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April 21, 2007

Board Members
California Air Resources Board
1001 I Street
Sacramento, CA 95814

RE: In-Use Off-Road Diesel Vehicle Control Measure

Dear Board Members,

Nabors Well Services Co (NWSC) would like to thank the California Air Resource Board (CARB) and the CARB staff for the opportunity to participate in the development of the Airborne Toxic Control Measure (ATCM) for off-road mobile equipment operating in California. NWSC is submitting its comments and concerns relating to the Staff Report: Initial Statement of Reasons for Proposed Rulemaking. NWSC believes that there are several opportunities absent from the Staff Report that would improve the regulation. NWSC understands the Board meeting rule where each speaker is limited to three minutes, so NWSC is submitting this letter to detail all our concerns. NWSC is requesting that the Board Members review this letter before the May 24 board meeting to enhance our speech.

Competitive Disadvantage

In the Staff Report, NWSC located three troubling statements. "For the regulation to be fair to fleets that would spend considerable funds and effort to comply, fleets must be assured that their competitors would also be complying." "Staff recognizes that creating a level playing field for all affected fleets is important, and is committed to obtaining the resources necessary to do so." "Staff would not expect a noticeable change in employment, business creation, elimination, or expansion, and business competitiveness in California due to the regulation."

The regulation should be fair to all fleets by placing all fleets on a level playing field with the same start date. The proposed Off-road ATCM was developed with a competitive disadvantage by having different compliance dates for different fleet sizes (large fleets in 2010, medium fleets in 2013 and small fleets in 2015). During the last round of workshops, the stakeholders expressed their concerns about the competitive disadvantage. The regulation requires considerable funding on some fleets and no funding on other fleets for five years. When all the fleets return to the market place, there will be shift in the marketplace because of the regulations.

NWSC's recommendation is to change the regulation to place all fleets on a level playing field by requiring all fleets to comply with the PM and NOx requirements beginning in 2015.

Outreach Program

In the development of the Portable ATCM and PERP regulations, numerous companies spent large amounts of capital to comply with the regulations while other companies chose not to participate. These regulations were amended to allow several amnesties in an effort to allow non-compliance companies to get into the program at a later date which resulted in lower operating cost. NWSC is asking the Board and CARB staff to guarantee that this will not happen in Off-road ATCM.

NWSC's recommendation is for CARB to develop a complete outreach program and make sure that the stakeholders are informed. NWSC made the suggestion to CARB staff to place a card in each DMV renewal for a one year period which will outline the Off-road ATCM.

Certification Levels

During the engine manufacturing process, engine technologies are developed which reduce the emission factors below the required tier standards. The engine emissions are tested to comply with CARB regulations and CARB issues each engine group with an Executive Order showing the certification levels (CERT) which are below the standards. A review of the CARB Executive Orders shows that the certification levels are 10% to 25% below the standard.

The proposed regulatory language does not allow the use of certification levels, and the fleet average calculator is based on the standard values. The Stationary ATCM and the Portable ATCM regulations were developed to allow the use of certification levels. During the workshops, CARB staff stated that if they allow the use of certification levels, they would have to reduce the fleet average target numbers. The Off-road ATCM fleet targets for PM are 7.15% below the Portable ATCM fleet targets.

NWSC's recommendation is for the Board to change the proposed Off-road ATCM to be in consensus with other CARB regulations. In addition, CARB staff should not lower the fleet average targets, but should increase the targets to allow cleaner fleets to be in compliance.

Fleet Average Targets Are Set Too Low

The fleet average targets for PM are set too low in the Off-Road ATCM. NWSC's fleet average for 2010 is 0.18 for PM and 5.9 for NOx. NWSC used the fleet CARB calculator and found that its current averages were 0.33 for PM and 6.62 for NOx even with 65.4% of its fleet having certified engines.

The Staff Report shows that the statewide engine tier distribution of vehicle population subject to this regulation is 51% Tier 0, 33% Tier 1 and 16% Tier 2 engines. In 2010, a fleet would be required to have eight Tier 2 or Tier 3 engines to offset one Tier 1 engine to remain in compliance. If in 2012 a fleet is 100% Tier 3 engines, the fleet cannot be in compliance with the PM target.

