WSPA Comments
Draft Regulation for Greenhouse Gas Emission Standards
for Crude Oil and Natural Gas Operations (June 2016)

July 18, 2016

General Comments

Issue 1: WSPA would like to re-iterate comments previously submitted on February 18, 2016 regarding the global warming potential used in the evaluation of this proposed regulation. Over the course of this regulation development process, ARB has changed the Global Warming Potential (GWP) of Methane from 25[1] (100 year average) which was used in the previous economic impact analysis to 72[2] (20 year average). Although ARB has discussed this change in the supporting documentation for the proposed rule, this GWP change is not reflected in either the definition or anywhere else in the regulation itself.

The proposed change is not trivial. Using the 20-yr GWP, which is more than three times the 100-yr GWP, makes the emissions estimates from the regulation appear to be three times the emissions estimates of standard GHG programs like EPA's Greenhouse Gas Reporting Program (GHGRP), California's GHG Mandatory Reporting Regulation (MRR), and California's Cap and Trade Program. It also makes the costs for this regulation appear to be three times smaller when compared to other GHG programs.

A 100-year global warming potential (GWP) value is the current internationally accepted standard used across myriad State and Federal regulatory regimes including the ARB's statewide emissions inventory, AB 32 Scoping Plan and the Cap-and-Trade regulation. The factor change would defeat the internal consistency of the state's policy.

ARB notes a concern about climate change consequences in 2050 and 2100 – i.e., the 100 year timeframe. Based on this concern, using the 100 year GWP would be more appropriate. The Intergovernmental Panel on Climate Change (IPCC) Report supports both the 100 year and 20 year factors.[3] These factors were developed to allow comparisons of different GHGs for policy making purposes, and ARB's revised methodologies will deviate from the standards used by EPA and most other international agencies.

If ARB insists on choosing the 20 year horizon for methane, then a 20-year horizon for CO_2 would be a fair comparison. In such a comparison, the effect of CO_2 is very small.[4] As a result California should take the very small radiative forcing of CO_2 into account and reconsider all of its policies with respect to CO_2.

WSPA believes that the lack of a standardized GWP approach between the various AB32 programs is inappropriate, non-transparent and ultimately will cause confusion among stakeholders when comparing the cost-effectiveness and efficiency of the various programs established by ARB and the international community.

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[1] Standardized Regulatory Impact Assessment (April 2015 & June 2016)
[2] Standardized Regulatory Impact Assessment (April 2015 & June 2016)
[3] The IPCC Fifth Assessment Report, Working Group I: The Physical Science Basis, Chapter 8. Figure 8.29
[4] Ibid.

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Recommendation 1: WSPA recommends ARB revise the regulation and use the 100-yr GWP value of 21 for methane (SAR GWP for 100-yr Time Horizon; Table 2.14, IPCC Fourth Assessment Report: Climate Change 2007) to be consistent with other standard GHG programs.

Issue 2: Currently, Section §95667 does not incorporate a definition of Global Warming Potential of CH_4. This could lead to confusion and several issues during compliance demonstration and enforcement actions. WSPA recommends ARB incorporate the definition of GWP of CH_4 into Section §95667, which will ensure transparency and understanding of compliance requirements for all stakeholders.

Recommendation 2: WSPA requests that ARB add the following term and definition to § 95667.

"Global warming potential" or "GWP" means the ratio of the time-integrated radiative forcing from the instantaneous release of one kilogram of a trace substance relative to that of one kilogram of a reference gas, i.e., CO_2. For the purposes of this regulation, the GWP of Methane is 21 (SAR GWP for 100-yr Time Horizon; Table 2.14, IPCC Fourth Assessment Report: Climate Change 2007).

Issue 3: The current cost-effectiveness data provided by ARB in the proposed regulatory package does not include details on impacts for each operator or the assumptions made to determine benefits. Significant variations can exist among operations and/or fields and understanding these variations is important before mandating the proposed requirements on all operations. The same requirement at one location may be cost-effective while another location might be significantly impacted. Therefore, state-wide cost-effectiveness may not represent the actual burden on an operator.

WSPA (letter dated 5/22/15), California Independent Petroleum Association (CIPA, letter dated 5/28/15), and Department of Finance (DOF, letter dated 5/28/15)) have pointed out the need for ARB to conduct operator and unit-level cost effectiveness analysis in addition to the state-wide cost-effectiveness of the proposed regulation as outlined below:

- CIPA requested "that staff prepare an updated and detailed economic impact document which clearly shows what the individual impact potential would be on entities" due to concerns regarding the macro-scale view of the SRIA.
- WSPA outlined the significant differences in emission reduction estimates included in the SRIA and reported 2013 MRR data.
- WSPA requested that ARB "provide transparent calculations and unit clarifications that result in a revised cost-effectiveness determination or clear demonstration" of how annual benefits were reached.
- DOF requested that ARB "include the direct cost of each alternative in the SRIA rather than just the overall impacts" and that ARB "discuss how an individual facility's characteristics, such as emission rates and existing control devices, may affect the calculation of direct costs, and thus economic impacts of the proposed regulations".

WSPA believes that it is critical to understand the economic impacts at the unit level (such as at an operator/system level) in order to clearly determine the impact of the regulation. Significant variations can exist between an operator's emissions, the cost of control, and direct benefits received by the operator.

Lack of transparency in unit-level cost-effectiveness and practically low/no applicability thresholds in the proposed regulation will lead to significant adverse impact operators. Unit-level analysis can demonstrate operator-level economic burden, where the most impact will be felt. Additionally, without a reasonable threshold for cost-effectiveness at the unit-level, ARB is assuming the same cost and benefit will occur for all operators.

ARB's response in the staff report to this serious concern is still inadequate. WSPA does not agree with nor support ARB's calculated cost-effectiveness analysis and the basis for many of the proposed regulatory requirements. This is a critical gap in ARB's economic analysis as well as the EA; and needs to be addressed before the rule can be adopted. ARB should minimize regulatory burden for operators where the proposed requirements are clearly not cost-effective and could lead to a significant economic burden for the operator(s).

Recommendation 3: WSPA strongly recommends ARB clearly demonstrate operator and unit-level economic impacts and cost-effectiveness of the thresholds considered for applicability at operator and unit level.

General Definitions

WSPA requests ARB incorporate the following clarifications regarding certain general definitions included in Section §95667 of the proposed regulatory text. The clarity and correctness of the definitions provided are central to all operators' understanding and ability to comply with the regulation. Listed below are some general requested corrections. Additional recommendations for definition changes that provide clarity are included in Attachment A.

Issue 4: *"Emissions" means the discharge of natural gas into the atmosphere.*

- WSPA believes that this definition is inconsistent with the original intent of the rule to control CH_4 emissions.
- ARB's emissions estimates and cost-effectiveness analyses use "MT CH_4" as the basis of the proposed GHG standards.
- Many sections of the proposed regulatory text require a certain percentage of emissions reductions. This will require an operator to demonstrate compliance in terms of a standard unit of measure such as MT CH_4.
- Additionally, Section §95674(c) describes enforcement in terms of "*metric ton of methane.*"

However, the definition of emissions states "the discharge of *natural gas* into the atmosphere." The inconsistency in the definition and the rest of the regulation will cause issues not only during compliance demonstration but also for the purposes of enforcement.

Recommendation 4: WSPA requests that ARB clarify this language throughout the regulation in order to provide a consistent and measureable standard. WSPA recommends the following changes:

"Emissions" means the discharge of methane ~~natural gas~~ into the atmosphere.

"Component" means a valve, fitting, flange, threaded-connection, process drain, stuffing box, pressure-vacuum valve, pipes, seal fluid system, diaphragm, hatch, sight-glass, meter, open-ended line, well casing, natural gas-driven pneumatic device, natural gas-driven pneumatic pump, or natural gas reciprocating compressor rod packing or seal in methane service.

"Facility" means any building, structure, or installation to which this subarticle applies and which has the potential to emit ~~natural gas~~methane. Facilities include all buildings, structures, or installations which:

(A) Are under the same ownership or operation, or which are owned or operated by entities which are under common control;

(B) Belong to the same industrial grouping either by virtue of falling within the same two-digit standard industrial classification code or by virtue of being part of a common industrial process, manufacturing process, or connected process involving a common raw material; and,

(C) Are located on one or more contiguous or adjacent properties.

"Vapor collection system" means equipment and components installed on pressure vessels, separators, tanks, or sumps including piping, connections, and flow-inducing devices used to collect and route ~~emissions~~ methane to a processing, sales gas, or fuel gas system; to a gas disposal well; or to a vapor control device.

Issue 5: WSPA notes that the definition of a sump does not align with other existing regulations.

Recommendation 5: WSPA recommends that ARB align with the definition of a sump as in San Joaquin Valley Air Pollution Control District (SJVAPCD) Rule 4402 as below:

"Sump" means a lined or unlined surface impoundment or excavated depression in the ground ~~that~~which, during normal operation~~s~~, is in continuous use~~d~~ for~~to~~ separating~~e~~ ~~, store, or hold emulsion,~~ crude oil~~,~~ ~~condensate,~~ or produced water, and solids in oil producing fields.

Issue 6: ARB's definition of separator and tank systems includes "sump" as follows –

(54) "Separator and tank system" means the first separator in a crude oil and natural gas production system and any tank or sump connected directly to the first separator.

WSPA is concerned that ARB is requiring additional controls that cannot be safely achieved. Sumps can introduce oxygen into closed loop vapor recovery systems leading to fire and explosion risks. As already stated in the previous letters (dated March 4, 2016), there is no feasible, cost-effective manner by which to capture emissions from a sump, which is not enclosed.

Recommendation 6: WSPA requests that ARB remove the term "sump" from the definition of "separator and tank system." WSPA recommends the following definition for "separator and tank system" –

"Separator and tank system" means the first separator in a crude oil and natural gas production system and any tank ~~or sump~~ connected directly to the first separator.

Issue 7: ARB's definition of terms "Sump" and "Pond" are overlapping –

"Pond" means an excavation or impoundment for the storage and disposal of produced water and which is not used for crude oil separation or processing.

"Sump" means a lined or unlined surface impoundment or depression in the ground that, during normal operations, is used to separate, store, or hold emulsion, crude oil, condensate, or produced water.

ARB's definitions in Section § 95667 suggest that "Ponds" are subsets of "Sumps" (based on ARB's proposed definitions both could be an impoundment that store produced water, see yellow highlighted text above). However, the control requirements of § 95668(a)(5) and record-keeping requirements of § 95671(a)(1)(A) and (B) and Appendix A Table A1 apply to sumps and ponds differently. The definitions as currently written will not allow an operator to differentiate between a sump and a pond. In addition, the definition of "pond" needs to exclude containment structures, sand separation equipment, and steam blowdown pits. Containment structures are utilized to contain any releases and minimize impacts to the environment. Steam blowdown pits collect condensed steam which will not contain GHG pollutants.

Recommendation 7: WSPA recommends that ARB clarify the definition of the term "Pond" by basing it on the existing and industry-understood definition of Pond in SJVAPCD Rule 4402 as follows –

(42) "Pond" means any very large excavation that is used for the routine storage and or disposal of clean produced water, is not used for the separation of oil and water, and has no more than five percent visible oil-covered surface area~~.~~ Steam blowdown pits are not ponds. ~~.an excavation or impoundment for the storage and disposal of produced water and is not used for crude oil separation or processing.~~

WSPA also recommends that ARB add the definition for the term "clean produced water" defined in SJVAPCD Rule 4402 as follows –

Clean Produced Water: produced water containing less than 35 milligrams per liter of VOCs as determined by EPA Test Method 413.2, 418.1 or 1664A and/or, if necessary, EPA Test Method 8240 or 8260. Ethane, provided the ethane fraction of the hydrocarbon vapors is less than 20 percent by volume, and hydrocarbons heavier than C14 may be excluded from the total concentration. Water samples collected for analysis shall be collected within a five foot radius of the sump inlet. One sample shall be collected near each inlet and the results averaged.

Issue 8: ARB's definition of term "Pressure Vessel" is inaccurate.

"Pressure vessel" means any hollow container used to hold gas or liquid and rated, as indicated by an ASME pressure rating stamp, and operated to contain normal working pressures of at least 15 psig without vapor loss to the atmosphere.

Based on ARB's definition in Section § 95667, pressure vessels cannot have vapor loss to the atmosphere. This is not true since all pressure vessels have pressure relief valves for safety purposes. In emergency or upset conditions, pressure relief valves allow release of vapors to balance pressure within the system.

