

Rule 1148.2 - Status Report

Stationary Source Committee
February 21, 2014

Background – Rule 1148.2

- Adopted April 5, 2013
- Applies to operators of oil and gas wells and chemical suppliers
- Requires pre-project notification, emissions and chemical usage reporting for drilling, well completion, or rework activities
- SCAQMD website where the public may access notification and chemical usage information

(Adopted April 5, 2013)

RULE 1148.2 NOTIFICATION AND REPORTING REQUIREMENTS FOR OIL AND GAS WELLS AND CHEMICAL SUPPLIERS

- (a) Purpose
The purpose of this rule is to gather air quality-related information on oil and gas well drilling, well completion, and well reworks.
- (b) Applicability
This rule applies to any operator of an onshore oil or gas well located in the District that is conducting oil or gas well drilling, well completion, or well reworks. In addition, this rule applies to suppliers as defined in paragraph (c)(14).
- (c) Definitions
For the purposes of this rule, the following definitions shall apply:
- (1) ACIDIZING means a treatment of the wellbore or reservoir formation with an acid to either clean out scale, damage, or other debris in the well, or react with the soluble substances in the formation to improve permeability and enhance production of oil and gas.
 - (2) AIR TOXIC means any substance identified on a list that is compiled and maintained by the California Air Resources Board pursuant to Health and Safety Code Section 44321.
 - (3) CHEMICAL FAMILY means a group of chemicals with related physical and chemical properties.
 - (4) DRILLING means digging or boring into the earth for the purpose of developing, extracting, or producing oil, gas, or other hydrocarbons, but does not include remediation efforts to clean-up or remove contamination.
 - (5) DRILLING FLUID means fluid used to lubricate the drill string, line the walls of a well, flush cuttings to the surface, and create enough hydrostatic weight to prevent blowouts.
 - (6) FLOWBACK FLUID means the fluid that flows from an oil or gas well following a well production stimulation or treatment activity, either in preparation for a subsequent phase of well production stimulation or treatment activity, or in preparation for a cleanup and returning the well to production. The flowback period begins when material introduced into the well during the well production stimulation or treatment activity

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Rule 1148.2 Adoption Resolution

- Convene Working Group within 6 months after the first emissions report is received to discuss equipment and chemical data, and emissions monitoring/sampling results
- Report semi-annually to Stationary Source Committee (SSC) on notifications, emissions, and chemical use reporting
- Report to the SSC within 2 years of rule adoption, findings and recommendations for the need, if any, for emission controls or regulatory efforts for well drilling, well completion, and well reworks

