Safety and Oil Spill Prevention Audit

CalNRG Operating, LLC

West Montalvo
Leases 735 & 3314

February 2025

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EXECUTIVE SUMMARY

Safety Audit of California Natural Resources Group (CalNRG), Montalvo Lease

A Safety and Oil Spill Prevention Audit of the CalNRG West Montalvo State Leases 735 and 3314 onshore production, processing, and shipping facilities began in August 2024 in Ventura, CA. Fieldwork for both the Safety Audit Team and third-party Electrical contractor concluded in October 2024.

The objective of each Safety and Oil Spill Prevention Audit is to ensure that oil and gas facilities on State leases are operated in a safe and environmentally sound manner, comply with state and federal regulations, and meet the Best Achievable Protection (BAP) requirement of Public Resources Code (PRC) 8755. This audit followed the established procedures that have been used by the California State Lands Commission (Commission) for many years. The applicable regulations and standards commonly used are provided in Appendix C. Audit findings are based on and reference these criteria.

Company Background

The Montalvo leases are owned and operated by California Natural Resources Group (CalNRG), an oil and natural gas exploration and production company with operating properties exclusively in the state of California. CalNRG's core business is in the production, processing and marketing of crude oil, natural gas, and natural gas liquids. CalNRG currently operates fields in Monterey, Orange, and Ventura Counties, with headquarters in Ventura, California.

Facility Description

The Montalvo leases consist of 21 wells (12 active and nine idle as of January 2025) and their production is handled by two small processing facilities. The Beach Site is located just south of the Ventura River and is bordered by the Pacific Ocean, and McGrath State Beach on the west and Harbor Boulevard on the east. The Colonia site is located on CalNRG's property east of Harbor Boulevard.

The oil and natural gas produced at the Montalvo leases are processed at onsite facilities where the gas, water, and oil are separated. Oil is dehydrated and sent to State Lease stock tanks, produced water goes to a wastewater tank, and gas is used for fuel, process function, flared, or shipped for sale. Both leases have dedicated air compressors, gas scrubbers, orifice meters, storage tanks, shipping pumps, Coriolis lease allocation meters, Lease Automatic Custody Transfer (LACT) units, sumps, and relief systems. The lease facilities are monitored 24 hours a day, seven days a week, safeguarded with fencing, and equipped with a surveillance system. The facility is designed with berms and is sloped to contain potential oil releases. In

January 2025, Lease 735 produced an average of 50 barrels of oil per day (BOPD) and 24 thousand cubic feet of gas per day (MCFD); Lease 3314 produced an average of 153 BOPD and 50 MCFD. CalNRG intends to return more wells to production throughout the year to increase the leases' output.

Safety Audit Results

The Safety and Oil Spill Prevention Audit found that Montalvo lease premises substantially comply with applicable safety and regulatory requirements and that an adequate level of safety and environmental protection has been achieved for facility activities. The established safety culture also ensures the protection of workers, the public, and the environment.

The condition of the facility was found to be in an acceptable state of repair, clean, and well organized. CalNRG appears to have well established safety policies, health, and environmental programs. A consistent safety and environmental culture has developed from these programs. Employees are encouraged to participate and further enhance the overall reliability, job performance, and promote teamwork to reach organizational safety goals. Personnel are knowledgeable and provided valuable assistance to the Commission Mineral Resources Management Division (MRMD) staff with this safety audit.

Safety systems and equipment remain fit for service. However, a number of pressure vessels are past due for recommended scheduled internal or on-stream ultrasonic thickness (UT) inspections. Without inspection and condition assessment verification protocols, the equipment or system may not meet the intended requirements under operating conditions. Risk reduction and environmental compliance can only be ensured through scheduled inspections, testing, and preventive maintenance practices.

Action items from the audit are categorized into three subject areas: equipment function and integrity (EFI), electrical (ELC), and safety management programs (SMP). Each of these action items are assigned a priority ranking from one to three: priority one action items pose a high or immediate risk to personnel, the facility, or the environment and must be resolved within 30 days of this report; priority two action items pose a moderate risk potential and must be resolved within 120 days; and priority three action items pose a low-risk potential and must be resolved within 180 days.

The MRMD Safety Audit Team identified 103 action items, a 56% decrease from the previous audit. The current audit found no priority 1 action items. The number of priority 2 action items decreased to 16 from 46. The number of priority 3 action items decreased to 87 from 190. Figure 1 displays the distribution of the action items by subject areas. This distribution is similar to other facilities in California where the items identified are typically related to process equipment, maintenance practices, and electrical systems.

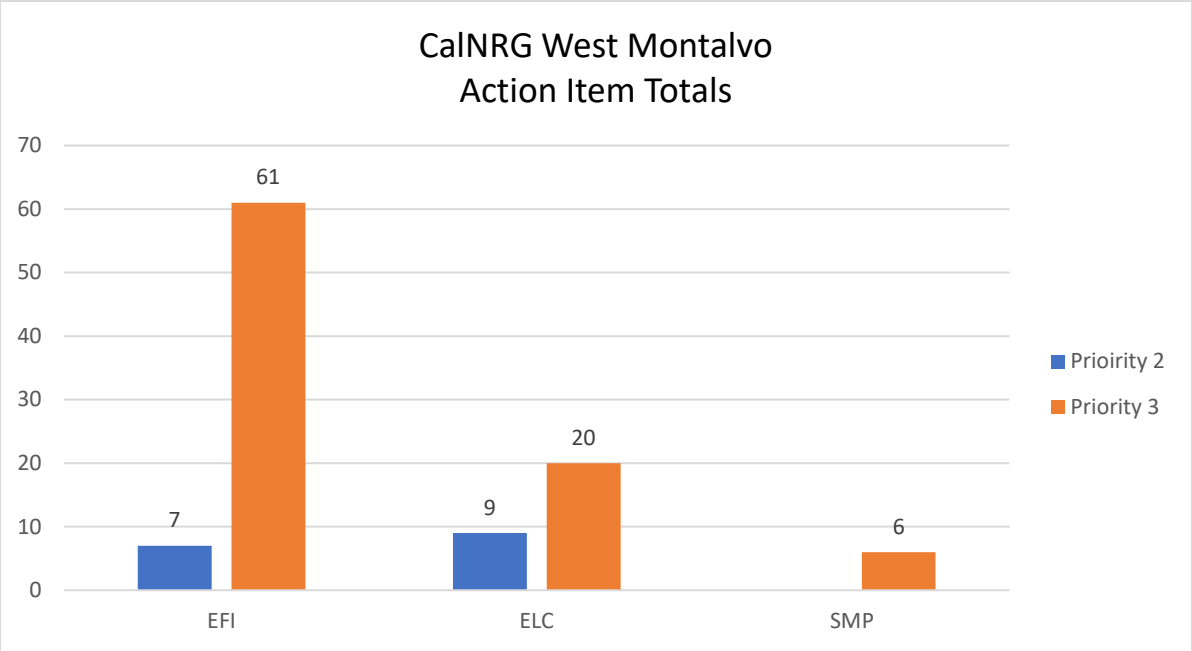
CalNRG West Montalvo
Action Item Totals
70
60
50
40
30
20
10
0
61
7
20
9
6
EFI
ELC
SMP
Prioirity 2
Priority 3

Figure 1

Introduction

CalNRG Operating, LLC

West Montalvo
Leases 735 & 3314

February 2025

1.0 INTRODUCTION

1.1 Safety Audit Background

The California State Lands Commission (Commission) Mineral Resources Management Division (MRMD) conducts safety and oil spill prevention audits of operators and/or contractors for lands in which the State has an interest. Commission sponsored safety audits ensure oil and gas production facilities on State leases or granted lands are operated in a safe and environmentally sound manner and comply with Federal, State, and Local codes or permits, as well as industry standards and practices. Commission staff is tasked with oil spill prevention in California's ocean and tidelands, prevention of waste, conservation of natural resources, and ensuring that safety and health standards are being met. Public Resources Code (PRC) 6103, 6108, 6216, 6301, 6873(d), 8755, and 8757 provide authority for Commission regulations and the existing inspection and the Safety Audit program.

In 1990, the California Legislature enacted the Lempert-Keene-Seastrand Oil Spill Prevention and Response Act (California Government Code 8670.1). The Act covers all aspects of marine oil spill prevention and response in California. Under the legislation, marine facilities must provide the Best Achievable Protection (BAP) of the coast and marine waters.

Frequent monitoring and inspections by MRMD staff of onshore and offshore oil and gas drilling and production facilities ensure that BAP is in place to safeguard the public and environment. The MRMD Safety Audit Program, in conjunction with the monthly inspection program, helps prevent oil spills and other accidents with on-site inspection and verification activities. The Safety Audit Program also aids prevention through design review of facility producing, processing, and safety systems, maintenance condition, operating procedures, emergency plans, training and certification programs, human factors, and other aspects of safety management.

During a safety and oil spill prevention audit, MRMD team members systematically assess an organization's facilities and safety management programs, identify action items to be addressed, and provide feedback for improvement through preparation of a formal written report. The areas of emphasis include:

- Equipment Functionality and Integrity (EFI)
- Electrical (ELC)
- Safety Management Programs (SMP)
- Human Factors (HF)

Appropriate company contacts and resources are identified prior to the start of the audit. Progress reports are communicated to MRMD management personnel and the company

throughout the safety audit process and an “action item matrix” is developed to categorize and track audit findings. The matrix identifies deficiencies and contains recommended corrective actions and a priority ranking for the specified corrective actions. A graph and table are generated showing the breakdown of the facility’s identified action items by areas of emphasis.