Recommendation 8: WSPA recommends that ARB correct the definition of the term "Pressure Vessel" as follows –

(47) "Pressure vessel" means any hollow container used to hold gas or liquid and rated, as indicated by an ASME pressure rating stamp, and operated to contain normal working pressures of at least 15 psig without continuous vapor loss to the atmosphere.

Issue 9: The proposed regulation has the following definition of vapor control device –

"Vapor control device" means destructive or non-destructive equipment used to control emissions.

The definition of "vapor control device" needs to exclude backup safety devices (e.g. flares) that are used to abate overpressure situations or perform maintenance on equipment.

Recommendation 9: WSPA recommends that ARB correct the definition of the term "Vapor control device" as follows-

(60) "Vapor control device" means destructive or non-destructive equipment with the primary purpose ~~used~~ to control emissions.

Separator and Tank Systems

Issue 10: Section 95668(a)(6) states that "By January 1, 2019, owners or operators of an existing separator or tank system with an annual emission rate greater than 10 metric tons per year of methane shall control the emissions from the separator and tank system <u>and uncontrolled gauge tanks located upstream of the separator and tank system</u> with the use of a vapor collection system as specified in section 95668(c)." (emphasis added).

WSPA is concerned by the inclusion of gauge tanks in section 95668(a)(6) with no notice or discussion of this addition. Section 95668(a)(6) now requires owners or operators of existing separator or tank systems with annual emissions greater than 10 metric tons per year of methane to control emissions from gauge tanks in addition to controlling emission from the separator and tank system. No prior versions of the proposed regulation mentioned gauge tanks nor were gauge tanks discussed with industry prior to this draft being released. In addition, as discussed below, none of the supporting documents provide a compelling reason to include gauge tanks in the regulation and, in fact, most of the supporting documents do not even mention gauge tanks.

WSPA's understanding was that the vapor collection system would only be required on the primary separator and secondary tank within a separator and tank system. With this understanding, WSPA provided a significant amount of data to assist ARB with estimating and prioritizing emissions from separator and tank systems. ARB's emissions estimates described in Appendix B of the proposed regulatory package do not include any estimates for gauge tank emissions or costs of control. It appears that this source was added at the last minute without proper cost-effectiveness analysis as required in the Economic Analysis and Standardized Regulatory Impact Assessment ("SRIA"), and without the required environmental analysis under the California Environmental Quality Act ("CEQA").

WSPA is providing the following data, emissions estimates, and costs related to gauge tanks.

1. **<u>Function:</u>** Gauge tanks are used to test the percent oil and water cut from a single well. In most cases, the test is conducted in automated well testers that are closed loop pressure vessels. In certain heavy oil fields (API Gravity < 20), gauge tanks may be used to conduct the tests of remotely located wells.

2. **<u>Location:</u>** Gauge tanks are located close to wells to enable testing and each tank may be used to test one or more wells. Only one well is tested at any given time.

3. **<u>Frequency of Operation:</u>** Gauge tanks do not operate continuously. Most gauge tanks operate once a week or once every few weeks depending on the throughput of the wells they serve. Wells with low throughputs require less frequent testing. Each test may last an average of 2-4 hrs.

4. **<u>Geographical and Operational Separation:</u>** Although the emissions estimates provided in ARB's economic analysis do not provide any information on gauge tanks, from recent discussions, WSPA understands that ARB has assumed there are approximately 500 uncontrolled gauge tanks in California. However, according to WSPA's estimates, members have approximately 200 uncontrolled gauge tanks with capacities ranging from 20 bbl to 200 bbl. As stated above, these tanks are located close to remote heavy oil wells and away from centralized tank farms. There is usually significant geographic separation between gauge tanks and

separator and tank systems. In addition, gauge tank operations are separate from the operations of separator and tank systems.

5. **Emissions Estimates Not Included in ARB Analysis:** ARB's emissions estimates described in Appendix B and Appendix D do not include any estimates for gauge tank emissions.

6. **Emissions Levels Very Low:** In order to estimate emissions from gauge tanks, WSPA collected member data of a few random flash test samples of gauge tanks. All samples were taken upstream of the gauge tanks. Using this data, WSPA developed average emission factors for methane emissions from gauge tanks in MT CH_4 per barrel of crude oil and MT CH_4 per barrel of produced water. The results are outlined in Table 1 below.

Sample ID	Oil Throughput (bbl/yr)[5]	Average Oil Throughput (bbl/day)[6]	Water Throughput (bbl/yr)[7]	Average Water Throughput (bbl/day)[8]	Duration of Operation (Days/yr)[9]	Gas to Oil Ratio (scf/bbl)[10]	Gas to Water Ratio (scf/bbl)[11]	CH_4 Mole% in Oil[12]	CH_4 Mole% in Water[13]	MT CH_4 in Oil[14]	MT CH_4 in Water[15]	Total MT CH_4[16]	Emission Factor MT CH_4/bbl Oil[17]	Emission Factor MT CH_4/bbl Water[18]
1	29,613	81.1	65,731	180.1	115	1.728	0.370	48.6%	20.4%	0.48	0.10	0.57	0.000016	0.0000014
2	4,905	13.4	126,872	347.6	78	1.118	0.045	45.2%	18.7%	0.05	0.02	0.07	0.000010	0.0000002
3	28,694	78.6	292,785	802.2	166	0.249	0.123	8.0%	2.6%	0.01	0.02	0.03	0.000000	0.0000001
4	3,275	9.0	10,236	28.0	85	0.886	0.886	16.5%	0.0%	0.01	-	0.01	0.000003	-
5	1,360	3.7	4,019	11.0	30	0.249	0.115	13.8%	7.2%	0.00	0.00	0.00	0.000001	0.0000002
Average	13,569	37.2	99,929	273.8	95	0.846	0.308	26.4%	9.8%	0.11	0.03	0.14	0.000006	0.0000004

Table 1: Results of Flash Test Data at random sample locations upstream of gauge tanks.

[5] Actual oil throughput of the tank in bbl/yr
[6] Calculated daily average oil throughput [Oil Throughput (bbl/yr) ÷ 365 (days/yr)]
[7] Actual produced water throughput of the tank in bbl/yr
[8] Calculated daily average produced water throughput [Water Throughput (bbl/yr) ÷ 365 (days/yr)]
[9] Calculated days of operation per year [Hours of operation (hrs/yr) ÷ 24 (hrs/day)]
[10] Measured Gas to Oil ratio
[11] Measured Gas to Water ratio
[12] Measured CH_4 concentration in flash gas, oil
[13] Measured CH_4 concentration in flash gas, water
[14] Calculated CH_4 emissions from flash gas, oil in MT CH_4
[15] Calculated CH_4 emissions from flash gas, water in MT CH_4
[16] Calculated CH_4 emissions from all flash gas, oil + water in MT CH_4
[17] Calculated CH4 emission factor MT CH_4 per bbl of oil [(Calculated CH_4 emissions from flash gas, oil in MT CH_4) ÷ (Actual oil throughput of the tank in bbl/yr)]
[18] Calculated CH4 emission factor MT CH_4 per bbl of water [(Calculated CH_4 emissions from flash gas, water in MT CH_4) ÷ (Actual produced water throughput of the tank in bbl/yr)]

Based on the above emissions data, the average emissions are 0.14 MT CH_4 per gauge tank per year or 0.000006 MT CH_4 per year/bbl Oil and 0.000004 MT CH_4 per year/bbl Water.

The total emissions from all gauge tanks are expected to be approximately 28 MT CH_4 per year (200 x 0.14 MT CH_4 per gauge tank per year). Compared to ARB's total estimated emissions from uncontrolled tanks and separators (Economic analysis, Appendix D, Page B-26), our estimates show that emissions from gauge tanks represent **less than 0.36%** of the expected emissions reductions for the source category (28 MT CH_4 per year ÷ 7,865 MT CH_4 per year).

7. **Costs of Control:**

   a. *Economic Analysis*: ARB's Economic Analysis does not take into account the cost to control emissions from gauge tanks with the use of a vapor collection system, as required by section 95668(a)(6). The legal deficiencies of the Economic Analysis are discussed further in Issue 53 below.

   b. *SRIA*: ARB's SRIA also does not consider the impacts of controlling emissions from gauge tanks in its analysis. In fact, the SRIA does not mention gauge tanks and does not consider potential emission reductions from adding vapor collection systems to such tanks or the potential cost of such controls. The legal deficiencies of the SRIA are discussed further in Issue 54 below.

8. **Draft Environmental Assessment:** ARB's Environmental Assessment ("EA") for the proposed regulation does not take into account gauge tanks and the potential environmental impacts associated with the proposed regulation's requirement to control emissions from those tanks with vapor collections systems. The legal deficiencies of the EA are discussed in further detail in Issue 55 below.

Recommendation 10: WSPA recommends that ARB remove gauge tanks from the proposed regulation. WSPA's recommended changes to the proposed requirements are detailed in Attachment A.

Issue 11: Section 95668(a)(2)(A) of the proposed regulation states that the requirements are not applicable to separator and tank systems that receive less than 50 barrels of crude oil per day and that receive less than 200 barrels of produced water per day. There is no mention of condensate.

In addition, several operators may have large amounts of produced water compared to the amount of oil produced. In several fields, the ratio of oil to produced water can be 1-10% oil to 99-90% water. Furthermore, ARB has not considered low condensate throughputs for this exemption.

Recommendation 11: WSPA recommends that ARB recognize the average production ratios in California and make the following changes to Section 95668(a)(2)(A):

Separator and tank systems or any tanks that receive less than 100 ~~50~~ barrels of crude oil or condensate per day ~~and~~ or that receive less than 1,000 ~~200~~ barrels of produced water per day.

WSPA's recommended changes to the proposed requirements are detailed in Attachment A.

Issue 12: Section 95668(a)(2) does not recognize any exemptions for heavy oil fields where the amount of flash gas is expected to be insignificant. Our understanding is that ARB would like to not impose burdensome requirements on heavy oil fields where the amount of flash gas is expected to be very low.

Recommendation 12: In order to clarify the above understanding, WSPA recommends that ARB add the following to Section 95668(a)(2) –

~~(B)~~(C) Separator and tank systems or any tanks that receive production from wells that have an API gravity of 20 or lower.

WSPA's recommended changes to the proposed requirements are detailed in Attachment A.

Issue 13: Section 95668(a)(2) does not recognize any exemptions for small tanks. By design, smaller production wells are served by small tanks and the estimated emissions expected to be insignificant.

Recommendation 13: WSPA recommends that ARB add the following to Section 95668(a)(2) –

(E) Tanks with a capacity of 300 bbls or smaller.

WSPA's recommended changes to the proposed requirements are detailed in Attachment A.

Issue 14: Section 95668(a)(2) provides exemptions for separators or tanks that have not stored liquid for 30 days. WSPA believes that 30 days is a short duration. In several cases, a tank may be used to store liquids for only a few hours during a day.

Recommendation 14: WSPA recommends that ARB modify Section 95668(a)(2) as follows –

Separators, tanks, and sumps that have ~~not~~ contained crude oil, condensate, or produced water for ~~at least~~ no more than a total of 45 ~~30~~ calendar days or 1,080 hours during a calendar year.

WSPA's recommended changes to the proposed requirements are detailed in Attachment A.

Issue 15: Section 95668(a)(2) provides exemptions for separators or tanks that recover less than 10 gallons per day of any petroleum product. WSPA believes that 10 gallons is a very small volume.

Recommendation 15: WSPA recommends that ARB modify Section 95668(a)(2) as follows –

~~(F)~~(H) Tanks that recover less than 10 ~~gallons~~ barrels per day of any petroleum product from equipment provided that the owner or operator maintains, and can make available at the request of the ARB Executive Officer, a record of the amount of liquid recovered.

WSPA's recommended changes to the proposed requirements are detailed in Attachment A.

Issue 16: Sections 95668(a)(2)(D) & (E) outline exemptions for tanks holding or storing liquids from a well less than 90 days unless the liquid is from a well that underwent a well stimulation treatment. Our understanding is that ARB intends to not exempt "circulation tanks used in conjunction with the well stimulation treatments" with this exception. However, as currently written, the statements might be misunderstood to include any tank that receives liquids from any well that may have undergone well stimulation treatment in the past.

In addition, it is our understanding that the exemptions below include general facility maintenance, including spill response. When taking equipment out of service, portable tanks are used to temporarily replace the equipment or to store fluids transferred out of the equipment.

Recommendation 16: WSPA recommends that ARB revise the section to read:

~~(D)~~(F) Tanks used for temporarily separating, storing, or holding liquids from any newly constructed well for up to 90 calendar days following initial production from that well. ~~provided that the tank is not used to circulate liquids from a well that has been subject to a well stimulation treatment.~~ This does not include circulation tanks used in conjunction with well stimulation treatments.