Caveats

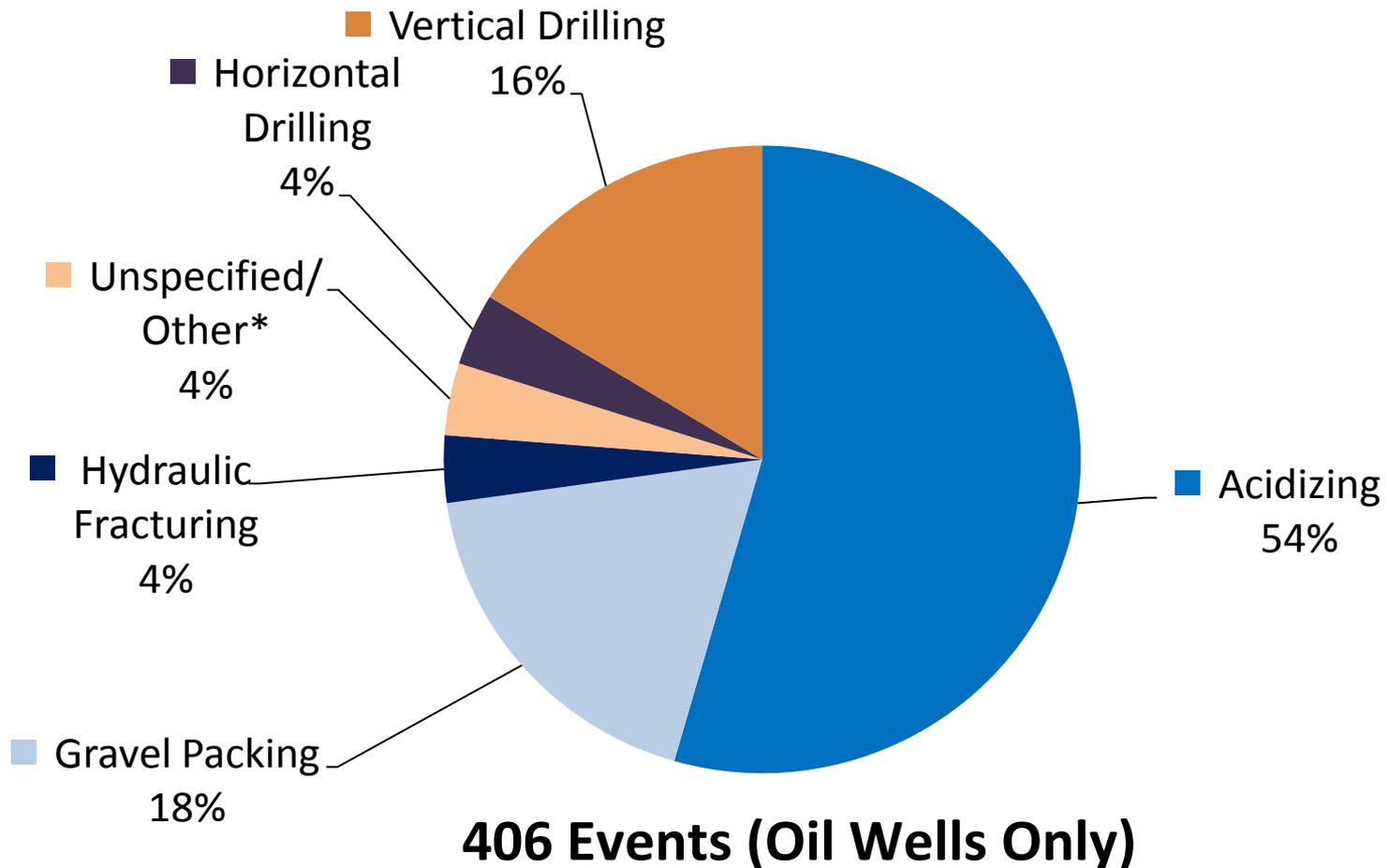
- “Snap Shot” June through December 2013
- Initial review of data
 - expected to improve over time
 - continuing to evaluate data
- Only non-trade secret information presented
- Staff analyzing both trade and non-trade secret data
- Missing reports – initiating the compliance process

Summary of Rule 1148.2 – Notification Data (June-Dec 2013)

