



C & J WELL SERVICES, INC.

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C&J Energy Services

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Clerk of the Board
Air Resources Board
1001 I Street
Sacramento, California 95814

RE: Comments on Amendments to the Portable Equipment Airborne Toxic Control Measure (ATCM) and the Statewide Portable Equipment Registration Program (PERP)

Dear Board Members:

C&J Energy Services, Inc. (CJES), is a leading provider of well construction, well completions, well support and other complementary oilfield services to oil and gas exploration and production companies in the U.S. C&J Well Services, Inc. (CJWS) and KVS Transportation, Inc. (KVS) are CJES' California-based well support services and fluid management services operating throughout California. CJWS (formerly Nabors Completion & Production Services Co.), has participated in the development of the PERP, the Portable ATCM and all the subsequent amendments for the past 24 years. CJWS would like to thank the Air Resources Board (ARB) and the ARB staff for the opportunity to participate in all the workgroup meetings on the development of modifications to the Portable ATCM and the PERP. CJWS is submitting the following comments on the Staff Report: Initial Statement of Reasons (SRISOR).

In the SRISOR in Appendix J, staff made the following statement, "In June 2015, ARB was formally contacted by the affected fleets requesting ARB to revise the 2017 and 2020 requirements due to two main factors..." On October 17, 2014, CJWS made a formal request to modify the weight fleet average in a 4 page letter to ARB. In the SRISOR in Appendix K, staff stated, "Members from both the water well drilling and oil and gas industries invited ARB staff to drilling sites and equipment yards to demonstrate how the equipment operates during a drilling operation." CJWS was one of the oil and gas companies that arranged the site visits. During the visit, CJWS provided engine performance data from the ECI and greenhouse gas logs to indicate the average engine load on different types of equipment. These actions demonstrated CJWS' commitment to working with staff to achieve consensus on the challenging solutions in the ATCM and PERP. In the SRISOR in Appendix I, staff reported the results of the 2016 PERP Survey showed the load factors ranged between 0.2 and 0.58 with the average load factor of all responses being 0.31. CJWS' load factor data is below the average load factor.

Over the past few years, the petroleum industry has experienced a collapse in oil prices which has resulted in economy hardships of the petroleum industry. Even though oil prices appear to have stabilized, most of the exploration and production companies are undercapitalized now as well as for the foreseeable future. With exploration & production companies cutting their capital spending and activities, oilfield service companies, like CJWS, will continue to struggle to generate capital to invest in new equipment.

In the SRISOR, staff stated, "Tier 4 engines have a larger footprint than equivalent engines manufactured to higher emission standards because of the presence of emissions after-treatment system including DPFs. As a result, Tier 4 engines will not fit in most portable equipment packages designed for Tier 3 or older engines. This means that to comply fleets would need to purchase new equipment at a significantly greater and in many instances prohibitive cost." With 90% of the PERP inventory requiring compliance activities, staff believes that a large number of fleets will need to purchase new equipment. CJWS currently has 180 PERP registrations which include mud pumps, foamers, cement pump trucks, power swivels, generators and top drives. Most of this equipment is

designed exclusively for the petroleum industry and purchasing new equipment will cost over a \$1 million for each unit. For example, CJWS currently has 54 mud pumps registered in PERP. The cost of a new mud pump would be \$1.2 million each which will result in a total replacement cost of \$64.8 million.

CJWS is concerned with the SRISOR in Appendix L Cost Methodology. The concerns are with staff's assumptions about the estimated equipment cost. Staff states, "The cost curve was then used in ARB's equipment turnover model to calculate equipment replacement cost on a per unit basis by taking the cost of newly purchased equipment required and subtracting it from the existing equipment's resale value." Staff made the assumption that fleets will realize a value from the retired equipment by selling the equipment outside of California. The equipment used in the oilfield service industry is built for the petroleum industry to perform an activity used exclusively in the petroleum industry. The retired equipment would have to be sold in the oilfield service industry. Another problem is that oilfield service companies will not resale old equipment only to have to compete against the same equipment in the future at a lower asset base cost. CJWS' recommendation is for staff to recalculate the cost methodology by using the full purchase value of the new equipment.

CJWS is concerned with the staff statement, "A cost curve was developed based on data from more than 230 pieces of portable equipment ..." Portable equipment uses engines from 50 hp. to 3,000 hp., in several different applications, used at several different load factors and used by several different size fleets. CJWS' recommendation is for staff to increase the number of pieces of equipment and using the same percentage of PERP registrations and the same percentage of fleet.