Draft copies of the report and the action item matrix are provided to the company during the safety audit. The final audit report is presented to company management formally, which affords the opportunity to discuss the findings, and the corrective actions proposed. Throughout the clearance phase of the audit, the MRMD team continues to communicate with the company in resolving the action items and tracks the progress of the proposed corrective actions.

This program could not be successfully undertaken without the cooperation and support of the operating company. The safety audit benefits both the company and the State by reducing workplace hazards, environmental accidents, property damage, and oil spills. Previous experience shows safety assessments help increase operating effectiveness, efficiency, and lower operating costs.

1.2 Facility Background

State Oil and Gas Lease 735 was issued to Standard Oil Company of California in 1952, and Lease 3314 was issued to Shell Oil Company in 1965. Both leases were assigned to Berry Petroleum in 1992. In 2007, Venoco purchased the leases from Berry Petroleum and later undertook plans for re-drilling wells into Lease 3314 from the Lease 735 well production area and drilling new Lease 3314 wells from the Colonia production and processing site. California Resources Corporation (CRC) purchased the rights to the West Montalvo Field State leases in 2014. The leases were reassigned to California Natural Resources Group (CalNRG) in 2024.

In January 2025, Lease 735 produced an average of 50 barrels of oil per day (BOPD) and 24 thousand cubic feet of gas per day (MCFD); Lease 3314 produced an average of 153 BOPD and 50 MCFD. CalNRG intends to return more wells to production throughout the year to increase the leases’ output.

1.3 Facility Description

Lease 735 Beach Site: Lease 735 is produced from a beachside strip located between McGrath State Beach and Harbor Boulevard that contains 14 oil wells. Three of the production wells are drilled into Lease 735, nine are drilled into Lease 3314, and two are non-State wells drilled into CalNRG’s McGrath property. In January 2025, eight of the Beach Site wells were active and four were idle. Well C-3 utilizes an Electric Submersible Pump (ESP), and all other wells are fitted with Rotaflex Pumping Units. Produced fluids from both leases flow through gathering lines to their respective line heaters. Production proceeds through separate wet oil separators after which it is metered by separate Coriolis meters used for lease royalty allocation

of the oil produced by each lease. The oil from the two State leases is then commingled, processed through the V-704 heater treater for dehydration to sales quality, and then stored in a stock tank. From there the oil is pumped through a Lease Automatic Custody Transfer (LACT) unit into a third-party 8-inch-diameter sales pipeline that travels outside the Beach Site alongside Harbor Blvd. Gas production is gathered by a common casing gas line and treated through a scrubber to remove any water, after which it flows to a Static Mixer/H_2S scrubber where H_2S is removed. The gas is then used for fuel, makeup gas supply, or sales. Produced water from the separators and heater treater flows to the produced water tanks (T-3, T-5A&B) before being pumped off site to the water injection system.

Lease 3314 Colonia Site: The 3314 lease has nine production wells located in the facility boundaries; four were active and five were idle in January 2025. Produced fluid is sent directly to the Colonia processing facility, where the emulsion is sent through a line heater and wet oil separator and wet oil is metered by a Coriolis meter before going to the stock tank. Oil from the stock tank is commingled with non-State production and further dehydrated before proceeding to a LACT unit for sales metering.

Facility Condition Audit

CalNRG Operating, LLC

West Montalvo
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2.0 FACILITY CONDITION AUDIT

2.1 Goals and Methodology

The goal of the facility condition portion of the audit was to evaluate the current equipment maintenance and integrity of the West Montalvo facility. The on-site inspection involved a systematic evaluation of the different systems, equipment, and facilities using various checklists and methods that the team has developed over the years of auditing. A variety of codes and standards apply in addition to California State Lands Commission (Commission) regulations. Initial tasks to accomplish this goal included field verifications of the key drawings/plans, overall condition inspection and evaluation, a review of system and equipment maintenance histories, further evaluation of specific systems and equipment using checklists, technical review of safety systems design, and verification of compliance with applicable state regulations and industry codes, standards, and recommended practices. The layout of the audit report generally follows a “system by system” method that includes a description and assessment of the facilities with any significant observations. The report addresses the safety of personnel as well as facility and process safety. The assessments of both areas of safety are important when identifying an organization’s current level of safety program development.

2.2 General Facility Conditions

2.2 Facility Roads Condition: Access to Lease 735 and Colonia is permitted by an electronically controlled gate from the main roads. Roads inside the facilities were found to be riddled with potholes, making access and travel difficult (*Action Item EFI 2.2.01*).

2.2.1 General Cleanliness/Vegetation Control: Facility work areas were clean and orderly, generally free of slip and trip hazards, waste materials (e.g., refuse, oilfield wastes) and fire hazards. Commission staff observed some tree branches and foliage causing obstruction on various production lines on State Lease 3314 Production & Casing Gas Manifolds (*Action Item EFI 2.2.1.01*). Refuse appeared to be well controlled, as operating personnel collect waste throughout the day in bins within their company vehicles and deposit it in large refuse containers at the Colonia processing facility. Regular collection of waste contributes to good housekeeping practices. Sanitation facilities consist of Porta-Potties with hand washing stations due to the remote location. The Porta-Potties on location are adequate, clean, regularly serviced, and well maintained.

CalNRG’s good housekeeping policies provide an organized, uncluttered environment and reduce hazards. Good housekeeping practices require attention to details, such as the layout of the worksite or facility, identification and marking of physical hazards, ensuring the adequate number of storage facilities, and routine maintenance. The benefits of good housekeeping affect not only workers' safety but also their health and productivity. Improvements

in worker health and productivity, in turn, lead to lower operating costs thereby providing benefits to both the workers and the employer. It is also the foundation for accident and fire prevention.

CalNRG's good housekeeping policies can be seen in their spill prevention system and secondary containment provisions. If any oily or liquid substance accidentally spills onto the ground, active measures (absorbent materials) are used by personnel to clean it up immediately. CalNRG's personnel provide another layer of protection against pollution by conducting regular facility surveillance to monitor the condition of piping and equipment for leaks of oil or oily fluids.

2.2.2 Stairs, Walkways, Gratings and Ladders: Stairs, walkways, gratings, and ladders throughout the facility appeared to be of a safe design and construction. One exception was the stairs used to access Oil Storage Tanks T-40 and T-41. These stairs appeared heavily corroded. An evaluation of their structural integrity, repair and/or replacement is recommended (*Action Item EFI 2.2.2.01*). Stairs used to traverse pipe runs were in good repair and were clear with no obstructions. Portable ladders and other necessary work equipment appeared in good working order and relatively free from oil and grease accumulation. CalNRG's *Health, Safety and Environment Manual* Section 7.3 covers the use and care of ladder equipment on the facility.

2.2.3 Exits, Emergency Egress, Escape: Due to the design, size, and open arrangement of equipment within the facility boundaries, there were no areas of concern regarding access and egress. However, it was observed that State Lease 3314 Well Pad does not have a windsock to direct employees upwind of a potential H_2S exposure (*Action Item EFI 2.2.3.01).*

2.2.4 Labeling, Color Coding, Placards and Signs: The design, application, and use of signs and symbols within the facility identifies specific workplace hazards. CalNRG adheres to Occupational Safety and Health Administration (OSHA) and American National Standards Institute (ANSI) recommendations. All employees receive instruction on what the signs signify and what special precautions are necessary to perform tasks safely. Workplace hazards (e.g., slip, trip, overhead clearance) are marked with yellow, and fire safety equipment is marked with red.

Required signs, including owner/operator contact information, were posted at the entrance and where needed within the facility. Warning signs were posted properly to identify known safety hazards. They were clearly visible and identified safety hazards, though some signs could be refreshed for legibility. Tanks and vessels within the facility were clearly identified as confined spaces with warning placards posted at manways to warn personnel of potential hazards. There were, however, a couple missing and/or illegible confined space warning signs that need to be replaced. In addition, various signs, placards, and labels were not secured in place near the hazard or were illegible and require replacement (*Action Item EFI 2.2.4.01*).

National Fire Protection Association (NFPA) 704 hazard identification labeling (hazard diamonds) were generally visible on all tanks, vessels, and chemical storage totes; however,

replacements are required in some areas. The posting of hazard diamonds is an indication of good facility hazard communication and conformance with good oilfield practice.

2.2.5 Security: The State Lease 735 Tank Battery facility is located adjacent to the shoreline. The State of California mandates public access to beaches; this inevitably presents challenges in maintaining a secure facility adjacent to the access path. Physical and operational security measures are in place to prevent unauthorized entry into the Lease 735 and 3314 facilities, including Colonia. Fencing, facility lighting, locked doors, and an electronically controlled gate at the main entrance are used as a deterrent to unauthorized entry and vandalism. Facility personnel also provide additional monitoring with their normal operational surveillance. The efficacy of these measures varies. Unauthorized facility access to State Lease 735 Tank Battery was indicated by the graffiti atop the Rotaflex Pump Unit for well 3314-1210 (*Action Item 2.2.5.01*).

