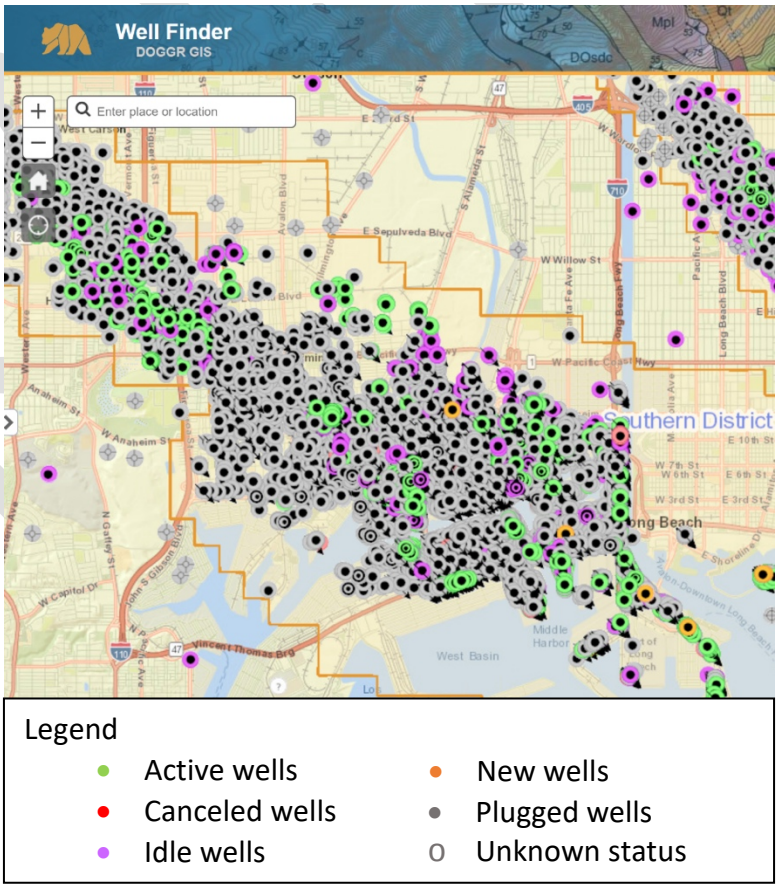
Oil Drilling and Production

Background

The oil and gas industry has existed in Southern California for over a hundred years. This industry, which includes oil drilling and production, has hundreds of facilities that are subject to requirements set-forth by city agencies, local air districts (e.g., South Coast AQMD), and state agencies (e.g., CARB and the California Department of Conservation, through its Division of Oil, Gas, and Geothermal Resources (DOGGR)).

South Coast AQMD has specific regulations on oil wells, including the Rule 1148 series (1148[1], 1148.1[2], 1148.2[3]), and other rules that reduce emissions of volatile organic compounds (VOCs).[4,5] CARB recently adopted an Oil and Gas Regulation[6] to reduce methane emissions from oil and gas production, processing, storage, and transmission compressor stations, which accounts for four percent of methane emissions in California.[7]

Figure 5e-1. Screen shot of DOGGR Well Finder GIS tool of the Wilmington, Carson, West Long Beach area



There are 242 facilities operating approximately 4,320 onshore oil and gas wells in the District.[i] Due to the geography of the region, these wells are often located in urban areas, and sometimes located within close proximity to residential and other sensitive receptors, as is the case within the Wilmington, Carson, West Long Beach community.

DOGGR requires owners and operators of oil and gas facilities to report the status of their wells. The data are available through a database of active, idle, and abandoned wells throughout the state of California.[8] Based on records from DOGGR's database (updated in 2015), there are approximately 6,100 oil, gas, and geothermal wells that are active or idle in the Los Angeles, Riverside, San Bernardino, and Orange County regions. DOGGR's program

[i] Based on an evaluation of records associated with the South Coast AQMD's Rule 222 - Filing Requirements for Specific Emission Sources Not Requiring a Written Permit Pursuant to Regulation II filing requirements for the "Oil Production Well Group" category in 2015

includes idle, abandoned, geothermal and water injection wells, which are not registered by South Coast AQMD.[9] Active oil wells are the only ones actively withdrawing oil, and this process has the potential to develop leaks (fugitive emissions).

In 2015, South Coast AQMD staff conducted a five-week project to characterize and quantify emissions from small stationary sources, including oil wells, in the Los Angeles Basin using multiple Optical Remote Sensing (ORS) techniques. The findings from this study are available in the final report.[10]

Community Air Quality Priorities – Targeted Monitoring and Inspections to Address Leaks and Odors, Improved Outreach and Notifications, Establish a Baseline of Emissions, Zero-Emission Technology On-Site

Four main air quality priorities related to oil drilling and production were identified by the Wilmington, Carson, West Long Beach CSC: (1) targeted near-facility monitoring and inspections to address leaks and odors from oil drilling and production; (2) improved public outreach and notifications; (3) additional requirements for oil production sites to submit annual reports to develop an accurate inventory of emissions and chemicals used; and (4) require zero-emission technology at drilling sites. Details for these actions are described below.