~~(E)~~(G) Tanks used for temporarily separating, storing, or holding liquids from wells undergoing rework, maintenance, or inspection for up to 90 calendar days. ~~provided they are not used to circulate liquids from a well that has been subject to a well stimulation treatment.~~ This does not include circulation tanks used in conjunction with well stimulation treatments.

Issue 17: WSPA's previously submitted comments on May 22, 2015 address high costs associated with the installation of vapor collection systems. Based on 2013 GHG MRR data, a threshold of 10 MT CH_4/yr would result in a compliance cost of about \$200/MT CO_2e (GWP = 21 for CH_4) or \$58/MT CO_2e (GWP = 72 for CH_4).

ARB's economic analysis uses very low and outdated 10-yr old costs (EPA 2006) of installing a vapor recovery system (Table B-7, ARB Economic Analysis). The costs today are at least 3-10 times the costs depending on the size of the operations. Furthermore, ARB does not provide the basis for savings that are estimated to be 2,637 MT CH_4 or \$ 498,259 per year or the cost-effectiveness of \$7.81 per MT CO_2e. In addition, all gas is assumed to be saleable pipeline quality (high BTU content) with a market value of \$3.44 per MSCF. However, most gas collected in vapor recovery systems has low BTU content, does not meet pipeline specifications, and cannot be sold. ARB's cost-effectiveness analysis is inadequate with multiple assumptions.

WSPA's cost effectiveness analysis (submitted March 4, 2016) shows that the threshold of applicability at 100 MT CH_4 will have a 20-yr cost-effectiveness of ~\$40/MT CO_2e (GWP = 21 for CH_4) or ~\$12/MT CO_2e (GWP = 72 for CH_4) controlled.

ARB has still not provided a unit-level or operator level cost-effectiveness analysis. WSPA re-asserts the importance of conducting unit-level cost effectiveness analysis for objective evaluation of economic impacts on operators.

Recommendation 17: WSPA requests that ARB revise the economic analysis with latest cost data and obtain realistic gas quality data to evaluate the market value to determine the actual savings. WSPA strongly urges that ARB review the data that has been already provided (March 4, 2016) and re-consider the threshold of applicability at 100 MT CH_4.

Issue 18: Certain operators may be willing to voluntarily install vapor recovery systems on separator and tank systems regardless of the emissions by January 1, 2019. The current regulation does not allow a provision for such operators to forego the flash testing requirements.

Recommendation 18: WSPA requests that ARB allow the following provision to the Section 95668(a)(3) –

(3) By January 1, 2018, owners or operators of existing separator and tank systems that are not controlled for emissions with the use of a vapor collection system shall conduct flash analysis testing of the crude oil, condensate, or produced water processed, stored, or held in the system.

(A) An operator may forego the January 1, 2018 flash analysis testing requirement and instead elect to install vapor recovery system on a separator and tank system as specified in 95668(a)(6). In order to comply, the owner or operator must submit permit applications to the local Air District by January 1, 2018.

Issue 19: Section 95668(a)(5)&(6) of the proposed regulation require addition of a vapor collection system to an existing separator and tank system based on the result of a single annual flash analysis test. A single test result may indicate an annual emission rate very close to 10 metric tons per year of methane which would require an operator to make a large capital investment based on only one data point. Section 95668(a)(5)(F) allows the ARB Executive Officer to request additional testing at their discretion. The operator should be given a similar opportunity to be confident in the result of the testing.

Recommendation 19: WSPA recommends the addition of a Section 95668(a)(5)(G) to allow the operator of a separator and tank system to perform additional flash analysis testing in a year and use the average of the test results to determine the need for addition of a vapor collection system as specified in 95668(a)(6).

(G) Operators of a separator and tank system may perform additional flash analysis testing in a year and use the average of the test results to determine the need for addition of a vapor collection system as specified in 95668(a)(6).

WSPA's recommended changes to the proposed requirements are detailed in Attachment A.

Issue 20: Section 95668(a)(7) of the proposed regulation states that new separator and tank systems have 180 days from initial flash testing to install vapor collection system. WSPA believes that this does not allow for sufficient time to receive lab analysis and results and for subsequent design, procurement and contracting the construction of the system. Additionally, for a project of this magnitude, budgets must be presented and approved for most stakeholders at least a year in advance. Furthermore, the permitting process may take longer than expected and dependent on Air District schedules.

Assuming an implementation date of early 2017, the proposed regulation currently allows for up to 2 years for vapor collection system installation on existing systems over the emissions control threshold.

Recommendation 20: WSPA recommends that ARB allow for 2 years from initial flash testing, for the installation of vapor collection system on a newly constructed separator and tank system.

WSPA's recommended changes to the proposed requirements are detailed in Attachment A.

Issue 21: The proposed regulation does not provide any clarity on requirements for existing systems that exceed the threshold after January 1, 2019.

Recommendation 21: WSPA recommends that ARB clarify requirements for existing systems that exceed the threshold after January 1, 2019 allowing for 2 years from the date of flash testing when the emissions threshold is exceeded to install a vapor collection system. WSPA recommends the following addition to the proposed requirements –

~~(7)~~(8) Beginning January 1, 2019, owners or operators of existing separator and tank systems that exceed the annual emission rate of 100 metric tons per year of methane shall control the emissions from the separator and tank system with the use of a vapor collection system as specified in section 95668(c) within 24 months of conducting flash analysis testing.

Circulation Tanks for Well Stimulation Treatments

Issue 22: WSPA resubmits our previous comment submitted on March 4, 2016 with regards to the definition of a circulation tank as seen below.

Section 95667(a)(6) defines circulation tanks as follows -

"Circulation tank" means a tank or portable tank used to circulate, store, or hold liquids or solids from a crude oil or natural gas well during or following a well stimulation treatment.

It is our understanding that ARB intends to control circulation tanks that are used in conjunction with the well stimulation events. The current definition includes the term "or following" that may be misinterpreted to include any tanks receiving fluids from a well that may have undergone well stimulation in the past.

Recommendation 22: WSPA recommends that ARB clarify the definition to accurately reflect ARB's intent -

"Circulation tank" means a tank or portable tank used to circulate, store, or hold liquids or solids from a crude oil or natural gas well during or following a well stimulation treatment but prior to the well being put on production.

Issue 23: Section 95668(b)(1) outlines the requirements of a best practices management plan (BPMP) required to be implemented when circulation tanks are used in conjunction with well stimulation treatments. WSPA understands operators can submit BPMP that are representative for similar groups of wells undergoing a similar process at a facility.

WSPA requests that ARB provide clarification regarding the submittal process for these plans.

Recommendation 23: WSPA recommends the following language to Section 95668(b)(1):

(1) Beginning~~y~~ January 1, 2018, owners or operators of circulation tanks used in conjunction with well stimulation treatments at facilities listed in section 95666 shall implement a best practices management plan that is designed to limit methane emissions from circulation tanks, and shall ~~provide~~ make that plan available to ARB upon request. Each plan must contain a list of best practices~~, identified on the basis of substantial evidence recorded in the plan,~~ to address the following issue areas:

(A) Inspection practices to minimize emissions from circulation tanks.

(B) Practices to reduce venting of emissions from circulation tanks.

(C) Practices to minimize the duration of liquid circulation.

(D) Alternative practices to control vented and fugitive emissions.

Issue 24: ARB's emissions estimates and costs associated with circulation tanks are outlined below –

Parameter	Statewide	Per Event[19]
MT CO_2e (GWP = 72)[20]	4,900	8.36
MT CH_4	68.1	0.12
ARB Proposed Costs	$186,000	$317.4
ARB Proposed Benefits	$17,000	$29.01
ARB Proposed Cost Effectiveness ($/MT CO_2e)	$34	$34

- **Emissions from Circulation Tanks are Extremely Small**

Based on the emission estimates presented by ARB, the circulation tank source category represents **0.4%**[21] of the total statewide emissions that ARB plans to control with the proposed regulation. As seen above, per ARB, this represents 0.12 MT or 264.5 lbs CH_4 per event. WSPA does not agree with these emissions estimates since the 2015 WSPA circulation tank test results demonstrate even fewer emissions

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[19] Based on Kern County Environmental Impact Assessment Report, approximately 1,025 well stimulation events were conducted over a period of 21 months (1/1/2014 and 9/30/2015). Based on this data, we estimated approximately 586 well stimulation events are conducted annually within the state of California.

Table 25: Number of Well Stimulation Treatments by Stimulation Type and Oil Field

Oil Field	Acid Fracture	Acid Matrix	Hydraulic Fracture	Totals by Oil Field
Belridge, North			149	149
Belridge, South	1		704	705
Elk Hills		18	44	62
Kettleman Middle Dome		2		2
Lost Hills			88	88
North Coles Levee			2	2
Rose			12	12
Stockdale			1	1
Ventura			3	3
No Associated Field			1	1
Totals by Stimulation Type	1	20	1004	1025

Counties/Districts not listed did not contain occurrences of well stimulation treatment.
Source: Interim Well Stimulation Database, WST Disclosures Index, operator disclosures

[20] ARB Presentation February 4, 2016
[21] Per ARB's estimates presented on February 4, 2016, emissions from Circulation tanks are 4,900 MT CO_2e out of a total proposed control of 1.2 million MT CO_2e

with an average of approximately 0.012 or 26 lbs CH_4[22] per event (ten times smaller emissions). This data shows that circulation tanks are an insignificant source of emissions in California, and ARB has not provided the technical basis for proposing a regulation to control emissions from such a small source category.

- **Zero Benefit/Market-Value of Gas**

WSPA disagrees with ARB's valuation ($17,000) of the gas captured from circulation tanks. These vapors contain very few hydrocarbons. The WSPA testing showed an average higher heating value (HHV) of 7 Btu/scf[23]. The estimated average heat content is 1.6 MMBTU for an entire event. There is no market-value for this gas as it does not meet pipeline specifications and cannot be sold.

When compared to pipeline quality gas (900 – 1,150 Btu/scf) or field/waste gas (200 – 900 Btu/scf), the vapors (7 Btu/scf) are extremely low quality and non-combustible without the addition of supplemental higher heating value fuel. There is zero financial benefit in capturing this gas. ARB's proposed benefits of $17,000 are completely baseless.

WSPA is concerned that a significant amount of effort will be required by ARB and Air Districts to implement and manage the program for minute methane emissions reductions (easily outweighed by emissions from additional criteria pollutants) and virtually no associated benefit. Additionally, operators would have to comply with the proposed unsafe and exceedingly burdensome requirements outlined below -

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[22] Per 2015 WSPA Circulation Tank Test Results, the methane emissions ranged from 0.24 lb CH_4 to 132 lb CH_4 with an average of 26 lb CH_4.
[23] Per 2015 WSPA Circulation Tank Test Results, the calculated HHV ranged from 0.003 Btu/scf to 57 Btu/scf with an average of 7 Btu/scf.

	Needed Equipment/ Infrastructure	Concerns
1. REQUIRED CAPTURE		
Installation of Vapor Collection System	~125 kW Diesel powered generator for the vapor recovery compressor at a temporary location	GHG and criteria emissions from diesel combustion
2. REQUIRED CONTROL		
Option 1: Direct vapors to existing sales gas system/existing fuel system/underground injection well	Existing sales gas system/existing fuel system/underground injection well	Safety and explosion risk (introduction of air/oxygen into existing systems)
Option 2: Direct vapors to a Vapor Control Device	Installation of Flare (15 ppmv NOx @3% O_2)	Increased GHG and criteria pollutant emissions from supplemental fuel for flaring

The above requirements are being proposed for a source with extremely small emissions and used for very limited periods of time leading to capture of emissions less than the 1 MT CH_4 (2015 WSPA Recirculation Tank Testing).

Recommendation 24: WSPA does not believe that there is a justifiable reason for ARB to propose control requirements for this source category as no benefit can be gained from the potential capture of an insignificant amount of low quality vapors from circulation tanks. Additionally, WSPA believes that the control of this source category cannot be achieved safely or without additional criteria pollutants. WSPA is recommending that ARB allow the continued use of best management practices to achieve emissions reductions beyond 2020.

WSPA's recommendation for regulatory language is included in Attachment A.

Issue 25: ARB has proposed unsafe mandatory control measures that require operators to install a vapor collection system (Section 95668(b)) on circulation tanks and connect the system to either an existing sales line, existing fuel line or inject the vapors underground. Vapors collected from the circulation tanks contain insignificant and varying concentrations of hydrocarbons (C1 – C6+) ranging from 0 to 5%[24] with high amounts of introduced air from the circulation process (95-100%). Connecting oxygen-rich vapors to an existing sales or fuel line containing hydrocarbons will create an explosive environment.

