

Southern California Gas Company's Abandonment/Relocation Alternatives

1.0 Introduction

Southern California Gas Company (SoCalGas) owns and operates natural gas storage wells and associated pipeline in the proposed footprint of the restoration project (refer to Figures 1-3). Some of the wells in the restoration project area are not actively being used in the storage operations and can be considered for abandonment without being relocated. Other wells are monitoring wells that are necessary for storage operations and would need to be relocated. SoCalGas would prefer to avoid raising any wellheads as an option, to the maximum extent feasible. We also note that full-time all-weather access for heavy equipment will need to be maintained to any wells that have not been plugged and abandoned.

A listing of each well and whether or not it can be considered a candidate for abandonment/relocation is as follows:

Area A

Del Rey 13: Candidate for abandonment
Del Rey 14: Candidate for abandonment
Del Rey 15: Candidate for abandonment
Del Rey 16: Already abandoned
Del Rey 17: Will require a replacement well
[Del Rey 18: Will require a replacement well](#)
Del Rey 19: Will require a replacement well

Area B

Del Rey 4: Candidate for abandonment
Del Rey 5: Candidate for abandonment
Del Rey 9: Will require a replacement well
Del Rey 11: Candidate for abandonment
Del Rey 12: Will require a replacement well
Vidor 1: Candidate for abandonment
Vidor 2: Candidate for abandonment
Vidor 3: Candidate for abandonment
Vidor 4: Already abandoned
Vidor 5: Candidate for abandonment
Vidor 14: Candidate for abandonment
Vidor 18: Will require a replacement well

2.0 Well Abandonment/Relocation Alternatives

The restoration project as proposed requires the abandonment of Del Rey 12 and possibly Vidor 3. SoCalGas utilizes Del Rey 12 as a monitoring well and would need to relocate this well to the main part of the facility by drilling a new well. Vidor 3 could be abandoned without

replacement. All the other wells in Area A and Area B would remain and still require access as well as protection from water encroachment. A summary of how the proposed project would affect the storage wells in Area A and Area B is as follows:

2.1 Proposed Project

Area A

- Del Rey 13, Del Rey 14, Del Rey 15, Del Rey 17, [Del Rey 18](#), and Del Rey 19 to remain in service.
- Del Rey 16 has already been abandoned.

Area B

- Drill a new well from the main plant area to replace Del Rey 12.
- Plug and abandon Del Rey 12 and possibly Vidor 3.
- Del Rey 4, Del Rey 5, Del Rey 9, Del Rey 11, Vidor 1, Vidor 2, Vidor 5, Vidor 14, and Vidor 18 to remain in service.
- Vidor 4 has already been abandoned.

SoCalGas has identified two alternative scenarios that would allow more of the land in the subject areas to be part of the restoration. Each alternative would remove more wells from the restoration area but would involve more costs.

2.2 Alternative #1

Area A

- Plug and abandon Del Rey 13 and Del Rey 14.
- Del Rey 15, Del Rey 17, [Del Rey 18](#), and Del Rey 19 to remain in service.
- Del Rey 16 has already been abandoned.

Area B

- Drill new wells from the main plant area to replace Del Rey 9 and Del Rey 12.
- Plug and abandon Del Rey 4, Del Rey 5, Del Rey 9, Del Rey 11, Del Rey 12, Vidor 1, Vidor 2, Vidor 3, Vidor 5, and Vidor 14.
- Vidor 18 to remain in service.
- Vidor 4 has already been abandoned.

2.3 Alternative #2

Area A

- Drill new wells from the main plant area to replace Del Rey 17, [Del Rey 18](#), and Del Rey 19.

- Plug and abandon Del Rey 13, Del Rey 14, Del Rey 15, Del Rey 17, [Del Rey 18](#), and Del Rey 19.
- Del Rey 16 has already been abandoned.

Area B

- Drill new wells from the main plant area to replace Del Rey 9, Del Rey 12, and Vidor 18.
- Plug and abandon Del Rey 4, Del Rey 5, Del Rey 9, Del Rey 11, Del Rey 12, Vidor 1, Vidor 2, Vidor 3, Vidor 5, Vidor 14 and Vidor 18.
- Vidor 4 has already been abandoned.

2.4 Site Preparation

Access Roads: Two inches of compacted $\frac{3}{4}$ -inch base rock will be used to bring the access roads to the wells to 12 feet in width on the straightaways and 20 feet in width at the corner of the turns, and capable of supporting standard highway permitted trucks up to 80,000 pounds.

Well Site Locations: Two inches of compacted $\frac{3}{4}$ -inch base rock will be used to create a work pad 120 feet x 170 feet centered at the wellhead.

The project duration will require a minimum of five (5) working days per well.