Many homes in this community are located close to oil and gas facilities, which may include drilling, production, and well sites. Residents have identified odors and leaks from operating and abandoned oil wells as concerns. The CSC requested increased air monitoring efforts pertaining to these wells and facilities, particularly when drilling activities are occurring. The CSC also requested that this information be made available to the public to establish a baseline for tracking emissions reductions. Using air monitoring to identify potential leaks, conducting follow-up investigations, and collaborating with other agencies would help reduce emissions from these facilities. Because VOCs are the main air pollutants from petroleum-based sources, VOC measurements would help to identify potential leaks. In addition, the drilling activities at these sites can generate fugitive dust, which could impact the nearby community. Air monitoring efforts led by community based organizations, that are complementary to South Coast AQMD monitoring efforts, can help provide real-time data on particulate matter levels in the community when drilling activity is occurring at a nearby facility.

CSC members stated that the current South Coast AQMD notifications for oil wells (Rule 1148.2[3]) could provide more useful information to the community. The CSC requested that the South Coast AQMD program provide more efficient notifications with improved outreach to the public to explain the chemicals, toxicity, and health impacts related to oil drilling activities. The CSC requested that outreach materials include letters, flyers, lists, or infographics, since not all community members have access to computers.

CSC members requested a better inventory of emissions from this industry, beyond the current reporting requirements in South Coast AQMD Rule 1148.2. Members suggested requiring a chemical survey or annual reports on a facility's oil production, chemicals used, and emissions inventories to provide information that is relevant to community air pollution exposures.

CSC members recognized that these sites use diesel-powered equipment on-site, and would like to see electrification of this equipment and/or requirements for using cleaner fuels for on-site operations.

Ongoing Efforts

South Coast AQMD staff continue to conduct regular inspections and respond to complaints for oil drilling and production facilities. South Coast AQMD regulates oil and gas facilities through several Rule 1148 rules which pertain to oil wells (Rule 1148[1], Rule 1148.1[2], Rule 1148.2[3]), Rule 1173 (VOC leaks)[4] and Rule 1176 (wastewater systems).[5] There are over 30 facilities with multiple wells on site that are inspected annually under existing regulatory programs.

CARB is implementing the Study of Neighborhood Air near Petroleum Sources (SNAPS) program to better understand potential impacts of criteria pollutants and toxic air contaminants in neighborhoods near oil and gas activities. The program includes limited-term, intensive air quality monitoring with a particular focus on production facilities.[11] Although the SNAPS program is not currently conducting monitoring in the Wilmington, Carson, West Long Beach community, the information from the SNAPS effort from other communities may be informative for this community.

Opportunities for Action

In addition to the ongoing efforts described in this chapter, the CSC identified specific actions to address community priorities related to addressing the committee's concerns at oil drilling and production sites. The actions are described below.

Action 1: Reduce Air Pollution Leaks from Oil Wells and Associated Activity at these Facilities
Course of Action:
• Use data from South Coast AQMD and DOGGR to identify active, inactive, and abandoned oil wells in this community • Work with the CSC to identify priority locations for monitoring, and aim to conduct monitoring at these locations during well workover events • Conduct mobile monitoring around active, idle, and abandoned oil drilling sites (or fenceline and more traditional monitoring activities, if necessary) to identify potential leaks • Make monitoring data from these actions available online in a user-friendly format on the South Coast AQMD website (www.aqmd.gov) • Share monitoring data with partner agencies to help inform their efforts • If persistent elevated levels are detected at locations through monitoring activities, conduct follow-up investigations at those locations using appropriate field measurement equipment

- Monitoring of active and abandoned oil wells will be prioritized based on proximity to sensitive receptors, repeat violations, or complaints received
- If elevated levels are found around abandoned wells, make a referral to DOGGR

- Respond to odor complaints and update complainants on an expedited basis
- Provide CSC with periodic summaries of findings, such as whether odors were confirmed and traced back to a specific site/source, and any enforcement actions taken[ii]

Strategies:

- Monitoring
- Enforcement
- Collaboration

Goals:

- Conduct screening measurements around all accessible active, idle, and abandoned oil wells to identify leaking wells
- Identify the highest priority locations in the community for monitoring during a well workover event
- Conduct follow-up inspections if persistent elevated levels are found through monitoring, and take enforcement action where appropriate
- Make monitoring data available publicly
- Provide quarterly or biannual updates to the CSC on progress and findings

Estimated Timeline:

- Fourth quarter of 2019, begin to use data from DOGGR to identify the active, idle, and abandoned wells in this community
- First quarter of 2020, work with CSC to identify the top priority oil drilling and production locations in this community
- Second quarter of 2020, begin mobile monitoring around the oil drilling and production locations, prioritizing the locations identified by the CSC. Post data on a dedicated webpage on the South Coast AQMD website within 30 days
- Third quarter of 2020, begin providing CSC members quarterly or biannual updates on efforts for monitoring and inspection or complaint investigations on fugitive emissions and odors from oil drilling and production sites

Implementing Agency, Organization, Business or Other Entity:

