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USE OF METHYL TERTIARY-BUTYL ETHER (MTBE) IN GASOLINE

HEARING

BEFORE THE

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS UNITED STATES SENATE

ONE HUNDRED FIFTH CONGRESS

SECOND SESSION

ON

S. 1576

A BILL TO AMEND THE CLEAN AIR ACT TO PERMIT THE EXCLUSIVE APPLICATION OF CALIFORNIA STATE REGULATIONS REGARDING REFORMULATED GASOLINE IN CERTAIN AREAS WITHIN THE STATE

SEPTEMBER 16, 1998

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C O N T E N T S

USE OF METHYL TERTIARY-BUTYL ETHER (MTBE) IN GASOLINE

WEDNESDAY, SEPTEMBER 16, 1998

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
Washington, DC.

The subcommittee met, pursuant to notice, at 2 p.m. in room 406, Dirksen Senate Office Building, Hon. John H. Chafee (chairman of the committee) presiding.

Present: Senators Chafee and Boxer.

OPENING STATEMENT OF HON. JOHN H. CHAFEE, U.S. SENATOR FROM THE STATE OF RHODE ISLAND

Senator CHAFEE. I want to welcome all the witnesses and thank you for taking time to appear here today.

The purpose of today's hearing testimony regarding the use of methyl tertiary-butyl ether in gasoline. It also includes S. 1576.

I agreed to hold this hearing several months ago in order to take a closer look at S. 1576, which otherwise may have been attached to an appropriation bill.

Last December, this committee held a field hearing in California to examine the presence of MTBE in the Nation's water supply. MTBE is used throughout the country. If MTBE is a water quality problem in California, it may well be a problem elsewhere, so we ought to look at it from a national perspective.

The use of oxygenates like MTBE increased significantly after passage of the Clean Air Act Amendments in 1990. The Dole-Daschle amendment required that all reformulated gasoline, RFG—that's the way we will be referring to the reformulated gasoline—all of that sold in the worst ozone nonattainment areas contained under the Dole-Daschle bill had to contain at least 2 percent of oxygenates by weight year-round.

Today, approximately 105 million gallons of Federal RFG is burned each day in 17 States and in the District of Columbia. RFG constitutes 32 percent of all gasoline nationwide.

The benefits of the RFG program have been substantial. Over 300 million tons of pollutants have been reduced; benzene emissions, much more toxic than MTBE, have already been reduced 37 percent here RFG is used.

Phase two RFG, scheduled to begin in the year 2000, will achieve even greater reductions. The inclusion of oxygenates has been an important part of its success; however, no program is without its faults and incapable of being perfected. California's own experience with its reformulated gasoline program underscores the weakness

of the act. Supporters of S. 1576 argue that 2 percent oxygenate mandate is unnecessarily prescriptive and achieves no environmental benefit that cannot be achieved by other gasoline formulas that meet the same emission standards.

They further argue that eliminating the mandate will reduce the amount of MTBE used, and, therefore, reduce the chance that it will make its way in the drinking water supplies.

Some opponents to the bill argue that if the mandate is lifted it should be done nationwide. Others argue that the mandate has been very successful and shouldn't be lifted at all. Others fear the vulcanization of our Nation's gasoline production system due to patchwork State regulation.

MTBE is not added to gasoline just to meet the 2 percent mandate. It is also used nationwide because it is an effective octane enhancer and expands the gasoline supply.

MTBE has been found in drinking water wells and leaking underground storage tanks from New Hampshire to Florida, Montana to Alabama, and in my home State of Rhode Island. Much of this comes from leaking underground storage tanks.

As the RFG program expands and moves into phase two, we must continue to evaluate its performance, its mandates, its cost versus benefits, and its overall impact on public health.

I welcome everyone here today and look forward to hearing what we have to say.

Senator CHAFEE. Now, Senator Boxer, do you have a statement you would like to make?

OPENING STATEMENT OF HON. BARBARA BOXER, U.S. SENATOR FROM THE STATE OF CALIFORNIA

Senator BOXER. Yes. I would appreciate making that statement before we have to go vote would be very helpful. There is a vote, a live quorum. It will be less than 5 minutes.

Senator CHAFEE. Yes. My only problem—Representative Bilbray, you've got some votes stacked up?

Mr. BILBRAY. Yes. We haven't been called yet, but the time is coming.

Senator CHAFEE. All right, why don't you go ahead and proceed, Senator.

Senator BOXER. Thank you.

I am so pleased to see my senior Senator here, along with Congressman Bilbray, and commend them both for their work.

Mr. Chairman, I wanted to thank you so much, because last year you graciously gave me permission to chair a field hearing in California on the threats posed by MTBE drinking water contamination, and at that time I was quite alarmed at the testimony, and immediately after that I wrote to Secretary Browner and asked that we phase out MTBE. I have yet to really hear from her directly on that point, but I think we are getting to that point. If there are other ways that we can meet the standards—and I think Senator Feinstein and Congressman Bilbray will point that out in their testimony, as will the California Air Resources Board—why would we be putting this carcinogen into the gasoline?

We have to clean the air. We can't step back from that. But we also have to make sure that the water is pure. This isn't a question of choosing between one or the other; we have to do both.

I would ask unanimous consent that my full statement be placed in the record.

Mr. Chairman, I am so pleased at your growing interest in this situation. I want to say, again, that we need to do two things, in my opinion. We need to phase out MTBE, and Secretary Browner could do that. We also have to clean up the contamination, and Secretary Browner is doing that in Santa Monica. I am very pleased that the EPA came in and they headed up the team and they're working to come up with a plan.

We now have thousands of wells in California that are contaminated, Mr. Chairman. We need plans to clean up that that contamination, and then we have to remove and make sure that MTBE is not added to gasoline.

I want to comment on the legislation before us. I think it is a first step in the right direction. The reason I prefer phase-out is because this would require the State to act and all the States to act, and if States didn't act there could still be MTBE in gasoline, whereas if it is phased out by the EPA it will be gone forever. I believe that that is the most expeditious way to go.

But I will tell my colleagues Senator Feinstein and Congressman Bilbray that I will be supporting their legislation. If EPA doesn't act, we have to act. Again, I commend them from the bottom of my heart because this is putting MTBE right in this committee where it belongs if we truly are the committee to preserve the environment.

[The prepared statement of Senator Boxer follows:]

STATEMENT OF HON. BARBARA BOXER, U.S. SENATOR FROM THE STATE OF CALIFORNIA

Good afternoon, Mr. Chairman. I want to thank you for holding this hearing today to address the serious problems associated with methyl tertiary butyl ether (MTBE) use.

Last year, you graciously allowed me to chair a field hearing in California on the threats posed by MTBE drinking water contamination. That hearing revealed that MTBE poses a very serious and pervasive threat to California's drinking water supplies.

Today's hearing will focus on another important aspect of the MTBE issue; specifically, whether we can achieve the air quality benefits associated with reformulated gasoline without adding MTBE to that gasoline.

Considering these two issues together is critical. If the air quality benefits associated with reformulated gasoline may be achieved without using MTBE, then how can we justify putting the public's drinking water at risk by continuing to use it?

While MTBE has been used in the blending of gasoline since the 1970s, its use increased dramatically following the passage of the Clean Air Act Amendments of 1990. In regions of the country with poor air quality—including Southern California and Sacramento—those amendments required the use of reformulated gasoline. Under the Act, reformulated gasoline must contain 2 percent oxygen by weight.

Today, about 70 percent of the gasoline sold in California contains 2 percent oxygen by weight due to this federal Clean Air Act requirement. While other oxygenates like ethanol may be used to meet this 2 percent requirement, the ready availability of MTBE and its chemical properties has made it the oxygenate of choice among oil companies.

While the oxygenate of choice, MTBE is also classified as a possible human carcinogen. When MTBE enters groundwater, it moves through the water very fast and very far. Once there, MTBE resists degrading in the environment. We know very little about how long it takes to break down to the point that it becomes harmless.

There has been only very limited study on the public health impact of drinking water contaminated by MTBE. We do know, however, that even at very low levels, MTBE causes water to take on the taste and odor of turpentine—rendering it undrinkable.

That is, it makes water smell and taste so bad that people won't drink it.

While MTBE drinking water contamination is emerging as a national issue, it is already a very serious problem in California. MTBE is leaking from California's underground storage tanks at an alarming rate. A June 1998 Lawrence Livermore National Laboratory study revealed that MTBE is leaking from over 10,000 underground storage tanks in the state.

The study also indicated that this is a conservative estimate.

MTBE contamination from such tanks has already forced the closure of drinking water supplies in several areas of California. Santa Monica, South Lake Tahoe, Glennville and Santa Clara have all closed drinking water wells due to MTBE contamination. MTBE has also been discovered in many reservoirs throughout the state.

To address the closure of drinking water supplies in California, and the threat of more closures in the future, I have urged the Environmental Protection Agency (EPA) to follow a two part strategy.

First, I have asked EPA to phase out the use of MTBE. The Administrator of EPA has broad legal authority to protect drinking water supplies under the Safe Drinking Water Act. Given the pervasiveness and seriousness of MTBE contamination, I believe the exercise of this authority to phase out MTBE is justified.

Second, I have asked EPA to use its authority under the Safe Drinking Water Act, the Resource Conservation and Recovery Act, and Superfund (the Comprehensive Environmental Response, Compensation, and Liability Act) to speed the cleanup of drinking water already contaminated with MTBE.

In Santa Monica, EPA has embarked on an effort to do just that. There, EPA has exercised this authority to identify the parties responsible for the contamination at the most severely impacted site. EPA is now in the process of crafting a settlement which would establish the actions those parties must take to cleanup the site.

I support Senator Feinstein's efforts to address the issue of MTBE use in California. S. 1576 would waive the Clean Air Act oxygenate requirement so long as a state could achieve equal or better emission reductions without using an oxygenate like MTBE.

Under the bill, oil companies would still be free to use MTBE—unless it is ultimately phased out by the State of California. By lifting the oxygenate requirement, however, S. 1576 would make a state phase out possible. In that way, S. 1576 would be a very positive step forward.

In this hearing today, California's Air Resources Board (CARB) will testify California can meet emission standards without using oxygenates like MTBE. If California could meet these standards without using MTBE, then how can we justify putting our public water supply at risk by continuing to use it?

What grounds, then, are there for taking that risk?

I thank my colleague Senator Einstein for her work on this piece of the MTBE puzzle. I look forward to continuing to work with her, this Committee and the Administration to phase out the use of MTBE, and to speed the cleanup of MTBE contaminated drinking water in California and elsewhere in the nation.

Thank you, Mr. Chairman.

Senator CHAFEE. Thank you.

Now, Senator, is it okay if he goes first? What's your situation? Both you and I have to go over and vote in pretty short order.

Senator FEINSTEIN. Yes. It is your pleasure. It is your committee.

Senator CHAFEE. Well, you will be here for a while? Can you come back?

Senator FEINSTEIN. Yes. I would like to lay out a case, because I think I have a substantial case and good documentation to make in support of this bill and to answer some of the questions.

Senator CHAFEE. All right. Why don't we let the representative go. He's got a bunch of stack votes. And you and I will go up, and when we come back you will have all the time you want.

All right, Mr. Representative, why don't you go ahead, Mr. Bilbray?

STATEMENT OF HON. BRIAN BILBRAY, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Mr. BILBRAY. Mr. Chairman, I appreciate the opportunity to be able to address you at this hearing. Frankly, I want to thank Senator Feinstein for her strong bipartisan leadership on this issue.

The California support for our bill is bipartisan. In fact, Mr. Chairman, let me point out that it is almost unanimous—49 Members of the California delegation of the House have signed support and are sponsors of this bill. As you stated, you have what appears to be unanimous support from the Senate side of the California delegation.

Let me just remind the committee that I am bringing this bill with the Senator not just as a Member of Congress, but as an ex-member of the Air Resources Board and the Air Pollution Districts of California. My interest here is in clean air and the safe environment.

This bill is specific to California. It builds on the tradition of the original Clean Air Act and the amended Clean Air Act, which continually have said that California has been so unique in its progressive attitude towards clean fuel strategies that California will be treated separate from the rest, so that the Federal Government doesn't get involved or obstruct its progressive approaches to clean air strategies, especially as it applies to the clean fuel approach.

Now, my bill says that we can approach California's clean fuel program with the flexibility that Californians recognize as being outcome-based. It does not mandate the use, nor does it ban the use of any specific additive. It allows the flexibility for scientists to be able to address this issue based on good science and what's good for the environment.

It does not mandate any particular ingredients, and thus you don't reach the Catch–22 that we've run into with the MTBE issue, as the Senator from California has pointed out.

My bill says that we return back to the concept of sound science and maintain sound science, and with the development of the reformulated gasoline program, and especially as it applies to California.

California has always set its bar higher than anyone else in the world. We have the most strict air pollution regulations of any community anywhere in the world, second to none. To those who have suggested that this bill would somehow encourage California to pollute its air, I remind them again and I challenge them that California is the cleanest, has the highest standards and has the cleanest strategies.

To further underscore the bipartisan commitment to this, I'd like to point out at this time and introduce the May 26, 1998 letter of support to the Council on Environmental Quality, which supports this bill. And, at the same time, I would ask that we include the letters of support from the California air pollution control officers. Every major air pollution district in California supports this bill because it is good for the environment.

Now, I recognize that some have expressed concern about the issue of "opening up the Act" for other possible purposes. Mr. Chairman, I know you have that concern, I also have that concern, and I feel very, very comfortable with the fact that there are people

such as yourself who are in positions of influence that want to make sure that the act is not abused.

This bill is completely compartmentalized based on the original and the existing amended Clean Air Acts, to identify California's clean fuel strategies as being separate and apart from the national. It has always been that way, and this bill builds on that, and that is why it keeps any potential broad opening minimized, because we're specifically talking about one small section of the Act that only applies to California.

Californians have proved in the past, and they will continue to prove, that through the use of science they were able to build a better mousetrap than anyone else has seen before. With this bill, we can build on that and allow California to not only develop a cleaner air proposal, but to also address issues like the MTBE concerns.

Let's talk about MTBE. Let's be up front; there is no ingredient of gasoline that belongs in our drinking water. That much is clear. We need to talk about stopping any leaks and any contaminants that may be going into our drinking water. The tank leaks need to be addressed.

I just want to point out to the committee that what this bill does is eliminate a mandate, and replaces it with flexibility based on scientific outcome. That, in turn, means that the mandate is now not being used to block our ability to address an environmental concern that is not only one of drinking water, but also clean air. I remind you that in California cleaner burning gasoline has one-half of the toxic emissions of the Federal formula. I repeat—one-half as much toxic pollutants are allowed in the California formula than the Federal formula.

We are second to none and have been very successful.

Mr. Chairman, in closing let me just say this: I appreciate the opportunity to highlight this legislation, to highlight the success California has made working, based on the Clean Air Act of not only 1974, but also 1990, and ask that the Federal Government continue to be a partner with California in moving this agenda forward.

What really matters is not what we do here or what we say here, but how that affects the quality of life and the environment in California. We have a chance here to do the right thing. The Bilbray-Feinstein bill is common sense, good science, and it should be used as an example of why we need to be willing to do better whenever possible.

I appreciate the chance to testify today and I remain available to answer any questions. Mr. Chairman, I really want to thank you for your attention to this issue. I have been very impressed with your leadership, and I appreciate it.

Senator CHAFEE. Thank you very much, Mr. Bilbray.

Senator CHAFEE. I have got to go over and vote now, and we'll adjourn for that. If you want to stay, you can, but I think you've got some votes, yourself. I will be coming back, and I presume Senator Boxer likewise will be coming back.

Mr. BILBRAY. I will try to return immediately, Mr. Chairman. Thank you very much.

Senator CHAFEE. I don't want to guarantee that we will have questions for you. We've got your testimony here and we've got other witnesses, so——

Senator BOXER. I don't have any questions. Congressman, thank you very much.

Senator CHAFEE. Thank you very much. And I don't have questions either.

Mr. BILBRAY. Thank you very much.

Senator CHAFEE. We'll put those letters in the record.

Mr. BILBRAY. Thank you, Senator.

Senator CHAFEE. We'll take a recess now.

[Recess.]

Senator CHAFEE. All right. If we could have everyone's attention, please, I want to apologize to Senator Feinstein for taking so long, and Representative Bilbray. We've got an endangered species matter that we reported out from our committee, and we've been working on that and whether we can achieve passage on that.

Now, Senator Feinstein, if you would like to proceed, we welcome you before the committee.

STATEMENT OF HON. DIANNE FEINSTEIN, A UNITED STATES SENATOR FROM THE STATE OF CALIFORNIA

Senator FEINSTEIN. Thanks, Mr. Chairman, very much. I very much appreciate your holding this hearing. I know your concerns. I'm very pleased to work with Congressman Bilbray. I'm delighted he can be here. The chairman of the California Air Resources Board is here.

I'm submitting into the record four packets of material in support of this legislation. It begins with the governor of the State of California; the Air Resources Board; the California Environmental Protection Agency; all the California water agencies; the San Joaquin Valley Air Pollution Control District; the City of South Lake Tahoe; San Diego County Board of Supervisors; the East Bay Municipal Utilities District; the Santa Clara Valley Water District; the Ventura County Air Pollution Control Board; Amador County; the City of Santa Monica, which has 75 percent of its groundwater polluted; the county of Lake County; the California Independent Petroleum Association; and on and on.

Senator CHAFEE. How does the American Legion stand on this?

[Laughter.]

Senator FEINSTEIN. I think they'd be with us.

Essentially, what this bill asks for is a waiver of the Federal 2 percent oxygenate requirement. It would provide, only if a State's reformulated gasoline rules achieve equal or greater emissions reductions than Federal regulations, a State's rule will take precedence.

This bill would apply only to States which have received waivers under section 209(b)(1) of the Clean Air Act. California is the only State currently eligible for this waiver, and it allows us to set our own fuel standards. The other 49 States do not set their own fuel specifications.

That's why it makes sense to give this waiver. I hope to make a case to show you that there are alternatives and that we can continue to make the emissions reductions.

The current Federal Clean Air Act requires that reformulated gasoline contain this minimum 2 percent. Our bill would give gasoline manufacturers the flexibility, or even eliminate the use of MTBE, as long as the equivalent or greater emissions reductions are achieved.

In 1991, a year after the 1990 amendments to the Federal Clean Air Act that imposed the oxygenate requirements, the California Air Resources Board established its own rules, which became effective in 1996, for reformulated gasoline when the Air Resources Board determined that Federal rules would not provide sufficient clean air benefits to the State to meet the Federal ozone standards.

California's clean-burning gasoline, as I'm sure my colleague has said, provides about twice the air quality benefits of Federal reformulated gasoline. That's according to the California Air Resources Board.

In 1994, the Air Resources Board approved use of a predictive model, which is a performance-based program that allows refiners to use innovative fuel formulations to meet clean air requirements. The predictive model requires gasoline to meet State standards which provide twice the clean air benefits required by the Federal Government.

With this model, refiners can make cleaner-burning gasoline with 1 percent oxygen or no oxygen at all.

Incredibly, the Federal law prevents refiners from selling the northern California gasoline with reduced or no oxygenates in southern California, even though the northern California gasoline provides twice the clean air benefits required by the Federal Government.

Mr. Dunlap has told me that California's reformulated gasoline requirements have reduced air pollutants by 30 percent and ozone precursors—hydrocarbons and nitrogen oxides—by 17 percent. Ozone has been reduced by 10 percent in northern California and 18 percent in Los Angeles. Benzene levels have dropped more than 50 percent.

Our program has had the effect of removing 3.5 million cars out of the 24 million on the road in terms of reduced emissions.

Now, let me speak for a moment. Can gasoline companies make clean air gas without MTBE? Chevron Products Company wrote to me on September 11, 1998—and I'd ask that this letter be included in the record—and said, "We believe it is possible to replace gasoline which currently contains MTBE with a combination of ethanol-blended gasoline and non-oxygenated gasolines while maintaining the clean air benefits that the California cleaner burning gasoline program has provided."

I asked Chevron, "Can California gasoline be made without MTBE but preserve emission benefits?" Chevron responded as follows. "Yes, California allows the sale of a wide variety of gasoline formulations without oxygenates, as long as they produce the same emissions reductions as a carefully-designed base gasoline. As discussed above, this has been done at Chevron's Richmond refinery."