WSPA has been re-iterating this concern to ARB (WSPA letters dated March 4, 2016) without response. ARB has not included any safety provisions in the regulation. While it appears that ARB is proposing several options, the fact is that the safety concerns eliminate almost all options leaving flaring as the only method of control for this source category, if allowed by Air Districts. In the absence of Air District approval, operators would have to shut down operations (§95668(c)(5)).

Recommendation 25: WSPA recommends that ARB remove unsafe mandatory control measures from the proposed regulation. At a minimum, WSPA urges ARB to incorporate alternative control methods that maintain safe practices.

WSPA's recommendation for regulatory language is included in Attachment A.

Issue 26: As discussed above, flaring is the only option available for an operator in the absence of safe alternatives for emissions control from circulation tanks. There are significant issues with the flaring option as discussed below:

<u>Restrictions on Flare Use</u>

- ***Permitting:*** ARB is assuming that Operators will be allowed to install new flares or use existing flares. However, it is extremely difficult, if not impossible, to obtain permits from local Air Districts for new or increased flaring, especially in regions classified as non-attainment, such as within the San Joaquin Valley Air Pollution Control District.

- ***Flare use (Emergency only):*** Operators may have existing stationary emergency flares on site. However, these flares can only be used in emergency or upset conditions. Emergency flares are not allowed to be used for flaring of vapors during normal operation of circulation tanks. Further, these flares cannot accommodate the low volume and low BTU content emissions from recirculation events without makeup fuel.

- ***Location of Existing Process Flares:*** There are few stationary process flares currently permitted in the state for oil and gas operations and most are not located within the vicinity of field operations where well stimulation occurs. If any are located near the fields, the flares are larger and sized for field gas streams with higher flow rates and heat content. These larger flares are

[24] Per 2015 WSPA Circulation Tank Test Results, total hydrocarbons (C1 to C6+) ranged from 0 to 5% by volume.

not able to adequately combust the extremely low heating value and low volume vapors from circulation tanks unless supplemental fuel is also combusted to meet all regulatory and stoichiometric requirements.

- ***Portable Flares*****:** Small portable flares (usually rented or leased), as described above, are the only option for operators but can only be used at accessible, remote locations where safety and risk are not an overriding issue. In most cases where well stimulation events occur in California (e.g. - Belridge Field), oil fields are congested and portable flares can pose safety issues due to fire risk.

Control Measures Will Result in Higher Emissions

Proposed Control measures will result in additional GHG and criteria pollutant emissions from both capture and control of vapors from circulation tanks. WSPA has quantified the additional emissions below –

- ***Emissions from Capture of Vapors from Circulation Tanks:*** Operators are required to capture vapors from circulation tanks by using a portable vapor recovery compressor. Compressors in this service are typically powered by a portable diesel generator. Additional criteria pollutant emissions are expected from the diesel generators and the estimates are provided in the table below.

Pollutant	Additional Emissions from 125 kW Diesel Generator[25] (per event)	Additional Emissions from 125 kW Diesel Generator (annual statewide[26])
CH_4 (lbs)	0.06	33
N_2O (lbs)	0.01	7
CO_2 (lbs)	1,399	819,986
NOx (lbs)	38	22,298
SOx (lbs)	2.5	1,475
VOC (lbs)	3.1	1,808
CO (lbs)	8.2	4,805
PM_{10} (lbs)	2.7	1,582

As seen above, capture of vapors from circulation tanks using a vapor recovery system alone produces approximately 38 lbs of additional NOx per event mostly within the jurisdiction of SJVAPCD[27].

- ***Emissions from Flaring of Vapors from Circulation Tanks:*** As stated above, the vapors from circulation tanks contain very few hydrocarbons making combustion of the vapors inefficient (i.e. inconsistent burning, low destruction efficiency, and the potential for smoke) or impossible without the addition of supplemental fuel. The average higher heating value (HHV) of the vent gas from circulation tanks is expected to be approximately 7 Btu/scf[28] at an average flow rate of 527 scfm with inconsistent and varying concentrations of methane during the circulation process.

  Per 40 CFR 60.18, flares[29] are required to maintain an HHV of at least 300 Btu/scf. In order to combust vapors from circulation tanks and meet the requirements of 40 CFR 60.18, operators would be required to add supplemental fuel. The amount of supplemental fuel required would depend on the quality of the vapors collected from circulation tanks and the size of the flare (minimum flow for the available flare).

  The following table shows methane emissions from control of vapors from circulation tanks with natural gas (HHV = 1,020 Btu/scf[30]) as supplemental fuel using a low NOx flare as specified in Section 95668(c)(4)(B)(2) –

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[25] Emission Factors from AP-42 Section 3.3-1 (https://www3.epa.gov/ttn/chief/ap42/ch03/final/c03s03.pdf)
[26] Based on Kern County Environmental Impact Assessment Report, approximately 1,025 well stimulation events were conducted over a period of 21 months (1/1/2014 and 9/30/2015). Based on this history, additional emissions were based on an estimated rate of 586 well stimulation events per year.
[27] Based on Kern County Environmental Impact Assessment Report, 99.7% percent of well stimulation events occur in Kern and Kings Counties, which are under the jurisdiction of San Joaquin Valley Air Pollution Control District.
[28] Per 2015 WSPA Circulation Tank Test Report, the calculated HHV ranged from 0.003 Btu/scf to 57 Btu/scf with an average of 7 Btu/scf.
[29] For steam-assisted or air-assisted flares required to meet Best Available Control Technology (BACT).
[30] PUC natural gas heating value

Pollutant	Additional Emissions from Flaring of Vapors from Circulation Tanks[31] (per event)	Additional Emissions from Flaring of Vapors from Circulation Tanks (annual statewide[32])
CH_4 (lbs)	180.40	105,716
N_2O (lbs)	0.02	12
CO_2 (lbs)	11,754.34	6,888,044
NOx (lbs)	1.79	1,047
SOx (lbs)	0.06	35
VOC (lbs)	13.74	8,053
CO (lbs)	36.33	21,288
PM_{10} (lbs)	0.75	437

As seen above, flaring of vapors from circulation tanks produces approximately 1.8 lbs of additional NOx per event.

- ***Total Emissions from Capture and Control of Vapors from Circulation Tanks:***

The following table shows methane emissions from circulation tank vapors (Emissions with No Control) and emissions from capture (diesel generator) and control (Low NOx flare) of vapors from circulation tanks as specified in Section 95668(c)(4)(B)(2) –

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[31] https://www3.epa.gov/ttnchie1/ap42/

Emission Factors:			
NO_X:	0.0182	lb/MMBtu	(Proposed regulation limit of 15 ppmv @ 3% O_2 converted to lb/MMBtu based on natural gas)
CO:	0.37	lb/MMBtu	(AP-42, “Industrial Flares”, Table 13.5-1)
PM_{10}:	7.6	lb/MMscf	(AP-42, “Natural Gas Combustion”, Table 1.4-2)
SO_X (as SO_2):	0.0006	lb/MMBtu	(AP-42, “Natural Gas Combustion”, Table 1.4-2)
VOC:	0.1372	lb/MMBtu	Section 13.5 of AP-42, Table 13.5-1 lists a THC emission factor of 0.14 lbs/MMBtu. The flare VOC emission factor for non-methane, non-ethane hydrocarbons is determined using an average of 2% Methane and 0% Ethane estimated from vent samples.

[32] Based on Kern County Environmental Impact Assessment Report, approximately 1,025 well stimulation events were conducted over a period of 21 months (1/1/2014 and 9/30/2015). Based on this history, additional emissions were based on an estimated rate of 586 well stimulation events per year.

Pollutant	AVERAGE PER EVENT		AVERAGE ANNUAL STATEWIDE	
	Vapor Emissions from Circulation Tanks with No Control	Additional Emissions from 125 kW Diesel Generator + 95% Control with Flare	Vapor Emissions from Circulation Tanks with No Control	Additional Emissions from 125 kW Diesel Generator + 95% Control with Flare
CH_4 (lbs)	26	180	15,053	105,749
N_2O (lbs)	-	0	-	19
CO_2 (lbs)	-	13,154	-	7,708,030
NOx (lbs)	-	40	-	23,345
SOx (lbs)	-	3	-	1,509
VOC (lbs)	-	17	-	9,861
CO (lbs)	-	45	-	26,093
PM_{10} (lbs)	-	3	-	2,020

As seen above, flaring of vapors from circulation tanks produces approximately 40 lbs of additional NOx per event.

The increase in SJVAPCD-wide criteria pollutant emissions inventory due to additional flaring is shown below –

Pollutant	Existing SJVAPCD Flare Emissions Inventory[33]	% Increase with 95% Control of Circulation Tank Vapors with Flare
NOx (lbs)	205,780	11%
SOx (lbs)	116,920	1%
VOC (lbs)	120,120	8%
CO (lbs)	120,120	22%
PM_{10} (lbs)	49,800	4%

The additional and significant amounts of criteria pollutant emissions *significantly* outweigh the effectiveness of proposed reductions on extremely small amounts of methane emissions (0.4% of the state-wide methane emissions) from circulation tanks. Based on the information provided above, WSPA does not believe the proposed controls are justified.

High Costs of Vapor Control Device

- The costs provided by ARB significantly underestimate the costs of control ($317 per event or $186,000 statewide). Although none of the technologies currently available have demonstrated safe and efficient controls, the estimates for renting potential control equipment are significantly higher that what ARB is assuming. Based on our conversations with equipment suppliers, the equipment to separate gas from a circulation tank (not including piping) rental alone would cost an operator between $3,600 and $7,700 per event or $2.1M and $4.5M statewide for the assumed 586 well stimulation events per year, if operators are allowed to use a temporary flare.

- It is clear that ARB's cost analysis has not included costs of permitting, engineering and safety analysis, auxiliary equipment rental (such as compressor, flare, piping, and other necessary instrumentation such as meters), costs associated with labor to configure and dismantle the control equipment, training, and other costs.

Proposal is Not Cost-Effective

- WSPA believes that the proposed cost-effectiveness does not represent the true cost of this control measure.

[33] Based on 2014 emissions inventory data from existing permitted flares in San Joaquin Air Pollution Control District.

ARB has not addressed any of these issues. As discussed above, WSPA is concerned that ARB is proposing a significant amount of effort (and costs) to control a very small amount of emissions. WSPA believes that the requirements are ineffective in terms of controlling emissions and not at all cost-effective.

Recommendation 26: For reasons described above, WSPA recommends that ARB consider changes proposed in Section 95668(b) suggested in Attachment A.

Issue 27: Section 95668(b)(2) states that by January 1, 2019, operators must submit an emissions testing report detailing the results of testing emissions control measures on recirculation tanks. There are several issues with this requirement –

- **Lack of Clarity in Testing Requirements:** It is unclear who must conduct the test, how many tests must be conducted, and what is considered an appropriate test.

- **Engineering and Safety Evaluations are Needed prior to Testing:** So far, ARB has only discussed few ideas with equipment/engineering vendors and then shared with WSPA as probable solutions. ARB has yet to actually identify or propose a viable control technology that would achieve the proposed requirements. Engineering and safety evaluations are needed to determine which technologies need to be considered, if any technologies have the potential beyond just preliminary concepts, and if any technologies have the potential to be safely implemented and achieve the desired results. Without this evaluation, ARB is requiring operators to conduct testing and implement controls. WSPA believes that this is a critical gap in the proposed regulation.

- **Concerns about Economic Impacts of Testing:** WSPA is also concerned that the economic impact of this testing has not been taken into account in ARB's economic analysis. Notwithstanding our concerns expressed above regarding safety and potential increase of additional criteria and methane emissions, ARB's desire to see new technologies developed for circulation tanks should be researched and funded by ARB and the burden should not be placed on operators. WSPA members understand that WSTs are conducted by operators; and are willing to work with ARB; subject to safety and HES concerns and well stimulation permit approval. ARB should provide the resources for this research activity. WSPA estimates that the cost of this testing and reporting could range from $25,000 to $100,000 per event, dependent on the type of technology that is being tested. Currently, no technology is available in the market that can safely and effectively capture and control emissions from this system.