The following parameters are required to effectively provide for the abandonment of gas storage wells operated by SoCalGas in the Ballona Wetlands:

- Certain well abandonments will need to be undertaken before the levees are removed, to avoid flooding of the wellsite locations.
- Other wells will need to be abandoned prior to grading activity.
- If wells are being replaced, replacement wells must be drilled and determined to be successful before the well being replaced is abandoned.

Once the wells are abandoned, the restoration of the wellsite locations can be undertaken in conjunction with the planned restoration grading and site construction planned by the Ballona Wetlands Restoration Project.

2.5 Well Abandonment

Well abandonment should be undertaken after the access road and the well site location have been prepared. The process of abandoning a well includes bringing in a workover rig to remove downhole piping and setting cement plugs to isolate the producing zones. The wellhead is removed and the well casing is cut and capped approximately five (5) feet below grade. All concrete cellar material and piping is then removed.

Each well abandonment will require a minimum of 30 to a maximum of 45 12-hour work days (8 AM to 8 PM) to complete.

The following equipment will be required to complete the well abandonment work:

- 1 - Mobile Production Rig with 106-foot high mast
- 1 - Mobile Rig Pump with engine and circulating pit with shaker
- 1 - Solids Bin
- 1 - Rig Equipment Truck
- 1 - Portable Generator
- 1 - Rig Crew Trailer
- 2 - 500 bbl portable liquid storage tanks
- 1 - Roll Off Trash Bin
- 2 - Roll Off Cement Bins
- 1 - Portable Restroom and Service Truck
- 1 - Cement Pump Truck
- 1 - Bulk Cement Truck
- 3 - Wireline Logging Trucks (USIT/perforating/Misc. tools)
- 1 - 120 bbl or 80 bbl Vacuum Truck
- 6 - Service Pickup Trucks (various onsite contractors)
- 1 - Delivery Truck (Tractor/Flatbed Trailer)
- 1 - Stinger Truck with flatbed trailer

Each wellsite will need to be accessible to install soil gas monitoring probes and monitor for gas leakage for two months following abandonment. If no gas leakage is detected during the initial two month period following abandonment, direct access to the well will no longer be required. If gas leakage is detected, deeper probes will need to be installed and monitored for six months.

After it has been determined that there is no further gas leakage, the probes can be removed. In the case of the well subsequently being submerged under water, another means of monitoring the well will be determined, such as checking for gas bubbles percolating in the water above the abandoned well.

Deleted: SoCalGas will continue to conduct well gas leakage surveys on each abandoned well every six months.

2.6 Drilling New Well

The process of drilling a new well involves moving in a large rig capable of working 24 hours per day and having the necessary equipment to drill and install casing. The drilling rig is moved in on as many as 30 flatbed trucks and then assembled on location. Prior to move in, a cellar is first dug and shored using a cellar ring or concrete walls. Then a conductor pipe is installed in the ground and the drilling rig is rigged up. The drilling operation involves directional drilling a hole to the zone of interest. Once the hole is drilled to the proper depth, casing is installed and cemented in place. The drilling rig is then disassembled and moved out of the location. A smaller work-over rig is then needed to complete the well by installing tubing and other completion equipment.

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If well leakage occurs that requires re-abandonment, then the appropriate responsible entity (SoCalGas or the State) will re-establish roads and wellpads to execute such work.¶

Each new well will require a minimum of thirty-five to a maximum of fifty 24-hour work days. The following equipment will be required to complete the drilling of a new well:

- 1 - Drilling Rig with substructure, catwalk, drawworks, 149-foot high mast, with 11-inch Class IIIB 5M BOPE
- 2 - Skid Mounted Rig Pumps
- 1 - 600 bbl Mud Pit with shakers, circulating pumps, mud cleaner, centrifuge, mud mixing dock
- 2 - Solids Bins for drill cuttings
- 3 - Diesel (or NatGas powered) Electric Generators with SCR House
- 1 - Accumulator Unit
- 1 - Top Drive Power Unit
- 1 - Dog House/Tool Room/Crew Change Room
- 2 - Portable Generators
- 4 - 500 bbl portable liquid storage tanks
- 1 - Cement Pump Truck(s)
- 1 - Bulk Cement Truck(s)
- 3 - Wireline Logging Trucks (Open Hole Logging/USIT/perforating/Misc. tool running)
- 2 - 120 bbl or 80 bbl Vacuum Truck
- 1 - Roll Off Trash Bin
- 2 - Roll Off Cement Bins
- 1 - Portable Restroom(s) and Service Truck
- 8 - Service Pickup Trucks (various onsite contractors)
- 2 - Delivery Trucks (Tractor/Flatbed Trailer)
- 1 - Stinger Truck with flatbed trailer
- 4 - Residential Trailers (for onsite supervision)
- 1 - Mud Logging Trailer/Unit
- 1 - Directional Drilling Trailer/Control Room
- 1 - Casing Running Equipment/Crew
- 1 - Forklift (8 ton rated)
- 1 - Rig Equipment Truck
- 2 - 90 or 150 ton Cranes (for rig up/rig down)
- 30 to 50 Flat Bed Trailers and Trucks (for move in and move out)
- 1 - Backhoe

2.7 New Well Completion Operations

A workover rig is used to install the downhole tubing and associated monitoring equipment following move out of the drilling rig. All surface piping including monitoring and instrumentation is then installed after the workover rig is moved out.