Formulations that do not show equivalent or better emissions performance are not allowed. This is a pure performance standard. Oxygen is not required, per se. Were there no Federal oxygen requirement, much but not all of a refiner's CBG could be made with-

out MTBE by using ethanol or no oxygenate at all. However, not all MTBE can be eliminated year-round without some increased flexibility in California regulations.

I believe Mr. Dunlap will testify that the board is prepared to do that. This can be accomplished without jeopardizing the emissions benefits.

Senator CHAFEE. We've got as a witness Mr. Jessel, who is the senior fuels specialist of Chevron.

Senator FEINSTEIN. Excellent. Well then let me skip the rest of that.

Senator CHAFEE. All right.

Senator FEINSTEIN. Now let me talk for a moment about the problem. The problem is drinking water contamination. It is wrong to clean the air by polluting the groundwater. Contamination of California's drinking water by MTBE is becoming a serious problem. In higher concentrations, it smells like turpentine and it tastes like paint thinner. It can make drinking water simply undrinkable.

MTBE is a highly-soluble organic compound. It moves quickly through soil and gravel. It poses a more rapid threat to water supplies than other constituents of gasoline when leaks occur. It is easily traced, but it is difficult and expensive to clean up.

The Association of California Water Agencies estimates that it would cost as much as $1 million per well to install treatment technology to remove MTBE from drinking water. Without these funds, the only option is to shut down wells.

A June 11 Lawrence Livermore National Laboratory study reached five important conclusions.

The first is that MTBE today is a frequent and widespread contaminant in shallow groundwater throughout California. There are presently 32,400 leaking underground fuel tanks recognized in the State, in 13,000 of which hydrocarbons are known to have impacted the groundwater. The minimum estimate of the number of MTBE-impacted sites in California is greater than 10,000.

Two, MTBE plumes are more mobile than benzene plumes. Therefore, MTBE moves quickly to infiltrate groundwater.

Three, the primary attenuation mechanism for MTBE is dispersion.

Four, ''MTBE has the potential to impact regional groundwater resources and may present a cumulative contamination hazard.'' That's a quote.

Five, we have identified two major areas of uncertainty in our results. First, presently available MTBE data are limited. Second, the issue of recalcitrants of MTBE has not been resolved.

Senator CHAFEE. Senator, I wonder if perhaps you might summarize the balance of your statement as you go along.

Senator FEINSTEIN. I will.

Senator CHAFEE. We do have quite a few witnesses.

Senator FEINSTEIN. Let me just tell you what the major contamination problems are.

Santa Monica has lost 75 percent of its groundwater. South Lake Tahoe, the Santa Clara Valley, the Great Water Company, and Sacramento, the Fruitridge Vista Water Company—drinking wells

in each of these cities have been shut down because of MTBE contamination.

Now, Californians are more dependent on groundwater as a source of drinking water than most Americans. Of California's population, 69 percent of the population relies on groundwater as their source of drinking, while for the U.S. population at large, 53 percent depends on groundwater. So we have just about 20 million people—well, more than that—dependent on this groundwater which is rapidly becoming polluted.

We will submit to you the reservoirs that are now being polluted throughout the State.

What is the solution? First, California is the only State that has this waiver. We have stricter standards. The ARB will tell you we can meet the emissions standards of Federal law without using MTBE. The groundwater is being polluted. This is unacceptable.

Therefore, we ask this committee to send out for a vote before the full Senate this bill and hold us to our word, because I believe that the California Air Resources Board is on this in a very comprehensive and substantial way, and you will see no deleterious effects on our air if this bill.

I thank you, Mr. Chairman.

Senator CHAFEE. Thank you. I've just got a couple of questions for both of you.

What's the status of this in the House, Mr. Bilbray?

Mr. BILBRAY. Mr. Chairman, we have held a hearing on the item on Earth Day. Basically, the interest was to examine the bill at this hearing and see if there can be a consensus between the two chairmen of the subcommittees and the full committees to consider if we can move this bill.

Senator CHAFEE. Okay. Now, as I get the problem, whereas MTBE does a lot of good things, as Senator Feinstein delineated, what comes of it when it gets in the drinking water—and does it get into the drinking water primarily through the leaking underground storage tanks, or is it when it is burned, when it comes out of an automobile it goes in the air and then comes down in the water? Is it solely through the leaking underground storage tanks?

Senator FEINSTEIN. That's one. In South Lake Tahoe they would tell you it is from two-stroke engines, jet skis, which have permeated now that groundwater. They are in the process of going through the necessary protocols to shut down two-stroke jet skis. In essence——

Senator CHAFEE. That would be a step ahead, by itself, I think.

Senator FEINSTEIN. Yes. It is in reservoirs now, and I would—from that comes also——

Senator CHAFEE. From surface uses——

Senator FEINSTEIN. From some surface use, and also the prime source, I think it would be fair to say, are the underground storage tanks.

Mr. BILBRAY. Noncombusted residue is what it is. It's a blow-by of the two-cycle engine. It ends up being the leaking situation. Once burned, it is not a problem.

Senator CHAFEE. Principally from the leaking?

Senator FEINSTEIN. That's right.

Senator CHAFEE. Yes. Well, I think you make a very good case. We look forward to hearing the witnesses that follow you. California obviously has really tacked this situation, tackled the whole clean air situation. As I said many times, as California goes, so goes the Nation, what you do in taking the lead.

I suppose we'll get into problems of—in my opening statement I talked about a patchwork system across the Nation, different States having different requirements. And this would—this legislation would only apply to California, remove the 2 percent oxygenate additive, whereas the other States would continue with that. So I don't know what that does as a refinery problem. That's a problem we'll ask Mr. Jessel.

It was interesting, what you had to say. I guess it was you, Mr. Bilbray, that said your production facilities in northern California should be able to come down to southern California.

Mr. BILBRAY. The Senator actually pointed it out, but I made the original motion, Mr. Chairman, on the Air Resources Board to implement the clean air reformulated gasoline regulation back when I was on the board.

But you talk about patchwork? We have two different sets of rules for one State right now. We're trying to make that into a common sense standard. And that is what we're asking to do with this bill.

California, again, has always been separate in this regard from the other 49 States under the Clean Air Act. I ask you, in closing, just to remember one thing that we said back in the 1960's and the 1970's on environmental issues. With this bill, we want to make sure that this is not going—this bill will not eliminate all our problems or be a panacea, but it will be part of the solution and move us in the right direction.

The old term we used in the 1960's and the 1970's—and you probably remember the environmental community saying this—if you're not part of the solution, you're part of the problem. We want the Federal regulations to stop being part of the problem and modify them and make them part of the solution for addressing this issue, and with your help we'll be able to do that.

Senator CHAFEE. Okay. Do either of you have anything further you would like to add?

Senator FEINSTEIN. No, but I'd like to provide this material for the committee's record.

Senator CHAFEE. Right. And, Mr. Bilbray, you asked for something to be put in the record, as well.

Mr. BILBRAY. We'll have the letters from the Air Resources Board and from the Air Pollution Professionals of California and from the health associations that support this bill.

Senator CHAFEE. Okay. Fine. Thank you both very much for testifying.

Senator FEINSTEIN. Thank you.

Mr. BILBRAY. Thank you very much.

Senator CHAFEE. We appreciate it.

And now, Mr. Sullivan, commercial of the Maine Department of Environmental Conservation, and Mr. Daniel Greenbaum, president, Health Effects Institute of Cambridge—if you gentlemen will please come forward.

I can say to Mr. Sullivan that I spend my summers in Maine. My father was born in Maine, so I've always had a deep attachment to the State of Maine.

Now, Mr. Dunlap, why don't you proceed?

STATEMENT OF JOHN D. DUNLAP III, CHAIRMAN, CALIFORNIA AIR RESOURCES BOARD, SACRAMENTO, CALIFORNIA

Mr. DUNLAP. Mr. Chairman, thank you.

Senator CHAFEE. You're much younger looking than I expected. This is such an all-pervasive organization there, the California Air Resources Board.

Mr. DUNLAP. Well, I've been before you before and I haven't aged much. You've been kind. I'm at least grateful for that.

Senator CHAFEE. At least it hasn't been an aging process for you. All right. Go to it.

Mr. DUNLAP. Okay. It is a pleasure to be with you today.

Both of our Congressional representatives did a terrific job at outlining some of the benefits, so I'll do my best not to be redundant—the benefits, that is, of the cleaner-burning gasoline program.

My administration supports S. 1576, which we believe would enable California's cleaner-burning gasoline program to reduce its dependence on MTBE and other oxygenated gasoline additives. As the only State—and it has been said several times—with its own gasoline program, we are in a unique legal and institutional position to be a proving ground for what can be accomplished nationally with a performance-based environmental program.

S. 1576 represents an opportunity for the entire Nation to observe the outcome of California's trailblazing efforts. We also believe this bill can help California respond rationally and effectively to public concern over MTBE. If we are successful, the Federal Government would benefit from our experience with a market-oriented and performance-based approach. For these reasons, it is our belief that Congress ought to quickly pass S. 1576 and Representative Bilbray's H.R. 630, rather than waiting many months or even years to craft controversial national changes to the Federal oxygenate program.

I will highlight a couple points about the performance. We're very proud of our cleaner-burning gasoline program. Senator Feinstein indicated we saw very large improvements in air quality the first year of its implementation—10 percent improvement in smog levels in Los Angeles and about 12 percent in Sacramento. That is the largest improvement. It's the largest single control measure we've ever had in California's 50-year history of controlling air pollution, so it has been a terrific success.

And yet, this success has been overshadowed by public concern over the use of MTBE the meet Federal requirements for the addition of oxygen in gasoline.

In 1990, the Congress approved an amendment to the Federal Clean Air Act mandating the use of gasoline containing 2 percent oxygen by weight in regions classified as being severe or nonattainment for the Federal ozone standard, and to remain in compliance with this Federal requirement, about 70 percent of the gasoline used in California during a given year must contain this 2 percent

oxygen by weight year round with no exceptions. This includes gasoline used in the greater L.A. area, Ventura County, San Diego, and in the Sacramento area.

In 1991, the year following the Federal Clean Air Act amendments, our board established its own cleaner-burning gasoline specs. We went ahead with these specifications because we determined that Federal reformulated gasoline would not provide sufficient clean air benefits to enable California to attain the Federal ozone standard.

As has been said, California's gasoline provides about twice the air quality benefits of Federal reformulated gasoline.

The Board has always viewed gasoline oxygenates such as MTBE as an important option that should be available to refiners for making cleaner-burning petroleum products. At the same time, it is possible to make commercial quantities of cleaner-burning gasoline without mandated levels of oxygenated additives.

We believe strongly that Federal and State law should set content-neutral performance standards for refiners to meet, rather than prescribing oxygen levels.

However, given the fact that most California gasoline was subject to the Federal oxygen requirements, the Board felt, in 1991, compelled to include the Federal oxygen requirements in its cleaner-burning gasoline specs. Thus, California was committed to the use of oxygenated gasoline in order to remain consistent with the requirements of the Federal Clean Air Act.

The story does not end there, however, in 1994, California added flexibility to its gasoline regulations by approving the use of a predictive model. This model was developed by our Board with data from emissions tests involving a large number of motor vehicles and fuels, and it predicts emissions from various gasoline formulations.

If a refiner wishes to produce gasoline that varies from the ARB fuel specs, including the oxygen requirement, it can do so provided that the predictive model indicates there will be no increase in emissions. The predictive model changed our cleaner-burning gasoline program from a command and control program based upon rigid fuel specs to a performance-based program in which refiners concentrate on meeting emission standards.

Because of this model, refiners have incentives to develop innovative fuel formulations that offer advantages over conventional formulations.

Refiners in northern California routinely use the predictive model to reduce the oxygen content of their gasoline. One refiner is now producing and selling a non-oxygenated fuel. This is possible because the Federal oxygen requirement does not apply to most northern California gasoline.

Senator CHAFEE. That is because they're in attainment?

Mr. DUNLAP. Correct. Not subject to the Federal requirement.

Incredibly, the Federal oxygen rule prevents those refiners from selling the northern California gasoline with reduced or no oxygenates in southern California, even though the northern California gasoline provides twice the clean air benefits required by the Federal Government.

The Federal oxygen rule severely limits the flexibility that our Board has been able to give refiners of California gasoline. As I pointed out, our predictive model still requires California gasoline to meet our State standards, which provides twice, as I said, the clean air benefits. The Federal oxygen rule may serve a purpose in the other 49 States which do not have their own fuel specs, but in California, a State in which we have our own comprehensive fuel standards, the Federal oxygen rule serves no useful purpose.

As has been stated—and you've said so, yourself, Mr. Chairman—there is growing public concern over MTBE. No Federal or State law mandates the use of MTBE. The refiners have chosen to use MTBE in virtually all California gasoline because it represents the most practical way, by far, to meet the oxygenate requirement. Unfortunately, MTBE releases have severely impacted drinking water supplies, as has been stated.

The concern is driven, in part, because the Federal oxygen rule gives refiners no viable alternative to the widespread use of MTBE in California. This has led many Californians to wrongly perceive that cleaner-burning gasoline represents a trade-off between clean air and clean water.

Senator CHAFEE. I'm getting a little mixed up here. And I don't claim to be an expert in all of this. But couldn't they use ethanol instead of MTBE?

Mr. DUNLAP. Yes, and some have.

Senator CHAFEE. In other words, it seems to me the real end of the piece is what happens to the MTBE if it gets out of a tank or from a two-cycle engine, or whatever it might be. And if that's all true, why wouldn't—is it less expensive? Why don't they try ethanol?

Mr. DUNLAP. As I mentioned, some have. I'll let my colleague go into those factors. But economics, availability, and the like—I've been told that if ethanol were to be used exclusively in the California fuel, all of it produced domestically wouldn't last a quarter to meet the California demand. My colleague, again, from Chevron can talk to some of that.

Senator CHAFEE. Okay.

Mr. DUNLAP. I am not suggesting that S. 1576 will prevent MTBE releases into water. California's underground tank upgrade program is the primary measure for protecting water from contamination from all fuel components.

I'm also not suggesting that S. 1576 represents a ban or restriction on the use of MTBE. Here, again, let me emphasize that the bill is content neutral. MTBE should remain an option for all refiners. But the key word here is "option." There is no inherent reason why cleaner-burning gasoline must have 2 percent MTBE or any oxygenate by weight. California refiners have shown that it is possible to make cleaner-burning gasoline with 1 percent oxygen, and even no oxygen at all.

By exempting California from the Federal oxygen rule, S. 1576 would give refiners the option of reducing the MTBE content of their gas throughout California and the bill would give refiners more options for using other oxygenates such as ethanol.

Senator CHAFEE. I would ask, Mr. Dunlap—we're trying to give everybody equal time here, so if you could summarize your last couple of pages.

Mr. DUNLAP. I will conclude with this. As long as California is subject to the Federal oxygen rule, our ability to respond to MTBE concerns will be severely limited. The burden of addressing the growing unease over MTBE in California and other States will come full force to the Nation's capital, we believe, and it will remain here in the Nation's capital.

So it is our belief that we think these two bills will present an opportunity not just for California but for the entire country.

So I thank you for your attention. I would be happy to answer any questions at the right time.

Senator CHAFEE. All right. We'll save the questions until the panel is completed.

Mr. Sullivan? And, if you could keep your remarks to around 5 minutes—when the red light comes on, that's time to wind it up if you would.

STATEMENT OF NED SULLIVAN, COMMISSIONER, MAINE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, AUGUSTA, MAINE

Mr. SULLIVAN. Thank you, Mr. Chairman. I appreciate the opportunity to speak. I'm Ned Sullivan, Commissioner of the Maine Department of Environmental Protection, and I'm pleased to come before you to share Maine's experience with Federal reformulated gasoline and with the oxygenate MTBE.

Governor Angus King sends his regards to welcome you to the State any time, and he says he's working on the visual line from bridges, which I think is an issue of interest.

Senator CHAFEE. That's very encouraging. I won't go into that now.

[Laughter.]

Senator CHAFEE. Go ahead, Mr. Sullivan.

Mr. SULLIVAN. He wanted me to let you know that he's hard at work on this matter.

Senator CHAFEE. Good. I appropriate that. I'll tell people what that is.

[Laughter.]

Senator CHAFEE. If you're designing a bridge, you want the bridge so that the railing on the side of the bridge doesn't just come right across your line of vision so you can't see the beautiful bay, river, whatever is out there. And they'll always tell you, "Federal rules prevent it." Baloney. You can get that railing so it doesn't come right where your eyesight is.

They're building a new bridge in Maine up close to where we go, and I just spoke to the governor about having the railing so that you can see the water. The fact he remembered it greatly impressed me.

[Laughter.]

Mr. SULLIVAN. Mr. Chairman, the Clean Air Act amendments of 1990 require that reformulated gas be sold in the Nation's worst ozone nonattainment areas. The law also allows a State with lesser

ozone problems, like Maine, to opt into the program. However, once in the program, only the Federal fuel may be sold in that area.

Since 1995, seven counties in southern Maine have been in the Federal reform program. I would mention that Governor McKernan, who initiated Maine's participation in the program, asked that it be sold State-wide, but was told by EPA that it could only be sold in areas that are in nonattainment with the ozone standard, so we have a fractured State in terms of our fuel supply.

The RFG blend that is sold in Maine is the same as that sold in 11 northeastern States and the District of Columbia. As required by Federal law, it must contain at least 2 percent oxygen, accomplished in the northeast primarily, if not exclusively, by adding the oxygenate MTBE.

The RFT program accounts for nearly one-third of the hydrocarbon emission reductions that Maine's southern counties are required to achieve under the Clean Air Act.

The good news is that air quality in Maine, as in California and other parts of the country, has improved since the program began. We have seen a steady downward trend in the number of days that the monitored ozone levels exceed the Federal 1-hour standard, despite a slight increase in average temperature which we've experienced in the State, which would otherwise be expected to trigger additional exceedences of that standard. There is a chart in the back of my testimony that demonstrates that.

The improved air quality has been recognized by EPA, which has revoked the 1-hour standard in four of the counties, effectively putting them into attainment for that standard.

In addition, we have monitored a reduction in the toxic compounds in our ambient air. As you know, Mr. Chairman, motor vehicles are estimated to account for roughly 50 percent of all cancers associated with exposure to air toxics; however, RFG burns more cleanly and more completely destroys toxic components of gasoline. But, more to the point today, MTBE replaces some of the cancer-causing benzene in conventional gasoline.

The first round of monitoring since RFG has been in use in Maine has shown more than a 20 percent reduction in benzene levels in ambient air, and there is a chart in my statement that demonstrates that.

So we are pleased with the progress. I also have—and I will provide you a copy of this—a recent report issued by NESCAUM on relative cancer risk of reformulated gasoline and conventional gasoline sold in the northeast, which shows a roughly 12 percent reduction in cancer-related risk comparing RFG with conventional gasoline.

Despite these benefits, Maine people have been concerned about RFG use since the program was implemented due to concerns about health risk, cost, and vehicle performance.

In every State legislative session since January 1995, a bill has been introduced to terminate Maine's RFG program. In every instance, the primary argument against the program has been the health and environmental risk that some associated with MTBE.

The resulting debates and calls for additional studies have enabled the program to continue as a key component of Maine's clean air plan, albeit it with shaky support.

We have established a health-based standard for MTBE in drinking water of 35 parts per billion. That was affirmed by the Maine State Legislature last year.

Maine has been monitoring groundwater for some time and has found MTBE in our groundwater since 1985, primarily in association with leaking underground storage tanks. We have almost completed our underground storage tank replacement program. We've replaced some 30,000 underground tanks, or 98 percent of them. So we're doing what is necessary to address that aspect of the problem.

But public concern about MTBE in groundwater heightened sharply this past spring as a string of contamination events focused even more attention on the potential for MTBE contamination of Maine's groundwater. We had three specific incidents—one associated with a new state-of-the-art gas station which had only been pumping gas for a few months, roughly 1,000 feet from two public water supplies that served some 3,000 customers in a growing community in southern Maine, North Wyndham.

MTBE was detected at trace levels in those wells, but at very high levels at the gas station—some 7,000 parts per billion—and at almost 500 parts per billion at a monitoring well just a couple of hundred feet away from the public water supply.