- **Lack of Results Assessment Step Prior to Control Requirements:** There is an underlying conclusion in the proposed regulation that a 95% control can be achieved for the circulation tanks in a rather short timeline and within the cost estimates assumed by ARB within the economic analysis. However, if such safe, cost-effective technology does not emerge from the testing, operators would have to shut down the WST operations. ARB needs to recognize that this scenario may occur and must prepare to conduct additional economic analysis and environmental assessment using the test results. ARB should also include alternate technically feasible means to comply in such cases. Therefore, in the event no safe and cost-effective control technologies emerge from the testing, the operator should be able to continue to implement the BPMPs beyond January 1, 2020.

- **<u>Lack of Clarity in Requirements Beyond 2020:</u>** It is WSPA's current understanding, from conversations with ARB staff, that it is the intention of the regulation to allow for continued use of BPMPs beyond 2020 if appropriate, safe, and compliant control technology cannot be developed even after best efforts have been made to do so. WSPA is concerned that the current proposed regulation does not reflect this intent.

Recommendation 27: WSPA recommends that ARB remove Sections 95668(b)(2)&(3) from the proposed regulation.

If ARB continues to require operators to evaluate technologies proposed to ARB by various vendors, ARB must clarify the requirements of 95668(b). WSPA suggests the following:

(2) ~~By January 1, 2019,~~ An owner~~s~~ or operator~~s~~ of circulation tanks used in conjunction with well stimulation treatments beginning January 1, 2018 at the owner or operator's wells, shall conduct testing of control technologies that are available as of January 1, 2017 and determined by the operator to meet the operator's environmental and safety standards.

~~(2)~~(3) A written report including the detailed results of each test or a group of tests must be provided to the ARB Executive Officer by January 1, 2019. ~~with a written report that details the results of equipment used to control emissions from circulation tanks with at least 95% vapor collection and control efficiency.~~

(A) The report shall include the results of testing conducted by the owner or operator or equipment manufacturers that demonstrate describe the measured vapor collection and control efficiency of the equipment including the disposition of collected vapors.

~~(A)~~(B) The ARB Executive Officer will evaluate the results of testing to determine control requirements on circulation tanks and will re-evaluate this section beyond 2020.

~~(4) By January 1, 2020, owners or operators of circulation tanks used in conjunction with well stimulation treatments shall control emissions from the tanks with at least 95% vapor collection and control efficiency.~~

WSPA's recommended changes to the proposed requirements are detailed in Attachment A.

Vapor Collection Systems and Vapor Control Devices

Issue 28: Section 95668(c) divides separator and tank systems into two “buckets”: 1) a facility with an existing sales gas system, fuel gas system or gas disposal well(s); or 2) a facility currently without one or more of those three options. For facilities in the first bucket, there is no recourse should the existing gas handling option reach capacity or experience a catastrophic failure. For example, what options will be available for a facility that wants to expand and has an existing gas disposal well already operating near its capacity as established by the DOGGR? The facility cannot install a vapor control device as it is not allowed under 95668 (c)(2). If that gas disposal well undergoes a catastrophic failure and the facility cannot obtain a new disposal well permit from the DOGGR, what options are available?

This section is entirely too prescriptive to be adapted across the entire suite of production operations in such a large and diverse state. An operator should be able to implement BACT and install the equipment.

Recommendation 28: WSPA recommends the following language:

(2) Unless section 95668(c)(3) applies, the vapor collection system shall safely direct the collected vapors to one of the following until system capacity is reached:

(A) Existing sales gas system; or,

(B) Existing fuel gas system; or,

(C) Existing gas disposal well not currently under review by the Division of Oil and Gas and Geothermal Resources.

(3) If no safe existing sales gas system, fuel gas system, or gas disposal well specified in section 95668(c)(2) is available at the facility or the existing system reaches capacity, the owner or operator must control the collected vapors as follows:

(A) For facilities without an existing vapor control device installed at the facility:

1. ~~,~~The owner or operator must install a new vapor control device that achieves at least 95% vapor control efficiency and incorporates Best Available Control Technology as defined and determined by the local air district for NOx; or

~~(A)~~2. T~~t~~he owner or operator must install a new vapor control device as specified in section 95668(c)(4).~~; or,~~

(B) For facilities currently operating a vapor control device and which are required to control additional vapors as a result of this subarticle:

1. ~~,~~The owner or operator must demonstrate to the local air district that an existing vapor control device achieves at least 95% vapor control efficiency and incorporates best available control technology as defined and determined by the local air district for NOx; or

~~(B)~~2. The owner or operator must replace the existing vapor control device with a new vapor control device as specified in section 95668(c)(4) to control all of the collected vapors, if the device does not already meet the requirements specified in section 95668(c)(4).

WSPA's recommended changes to the proposed requirements are detailed in Attachment A.

Issue 29: Section 95668(c)(4)(B)(2) does not allow use of supplemental fuel gas. As stated numerous times in the Staff Report (for example on page ES-1 and page 1) the goal of the proposed regulation is to obtain the maximum GHG emission reductions from the sector in a technically feasible and cost-effective manner. It is not technically feasible to combust collected vapors that have a heating value below the combustible range without the introduction of supplemental fuel gas. The equipment/engineering vendors WSPA member companies have consulted agree that supplemental fuel will be required for these gases.

As stated above, WSPA understands that the use of supplemental fuel will result in additional criteria pollutant emissions in order to dispose of collected vapors from circulation tanks. However, with no supplemental fuel, ARB's requirements put operators in a catch-22 situation – operators have to install vapor control devices that achieve 95% control while the only potential control technology will require a flare/incinerator that will need supplemental fuel for safe and complete combustion but will also add criteria pollutant emissions. To comply in this situation, the operators will have no other choice but to shut-down operations.

Recommendation 29: WSPA recommends that ARB allow operators to use supplemental fuel where the heating value below the combustible range. WSPA recommends the following change to Section 95668(c)(4)(B)(2) –

2. A vapor control device that achieves at least 95% vapor control efficiency of total emissions and does not generate more than 15 parts per million volume (ppmv) NOx when measured at 3% oxygen. ~~and does not require the use of supplemental fuel gas, other than gas required for a pilot burner, to operate~~.

WSPA's recommended changes to the proposed requirements are detailed in Attachment A.

Issue 30: Section 95668(c)(5) of the proposed regulation states:

If the collected vapors cannot be controlled as specified in section 95668(c)(2) through (4), the equipment subject to the vapor collection and control requirements specified in this subarticle may not be used or installed and must be removed from service by January 1, 2018.

WSPA believes that the January 1, 2018 implementation date of this requirement should be January 1, 2019 to align with current proposed requirements of vapor collection system installation and as written is a carryover from a previous draft of the regulatory language.

Additionally, WSPA believes that in some areas of the State (95668(c)(4)(B)), if the existing system is permitted and offset within the applicable Air District and is operating in compliance with the stated parameters contained in the permit, no further action should be required. Only when the permitted throughput is exceeded should any action be initiated by the operator. Furthermore, if the equipment is permitted with the APCD, an updated permitting document would be required to address emissions resulting from the increased throughput. It is unreasonable for CARB to assume that because an additional well is brought online that the existing system (permitted, offset and properly designed) would require replacement.

Recommendation 30: WSPA recommends that ARB correct the implementation date of Section 95668(c)(5) as follows –

(5) If the collected vapors cannot be controlled as specified in section 95668(c)(2) through (4), the equipment subject to the vapor collection and control requirements specified in this subarticle may not be used or installed and must be removed from service by ~~January 1, 2018~~the date the vapor collection system is required.

WSPA's recommended changes to the proposed requirements are detailed in Attachment A.

Issue 31: Section 95668(c)(6) of the proposed regulation allows 30 days for vapor recovery downtime for maintenance. In several cases, 30 days may not be enough especially if vendor delays occur.

Recommendation 31: WSPA recommends that ARB allow 60 days for vapor recovery downtime for maintenance.

WSPA's recommended changes to the proposed requirements are detailed in Attachment A.

Reciprocating and Centrifugal Natural Gas Compressors

Issue 32: Sections 95668(d)(4) and (e)(4) require annual testing of rod packing vents from reciprocating natural gas compressors and west seal vents from centrifugal compressors. ARB's GHG MRR already requires annual testing and measurement of rod packing vents and wet seal vents. This requirement has been in place since 2012. Operators subject to requirements of both regulations have to conduct duplicate tests to comply with both Section 95668(d)(2) and (e)(5) of the proposed regulation and GHG MRR leading to doubling of costs with no added emissions benefit./

Recommendation 32: WSPA recommends that ARB allow operators to use results from the annual testing conducted per the requirements of MRR. WSPA recommends the changes to Section 95668(d)(4) and (e)(4) as follows –

(B)The compressor rod packing or seal emission flow rate through the rod packing or seal vent stack shall be measured annually by direct measurement (high volume sampling, bagging, calibrated flow measuring instrument) while the compressor is running at normal operating temperature using one of the following methods:

1.Flow rates measured annually as per the methods described in Greenhouse Gas Mandatory Reporting Regulation Section 95153(n); or,

~~1.~~2.Vent stacks shall be equipped with a meter or instrumentation to measure the rod packing or seal emissions flow rate; or,

~~2.~~3.Vent stacks shall be equipped with a clearly identified access port installed at a height of no more than six (6) feet above ground level or a permanent support surface for making individual or combined rod packing or seal emission flow rate measurements.

…..

(4)Centrifugal compressor wet seals shall be measured annually by direct measurement (high volume sampling, bagging, calibrated flow measuring instrument) while the compressor is running at normal operating temperature in order to determine the wet seal emission flow rate using one of the following methods:

(A)Flow rates measured annually as per the methods described in Greenhouse Gas Mandatory Reporting Regulation Section 95153(m); or,

~~(A)~~(B)Vent stacks shall be equipped with a meter or instrumentation to measure the wet seal emissions flow rate; or,

~~(B)~~(C)Vent stacks shall be equipped with a clearly identified access port installed at a height of no more than six (6) feet above ground level or a permanent support surface for making wet seal emission flow rate measurements.

Well Casing Vents

Issue 33: The proposed regulation includes a new source category for well casing vents. This source category was not included in any of the emissions estimates, or pre-draft regulation, or in the cost estimates provided by ARB. The staff report indicates that ARB would like to collect data through this requirement to estimate emissions from this source and potential future control requirements. The current economic analysis does not incorporate costs measuring flow rates. This category appears to include well vents that are normally open to the atmosphere.

WSPA would like to note that the Greenhouse Gas (GHG) Mandatory Reporting Regulation (MRR) requires operators to report GHG emissions from open well casing vents under the source category Associated Gas Venting and Flaring. All operators subject to MRR reporting and operating open well casing vents estimate the emissions data according to the procedure described in GHG MRR. The emissions are reported annually.

WSPA believes that new redundant data collection is unnecessary to estimate emissions from open well casing vents. In addition, WSPA is concerned that ARB has not included an economic analysis associated with measuring well casings.

Recommendation 33: WSPA recommends that ARB should utilize the existing and already available GHG MRR data to quantify emissions from well casing vents instead of creating an unnecessary and redundant dataset through burdensome measurement and reporting requirements. WSPA recommends that ARB remove requirements for this source category from the proposed regulation. If ARB does not remove the source category, WSPA recommends the following changes:

(1) Beginning January 1, 2018, owners or operators of wells located at facilities listed in section 95666 with a well casing vent that is open to the atmosphere shall comply with one of the following requirements –

(A) ~~m~~Measure the natural gas flow rate from the well casing vent annually by direct measurement (high volume sampling, bagging, calibrated flow measuring instrument); or~~and~~,

~~(1)~~ (B) Calculate the volume of natural gas vented according to the Air Resources Board Regulation for the Mandatory Reporting of Greenhouse Gas Emissions, Title 17, Division 3, Chapter 1, Subchapter 10, Article 2, Section 95153(k) (February, 2015).

Leak Detection and Repair

Issue 34: ARB has stated that the number of components expected to be tested under LDAR are 1,339,185 and the uncontrolled emissions are estimated to be 13,650 MT CH_4 per year using the CAPCOA guidelines (Appendix D Economic Analysis, Pages B35-38). No further detail has been provided.

Most operators have existing and mature leak detection and repair programs under local air district rules. Operators have already shared this data on leakage rates within the existing LDAR programs with ARB very early in the rule-development process (2013 MRR data were provided previously in WSPA's comment letter dated 5/22/15). Based on this information on, the estimates in the initial Standardized Regulatory Impact Assessment (SRIA) correctly represented the state-wide emissions inventory.

However, for the latest emissions estimates, ARB has used significantly higher emission factors and leak rates than found in California's existing LDAR programs to estimate the emissions. Considering the actual data previously provided to ARB, the most recent LDAR emissions estimates and cost-effectiveness analysis are significantly skewed and clearly do not represent the actual emissions estimates.