In the SRISOR in Appendix L, staff stated, "The cost effectiveness for the regulatory amendments is \$8.50/IB of NOx and \$160.20/LB of PM. Table L-5 compares the cost effectiveness of the amendments to other regulations like Stationary ATCM, Off-Road Regulation, Public Fleet Rule and Ocean-Going Vessels. The cost effectiveness is lower than other regulation because Portable ATCM already phased out Tier 0 equipment, more affordable compliance options are not available and fleets upgraded to Tier 3 equipment do not meet the final set of emission standards." CJWS believes that if staff recalculated the cost using the full purchase value it will increase the cost effectiveness which shows what is happening in the real world. The PERP was adopted in 1997 and registered fleets' inventory were 95% Tier 0 engines. Fleets invested millions to repower and replace all the Tier 0 engine to Tier 1, 2, and 3 to comply with the 2010 requirements. CJWS' recommendation is for staff to report the total cost of PERP and ATCM over the past 20 years.

In the SRISOR, staff is focusing the cost on engines and not on the purchase of new equipment. Staff's statement is "The purchase price of a Tier 4 engine is approximately twice the cost of a Tier 3 engine, and equipment must be redesigned to accommodate the larger footprint of a Tier 4 engine." If fleet owners try to repower older equipment with Tier 4 engines, the redesigning and engineering will cost millions and this cost is not in the cost model. Another concern is staff's discussion of cost savings due to the reduced need for Diesel Exhaust Fluid (DEF). Staff states that only Tier 4 engines use DEF and will reduce cost to fleets. Fleets will start purchasing new equipment as soon as possible and when that purchase occurs the fleets will be purchasing DEF resulting in a decrease in savings and generate an increase in cost before 2025.

In SRISOR in Appendix K, staff is discussing Tier 4 Engines Assessment. Fleet owners are concerned with Tier 4 engines that operate at low-load and with long-idle cycles. Staff states that ARB is working with the engine manufacturers to develop solutions to these issues. Staff has listed the following solutions: (1) some Tier 4 final engines can meet the standards without using a DPF, (2) an electronically controlled valve is installed upstream of the DPF, (3) engineering design regeneration, (4) change in the engines' computer programming, (5) reengineered combustion physics for Tier 4 engines, and (6) manufacturer-created combustion management upgrades. All of the Tier 4 final engines are certified by the USEPA and ARB. These agencies issue experimental permits and provide engine manufacturers approval to make changes and to test the solution. How long will it take for the stakeholders to have a final approved product to use? CJWS' recommendation is for the Board to direct staff to develop a document listing all the finds including technologies and manufacturers to provide this information to all affected parties. Manufacturers should not void the warranty on engines using the ARB solutions.

Many companies operating in California have equipment regulated by the PERP, the Portable ATCM, the Off-Road ATCM and the On-Road ATCM which were adopted by the ARB Board. All of these regulations require large investments in equipment purchases and equipment repowering costing millions of dollars to achieve compliance. CJWS is one of the companies involved in the investment requirements. CJWS' recommendation is for the Board to direct staff to work with the affected industry to develop a cumulative cost analysis to understand the total impact these regulations have made on all stakeholders and the economy. In the real world, stakeholders are operating in the marketplace with a pricing structure that the market will bear. The pricing structure will not change until all competitors are fully invested in the final regulation requirements.

In SRISOR in Appendix C, staff made the following statement, "As part of the 2013 fleet compliance implementation, ARB created a list of non-compliant fleets biannually which was distributed to all thirty-five local air districts in California who enforce the existing ATCM's fleet requirements. During a subsequent two year period, the original list of 1,300 non-compliant fleets was reduced by about 500, indicating approximately 250 fleets per year were successfully enforced upon." In addition, staff states the probability of enforcement equals 6.9%. Were the other 800 fleets enforced and how long did it take? In 1997, ARB adopted the PERP regulation. Can staff provide the number of enforcements during the 20 year period? Staff made the following statement, "The total enforcement cost-savings for 2017 through 2030 is estimated at \$417 million dollars or approximately \$42 million per year on average. We need the last 20 years enforcement activities to evaluate the future enforcement cost-savings.

In conclusion, CJWS would like to thank the Board and its staff for making modifications to the PERP and the Portable ATCM to help offset the economic hardships. CJWS would like to express that the PERP and the Portable ATCM are great regulations that allow companies to operate in California. These regulations are important for California and the petroleum industry. CJWS is requesting that the ARB Board and the staff take these suggestions, recommendations and concerns under advisement in the adoption of the amendments. CJWS supports and endorses the adoption of the Portable Amendments with the changes listed above. CJWS continues to look forward to working with ARB staff to develop an effective and reasonable approach to regulations. If you any questions regarding the information provided, please contact me at 661-201-6056 or by email at jerry.fernandez@cjes.com.

Sincerely,



Jerry Fernandez
Environmental Compliance Manager

Regulatory collaboration conducted with:



James Thomas
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