We've managed to keep the levels down at that public water supply, but the looming threat just up-gradient from there has really sent strong waves of concern throughout that community and the State.

Similarly, in May private wells were contaminated by MTBE in an adjoining town. Some 24 wells have detectable MTBE, 11 of those above our action level.

Senator CHAFEE. I would ask that you summarize the last couple of pages if you would, Mr. Sullivan.

Mr. SULLIVAN. Yes, sir. I will.

We believe that a car accident resulting in a small quantity of gasoline spilled caused that, as well as contamination of an elementary school well in another community in a completely different part of the State.

So what we find ourself with, Mr. Chairman, is a bit of a conundrum. We are very pleased with the air quality benefits of reformulated gas, but we are concerned about the potential risk to groundwater.

Governor King has ordered testing of 1,000 wells in the State and all public drinking water supplies to determine the extent of the contamination problem. The results of that study will be available at the end of this month.

Furthermore, he has directed us to look at alternatives. But, as we've spoken to the refiners, they've indicated that the fact that they have to include MTBE or other oxygenates in the fuel that they provide to virtually the entire northeast limits their ability to go to alternative fuels, like a low RVP fuel that could achieve the same ozone-related benefits. This is an obstacle to their meeting what may be a market demand in Maine, a strong market demand for a clean-burning fuel that doesn't contain MTBE.

So I would urge you and the committee to consider legislation that would eliminate the mandate for an oxygenate requirement in

fuel throughout the country, or in areas that move forward with an alternative that achieves the necessary air pollution goals that we have in Maine and that are mandated by the Federal Clean Air Act.

Thank you very much.

Senator CHAFEE. Thank you, Mr. Sullivan.

Senator CHAFEE. What we'll do is we'll hear from Mr. Greenbaum and then have questions for the panel.

Mr. Greenbaum?

STATEMENT OF DANIEL S. GREENBAUM, PRESIDENT, HEALTH EFFECTS INSTITUTE, CAMBRIDGE, MASSACHUSETTS

Mr. GREENBAUM. Mr. Chairman, good afternoon and thank you for the opportunity to testify. I'm honored to have the chance to appear in front of you, having spent 6 years as the Commissioner of Environmental Protection in the neighboring State of Massachusetts, and having lived to tell about it, I'm well aware of your dedication to environmental protection, probably most notably through your regular reminders to me during my tenure that the vast majority of the pollutants finding their way into the Blackstone River and into Narragansett Bay were not from Rhode Island but were from Massachusetts, and our trying to do something about that.

But I am pleased this afternoon to have the opportunity to present the views of the Health Effects Institute on the health effects of MTBE in gasoline.

For the record, HEI is an independent, not-for-profit research institute funded jointly by USEPA and the motor vehicle industry to provide high-quality and impartial science on the health effects of air pollution.

We have been engaged in scientific assessment and research on MTBE for several years, and in 1995 and 1996, at the request of the White House Office of Science and Technology Policy, and of the EPA administrator, we convened an expert panel to review all existing science on exposure to and health effects from the addition of MTBE and ethanol to gasoline.

In April 1996, this panel, which consisted of experts in toxicology, epidemiology, cancer, reproduction and development, and exposure, and was chaired by the former director of the National Cancer Institute, Dr. Arthur Upton, issued the report of its 9-month review of over 300 individual studies of MTBE and ethanol.

The study found that there were some potential short-term and cancer health effects for MTBE, but that there were not likely to be any health effects from ethanol at the levels to which most people would be exposed. When the committee then placed the MTBE effects in the context of the effects of exposure that we know about from gasoline, itself, without oxygenates, they concluded three things.

First, that the potential health effects of exposure to conventional gasoline without oxygenates includes many effects that are similar to those that could result from exposure to gasoline with oxygenates.

Second, that adding oxygenates to gasoline can reduce the emission of some pollutants, such as carbon monoxide and benzene from

motor vehicles, while at the same time increasing some exposure to aldehydes and to the oxygenates, themselves.

Finally, looking at the overall situation, they concluded that adding oxygenates is unlikely to substantially increase the health risks associated with fuel used in motor vehicles; hence, the potential health risks of oxygenates are not sufficient to warrant an immediate reduction in oxygenate use at this time.

Now, for the committee's benefit, I have attached to my testimony a copy of the report's executive summary and a list of the members of the committee, and we have also provided a full copy of the report to your staff.

Following the release of this report, research and analysis continued on several fronts. In June 1997 the Office of Science and Technology Policy issued its inter-agency report, the results of a more comprehensive review of oxygenates, and this review, which incorporated the HEI findings, drew similar conclusions to those of HEI.

It also conducted a preliminary quantitative risk assessment for MTBE based on animal cancer data and concluded that ''the estimated upper-bound cancer risks for MTBE are similar to or slightly less than those for fully-vaporized conventional gasoline, substantially less than that for benzene, a minor constituent in gasoline that is classified as a known human carcinogen, and more than 100 times less than that for one-three butadiene, a carcinogenic emission product of fuel combustion.''

Earlier this year another group, the World Health Organization, issued its own environmental health criteria for MTBE. They, too, reached many conclusions similar to those of HEI and the inter-agency report.

Now, that's not to say, having done these reviews, that everybody thought we had answered all the questions. And if you've got a group of scientists in a room, they will always say we need to do more research. Certainly in this case there were needs identified for additional research, and, following up on that, we at HEI, those in industry, in response to EPA requirements under section 211 under the Clean Air Act, and other government agencies have gone forward to answer a number of key questions.

In addition, given the recent concerns—not the recent concerns, but the concerns about drinking water, both the State of California and USEPA are pursuing additional research on the effects in water supplies.

I should note that these studies are underway, some of them not quite underway, but we have not seen a lot of new data in the last couple of years since our review. We expect these studies to provide new information over the next 12 to 18 months.

Both our report and the inter-agency report identified reports of water contamination as a concern. The inter-agency report also noted that MTBE appears to move faster in groundwater and is more resistant to biodegradation than other components of gasoline.

In response to these concerns, there has been an increase in the sampling of water supplies for MTBE, as we've been hearing about some of that here today.

To date, not surprisingly to any of us who have had to run safe drinking water programs, MTBE has not been detected in the ma-

jority of wells. In fact, it has been detected at all in a relatively small number of the water sources, and, of those where it is detected, relatively few have levels above existing or proposed levels of concern. And that's not to diminish those concerns where there have been problems, because there have been real problems.

Senator CHAFEE. I missed, Mr. Greenbaum, where you were talking about when you said, I guess, the number of water sources that were contaminated. Did you say it's probably limited? Where?

Mr. GREENBAUM. Well, for example—and I don't have the absolute most recent data, but I've seen both February and April data from the surveys of water sources in the State of California from the Department of Health Services. In February, of some 2,600 water sources that have been tested, 1.3 percent of them had MTBE detected in them, some 34. And some of those had very high levels, the Santa Monica wells obviously being among those.

And so there are serious concerns in those locations, but I think, not surprisingly for those of us who have had to run safe drinking water programs, those wells tend to be located in places where you wouldn't expect them to be—close to underground storage tanks, close to contamination areas—and I think I would be particularly upset if you saw a high percentage of wells that were supposedly carefully sited contaminated by any of these things.

However, there are some subset of the wells—where there were levels of MTBE, and some part of those where the levels were sufficient enough to shut down the wells.

So what I was suggesting was that the contamination to date doesn't appear to have been widespread, but that it continues to be of concern and regular monitoring, particularly of wells located near sources such as underground storage tanks may be appropriate, and that was the point I was trying to make about that.

Given your time limitations, in closing let me thank the committee for this opportunity to testify and to say that I'd be pleased to answer any questions about what I've said or the other details that I have provided in my background material.

Senator CHAFEE. What you seem to be saying, if I understand it, Mr. Greenbaum, is that, whereas there are indications—let's take California. There are indications of leakage and this water getting in their plumes and getting into wells, one, that your research has indicated that it's not as serious health-wise as perhaps has been portrayed. Is that correct?

Mr. GREENBAUM. Well, I was suggesting that the extent of contamination is not as serious as perhaps has been portrayed. All the wells haven't been tested, but, to date, the numbers that have been found are not that high.

I'm not suggesting that, once a well is contaminated, that there is not a health concern. There is a health concern, and both EPA and California and other bodies have established initial guidelines, and in some cases standards, for what is considered a relatively safe level and what is not.

And some number of wells, a relatively small number, have been contaminated at levels well above the levels that are considered safe.

Senator CHAFEE. I was astonished—and Mr. Sullivan spoke of what they've done in Maine. He said they've removed more than

30,000, or 98 percent of the underground storage tanks. That's an incredible figure.

Now, obviously, they did that because they thought that, to start with, I presume these are leaking. That's why you replaced them; is that right?

Mr. SULLIVAN. Mr. Chairman, it's part of both State and Federal programs to replace the bare steel tanks with more state-of-the-art facilities that have leak detection, double walls, and that type of thing. So Maine's deadline is earlier than the Federal deadline, so we're ahead of most other States in achieving that.

And we have seen MTBE for some time associated with gasoline leaks, but I think the trend that I wanted to note to you was that we're seeing it not just associated with leaking underground tanks, but with fairly limited quantities spilled. A car overturns, a state-of-the-art gas station that has only been in operation for 3 months with every bell and whistle that we could require, and we haven't even found the source at that gas station. It remains closed because of its proximity to a major water supply.

So we're seeing a new trend that is of concern that may not—that indicates that small quantities of the product may be causing contamination in a larger area than other constituents of gasoline that we'd otherwise be more concerned about.

Senator CHAFEE. Mr. Dunlap, what do you say about what Mr. Greenbaum has to say? He seemed to me to be suggesting that the health concerns were somewhat exaggerated.

Mr. DUNLAP. This year——

Senator CHAFEE. Is that an unfair characterization?

Mr. GREENBAUM. I think there are health concerns. I think it was just the extent of them.

Senator CHAFEE. All right. The extent. The testimony we've had here from the California people and yourself is that these have cited Santa Monica and different communities with great prevalence of MTBE getting in the water.

Mr. DUNLAP. Yes. I think, first of all, we have a high regard for HEI and have worked with them and we're planning on working with them on some other issues, as well, so we would agree with that characterization.

However, we're doing our own work in California. Our Department of Health Services, in concert with the UC system, is doing kind of a cradle-to-grave workup analysis on the impact of MTBE in the environment, and that's going to be urging from this review some time around the first of the year.

But, Mr. Chairman, we're very concerned and wish to be as proactive as possible, and these two bills, in particular, have great appeal to us because we have confidence in a refiner's ability to do things differently. As a matter of fact, if you had asked me 10 years ago if I thought gasoline could be reformulated in a way to allow it to continue to meet very aggressive clean air standards, I wouldn't have thought they could have done it. They can do remarkable things.

And what this will do is provide—these two bills would provide an option for refineries to try to make the product in a way that it's the same environmental benefit, but protects a very important and essential resource.

Mr. Chairman, if I might, I don't want to interrupt your train of thought——

Senator CHAFEE. No. Go ahead.

Mr. DUNLAP. There is a letter I'd like to have added to the record from me and a colleague of mine, the chairman of our State Energy Commission, to chairman Bilirakis on the Subcommittee on Health and the Environment in the House talking about some—responding to some things that the Department of Energy asserted in their testimony on the Bilbray legislation in April.

Senator CHAFEE. Okay. Fine. That would be good to submit that.

Mr. Sullivan, in effect, would you like Maine to get—you've been here for the afternoon. You've heard the testimony. Would you like Maine to get the same proposal that California is suggesting?

Mr. SULLIVAN. Yes, Mr. Chairman. That is what I came here to testify to—that we think in Maine that flexibility would be a positive development in Federal law.

Tell the refiners what are the environmental and health goals that they have to achieve—limitations on volatile organic compounds, levels of toxics, that type of thing—but don't tell them that they have to include 2 percent oxygenate.

We have, as I mentioned, been talking to the refiners about alternatives that might be provided in Maine to RFG. We want to maintain our progress on clean air. We're very committed to the goals of the region in achieving the the existing and the new ozone standard. But the refiners have said, ''Sorry. Everybody is buying reform. Reform has MTBE. That's what Maine is going to get.''

We think some have indicated a willingness to work toward flexibility if they could get some relief from Federal requirements.

Senator CHAFEE. Mr. Dunlap, I thought a very telling point—I believe it was made by Senator Feinstein—following up on what Mr. Sullivan says, is what you folks want is a performance-based standard rather than a standard based on certain criteria that have emanated from here, from Washington. Is that about it?

Mr. DUNLAP. Yes. That's true, again, because of the ability the refiners have to meet the standards without an oxygenate or less of an oxygenate than is required. We think they ought to be given the opportunity to do that.

And we have, as you imagine, an awful lot of technical discussions. We have some very talented people in the State bureaucracy that look at these things, and I can assure you that we're not going to allow any kind of a slippage in emissions reductions. We can't afford to do it. We need the tons from this source, and we're going to make sure that we get them.

I want to just make sure people don't have a false impression that we're going to loosen a standard or give people the ability to emit more. We are not.

Senator CHAFEE. Okay, gentlemen. Thank you all very much for coming here. Some of you have come a considerable distance—well, all of you have, particularly Mr. Dunlap. So thank you for coming.

Mr. SULLIVAN. Mr. Chairman, may I ask one minor point?

Senator CHAFEE. Yes.

Mr. SULLIVAN. You asked about ethanol in California, and I just wanted to note that we have found very limited ethanol available in the northeast, and none of the major refiners or suppliers have

indicated that they would provide ethanol as an alternative to MTBE as the oxygenate in the northeast.

Senator CHAFEE. They have not indicated?

Mr. SULLIVAN. They have indicated they would not.

Senator CHAFEE. They would not.

Mr. SULLIVAN. That they are adverse to that idea. Just one more factor.

Thank you very much for the opportunity.

Senator CHAFEE. Please give my regards to Governor King.

Mr. SULLIVAN. I will.

Senator CHAFEE. Thank him for his retentive memory.

Now, Mr. Jessel, senior fuels specialist at Chevron, and Mr. Douglas Durante, executive director, Clean Fuels Development Coalition of Arlington, Virginia. If you gentlemen would come forward, we'd appreciate it.

All right, Mr. Jessel. Your company has been mentioned several times here. I believe Senator Feinstein has had discussions with your officials, and we welcome you here.

STATEMENT OF AL JESSEL, SENIOR FUELS SPECIALIST, CHEVRON PRODUCTS COMPANY, SAN FRANCISCO, CALIFORNIA

Mr. JESSELL. Thank you very much, Mr. Chairman.

I do come from an area with three bridges, from which none can you see the water, and I never realized how big a public policy issue that is until I heard you speak of it today. Boy, I'm going to start writing letters, myself.

Senator CHAFEE. The best time to catch them is when they're building the bridges.

Mr. JESSELL. Well, we're about to rebuild one of them.

Senator CHAFEE. And they'll give you every excuse in the world. You've got to be ready for that. "Oh, no. can't do it. It's Federal rules." It's not so.

[Laughter.]

Mr. JESSELL. Thank you for your advice, Mr. Chairman.

It is my pleasure to be here before the committee today to testify in support of S. 1576. My name is Al Jessel. I'm a senior fuels specialist at Chevron Products Company, which is the largest producer of California reformulated gasoline.

Chevron supports S. 1576, introduced by Senator Feinstein, and similar legislation, H.R. 630, introduced by Congressman Bilbray and co-sponsored by 48 Members of the California delegation in the House of Representatives.

This legislation would remove the overlapping requirements of the Federal reformulated gasoline over the California reformulated gasoline program. I hope that after you hear the discussion today and give this legislation its due consideration you will move it through the Senate Environment and Public Works Committee and support its enactment into law.

In recognizing the serious and unique air quality concerns in the State of California, Congress allowed California authority to regulate fuels in the 1970 Clean Air Act. In 1990, however, when Congress reauthorized the Clean Air Act and created its own reformulated gasoline program, provisions were added which overlapped California's RFG program. S. 1576 would remove the overlapping

Federal requirement, which we do not believe adds anything to improve air quality in the State of California.

In California, several drinking water supplies have become contaminated with MTBE, the most widely-used oxygenate in California gasoline. Within Chevron, we have conducted a nationwide program to look at all of our gasoline handling systems and processes, and have instituted a series of additional company control measures beyond those required under Federal and State laws to further reduce the potential release of gasoline, whether it contains MTBE or not, into the environment.

There are major differences between the California and Federal RFG programs. First, California RFG results in lower emissions of smog-forming compounds than does Federal RFG. This will continue to be true, even after the year 2000 when the Federal RFG formulation is made more stringent.

Second, enforcement under the California RFG program is more effective because it is based on random sampling and testing of gasoline, rather than the Federal program, which is paper-based and self-monitoring.

In recognition of the effectiveness of California's State enforcement, EPA has provided partial exemption for California from Federal enforcement mechanisms, but that exemption sunsets at the end of 1999. Interestingly enough, passage of S. 1576 would eliminate this overlap between California and Federal enforcement, as well.

Finally, the more prescriptive Federal program requires year-round minimum oxygenate content, while the California program does not. Research has shown that oxygen is of little or no value in reducing summertime smog. Unfortunately, the public has been led to believe that reformulated gasolines cannot be made without oxygen, but they're simply made by adding MTBE or other oxygenates to conventional gasoline. This is simply not true.

As we have shown by doing it the past two summers at our Richmond, California, refinery, California RFG can be made with no oxygenate and still meet the stringent emissions reduction requirements.

While some oxygenates have physical properties that make them useful in meeting the RFG standards, oxygen, per se, is not one of them.

The public in California—and these are Chevron's customers—have become so concerned about MTBE, the oxygenate used in almost all of California RFG, that a ban was only narrowly averted in the State Legislature last year.

Senator CHAFEE. I'm mixed up where you are. What page are you on? Are you reading from your statement?

Mr. JESSELL. Yes, I am. I'm halfway down page two, assuming that it's the same page numbering. I'm not reading from the written submission, Mr. Chairman. This is a shorter version.

Senator CHAFEE. All right. I was just trying to—so you were talking about attempts in the Legislature to overrule the requirements?

Mr. JESSELL. Correct. And I wanted to add that, because of the confusion about the role of oxygen in reformulated gasolines, there were calls for banning California RFG entirely.

The debate and threat of unilateral State action are far from over. Studies mandated by the Legislature will be complete early next year, at which time the governor is required to make decisions about the future of MTBE in California gasoline.

Interestingly, the Federal oxygen mandate, the stringency of the California RFG rules, and California's gasoline distribution system have restricted the use of other oxygenates such as ethanol and unintended consequence. Ethanol was a good California gasoline blending component under the right circumstances, and we believe it will be more widely used if this legislation passes.

We believe that MTBE-blended California gasoline can be replaced by a combination of oxygenate-free and ethanol-blended gasoline.

S. 1576 would allow the State's performance-based program to work as it was intended. What would be the impact if S. 1576 became law? S. 1576 would allow individual refiners needed flexibility to further optimize their California gasoline product formulation, while still maintaining the strict emission performance targets of California RFG.

Chevron and other companies would welcome the flexibility to manufacture California RFG based solely on performance standards. The passage of S. 1576 is a critical first step in that direction. It would allow California refiners to optimize the use of oxygenates.

Chevron has reduced MTBE use in California to the limited extent possible under current rules. If S. 1576 became law, Chevron would significantly reduce or eliminate MTBE use in our California gasoline.

Thank you, Mr. Chairman, for the opportunity. If you have any questions, I'd be happy to answer them.

Senator CHAFEE. Thank you very much for that testimony.

Senator CHAFEE. Now Mr. Durante, who is the executive director of the Clean Fuels Development Coalition in Arlington, Virginia.

Mr. Durante, won't you proceed?

STATEMENT OF DOUGLAS A. DURANTE, EXECUTIVE DIRECTOR, CLEAN FUELS DEVELOPMENT COALITION, ARLINGTON, VIRGINIA

Mr. DURANTE. Thank you, Mr. Chairman.

I do appreciate the opportunity to testify here today. I am the executive director of the Clean Fuels Development Coalition, a nonprofit organization with a diverse membership that represents a variety of industry interests that include fuel oxygenate producers, American automobile manufactures, independent U.S. refiners, and others involved in energy, agricultural, and clean fuel businesses. Many of our member companies make and market the products that help to make gasoline burn cleaner.