2.2.6 Hazardous Material Handling and Storage: Flammable and combustible liquids were found properly stored and documentation readily available, corresponding to Cal/OSHA and NFPA 30 regulations. The bulk chemical totes appeared structurally sound and had adequate containment in the event of a leak. However, the labeling on various chemical totes was missing and/or illegible and requires replacing. In addition, several 55-gallon steel drums used for hazardous waste/materials, located on the Colonia access road in the covered storage area, were not labeled in a manner to allow content identification and had holes present (*Action Item EFI 2.2.6.01*). Safety Data Sheets (SDS) containing information on all chemicals used in the workplace are readily available and can be found inside the main office.

2.3 Field Verification of Plans

2.3.1 Process Flow Diagrams (PFDs) and Plot Plans: The PFDs are part of the process safety design information for the facility and indicate the general flow of plant processes and equipment. Plot Plans illustrate the location of pieces of equipment, including safety equipment, and where they are relative to other pieces of equipment. Some minor changes to the Process Flow Diagrams and the Plot Plans are needed to reflect current equipment and placement (*Action Items EFI 2.3.1.01 – 2.3.1.04*).

2.3.2 Piping and Instrumentation Diagrams (P&IDs): Field verifications of the P&IDs showed that they were reasonably accurate; however, minor updating is required. The discrepancies in the P&IDs included valve sizing and piping identification errors, missing equipment, and out of service or removed equipment (*Action Items EFI 2.3.2.01 – 2.3.2.32*).

2.3.3 Fire Protection Plot Plan: The fire protection drawing was mostly accurate with only minor updates or corrections needed to reflect the accurate location of fire extinguishers, eyewash stations, first aid stations, and chemical totes (*Action Item EFI 2.3.3.01*).

2.4 Condition and Integrity of Major Systems

2.4.1 Piping: An external visual inspection was performed to evaluate the mechanical integrity and maintenance of the piping in conjunction with the Piping and Instrumentation Diagram verification. This visual inspection and evaluation work observed the external condition of the piping, coating, signs of misalignment, temporary repairs, vibration, and leakage. The evaluation also included the condition of pipe hangers and supports as well as any field modifications not recorded on the piping drawings. The evaluation considered other key information such as material selection, piping design and maintenance practices, as well as any field modifications or temporary repairs not recorded on the piping drawings.

The primary corrosion prevention programs used at the facility are coatings, chemical inhibitors, and cathodic protection. The fitness and maintenance of piping throughout the leases were found to be in generally good condition, compatible with the process, operating parameters and environment. However, the field survey identified a number of action items pertaining to temporary pipe clamps, missing and/or insufficient supports in use, as well as corrosion and coating failure present throughout the facility (*Action Item EFI 2.4.1.01 - 2.4.1.05*). The Commission staff recommends CalNRG conduct a corrosion evaluation on production and gas piping, eliminate pipe to soil interfaces, and repair protective coatings.

2.4.2 Tanks: The tanks at the facility appear to be in good condition and have been inspected within API 653 guidelines. Facility tanks are subject to CalNRG's written inspection and maintenance plan. The maintenance plan follows API Recommended Practices (RPs) and standards. The maintenance strategy also conforms to applicable State regulations and uses appropriate work practices and procedures. Routine external/internal maintenance inspections occur on a cycle. Tank documentation includes inspections, repairs, alterations, and reconstruction records. In addition, tank shell ultrasonic thickness (UT) data showing locations and results are completed as part of the inspection process. This inspection method searches for flaws and service induced damage as part of determining the suitability of the tank for the intended service. Tank exterior coatings, piping, valves, walls, anchor bolts, and labeling appeared to be in good condition with no evidence of recent damage or active leaks. A comprehensive review of the tank inspection records was performed to assess the current maintenance condition.

2.4.3 Pressure Vessels: West Montalvo has a variety of pressure vessels ranging from air receivers to fired three-phase separators that are used to process the oil, gas, and produced water. These pressure vessels are maintained following a program of external and internal examination for compliance with applicable regulations, recommended practices (e.g., API 510 and Mineral Resources Management Division (MRMD) 2132(g)(3)), and recordkeeping. These pressure vessels are built according to American Society of Mechanical Engineers (ASME) Codes and have appropriate controls and safety devices. To improve maintenance efficiency, CalNRG has tailored inspection cycles to match the safety risks posed by particular classes of

pressure vessels. Vessel wall thickness, corrosion allowance, and minimum thickness (t-mins) as well as operating temperature and pressures are used to determine the inspection frequency. External vessel inspections are completed within 5-year intervals, while internal inspections and thickness measurements are completed within 10-year intervals using non-destructive examination techniques.

The audit team performed a visual examination to assess the general exterior condition of the pressure vessels and their maintenance history. This method detects specific problems such as external coating failure, corrosion, leaks, labeling, inadequate anchoring or foundations, required instrumentation and gaps in inspection frequencies. Manufacturer's data reports were not available for several pressure vessels (*Action Item EFI 2.4.3.01*). Inspection recommendations, maintenance activities, and design information should be documented and recorded within the pressure vessels permanent record. Internal, UT, and external inspections were past due for a variety of pressure vessels *(Action Items 2.4.3.02, 2.4.3.03).* These deficiencies are due in part to the recency of the lease reassignment; CalNRG did not have ownership or control of the pressure vessels until Summer 2024.

2.4.4 Pressure Safety Valves (PSV): The primary purpose of the pressure relief system is to ensure protection for facility personnel and equipment from overpressure conditions that may happen during process upsets, equipment failure, and external fires. The relief system serves the major process vessels and components while other relief devices may be located on smaller ancillary components. The relief system components were evaluated for installation, design, maintenance, functionality, compliance with applicable regulations and recommended standards, as well as record keeping.

Both leases have their own ground flares. Gas is sent to the flare system when it exceeds the pressure on the Vapor Recovery System, but before the pressure is enough to relieve through the vessel's pressure safety valves. Normal venting and process upsets are directed to the ground flares at safe locations by means of the gas vent system and relief piping. The ground flare uses standing pilots and utilizes a "smokeless" design. Each flare is located a safe distance from related equipment and is of sufficient height to protect workers and the public during maximum flaring. Safeguards include perimeter fencing which is employed to protect the public and wildlife.

A visual inspection of the system determined that all piping laterals and headers are arranged so that the outlet from each PSV does not form a liquid trap. Similarly, the sizing of the discharge piping and the relief manifold provide adequate relieving capacity and protection to the corresponding vessel(s) from overpressure. However, Commission staff observed atmospheric relief within a zone causing potential danger to personnel on multiple vessels (*Action Item EFI 2.4.4.01*). All line heaters also have PSV relief piping not supported as required by API Standard 520, Part ll Section 5.7.3 (*Action Item EFI 2.4.4.02*).

Isolation valves are installed on the inlet lines to PSVs and on the outlet lines for ease of maintenance. They are used to isolate a relief valve for inspection, servicing, and repair while the facility is operating. Due to the critical nature of this safety system, these valves are locked or car sealed in the open position during normal operations. The inspection generally found that these valves were properly car-sealed and/or locked open, however some replacements are required. PSVs are tested and serviced by an outside contractor. The inspection frequency is normally every six months regardless of the service of the relief valve. Service records were in order and no action items were identified.

2.4.5 ESP, Pump Units, Wellhead Equipment & Well Safety Systems: There are a total of 21 wells on Leases 735 and 3314. In January 2025, 10 wells were producing and 11 were shut in. One production well (C-3) is an Electric Submersible Pump (ESP), and the others are Rotaflex type pumping units. Surface Safety Valves (SSVs) are not required on either lease because it has been demonstrated by performing fluid level tests that the wells are incapable of natural flow to the surface.

The harsh marine environment that the pumping units are exposed to has caused mild to moderate corrosion on portions of the well equipment and it is recommended that these conditions be evaluated for all pumping units, wellheads, flowlines, and appurtenances. Some well cellars were observed to have standing fluid and should be emptied *(Action Item EFI 2.4.5.01).* At the time of the audit, Well 3314-3 was active, but lacked a physical protective barrier to prevent exposure to moving parts *(Action Item 2.4.5.02).*

2.4.6 Firefighting Detection Systems: Neither lease is equipped with a fire detection system of any type.

2.4.7 Fire Protection Equipment: Both lease locations have portable fire extinguishers placed strategically throughout the facilities and depend on the local fire authority to respond in the event of a fire. Visual inspections are conducted monthly and portable fire extinguishers are maintained in a fully charged and operable condition, and subject to an annual maintenance check. Cal/OSHA regulations require that employees receive annual training in the use of fire extinguishers for incipient firefighting. The company provides the required annual online training to familiarize employees with the general principles of fire extinguisher use and the hazards involved. As they are exposed to the elements, portable fire extinguishers in an outdoor environment should be provided with protective covers (*Action Item EFI 2.4.7.01*).

2.4.8 Combustible Gas and H_2S Detection Systems: Neither lease is equipped with a combustible gas detection system. Gas detection monitors strategically located throughout the production facilities could help provide early detection of a gas leak and enhance the safety of operating personnel, as well as the environment. There may be some H_2S present at the leases in low concentrations. There are fixed H_2S sensors in the State 735 Beach Site Tank Battery and operators utilize personal H_2S detector badges.

