GRANITE CONSTRUCTION INCORPORATED

May 21st, 2007

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

Subject: Comments regarding the April 2007 Proposed Regulation for In-Use Off-Road Diesel Vehicles

Dear Members of the California Air Resources Board and CARB Staff:

Granite Construction, Inc. is a publicly held corporation headquartered in California. Granite is one of the nation's largest heavy construction contractors and, although we work all over the country, California remains the heart of our operations. We at Granite are proponents of clean air. We operate in an environmentally responsible manner, and we see the need to reduce particulate matter (PM) and oxides of nitrogen (NOx) emissions from diesel engines. In fact, we have proactively reduced both PM and NOx emissions from our California fleet significantly without a regulation in place.

We agree that an in-use regulation will accelerate the reduction of diesel emissions and is necessary to create reductions throughout the industry; however, we are concerned with the reliance on prospective and untested technological solutions, the overly aggressive fleet average targets, the unrealistic timeline, and the lack of a workable enforcement mechanism in the April 2007 Proposed Regulation.

Please consider our following suggestions and support comments that we feel justify essential changes to insure the success of this regulation.

Recommended Changes:

To make this regulation effective, lasting, and successful; we feel that at a minimum the following changes should be incorporated into the proposed regulation before CARB moves forward:

1. CARB should lengthen the regulation timeline which would allow industry to incorporate Tier 4 diesel engine availability as a permanent and lasting solution. A more workable compliance date to meet final fleet targets would be 2025.

2. The PM and NOx targets should be reviewed and re-established based on an accurate California equipment inventory and a realistic 15 year declining schedule.

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3. The BACT compliance path requirements currently written in the proposed regulation should be adjusted to be commensurate with proven, affordable, and available solutions. It is recommended that CARB revise the regulation to concentrate on decreasing emission levels from Tier 0 and Tier 1 diesel engines in the early stages of this regulation. This can be accomplished by allowing fleets to remove these engines from their fleets (and get credit for this) and allow fleets to apply Federal EPA verified technologies applicable to Tier 0 & 1 diesel engines. Accelerated turnover requirements to address NOx targets must be revised to be consistent with the availability of Tier 4 diesel powered equipment and at a turnover rate that industry can afford.

4. Performance, reliability, installation and safety of VDECS equipment must be factored into the Rule. Retrofitting existing equipment presents particular challenges beyond theoretical emissions reductions. The draft regulation does not adequately address these issues, and adequate time must be allowed to accomplish this.

5. Enforcement must be consistent and equitable. We recommend that CARB craft a third party certification requirement and include this in the reporting process. Additionally, it is imperative that CARB develop an enforcement plan that insures equal and fair enforcement for the entire industry.

Support Comments:

Granite Construction has been involved in the development of this regulation since November 2004. During this period, Granite has met with CARB staff a number of times and has attended numerous CARB workshop and workgroup meetings in an attempt to craft a regulation that is achievable by industry and reduces diesel engine emissions for the benefit of public health. We also have reviewed the 340+ pages in the following CARB documents that were released in April of 2007:

- Notice of Public Hearing to Consider The Adoption of a Proposed Regulation for In-Use Off-Road Diesel Engines;
- Proposed Regulation for In-Use Off-Road Diesel Vehicles, released in April of 2007;
- CARB Technical Support Document for the Proposed Regulation for In-Use Off-Road Diesel Vehicles, April 2007; and
- Staff Report: Initial Statement of Reasons for Proposed Rulemaking, Proposed Regulation for In-Use Off-Road Diesel Vehicles.

Based on our involvement in the development process, review of the above documents, and our experience owning, operating, and maintaining our equipment as a successful heavy civil contractor in the State of California for the past 85 years, we present the following comments regarding the proposed regulation. We feel our suggestions will lead to a workable Rule and help achieve an historic level of reduction in diesel emissions

Additional Time Is Needed:

The State of California Diesel Risk Reduction Plan was adopted in 2000. The plan states original goals to reduce diesel PM emissions by 75% in 2010 and by 85% in 2020. We are already well into 2007 (seven years later), and the target goals have not been adjusted to compensate for the lost 7 years. CARB Staff has actually increased the 2020 target to a 92% PM reduction in 2020 from the 2000 baseline. This may look great on paper, but it is neither realistic nor achievable.