We were asked today to direct our testimony to the merits of a prescribed formula that includes a 2 percent oxygen level such as is in Federal reformulated gasoline. We believe those merits are considerable, and we oppose legislative efforts to change the Federal RFG formula. We were also asked to comment on the RFG program in general, and on S. 1576.

Simply put, Mr. Chairman, RFG has been a fuel quality specification that has reduced emissions of carbon monoxide, more

harmful toxic compounds like benzene, and those that contribute to the formation of ground-level ozone pollution or urban smog.

This fuel quality specification, to the credit of industry and government, has been administered safely, efficiently, cost effectively, required no changes in consumer fueling and driving habits, and has had no adverse impacts in vehicle performance.

RFG with oxygenates, despite having emanated from Washington, has an exceptional track record and it has exceeded expectations for emissions and air quality benefits; it has cost less than projected, at under three cents per gallon; it has consistently outperformed other formulations and substitutes; it has reduced emissions in all vehicles using it, and even more so in older cars; it has reduced the consumption and import of crude oil; it has provided States with an easily-implemented option for reducing mobile source pollution; and it has gained wide-spread support throughout the U.S. based on its success.

Some have promoted the change to this RFG formula in order to address concerns of MTBE in water. We do not believe this objective can be obtained simply by allowing California refiners to use the CARB formula. Others claim that refiners need flexibility to meet emission reductions.

As for the first objective relating to MTBE in water, we believe the focus of any corrective measure should be on the leaking gasoline tanks. Allowing a substitute formula that will still use MTBE, as would be likely with California gasoline, is not the solution. We don't believe gasoline, MTBE, or anything else should be in water. The leaking gas tanks pose a threat to public health from exposure to a variety of chemical compounds currently in gasoline and must be dealt with. This is a serious problem that the oxygenate industry wants to help solve.

The second objective of flexibility is unwarranted. In addition to its success in reducing ozone, Federal RFG is available and inexpensive. Most importantly, we do not want to see efforts to amend the Clean Air Act and the dangerous precedent it sets nationwide to undermine what has been a very successful program.

We need to acknowledge that there is a lot we do not know about ozone formation, but what we do know is this program is working. Southern California enjoyed a 40 percent reduction in ozone exceedences the summer after RFG was introduced, and last year experienced the cleanest summer on record. Phoenix, Arizona, opted into this program in 1997, and for the first time in 10 years had an exceedence-free summer.

The presence of oxygenates in RFG sold in California has yielded air quality and health benefits well in excess of regulatory requirements and may be providing some benefits we don't even fully understand. Without such an understanding, it is impossible to guarantee the equivalency of another recipe, and the effects of allowing areas to use something other than RFG may not be cleaner air or improved public health at all.

We have done a great deal of work with the States since you've developed this program here, and the uniformity of this program is something they like, Mr. Chairman. They have the ability to gauge and understand what they are getting with this program. The fact that it is a specified, non-negotiable formula is exactly

what they're looking for. And the specter of a patchwork mismatched quilt of fuel programs presents the potential for an environmental nightmare.

This success has resulted in an extremely broad base of support. DOE and EPA have expressed their support for this program. We're continuing to get opt-ins. As recently as 2 weeks ago, the State of Missouri opted in St. Louis.

We had an opportunity in December 1997 for a dozen States and the District of Columbia that were using RFG to get out of the program. They elected to stay in so that they would get the progressive benefits that come with phase two RFG in the year 2000.

Another element that has not been discussed at all today, Mr. Chairman, is the intent of Congress to marry this issue with our energy security goals. The whole issue of energy security is something that should be considered in terms of the diversity of supply.

During the Clean Air Act deliberations, Congress intended to substitute aromatics with oxygenates in order to jump start the ethanol, ETBE, and MTBE industries, and they've done just that. We've had a dramatic increase in the production of ethanol since that time.

And most of our national goals in alternative fuels are failing miserably. We are not achieving the goals that we've set either through EPACT or through the Clean Air Act, and this gives us one of the few weapons we have to fight that battle.

And, to the extent that ethanol is used in RFG, particularly in ETBE, the environmental and energy security benefits may be even greater.

I want to point out that the development of ethanol facilities in California would be adversely affected by the removal of an oxygen requirement, which will help stabilize their market as they get into this business.

And, along those same lines, my members, consisting of both ethanol and MTBE interests, have significant capital investment in places that a response to the regulatory requirements of this program that would be at risk. All of this would be very much at risk if this were made optional.

So, in conclusion, Mr. Chairman, S. 1576 and its allowance to use the CARB formula, in our opinion, puts too much focus on the mass of emissions, and, since not all VOCs are created alike in terms of their reactivity and toxicity, we run the danger of producing a fuel that is more reactive and more likely to cause pollution.

We also need to recognize that degradation of air quality from off-road sources and non-regulated engines—that are not recognized in this model and many others that States might use—can be up to 10 percent of EOC inventory. So we need to continue to use fuel and air quality strategies that are successful, as this one has been, for all areas of the United States. RFG with oxygen is a common-sense, cost-effective approach that we want to see continued.

I thank you for your interest in holding this hearing and giving us the opportunity to testify, and would be very pleased to answer any questions.

Senator CHAFEE. Thank you, Mr. Durante.

Mr. Jessel, would Chevron be interested in selling its low MTBE gas in the rest of the country? In other words, if the 20 percent requirement was lifted for all 50 States, would you sell all across the country?

Mr. JESSELL. Yes, we would. But Chevron is in a unique position of not producing any Federal reformulated gasoline, per se, at least up until now. We have most of our refining capacity in California. We have one major refinery in Pascagoula, Mississippi, but to this date it supplies the southeast, which is not required to have Federal RFG, so it is almost moot for us.

Senator CHAFEE. Mr. Durante, if I understood your testimony correctly, you believe that the RFG program has been a success; is that correct?

Mr. DURANTE. Extraordinarily so, Mr. Chairman. Yes. And the numbers would support that.

Senator CHAFEE. One of the points that has been made here, it seems to me, is that if a refiner can meet the emission standards for Federal RFG without the oxygenate mandate, why not let them do it?

Mr. DURANTE. Well, one reason I do want to bring up—and I'm not going to base our support just on this, because this is the environment committee, but one reason was the whole idea of diversifying our energy supply, and marry this with our energy security needs. So if we have to force-feed oxygenates, then that's what we have to do.

From an environmental standpoint, though, as far as being able to meet standards without RFG, that's not necessarily some ground that we want to give.

What we're seeing—and we are working, now that we've moved sort of out of Washington into the States—is that guaranteeing equivalency is a tricky business that has not worked real well, and we are seeing a lot of areas that think they've come up with something equivalent and believe that they have, only to see it fail. And this is happening all the time.

Just recently, the State of Alabama in the Birmingham area was exceeding ozone, and we had them persuaded that RFG was the right thing for them to do, and at the last minute they decided to go with a couple of other options, which they then used. Two weeks ago, on a very hot Friday afternoon, they had six exceedences. So these things are not working.

I think what you did here in Washington was create a formula that works. It clearly works. Ozone exceedences, as evidenced by real-world data, suggests that this is the right approach.

Senator CHAFEE. I'm not quite sure I understand. This gets back to the prior question I asked about whether we want to have performance-based standards or do we want to delineate exactly what has to be done in the RFG program from Washington. In other words, if Chevron meets the requirements, no matter what they do—well, let's assume that it isn't as deleterious as MTBE is when it gets into—when it leaks out of underground storage tanks. In other words, why not let Chevron do it themselves?

Mr. DURANTE. Well, we're not persuaded that the predictive model that California uses compared to the complex model accurately recognizes all the things that form ozone. We think, for ex-

ample, considering carbon monoxide, PM—particulate matters, is not reflected—and there is a lot we've learned since we've done this a decade ago. But we don't think that current models necessarily reflect it, and we think the answer lies in, again, the dramatic reduction in exceedences.

So, again, we've got something that's working well. It is a Federal program. There are benefits to being uniform and to having some of the things that it has associated with it, so why change this?

Then, again, throughout the entire country, we could be facing a quilt approach here, a mismatch of fuels that I think is very dangerous, and the slight ease to some refiners in California to shake up this entire barrel is a very risky procedure.

Senator CHAFEE. Well, Maine said they'd be delighted to do it, likewise. They would like to have the same law apply to them.

Mr. DURANTE. Well, then you get into a whole other issue of you've got northeast States that have banded together in the past to try to fight pollution, yours included. A lot of finger-pointing goes on about who is not doing their part and who chose the fuel. I go back to this Alabama example of them choosing what they thought—and I'm sure in their hearts they don't want to exceed the ozone standard—but they chose what they thought was a good deal, and it has failed terribly this summer.

So now you've got the transport of that ozone that they failed to control blowing into another State, so I think, again, the uniformity here is a plus, not a minus.

Senator CHAFEE. Okay. Let me see. Mr. Jessel, if you didn't use oxygenates, what would you use to get the same emission reductions and maintain the octane levels?

Mr. JESSELL. What we've said is that if we didn't have to make MTBE-blended gasoline, we would use a combination of non-oxy gasoline and ethanol-blended gasoline. It's the ethanol-blended gasoline that would make up the octane deficit that we would have if we took the MTBE out.

In the non-oxy gasoline, it's nothing more than the components of gasoline that we have always made gasoline out of. Now, they are more highly-processed and much more highly-refined, because we still have to meet the stringent specifications that California imposes as part of their reformulated gasoline program, but that can be done with normal refinery hydrocarbons and normal refinery processing.

Senator CHAFEE. Okay, gentlemen. Thank you again very much for coming. Mr. Jessel, you came all the way from San Francisco. We appreciate that. Thank you, Mr. Durante, for appearing here. Thank you both, gentlemen.

That completes it.

[Whereupon, at 3:52 p.m., the committee was adjourned, to reconvene at the call of the Chair.]

[Additional statements submitted for the record follow:]

105TH CONGRESS
2D SESSION

S. 1576

To amend the Clean Air Act to permit the exclusive application of California State regulations regarding reformulated gasoline in certain areas within the State.

IN THE SENATE OF THE UNITED STATES

JANUARY 28, 1998

Mrs. FEINSTEIN introduced the following bill; which was read twice and referred to the Committee on Environment and Public Works

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A BILL

To amend the Clean Air Act to permit the exclusive application of California State regulations regarding reformulated gasoline in certain areas within the State.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. CALIFORNIA REFORMULATED GASOLINE RULES.

Section 211(c)(4)(B) of the Clean Air Act (42 U.S.C. 7545(c)(4)(B)) is amended by adding at the end the following: "If any such State that has received a waiver under section 209(b)(1) promulgates reformulated gasoline rules for any covered area of the State (as defined

in subsection (k)(10)), the rules shall apply in the area in lieu of the requirements of subsection (k) if the State rules will achieve equivalent or greater emission reductions than would result from the application of the requirements of subsection (k) in the case of the aggregate mass of emissions of toxic air pollutants and in the case of the aggregate mass of emissions of ozone-forming compounds.''.

○

STATEMENT OF HON. DIANNE FEINSTEIN, U.S. SENATOR FROM THE STATE OF CALIFORNIA

Thank you for the opportunity to discuss a serious problem affecting millions of people in California—the contamination of drinking water by the gasoline additive, MTBE.

I especially want to thank the chairman, Senator John Chafee, for his interest in this problem, for holding this hearing and I thank the other members of the committee for their interest as well.

The Legislation, S. 1576

I am here to ask for your support for S. 1576, the bill I introduced on January 28, with Congressman Bilbray. H. R. 630 is sponsored by 49 out of the 52 members of the California delegation.

Our bills, in essence, seek a waiver of the Federal 2 percent oxygenate requirement. The bills would provide that if a State's reformulated gasoline rules achieve equal or greater emissions reductions than Federal regulations, a State's rules will take precedence. The bill would apply only to States which have received waivers under Section 209(b)(1) of the Clean Air Act. California is the only State currently eligible for this waiver, a waiver allowing California to set its own fuel standards. The other 49 States do not set their own fuel specifications.

The current Federal Clean Air Act requires that reformulated gasoline contain a minimum average oxygen content of 2 percent by weight. Our bill would give gasoline manufacturers the flexibility to reduce or even eliminate the use of MTBE as long as equivalent or greater emissions reductions are achieved.

MTBE Is Not Necessary

In 1991, a year after the 1990 amendments to the Federal Clean Air Act that imposed the current oxygenate requirements, California's Air Resources Board established its own rules, effective in 1996, for reformulated gasoline because the ARB determined that Federal rules would not provide sufficient clean air benefits for the State to meet Federal ozone standards. California's clean-burning gasoline provides about twice the air quality benefits of Federal reformulated gasoline, according to the State's air board.

According to John Dunlap, Chairman of the California Air Resources Board, who will testify today, "Federal and State law should set content neutral performance standards, not prescriptive content volumes for refiners to meet." Thus, in 1994, the ARB approved use of a predictive model, which is a performance-based program that allows refiners to use innovative fuel formulations to meet clean air requirements. The predictive model requires gasoline to meet California's State standards, which provide twice the clean air benefits required by the Federal Government. With this

model, refiners can make cleaner burning gasoline with 1 percent oxygen or even no oxygen at all."

As Mr. Dunlap told the House in a April 22 hearing there, "Incredibly, the Federal oxygen rule prevents those refiners from selling the Northern California gasoline with reduced or no oxygenates in Southern California, even though the Northern California gasoline provides twice the clean air benefits required by the Federal Government."

Mr. Dunlap has told me that California's reformulated gasoline requirements have reduced toxic air pollutants by 30 percent and ozone precursors (hydrocarbons and nitrogen oxides) by 17 percent. Ozone has been reduced by 10 percent in Northern California and 18 percent in Los Angeles. Benzene levels dropped by more than 50 percent. Our program has had the effect of removing 3.5 million cars out of our 24 million from the roads.

Gasoline Companies Can Make Clean Gas Without MTBE

Chevron Products Company wrote me on September 11, 1998, "We believe it is possible to replace gasoline, which currently contains MTBE with a combination of ethanol-blended gasoline and non-oxygenated gasolines, while maintaining the clean air benefits that the California Cleaner Burning Gasoline program has provided."

I asked Chevron, "Can California gasoline be made without MTBE but preserve emissions benefits?" Chevron responded as follows:

Yes. California allows the sale of a wide variety of gasoline formulations without oxygenates as long as they produce the same emissions reductions as a carefully designed base gasoline. As discussed above, this has been done at Chevron's Richmond refinery. Formulations that do not show equivalent or better emissions performance are not allowed. This is a pure performance standards—oxygen is not required, per se. Were there no Federal oxygen requirement, much, but not all, of a refiner's CBG could be made without MTBE by using ethanol or no oxygenate at all. However, not all MTBE can be eliminated year round without some increased flexibility in California's regulations. This can be accomplished without jeopardizing the emissions benefits that California Cleaner-Burning Gasoline (CBG) was designed to deliver. The California Air Resources Board has begun the process of making the needed changes.

The attached report from the Auto/Oil Air Quality Improvement Program shows actual emissions from a fleet of test vehicles run on an oxygenated vs. a non-oxygenated California gasoline. The report concluded that emission differences between reformulated California gasoline with MTBE, and a similar reformulated California gasoline without MTBE were generally not statistically significant. The result was true in both 1989 model year fleets as well as later model years with more advanced emission control technologies. The only statistically significant difference noted was a 13 percent decrease in formaldehyde emissions from the advanced fleet with the MTBE-free fuel."

I am inserting the letter and materials from Chevron for the record.

In addition, Tosco is now using ethanol-blended gasoline and when Tosco began this past April, they say a 20 percent volume increase in sales at gas stations.

The Problem: Drinking Water Contamination

Contamination of California's drinking water by methyl tertiary butyl ether (MTBE) is a serious problem in California. In higher concentrations, it smells like turpentine and it tastes like paint thinner. MTBE can simply make drinking water simply undrinkable.

MTBE is a highly soluble organic compound which moves quickly through soil and gravel. It, therefore, poses a more rapid threat to water supplies than other constituents of gasoline when leaks occur. MTBE is easily traced, but it is very difficult and expensive to cleanup. The Association of California Water Agencies estimates that it would cost as much as $1 million per well to install treatment technology to remove MTBE from drinking water. Without these funds, the only option is to shut down wells.

A June 11 Lawrence Livermore National Laboratory study reached five important conclusions:

1. "MTBE is a frequent and widespread contaminant in shallow groundwater throughout California. There are presently 32,409 leaking underground fuel tank sites recognized in the State, 13,278 at which hydrocarbons are known to have impacted groundwater. A minimum estimate of the number of MTBE-impacted sites in California is greater than 10,000."

2. "MTBE plumes are more mobile than BTEX (benzene, toluene, ethylbenzene, and xylenes) plumes." Thus, it moves quickly to infiltrate groundwater.

3. "The primary attenuation mechanism for MTBE is dispersion."

4. "MTBE has the potential to impact regional groundwater resources and may present a cumulative contamination hazard."

5. "We have identified two major areas of uncertainty in our results. First, presently available MTBE data are limited. Second, the issue of recalcitrance of MTBE has not been resolved."

Extent of Contamination

According to the Association of California Water Agencies, MTBE has been detected in shallow groundwater at over 10,000 sites in California. Some deeper drinking water wells have also been affected. The major contamination problems are in Santa Monica (which lost 75 percent of its ground water supply), South Lake Tahoe, Santa Clara Valley (Great Oaks Water Company) and Sacramento (Fruitridge Vista Water Company). Drinking water wells in each of these cities have been shut down because of MTBE contamination.

Californians are more dependent on groundwater as a source of drinking water than most Americans. According to the U. S. Geological Survey, 69 percent of California's population relies on groundwater as their source of drinking water, while for the U. S. population at large, 53 percent of the population relies on groundwater.

In addition, preliminary data show that MTBE has been detected in the following surface water reservoirs: Lake Perris (Metropolitan Water District of Southern California), Anderson Reservoir (Santa Clara Valley Water District), Canyon Lake (Elsinore Valley Municipal Water District), Pardee Reservoir and San Pablo Reservoir (East Bay Municipal Utility District), Lake Berryessa (Solano County Water Agency).

I am submitting for the record a list of groundwater MTBE detections California prepared by the State's Department of Health Services.

S. 1576 Should Be Enacted

I hope this committee can approve this bill and that we can achieve Senate passage before this Congress ends. There are several reasons.

1. First and foremost, we must get MTBE out of California's drinking water.

That is my primary goal. It tastes bad. It smells bad. And we know it is a health hazard for laboratory animals and possibly humans.

California cannot afford to lose any more of its drinking water. According to the Association of California Water Agencies, by the year 2020, California will be 4 million to 6 million acre-feet short of water each year without additional facilities and water management strategies.

2. The dangers of MTBE were not considered when Congress last amended the Clear Air Act in 1990.

According to the Congressional Research Service, during Congress's consideration of the Clean Air Act Amendments, which became law in 1990, there was no discussion of the possible adverse impacts of MTBE as a gasoline additive. Likewise, CARB has said that when they were considering our State's reformulated gasoline regulations, "the concern over the use of oxygenates was not raised as an issue."

3. California can meet Federal clean air standards by using our own regulations.

The chairman of the California Air Resources Board this morning will tell you how our State can have equivalent or greater reductions in emissions and improve air quality using our own regulations, regulations which produce twice the clean air benefits. These standards are more stringent but offer gasoline manufacturers more flexibility than the prescriptive requirements. Furthermore, U. S. EPA has approved California's State implementation plan (SIP) required by the Clean Air Act and which is federally enforceable.

If we can achieve and maintain clean air and meet Federal standards with our own regulations, I believe we should be allowed to do so.

4. Congress has long recognized that California is a unique case.

California's efforts to improve air quality predate similar Federal efforts. We have our own clean gas program and U. S. EPA has given the State a waiver under section 209(b)(1) of the Clean Air Act to develop our own program.

Other Actions Needed Too

Leaking Underground Storage Tanks: There is no question that leaking underground petroleum or gasoline storage tanks and their pipelines are a major source of MTBE in drinking water. Fortunately, Congress has acted and all tanks are supposed to meet Federal safety standards by December 22, 1998. Unfortunately, EPA estimates that only half of the nation's 600,000 will comply by that time. In my State, the State Water Resources Control Board estimates that 31,000 tanks or about 50 percent of the total still need to be upgraded. Our State legislature has established a trust fund to assist owners in meeting the costs of repairs. I applaud this action and in addition I have appended a copy of my letter to EPA Adminis-

trator Browner asking for her recommendations for action that we should take her and information on what actions she intends to take if all tanks are not comply by the December deadline, which is a mere 3 months away.