Recommendation 34: WSPA recommends that ARB revise the emissions estimates and cost effectiveness of the LDAR requirements using demonstrated leak rates and emission factors that have been already provided to ARB.

Issue 35: As explained in our previous comment letters, operators can have streams with very low concentrations of methane (e.g. some produced water streams). Conducting leak detection on these streams will never lead to identification of any leaks above the leak thresholds proposed in the regulation. The costs associated with implementing an LDAR program for such low-methane components would be onerous for operators with no associated emissions benefit.

Recommendation 35: WSPA recommends that ARB exempt components that are not expected to exceed the proposed leak thresholds due to very low methane concentrations handled by those components. WSPA recommends that ARB add the following exemption to Section 95669(e) –

Components exclusively handling streams which have methane concentration less than 10 percent by weight (<10 wt%).

Issue 36: Section 95669(b)(5) states that "Components that are buried below ground" are exempt from the LDAR requirements of this regulation. This exemption goes on to state that "[t]he portion of well casing that is visible above ground is not considered a buried component". Repair of leaks associated with a well casing, buried or exposed at the surface could require obtaining and scheduling the services of a workover rig, disconnecting and killing the well, pulling the well, determining the cause, fixing the cause, then putting it all back together and releasing the rig.

In many cases it is not possible for operators to procure that type of equipment in the timeframes listed in the proposed regulation. Shutting in a well for repair requires specialized equipment, skilled labor, and financial resources to render the necessary repairs. A well shut-in project requires extensive planning to execute. The impromptu shut-in of an operating well subjects the well to potential damage ultimately causing damage to the formation in the general area of the well. Each well shut-in is a planned event, coordinated through both Production and Reservoir engineering to properly identify potential problems associated with the suspension of operation and to identify and execute mitigating actions for limiting potential damage to the well.

Any repair to a leak located at a well casing may also require a blowdown. In most cases, as recognized in EPA's New Source Performance Standard OOOOa, the blowdown would result in greater emissions than would be reduced by repairing the leak. As such, well casing leaks should be allowed more reasonable and realistic repair times, at least 120 days unless the repairs can be completed during the next scheduled workover or well depressurizing event.

Recommendation 36: WSPA recommends that leaks associated with well casings be afforded a more realistic repair time of 120 days or by the next scheduled workover or rig servicing activity.

Issue 37: Section 95669(b)(6) states that "[o]ne-half inch and smaller stainless steel tube fittings used to supply compressed air to equipment or instrumentation" are exempt from the LDAR inspection requirements of this rule. All components associated with air would not be associated with any emissions. WSPA is concerned that no exemptions have been proposed for components that are handling exclusively non-hydrocarbon streams such as compressed air, potable water, or clean produced water. The inspection of non-hydrocarbon service components would be a very costly burden for all stakeholders resulting in zero emissions benefit.

Recommendation 37: WSPA recommends that ARB exempt all components that exclusively handle non-hydrocarbon streams. WSPA recommends that ARB add the following exemption to Section 95669(b) –

Components exclusively handling non-hydrocarbon streams.

Issue 38: The proposed regulation has different inspection frequency requirements for manned and un-manned facilities. However, no definition of the terms "manned facility" and "unmanned facility" have been provided. This can cause confusion and inconsistent understanding of requirements among operators. WSPA requests that ARB add definitions for the terms "manned facility" and "unmanned facility."

Recommendation 38: WSPA recommends that ARB add the following definitions from SJVUAPCD Rule 4409 (3.41)

Unmanned Facility: a facility which has no permanent-sited operators. Permanent-sited operators means personnel responsible for the operation of the equipment subject to this rule are in attendance at the facility 24 hours per day.

Manned Facility: a facility that does not meet the definition of an unmanned facility.

Issue 39: Section 95669(e) refers to a number of component types. As currently written, this section is confusing regarding the need to inspect components that are not in operation. Additionally, different requirements for manned and unmanned facilities will lead to confusion on boundaries and frequency requirements especially in large fields.

Recommendation 39: WSPA recommends the following changes to Section 95669(e) –

(e) Except for inaccessible or unsafe to monitor components, ~~O~~owners or operators shall audio-visually inspect (by hearing and by sight) all operating hatches, pressure-relief valves, well casings, stuffing boxes, and ~~operating~~ pump seals for leaks or indications of leaks ~~at least once every 24 hours for facilities that are visited daily, or~~ at least once per calendar week ~~for unmanned facilities~~; and,

(1) Owners or operators shall audio-visually inspect all pipes for leaks or indications of leaks at least once every 12 months. Inspections performed pursuant to DOGGR requirements satisfy this requirement.

Issue 40: As ARB noted several times before and explained repeatedly in WSPA's previous Comment Letters, the majority of facilities are already in a mature LDAR program run by a local air district. With several years of data, these facilities show very low leak rates. Minimal additional methane reduction will be gained by starting with quarterly inspections for operators already in LDAR programs, while costs will quadruple. Beginning with quarterly inspections to demonstrate lower leak rates is extremely onerous without benefit. Operators who can demonstrate a leak rate below the proposed leak rates in the regulation within the first quarter of the first year of compliance or through using data from their existing program should be allowed to continue with annual inspections. This will also encourage operators to proactively comply with the leak detection requirements.

Recommendation 40: WSPA recommends that ARB allow operators to demonstrate lower leak rates than proposed in the regulation during the first quarter of the first year of compliance. Such operators should be allowed to continue with annual inspections unless the operator exceeds the thresholds in subsequent inspections at which time quarterly inspections would be required. WSPA recommends the following changes to the Section 95669(g) –

(g) At least once each calendar ~~quarter~~year, all components shall be tested for leaks of total hydrocarbons in units of parts per million volume (ppmv) calibrated as methane in accordance with EPA Reference Method 21 excluding the use of PID instruments.

(1) The annual inspection frequency will be increased to quarterly if the number of allowable leaks for each leak threshold category specified in Table 1 or 3 is exceeded during an inspection period.

~~(1)~~(2) The quarterly inspection frequency may be reduced to annually provided that the following conditions are met:

(A) All components have been measured for five (5) consecutive calendar quarters and the number of leaks has been determined to be below the number of allowable leaks for each leak threshold category specified in Table 1 or 3; and,

(B) The change in inspection frequency is substantiated by documentation and approved by the ARB Executive Officer.

(C) The inspection frequency shall revert to quarterly at any time the number of allowable leaks specified in Table 1 or 3 is exceeded during any inspection period.

Issue 41: Section 95669(g)(3) states that "[a]ll inaccessible or unsafe to monitor components shall be inspected at least once annually using Method 21". In many cases, these components have been determined to be unsafe to monitor due to the operation of associated equipment. WSPA believes that it is more appropriate, as required in SJVAPCD rule 4409, to require the monitoring of these components during the next regular process shutdown. The current annual timeline may require the shutdown of a process that would result in emissions greater than the emissions measured from the component.

Recommendation 41: WSPA recommends that ARB edit the language of Section 95669(g)(3) as below:

(3) All inaccessible or unsafe to monitor components shall be inspected during the next regular process shutdown ~~at least once annually~~ using Method 21.

Issue 42: WSPA would like to re-iterate that Section 95669 Tables 1 & 3 allow very low leak rates including no leaks greater than or equal to 50,000 ppmv allowed after the first two years of the LDAR program. As written, just one leak of 50,000 ppmv or greater would require operators to conduct quarterly LDAR.

From Table 5 of the draft Staff Report, the ARB estimates that there will be 393,000 MT CO_2e from LDAR programs after implementation of the regulations as proposed. ARB should provide the amount of leaks over 50,000 ppmv that contribute to this annual emissions estimate.

This is important as the ARB is proposing no leaks greater than 50,000 ppmv after 2020. Does the ARB's own analysis demonstrate that by implementing these regulations there will be no leaks greater than 50,000 ppmv?

Stating that there can be no leaks greater than 50,000 ppmv is unreasonable and not justified with current technology. WSPA strongly disagrees that an operator, who has an otherwise very effective LDAR program, should be penalized for one 50,000 ppmv leak. Statistically, it is difficult to have zero leaks that are 50,000 ppmv or greater and this requirement would lead to operators never being able to reduce the inspections to annual. A mature LDAR program will ultimately reduce such leaks. However, a field with 250,000 components will conduct 1,000,000 component inspections each year. The sheer number of components suggests that there is a statistically significant potential for leaks greater than 50,000 ppm. However, as the program matures, the potential for such leaks will decrease. Providing unrealistic regulatory mandates does nothing to drive the program especially when other aspects of the regulation address this issue.

Recommendation 42: WSPA recommends that ARB allow reasonable leak rates for the LDAR program. WSPA recommends the following changes to Section 95669 Tables 1 and 3 –

Table 1 - Allowable Leaks Per Number of Components Inspected January 1, 2018 through December 31, 2019

Leak Threshold	*200 or Less Components*	*More than 200 Components*
10,000-49,999 ppmv	*5*	*2% of total inspected*
50,000 ppmv or greater	~~*2*~~*3*	*1% of total inspected*

Table 3 - Allowable Leaks Per Number of Components Inspected On or After January 1, 2020

Leak Threshold	*200 or Less Components*	*More than 200 Components*
1,000-9,999 ppmv	*5*	*2% of total inspected*
10,000-49,999 ppmv	~~*2*~~*3*	*1% of total inspected*
50,000 ppmv or greater	~~*0*~~*2*	*0.5% of total inspected*

WSPA also recommends that ARB delete 95669(o)(4). Detailed recommendations are included in Attachment A.

Issue 43: Section 95669(i) sets time periods for repairs after January 1, 2020. Heavy equipment or specialty equipment is needed to repair certain leaks. For example, a workover rig may need to be brought in to repair a leak from a component on a wellhead. It is not reasonable to expect that this equipment is ordered, transferred on-site, and fully operating within 2 calendar days or even 5 calendar days in all cases.

Recommendation 43: WSPA recommends revising the proposed regulation to incorporate an extended repair period based on the number of components inspected. For example, a 15-day extension to the repair period can be implemented on 1% of the components inspected.

Critical Components

Issue 44: WSPA re-iterates and expand on a previous comment submitted on March 4, 2016 regarding the identification of critical components – both with regards to leak detection and repair as well as compressors. Section 95670(a) states that "By January 1, 2018 or within 180 days from installation, critical components used in conjunction with a critical process unit at facilities listed in section 95666 must be pre-approved by the ARB Executive Officer".

WSPA is concerned by this requirement of pre-approval of critical components. In the event that a component that is truly critical to a process is not identified in this administrative timeline, there must be allowances for the repair time of this component.

Additionally, WSPA is concerned that the current regulatory language puts ARB in the position of the decision-maker regarding which components are critical to process operations. WSPA believes that facility engineers and APCD inspectors are knowledgeable of the processes and should be deferred to in the decision of component criticality, especially in the face of safety concerns. If ARB would like additional validation of critical components, operators may obtain a professional engineer's evaluation.

Reporting of any leaks on critical components that are not repaired in the timeline allotted for leaks to non-critical components would provide ARB the oversight of repairs necessary to assure compliance with the rule without putting ARB in the position of determining which components are necessary for safe operations.

Recommendation 44: WSPA recommends that ARB allow knowledgeable operators or a professional engineer to identify and designate the critical components without needing approval from ARB. WSPA recommends that operators include in their annual report a list of any critical component not repaired in the timeline allotted for leaks to non-critical components in lieu of developing a pre-approved list of critical components.

Issue 45: Section 95670(e) – Identifying critical components by tags will require a complete component inventory that will require continual updating. Facilities that already have a mature program to tag components do not tag every component. A tag is placed on a larger component and other nearby components are assigned to that tag. Therefore, tagging every component is not a common practice.

Recommendation 45: WSPA recommends that ARB allow for a general description of the portion of the system that contains the critical components, which will be more helpful to the operators and the inspectors.

Issue 46: Throughout Section 95669 of the proposed regulatory text, ARB has updated the critical component repair time to one year. Table 2 and 4, however, contradictorily states a required repair time for critical components of 180 days. WSPA believes this to be an oversight and carry-over from the previous version of the proposed regulation.

Recommendation 46: WSPA recommends that ARB edit the value in Table 2 and 4 of Section 95669 to reflect the assumed intent of one year repair time for all critical components.