The availability of long-term permanent solutions in the form of Tier 4 diesel engines will not be available for the majority of construction equipment until 2014 and 2015 as mandated to diesel engine manufactures by the Federal EPA (See Attachment A.) Yet CARB Staff is proposing that industry be required to turnover equipment at the rate of 8% of horsepower/year prior to 2015 and 10% of horsepower/year after 2015 if not meeting the NOx fleet targets. The early forced accelerated turnover will force industry to invest huge dollars for little short-term gain. The regulation timeline needs to be synchronized with the availability of permanent Tier 4 solutions.

Retrofit Solutions are not Readily Available:

We are very concerned that the PM portion of this regulation has been written speculating the future availability of numerous State of California Verified Diesel Emission Control Systems (VDECS). In November 2004, there was one level 3 VDCES verified for off-road applications. Today there are only three verified level 3 VDECS for off-road applications. All three of these units require active regeneration, two of them require a 240 volt electrical source to regenerate (this is not practical for any on-site construction equipment), and the third utilizes on-board diesel fuel and a controlled burning system to regenerate during machine down time. The current availability of VDECS is not adequate to support this in-use regulation. We do not see any reason to believe this will change significantly in the near future. We also point out the following citation from the Air Resources Board Technical Support Document: *"Based on its evaluation of the technology available today and an assessment of technology likely to be available in the near future, staff is confident that the proposed control measure is technologically feasible"*[1]. This is a non-supported statement that conflicts with our research which revealed the development of off-road VDECS technology will not develop at the rapid pace staff predicts. The time frame written into the proposed regulation does not allow for an orderly transition of VDECS into the California in-use off-road equipment market.

Retrofit Solutions are Impracticable and Unsafe:

We are very concerned that the few VDECS on the market are not an engineered and thoroughly designed system. We understand that CARB has addressed basic warranty issues in the verification of these units, but who is engineering the safety and installations of these devices? Who is going to be responsible for the liability that goes along with these installations? We are very concerned that visibility restrictions, fire hazards, trip hazards, and long-term structural issues have not been addressed. We have obtained

[1] California Air Resouces Board. Proposed Regulation for In-Use Off-Road Diesel Vehicle, Technical Support Document, Page 99. http://www.arb.ca.gov/regact/2007/ordiesl07/TSD.pdf May 16, 2007

quotations for installation of VDECS units, and have also researched installations that have been performed on existing equipment by others. In all cases, the installations are not pre-designed and engineered but are performed on an as-you-go basis.

Over the years, we have learned that thorough engineering and planning is an absolute requirement when adding an auxiliary system to a piece of off-highway heavy equipment. The current process is one that most often leads to unplanned and often catastrophic events. Currently available VDECS for off-road use are not proven, and the installations are not properly engineered.

> To emphasize our concern, we would like to share a story with you. In the late 1970s Caterpillar Tractor Company had issues with some 600-series scrapers catching on fire in the field because the muffler and exhaust systems were exposed to the spray of hot oil from hydraulic line and hose failures in the gooseneck area of the scraper. In some cases, the result was complete machine incineration. One can imagine the associated risk to the operator. As a result of this hazard, major re-engineering was performed and changes were implemented to protect the muffler and exhaust system from the potential spray of hydraulic oil. This was done to production machines as well as all machines in the field. This effort was huge, but it eliminated the potential fire hazard from hydraulic line and hose failures on this equipment. The recommended location for installation of a VDECS on a Caterpillar 600-series scraper does not address these safe guards, and it exposes the VDECS to the same previous potential fire hazard.

Forcing industry to install these units in this manner is creating a significant health and safety risk.

CARB Staff Grossly underestimated Retrofit Cost:

CARB Staff has not performed significant research nor do they have reliable data regarding the cost to purchase, install, and maintain retrofit technology. Figure one shows the exhaust retrofit cost analysis breakdown supplied by CARB Staff in the published Technical Support Document.