Accelerate Research: I have written both U.S. EPA and California EPA urging a more aggressive research agenda to more definitively ascertain the human health impacts, acute and chronic. I wrote to U. S. EPA on April 11 and 14, September 24 and on November 14, 1997. EPA responded that an interagency group had met to "finalize the research strategy for fuel oxygenates." I have again written Ms. Browner to ask the status of that strategy and when we will learn more about MTBE's hazards.

Drinking Water Standard: On November 3, 1997, I wrote Browner urging EPA to promulgate a drinking water standard for MTBE. Assistant Administrator Perciasepe responded on December 8 that EPA was finalizing a drinking water advisory on MTBE. I am grateful that EPA issued a drinking water advisory in December 1997, but this is not a standard. This is guidance only. In that same letter, he indicated that EPA had "placed MTBE on the draft Contaminant Candidate List for further evaluation to determine whether or not to regulate MTBE in drinking water." I have written again to stress that this process be accelerated.

I would like to submit for the record my correspondence with EPA.

MTBE & Respiratory Problems

A number of studies are underway to analyze the impact of MTBE on human health. I would like to bring to the committee's attention the work of Dr. Peter Joseph, Ph.D., Professor of Radiologic Physics in Radiology, University of Pennsylvania Medical Center. Dr. Joseph contends that the astounding increase in asthma rates could be linked to the increasing use of MTBE in gasoline. I have urged EPA to examine this issue and hope that you can support more research on MTBE and its effect on respiratory illnesses.

I would like to submit for the record Dr. Joseph's letter to me and his study, "Changes in Disease Rates in Philadelphia Following the Introduction of Oxygenated Gasoline."

Conclusion

Millions of Californians should not have to drink water contaminated with MTBE. I believe we can put in place requirements for clean gasoline that do not degrade the air but that also do not contaminate our water.

I look forward to working with you toward this end.

[Statements and documents referenced in Senator Feinstein's statement follow:]

CITY OF MILPITAS,
Milpitas, CA 95035, September 3, 1998.

HONORABLE PETE WILSON, *Governor,*
First Floor, State Capitol,
Sacramento, CA 95814

Subject: Resolution Urging a Prohibition on the Use of MTBE in Gasoline

DEAR GOVERNOR WILSON: On September 1, 1998, the City Council of the City of Milpitas adopted Resolution No. 6810 urging you to employ your executive powers to prohibit the use of Methyl Tertiary-Butyl Ether (MTBE) and other ether oxygenates in gasoline in California. A copy of the Resolution is attached.

The City of Milpitas relies on local groundwater aquifers to supply over 40 percent of the water needs of its customers. Contamination of those groundwater supplies by MTBE or other ether oxygenates would create a very serious water quality problem, which would be extremely expensive to correct. The City's water customers, which include some of the largest electronic firms in the world, rely on high quality water for human consumption as well as industrial use.

Your efforts to prohibit the use of MTBE are appreciated.

Very truly yours,

HENRY MANAYAN, *Mayor.*

MILPITAS, CA, RESOLUTION NO. 6810

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MILPITAS REQUESTING THE GOVERNOR TO PROHIBIT THE USE OF METHYL TERTIARY-BUTYL ETHER OR OTHER ETHER OXYGENATES IN GASOLINE

Be it Resolved by the City Council of the City of Milpitas, California ("City") as follows:

Whereas, Methyl tertiary-butyl ether ("MTBE") represents a threat to groundwater and surface water supplies in California; and

Whereas, MTBE is difficult and expensive to remove once it is in the water supply; and

Whereas, MTBE is highly soluble in water, shows a high degree of mobility in soils and persistence in the water and has a very low taste and odor threshold; and

Whereas, although the health effects of MTBE are not well known, it is a possible human carcinogen; and

Whereas, the City is responsible for developing and maintaining a safe, healthful, potable and reliable water supply for the more than 62,000 residents and water customers of the City; and

Whereas, the City's objectives include water quality protection and enhancement; and

Whereas, the City relies upon groundwater to supply the water needs of some of its customers; and

Whereas, MTBE has been detected at nearly 300 leaking underground storage tank sites in Santa Clara County; and

Whereas, MTBE has been detected at very low levels in at least one drinking water well at a location in the Santa Clara Valley not within the City; and

Whereas, the mechanisms of MTBE contamination include leading underground storage tanks, other gasoline storage and distribution systems, gasoline-powered water craft, storm water runoff, and rainfall washout; and

Whereas, to protect the public health and welfare the California Department of Health Services is in the process of promulgating a Maximum Contaminant Level for MTBE in drinking water.

Now Therefore Be It Resolved, that the City Council of the City of Milpitas urges a prohibition on the use of MTBE or any other ether oxygenate as an additive to gasoline within the State of California.

Be It Further Resolved that the City Council of the City of Milpitas urges the Governor to employ his executive powers to achieve removal of MTBE and other ether oxygenates as additives to motor vehicle fuels in the Sate of California in order to protect the State's valuable water resources, and to work with the appropriate authorities at the Federal level to achieve this prohibition and to identify alternative methods to achieve acceptable air quality objectives.

Passed and adopted this 1st day of September, 1998,

ORANGE COUNTY WATER DISTRICT,
Fountain Valley, CA, September 1, 1998.

HONORABLE DIANNE FEINSTEIN,
United States Senate,
Los Angeles, CA 90025.

DEAR SENATOR FEINSTEIN: At the request of the Board of Directors of the Orange County Water District (OCWD), I have been asked to forward the attached August 19,1998, Board of Director's Resolution concerning methyl tertiary butyl ether (MTBE). This Resolution reflects a real, growing concern on the part of the OCWD Board about the realities of MTBE contamination. While low taste and odor thresholds will keep the consumers safe from MTBE's health effects, it remains a very real economic threat through possible contamination of future water supplies.

A recent study by the Lawrence Livermore National Laboratory (LLNL), entitled "An Evaluation of MTBE Impacts to California Groundwater," found that MTBE is more mobile in groundwater than other gasoline additives and is extremely slow to degrade in the environment.

We feel the results of the LLNL study clearly justify the recommended actions mentioned in our Resolution. We ask for your strongest support of these actions which we feel are in the best interests of all Californians. Please keep us informed on any actions you may take in support of this Resolution.

Sincerely,

WILLIAM R. MILLS JR., P.E., *General Manager.*

RESOLUTION OF THE BOARD OF DIRECTORS OF THE ORANGE COUNTY WATER DISTRICT CONCERNING METHYL TERTIARY BUTYL ETHER (MTBE)

Whereas, the Orange County Water District is concerned about the potential for widespread contamination of Orange County's drinking water supplies by methyl tertiary butyl ether (MTBE) and is carrying out an MTBE action plan; and

Whereas, MTBE, a chemical additive in gasoline that reduces carbon monoxide exhaust emissions, is also contaminating ground and surface waters throughout California, primarily due to leaking underground gasoline storage tanks and gasoline-powered watercraft on lakes, reservoirs and rivers; and

Whereas, water agencies and their customers should not be burdened with funding the cleanup of MTBE contamination, as these costs could force water suppliers to significantly raise their water rates for residential and industrial customers; and

Whereas, a recent study by the Lawrence Livermore National Laboratory concluded that MTBE is more mobile in groundwater than other gasoline additives; is extremely slow to degrade in the environment; and demonstrates a low odor and taste threshold; and

Whereas, while MTBE's low taste and odor thresholds will keep consumers safe from adverse health effects, it remains a very real economic threat to future water supplies;

Now, Therefore, Be It Hereby Resolved, that the Board of Directors of the Orange County Water District, based on the results of the Lawrence Livermore National Laboratory study, strongly recommend the following actions be taken by local, state and Federal officials to immediately address the MTBE issue:

- Support development of legislation banning MTBE as a gasoline additive within 2 years, while continuing to maintain or enhance air quality.
- Augment the State's regulatory agencies' resources that deal with MTBE contamination, including discovery, monitoring and clean up, so that existing and yet undiscovered MTBE contamination can be remediated on an expedited basis.
- Support regulatory change that prevents use of gasoline powered watercraft on water supply reservoirs.

CHEVRON PRODUCTS COMPANY,
San Francisco, September 11, 1998.

HONORABLE DIANNE FEINSTEIN,
United States Senate,
Washington, DC 20510–0504

DEAR SENATOR FEINSTEIN: Thank you again for meeting with me last week while I was in Washington. We appreciate your leadership in sponsoring S. 1576 and strongly support its enactment into law. This is an issue of great concern to Chevron and to our customers. While we believe MTBE is safe, if handled properly, and is not a public health threat, we do recognize there are environmental concerns and have been actively pursuing alternatives to the continued use of MTBE in gasoline in California.

As I mentioned, we have produced significant quantities of gasoline in California without MTBE, in areas where Federal law does not require oxygenates to be added. Supplying the entire California gasoline market will require further refinery modifications and additional changes to both Federal and state gasoline requirements. We believe it is possible to replace gasoline, which currently contains MTBE with a combination of ethanol-blended gasoline and non-oxygenated gasolines, while maintaining the clean air benefits that the California Cleaner Burning Gasoline program has provided.

However, significantly reducing or eliminating MTBE from our gasolines without compromising those clean air benefits is first dependent on getting the needed change in Federal law, which S. 1576 provides. Passage of S. 1576 would allow refiners to use the most effective formulations of gasoline whether or not they contain oxygenates, as long as they meet the stringent California gasoline emissions performance standards. We therefore strongly support this important legislation.

We will also need flexibility in the regulations of the California Air Resources Board. We have been discussing regulatory changes with CARB that we hope will give refiners the flexibility needed to provide gasolines that meet or exceed clean air standard, without the continued need to use MTBE.

Additional information to address issues you raised is included hi the attachments to this letter. The California Cleaner Burning Gasoline has been very effective hi helping reduce vehicle emissions and improve air quality. However, we do need Congress and CARB to make changes he the requirements that limit our ability to produce gasoline without MTBE. Your continued leadership hi this effort appreciated.

Sincerely,

DAVID J. O'REILLY, *President.*

TOSCO CORPORATION,
Concord, CA, October 17, 1997.

JOHN D. DUNLAP, III,
Chair, Air Resources Board,
2020 L Street, 4th Floor,
Sacramento, CA 95812.

DEAR MR. DUNLAP: In light of the continuing controversy surrounding MTBE, Tosco would like to communicate its concerns directly to you. We believe that responsible action should be taken sooner rather than later to allow the reduced use or elimination of MTBE in gasoline. Our call to action is based on growing evidence. of the potential for extensive MTBE contamination that could occur and the resulting liability the state, and ultimately our citizens, could face to restore California drinking water supplies.

Tosco, as you know, is one of the largest refiners and marketers of gasoline in California. It is now apparent that the issue of potential MTBE contamination of the state's water was not adequately considered prior to implementation of the Federal and state reformulated gasoline regulations. Consequently, we find ourselves in a "Catch 22" since the current regulatory framework effectively leaves us no choice but to use MTBE to meet clean fuel standards.

A good first step, which I understand you support, would be passage of H.R. 630 (Bilbray) currently pending in the U.S. House of Representatives. This bill, which would provide some of the flexibility refiners need to begin shifting away from MTBE, already has the support of most of the California Congressional delegation.

There may be other regulatory changes which could be made to allow greater use of other oxygenates (such as ethanol) or the use of no oxygenates. Based on the recently released Auto/Oil study, it appears that oxygenates will not be needed in the long run to achieve reduced emissions. It seems eminently logical, given the obvious water quality problems associated with MTBE, to begin immediately to move toward complete oxygenate flexibility.

We believe the timetable for action set up by the recently passed legislation is too slow and that the state should take decisive action immediately to begin to move away from MTBE. Tosco is committed to working cooperatively with ARB, other agencies, the Legislature and industry to resolve this problem promptly, without endangering the state's clean air or clean water programs, and without negatively affecting the supply or cost of gasoline in California.

Sincerely,

DUANE B. BORDVICK, *Vice President,*
Environment and External Affairs, Tosco Corporation.

STATE OF CALIFORNIA,
OFFICE OF THE GOVERNOR,
Sacramento, CA, August 7, 1998.

HONORABLE JOHN CHAFEE, *Chairman,*
Committee on Environment and Public Works,
United States Senate,
Washington, DC 20510.

DEAR MR. CHAIRMAN: I understand that during the Senate floor debate on the fiscal year 1999 appropriations bill for EPA, Senator Feinstein explored attaching her legislation, S. 1576, as a floor amendment to that appropriations bill. I support S. 1576, and its comparison measure introduced by Rep. Brian Bilbray, H.R. 630. The State has testified before the House Commerce Committee in favor of H.R. 630.

While I regret that Senator Feinstein was initially unsuccessful, I am pleased that you agreed to hold a hearing on S. 1576 in September. I urge you to schedule a legislative hearing as, early as possible, while there is still ample time led In this Congress to enact legislation. Both S. 1576 and H.R. 630 recognize the exemplary history of California's clean air programs by allowing, US, the flexibility to have our existing reformulated gasoline program—which is performance-based and flexible with respect to gasoline recipes—operate in lieu of the Federal program in our state. The Clean Air Act already provides special rules for California. This legislation is a logical extension of that principle.

Thank you in advance for your cooperation.

Sincerely,

PETE WILSON, *Governor.*

CALIFORNIA ENERGY COMMISSION,
Sacramento, CA, September 15, 1998.

HONORABLE DIANNE FEINSTEIN,
United States Senate,
Washington, DC 20510

DEAR SENATOR FEINSTEIN: On behalf of the California Energy Commission (CEC), I am pleased to communicate our strong support for S. 1576. The CEC endorses the additional flexibility that will be given to all California refiners while still maintaining the benefits of California's more stringent reformulated gasoline (RFG) program.

We believe that the use oxygenates, without the regulatory requirement, will achieve a more natural equilibrium in the market for transportation fuels. We expect the oxygenate demand could be lower under S. 1576. This would also put downward pressure on the price that refiners pay, thus providing the potential to reduce their costs further. Both of these situations could mean lower gasoline price for California consumers.

In closing, the California Energy Commission applauds yow sponsorship of S. 1576 and believes that the passage of this bill will translate into water flexibility for the refining industry without sacrificing the environmental benefits of our existing reformulated gasoline regulations.

Sincerely,

DAVID A. ROHY, *Vice Chair,*
California Energy Commission.

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY,
Sacramento, CA, February 28, 1997.

HONORABLE THOMAS J. BLILEY, JR., *Chairman,*
Committee on Commerce,
U.S. House of Representatives,
Washington, DC 20515.

DEAR CHAIRMAN BLILEY: I An pleased to express the support of the California Environmental Protection Agency (Cal/EPA) for H.R. 630, the reintroduction of last session's H.R. 3518. Under this bill, pertaining to Federal reformulated gasoline regulations, California's cleaner burning gasoline regulations would apply in California lieu of existing Federal regulations as long as these regulations achieve equivalent or greater reductions in emissions of ozone-forming compounds and toxic air contaminants.

As you know, California has historically faced the most challenging air pollution problems in the Nation end has therefore been the only state allowed by the Federal Clear Air Act to develop and administer its own motor vehicle emission standards. As long as these standards are at least as protective as the Federal standards and meet other criteria, our California motor vehicle emission standards can be substituted for the Federal standards. California is also the only state given unconditional authority under the Federal Clean Air Act to adopt its own emission control standards for gasoline and other motor vehicle fuels.

The 1990 Clean Air Act Amendments directed the U.S. Environmental Protection Agency (EPA) to adopt a Federal reformulated gasoline program for urban areas with the most serious smog problems. Those amendments mandated that Federal reformulated gasoline include various specified properties and imposed limitations on the level of flexibility that the U.S. EPA could build into the programs.

Unfortunately, the overlapping applicability of the state and Federal reformulated gasoline regulations substantially reduces the extent to which refiners can take advantage of the flexibility built into the California program. Refiners are required to comply with the Federal Clean Air Act even though the California predictive models shows that a different formulation will achieve equivalent or better air quality benefits. Refiners are also required to meet complicated Federal reporting and recordkeeping requirements that are not necessary for compliance with the State program. Although we are pleased that U.S. EPA exempted California refiners from a number of the Federal enforcement requirements, a refiner can lose that exemption as a result of even a single violation of the California regulations.

Now that the California and Federal reformulated gasoline regulations are in place, it is clear that it makes best sense for the state relations to apply in lieu of the Federal regulations, as is the case with California's motor vehicle emission standards. Enactment of a bill similar to last session's H.R 3513 is necessary so that refiners can fully use the flexibility built into the California program, and can avoid

needless paperwork requirements. This will reduce the costs of producing California gasoline, and should lead to lower prices at the pump.

Furthermore, H.R. 3518 was carefully crafted to assure that Californians enjoy all of the health benefits of reformulated gasoline. The California gasoline regulations have been approved by U.S. EPA as part of our State Implementation Plan, and are thus federally enforceable.

Our program has a proven, significant effect on California's air quality. Following the introduction of California's gasoline program in the spring of 1996, monitored levels of ozone, on a weather-adjusted basis, were reduced by 10 percent in northern California and 18 percent in the Los Angeles area. Benzene levels dropped by more than 50 percent.

The California regulations would replace the Federal regulations only if they will achieve equivalent or greater emission reductions. We support the approach in last year's bill to base the equivalency analysis on the aggregated emissions of toxic air contaminants, since section 21(k)(10)(C) of the Clean Air Act defines "toxic air contaminants" for purposes of the Federal reformulated gasoline requirements as the aggregate emissions of five identified compounds.

For these reasons, Cal/EPA fully supports H.R. 630. Please let me know if there is anything myself or Cal/EPA can do to assist in its passage.

Thank you for your attention to this matter. Should you have any questions, please contact me at (916) 322–5840.

Sincerely,

JOHN D. DUNLAP, *Chairman,*

ASSOCIATION OF CALIFORNIA WATER AGENCIES,
Sacramento, CA, September 14, 1998.

HONORABLE DIANNE FEINSTEIN,
United States Senate,
Washington, DC 20510–0504

RE: ACWA Support for S. 1576, Legislation to permit the exclusive application of California State regulations regarding reformulated gasoline in certain areas within the State

DEAR SENATOR FEINSTEIN: Thank you for the opportunity to submit this statement on behalf of the Association of California Water Agencies (ACWA) regarding S. 1576 and larger issues surrounding gasoline additives and their potential impact on California water suppliers.

ACWA's 437 public water agency members collectively manage and deliver 90 percent of the urban and agricultural water used in the state. Over 30 million Californians rely on ACWA members to provide a safe and reliable supply of drinking water to their homes, schools and businesses.

The use of methyl tertiary butyl ether (MTBE) in gasoline is presenting a new and ominous challenge for water suppliers in California. Though the subjects of gasoline additives and air quality regulations may be unfamiliar terrain for water agencies, ACWA members have a compelling interest in decisions regarding the continued use of MTBE and other oxygenates in gasoline. The potential for widespread drinking water contamination and the tremendous treatment costs involved demand that water utilities weigh in to ensure that water supply impacts receive due attention and consideration in the MTBE debate.

MTBE's unique properties pose a contamination threat to both groundwater and surface water in California. Because MTBE is highly water soluble and does not easily biodegrade, it can percolate through the ground into groundwater basins faster than other components of gasoline and is much more difficult to remove once it is there.

Sampling by ACWA members and other agencies shows that MTBE is indeed finding its way into groundwater and surface water sources. MTBE has been detected at relatively high levels in shallow groundwater basins in several parts of the state and in deep drinking water wells, primarily as a result of leaking underground storage tanks and / or pipelines. The most notable example is in the City of Santa Monica, where 80 percent of the water supply has been lost due to MTBE contamination. In South Lake Tahoe, 12 of the South Lake Tahoe Public Utilities District's 34 wells have been shut down due to the threat of MTBE contamination from nearby leaking underground storage tanks. Three of those wells have already been contaminated. Wells in the Santa Clara and Sacramento areas have also been shut down due to MTBE contamination.