Name:	Responsibilities:
South Coast AQMD	• Conduct mobile monitoring around active, idle, and abandoned oil drilling sites to identify potential leaks, and screen for elevated ambient air levels in nearby communities • Perform inspections, and respond to complaints

[ii] Specific or detailed information from ongoing enforcement investigations will not be able to be shared until Notices of Violation, if any, are settled or closed

	• Provide monitoring data and periodic updates to CSC
CSC Members	Prioritize oil drilling and production locations in the community that are the top concerns
City of Los Angeles	• May conduct follow-up inspections of oil drilling and production sites • Refer appropriate issues identified at these sites to South Coast AQMD
Division of Oil, Gas, and Geothermal Resources (DOGGR)	• Refer appropriate issues identified at these sites to South Coast AQMD • Follow up on referrals from other agencies to DOGGR
Community Based Organizations	Conduct community air monitoring that is complementary to South Coast AQMD community monitoring efforts
Additional Information:	
DOGGR: https://www.conservation.ca.gov/dog/Pages/Index.aspx	

Action 2: Improved Public Information and Notifications on Activities at Oil Drilling and Production Sites

Course of Action:

- Develop fact sheets or info-graphics summarizing findings from monitoring data, complaint response, and inspections of oil drilling and production facilities in this community
- Work with local public health departments on health-related messaging on risks posed by these oil drilling and production facilities (e.g., water pollution, hazardous waste storage, etc.) and measures to reduce exposure to risks from oil drilling and production sites
- Work with stakeholders to identify and implement key areas for improvement for the Rule 1148.2 information and notifications
- Provide community workshops and training on how to subscribe to and use notifications

Strategies:

- Public Information and Outreach
- Collaboration

Goals:

- Develop fact sheets and info-graphics that provide guidance on reducing exposure to oil drilling and production site activities, and summaries of the findings from monitoring and inspection activities
- Improve Rule 1148.2 notifications based on stakeholder input

- Hold two community workshops to provide training on how to use notification systems
- Provide quarterly or biannual updates to the CSC on progress

Estimated Timeline:

- First quarter of 2020, begin working with stakeholders to identify improvements for Rule 1148.2 notifications
- Third quarter of 2020, begin working with local public health departments to develop fact sheets, info-graphics, and messaging for notifications
- 2021, implement improvements to notifications and organize community workshops and training

Implementing Agency, Organization, Business or Other Entity:

Name:	Responsibilities:
South Coast AQMD	• Work with Public Health Departments to develop outreach materials and improvements to notifications • Work with stakeholders to improve notifications • Organize and host public workshops and training
Public Health Departments	Collaborate with South Coast AQMD to develop outreach materials for communities to distribute at key locations, such as schools, civic and activity centers, and other locations to provide public information

Additional Information:

Requirements for Rule 1148.2 (Oil and Gas Notifications):
http://www.aqmd.gov/docs/default-source/rule-book/reg-xi/rule-1148-2.pdf

Action 3: Evaluate Feasibility to Amend Rule 1148 Series and Rule 1173 to Reduce Emissions and Require Additional Reporting

Course of Action:

- Utilize monitoring data from Community Air Monitoring Plan (CAMP) efforts and CARB's Study of Neighborhood Air near Petroleum Sources (SNAPS) program to identify possible additional emissions reductions or areas where annual reporting would be beneficial for establishing a more accurate emissions inventory
- Evaluate additional methods and practices to further reduce leaks, and whether additional chemicals should be added to the required list for reporting
- Consider amendments to Rule 1148 series and Rule 1173 to reduce emissions and improve emissions reporting from oil drilling and production sites. Examples of additional considerations may include:
  - Leak detection technologies and programs
  - Lowering allowable emissions from on-site equipment (e.g., emission concentrations)

– Improving emissions controls during well rework and maintenance activities – Lower-emission or zero-emission equipment for on-site operations – Annual reporting of emissions – Improving reporting of chemicals used on-site – Conducting root-cause analysis and implementing odor minimization plans when odors are traced back to a facility
Strategies:
• Rules and Regulations
Goals:
• If a rule amendment is determined to be necessary and feasible, pursue rule development to reduce emissions from leaks and operations and enhance reporting requirements • Work with stakeholders to gather input on elements to incorporate in reporting • Provide quarterly or biannual updates to the CSC on progress
Estimated Timeline:
• Second half of 2020, initiate rule development activities and hold first working group meeting
Implementing Agency, Organization, Business or Other Entity:

Name:	Responsibilities:
South Coast AQMD	Evaluate the feasibility of amending requirements for reducing emissions, reporting emissions, and reporting chemicals used at oil drilling and production sites
CSC Members	Participate in the South Coast AQMD rule development process (e.g., attending working group meetings, providing comments on draft rule materials, etc.)

Additional Information:
• Details about the requirements for the Rule 1148 Series (1148[1], 1148.1[2], 1148.2[3]) and Rule 1173[4] are available on South Coast AQMD's website • Community Air Monitoring Plan (CAMP): http://www.aqmd.gov/docs/default-source/ab-617-ab-134/camps/wcwlb_camp.pdf • CARB SNAPS: https://ww2.arb.ca.gov/our-work/programs/study-neighborhood-air-near-petroleum-sources/about

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