Table 3: Cost of Retrofits

Vehicle Horsepower	Cost of Retrofit
< 50	$8,000
50 to < 175	$12,000
175 to < 400	$18,000
400 plus	$30,000

Figure 1: CARB Staff's estimated cost of retrofits.[2]

[2] CARB Staff Technical Support Document, Appendix H, Page 11. http://www.arb.ca.gov/regact/2007/ordiesl07/tsdapph.pdf May 16, 2007

As a proactive step toward reducing diesel PM emissions, Granite Construction Incorporated has voluntarily pursued the installation of VDECS on select off-road diesel equipment. The costs that were encountered for installation of VDECS, and the lack of installation engineering, simply made the installation of these devices an impracticable experiment. Table one below shows the price quotes for VDECS installation on two pieces of representative off-highway equipment.

TABLE I: VDECS Installation Price Quote.

Make, Model, Type	HUSS Model	Unit	Install.	Tax	Total
Cat 623F 6BK 3406C 1994 Hp382	FS200MKL	$40,923	$3,200	$3,172	$47,295
Cat 988F 3408E 99C 1999 Hp458	FS300MKS	$48,410	$3,900	$3,752	$56,062

Additional quotations obtained by industry competitors are in-line with Granite's quotes and reflect that the actual costs will greatly exceed the costs that CARB Staff has projected.

Another important topic to note regarding retrofits is that the installation cost is just the tip of the iceberg. Maintenance, repair, contingent damage, fuel consumption trade-off, and performance costs over the life of the devices could very well exceed the initial purchase and installation costs.

CARB's Statewide Equipment/Engine Inventory is Flawed:

We believe that one of the reasons industry will not be able to meet the aggressive requirements of the proposed regulation is that CARB is working with an inaccurate statewide equipment inventory and false assumptions regarding the natural turnover rates of in-use construction equipment.

Figure two shows a chart from the CARB Initial Statement of Reasons for the Proposed Regulation.

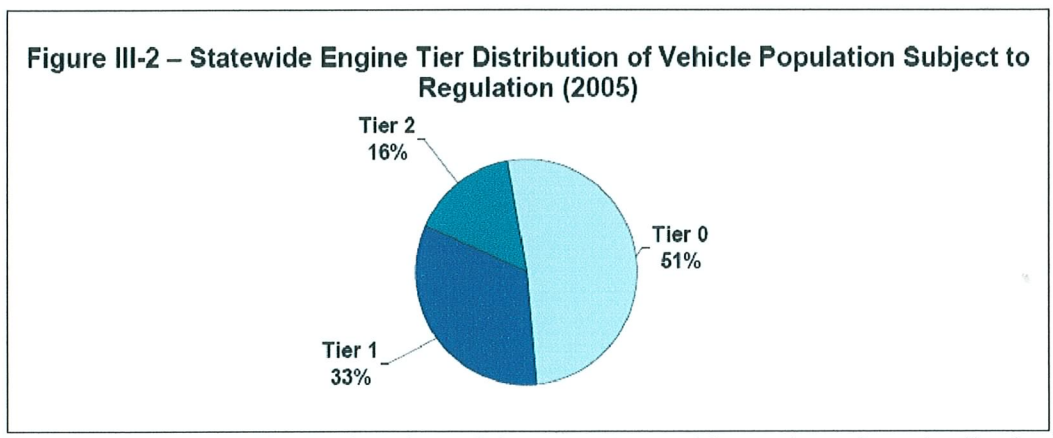


Figure 2: CARB Staff's estimation of the 2005 Statewide Engine Tier Distribution[3]

[3] CARB Staff Initial Statement of Reasons (ISOR), Page. 18. http://www.arb.ca.gov/regact/2007/ordiesl07/isor.pdf May 16, 2007

Figure two shows CARB's estimation of the 2005 equipment population mix in the State of California at 51% Tier 0 engines, 33% Tier 1 engines, and 16% Tier 2 engines. Granite has proactively updated our fleet as new equipment has become available, and we believe that our fleet is more modern than most in the state, yet when we evaluated our 2005 fleet we found it more aged than Staff's estimate. Analysis of other fleets in the state revealed the same findings and validated our belief that Granite's fleet is cleaner than most. According to CARB; however, our fleet would be significantly dirtier than the average fleet. It is our belief that the statewide Tier 0 engine percentage in 2005 was greater than 70%.