2.4.9 Safety and Personal Protective Equipment (PPE): CalNRG regularly assesses the workplace to determine if hazards are present that require the use of PPE when engineering and administrative controls are not feasible or effective in reducing these exposures to acceptable levels. Hazards are communicated to the employees, appropriate PPE is selected, and workers are trained in its use. Employees were observed using appropriate PPE as required by company policy or where hazards are known to exist. PPE commonly used include hard hats, steel-toed boots, fire resistant clothing (FRC), hearing protection, safety glasses, and other specialty items like face shields, rubber gloves, aprons, and fall protection as needed.

Action items were identified relating to general safety issues throughout the facilities. The Commission staff observed motors not properly guarded to prevent contact on the Rotaflex pumping units (*Action Item EFI 2.4.9.01*). Accessible emergency eyewash or shower combination units were not present near (within 10 seconds, unobstructed) chemical injection totes, where operators are potentially exposed to chemicals corrosive to the eyes and skin. Additionally, the eyewash solution was found past its expiration date in some eyewash units (*Action Item EFI 2.4.9.02*). The emergency overflow pit had several deficiencies relating to a missing mid-rail, exposed electrical wiring, and the net having openings that would permit wildlife to enter and potentially become trapped (*Action Item EFI 2.4.9.03*).

2.4.10 Instrumentation, Alarm and Paging: Local instrumentation (e.g., pressure and temperature gauges), are located throughout all lease processing equipment. A few gauges appeared to be weathered, but they were typically readable and seemed to function properly. Both leases are equipped with a paging system that automatically calls the operator to inform them of a high-level condition, allowing them time to respond from other production areas and remedy the condition. There is a computer-based system in the field office that monitors and displays process parameters, including alarms. The operators also have the same program on a laptop computer in their trucks. They receive this information via a Wi-Fi signal from the tank farm.

There are air compressors located at each lease to provide air pressure for the instrument and control air systems. These appear to be adequately sized.

2.4.11 Auxiliary Generator / Prime Mover: An emergency or auxiliary generator is not available or required at either lease. The operation relies solely on local electrical utilities and defaults into a safe condition when power is lost.

2.4.12 Spill Containment: In general, secondary spill containment including earthen dikes and berms around tanks and fluid handling equipment were in adequate condition and meet the Environmental Protection Agency's Spill Prevention, Control, and Countermeasures (SPCC) regulations. This spill containment system coupled with routine visual inspections by operating personnel reduces the consequences if a leak or rupture were to develop. The condition and elevation of the berms need to be monitored and maintained as damage was observed through spalling, causing vegetation growth and a lack of proper containment (*Action Item EFI 2.4.12.01*).

2.4.13 Spill Response: The oil spill response equipment located at the Lease 735 was noted to be in good condition and is regularly maintained and inventoried by CalNRG operating personnel and are part of the Commission's monthly safety inspections. The Oil Spill Response Plan (OSRP) defines the required equipment and was developed following Federal and State Facility Response Plan requirements and is discussed in more detail in the Safety Management Programs section of this report. Spill response equipment, including oil absorbent pads, are used for initial response and cleanup operations. Facility personnel are considered the primary responders in the event of a spill and are prepared to effectively clean up small to moderate spills using the on-site response equipment. For larger spills, outside spill response companies are under contract to respond.

2.5 Mechanical Integrity / Preventive Maintenance Program

Prior to the change in lessee in 2024, CalNRG had actively operated the West Montalvo facilities, but did not have ownership and responsibility over the equipment and piping. California Resources Corporation (CRC), the previous lessee, was responsible for the pressure vessels, equipment, piping, and preventive maintenance during the lease reassignment period. CRC provided CalNRG with internal and external inspection records for the pressure vessels and tanks present on the facilities.

Following the lease reassignment, CalNRG contracted a third-party inspection group – Aegeus – with the following directives and responsibilities:

1. **Inventory Assessment**: Conducting a thorough inventory of all relevant equipment, ensuring accurate documentation and classification in accordance with API standards.
2. **Condition Evaluation**: Assessing the physical condition and operational status of the equipment, identifying necessary repairs or maintenance as required by API 510 guidelines for pressure vessels and API 12R1 guidelines for tanks.
3. **Compliance Review**: Evaluating compliance with API 510 and API 12R1 standards to ensure that all equipment meets state and federal regulatory requirements.
4. **Reporting**: Preparing detailed reports that summarize findings, highlight any discrepancies, and provide recommendations for improvements or corrective actions based on the assessment.

The inspection recommendations generated by Aegeus should provide inspection intervals and an adequate structure for developing a written preventive maintenance program for pressure vessels and tanks.

A general inspection program for in-boundary process piping or a plan to generate one was not available at the time of the audit. Based on CalNRG's presentation during their Annual Lease Review with MRMD, it is understood that the in-boundary process piping will be divided into circuits (similar pressure, flow rates, etc.) and inspected utilizing ultrasonic thickness (UT) measurement techniques. This will allow CalNRG to gauge the current conditions and long-term corrosion rates to maintain the integrity of the in-boundary process piping.

CalNRG should develop a written mechanical integrity and preventive maintenance (PM) program, compliant with API 510 for pressure vessels and API 570 for piping systems (or other applicable recognized and generally accepted good engineering practices) *(Action Item EFI 2.5.01).*

2.6 Production Safety Systems

CalNRG provided a document titled "Cause and Effect Chart – State 735 & 3314 Site" that functionally serves as a Safety Analysis Function Evaluation (SAFE) Chart. SAFE Charts are utilized as an analysis technique to document the effects of and determine the requirements for components in the safety system. All safety devices and their functions were analyzed by comparing the SAFE Chart, facility P&IDs, and other documents. The comparison matched all safety and shutdown devices and emergency support systems (ESSs), with their functions and verified that the required level of protection is being maintained. Inconsistencies with other process safety information, current operating status of some equipment, and failure to identify alternative means of protection for required safety devices (through the use of Safety Analysis Checklist (SAC) references) were observed *(Action Item EFI 2.6.01).*

Electrical System Audit

CalNRG Operating, LLC

West Montalvo
Leases 735 & 3314

February 2025

3.0 ELECTRICAL SYSTEM AUDIT

3.1 Goals and Methodology

The primary goal of the Electrical Team (ELC) was to evaluate the electrical systems and operations of the California Natural Resources Group (CalNRG) Montalvo Lease 735 and Lease 3314 facilities to determine conformance with appropriate electrical Codes and industry standards.

References used in review of facilities include documents published by the American Petroleum Institute (API), National Fire Protection Association (NFPA), the State of California Electric Code (CEC) and California State Lands Commission Regulations. The ELC Team review comments are based on those publications, which primarily include API RP 500, API RP 540, CEC documents and industry standards. The drawings used in support of the audit were Electrical Single-lines and Area Classification Drawings provided by CalNRG for the facility.

Specific tasks to accomplish this goal included a systematic process of field verification of electrical single-line diagrams, plan drawings, area classification drawings, and operation and maintenance practices. A comprehensive range of inspection checklists, code and standard compliance checklists, and review of electrical system design for conformance to codes and standards was utilized to complete the audit. This report includes a summary of the electrical systems included in the audit.

The ELC Matrix, Section 3.0, provides a detailed listing of the locations and items identified for correction. The matrix is organized in sections. Each section is discussed below along with examples of typical items encountered.

3.2 Hazardous Area Electrical Classification Drawings (HAECD)

The API recommended practices and CEC requirements provide specific guidelines for the electrical classification of hazardous areas and installation practices for electrical equipment and materials within classified areas. The basis for observations and review comments for all hazardous areas are American Petroleum Institute (API) RP 500, California Electric Code (CEC) Articles 500, 501, and 504, and National Fire Protection Association (NFPA) 70E. The hazardous area electrical classification diagrams are generally representative of the existing conditions and area class elements. However, the drawings for the 735 Lease and 3314 Lease need to be updated to include process and equipment additions, deletions, and relocations made since the last revision.

The purpose of an Electrical Area Classification Drawing is to define the locations of boundaries and areas where specific electrical materials and installation practices are required to manage the explosive properties of flammable liquids, vapors and other volatile materials.

Installation and maintenance of electrical systems requires attention to the type of hazard and the level of the hazard to ensure compliance with CEC requirements. Electrical Area Classification Drawings are required to include the information necessary for designers, electricians, and other personnel to perform work in and around classified areas. CalNRG provided single-line drawings previously created and maintained by California Resources Corporation (CRC) that were last revised on December 31, 2015, and Area Classification Drawings that were last revised on October 20, 2023. There have been significant equipment changes made since the last revisions that necessitate an update of the Area Classification drawings for VB-SWM-E-55210-003 through VB-SWM-E-55210-005 (*Action Items ELC 3.2.01, 3.2.02*).

Areas that contain walls, depressions and barriers to natural ventilation where flammable liquids or vapors may be present require evaluation and identification of the appropriate Electrical Area Classification. All areas known to contain flammable liquids or vapors are required to be identified on an Electrical Area Classification drawing. The area classification plans require the addition of details to more clearly define and illustrate the facility area class boundaries, elevations, and extents (*Action Item ELC 3.2.03*).