A statewide survey of surface water sources coordinated by ACWA shows MTBE contamination at lower but potentially significant levels in reservoirs throughout

California. Preliminary results indicate anywhere from 60 percent to 75 percent of the reservoirs sampled have detectable levels of MTBE. Surface water contamination is believed to result primarily from use of motorized watercraft on lakes and reservoirs.

Though some call MTBE the most studied chemical in gasoline, little definitive data is available about the health effects of MTBE in drinking water. The state Department of Health Services has established an interim "action level" of 35 parts per billion (ppb), and has proposed a secondary (consumer acceptance-based) standard for MTBE at 5 ppb. A primary (health effects-based) standard is due in July 1999.

The U.S. Environmental Protection Agency has issued a drinking water advisory for MTBE recommending a maximum of 20 ppb—40 ppb to avoid taste and odor impacts and protect public health.

Initial studies show that consumers can detect MTBE at relatively low levels. With such a low taste and odor threshold, MTBE contamination can render drinking water unacceptable to consumers at levels much lower than California's current action level and EPA's advisory level.

Most drinking water systems in California are not equipped to remove MTBE. The limited research that has been done to date indicates that MTBE is more difficult and more expensive to remove from drinking water than other components of gasoline. Developing, constructing and operating treatment processes to remove MTBE will be tremendously costly at a time when public water agencies already face mounting costs to keep healthful water flowing to their customers' taps. Some utilities estimate that treatment costs could exceed $1 million for each contaminated drinking water well.

ACWA members believe several actions are needed to protect water sources and drinking water consumers from the impacts of MTBE use. One of the most important is passage of legislation that provides flexibility to California to meet air quality goals without the use of oxygenates such as MTBE that pose a threat to drinking water sources.

The California State Legislature passed two bills this session which target the fuel oxygenate issue. SB 2198 (Skier, Leslie), an ACWA-sponsored bill, will provide $20 million over 3 years for water utilities to pay for costs stemming from contamination of drinking water by gasoline additives such as MTBE. AB 1642 (Bower), will expand the types of oxygenates that can be added to California gasoline by prohibiting the application of oxygenate content cap. This would allow oil companies the flexibility of using oxygenates other than MTBE, such as ethanol, in California gas. Both bills are awaiting signature by the Governor.

ACWA supports S. 1576 and similar legislation in the Senate that takes a related approach. The Association believes passage of S. 1576 would provide a critical first step away from regulatory constraints that create an unjustified and unacceptable tradeoff between air and water quality protection.

California simply cannot afford to lose any of its limited water resources to MTBE contamination. According to projections by the State's Department of Water Resources, California will be 4 million to 6 million acre-feet short of water each year by 2020 without additional facilities and water management strategies. Given these growing demands, protection of our water resources must be given full consideration in every forum in which MTBE and other oxygenates are evaluated.

The potential for drinking water contamination and the tremendous treatment costs involved warrant serious consideration by the Senate Environment and Public Works Committee as it evaluates any legislation affecting gasoline specifications. ACWA stands ready to assist the committee, State and Federal agencies and industry representatives as they seek to address MTBE and related issues.

Thank you for this opportunity to express ACWA's support for S. 1576.

Sincerely,

STEPHEN K. HALL, *Executive Director.*

SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT,
Fresno, CA, April 1, 1998.

HONORABLE DIANNE FEINSTEIN,
United States Senate,
Washington, DC 20510

DEAR SENATOR FEINSTEIN: The San Joaquin Valley Unified Air Pollution Control District strongly supports H.R. 630, as your bill would provide California with greater authority over its clean air program by allowing California's cleaner-burning gasoline regulation to apply in lieu of Federal reformulated gasoline regulations. Cali-

fornia's reformulated fuel would be required to achieve equivalent or greater reductions in emissions of ozone forming compounds and toxic contaminants.

H.R. 630 is needed because oil refineries must now simultaneously implement California's cleaner-burning gasoline regulations and the regulations for Federal reformulated gasoline in most of southern California and the Sacramento region. This results in regulatory duplication, inconsistent regulatory requirements, and unnecessary costs without deriving any additional air quality benefits.

Furthermore, Federal law requires a strict gasoline recipe which mandates use of specified levels of oxygenates such as MTBE and ethanol. H.R. 630 in combination with proposed state of California actions, provides greater flexibility for oil refiners to use oxygenates in lesser amounts or no oxygenates at all to provide cleaner-burning gasoline.

Sincerely,

DAVID L. CROW, *Executive Director.*

STATEMENT OF PROCEEDINGS FOR MEETING OF THE COMMUNITY DEVELOPMENT COMMISSION OF THE COUNTY OF LOS ANGELES

TUESDAY, AUGUST 18, 1998

Recommendation as submitted by Supervisor Antonovich: Support Congressman Bilbray and Senator Feinstein's amendments to the Clean Air Act to repeal the mandated use of oxygenates in gasoline, instruct the County's Legislative Advocates in Washington DC to work for passage of the amendments; and send letters expressing the Board's support for passage of the amendments to the Congressional Leadership and the California Congressional Delegation. APPROVED (See supporting document)

Vote: Unanimously carried.

The Board has approved Supervisor Mike Antonovich's motion supporting Federal legislation repealing mandated use of carcinogenic oxygenates, such as methyl tertiary butyl ether (MTBE) in gasoline.

"This carcinogen has been found in well water, lakes and reservoirs. This is the result of motorboat exhaust. It makes no sense to have the Federal Government mandate this dangerous pollutant when there are viable alternatives," Antonovich said.

"A study at the University of California, Los Angeles, also revealed that MTBE is leaking from 10,000 gasoline storage tanks statewide," he added.

Antonovich noted that lawsuits have been filed seeking to ban MTBE in gasoline.

The Board's action instructs the counts legislative advocates Washington, DC to work for passage of the legislation and five-signature letters to congressional leadership and to to California congressional delegation.

MOTION BY SUPERVISOR MICHAEL D. ANTONOVICH—MTBE (GASOLINE ADDITIVE)

A lawsuit seeking to ban the gasoline additive, MTBE, has been filed against the largest oil companies doing business in California. MTBE, according to a study currently underway at UCLA, is leaking from 10,000 tanks across California. These leaks constitute a potential health hazard as the MTBE, a suspected carcinogen, seeps into drinking water sources.

This is the dark side of MTBE. However, it also has a good side. MTBE is an oxygenate that is a key ingredient of cleaner burning gasoline. According to the California Air Resources Board, using MTBE in gasoline has eliminated an amount of carbon monoxide equivalent to removing 3 million to 4 million gas powered vehicles from California's streets and freeways.

Use of oxygenates such as MTBE in gasoline is mandated by Federal law in nonattainment areas. However, these mandates are an unnecessary intrusion into local clean air efforts. There are two alternatives to oxygenation: 1) use of ethanol blends, which are now proving successful in a Bay Area pilot project; 2) a computer model in which the different components of gasoline are formulated into a blend that meets Air Resources Board standards for reformulated gasoline.

Congressman Brian Bilbray and Senator Dianne Feinstein have introduced amendments to the Clean Air Act repealing the oxygenation mandate. California should have access to the full spectrum of strategies, so long as emissions standards are met. This would help us to protect both our air and our water.

I, *Therefore, Move* that this Board:

1. Instruct the County Counsel and Chief Administrative Officer to review the lawsuit and make recommendations to this Board as to whether Los Angeles County should file an amicus brief on behalf of the plaintiffs;

2. Support the Bilbray and Feinstein amendments to the Clean Air Act repealing the mandated use of oxygenates in gasoline;
3. Instruct our advocates in Washington, DC, to work for passage of these amendments; and
4. Send copies of this motion to the congressional leadership and the California congressional delegation.

CITY OF SOUTH LAKE TAHOE,
September 14, 1998.

HON. DIANE FEINSTEIN,
United States Senate,
San Francisco, CA 94105

DEAR SENATOR FEINSTEIN: MTBE, a gasoline additive, is a growing threat to water supplies in California and, indeed, around the nation. In South Tahoe during the last year, we have lost 35 percent of our drinking water wells, supplying 17 percent of our water, duo solely to MTBE contamination of our underground aquifers. This is clearly a problem that requires immediate attention from California lawmakers and regulatory officials.

The answer to the MTBE threat in South Tahoe is two-fold. First we need timely and efficient remediation of MTBE contamination that now threatens water quality. Remediation is an arduous and complicated process that, as yet, has not been accomplished at levels necessary to protect our water. Second, given the fact that the MTBE releases have occurred due to a variety of malfunctions and human error at gas stations with tank systems updated to meet 1998 underground tank requirements, it is reasonable to conclude that as long as MTBE is present in gasoline sold in South Lake Tahoe, our vulnerable groundwater will always be at risk.

Various legislative and regulatory bodies proclaim their empathy at our plight, but despite this expressed concern, drinking water wells that serve our citizens are no more protected than they were a year ago; no plume has been remediated, any, in fact, contamination continues to expand,

We are in a serious situation, and we need your help.

We support S. 1576. The policies of the State of California, however, prompt us to urge Federal action further than the bill provides. The use of MTBE must be restricted in areas where groundwater has been shown to be highly vulnerable to MTBE contamination, and where the groundwater is the source of community drinking water.

Thank you for consideration of this urgent matter.

Sincerely,

HAL COLE, *Mayor.*

SOUTH TAHOE PUBLIC UTILITY DISTRICT,
South Lake Tahoe CA, September 14, 1998.

HONORABLE DIANNE FEINSTEIN,
United States Senate,
Washington, DC 20510.

DEAR SENATOR FEINSTEIN: Please distribute this letter, urging support for S. 1576, to your colleagues. The South Tahoe Public Utility District needs a concerted governmental effort to protect our drinking water aquifers from the insidious intrusion of MTBE, and we hope this legislation can help facilitate a coordination that is sorely lacking between air and water concerns.

Lake Tahoe is often called the "jewel in the sky." While much Federal attention has been given to the problem of declining lake clarity, the MTBE threat to our underground aquifers is immediately impacting the water supply of residents and visitors in South Tahoe—and the destruction of this natural resource deserves the same attention without delay.

South Tahoe relies solely on our underground aquifers for our drinking water supply. Because of MTBE emanating from tank systems (updated to 1998 standards) at gas stations, 35 percent of our wells are closed, resulting in a loss of 3.4 million gallons of water a day. In the last year, we have lost 17 percent of our water supply due solely to MTBE.

We have been informed by air specialists at EPA Region IX that the air quality at Tahoe is such that oxygenates are not required under the Clean Air Act. In a letter to the editor at the Sacramento Bee, California Air Resource Board Chairman John Dunlap stated that the CARB "has never required or even certified the use

of MTBE . . . a Federal law approved by Congress required the use of MTBE or similar additives in most California gasoline...

Given that nobody is requiring MTBE use here, we are left with a conundrum: Are the aquifers being destroyed to address a non-existing problem?

Senator Feinstein, we are a small public agency. Our total annual budget for supplying water is $7 million, but by October we will have spent over $1 million trying to protect the drinking water from MTBE. We do not have the financial, technical, or legal resources to waste on a contaminant that public officials tell us serves no useful purpose in this tiny, but important, area that is a national treasure.

Please help us. We would prefer to see legislation that specifically prohibits MTBE in areas, like South Tahoe, where it has been shown that groundwater is extremely vulnerable to MTBE contamination and where that groundwater is the sole source of drinking water. Failing an outright use restriction, we appreciate any effort whatsoever that will help us save our drinking water.

Sincerely,

JAMES JONES, *President.*

STATUS OF WELLS IMPACTED BY MTBE

Summary

Wells shut down due to detections of MTBE in the well 8 (7 operational and 1 on standby).

Wells shut down because of proximity to MTBE plumes: 4.

Percentile of District's wells shut down because of MTBE: 35 percent.

Lost production capacity due to shutdowns: 3.4 million gallons per day.

Percentage of potential water production lost because of well closures: 17 percent.

Helen 1 & 2

Capacity: 362 gallons per minute.

Status: shut down in March 1998, due to a "drive off" at Beacon/Ultramar 250 feet from wells.

Beacon (South Lake Tahoe) and adjoining property are the potentially responsible parties.

Concentrations in nearby monitoring well of 3,300 ppb. We have informed Lahontan several times of our concerns that Beacon's remedial action plan will not remediate offsite contamination threatening our wells. Beacon refuses to cooperate with STPUD efforts to investigate the plume.

On September 11 Lahontan charged Beacon/Ultramar with violating their Amended Cleanup and Abatement Order and fined them $6,000.

Future: These wells may be history. Additional investigation is required to determine the hydraulic connectivity of the wells with the plume.

Blackrock 1 & 2

Capacity 165: gallons per minute.

Status: Shutdown in November 1997

Tahoe Tom's is the responsible party. A gasoline plume was originally discovered in 1990 and we suspect the new tank system also leaked. Lahontan has issued three Cleanup and Abatement Orders, the latest in 1997. A remediation system is being installed. STPUD analysis and modeling indicate that the remediation system is grossly inadequate to address the 1 foot of free product gasoline with MTBE concentrations of 1.2 million ppb. The MTBE plume is within 500 feet of our wells. Lahontan is preparing a letter directing Tahoe Tom's to improve their plan.

Future: If operated, these wells will likely become contaminated beyond rehabilitation.

Arrowhead 1 & 2

Capacity: 805 gallons per minute.

Status: Shut down in September 1997. MTBE was detected at 2 ppb.

Beacon (Meyers) is the responsible party. The MTBE plume is 1,300 feet long, with concentrations in excess of 28,000 ppb. New tank system leak has been stopped, but secondary containment system is nonoperational. Environmental consultants called a work stoppage due to lack of payment. Lahontan is taking over remediation efforts.

In July 1998 Lahontan fined the owner of the Beacon $84,000. Lahontan received $100,000 from the state to initiate cleanup activities and has applied to the state for an additional $500,000 to conduct remediation.

Future: These wells will be destroyed by the District and replaced with a deeper well at the same site. The new well will extend below an extensive thick clay aquitard that will protect it from the MTBE plume.

Tata Lane No. 4

Capacity: 70 gallons per minute.

Status: Shut down in July 1998 when MTBE concentrations reached 37 ppb. USA gas station is the responsible party. Original gas plume was discovered in 1983, and the new tank system continued to leak. The plume is 1,500 feet long. Lahontan issued three Cleanup and Abatement Orders. The current remediation system is being expanded, but the addition extraction wells are not placed so that they will protect the well from continuing contamination, nor are they large or deep enough.

In August, upon receiving a strangely worded suggestion from Lahontan that they close the pumps to look for the leak, station owners found and stopped the leak. On September 10, Lahontan charged station owners with violating Cleanup and Abatement Orders and fined them $292,500.00

Future. District will abandon the well. It may be destroyed, or it may become part of USA's offsite remediation system.

Tata Wells 1, 2 & 3

Capacity: 550 gallons per minute.

Status. Shut down in August 1998. On September 8, the District received lab results showing MTBE contamination in the wells in concentrations ranging between 0.12 and 0.22 ppb.

USA gas station is the responsible party. These wells represent a significant portion of our backup, short-term, emergency water supply.

Future: Unknown at this time.

Julie Well

Capacity: 205 gallons per minute.

Status: Shut down on September 10. On September 2 the District received lab results showing MTBE contamination at 0.25 ppb. Water from the Julie well was treated by an air stripper that has proven to be effective in removing small levels of MTBE.

USA gas station is the potentially responsible party.

Future: Unknown at this time.

South Y Well

Capacity: 200 gallons per minute (On standby)

Status: Taken off standby status and shut down on September 4. On September 2, the District received lab reports showing MTBE contamination at 0.11 ppb.

USA gas station is the responsible party.

Future: Probable retirement.

Paloma Well

Capacity: 2,500 gallons per minute.

Status: Running at half capacity.

These wells represent the heart of our system. Terrible Herbst is the responsible party. Gasoline plumes first discovered in 1984. Lahontan issued three Cleanup and Abatement Orders, the latest in 1997. Terrible Herbst says that it plans to expand its remediation system and, in the meantime, continues to operate. Concentrations of MTBE appear to be low, but no deep aquifer monitoring has been done. We have requested that Lahontan require Terrible Herbst to conduct sampling at deeper depths.

Future: Continue to monitor the situation.

[From the South Tahoe Utility District]

HELP MAKE TAHOE MTBE FREE

What is MTBE?

MTBE, a gasoline additive, is increasingly found In California lakes, streams and groundwater. It has contaminated water in almost every one of the 50 states, the EPA is expected to report In a study this summer.

Contamination by MTBE is a serious threat to South Tahoe's drinking water sources, and the issue demands attention now. Our drinking water is safe, but as long as MTBE is present in gasoline, our wells are at tremendous risk.

MTBE, or methyl tertiary butyl ether, is an oxygen-rich gasoline additive. Beginning in 1991, the Federal EPA required oil companies to use additives to reduce automobile emissions, and MTBE was the additives of choice in California.

Is MTBE contaminating Tahoe's groundwater?

Yes. Water suppliers nationwide are now beginning to test their drinking water sources for MTBE, but as more testing is done, more contamination is found. The South Tahoe Public Utility District was among the first to test for the presence of MTBE, beginning in 1996.

In the summer of 1998, ten of the District's 34 drinking water wells were turned off due to the presence of MTBE in nearby plumes or, in three cases, because MTBE had reached the wells.

Following, a vigilant action plan, and at the cost of several hundreds of thousands of dollars, the District is able to provide MTBE-free drinking water to its customers by turning off vulnerable wells and re-directing water supplies from clean wells.

Where does MTBE come from?

All eyes have been focused on old underground tanks that service stations used to store their gasoline supplies. But we are now finding that, even after the old tanks are replaced by new, double-hulled, fiberglass tanks, MTBE is still escaping. In short, it seems that the new tank systems are no guarantee against contamination.

Is MTBE a health threat?

Research on potential health effects is ongoing, and the District supports such research, but the real problem is that MTBE's taste and odor makes contaminated drinking water unacceptable. MTBE has an unpleasant taste and odor—similar to turpentine—and is identifiable when concentrations reach 2 to 15 parts per billion.

MTBE has no known acute (immediate) health effects at levels that people would be exposed to, if a person could drink water wish MTBE in it. It is relatively new substance found in ground water, however, and has not been subjected to extensive testing for chronic (long term) health effects. There is some evidence that, at high lifelong exposures, it is a possible carcinogen.

Is the drinking water in South Lake Tahoe safe?

Yes. The South Tahoe PUD is taking every precaution to ensure the safety of its drinking water, and has implemented even more stringent standards than is required by state and Federal Government. The U.S. EPA recommends that "keeping concentrations in the range of 20 to 40 [parts per billion] of water or below" will avert unpleasant taste effects and will protect consumers from potential health effects. The State of California has set an "action level" of 35 parts per billion to protect against adverse health effects. It is anticipated that California will be making state standards even tougher.

No drinking water from the South Tahoe PUD has approached these levels. Aggressively protecting the water supplies the District takes a precautionary approach and shuts down wells that pose a problem before MTBE destroys our water sources.

What Is Being Done?

The vulnerability of South Tahoe's drinking water sources demands a vigilant approach, and the District is taking a strong stand, fighting to remove the sources of contamination.

Unfortunately, the South Tahoe PUD, like many water suppliers, has no enforcement powers against polluters. But the District is fighting for regulatory action and legislation.

The bottom line is that the South Tahoe Public Utility District will do everything in its power to protect Tahoe's drinking water.

[From The Sacramento Bee, Letters to the Editor]

MTBE IN GASOLINE

Dean Walters erred in his July 29 column ("Cal-EPA is not finished work") when he said the Air Resources Board ordered the use of the additive MTBE in gasoline. The board has never required or even certified the use of MTBE. Those actions were taken at the Federal level. The U.S. Environmental Protection Agency certified MTBE as a gasoline additive, and a Federal law approved by Congress required the use of MTBE or similar additives in most California gasoline, including all Sacramento gasoline.

Walters wrongly cites MTBE contamination of water as an example of a lack of coordination among regulators. In fact, California agencies have put together the nation's most comprehensive and coordinated MTBE-monitored effort. In contrast, U.S. EPA—which is responsible for protecting the nation's air and water quality—opposes California's efforts to change the Federal law that led to the widespread use of MTBE. Just who needs better coordination?

JOHN D. DUNLAP, CHAIRMAN,
Air Resources Board, Sacramento.