Table 2 - Repair Time Periods
January 1, 2018 through December 31, 2019

Leak Threshold	Repair Time Period
10,000-49,999 ppmv	14 calendar days
50,000 ppmv or greater	5 calendar days
Critical Components	Next shutdown or within ~~180 calendar days~~12 months

Table 4 - Repair Time Periods
On or After January 1, 2020

Leak Threshold	Repair Time Period
1,000-9,999 ppmv	14 calendar days
10,000-49,999 ppmv	5 calendar days
50,000 ppmv or greater	2 calendar days
Critical Components	Next shutdown or within ~~180 calendar days~~12 months

Issue 47: Section 95669(m) requires open-ended lines and valves to be sealed. By not including a mitigation response, Section 95669(m) proposes to make any open-ended line or valve a violation of the Regulation. Open-ended lines and valves present an opportunity to leak similar to other components. Not all open-ended lines or valves are leaking; just like not all other components are leaking. However, in the proposed regulation, the ARB allows a repair time for a leak from other components, but no repair time is afforded to an open-ended line or valve that is not leaking. This is not equitable. A repair time for an open-ended line or valve should be developed just like for every other component. If the open-ended line or valve is leaking, then the more stringent leak repair times should be invoked. Also, the regulation should clearly state that process drains are not open-ended lines.

Recommendation 47: WSPA recommends Section 95669(m) be revised to read:

(m) Open-ended lines and valves located at the end of lines shall be sealed with a blind flange, plug, cap or a second closed valve, at all times except during operations requiring liquid or gaseous process fluid flow through the open-ended line. Open-ended lines do not include process drains or vent stacks used to

vent natural gas from equipment and cannot be sealed for safety reasons. Any non-leaking open-ended line shall be repaired within 15 days while any leaking open-ended line shall be repaired in accordance with 95669(h) and 95669(i).

Reporting Requirements

Issue 48: Section 95672 describes reporting requirements for various source categories. As currently written, the regulation does not provide clear deadlines for reporting.

Recommendation 48: WSPA recommends that ARB add the following deadlines to Section 95672 –

(a) Beginning January 1, 2018, owners or operators of facilities listed in section 95666 subject to requirements specified in sections 95668 and 95669 shall report the following information to ARB within the following timeframes ~~specified~~:

(1) All annual reports described below for a calendar year must be submitted by June 30 of the following year.

(2) All quarterly reports described below must be submitted within 60 days from the end of a quarter.

~~(a)~~(3) All other reports must be submitted as specified below:

Implementation

Issue 49: WSPA would like to re-iterate this concern that was previously submitted in letter dated March 4, 2016. Section 95673(a)(3) & (4) states the following –

(3) Implementation and enforcement of the requirements of this subarticle by a local air district may in no instance result in a standard, requirement, or prohibition less stringent than provided for by this subarticle, as determined by the Executive Officer. The terms of any local air district permit or rule relating to this subarticle do not alter the terms of this subarticle, which remain as separate requirements for all sources subject to this subarticle.

(4) Implementation and enforcement of the requirements of this subarticle by a local air district, including inclusion or exclusion of any of its terms within any local air district permit, or within a local air district rule, or registration of a facility with a local air district or ARB, does not in any way waive or limit ARB's authority to implement and enforce upon the requirements of this subarticle. A facility's permitting or registration status also in no way limits the ability of a local air district to enforce the requirements of this subarticle.

ARB is proposing to implement and enforce the program regardless of Air District efforts. At the same time, several Air Districts are likely to incorporate the proposed regulation by either amending their rules or adopting a separate program. WSPA is very concerned about the duplicative implementation and enforcement of the proposed regulation.

In cases where Air Districts are planning to implement the rule and are required to develop standards, requirements or prohibition that are no less stringent than provided by ARB's proposed regulation, it is unclear why ARB is proposing duplicative implementation and enforcement. Implementation of two separate programs by both ARB and the Air Districts will lead to doubling of administrative costs for the same emissions control. Additionally, operators will also need to implement two separate programs that will not only lead to confusing compliance requirements but also a doubling of their compliance costs. WSPA strongly believes that this is inefficient both in terms of costs and effectiveness of regulation. Where an Air District is implementing and enforcing the requirements of the proposed regulation, there is no need for duplicative ARB implementation and enforcement of the same requirements.

Recommendation 49: WSPA strongly urges that ARB remove the duplicative implementation and enforcement requirements from the proposed regulation in Section 95673(a)(3) & (4) as follows –

(3) Implementation and enforcement of the requirements of this subarticle by a local air district may in no instance result in a standard, requirement, or prohibition less stringent than provided for by this subarticle, as determined by the Executive Officer. The terms of any local air district permit or rule relating to this subarticle do not alter the terms of this subarticle~~, which remain as separate requirements for all sources subject to this subarticle~~.

(4) ~~Implementation and enforcement of the requirements of this subarticle by a local air district, including inclusion or exclusion of any of its terms within any local air district permit, or within a local air district rule, or registration of a facility with a local air district or ARB, does not in any way waive or limit ARB's authority to implement and enforce upon the requirements of this subarticle.~~ A facility's permitting

or registration status also in no way limits the ability of a local air district to enforce the requirements of this subarticle.

WSPA's recommendation for regulatory language is also included in Attachment A.

Issue 50: Section 95673(b)(2)(A)(3)(b) requires registration of a list of certain equipment including all pressure vessels. The broad definition of "pressure vessel" would require the registration of air compressors and steam separators. This equipment contains no methane and should not be subject to this requirement. The registration should only apply to equipment with compliance requirements in the regulation.

Recommendation 50: WSPA suggests this paragraph be changed as follows:

b A list identifying all separator and tank systems ~~pressure vessels, tanks, separators, sumps, and ponds~~ at the facility, including the size of each tank and separator in units of barrels comprising the separator and tank system.

Issue 51: Several other changes are necessary in the proposed regulation to provide clarity to operators on the requirements and eliminate any confusion.

Recommendation 51: WSPA's recommendations for additional changes are included in Attachment A.

Legal Comments

Issue 52: As stated in Issue 10 above, WSPA is concerned that section 95668(a)(6) now includes a requirement that owners or operators of existing separator or tank systems with annual emissions greater than 10 metric tons per year of methane must control emissions from gauge tanks in addition to controlling emission from the separator and tank system. WSPA is concerned by the inclusion of gauge tanks, an insignificant emission source, in section 95668(a)(6) with no notice or discussion. As discussed below, none of the supporting documents provide a compelling reason to include gauge tanks in the regulation and, in fact, most of the supporting documents do not even mention gauge tanks. WSPA believes that adding gauge tanks to the proposed regulation at the last minute, without explanation, is not in accordance with the processes ARB must follow in adopting regulations.

WSPA also believes that there are legal deficiencies with the supporting documents for the proposed regulation due to failure to address gauge tanks, as described below. WSPA is concerned that gauge tanks were included in the proposed regulation without conducting a comprehensive emissions and cost effectiveness analysis. WSPA believes that the minimal additional emission reductions that could be achieved by requiring gauge tanks to be controlled by a vapor collection system is outweighed by the burdensome cost to implement such controls.

Recommendation 52: WSPA recommends that ARB remove gauge tanks from section 95668(a)(6) and section 95667.

Issue 53: ARB's Economic Analysis for the proposed regulation does not take into account the cost to control emissions from gauge tanks with the use of a vapor collection system, as required by section 95668(a)(6). ARB states that the proposed regulation will cost about $23 million dollars per year and is expected to reduce GHG emissions by about 1.5 million MT CO_2e per year on a 20 year horizon, for a cost per ton of approximately $15 after savings. State of California Air Resources Board, Staff Report: Initial Statement of Reasons ("ISOR") Appendix A, Economic Analysis, p. B-2, B-7. However, these calculations do not include the cost to install vapor collection systems on all gauge tanks subject to the proposed regulation or the minimal extra emission reductions that will occur from installing such systems, as further explained in Issue 10 above. Once the extra cost and minimal benefit is included in the Economic Analysis, the proposed cost per ton of the regulation is much higher than stated in the Economic Analysis.

In addition, the estimated cost to industry summarized in the Economic Analysis is also understated because it does not take into account the cost to add vapor collection systems to the gauge tanks that would be affected by the proposed regulation. *See id.* at B-12 (stating approximately $25.4 million per year as cost). An operator with one or more upstream remote gauge tanks and a separator and tank system may have to install multiple vapor recovery systems to comply with the proposed control requirements. Therefore, the total cost could be several times the costs estimated by ARB in the Economic Analysis.

ARB must include gauge tanks in the Economic Analysis in order to provide a true and accurate picture of the economic impacts of the proposed regulation. The proposed regulation includes controls on gauge tanks, as explained in the ISOR. *See* ISOR p. 35, 36, 57. ARB cannot ignore sections of the proposed regulation in the Economic Analysis merely because they were amended after the Economic Analysis was completed. An accurate analysis which includes the cost to add vapor collection systems to gauge tanks would show that the $15 per ton of reduction figure in the Economic Analysis is vastly understated. The high cost to control all gauge tanks coupled with the very minimal emission reductions that would result from such controls show that the proposed controls on gauge tanks in the proposed regulation are not cost-effective and mean that ARB should remove the gauge tank control requirements from the proposed regulation.

Recommendation 53: WSPA recommends that ARB remove gauge tanks from the proposed regulation. If ARB does not remove gauge tanks from the proposed regulation, ARB must complete a new Economic Analysis that adequately considers the cost of the proposed regulation, taking into account the steep cost for installing vapor collection systems on gauge tanks for very minimal additional emission reductions before adopting the proposed regulation.

Issue 54: ARB's Standardized Regulatory Impact Assessment ("SRIA") also has significant deficiencies as described below:

1. <u>Gauge Tanks</u>

The SRIA states that it is "representative of a snapshot of this regulation" and "may differ from the proposed regulation that will be presented to [ARB]." ISOR, Appendix E, Standardized Regulatory Impact Assessment, p. E-2. In fact, the SRIA does not mention gauge tanks and does not consider potential emission reductions from adding vapor collection systems to such tanks or the potential cost of such controls.

The SRIA is required to assess the potential for adverse economic impacts on California businesses and individuals, including avoiding the imposition of unnecessary or unreasonable regulations or reporting. Cal. H&S Code § 11346.3(a). The analysis is intended "to provide agencies and the public with tools to determine whether the regulatory proposal is an efficient and effective means of implementing the policy decisions enacted in statute or by other provisions of law <u>in the least burdensome manner</u>." *Id.,* subsection (e) (emphasis added). The regulatory impact analysis is required to compare proposed regulatory alternatives to "determine that the proposed action is the most effective, or equally effective and less burdensome, alternative in carrying out the purpose for which the action is proposed, or the most cost-effective alternative to the economy and to affected private persons that would be equally effective in implementing the statutory policy…" Cal. H&S Code § 11346.36(b).

The SRIA cannot accurately determine how to control methane emissions in the "least burdensome manner" or in the most cost-effective way if it does not take into account all of the requirements in the proposed regulation. Looking at a "snapshot" of the regulation, as ARB calls it, in the SRIA does not meet the Health and Safety Code requirements for regulatory analyses. The SRIA must analyze the proposed regulation that will be in effect if the regulation is adopted as drafted, not an earlier version that would not adequately explain the true impacts of the regulation.

2. <u>Circulation Tanks:</u>

The SRIA also does not consider the potential for oil and gas operations to decrease in response to the proposed regulation if it is infeasible to comply with some of the regulation's requirements. Section 95668(b)(3) requires owners or operators of circulation tanks to control emissions from the tanks with at least 95% vapor collection and control efficiency by January 1, 2020.

It is unclear whether this requirement will be feasible by 2020 as required control technology does not currently exist. The SRIA's assessment on employment, businesses, output growth, and gross state product do not consider that, if businesses cannot comply with the requirements of the proposed regulation such as section 95668(b)(3), then oil and gas production could move out of state, causing great harm to California's economy. This is a reasonably foreseeable outcome of the proposed regulation that is not addressed in the SRIA. *See* SRIA, p. E-19 – E-25.

Recommendation 54: WSPA recommends that ARB remove gauge tanks from the proposed regulation. If ARB does not remove gauge tanks from the proposed regulation, it must complete a new SRIA that adequately considers the proposed regulation, taking into account the steep cost for installing vapor collection systems on gauge tanks for very minimal additional emission reductions before it adopts the proposed regulation.

WSPA also recommends that ARB remove control requirements for recirculation tanks from the proposed regulation due to the potential to reduce oil and gas operations in California as the proposed requirements for circulation tanks cannot be met with technology available today. If ARB does not remove circulation tanks from the proposed regulation, it must complete a new SRIA before adopting the proposed regulation which adequately considers the reasonably foreseeable outcome of the controls on recirculation tanks in the proposed regulation.