General-purpose electrical enclosures (Load Centers, MCCs, control panels, etc.) are only suitable for use in unclassified areas. In general, electrical equipment installed in Classified areas were found to be explosionproof, NEMA 4, purged or otherwise suitable for use in Classified areas. Purged enclosures must have purge systems monitored and equipped with an alarm when purge pressures drop below a minimum level.

After updating and revising the Area Classification boundaries as required by the matrix and as described in this report, additional equipment may be identified as unsuitable. Electrical equipment that is not suitable for installation in a classified area will need to be relocated or replaced with equipment that is suitable, purged, or non-permeable barriers will need to be installed. Enclosed and gasketed fittings are suitable for Division 2, but not Division 1. NEMA 3R enclosures are suitable for unclassified areas, but not Division 1 or Division 2. Where non-explosionproof enclosures with arc producing devices are located in Class I areas they are required to be purged and pressurized per NFPA 496.

3.3 Electrical Power Distribution System, Normal Power

System Configuration Overview: Electric power for normal operations to Lease 735 is provided at 16.5kV via Southern California Edison (SCE) owned, operated, and maintained overhead pole lines. A pole mounted recloser, SWM-M1, is installed to provide overcurrent protection to the overhead lines that supply power to the Lease 735 wells and Tank Battery. The Tank Battery is supplied from a 500kVA padmount transformer, 16.5kV-480/277V and 480V, 600A main switchboard (SWBD) SWM-M1-SWBD-2A. The utility metering is located at SWM-M1. SCE maintains the 16.5kV system at the 735 Lease. The switchboard has a 600A main

circuit breaker. A 400A feeder breaker supplies 480V power to Switchboard SWM-M1-SWBD-2B. A 300A feeder breaker supplies 480V power to Switchrack SWM-M1-SWRK-2C. The 735 Lease Tank Farm has a second pole mounted 150kVA source that supplies 480V SWM-M1-SWRK-1A and 480V SWM-M1-SWRK-1B.

Electric power for normal operations at Lease 3314 is provided by three pole-mounted 16.5kV-480V, 100kVA transformers. The 480V conductors are routed overhead to a service disconnect at SWM-M7-SWRK-5A. There are also three pole-mounted 16.5kV-480V, 50kVA transformers with 480V conductors routed overhead to a service disconnect at SWM-M7-SWBD-4A. SWM-M7-SWBD-4A supplies power to SWM-M7-SWRK-4B. SWM-M7-SWRK-4B supplies power to SWM-M7-SWRK-4A.

3.3.1 Electrical Single-Line: The electrical single-line drawings provided (VB-SWM-E-55010-002 to VB-SWM-E-55010-017 and VB-SWM-E-55010-021 to VB-SWM-E-55010-028) were used for review of the electrical systems. The drawings provided do not contain adequate information on the electrical power system and require revision in order to complete power system studies. During the audit, some sizes and ratings of the switchrack equipment was recorded for comparison to existing drawings. The audit focused on power distribution systems 16.5kV, 480V, and 240V systems. CalNRG will need to add missing information and incorporate the corrected information into updated single-line drawing (*Action Items ELC 3.3.1.01 - 3.3.1.04*).

3.3.2 Electrical Service Capacity: 2023 and 2024 year-to-date electrical meter data has been provided by Edison and is available for review. Updated demand and billing data can be requested by CalNRG at any time for future analysis. The normal power system currently has capacity for present usage and connected loads based on observation of equipment connected to the switchracks and review of the meter data. The peak demand of 735 lease serving multiple downstream transformers (M1-XFMR-1 through M1-XFMR-9) was 312KW. The total collective capacity of downstream transformers is approximately 2.2MVA. Without downstream meter information, we cannot deduce the capacity of the individual transformers, but seemingly there is plenty of capacity for more units to be brought online. Meter data for Lease 3314 and Colonia were not able to be identified from the billing data as the meter numbers in the field did not match the meter numbers from Edison. Confirmation of meter information for each site is suggested for future load studies. It is recommended that the serving utility be contacted directly regarding any future service capacity and motor starting limitations. If more detailed load information is of interest to CalNRG or the California State Lands Commission, sub-metering downstream switchboards are recommended. Electrical system utility short circuit duty data was not available for Lease 735 or Lease 3314 to confirm equipment withstand rating and is required to be included on the single-line diagrams. Short circuit duty can be requested from Edison by the owner/operator for each Edison transformer serving the sites (*Action Item ELC 3.3.2.01*).

A physical inspection of switchrack starters and breakers revealed that, in general, overcurrent protection and wire sizes were appropriate. The application of overcurrent devices with respect to equipment rating is generally satisfactory.

It was found that there is only one electrical meter from Edison at each site collecting demand data. Although this is adequate for utility billing purposes, sub-metering downstream electrical equipment can give more in-depth insight into energy usage, allowing for appropriate allocation of cost between owners, tracking efficiency of production, identifying trends helpful for proactive maintenance, and overall providing data that can help optimize production.

3.3.3 Electrical System Design: Electrical systems shall be designed to minimize the risk of hazards to operating personnel. CEC 110.16 requires that arc flash hazard warnings be provided on electrical equipment to warn personnel of the potential electric arc flash hazards. NFPA 70E, Standard for Electrical Safety in the Workplace, provides guidance for labeling and selecting personal protective equipment (PPE). Arc flash hazard warnings and labeling are required on all energized equipment. An arc flash hazard study and labeling are necessary to comply with CEC 110.16. In order to do an arc flash hazard study, all equipment, conductor, and load ratings must be recorded and entered into a power analysis software such as ETAP or SKM. Creating an electrical system model within software such as ETAP or SKM will also allow for load analysis, short circuit analysis, breaker setting analysis, and give the ability to model and track new equipment additions or deletions. It is suggested that while updating the single-line and equipment information for these sites to also consider creating an electrical power system model with the updated information.

3.4 Electrical Power Equipment Condition and Functionally

3.4.1 Equipment Condition: Given the harsh environmental conditions near the seashore, the overall condition of the electrical equipment can be rated as fair. Many of the switchrack combination starters have non-metallic enclosures that are more resistant to corrosion. Several of the switchrack mounted ferrous metallic gutters, disconnects, and dry-type transformer enclosures across all sites showed excessive corrosion and should be repaired or replaced (*Action Items ELC 3.4.1.01, ELC 3.4.1.02, ELC 3.4.1.04, ELC 3.4.1.05, 3.4.1.09, 3.4.1.11*).

Circuit identification nameplates are missing, hard to read, or no longer applicable because equipment has been removed. This can cause confusion when operating or de-energizing equipment for maintenance. Several switches supplying equipment did not have load identification and need to have identification nameplates added. Nearly all electrical equipment at the Colonia Tank Battery location was not labeled. Per code Sections CEC 110.22 and CEC 408.4 field equipment shall be clearly labeled to match single-line and site drawings (*Action Items ELC 3.4.1.01, 3.4.1.02, ELC 3.4.1.08*).

CEC 110.13, Mounting Electrical Equipment, requires all electrical equipment to be firmly secured to the surface on which it is supported. CEC 300.11, Securing and Supporting, requires all electrical raceways, cable assemblies, boxes, cabinets and fittings to be secured or fastened in place. Additional mounting, support, and securing requirements are also provided in the CEC for individual types of installations and conditions. Securing and supporting electrical equipment, cables and materials needs to be consistently addressed and managed throughout the facility (*Action Items ELC 3.4.1.01, 3.4.1.04, 3.4.1.05, 3.4.1.09, 3.4.1.11*).

Some junction box and conduit fitting covers are missing or not properly seated against box flanges to provide adequate seals in classified areas. Covers must be flange-face to flange-face or box if bolt-on type or five full threads engaged if screw-cover type (*Action Items ELC 3.4.1.01, 3.4.1.09*). Conduits must be sealed at devices, enclosures, and area classification boundaries.

3.4.2 Equipment Maintenance Practices: It is necessary for safe operation and maintenance of electrical equipment to have and follow an electrical safety and operations program manual. CalNRG has included an electrical safety program as a part of their Health, Safety, and Environment Manual (Section 9 – Electrical Safety) and meets the required sections described in NFPA 70E. The electrical safety program appropriately includes training requirements, risk assessment procedures, safe work practices, and incident investigation documentation per NFPA 70 and NFPA 70E. CalNRG has not fully implemented the permitting program (Section 6.8 – Permit to Work) nor integrated electrical work order tracking with their existing maintenance software (Maximo). CalNRG has implemented a Microsoft Excel spreadsheet to track equipment repairs and maintenance but does not use permitting procedures as described in the safety program. It is suggested for CalNRG to implement permit and work order tracking with their existing maintenance tracking software (*Action Items ELC 3.4.2.01, 3.4.2.02*). Arc flash hazard warnings and labeling are required on all energized equipment. An Arc Flash Hazard Study and labeling are necessary to comply with CEC 110.16. NFPA 70E recommends updating the study every five years. The last record of an Arc Flash Hazard Study was January 2018 *(Action Item ELC 3.4.2.03).*

3.5 Grounding & Bonding

CEC Articles 250 and 501 provide the requirements for power system grounding and bonding in oil production facilities. Significant portions of the requirements for grounding are established to prevent or reduce the possibility of injury to personnel from shock. The rules of grounding also contribute to reduction of equipment damage either from induced voltages or during fault conditions. The three types of grounding required at the facility are power system circuit grounding, equipment equipotential grounding, and static control grounding.