[From The Sacramento Bee, Letters to the Editor]

Re: "MTBE in gasoline," letter, August 20: The South Tahoe Public Utility District was delighted to see the letter from the ARB chairman declaring, "California agencies have put together the nation's most comprehensive and coordinated MTBE-monitoring effort."

In South Tahoe, where 10 of 34 drinking water wells are out of commission because of MTBE, the "monitoring" wells are, for the most part, our drinking water wells. This is clearly not acceptable, and we are looking for funds to develop a monitoring system that would detect contamination before it impacts our drinking water. Perhaps Dunlap could extend his comprehensive and coordinated" monitoring to Tahoe.

We would also like to see a letter from Dunlap, informing oil companies that they can use ethanol instead of MTBE in areas where MTBE is destroying underground aquifer.

DAWN FORSYTHE, *Public Affairs Officer.*
South Tahoe Public Utility District South Lake Tahoe.

SOUTH LAKE TAHOE PUBLIC UTILITY DISTRICT,
South Lake Tahoe, CA, September 4, 1998.

MIKE KENNY, *Executive Officer,*
California Air Resources Board,
Sacramento, CA 95819.

DEAR MR. KENNY: On behalf of the Board of Directors of the the South Tahoe Public Utility District, we extend an invitation to your agency to explain the ARB's rules and regulations pertaining to the use of oxygenates in gasoline, and what the oil companies must do, practically, to conform to your requirements. Specifically, we invite the agency to a meeting with our staff on the morning of September 17, with a public presentation it our Board Meeting at 2 pm that afternoon.

As you are aware, we have a tremendous problem with MTBE contamination of our aquifers, and we are desperate for solutions. Given the history of tank systems that allegedly meet the new standards we strongly believe that as long as MTBE is in the gasoline, our aquifers continue to be at risk.

We have talked to Federal regulatory and legislative people, state regulators, state legislators, ethanol industry representatives, operators of terminals, Nevada air quality officials, and hordes of researchers—and I have yet to hear definitive answers to two simple questions: 1) Why are we deliberately putting water resources at risk; and A) how do we get MTBE out of gasoline in Tahoe? Your agency's perspective on these questions would be most enlightening. Of course, if you have the definitive answers, it would be stupendous.

We have written to Crawford Tuttle asking for scientific justification for gasoline additives in Tahoe, and I am assuming that he won't mind it I share that letter with you. Our basic concern is that our aquifers are being destroyed by a contamination that is "solving" a non-existent problem.

Thank you for considering our situation and our request. If you accept our invitation, please ask your staff to coordinate with Dawn Forsythe, our public affairs officer She can be reached at 530–544–6474 ext. 208.

Sincerely,

ROBERT BAER, *Control Manager.*

SOUTH TAHOE PUBLIC UTILITY DISTRICT,
South Lake Tahoe, CA, March 19, 1998.

HONORABLE PETE WILSON, *Governor,*
State of California,

Capitol Building, First Floor,
Sacramento, CA 95814.

Re: Methyl Tertiary Butyl Ether (MTBE) in (gasoline

DEAR GOVERNOR WILSON: The South Tahoe Public Utility District is very concerned about MTBE in its water supplies. MTBE has been detected in three of the District's water wells and threatens two others.

The mechanisms of MTBE contamination include leaking underground storage tank systems, other gasoline storage and distribution systems, gasoline-powered water craft storm water runoff, and rainfall washout. Once in the water supply, MTBE is difficult and expensive to remove. MTBE is soluble and mobile, and it is persistent in the subsurface environment. The health effects of MTBE are not completely understood, but MTBE is a possible carcinogen and has a low taste and odor threshold. The most effective way to prevent additional impacts to water supplies and public health from MERE is to cease its use as an additive to motor vehicle fuel.

The Board of Directors of the South Tahoe Public Utility District urges you to employ your executive powers to achieve removal of MTBE and other ether oxygenates as additives to motor vehicle fuels in the State of California in order to protect the State's valuable water resources. The South Tahoe Public Utility urges you to work with appropriate authorities at the Federal level to achieve this prohibition and to identify alternative methods to achieve acceptable air quality objectives.

If you or your staff has questions, please call Mr. Rick Hydrick, Manager of Water Operations, at (530) 544–6474, extension Z38.

Sincerely,

JAMES R. JONES, *President, Board of Directors.*

SOUTH TAHOE, CA, RESOLUTION NO. 2681–98

A RESOLUTION OF SOUTH TAHOE PUBLIC UTILITY DISTRICT ENTREATING GOVERNOR PETE WILSON TO PROTECT THE DRINKING WATER OF SOUTH LAKE TAHOE, BY PROHIBITING THE USE OF MTBE IN GASOLINE

Whereas, MTBE poses a serious threat to the drinking water of South Tahoe by continuing to contaminate its sources of drinking water; and

Whereas, due to the vigilance of the South Tahoe Public Utility District, our drinking water is safe, but as long as MTBE is present in gasoline our wells are at risk; and

Whereas, MTBE's taste and odor makes contaminated drinking water unacceptable; and

Whereas, citizens of this State have a right to demand that the sources of drinking water he MTBE-free;

Now, Therefore Be It Resolved, That the Board of Directors of the South Tahoe Public Utility District hereby entreats Governor Pete Wilson to take immediate action to prohibit the use of MTBE, as an additive to gasoline.

Passed and Adopted at a duly held Regular Meeting of the Board of Directors of the South Tahoe Public Utility District on the 16th day of July, 1998:

SOUTH LAKE TAHOE CHAMBER COMMERCE,
South Lake Tahoe, CA 96160, August 25, 1998.

FELICIA MARCUS,
U.S. EPA Region IX,
Policy and Management Division,
San Francisco, CA 94105–3901.

DEAR ADMINISTRATOR MARCUS: Last year the people of Lake Tahoe witnessed a great outpouring of concern by a multitude of Federal agencies, the EPA included. This concern manifested itself in a true Federal commitment to preserving the clarity of Lake Tahoe. The commitment will continue to be a primary factor in the preservation of one of this country's most beautiful scenic areas. But there is an insidious problem that demands everyone's immediate attention, now—MTBE threatens the drinking water of South Lake Tahoe.

South Tahoe is more vocal than many localities about the threat to its drinking water. While some may think that it's best for a Chamber of Commerce to be silent, for fear of scaring our important tourist market, our businesses strongly believe that, in the long term, protecting our water resources is absolutely necessary to the future viability of Tahoe as a tourist destination.

I understand the EPA Region IX will be deciding whether South Tahoe's situation deserves Agency assistance—financial, technical, legal, or a combination of all three. Our Chamber of Commerce urgently requests any assistance you can provide.

Ultimately, however, we are finding that MTBE is a constant and continual threat as long as it remains in gasoline sold in the Tahoe Basin. As this contaminant moves toward the lake at 1 to 10 feet per day, depending on the hydrogeology. it has the potential to undo all our collective water quality efforts. Above all, please help us find a way to prohibit the use of this contaminant in South Lake Tahoe.

Sincerely,

DUANE WALLACE, *Executive Director.*

SOUTH TAHOE PUBLIC UTILITY DISTRICT,
South Lake Tahoe, CA, August 24, 1998.

FELICIA MARCUS,
U.S. EPA Region IX,
San Francisco, CA 94105–3901.

DEAR ADMINISTRATOR MARCUS: Over 50 years ago John Kennedy gave an angry speech to his colleagues about the lack of congressional will to address the housing crisis after the war. He ended his speech on note of bitter resignation. "I am going to have to go back to my district Saturday, a district that sent probably more boys per family into this last war than any in the country, and when they ask me if I was able to get them any homes, I will have to answer, not a one—not a single one."

The Board of Directors and management of the South Tahoe Public Utility District feel that same frustration about the apparent lack of governmental will to address the MTBE crisis in South Tahoe.

We were heartened to receive a visit from three of your staff: Jane Freeman, Laurie Williams and Steve Linder. I understand that they will be submitting a report to Julie Anderson, with recommendations for the agency to consider. I cannot emphasize enough how much we need the Agency's help. When people ask if we were able to get EPA assistance on any of our concerns, we don't want try answer as Kennedy did. We desperately want to assure people that the U.S. EPA recognizes the terrible impact that MTBE has on our drinking water sources and that the Agency is confirming its recognition with the allocation of resources to address the problem.

The 1996 National Drinking Water Program Redirection Strategy states that "last, but not least, EPA is looking to States, communities and other stakeholders for the development of innovative partnerships and approaches for protecting drinking water. The Agency continues to welcome stakeholders' ideas." Especially in view of California's lack of total commitment to groundwater protection, i.e., nonparticipation in the state revolving fund under the SDWA, an innovative Federal-local partnership to protect Tahoe's drinking water is more than appropriate. It is absolutely necessary.

Borrowing from Kennedy again, we want the word to go forth that EPA is working with us to protect Tahoe's drinking water from MTBE.

Yours truly,

BOB BAER, *General Manager.*

SOUTH TAHOE PUBLIC UTILITY DISTRICT,
South Lake Tahoe, CA, July 30, 1998.

NILOUFAR GLOSSON,
U.S. EPA,
San Francisco, CA 94105.

DEAR NILOUFAR: Please extend our gratitude to Administrator Marcus for he attention to the tremendous MTBE problem we face in South Tahoe. Every agency, board and elected official we have turned to has told us that they are doing what they are supposed to be doing—and no one is decisively exploring options that would actually protect our most important resource. We're hearing marvelous statements of concern, but we see no action.

We are aware that the EPA, through the National Center for Environmental Assessment, is addressing the research strategy for oxygenates in water (NCEA–98–1048). We appreciate and wholeheartedly support, anything the EPA can do to facilitate or accelerate the research needs addressed in that strategy.

We are in a critical situation, however, requiring immediate action. We need three things:

1. The current leaks of MTBE must be stopped.

2. The current contamination must be remediated.
3. The future contamination must be prevented.

Stopping the Leaks

Althought the Lahontan Regional Water Quality Board has identified responsible parties that, Lahontan says, are currently leaking, no regulatory agency has the will and/or the ability to take steps necessary to stop the leaks.

EPA needs to step in, assume control, and order the gas stations to cease operations until the leaks are stopped.

Remediate the Contamination

We have two problems with the current remediation situation. In most cases, no remediation is occurring (even after multiple Cleanup and Abatement Orders by the regional water board), and in other cases the "remediation" does not adequately protect drinking water sources.

EPA needs to provide immediate technical and/or financial assistance to ensure that cleanup actions are completed in a timely manner and are protective of drinking water sources. The South Tahoe Public Utility District will likely be assuming regulatory and enforcement authority by adopting a Groundwater Management Plan, as authorized by CA AB3030, the Groundwater Management Act. EPA's assistance is urgently sought.

Prevent Future Contamination

As long as MTBE is in the gasoline, our drinking water is at risk. While we may be able to operate wells, keeping contamination within health standards for a short amount of time, the water would become and would continue to be undrinkable. MTBE hits suddenly and there is little time to react with replacement wells or wellhead treatment. Rather than face the problem after the contamination has destroyed a well, we strongly believe in the precautionary principle.

EPA, using emergency authority, needs to prohibit the use of MTBE in groundwater basin where the groundwater is the sole source of drinking water and that groundwater is highly vulnerable to contamination by MTBE, as evidenced by multiple and ongoing detections in the source water. If EPA wants to do it at the request of a constitutionally derived public agency, we hereby request it.

One thing further . . . We need an MTBE Summit at South Lake Tahoe, bringing together all the parties at the local, State, and Federal level who have some finger in the MTBE pie. We would welcome and encourage EPA sponsorship and facilitation of such a summit (perhaps in the manner that Dr. Lynn Goldman has conducted the EDSTAC process).

Of course, we are available and eager to provide you with all the information you need.

Thank you again, for your agency's attention to this most urgent matter.

Sincerely,

DAWN FORSYTHE, *Public Affairs Officer.*

SAN DIEGO COUNTY BOARD OF SUPERVISORS,
San Diego, CA, September 14, 1998.

HONORABLE DIANNE FEINSTEIN,
United States Senate,
Washington, DC 20510.

DEAR SENATOR FEINSTEIN: The San Diego County Board of Supervisors supports S. 1576, your legislation to allow California's cleaner-burning regulation to apply in lieu of Federal formulated gasoline requirements currently mandated in most of Southern California and the Sacramento region.

S. 1576 would give California the flexibility to implement more stringent standards without having to meet Federal regulations based on the content of the gasoline. It would allow California to focus on an "outcome" based reformulated gasoline standard rather than content-based Federal fuel requirements. This would be advantageous since refiners would have the option to pursue different but equally effective fuel formulations which result in the highest possible health and environmental benefits for San Diego and other areas throughout California. Additionally, they would be able to utilize the flexibility built into the California program and avoid needless paperwork requirements, resulting in lower production costs for California gasoline and lower gas prices for consumers.

Please work with your colleagues in the Senate to expedite action on S. 1576 or other legislation that would provide the flexibility to pursue different but equally effective fuel formulations intended to significantly improve Californians air quality.

Sincerely yours,

GREG COX, *Chairman.*

EAST BAY MUNICIPAL UTILITY DISTRICT,
Oakland, CA, April 15, 1998.

HONORABLE DIANNE FEINSTEIN,
United States Senate,
Washington, DC 20510–0504.

DEAR SENATOR FEINSTEIN: On behalf of the East Bay Municipal Utility District (EBMUD), I am pleased to inform you that we support your S. 1576, which would provide that California's cleaner burning gasoline regulations would apply in California in lieu of existing Federal regulations as long as equivalent or greater reductions in emissions of ozone-forming compounds and toxic air contaminants are achieved.

EBMUD is a local government agency responsible for providing water service to approximately 12 million customers in 20 cities and 16 unincorporated communities in portions of Alameda and Contra Costa Counties, and wastewater treatment services for more than 600,000 customers in the East Bay.

We believe your S. 1576 would improve flexibility in how gasoline is formulated while preserving the stringent minimum emission standards in the Clean Air Act, so that gasoline refiners would have alternatives to the use of methyl tertiary butyl ether (MTBE). Your measure would strike an important balance in ensuring high standards of air quality while moving forward on alternative fuel formulations which may be less threatening to human health and drinking water quality.

As you know, existing law results in overlapping application of the state and Federal reformulated gasoline regulations. This creates a substantially reduced opportunity for gasoline refiners to take advantage of the flexibility in the California program's reformulation rules without falling out of compliance with Federal regulations. As a result, compliance with the Federal regulations is still required, despite the fact that the California standards have demonstrated achievement of equal or superior air quality benefits. Although the Federal law and regulations do not require the use of MTBE specifically, the Federal regulations do require the use of a fuel oxygenate. MTBE has become the oxygenate of choice because of its high octane rating, low production cost, and ability to readily mix with other gasoline components.

We very much appreciate your leadership on this issue. Ensuring that gasoline consumed in California is formulated in such a way that there arc minimized threats to drinking water quality and continued protection of air quality is an important public health and environmental protection effort.

Randele Kanouse, Special Assistant to the General Manager, is available to answer any questions you may have concerning our position on S. 1576. Mr. Kanouse may be reached at (916) 443–6948.

Sincerely,

DENNIS M. DIEMER.

STATEMENT OF SANTA CLARA VALLEY WATER DISTRICT

The Santa Clara Valley Water District (SCVWD) is the water resource management serving the wholesale water supply and flood protection needs of the 1.6 million residents in Santa Clara County, California, with its thriving Silicon Valley economy. In fulfilling its water supply mission, SCVWD owns and operates ten reservoirs (total capacity of approximately 163,000 acre feet), three water treatment plants (total capacity 220 million gallons per day), and 393 acres of groundwater recharge ponds. SCVWD is also responsible for protecting water quality of its local groundwater basin that provides approximately 50 percent of' the County's water supply needs.

The Santa Clara Valley Water District supports S. 1576 since it would provide flexibility for California to meet air quality standards without the need for problematic ether oxygenates such as Methyl Tertiary Butyl Ether (MTBE). We are very concerned with contamination of our water supplies from the widespread use of MTBE.

SCVWD has been monitoring MTBE in its water sources for nearly 2 years and continues to find it. Monitoring of our imported supplies from the Sacramento-San Francisco Bay-Delta has shown concentrations of 1–2 parts per billion (ppb). Monitoring has also shown concentrations up to 23 ppb at three of our local surface water reservoirs where we allow motor powered watercraft recreation.

Our greatest concern, however, is contamination of local groundwater basins from leaking underground storage tanks. The SCVWD operates a Leaking Underground Storage Tank Oversight Program (LUSTOP) to assist State regulators in this area. Approximately 80 percent of underground storage tanks sites that are listed as cases in our Leaking Underground Storage Tank Oversight Program (LUSTOP) have monitored for MTBE. About 74 percent (292 of 395) of the monitored sites are finding MTBE, many at very high levels. The attached table shows the concentration ranges for these leaking sites and 86 percent of these cases show concentrations of MTBE: greater than the State Action Level of 35 ppb. This phenomenal rate of MTBE contamination is in the shallow groundwater aquifers. Our concern is that this contamination will eventually impact water supply wells deeper in the aquifer. So far, one public water supply well in the County has been impacted; however, the source investigation of this impacted well depicts another problem with MTBE. Because of its high mobility, MTBE plumes are very challenging to define and cleanup since they are long and narrow. A very detailed investigation of the local geology is required to assess the impact. Two nearby gasoline stations have been identified as potential sources of MTBE. Both have state-of-the-art, upgraded underground storage tank systems, yet both are showing contamination. We are still investigating if the tanks are actually leaking, or if these are previous releases. Because of MTBE's mobility, we do not believe the current data set fully represents the severity of MTBE contamination from leaking tanks since this data was gathered from fixed monitoring stations at each site.

The California Department of Health Services has a requirement to promulgate a secondary drinking water standard for MTBE by July 1, 1998, and a primary standard by July 1, 1999. The Department of Health Services has proposed a secondary standard of 5 ppb based on the taste and odor threshold of the most sensitive individuals. This would be a difficult standard to meet given the amount of MTBE currently entering the environment. Regardless of the standard, we do not believe consumers would accept a water supply that tastes and smells like turpentine.

Several oil companies have publicly indicated they can meet air quality emission standards without the addition of an oxygenate. This would preclude the need for widespread use of MTBE.

Given the widespread contamination of the shallow groundwater basins from leaking underground storage tanks, the mobility and persistence of MTBE, and the probability of a stringent water quality standard, we have serious concerns that large portions, or perhaps all of our groundwater basins could become unusable as a water supply source due to MTBE contamination. We feel this would be too great a price to pay for improvements in air quality when those same improvements could be obtained without oxygenates, or with non-ether based oxygenates. That is why we support Senator Feinstein's bill as a way to bring much needed flexibility to the system. We request your careful consideration and thank you for the time.

VENTURA COUNTY AIR POLLUTION CONTROL BOARD,
Ventura, CA 93003, May 12, 1998.

SENATOR DIANNE FEINSTEIN,
United States Senate,
Washington, DC 20510.

DEAR SENATOR FEINSTEIN: The Ventura County Air Pollution Control Board is pleased to support H.R. 630, the bill you are sponsoring in the Senate to provide California greater authority over its clean air program by allowing California's cleaner burning gasoline regulation to apply in lieu of Federal reformulated gasoline regulations, as long as these regulations achieve equivalent or greater reductions in emissions of ozone-forming compounds and toxic air contaminants.

Refiners must now simultaneously implement California's cleaner burning gasoline regulations and the U.S. Environmental Protection Agency's regulations for reformulated gasoline in most of Southern California (including Ventura County) and Sacramento. This results in regulatory duplication and overlap without any additional benefit in air quality.

Our Board supports cost-effective regulations that meet clean air goals. Elimination of this regulatory overlap will provide Californians equal or better air quality at less cost.