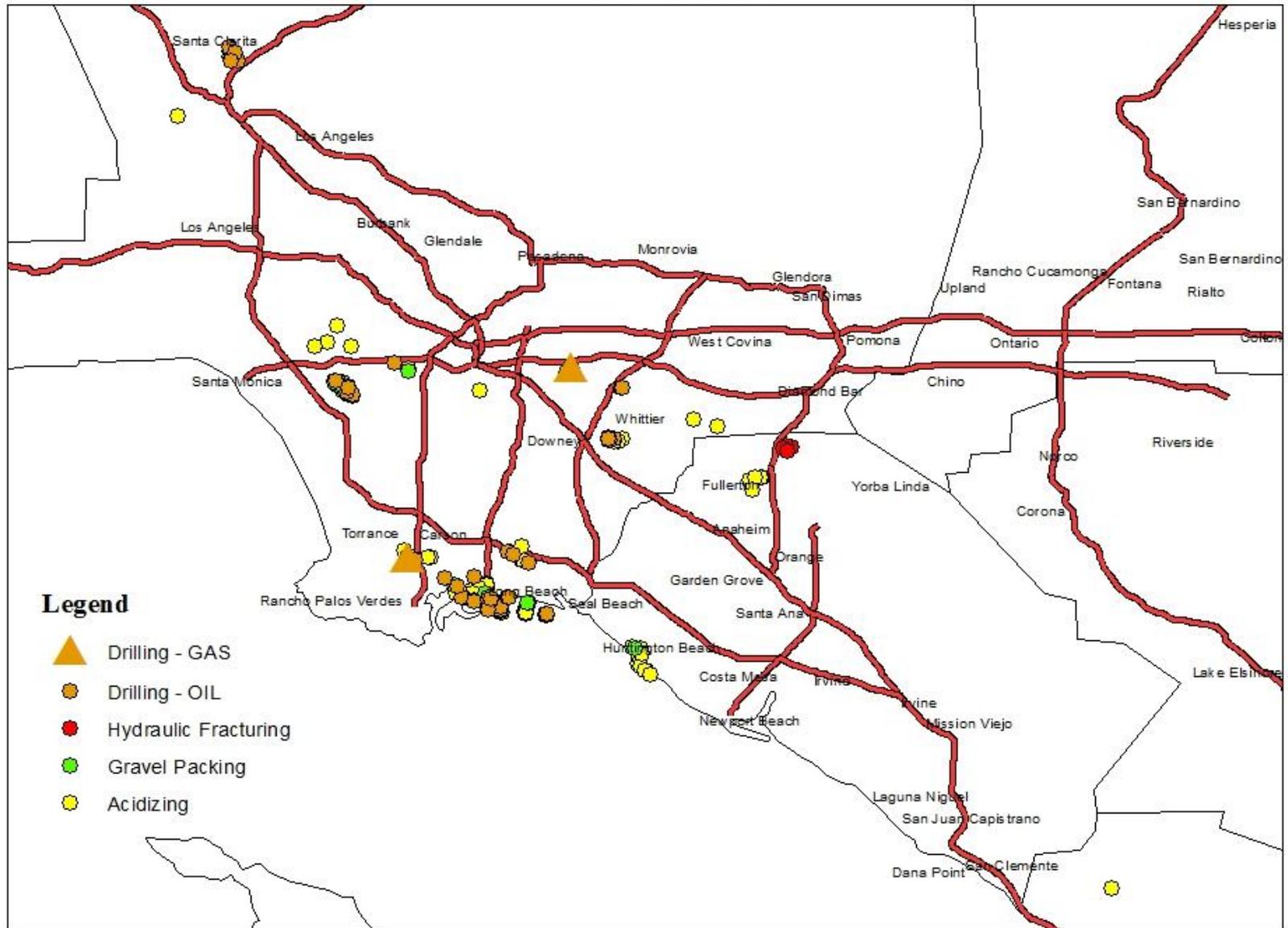
- Approximately 370 Notifications representing 409 events (Some notifications have multiple events)
- <1% gas wells
 - Gas wells: 2 drilling and 1 unspecified
- >99% oil wells
 - Acidizing represents nearly half of the events
 - 14 hydraulic fracturing events
 - Of the 83 drilling events
 - 66 vertical drilling
 - 15 horizontal drilling
 - 2 unspecified



Distribution of Notifications by Activity (June – Dec 2013)



R 1148.2 – Well Activity by Location



Location of Well Events

- 90% of notifications in Los Angeles County
- 10% of notifications in Orange County
- No notifications in Riverside and San Bernardino County
- Approximately 50% within 1,500 feet of a sensitive receptor



Well Events Near Sensitive Receptors

Distance to Sensitive Receptor (ft)	Acidizing	Drilling	Gravel Packing	Hydraulic Fracturing	Other*	Total
≤ 50	1					1
51 – 100	5		1			6
101 – 500	42	10	8		5	65
501 – 1000	28	27	17		1	73
1001 – 1500	30	13	13			56

* Cement jobs, perforations

Rule 1148.2 – Emission Source Reporting

- Submit Emission Source Reports to the SCAQMD for drilling, well completion, and well rework activities
 - Combustion sources (i.e., engines >50 bhp)
 - Dry materials usage/ fugitive dust
 - Drilling and flowback fluids
- Reports to be submitted to SCAQMD no later than 60 days after completion of well activity
- Reporting requirement sunsets in April 2015

Equipment Reporting Results

Well Activity	Average Number of Engines	Average Engine Size (HP)
Horizontal Drilling	10	400
Vertical Drilling	7	700
Acidizing	2	471
Gravel Packing	9	555
Hydraulic Fracturing	6	1165