CEC 501.16, Bonding in Class I Areas, states that all non-current carrying metal parts and enclosures associated with electrical components shall be connected together, bonded, and

be continuous between the Class I area equipment and the supply system ground. That is, ground circuit bonding shall be continuous from the load all the way back to the power transformer grounding electrode system. The best way to achieve ground circuit continuity is to include properly sized (CEC 250) equipment grounding conductors with each set of power conductors from the source of power to the load. Equipment bonding conductors to major equipment, such as transformers, switchgear, and the like, were installed and appeared adequate.

CEC 501.16(b) requires that all liquid-tight conduit used in hazardous areas be supplemented with either internal or external ground bonding jumper. Spot check of the facility found external grounds have been added to many of the liquid-tight conduits where needed.

3.6 Emergency Electrical Power

3.6.1 System Configuration: No emergency electrical or standby power is supplied to the Leases nor is required by code. Small local batteries located within the communication enclosures are provided for ride-through for short power outages. There is a location for a generator connection on SWM-M7-SWRK-1A that does not have proper clearance to be worked on nor connected to. It is suggested to relocate the equipment to a space with proper clearance or relocate a portion of the fence to meet code required working clearance (*Action Item ELC 3.6.1.01*).

3.6.2 Equipment & Component Ratings: Individual battery backup power is provided within the telecom and telecommunications system enclosures. It is suggested to periodically test the battery health to ensure they are in proper working condition.

3.6.3 Electrical System Design Safety: No life safety systems are installed that require emergency electric power.

3.7 Electric Fire Pumps

No fire pump is provided for onshore facilities at Lease 735 or Lease 3314. Fire protection is supplied by the local fire department.

3.8 Process Instrumentation

Operating personnel manage process control on a daily basis. Communications regarding process operating parameters are managed through direct cellular phone communication.

3.9 Area Lighting

Area lighting is generally provided by pole-mounted floodlights. In addition, a few switchracks have local lights. Some fixtures are High Intensity Discharge (HID) and are at the end of their expected life and in some cases, are missing or not working properly. As fixtures come to the end of their useful life, they should be replaced with Light Emitting Diode (LED) floodlights that are suitable for the electrical area classification. Lighting controls such as switches, photocells, timers, occupancy sensors or other means, should be suitable for their purpose and the task areas being illuminated. Appropriately rated portable lights shall be used for nighttime work on specific equipment.

3.10 Special Systems

The ELC Team review comments for special systems are based on API RP 540 and CEC documents.

3.10.1 Safety Control Systems: Safety control systems are required to be a combination of devices arranged to safely affect facility shutdown. Electrical safety control systems are normally operated energized and fail-safe. Failure of external power to a safety control circuit requires an audible or visual alarm to be initiated or operation of equipment in a fail-safe condition.

No specific emergency shutdown (ESD) stations are located at the facilities. Electric power can be manually turned off at the main or disconnect switch breaker at each switchrack.

3.10.2 Gas Detection Systems: Combustible gas detection systems, Lower Explosive Limit (LEL) and Hydrogen Sulfide (H_2S) type are usually employed to detect combustible gas leaks in equipment and piping, to warn personnel of explosive and toxic concentrations and to initiate remedial action. Maps for combustible gas detection and alarms were not provided for these facilities. Several H_2S sensors were newly installed per previous audit recommendations.

3.10.3 Fire Detection Systems: Fire detection and smoke detection are usually employed to detect and warn personnel of fire and smoke conditions and to initiate remedial action. No fire detection equipment is located at these facilities.

3.10.4 Aids to Navigation: Not applicable.

3.10.5 Communication: Communications systems are established to provide for normal and emergency operations. Systems used for emergency communication should have battery-operated supplies good for at least four-hours continuous operation.

There is no direct communication to the site. Primary communication with Operators is via cell phone.

3.10.6 General Alarms: Not applicable.

3.10.7 Cathodic Protection: A Farwest Model ASA1 cathodic protection rectifier is located on switchrack #2 of Lease 735 and provides cathodic protection to the transportation pipeline. It appears to be connected and in working order.

Safety Management Programs

CalNRG Operating, LLC

West Montalvo
Leases 735 & 3314

February 2025

4.0 SAFETY MANAGEMENT PROGRAMS

4.1 Goals and Methodology

The goal of the safety management program section of the audit was to verify that CalNRG has required programs, plans, and manuals in place and that the company uses a safety management approach to manage hazards and thereby reduce the frequency and severity of undesirable events. CalNRG's safety management programs are composed of organizational and operational procedures, design management, audit programs, and other methods defined by California State Lands Commission (Commission) Mineral Resources Management Division (MRMD) Article 3.4, 3.6 and American Petroleum Institute (API) Recommended Practices (RP) 51 and 54. The audit began with a review of the operating procedures, other required emergency and spill response plans, training programs, and additional specific programs that CalNRG uses to cover other elements of Safety Management for the West Montalvo facility.

4.2 Operations Manuals

CalNRG's Operating Procedures provide the necessary information for operations employees to understand what procedures and system processes are needed to safely operate a facility. Individuals knowledgeable with the process and its hazards write the Standard Operating Procedures (SOPs). These individuals are also familiar with the subject matter and typically have performed the work and operated the process. The SOPs are written in a simplified, easy-to-read format with sufficient detail so that trainees with limited experience or knowledge of the procedure can successfully carry out a given task with minimal supervision. Operations employees validate the procedures before finalization. A thorough review of individual procedures noted that some of the information does not appear to be current or is missing, including equipment's operational status, equipment identification, safety device setpoints, and other significant information (*Action Item SMP 4.2.01).* The contents of an Operations Manual, including operating procedures, are required to be kept current at all times (MRMD 2174(b)(1), 2175(b)(5)).

The procedures are maintained and accessible via the company intranet system to all CalNRG personnel and available to print. A periodic review of the procedures by Operations personnel should be carried out to ensure that pertinent operating information is readily available, current, and correct. The procedures should also be reviewed when operations or equipment are substantially changed as part of the Management of Change (MOC) process. Once they are updated by authorized CalNRG personnel to ensure accuracy, the revision date should be recorded on the procedure.

4.3 Spill Response Plans

The CalNRG Coastal Oil Spill Contingency Plan (OSCP) was developed following Federal and State Facility Response Plan requirements. The document defines procedures and plans for responding to discharges of oil and seeks to minimize damage to the environment, natural resources, and facility installations. The plan covers the West Montalvo Leases, other onshore facilities, and associated pipelines. The following elements are addressed within the plan:

- Incident Command Organization
- Facility description
- Hazards Evaluation Study and potential worst-case spill scenario evaluation
- Containment and recovery procedures
- Shoreline protection and clean-up
- Wildlife care and rehabilitation procedures
- Response procedures

Also contained within the OSCP are operating procedures the facility implements to prevent oil spills, control measures installed to prevent oil from entering navigable waters or adjoining shorelines, and countermeasures to contain, clean up, and mitigate the effects of an oil spill. The OSCP was reviewed and noted to have a long approval history. It meets Federal (Code of Federal Regulations (CFR) Title 40 Section 112.5) and State Office of Spill Prevention and Response (OSPR), CCR Title 14, Regulation 817.04 standard requirements. CalNRG staff are familiar with the OSCP and hold spill drills to increase the effectiveness of their spill response. The OSCP presented for audit review was revised in August 2024 and includes a copy of the California Certificate of Financial Responsibility (COFR). Spill plans are required to be resubmitted for review once every five years (CCR Title 14, 816.05(a)(1)(A)). The OSCP contained some information that was not current and referenced sections, attachments, figures, and tables that did not exist within the document *(Action Item SMP 4.3.01).*

The SPCC Plan is an EPA requirement. The plan was reviewed for compliance and appears to meet the EPA Rule. However, there were a few minor concerns regarding some operating information that appeared to be outdated, including contact information, equipment and condition changes, and other miscellaneous information *(Action Item SMP 4.3.02).* The plan is prepared in accordance with good engineering practices. It provides engineering, operation, maintenance, and management strategies to lessen the potential of a spill or release of oil products (e.g. fuel and petroleum/lubricating based oil/product) from certain storage and operational equipment and activities, and in the event of a spill, to prevent the spill from entering a navigable waterway, animal habitat, or neighboring area. The plan is approved by management and certified by a licensed professional engineer.

An Emergency Action Plan (EAP) that complies with California CCR Title 8 Section 3220 and 5192(q)(1)&(2) was also provided. Changes to this plan should be managed by authorized CalNRG personnel to ensure new or different operating conditions are contemplated, qualified staff are available to perform the necessary functions, operator and personnel certifications are current, and information relating to regulatory agencies is up to date. A review of CalNRG's EAP identified updates that need to be made to referenced personnel (*Action Item SMP 4.3.03*).

4.4 Training and Drills

Facility operations' training consists of on-site facility instruction. Operators are trained in the operation of the facility and safe work practices for the process. The on-the-job training process includes hands-on procedural performance and evaluation. Situational awareness training helps employees recognize abnormal operating conditions as well as what to do if an abnormal event occurs.