The fleet average targets for NOx are too low. In 2010, a fleet would be required to have one Tier 2 engine to offset one Tier 1 engine to remain in compliance. In 2015, a fleet would be required to have zero Tier 0 and Tier 1 engines and have one Tier 3 engine to offset one Tier 2 engine to remain in compliance. In 2019, a fleet of 100% Tier 3 engines will not be in compliance. Fleets will be required to install VDECS that get NOx reduction or repower again with a Tier 4 engine.

NWSC's recommendation is for CARB staff to review the current targets and increase them 13%.

Credit for Early Actions

In the Staff Report, CARB staff has developed a credit for fleets that take early actions to reduce emissions by retrofit, repower or turnover. NWSC is one of the companies that have repowered several of its rigs from Tier 0 engines to Tier 1, Tier 2 and Tier 3 engines. This is a good first step, but the proposed regulation falls short because the credit for repower only counts for the NOx turnover targets and not for PM targets.

During the repowering process, NWSC has reduced the NOx emissions by 71.98% and PM emissions by 75.56% when replacing Tier 0 engines with Tier 1 engines. In addition, NWSC has reduced the NOx emissions by 75% and PM emissions by 83% when replacing Tier 0 engines with Tier 3 engines.

NWSC's recommendation is for CARB staff to expand the credit for repowering to include a credit for early PM emissions reduction.

Verified Diesel Emissions Control System

The regulation requires each fleet to meet fleet average emission rate targets for PM or apply the highest level VDECS to 20 percent of its horsepower. NWSC has several concerns with the use of VDECS such as the regeneration time, the useful life of the VDECS, the warrant, the cleaning process, the number of VDECS needed in the installation, exhaust temperatures requirement and the engine shutdown time. The Staff Report states, "It is likely that many of the diesel particulate filters used would need to be actively regenerated, either

through plug-in or through an on-board fuel burner, because the exhaust temperatures in some off-road applications are not sufficient to support passive regeneration." One VDECS vendor has informed NWSC that their active VDECS will take 4 to 5 hours to regenerate. NWSC is in the business to supply workover rigs to the petroleum industry. NWSC is required to keep the well bore pressures under control at all times, and the engine on the rig is a major component in controlling the well. NWSC cannot have a surprise shutdown of the engine due to a VDECS.

The Staff Report states, "The warranty guarantees the retrofit's efficacy for 4 or 5 years and 2,600 to 4,200 operating hours, depending on engine size, and warrants that the retrofit will not cause engine damage." NWSC is concerned about the useful life of a VDECS. NWSC currently has several Tier 1 Detroit Diesel 60 Series engines working 36,000 hours without any major repairs. How many VDECS will be required during the useful life of these engines? Is it 1, 2, 3, 4 or more? NWSC's current information shows that a Level 3 VDECS for a 450 hp engine is $23,000 or $51.11 per hp. Will NWSC be required to invest $23,000, $46,000 or $69,000 per engine?

One of the major problems with the proposed regulation is the 20% retrofitting requirement. If a company has an inventory of Tier 0 and Tier 1 engines, they will be required to install VDECS on Tier 0 engines to be in compliance. As the regulation moves forward in future years, the same fleet will be required to replace the Tier 0 engines with the VDECS to remain in compliance.

NWSC's recommendation is for the Board to reduce the PM retrofit from 20% to 10%. Companies need time to install VDECS and to collect data to develop operating policies and procedures. CARB's cost analysis should calculate the full cost of the VDECS which includes several VDECS over the useful life of the engine, regeneration time, lost production and maintenance costs.

Cost Analysis

NWSC is concerned about the cost analysis in the Staff Report. We need to make sure that all the costs are captured in the analysis. In the Staff Report, I located several interesting statements. "The total cost of the regulations is expected to be between $3.0 and $3.4 billion in 2006 expenditure dollars." "For a typical fleet, total costs over the life of the regulation are expected to be $104 to $117 per horsepower of affected vehicles." In another section, CARB staff expects the total regulation cost for large fleets with various initial average ages (1) 20 years and over $110 -- $180 per hp, and (2) 16 to 20 years $110 -- $150 per hp.

NWSC is currently replacing 450 hp Tier 0 engines with Tier 3 engines at a total cost of $148,600 each which includes the engine, transmission and changes to the carrier so the engine will function. These engines are on-road engines because of CARB requirements, but the replacement costs for 450 hp off-road engine will be a total cost of $132,404 each. In addition, NWSC is receiving information on the cost of a VDECS for 450 hp to be $23,000 each.