Issue 55: ARB prepared the Environmental Assessment under its CEQA certified regulatory program, which requires public agencies to prepare a "functionally equivalent" or substitute document in lieu of an environmental impact report. ISOR, Appendix C, Draft Environmental Analysis for the Regulation for Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities (hereafter, "EA"), p. 6.

In compliance with California Public Resources Code § 21159, when ARB adopts a rule or regulation requiring the installation of pollution control equipment, or a performance standard or treatment requirement, the EA must contain "an environmental analysis of the reasonably foreseeable methods by which compliance with that rule or regulation will be achieved." The analysis must include reasonably foreseeable environmental impacts of the methods of compliance, reasonably foreseeable feasible mitigation measures related to significant impacts, and reasonably foreseeable alternative means of compliance that would avoid of eliminate significant impacts. *Id.* The EA must also assess the potential for significant adverse and beneficial environmental impacts associated with the proposed action and provide a succinct analysis of those impacts. *See generally* 14 C.C.R. § 15000 *et. seq.* ("CEQA Guidelines").

Because the EA does not meet the requirements listed above for numerous reasons, it is inadequate and fails as an informational document.

A. <u>The EA's Project Description Is Inadequate and Fails to Inform the Public of the True Scope of the Project</u>

An environmental document prepared to comply with CEQA must contain a general description of the project's technical, economic, and engineering characteristic, and a statement of the objectives sought by the proposed project. CEQA Guidelines § 15124(b), (c); *see Dry Creek Citizens Coalition v. County of Tulare* (1999) 70 Cal.App. 4th 20. An accurate, stable, and finite project description is the sine qua non of an informative and legally sufficient environmental document. *County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185, 192-93.

1. Gauge Tanks

Here, the EA's project description does not fully inform the public of the scope of the project. The EA's project description fails to disclose that gauge tanks are part of the proposed regulation and that the regulation will require owners and operators to install vapor collection systems on certain gauge tanks. This omission makes the analysis in the EA incomplete and inadequate. In fact, the EA does not mention gauge tanks once in the entire 100-plus page document. In explaining the proposed requirements for vapor collection on oil and water separators and tanks, the EA states that "only pressure vessels used to separate oil and water would be subject to these vapor collection requirements." EA, p. 17.

An EA is required to disclose and discuss all aspects of the proposed project. Because gauge tanks are not included in the project description, this necessarily means that none of the impact analyses in the EA took gauge tanks, and the proposed controls that will be required on those tanks, into consideration. ARB must not ignore an entire area of regulation that could have potential impacts on the environment in its analysis.

In addition, reasonably foreseeable methods of compliance with the requirements for vapor collection at gauge tanks are not discussed. As described in previous comments, gauge tanks are not necessarily situated near separator and tank systems and thus potential methods of compliance for gauge tanks could differ from potential methods of compliance for separator and tank systems. This is not addressed in the EA.

2. Circulation Tanks

Section 95668(b)(3) requires that by January 1, 2020, owners or operators of circulation tanks used in conjunction with well stimulation treatments shall control emissions from the tanks with at least 95% vapor control efficiency of the equipment. The EA states that reasonably foreseeable compliance responses for this requirement would be the same as those discussed for the requirements for uncontrolled oil and water separators, tanks, and sumps. EA, p. 19. However, it is unclear how disposal of vapors from circulation tanks would be conducted, as there are no currently technologies available to meet the requirements of the proposed rule.

The EA states that it is reasonably foreseeable to assume that all replacement devices or newly installed vapor control devices would be low-NOx combustion devices. EA, p. 18. However, it is not clear that the various air districts in which these low-NOx combustion devices would be sited would permit them if they caused an increase in flaring, even if they are low-NOx flares. In fact, some air districts have stated that they do not want any additional flaring to occur in response to the proposed regulation. Because increased flaring and/or new flares would not be allowed without air district permitting, new combustion devices may not be a reasonably foreseeable method of compliance and ARB must address this clear conflict in the EA.

The project description's explanation of reasonably foreseeable compliance responses to the control of vapors from uncontrolled well stimulation circulation tanks does not address the fact that it may be infeasible to meet the control requirements of the proposed regulation.

If the requirements cannot be met, operators may be required to remove equipment from service and stop operations that rely on circulation tanks. *See* EA, p. 42 (stating that if none of the discussed compliance options is feasible, the proposed regulation requires existing equipment to be taken out of service). For this reason, ARB must consider a reasonably foreseeable compliance response to be shutting down production in California and transferring it to other areas. This could cause numerous environmental impacts, none of which are discussed in the EA.

The Department of Oil, Gas, and Geothermal Resources explained in its 2015 Draft EIR ("DEIR") titled "Analysis of Oil and Gas Well Stimulation Treatments in California" that restricting production in the state could cause numerous indirect environmental impacts. The DEIR states that "[i]n 2009, California produced almost 230 million barrels of oil from over 52,000 producing wells. That same year, California used over 600 million barrels of oil, importing 15 percent of its oil from Alaska and 45 percent from foreign sources, with Saudi Arabia (25 percent), Iraq (19 percent), Ecuador (17 percent), and Brazil (9 percent) accounting for 70 percent of the imported oil. Since 2009, the percent of foreign oil imports to California has increased to 50 percent of the oil used and imports from domestic sources other than Alaska have also increased. A loss of 25 percent of the California-produced oil would require an additional 57 million barrels per year be purchased from another source." DEIR, p. 8-9 (internal citations omitted).

Because technologies do not currently exist to replace all petroleum-derived products with renewable energy, the largest portion of the lost barrels of oil would be acquired from out-of-state and would require land or sea travel to reach the California market. Thus, reducing oil production in California could cause numerous indirect effects including those from increased well abandonment and increased oil transport. These effects should be considered in the EA when a potential reasonably foreseeable compliance response to the proposed regulation is to remove equipment from service.

B. <u>The EA's Analysis of Potential Environmental Effects is Insufficient</u>

The fundamental purpose of an environmental review document is to inform public agency decision makers and the public of the potentially significant environmental effects of a project and to identify ways to minimize or avoid those effects. CEQA Guidelines § 15121(a); *No Oil, Inc. v. City of Los Angeles* (1974) 13 Cal.3d 68, 86. Here, the EA does not adequately analyze potential environmental impacts from the proposed regulation.

1. <u>Air Quality</u>

The Air Quality analysis in the EA is deficient for multiple reasons. First, short-term construction-related impacts on Air Quality (Impact 3.a) are underreported as more construction will occur than anticipated due to the addition of controls for gauge tanks in the proposed regulation. This will require the installation and replacement of gathering lines and piping, flanges, valves, low-NOx combustion devices, and other similar features associated with adding vapor collection systems to gauge tanks. Emissions from this construction are not addressed in the EA.

The EA states that "ARB has not quantified the potential construction-related emission impacts as these would be too speculative to provide a useful evaluation tool" and "the specific location, type, and number of construction activities is not known." EA, p. 33. However, as explained elsewhere in the EA, ARB has counts of the systems found to be uncontrolled with methane emissions exceeding 10 metric tons per year and do not have access to an existing sales gas system, existing fuel gas system, or existing gas disposal well from a 2009 Oil and Gas Industry Survey. EA, p. 43. In addition, the Economic Analysis includes data such as the number of tanks and separator systems, continuous bleed devices, and centrifugal compressors that would be subject to the proposed regulation, along with other information on current operations. This data could be extrapolated to estimate potential construction related emissions from implementation of the proposed regulation. ARB must analyze potential impacts of the regulation in as much detail as feasible given current knowledge.

In addition, as explained in the EA, one option for compliance with the proposed regulation "requires that regulated entities operating an existing vapor control device route newly collected vapors into the existing vapor collection system and then replace the existing vapor control device that would receive increased vapor throughput with a non-destructive (e.g., non-combustion) or low-NOx vapor control device." EA, p. 41. This would be in response to proposed section 95668(c)(3) which requires existing vapor collection devices to meet the requirements of section 95668(c)(4)(B) which in turn requires existing vapor control devices in non-attainment areas to be replaced with a non-destructive device or with a low-NOx device.

ARB is aware of the number of flares currently in existence which may be required to be replaced with low-NOx vapor control devices or non-destructive devices in order to comply with the proposed regulation. ARB could reasonably project anticipated construction emissions from replacing those flares with low-NOx vapor control devices or non-destructive devices. This is a reasonably foreseeable outcome of the proposed regulation as replacement of some existing vapor control devices will be required by implementation of the regulation. Thus, construction emissions from retrofitting these flares or replacing them with non-destructive control devices must be considered in the EA.

The analysis of long-term operational impacts on Air Quality (Impact 3.b) is similarly deficient. As stated above, the reasonably foreseeable methods of compliance expected by ARB are unclear and / or without support in the record. ARB notes that new vapor control devices or replacement of these devices are permitted through local air districts (EA, p. 42), but does not address the distinct possibility that the local air districts may not permit any additional flaring, causing compliance with the proposed regulation to be infeasible.

In addition, although "ARB anticipates that [non-combustion devices] will be used in the future" (*id.)*, presumably referring to potential controls for circulation tanks in order to comply with the proposed regulation, that is not a guarantee that those devices will be available in time for the compliance deadlines in the regulation. Thus, as stated above, some production may stop due to the inability to comply with the proposed regulations which would cause indirect impacts that the EA must address and has not.

Finally, ARB assumes that "the use of recovered vapors for on-site equipment fueling would lessen the amount of conventional fuels that would be combusted on-site and the need to transport those fuels to the site" (EA, p. 40). However, it is not clear that recovered vapors would be in a form sufficient to use for on-site equipment fueling. Thus, the assumption that recovered vapors could reduce fuel use and thus reduce emissions is unwarranted.

There would also likely be an incremental increase in the emissions impacts reported in the EA as more gas will be routed to flares than was analyzed in the EA due to the addition of gases from the vapor collection systems that will be installed at certain gauge tanks in response to the requirements for controls on gauge tanks. ARB's calculation of potential emission impacts (such as emissions of NOx and other criteria pollutants) from combustion of additional vapors collected and routed to vapor control devices as a response to the proposed regulation does not consider emissions from gauge tanks. See EA, p. 43 – 47. The additional emissions from gauge tanks will cause increased flaring which could cause increased NOx and other criteria pollutant emissions that are not considered in the EA. ARB must correct this deficiency in order to accurately represent potential adverse emission impacts from the project.

Finally, the San Joaquin Valley Air Pollution Control District ("SJVAPCD") separately estimated the change in NOx emissions that might occur as a result of the proposed regulation and came up with ten times higher calculated emissions than ARB. EA, p. 45. It is unclear whether ARB or SJVAPCD's assumptions are correct, but the difference in estimated emissions is large enough to question ARB's calculations. One contrary assumption is that SJVAPCD assumed that captured gas would require an equal amount of supplemental make-up gas before combustion in a flare would be possible. *Id.* ARB asserts that low NOx incinerators can handle waste gas and likely would not require additional make-up gas, and indeed the proposed regulation does not allow supplemental fuel. WSPA agrees with the SJVAPCD that, in some instances, make-up gas would be required in low NOx incinerators and thus the proposed regulation, as written, may be infeasible in some instances. As stated above, this would result in displaced production, causing reasonably foreseeable indirect impacts that are not addressed in the EA and must be.

2. Biological Resources

As in the Air Quality analysis, ARB has understated the potential construction-related impacts to special status species and habitats (Impact 4.a) due to its failure to include construction of necessary components to add vapor collection systems to gauge tanks. *See generally* EA, p. 48 – 49. This increased construction would raise the potential for impacts to biological resources and must be addressed in the EA.

3. Greenhouse Gases ("GHGs")

Although the EA reports the long-term operational impacts on GHGs would be beneficial due to the reduction in methane, it also notes that there would be an increase in vehicle emissions associated with the LDAR requirements of the proposed regulation which would increase CO_2 emissions by 376 metric tons per year. EA, p. 61. This increase should be taken into consideration in Table 4-4 on p. 62, which only summarizes estimated GHG reductions from the project.

4. Transportation and Traffic

The EA's analysis of transportation and traffic is superficial and purely qualitative. ARB estimated numbers of vehicle trips and potential emissions from the additional trips required for compliance with the proposed regulation in the Air Quality analysis (see, e.g., EA, p. 42 – 43) and should complete a more comprehensive, quantitative evaluation of the proposed regulation's potential impacts on transportation and traffic in the EA.

Recommendation 55: WSPA recommends that ARB remove gauge tanks and recirculation tank controls from the proposed regulation. ARB must also revise and recirculate its EA so that the analysis adequately considers the potential environmental implications of all of the requirements in the regulation before it can adopt the proposed regulation.