Compulsory OSHA and spill response training is also provided. CalNRG conducts annual online training to satisfy Cal/OSHA training requirements. CalNRG employs a computer-based training (CBT) tool, SafetySkills, that tracks all training activities and is used to alert management and individual personnel of training requirements. Topics include: Spill response, emergency response, Lockout/Tagout, machine guarding, fire protection, respiratory protection, PPE, HAZWOPER, and many others.

4.5 Safety Management Programs

CalNRG's Health, Safety and Environment Manual provides the framework for the majority of the company's safety management programs, including Injury and Illness Prevention Program, Management of Change, Pre-Startup Safety Review (PSSR), Incident Reporting and Investigation, Contractor Safety, Hazard Communication, Permit to Work, Hydrogen Sulfide Safety, and other programs. The safety manual is fairly comprehensive and provides a good structure for many programs, however, the references to proscriptive regulations should reflect the more restrictive values from Cal/OSHA *(Action Item SMP 4.5.01).* The Hydrogen Sulfide Safety program (Section 11.6) requires updating to bring it in line with all Commission requirements (CCR Title 2, Section 2132(g)(6)(B)) *(Action Item SMP 4.5.02).*

CalNRG's safety policy sets a clear direction for the organization to follow and is a part of their established business performance goals. The objective of their safety policy is to set down in clear-cut terms management's approach and commitment to health and safety at their facilities. Audit team observations and interviews with employees and contractors confirmed that CalNRG's senior management has defined, documented, and endorsed its safety policy. Safety management functions within the organization correlate with the safety of their personnel. This connection can be seen in the planning, developing, organizing, and implementing of CalNRG's safety policy.

Additional assessment and feedback regarding CalNRG's safety management programs will be afforded by the Commission's Safety Assessment of Management Systems (SAMS) that is conducted after the safety and oil spill prevention audit. The SAMS also provides significant benefits regarding human factors observations and assessments described in the next section of this report. The SAMS is a separate effort from this audit and the results are kept confidential between the Commission and the operating company.

Human Factors Audit

CalNRG Operating, LLC

West Montalvo
Leases 735 & 3314

February 2025

5.0 HUMAN FACTORS AUDIT

5.1 Goals of the Human Factors Audit

The primary goal of the Human Factors Audit is to evaluate the operating company's human and organizational factors by using the Safety Assessment of Management Systems (SAMS) interview process. The SAMS will follow the safety and oil spill prevention audit of West Montalvo Leases 735 and 3314. Interview results are considered confidential between the Commission and CalNRG and will be contained in a separate report.

SAMS was developed under the sponsorship of government agencies, including the California State Lands Commission (Commission), and oil companies from the United States, Canada, and the United Kingdom to assess organizational factors, enabling companies to reduce organizational errors, reduce the risk of environmental accidents, and increase safety. The assessment was divided into nine major categories to examine the following areas (The number of sub-categories or areas of assessment for each category are included in parentheses.):

- Management and Organizational Issues (9)
- Hazards Analysis (9)
- Management of Change (8)
- Operating Procedures (7)
- Safe Work Practices (5)
- Training and Selection (14)
- Mechanical Integrity (12)
- Emergency Response (8)
- Investigation and Audit (9)

Assessment of each of the sub-categories is derived from one main question with several associated and detailed questions to help better define the issues and degree of integration of safety management programs.

The SAMS process is not intended to generate a list of action items. Its purpose is to provide the company with a confidential assessment of where it stands in developing and implementing its safety culture, areas of relative strength and weakness, and a benchmark for future assessments.

5.2 Human Factors Audit Methodology

The Commission's Mineral Resources Management Division (MRMD) will schedule individual SAMS interviews with a cross section of CalNRG field operators and sub-contractors

and engineering, supervisorial, and management staff after the safety audit report for West Montalvo Leases 735 and 3314 is completed. Interview responses will be evaluated according to SAMS guidelines and a separate confidential report summarizing the results will be generated. Responses of specific individuals to questions are kept anonymous in the report. MRMD staff will provide a confidential report and offer a formal presentation that summarizes the report to CalNRG management.

Action Item Matrix

CalNRG Operating, LLC

West Montalvo
Leases 735 & 3314

February 2025

Appendices

CalNRG Operating, LLC

West Montalvo
Leases 735 & 3314

February 2025

Appendix A
Acronyms

ANSI	American National Standards Institute
API	American Petroleum Institute
ASME	American Society of Mechanical Engineers
BAP	Best Achievable Protection
BOPD	Barrels of Oil Per Day
BSEE	Bureau of Safety and Environmental Enforcement
Cal/OSHA	California Occupational Safety and Health Administration
CalNRG	California Natural Resources Group
CBT	Computer Based Training
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEC	California Electrical Code
CFR	Code of Federal Regulations
COFR	Certificate of Financial Responsibility
Commission	California State Lands Commission
CRC	California Resources Corporation
EAP	Emergency Action Plan
EFI	Equipment Functionality and Integrity
ELC	Electrical
EPA	Environmental Protection Agency
ESD	Emergency Shutdown Device
ESP	Electrical Submersible Pump
ESS	Emergency Support Systems
FRC	Fire Resistant Clothing
HAECD	Hazardous Area Electrical Classification Drawing
HF	Human Factors
H_2S	Hydrogen Sulfide
LACT	Lease Automatic Custody Transfer
LED	Light Emitting Diode
LEL	Lower Explosive Limit
LLC	Limited Liability Corporation
MCFD	Thousand Cubic Feet per Day
MOC	Management of Change
MRMD	Mineral Resources Management Division
NACE	National Association of Corrosion Engineers
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
OSCP	Oil Spill Contingency Plan

OSHA	Occupational Safety & Health Administration
OSPR	Office of Spill Prevention and Response
OSRP	Oil Spill Response Plan
P&ID	Piping and Instrumentation Diagram
PFD	Process Flow Diagram
PM	Preventive Maintenance
PPE	Personal Protective Equipment
PPM	Parts Per Million
PRC	Public Resources Code
PSSR	Pre-Startup Safety Review
PSV	Pressure Safety Valve
RP	Recommended Practice
SAC	Safety Analysis Checklist
SAFE	Safety Analysis Function Evaluation
SAMS	Safety Assessment of Management Systems
SCE	Southern California Edison
SDS	Safety Data Sheet
SMP	Safety Management Programs
SOP	Standard Operating Procedures
SPCC	Spill Prevention, Control, & Countermeasure
SWBD	Switchboard
TEC	Technical
T-Min	Minimum Thickness
UT	Ultrasonic Thickness

Appendix B
Best Practices and Regulations

Regulatory References

MRMD – California Code of Regulations (CCR) Title 2
CalGEM – CCR Title 14
Cal/OSHA – CCR Title 8
OSHA – CFR Title 29
EPA – Code of Federal Regulations (CFR) Title 40

1.0 INTRODUCTION

1.1	Best Achievable Protection/ Best Achievable Technology	PRC 8750
	Commission Oil & Gas Regulations	MRMD Articles 3 - 3.6

2.0 FACILITY CONDITION AUDIT

2.1	Goals and Methodology	
2.2	General Facility Conditions	
2.2.1	*General Cleanliness/Vegetation Control*	MRMD 2129; API RP 51R Cal/OSHA 6539; OSHA 5(a)1
2.2.2	*Stairs, Walkways, Gratings, & Ladders*	MRMD 2129; Cal/OSHA 3212, 3272, 3273, 6546; Nace Guidelines; OSHA 5(a)1, 1910.22(d)(1)
2.2.3	*Exits, Emergency Egress, & Escape*	MRMD 2129, 2132; API RP 49; Cal/OSHA 3215; 6577
2.2.4	*Labeling, Color Coding, Placards & Signs*	MRMD 2129; Cal/OSHA 3340 OSHA 5(a)1, 1910.146; NFPA 704; API RP 74
2.2.5	*Security*	MRMD 2129; API RP 51R, 74
2.2.6	*Hazardous Material Handling & Storage*	MRMD 2129; Cal/OSHA 4650, 5194, 5164(c); OSHA 1910.106, 1910.1200; NFPA 400, 30
2.3	Field Verification of Plans	
2.3.1	*Process Flow Diagrams (PFDs) & Plot Plans*	MRMD 2129, 2132; OSHA Section 5(a)1, 1910.151, 1910.266; NFPA 10, 30, 72; API RP 51R
2.3.2	*Piping & Instrumentation Diagrams (P&IDs)*	MRMD 2129 2132; OSHA Section 5(a)1; API RP 51R
2.3.3	*Fire Protection Plot Plan*	MRMD 2129, 2132;