Each completion will require seven to ten 12-hour work days (8 AM to 8 PM).

The following equipment will be required for the new well completion operations:

- 1 - Mobile Production Rig with 106-foot high mast
- 1 - Mobile Rig Pump with engine and circulating pit with shaker
- 1 - Rig Equipment Truck
- 1 - Portable Generator
- 1 - Rig Crew Trailer
- 2 - 500 bbl portable liquid storage tanks

- 1 - Roll Off Trash Bin
- 1 - Portable Restroom and Service Truck
- 2 - Wireline Trucks (USIT/Misc tools)
- 1 - 120 bbl or 80 bbl Vacuum Truck
- 5 - Service Pickup Trucks (various onsite contractors)
- 1 - Delivery Truck (Tractor/Flatbed Trailer)
- 1 - Stinger Truck with flatbed trailer

2.8 Potential Contamination from Abandonment or Drilling of Gas Wells

Deleted: Investigate and Remediate

During the well abandonment, visual monitoring will be performed to identify any potential soil contamination. If contamination is discovered, SoCalGas and its contractor will obtain samples to determine the source of the contamination. Typically, soil samples are analyzed for the following: total petroleum hydrocarbons (TPH) by Environmental Protection Agency (EPA) Method 8015M; volatile organic compounds (VOCs) by EPA Method 8260B; and metals by EPA Method 6010B/7000CAM. Based upon the results of that determination, SoCalGas may enter into a voluntary clean-up agreement with the local Regional Water Quality Control Board (RWQCB) to determine the extent of soil contamination. The local RWQCB may defer the project to the local environmental health agency. SoCalGas and the RWQCB or local environmental health agency will determine the appropriate soil cleanup level. Any soil removal, if required, will be conducted in accordance with the oversight and approval of the RWQCB, or the local health agency.

To the extent that soil investigation is deemed necessary, the following equipment would be required to complete the activities:

- 1 - Truck mounted direct push 1 ½ inch macro-core sampling rig, or equivalent would be utilized for obtaining soil samples.

To the extent that soil removal is deemed necessary, the following equipment would be required to complete the activities:

- 1 - Backhoe or mini excavator
- 1 - Loader
- 1 - Water truck or mobile water tank with spraying nozzles for dust control
- 4 - S-10 Trucks or end dumps would perform the required number of round trips needed to remove the contaminated soil from the site to a soil treatment or disposal facility

3.0 **Line 1167 30-inch Natural Gas Pipeline Relocation Alternative**

Purpose: Relocate the existing 30-inch natural gas transmission pipeline out of the wetland area into an existing paved road way (refer to attached Plan Drawings) to accommodate the wetland area restoration construction activities that will take place around the existing pipeline alignment.

Rationale: The existing pipeline alignment area in the wetland will see tidal surges from the Pacific Ocean. This will allow salt water flooding to take place in the area of the pipeline that

Deleted: During the abandonment, work-over, or drilling of gas wells at Playa del Rey, heavy petroleum hydrocarbons (e.g., crude oil) may be present in near-surface soil. This is incidental contamination from normal oil field activities, such as spills of work-over fluid, small oil spills or leaks. Before the wells are drilled and after well abandonment, SoCalGas and its consultants will perform an investigation of potential oil contamination in near-surface soils (down to 15 feet below ground surface). If significant amounts of petroleum are found, SoCalGas and its contractor will remediate or remove the contamination for off-site disposal. Cleanup levels are normally 10,000 ppm, 1,000 ppm, or 100 ppm of Total Petroleum Hydrocarbons, depending on depth to ground water and soil type.¶

¶ Each investigation may take up to two (2) weeks to complete; remediation work at each site may continue for up to two (2) months.¶

¶ The following equipment will be required to complete remediation activities:¶

- ¶ 1 - Drilling Rig¶
- 1 - Backhoe¶
- 4 - Trucks¶

runs across the wetland cells. Consequently, this alternative best supports the long-term integrity of the 30-inch gas pipeline while ensuring the ability to operate and maintain the pipeline in the most cost effective manner.