Rule 1148.2 – Chemical Usage Reporting

- Non-Trade Secret Chemical Information
 - Facilities required to report within 60 days of last well activity
 - Chemical name
 - Purpose of chemical
 - Total volume/density or mass
 - Max concentration
 - Identification if chemical is an air toxic
- Trade-Secret Chemical Information
 - Suppliers must report chemical information for any trade secret chemicals to SCAQMD within 60 of delivery to operator

The screenshot displays the 'R1148.2 Reporting Portal' interface. The header includes the South Coast AQMD logo and navigation links for 'Manage Account', 'Notification', 'Emission Source Report', and 'Chemical Report'. The main content area is titled 'R1148.2 (e)(4) Chemical Report - Operator' and is divided into three sections: 'Operator Information', 'Well Information', and 'Chemical Report - Non-Trade Secret'. The 'Operator Information' section contains fields for Existing Event ID, Facility ID, Operator Name, Owner Contact, Facility Name, Operator Contact, Operator Phone, and Owner Phone. The 'Well Information' section contains fields for Well Name /ID, API Well Number, County, Zip Code, Well Latitude, and Well Longitude. The 'Chemical Report - Non-Trade Secret' section features a red error message: 'You must enter at least one Non-Trade Secret Chemical to submit this report.' Below this is a text input field with the placeholder 'Please click the Add Button to the right to enter a non-trade secret chemical' and an 'Add' button.

Summary of Toxics

- Looking at 13 air toxics
 - Where used
 - Amount (mass) – still evaluating
- Still evaluating trade secret data

Air Toxics	Carcinogen	Acute	Chronic
Crystalline Silica	X		X
Ethylbenzene	X		X
Ethylene Glycol			X
Formaldehyde	X	X	X
Glutural			X
Hydrochloric Acid		X	X
Hydroflouric Acid		X	X
Methanol		X	X
Naphthalene	X		X
Phosphoric Acid			X
Sodium Hydroxide		X	X
Toluene		X	X
Xylene		X	X

Non-Trade Secret Air Toxic Chemicals Used in Well Activities

Chemical Ingredient	Acidizing	Drilling	Gravel Packing	Hydraulic Fracturing
Crystalline Silica		✓	✓	✓
Ethylbenzene	✓			
Ethylene Glycol	✓	✓	✓	✓
Formaldehyde	✓	✓	✓	
Glutaral		✓	✓	
Hydrochloric Acid	✓			
Hydrofluoric Acid	✓			
Methanol	✓	✓	✓	✓
Naphthalene	✓	✓	✓	
Phosphoric Acid		✓		
Sodium Hydroxide			✓	✓
Toluene	✓			
Xylene	✓			

* Other TACs have been reported as trade secret

R1148.2 – Well Inspection Summary

- Since June 2013, SCAQMD staff conducted 65 inspections (consisting of 57 unique events) of oil/gas sites performing drilling, well completion, and well rework operations
 - 10 well drilling events
 - 12 hydraulic fracturing events
 - 31 acidizing events
 - 3 gravel packing events
 - 1 misc cement event



R 1148.2 – Well Inspection Summary

- Observations from well inspections include:
 - Visible smoke at 11 inspections (17%)
 - Visible dust at 12 inspections (18%)
 - Noticeable odors at 7 inspections (10%)



Rule 1148.2 – Onsite Monitoring and Sampling Summary

Event	Handheld Results for PM and H ₂ S	Canister Results for Organics
Acidizing Event	No elevated levels of PM or H ₂ S	Canister samples elevated levels of hydrocarbons (10x ambient) with slightly elevated levels (3x ambient) of certain air toxics such as benzene and xylenes
Hydraulic Fracturing Event 1	Slightly elevated levels of PM ₁₀ . H ₂ S not measured due to weather.	No canister sample due to weather.
Hydraulic Fracturing Event 2	No elevated levels of PM ₁₀ , except for one short-term period of elevated levels. No elevated levels of H ₂ S.	Canister sampling showed slightly elevated levels of benzene and xylenes.
Drilling Event	Elevated levels of PM ₁₀ and PM _{2.5} . Slightly elevated levels of H ₂ S.	Canister sampling results pending

Next Steps

- Continue sampling and inspections
- Pursue non-compliance – events with no emissions or chemical reports
- Continue data analysis
- Continue to make improvements to website and public portals
- Next update in six months