		Cal/OSHA 6183; OSHA 5(a)1, 1910.144; API RP 51R; NFPA 72, 14
2.4	Condition and Integrity of Major Systems	
	2.4.1 Piping	MRMD 2129; API 570 Cal/OSHA 5610, 6533; OSHA Section 5(a)1, 1910.106; ANSI B31.3; API RP 51R, 574
	2.4.2 Tanks	MRMD 2129; API 650, 653
	2.4.3 Pressure Vessels	MRMD 2129; API 510, RP 51R, 74, 572 ASME B&PV Code Sect. VIII Cal/OSHA 460, 6551, 6552
	2.4.4 Pressure Safety Valves (PSV)	MRMD 2129, 2132; Cal/OSHA 6552 API 520, 521, RP 576
	2.4.5 ESP, Pump Units, Wellhead Equip. & Well Safety Systems	MRMD 2129, 2132 API RP 11ER, 51R; Cal/OSHA 6631, 6634; CalGEM 1722.1.1
	2.4.6 Firefighting Detection Systems	MRMD 2132; NFPA 25 & 72
	2.4.7 Fire Protection Equipment	MRMD 2129, 2132; OSHA 1910.144, 1910.160; NFPA 10, 20, 25, 80
	2.4.8 Combustible Gas & H_2S Detection	MRMD 2132
	2.4.9 Safety & PPE	MRMD 2129, 2132; Cal/OSHA 1602, 2340.12, 3212, 3380, 4002, 5162, 6549; API RP 51R; ANSI Z358.1; OSHA 1910.151, 1910.134; CalGEM 1770
	2.4.10 Instrumentation, Alarm, and Paging	MRMD 2129, 2132; OSHA 5(a)1
	2.4.11 Auxiliary Generator / Prime Mover	MRMD 2129, 2132; Cal/OSHA 2940.13; OSHA Section 5(a)(1);
	2.4.12 Spill Containment	MRMD 2139, 2140; EPA 112.7(c); California Government Code 8670 NFPA 30
	2.4.13 Spill Response	MRMD 2139 & 2140; California Government Code 8670
2.5	Mechanical Integrity/Preventive Maintenance	MRMD 2129;

		API 510, 570, RP 572, 574
2.6	Production Safety Systems	MRMD 2129; API RP 14C

3.0 ELECTRICAL SYSTEM AUDIT

3.1	Goals and Methodology	
3.2	Hazardous Area Electrical Classification Dwgs.	MRMD 2132; API RP 500 CEC 110.22, 408, 500.4, 501.15; NFPA 70
3.3	Electrical Power Dist. System, Normal Power	MRMD 2132; CEC 90, 110, 240; API RP 540; NFPA 70E
	3.3.1 Electrical Single Line	
	3.3.2 Electrical Service Capacity:	
	3.3.3 Electrical System Design:	
3.4	Elec. Power Equip Condition and Functionality	MRMD 2129, 2132; API RP 540; CEC 110, 300, 314, 320, 344, 408, 430, 500, 501; NFPA 70B; Cal/OSHA 2340
	3.4.1 Equipment Condition	
	3.4.2 Equipment Maintenance Practices	
3.5	Grounding & Bonding	MRMD 2129, 2132; CEC 501; API RP 540; NFPA 70; Cal/OSHA 2395.78, 6523
3.6	Emergency Electrical Power	MRMD 2132; CEC 110, 700; NFPA 70, 110
	3.6.1 System Configuration	
	3.6.2 Equipment & Component Ratings	
	3.6.3 Electrical System Design Safety	
3.7	Electric Fire Pumps	NFPA 20; NEC 696
3.8	Process Instrumentation	API RP 540; NFPA 70
3.9	Area Lighting	Commission 2129 et seq. CALGEM 1743 (a)-(c)
3.10	Special Systems	Commission 2129 et seq. CALGEM 1743 & 1747; OSPR GOV CODE 8670 ISA RP7.1, RP 12.1, 12.2 ISA S7.4, S12.4
	3.10.1Safety Control Systems	Commission 2129 et seq.
	3.10.2 Gas Detection Systems	Commission 2129 et seq. CALGEM 1747.6

3.10.3 Fire Detection Systems	Commission 2129 et seq. CALGEM 1743&1747 API 2001 & RP 75
3.10.4 Aids to Navigation	USCG 33 CFR Subcp. C, Part 67
3.10.5 Communication	USCG 33 CFR Subcp. C, Part 67
3.10.6 General Alarms	USCG 33 CFR Subcp. C, Part 67
3.10.7 Cathodic Protection	API RP 651, NACE RP 01-76, 0675

4.0 SAFETY MANAGEMENT PROGRAMS

4.1	Goals and Methodology	
4.2	Operations Manuals	MRMD 2129, 2174, 2175; API RP 51R
4.3	Spill Response Plans	MRMD 2129, 2139; BSEE 254; Cal/OSHA 3220; OSPR 816.05; CCR Title 14 Sections 815-818; DOT 194; EPA 112
4.4	Training and Drills	MRMD 2132; Cal/OSHA 6507
4.5	Safety Management Programs	MRMD 2129, 2132; EPA 112.7; Cal/OSHA 3203, 3220, 6507; Cal. Government Code 8670

5.0 SAFETY MANAGEMENT PROGRAMS

5.1	Goals of the Human Factors Audit	
5.2	Human Factors Audit Methodology	MRMD 2129(b) & (c); Commission SAMS BSEE Subpart S

Appendix C
References

GOVERNMENT CODES, RULES, AND REGULATIONS

CCR — CALIFORNIA CODE OF REGULATIONS

Title 2, Division 3, Chapter 1. State Lands Commission

2129	*General Provisions, including references to "all applicable laws, rules, and regulations of the United States and the State of California" and "good oilfield practice".*
2132	*Production Regulations*
2132(g)	*Production Facility Safety Equipment and Procedures*
2139	*Oil Spill Contingency Plan*
2174	*Manual Review*
2175	*Manual Content*

Title 8, Division 1, Chapter 4. Division of Industrial Safety [Cal/OSHA]

460	*Design and Construction of Pressure Vessels for Other than Compressed Air, LPG, Nh3, and Natural Gas*
2340.12	*Mechanical Execution of Work*
2395.78	*Bonding in Hazardous Locations*
3203	*Injury and Illness Prevention Program*
3212	*Floor Openings, Floor Holes, Skylights and Roofs*
3220	*Emergency Action Plan*
3272	*Aisles, Walkways, and Crawlways*
3340	*Accident Prevention Signs*
4002	*Moving Parts of Machinery or Equipment*
5162	*Emergency Eyewash and Shower Equipment*
5164	*Storage of Hazardous Substances*
5194	*Hazard Communication*
5610	*Protection Against Corrosion*
6523	*Static Electricity*
6533	*Pipelines, Fittings, and Valves*
6546	*Reservoirs and Stationary Tanks*
6549	*Pits and Sumps*
6552	*Pressure Relieving Devices*
6631	*Guarding*
6634	*Pumps and Pump Pressure Relief Devices*

Title 14, Division 1, Subdivision 4, Chapter 3, Subchapter 3 [CDFW-OSPR]

816.05 Oil Spill Contingency Plans – Plan Updates

Title 14, Division 2, Chapter 4, Subchapter 1 & 2 [CalGEM]

1722.1.1 Well and Operator Identification
1770 Oilfield Sumps

CFR CODE OF FEDERAL REGULATIONS

Title 29, Subtitle B, Chapter XVII [OSHA]

§5(a)(1) *General Duty Clause*

Title 40, Chapter I [EPA]

Part 112 *Oil Pollution Prevention*

Title 49, Subtitle B, Chapter 1, Subchapter D [DOT]

Part 194 *Response Plan for Onshore Oil Pipelines*

INDUSTRY CODES, STANDARDS, AND RECOMMENDED PRACTICES

ANSI AMERICAN NATIONAL STANDARDS INSTITUTE

Z358.1 *Emergency Eyewash & Shower Standard*

API AMERICAN PETROLEUM INSTITUTE

RP 11ER *Guarding of Pumping Units*
RP 14C *Analysis, Design, Installation, and Testing of Safety Systems for Offshore Production Facilities*
RP 49 *Drilling and Well Servicing Operations Involving Hydrogen Sulfide*
RP 51R *Environmental Protection for Onshore Oil and Gas Production Operations and Leases*
RP 74 *Occupational Safety for Onshore Oil and Gas Production Operation*

API 510	*Pressure Vessel Inspection Code: Maintenance Inspection, Rating, Repair, and Alteration*
API 520	*Sizing, Selection, and Installation of Pressure-Relieving Devices*
API 521	*Pressure-Relieving and De-Pressuring Systems*
API 570	*Piping Inspection Code*
RP 574	*Inspection Practices for Piping System Components*

NFPA NATIONAL FIRE PROTECTION AGENCY

10	*Portable Fire Extinguishers*
30	*Flammable and Combustible Liquids Code*
70E	*Electrical Safety in the Workplace*

CEC CALIFORNIA ELECTRIC CODE

110.12	*Mechanical Execution of Work*
110.16	*Arc-Flash Hazard Warning*
110.22	*Identification of Disconnecting Means*
110.26	*Working Spaces around Electrical Equipment*
240	*Overcurrent Protection*
250	*Grounding and Bonding*
344.30	*Securing and Supporting Rigid Metal Conduit*
408	*Switchboards, Switchgear, and Panelboards*
430.52	*Rating or Setting for Individual Motor Circuit*
500.4	*Hazardous (Classified) Locations, Classes I, II, and III, Divisions 1 and 2 - Documentation*

Appendix D
Team Members

FACILITY CONDITION TEAM

Commission – MRMD	David Calderon Ryan Horton Crystal Pelka
CalNRG	Joe Benson Jeff MacDonald Dan Hiser

ELECTRICAL TEAM

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P2S	Cole Bailey Richard Bono Jose Rea
CalNRG	Dan Hiser

TECHNICAL TEAM

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SAFETY MANAGEMENT TEAM

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