Using the information above, I will compare the total compliance cost of the regulations for a fleet of 100 workover rigs with 450 hp engines (100 rigs x 450 hp = 45,000 hp). CARB's total regulations cost for this fleet will be $8,100,000 using the maximum cost per hp (45,000 hp x $180 = $8,100,000). Using NWSC's off-road engine cost the total regulations cost for the fleet will be $13,240,400 (100 rig $132,404 = $13,240,400). Using the required engines for workover rigs, the total regulations cost for the fleet will be $14,860,000. This cost will cover the NOx requirement of the regulation. The compliance cost for the PM requirements will cost $2,300,000 to cover the cost of one VDECS per engine (100 rigs x $23,000 = $2,300,000). Comparing the total regulations cost, NWSC total cost is $15,540,400 compared to CARB's total cost of $8,100,000. The Staff Report cost analysis is understated by 91.86% or $114 per hp for the workover fleet. If the total cost of the regulation is understated by 91.86%, the real cost of the regulation could be expected between $5.75 and $6.52 billion in 2006 expenditure dollars. Remember this cost does not include maintenance and multiple VDECS per engine.

Today, we have a preview of what future costs will be. NWSC is currently purchasing Tier 3 on-road engines for its workover rigs. Starting January 1, 2007, all on-road engines will be Tier 4 engines. NWSC has received information from its vendor that the new engines will double in cost. With this information, NWSC replacement cost will be $215,600 or $479 per hp for a 450 hp engine. With Tier 4 Interim engines coming out in 2011 and Tier 4 engines in 2014, the future cost of the regulation is grossly understated.

NWSC's recommendation is for the Board to direct CARB staff to work with stakeholders to capture all the true cost of the regulations.

Passing Through the Regulation Costs

In the Staff Report, CARB staff has stated that fleets will have to pass through at least some of the costs to their customers in the form of higher services to maintain their profitability. Another statement made by CARB is, "This could be achieved, for example, through higher bids for construction projects throughout the state, resulting in higher revenue for affected fleets." During the last round of workshops, CARB staff reported for the first time that companies will have to increase their revenues 2% to 4% to cover the cost of the regulation. In all the workshops, stakeholders expressed to CARB staff that the cost associated with the regulation cannot be passed on to their customers.

NWSC would like to return to the first comment of this letter discussing the competitive disadvantage this regulation has generated. In the marketplace, all companies (small, medium and large) have to compete for their portion of the market. How can you receive higher revenues through higher bids when you have companies making no investment and other companies making large capital investment? The real answer is you cannot pass through the costs to your customers until all fleets are placed on the same playing field. This will generate a major shift in the marketplace.

"Staff believes that most fleets would be able to absorb the cost of the proposed regulation should they not be able to pass costs on to their customers, without significantly harming their profitability." How can CARB staff make this statement with a major shift in the marketplace, large fleets losing contracts and revenue and the large capital investment discussed in the cost analysis section, and not significantly harm industry's profitability?

Return on Owner's Equity (ROE)

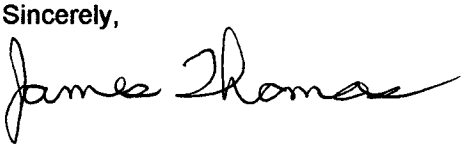
"The ROE analysis found that between 60 and 80 percent of the fleets would still be expected to be able to absorb the cost of the regulation without incurring more that a 10 percent change in ROE." NWSC would like to point out that if additional revenue is not generated from the capital invested, the company will not experience a ROE on this investment. Looking at the aforementioned rig company, this company cannot absorb $15,540,400 in compliance costs and not change the ROE and the profitability of the company.

Cumulative Costs Analysis

NWSC is requesting the Board members to direct the CARB staff to work with industry to develop a cumulative costs analysis for the Portable ATCM, Off-road ATCM and the On-road ATCM at the completion of the On-road ATCM. Many companies like NWSC have equipment regulated by all these regulations and the Board should know the total impact of these regulations on the companies and the economy. The Board should understand that 50% of the revenue stream of NWSC is generated by the equipment and major changes to capital investment and operating procedures will affect the profitability.

NWSC is requesting that the Board members take these suggestions, recommendations and concerns under advisement in the adoption of the Off-road ATCM regulations. NWSC and several other stakeholders have expressed concerns at each workshop. CARB staff should identify the issues of concern by the stakeholders and work collectively to achieve consensus on the solutions. NWSC continues to look forward to working on the development of an effective and reasonable approach to the Off-road ATCM.

Sincerely,



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