosure:

Figure 1. Historical Pipeline Alignments – Mariposa Energy Project

cc: Mr. Tom Burns – SAIC
3800 Watt Avenue, Suite 210, Sacramento, California 95821
Mr. Mike Jenkins – SAIC (letter only)
3800 Watt Avenue, Suite 210, Sacramento, California 95821
Mr. Mohamed Ibrahim – SAIC
3800 Watt Avenue, Suite 210, Sacramento, California 95821

FILE: \\SAGGIS\GIS\CAD\HPPBTR\MANAGEMENT\STRATEGY\POTENTIAL PROJECTS\MARIPOSA ENERGY PROJECT\FIGURE 1\HPPM5_FIG1_MARIPOSA ENERGY PROJECT_OVERVIEW.MXD



Map is a relative representation of current and historical data and should be verified for exact legal or underground work.



- Proposed Original Water Supply Pipeline Route
- Proposed Alternative Water Supply Pipeline Route
- Historical Old Valley Pipeline (OVP)
- Historical Tidewater Associated Oil Company (TAOC) Pipeline
- Investigation Area
- Railroad
- County Boundary

HISTORICAL PIPELINE ALIGNMENTS

MARIPOSA ENERGY PROJECT
Alameda/San Joaquin County, California

DATE: 1/29/2010 ANALYST: HOANGTA FIGURE:



ADMINISTRATIVE REPORTS

Budget Update

State Board management has reduced the required "Salary Savings" from 5% statewide, to 3% for the smaller organizations (like our region) and 2% for the bigger organizations (e.g., the Central Valley and Los Angeles Regional Boards). This change, coupled with the departure of four staff last year, and several other staff in prior years that were not replaced, means that we are now "out of the hole" and have a vacancy that we can fill. We are attempting to fill a clerical position since three or the four departures last year were administrative/clerical staff, and our administrative unit has been pretty decimated

Presentations, Education, and Training [Roger Briggs 805/549-3140]

Peter Meertens, Environmental Scientist in the Watershed Assessment, participated in the 2011/2012 GeoDesign Summit. The summit was sponsored and hosted by Environmental Systems Research Institute (ESRI), January 8 and 9 at their headquarters and campus in Redlands California. ESRI is the world leader in geographic information system (GIS) technology and software. ESRI, along with leaders in the field of GIS and landscape planning, are developing a new planning and technology framework that integrates GIS analysis and implementation planning. The GeoDesign framework is intended to facilitate the shared understanding of environmental processes and the outcomes of potential plans and policies. Some of the components of GeoDesign are the development of watershed and groundwater models and the use of cloud computing technology. Presenters discussed the integration of GIS into watershed analysis and planning. Peter participated in discussions with technology developers on TMDL processes and the use of GeoDesign in TMDLs. We are considering whether the technology could be incorporated into larger watershed implementation planning projects, e.g. complex watershed TMDLs

On January 24, 2012, staff engineer Kristina Seley spoke at Cuesta Junior College to students in an Introduction to Engineering class. Kristina explained who the Water Board is, how she entered her field of study, why she works at the Water Board, and the differences between public and private sector work.

Kim Sanders and David Innis, Environmental Scientists in the Stormwater/Water Quality Certification unit attended a workshop entitled "Stream and Riparian Corridor Restoration" on January 24-27, 2011. The workshop was sponsored by the Army Corps of Engineers and CalTrans. The instructor was a Hydraulic Engineer with US Fish and Wildlife. The workshop provided training on methods to evaluate and enforce CWA 401 Water Quality Certs.

On January 27, 2012, staff scientist Julia Dyer and staff engineer Tamara Presser attended the Cal Poly Civil and Environmental Career Fair to recruit students for Stormwater and 401 Certification Program internship positions."

Corinne Huckaby, Sanitary Engineering Associate, in the Ag unit attended a California Irrigation Seminar in Sacramento on January 29-31, 2012. The event was sponsored by the California Irrigation Institute. The main focus of the seminar was to obtain knowledge and expertise necessary to evaluate compliance and conduct regulatory follow-up related to irrigation management and associated impacts to surface water and groundwater.