Two areas of concern surface with an inaccurate CARB off-road engine inventory: CARB's assumed current Tier mix of engines in the state is wrong and CARB's projected natural turnover rate of equipment is artificially inflated.

We do not understand how it is possible to make determinations regarding average fleet mixes without performing an adequate inventory analysis and obtaining all the necessary information. Attachment B contains a copy of the survey form that CARB Staff sent to equipment owners in the state. Note that specific engine model year and rated engine horsepower are required to identify the tier level an engine. Neither of these pieces of data was collected in the CARB Staff Survey.

In addition to failing to include relevant information, the CARB survey did not receive a sufficient number of survey responses to assure a representative sample. Moreover, self-administered surveys tend to skew the composition of the respondent sample. Information obtained from the CARB website stated that 79,000 survey forms and letters were sent to licensed contractors (plus additional letters and survey forms that were sent to mining operations as well as solid waste and recycling facilities). Only 551 responses were received. This is a 00.7% response rate. CARB staff estimates there are 180,000 pieces of off-road heavy equipment in the State of California subject to this proposed regulation. The survey response represented only 12,000 pieces of equipment, a 06.7% representation. The statistical sample generated by the CARB Staff Survey is simply of insufficient size to build a regulation on.

Regarding turnover, the necessary questions were not asked to establish the turnover practices of equipment owners in the state. In actuality, many companies add equipment to their fleet but often do not rotate out the old equipment. This older equipment is most often placed in low utilization applications that will not support the cost of new equipment. It is our opinion that the traditional turnover rate of equipment in the State of California is much lower than CARB staff has projected.

The CARB survey and the data received from the survey are flawed and inadequate to support this regulation.

Conclusion:

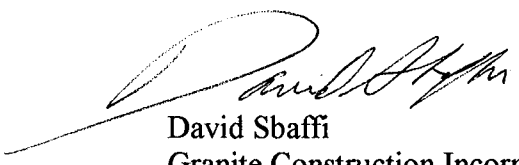
In closing, Granite Construction believes that it is essential CARB consider the issues we have highlighted and create a regulation that will be effective, lasting, and successful for all involved.

It is very important that this regulation treat different fleet sizes equitably due to the fact that they compete against each other in an open-bid environment. This regulation cannot create an unfair competitive advantage for small, medium, or large companies.

If this regulation proceeds as it is written, we sincerely believe it will undermine California's ability to make critical infrastructure improvements and will fail to deliver promised air quality benefits. We ask that the necessary time be taken to address the issues we have raised.