Scope of Work:

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- Excavate and shore approximately 2,500 linear feet of new pipeline trench. Note: If ground water is found during the excavation process, all water will be properly managed and disposed to meet regulatory requirements.
- Fabricate, coat, hydrostatically strength test, install, and tie-in approximately 2,500 feet of new 30-inch, 0.375-inch wall thickness, Grade X-60 gas pipeline.
- Isolate and blow down approximately 2.5 miles of existing 30-inch Line 1167 to accommodate the hot tie-in process of the new 30-inch pipeline segment into the existing pipeline segment.
- Remove and dispose of approximately 600 square feet of coal tar pipeline coating. The complete full circumference removal will accommodate the tie-in hot cuts. Note: An approved Industrial Hygienist and hazardous waste abatement contractor will be utilized to remove and dispose of all coal tar pipeline coating.
- Displace all natural gas with a complete nitrogen purge on the 30-inch pipeline left in place between tie-in points 1 and 2. Note: Steel end plates will be welded onto all open ends of the abandoned 30-inch pipeline to be left in place.
- Backfill and compact all new pipeline excavations with a combination of native soil, sand, and zero sack slurry. All backfilled excavations to be compacted to at least 90% relative density.
- Complete final paving on all backfilled excavations per permit conditions. SoCalGas expects that the existing Gas Company Road will be repaved and widened, as necessary, to adequately cover the relocated 30-inch gas line.

Construction Notes:

- Excavation Ground and Hydrostatic Strength Test Water Storage, and Disposal: Excavations could see ground water. All ground water will be properly managed and disposed to meet regulatory requirements. This would also apply to the hydrostatic strength test water.
- Existing Buried Substructures: All buried substructures running through the immediate project area will be protected in place. The new segment of 30-inch gas pipeline will be installed at a depth of no less than 42 inches and the installation will accommodate a horizontal and vertical clearance of no less than 12 inches, when running parallel or crossing existing buried substructures. This will apply to the pipeline installed on SoCalGas' Playa del Rey Storage Facility property, as well as within the City of Los Angeles right of way.

- New 30-inch Pipeline Segment External Coating: All new 30-inch steel piping and fittings will be sand-blasted in the areas of bare steel and coated with a pipeline coating material.
- PCB Mega Rule requirements will be followed for all abandoned and/or removed pipe to be recycled.

The following vehicles and equipment will be used to complete the 30-inch gas pipeline relocation:

- 2 - Side boom tractors
- 1 - Large 60 ton crane
- 2 - Rubber tire backhoe
- 2 - Excavators
- 2 - Boom truck crane
- 4 - Welding trucks equipped with gasoline or diesel welding machines
- 4 - Pickup trucks
- 2 - Gasoline powered air compressors operating < than 50 HP
- 1 - Gasoline powered hydrostatic pump
- 2 - Gasoline powered light plants
- 4 - Gasoline powered traffic control arrow boards

Line 1167 Relocation Schedule:

The project starting with site mobilization, ending with final clean-up/demobilization should take approximately thirty days to complete.

4.0 Required Environmental Clearances/Permits/Approvals

Agency	Type of Permit/Approval
California Air Resources Board	<ul style="list-style-type: none"> • Portable Equipment Registration Program Certification (for equipment onsite less than 1 year)
California Coastal Commission	<ul style="list-style-type: none"> • Coastal Development Permit (Area B falls under dual jurisdiction with City of Los Angeles)
California Department of Fish and Wildlife	<ul style="list-style-type: none"> • Temporary Access Agreement • Streambed Alteration Agreement • Section 2081 Incidental Take Permit
California Division of Oil, Gas & Geothermal Resources	<ul style="list-style-type: none"> • Permit to abandon and drill replacement wells

California Regional Water Quality Control Board	<ul style="list-style-type: none"> • Construction Storm Water Permit • Section 401 Water Quality Certification • Notification if contaminated groundwater is encountered • Groundwater discharge permit unless hauled offsite by licensed contractor
City of Los Angeles	<ul style="list-style-type: none"> • Conditional Use Permit • Coastal Development Permit/Approval in Concept (Area B falls under dual jurisdiction with California Coastal Commission) • Development Plan approval • Sanitation (waste water) permit
Los Angeles County	<ul style="list-style-type: none"> • Coastal Development Permit (jurisdiction within Area A) • Conditional Use Permit • Right of Entry Permit
South Coast Air Quality Management District	<ul style="list-style-type: none"> • Portable Equipment Permit (equipment onsite greater than 1 year will need to be added to the Title V/RECLAIM facility permit) • Asbestos renovation notification • Dust Control Plan
State Lands Commission	<ul style="list-style-type: none"> • Right of Way Permit
U.S. Army Corps of Engineers	<ul style="list-style-type: none"> • Section 404 Permit