Executive Officer's Report

On January 30 & 31, in conjunction with the regularly scheduled joint Management Coordinating Committee Meeting and Assistant Executive Officers meeting, Michael Thomas and Roger Briggs attended a U.C. Davis class on Leadership and Communication and understanding different perspectives – communication among the State and Regional Boards, and among the Water Boards and stakeholders. This class was the second in a series of classes with this group that resulted from Michael and Roger initiating and assisting with developing leadership education for the statewide Water Board leaders. These classes are optional, but the level of participation has been very good.

Tom Sayles and Wei Liu of the Underground Tanks Unit attended the annual CUPA training conference during the week of February 6, 2012.

Chris Rose, supervisor of the Watershed Assessment Unit and TMDL Program Manager took part in the USEPA workshop titled *Restoring Water Quality and Aquatic Ecosystems: Using the Best Information to Implement Watershed Plans and TMDLs*. This was a two-day workshop on February 8, 9 aimed at implementation planning by utilizing USEPA's Watershed Planning approach, which helps pave the way for Clean Water Act section 319(h) grant funding. Watershed Plans focus on "Nine Key Elements" for successful non-point source implementation planning. The nine key elements are: 1) causes and sources (of water quality impairment); 2) expected (pollutant) load reduction; 3) management measures; 4) technical and financial assistance; 5) information/education; 6) schedule; 7) measurable milestones; 8) evaluation of progress; and 9) effectiveness monitoring. Presenters discussed the components of watershed plans as well as challenges and successes of implementing plans. There was a panel discussion at the end of the second day of the workshop to discuss lessons learned and observations. Chris Rose was a panel member. About 80 people attended the workshop.

Dan Niles, Engineering Geologist, in Cleanup/Land Disposal attended "Overview of QMP" presented by the State Water Resources Control Board on December 6, 2011.

Corinne Huckaby, Sanitary Engineering Associate, and Monica Barricarte, Water Resource Control Engineer attended the 2012 California Plant and Soil Conference in Visalia on February 7-8, 2012 sponsored by the California Chapter American Society of Agronomy. The conference covered Regulatory Issues Impacting California Agriculture. The purpose of staff attending was to obtain knowledge and expertise necessary to evaluate compliance and conduct regulatory follow-up related to nutrient management and associated impacts to surface water and groundwater.

Karen Worcester, Mary Hamilton and Dave Paradies of the Central Coast Ambient Monitoring Program all participated in a "Causal Assessment" workshop at the Southern California Coastal Water Research Program (SCCWRP) offices in Costa Mesa on February 8 - 10. This workshop was sponsored by SCCWRP and the State Water Board. Causal assessment is a step-wise process of identifying and eliminating possible stressors that may be impacting the biology at a site of interest in order to isolate the probable cause of the biological impairment. Three projects were selected throughout California to serve as pilots for demonstration the utility of this EPA toolkit on California bioassessment data. The three projects included the Garcia River in Region 1, the Salinas River in Region 3, and the Santa Clara River in Region 4. The Causal Assessment toolkit includes a large website called "CADDIS", the Causal Analysis/Diagnosis Decision Information System. This website provides access to an enormous amount of information and references to help the user identify stressors, sources and potential responses, and to get access to statistical analysis support. More information about CADDIS is available here: <http://www.epa.gov/caddis/>. Over the next year, staff at EPA Headquarters will work with both CCAMP staff and Sarah Greene of Central Coast Water Quality Preservation Inc., to conduct a causal assessment of sites in the lower Salinas watershed. This is a wonderful

Item No. 21

March 14-15, 2012

Executive Officer's Report

opportunity to get experts in this field to examine and analyze our data in detail. to help us verify the cause of biological impairment in this river.

Katie DiSimone, Water Resource Control Engineer attended NPDES Permit Writers training on February 13-17, 2012 in San Diego.