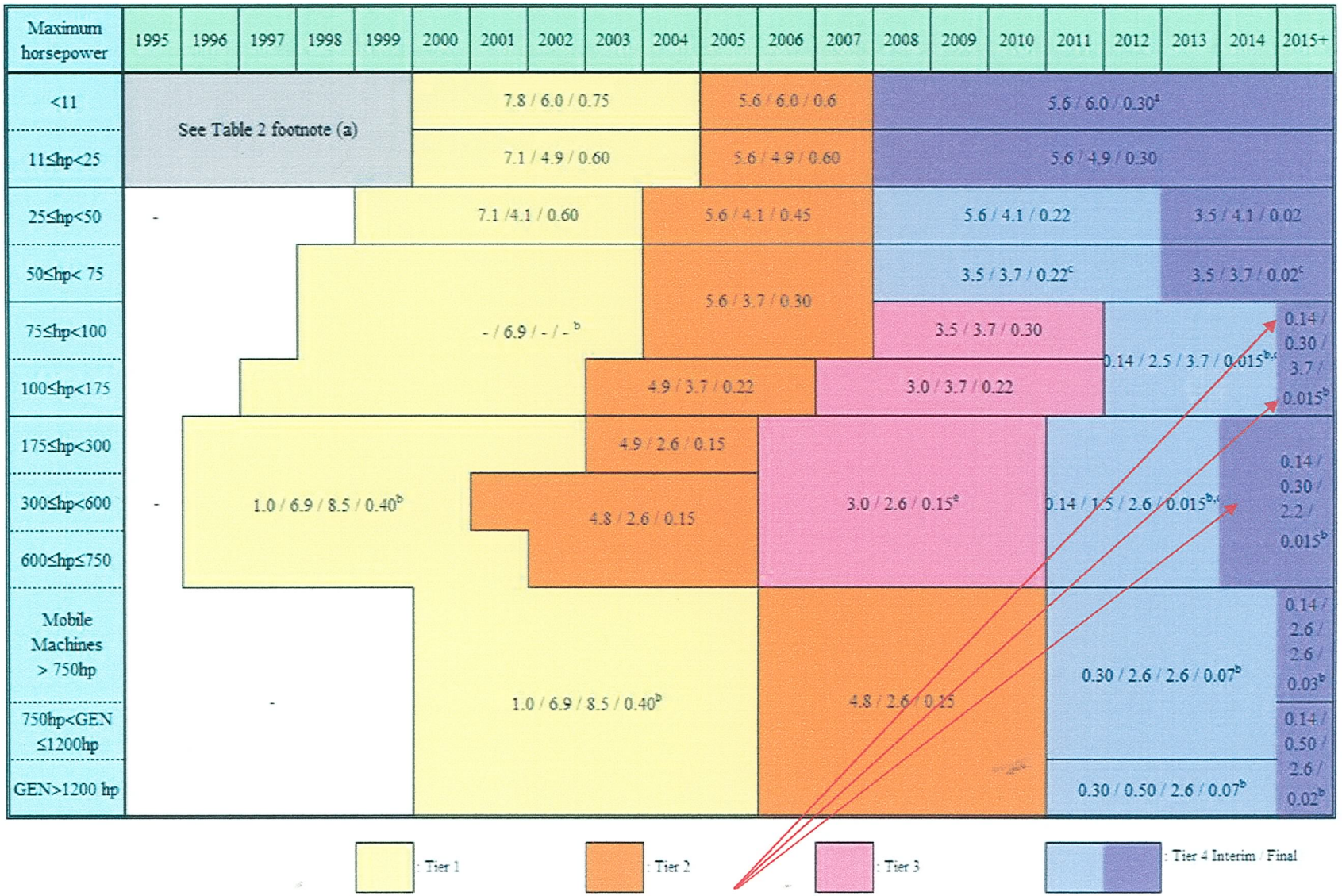
Thank you for taking our comments, suggestions, and concerns into consideration. We are committed to working with CARB to address our concerns with the proposed regulation and to help craft a regulation that is realistic, safe, affordable, and provides the necessary emission reductions to protect public health.

Sincerely,



David Sbaffi
Granite Construction Incorporated
Equipment Department
Special Projects Manager

Attachment A: ARB and USEPA Off-Road Diesel Engine Standards[4]



Tier 4 availability in major horsepower ranges

[4] CARB In-Use Off-Road Diesel Vehicle Rule Documents and Factsheets Webpage. http://www.arb.ca.gov/msprog/ordiesel/documents/Off-Road%20Diesel%20Stds.xls

Attachment B: CARB Off-Road Equipment (In-Use) Survey Submission Form

Construction Table 1

Construction	Table 1 of 3						
	Equipment Type						
	Bore/ Drill Rigs	Concrete/ Industrial Saws	Cranes	Crawler Dozer	Crawler (Track) Loader or Backhoe	Crawler Tractor	Excavators
Fleet Size							
Number of Pieces							
Number of Pieces w/Dual Engines							
# Of Equip. by Range							
Between 25 and 50							
Between 50 and 100							
Between 100 and 175							
Greater Than 175							
Owned vs. Rented							
# Of Equip. Owned							
# Of Equip. Rented/Leased < 1yr							
# Of Equip. Rented/Leased > 1yr							
Off-line Hours							
Avg. Annual Operating hrs.							
# Of Equip. Operated less than 50 hrs/yr							
# Of Equip. Operated 50 to 100 hrs/yr							
# Of Equip. Operated 100 to 200 hrs/yr							
Rebuild Frequency							
Frequency of Engine rebuild (After "how many" Operating hrs)							
Turnover							
Avg. Engine Age When Bought (yrs)							
Avg. Engine Age When Retired or Sold (yrs)							
Use In CA							
% Of Time Used Within CA							

If you do not have anymore equipment to report please continue to Section C: Emissions Control