Sincerely,

SUSAN K. LACEY, *Chair.*

AIR POLLUTION CONTROL BOARD RESOLUTION BEFORE THE BOARD OF SUPERVISORS OF THE COUNTY OF AMADOR, STATE OF CALIFORNIA

In the matter of: Resolution Requesting and Supporting the ban of the use of Methyl Tertiary Butyl Ether (MTBE)

RESOLUTION NO. 98–089

Whereas, Methyl Tertiary Butyl Ether (MTBE) is one of a group of chemicals called fuel oxygenates that must be added to gasoline under Federal and State regulations; and

Whereas, MTBE is airborne through car exhausts and other internal combustion engines add it settles on our snow pack and roadways insulating its way into our groundwater, rivers and streams, ultimately gravitating into our drinking water impoundments; and

Whereas, the suspected carcinogen, MTBE, is beginning to appear in California's drinking water storage impoundments and groundwater supplies; and

Whereas, research indicates that fiberglass storage tanks installed prior to 1990 will react with MTBE and ultimately leak into the ground waters; and

Whereas, people can detect objectionable tastes and odors caused by MTBE well below levels considered to pose a health risk; and

Whereas, threat to the public health of MTBE in our drinking water is not an acceptable risk to endure for the small reduction in air pollution gained by adding MTBE to our gasoline; and

Whereas, there appears to be other oxygenates to substitute for MTBE.

Therefore, Be It Resolved by the Board of Supervisors of the County of Amador, State of California, that said Board does hereby request and support the ban of the use of MTBE as a fuel oxygenate.

The foregoing resolution was duly passed and adopted by the Board of Supervisors of the County of Amador at a regular meeting thereof, held on the 10th day of March 1998.

CITY OF SANTA MONICA, CA,
March 20, 1997.

HONORABLE DIANNE FEINSTEIN,
United States Senate,
Washington, DC 20510.

DEAR SENATOR FEINSTEIN: Thank you for your efforts to secure the assistance of the United States Environmental Protection Agency on the MTBE contamination of Santa Monica's drinking water. EPA's March 14 announcement that they will bring their enforcement power to bear was indeed good news for our City.

We believe that what happens in Santa Monica will set the tone for how the Nation handles this new threat to safe drinking water. EPA's regulatory enforcement and technical expertise should quickly restore Santa Monica's water and set proper precedent for the region and the nation. Overall, the benefit is in the cumulative effect of a coordinated enforcement strategy with local, state and Federal authorities.

Thank you again for securing USEPA's strong involvement.

Sincerely,

PAM O'CONNOR, *Mayor.*

COUNTY OF LAKE, BOARD OF SUPERVISORS,
Lakeport, CA 95453, January 9, 1998.

SENATOR DIANNE FEINSTEIN,
Washington, DC 20510.

DEAR SENATOR FEINSTEIN AND REPRESENTATIVE BILBRAY: We are requesting your assistance in a matter of significant importance to California and Lake County, the passage of H.R. 630 introduced by Congressman Brian Bilbray. Under this bill, the

California cleaner burning gasoline regulations would apply in California in lieu of the Federal reformulated gasoline regulations as long as the California regulations achieve equivalent or greater reductions in emissions of ozone-forming compounds and toxic contaminants are not increased. Most importantly, the California regulations would allow MTBE, a pollutant of much concern to water agencies and the public, to be removed from gasoline without giving up the environmental benefit needed for air quality.

California has historically faced the most challenging and intractable air pollution problems in the nation, and we have been creative in our solutions. Presently for fuels standards in our state the California and Federal standards are both applied.

Unfortunately, the overlapping applicability of the state and Federal reformulated gasoline regulations substantially reduces the extent to which refiners can take advantage of the flexibility built into the California program. Refiners are required to comply with the Federal Act even though the California predictive model shows that a different formulation will achieve equivalent or greater air quality benefits.

The greatest practical impact of H.R. 630 would involve gasoline oxygenate requirements. The Federal regulations impose a year-round minimum oxygen content standard of 2.0 weight percent. The California regulations, on the other hand, allow refiners to use the predictive model to reduce or eliminate the use of oxygenates outside California Independent Petroleum Association the winter months as long as the refiner's gasoline blend achieves toxics and ozone-forming emissions benefits equivalent to the benefits from gasoline meeting otherwise applicable California oxygen content standard of 1.9–2.2 weight percent. This ability is particularly important concerning the presence of MTBE in ground and recreational surface waters. It is necessary to timely allow viable alternatives to MTBE, if equivalent performing clean burning fuels are proposed by gasoline manufacturers. H.R. 630 would encourage a more publicly acceptable fuel and competitive market for California.

H.R. 630 is crafted to assure that Californians can expect to have their health protected. The California gasoline regulations have been approved by the U.S. EPA as part of your State Implementation Plan, and are thus federally enforceable. The California regulations would apply in lieu of the Federal regulations only if they will achieve equivalent or greater emissions reductions. This seems to be a most reasonable approach to the benefit of all parties.

For the reasons above, as well as a need for encouraging clean burning gasoline that is friendly to our water resources, the Lake County Board of Supervisors requests your support for H.R. 630. It is our understanding that Senator Feinstein will soon author a companion bill in the Senate, and we ask that you also please support that effort.

Thank you for your attention and anticipated support on this matter.

Sincerely,

LOUISE TALLEY, *Chairman,*
Board of Supervisors and LCAQMD,

CALIFORNIA INDEPENDENT PETROLEUM ASSOCIATION,
Sacramento, CA, February 11, 1998.

HONORABLE DIANNE FEINSTEIN,
United States Senate,
Washington, DC 20510.

DEAR SENATOR FEINSTEIN: The California Independent Petroleum Association (CIPA) would like to express support for your legislation, S. 1576. As you may know, CIPA is a non-profit trade association representing approximately 500 companies involved in the exploration and production of oil and natural gas in California.

California has had a long history of regulating fuels in the state to improve air quality, predating the adoption of the Federal Reformulated Gasoline (RFG) program under the 1990 amendments to the Clean Air Act. Today, refiners and marketers of fuels in California find themselves having to comply with conflicting and duplicative Federal and state requirements. This adds complexity and cost to producing California RFG, with absolutely no commensurate benefit to the environment.

Contrary to the Federal RFG program, the California RFG program allows refiners to develop the most cost-effective formulation of gasoline, based on performance in reducing emissions. California RFG has been demonstrated to out-perform Federal RFG in reducing emissions, and the California program is federally enforceable as part of California's State Implementation Program.

S. 1576 would eliminate the overlap in California between the state and Federal programs, while neither mandating nor banning any formulation or components used in making California RFG. One of CIPA's main objectives is to promote policies

that allows flexibility for the private sector to develop the most innovative manner to achieve the standards set by government. S. 1576 encourages such innovation while maintaining clean air standards.

We have contacted the California delegation expressing support for S. 1576 and H.R. 630 requesting they cosponsor this legislation.

If we can provide additional assistance on this matter, please do note hesitate to contact me at (805) 395–5318.

Sincerely,

DAVID GILBERT,
Director of Environmental and Public Affairs.

March 6, 1998.

HONORABLE DIANNE FEINSTEIN,
United States Senate,
Washington, DC 20510.

DEAR SENATOR FEINSTEIN: We, the undersigned, would like to express our strong support for S. 1576. It would eliminate superfluous Federal requirement for gasoline marketed in California as long as California Reformulated Gasoline (RFG) has equivalent or better emission reduction performance relative to Federal RFG.

California has had a long history of regulating fuels in the state to improve air quality, predating adoption of the Federal RFG program under the 1990 amendments to the Clean Air Act. Today, refiners and marketers of fuels in California find themselves having to comply with conflicting and duplicate Federal and state requirements. This adds complexity and cost to producing California RFG with absolutely no commensurate benefit to the environment.

S. 1576 would eliminate the overlap in California between the state and Federal programs. It will provide greater flexibility in formulating and producing California RFG, while still assuring that the high standards for reducing emissions are maintained. These state requirements are mandated by California RFG regulations which are federally enforceable as part of California's State Implementation Plan. We applaud your leadership in introducing this important legislation and urge Congress to enact this bill into law.

DOUG HENDERSON, *President,*
Western States Petroleum Association.

PHILIP T. CAVANAUGH, V.P. FEDERAL RELATIONS,
Chevron Corporation.

JAMES C. PRUITT, *V.P. Federal Government Affairs,*
Texaco, Inc.

EVELYN GIBSON, *Government Relations Director,*
California Independent Oil Marketers Association.

STEVE WARD, *V.P. Government Affairs,*
Shell Oil Company.

JAMES J. ROUSE, *V.P. Washington Office,*
Exxon Corporation.

R. TIMOTHY COLUMBUS, *Counsel,*
Society for Independent Gasoline Marketers of America.

ANN FARNER MILLER, *V.P. Government Relations,*
Tosco Corporation.

SANDRA G. SWIRSKI, *Manager, Federal Government Relations,*
Mobil Corporation.

CALIFORNIA INDEPENDENT PETROLEUM ASSOCIATION,
Sacramento, CA, January 23, 1998.

HONORABLE DUNCAN HUNTER,
U.S. House of Representatives,
Washington, DC 20515.

DEAR CONGRESSMAN HUNTER: The California Independent Petroleum Association (CIPA) would like to express support for H.R. 630. As you may know, CIPA is a non-profit trade association representing approximately 500 companies involved in the exploration and production of oil and natural gas in California.

California has had a long history of regulating fuels in the state to improve air quality, predating the adoption of the Federal Reformulated Gasoline (RFG) program under the 1990 Clean Air Act Amendments. Today, refiners and marketers of fuels in California find themselves having to comply with conflicting and duplicative Federal and state requirements. This adds complexity and cost to producing California RFG, with absolutely no commensurate benefit to the environment.

Contrary to the Federal RFG program, the California RFG program allows refiners to develop the most cost-effective formulation of gasoline, based on performance in reducing emissions. California RFG has been demonstrated to out-perform Federal RFG in reducing emissions, and the California program is federally enforceable as part of California's State Implementation Program.

H.R. 630 would eliminate the overlap in California between the state and Federal programs, while neither mandating nor banning any formulation or components used in making California RFG. One of CIPA's main objectives is to promote policies that allows flexibility for the private sector to develop the most innovative manner to achieve the standards set by government. h.r. 630 encourages such innovation while maintaining clean air standards.

If you have not already cosponsored H.R 630, please contact Congressman Bilbray to express your support for this vital bill.

Sincerely,

DAVID GILBERT,
Director of Environmental and Public Affairs.

CALIFORNIA INDEPENDENT OIL MARKETERS ASSOCIATION,
Sacramento, CA, October 23, 1997.

HONORABLE THOMAS J. BLILEY, JR., *Chairman,*
Committee on Commerce,
U.S. House of Representatives,
Washington, DC 20515.

DEAR CHAIRMAN BLILEY: The California Independent Oil Marketers Association (CIOMA) strongly supports H.R. 630 (Bilbray), pertaining to reformulated gasoline regulations. We urge the committee to pass the bill in order to simplify these regulations and to eliminate the mandatory oxygenate requirement for California reformulated gasoline.

HR. 630 would simplify the transport and storage of gasoline in California by allowing petroleum marketers, and the suppliers who refine reformulated gasoline in California, to meet a single set of regulations governing the composition of gasoline, rather than complying with both Federal and state regulations. Currently, the two sets of regulations conflict to some degree, resulting in some areas of the state being required to use a different form of gasoline than other parts of the state. The Federal requirements for these areas result in the need for additional transportation and storage of these products which add to the cost of this fuel. In addition, the Federal requirement for a minimum oxygen volume in gasoline also has raised issues regarding the public health impacts and environmental benefit of reformulated gasoline. California reformulated gasoline regulations do not have this requirement.

The California Independent Oil Marketers Association (CIOMA) represents approximately 500 petroleum marketing businesses who sell gasoline to agricultural government, and commercial consumers. In addition. our members own and operate numerous retail gasoline service stations and cardlock systems. Gasoline is an important part of our members' businesses. CIOMA has worked very hard with the California Air Resources Board, the California Energy Commission. and the major oft companies to ensure public acceptance of California reformulated gasoline and its environmental and health benefits.

We urge members of your committee to support H.R, 630 in order to increase the flexibility refiners and downstream fuel sellers, like our members, have in meeting the regulations for reformulated gasoline. H.R. 630 reduces duplicative regulations that result in no environmental benefit as well as numerous reporting and recordkeeping requirements with which many of our members must comply. In short. H.R. 530 would permit California reformulated gasoline regulations to supersede Federal regulations only if California's regulations achieve the same or greater emissions reductions from ozone-depleting compounds and toxic air contaminants. This measure provides the petroleum Industry the flexibility it needs to create the cleanest gasoline available today while protecting both public health and the environment. Once

again. we urge your support of the measure. Please contact me at 916–646–5999 if you have any questions about CIOMA's position.

Sincerely,

EVELYN PARKER GIBSON, *Government Relations Director.*

CALIFORNIA STATE SENATE,
OFFICE OF SENATOR RICHARD L. MOUNTJOY,
Sacramento, CA, September 14, 1998.

SENATOR JOHN CHAFEE, *Chairman,*
Committee on Environment & Public Works,
United States Senate,
Washington, DC 20510.

DEAR SENATOR CHAFEE: This is to express strong support for S. 1576, which will provide California greater flexibility in meeting Federal emission requirements as long as reformulated gasoline meets equivalent or greater reductions in emissions of ozone forming compounds and toxic air contaminants.

When the chemical MTBE was added to California's gasoline, we were not told that it would threaten our water supply. We were not told that MTBE could jeopardize our health.

California depends heavily on water and is very sensitive about contamination of this vital resource. MTBE is threatening that precious resource.

Water districts across California are now testing for MTBE. This chemical has been detected in water supplies across California, raising concerns of public officials statewide. MTBE has been found in public drinking water supplies. in private drinking water wells, and in groundwater resources, including lakes and reservoirs MTBE has been detected in Anderson Reservoir, Lake Berryessa. Calero Reservoir, Camanche Reservoir, Canyon Lake, Castaic Lake Reservoir, Cherry Reservoir, Clear Lake, Combie Reservoir, Coyote Reservoir, Donner Lake, Don Pedro Reservoir, El Capitan Reservoir, Lake Havasu, Lake Merced, Lake Skinner, Lake Tahoe, Modesto Reservoir, Pardee Reservoir, Perris Lake, Pyramid Lake. Rollins Lake, the Sacramento-San Joaquin Delta, San Pablo Reservoir, San Vicente Reservoir, Scotts Flat Lake, Shasta Lake, and Whiskeytown Lake Reservoir.

Drinking water resources which have been contaminated with MTBE include wells at Cal State Polytechnic University at Pomona, Callegueas Municipal Water District. Elmira, Fruitridge Vista Water District. Glennville, Great Oaks Water Company, Healdsburg, Jurupa, City of Los Angeles, Marysville, the Presidio in San Francisco, San Bernardino, San Diego, Santa Monica, Sebastopol, and South Lake Tahoe.

Public officials across California are expressing concerns about MTBE. In fact, resolutions have been sent to California's Governor Pete Wilson urging him to ban the use of MTBE by the Amador County Board of Supervisors, Santa Clara County Board of Supervisors, the cities of Campbell, Gilroy, Los Altos, Los Altos Hills, Los Gatos, Milpitas, Monte Sereno, Morgan Hill, and Santa Clara, Zone 7 of Alameda County Flood Control and Water Conservation District, Mesa Consolidated Water District, Santa Clara Valley Water District, and the South Tahoe Public Utility District. The leaders of these communities and water districts understand the danger of continued use of MTBE. I expect other cities, counties, and water districts will add their names to this growing list. Copies of their resolutions are enclosed.

It takes a very small amount of MTBE to contaminate a large body of water. One water official told me that four gallons of MTBE will pollute one square mile to a depth of 30 feet. The gas we use contains 11 percent MTBE. This means for every gallon of gasoline in a car, approximately one pint is MTBE.

In the small Kern County town of Glennville, MTBE has contaminated private drinking water wells. Water coming from the faucets soared as high as 200,000 parts per billion. One family has been without water for a month as officials make arrangements to provide a large tank with water to supply the home. The town cafe, where levels of MTBE tested above 4,000 parts per billion, is now closed. Other businesses have also closed. People in Glennville have suffered a wide variety of illnesses since the contamination occurred.

Recreational boating has been threatened as water districts begin to limit or prohibit personal watercraft and boats with outboard motors due to MTBE.

The potential for environmental damage is chilling. In the State of Maine, one car overturned spilling gasoline containing MTBE. To date, that one car has been responsible for the contamination of 28 private drinking water wells! Also in Maine, children in one school were given bottled water when MTBE traveled to the school's drinking water well from the parking area.

Once in our water, MTBE is difficult and extremely expensive to remove. How do we remove MTBE from Lake Tahoe where it has been detected 100 feet below the surface? How do we remove the MTBE from Glennville or Santa Monica? Science does not seem to have the answer of how to remove this chemical. which does not biodegrade. Will MTBE? with its high water solubility, get into fruits and vegetables that have been irrigated with MTBE laced water? Science does not yet know.

When the water under homes and businesses become polluted with MTBE, it can effect property values. In Glennville, CA, where private wells have suffered extensive MTBE contamination, the assessor has lowered home values.

In addition to polluting our water, there are health concerns associated with MTBE. Studies have shown MTBE causes cancer in animals, including lymphoma, leukemia, liver cancer, kidney cancer, and testicular cancer. A 1997 study by Dr. Nachman Brautbar concluded that MTBE destroys human white blood cells and is linked to auto-immune disease. Studies have also linked human exposure to MTBE with nausea, vomiting, muscle aches, eye irritation, rashes, fatigue, dizziness, sore throats, and coughs. MTBE is absorbed through the skin when showering, or bathing.

MTBE was added to our gasoline in an effort to clean our air. Enclosed is a May 12, 1997, editorial from the Oil and Gas Journal which states that MTBE makes gasoline burn dirtier, which certainly is contrary to the goals of the clean air program.

Every day that MTBE is used, the purity of our water is further jeopardized. I urge you to approve S. 1576 so California can clean its air and protect its water.

Sincerely,

RICHARD L. MOUNTJOY, *Senator, 29th District.*

RESOLUTION BEFORE THE BOARD OF SUPERVISORS OF THE COUNTY OF AMADOR, STATE OF CALIFORNIA

In the matter of: Resolution requesting and supporting the ban of the use of Methyl Tertiary Butyl Ether (MTBE)—Resolution No. 98–089

Whereas, Methyl Tertiary Butyl Ether (MTBE) is one of a group of chemicals called fuel oxygenates that must be added to gasoline under Federal and State regulations; and

Whereas, MTBE is airborne through car exhausts and other internal combustion engines and it settles on our snow pack and roadways insulating its way into our groundwater, rivers and streams, ultimately gravitating into our drinking water impoundments; and

Whereas, the suspected carcinogen, MTBE, is beginning to appear in California's drinking water storage impoundments and groundwater supplies; and

Whereas, research indicates thee fiberglass storage tanks installed prior to 1990 will react with MTBE and ultimately leak into the ground Raters; and

Whereas, people can detect objectionable tastes and odors caused by MTBE well below levels considered to pose a health risk; and

Whereas, threat to the public health of MTBE in our drinking water is not an acceptable risk to endure for the small reduction in air pollution gained by adding MTBE to our gasoline; and

Whereas, there appears to be ocher oxygenates to substitute for MTBE.

Therefore, Be It Resolved by the Board of Supervisors of the County of Amador, State of California, that said Board does hereby request and support the ban of the use of MTBE as a fuel oxygenate.

The foregoing resolution was duly passed and adopted by the Board of Supervisors of the County of Amador at a regular meeting thereof, held on the 10th day of March 1998, by the following vote:

CAMPBELL, CA, RESOLUTION NO. 9422

Requesting the Governor and the Legislature to Prohibit the Use of Methyl Tertiary-Butyl Ether in Gasoline

Whereas, Methyl Tertiary-Butyl Ether (MTBE) has been detected in the Santa Clara Valley Water District's local reservoir, imported water, dunking water treatment plant influent and effluent, and groundwater; and

Whereas, MTBE has been detected at nearly 300 leaking underground storage tank sites in Santa Clara County; and

Whereas, the mechanisms of MTBE contamination include leaking underground storage tank systems, gasoline-powered watercraft, storm water runoff, and rainfall washout; and

Whereas, MTBE is difficult and expensive to remove once it is in Me water supply; and

Whereas, MTBE is water soluble, mobile in soil, and persistent in the water cycle; and

Whereas, MTBE is a possible human carcinogen.

Now, Therefore, Be It Resolved by the City Council of the City of Campbell that the City Council hereby urges a prohibition on the use of MTBE, or any other ether oxygenate, as an additive to motor vehicle fuels.

Be It Further Resolved that the City Council urges the Governor to employ his executive powers to achieve removal of MTBE and other ether oxygenates as additive to motor vehicle fuels in the State of California in order to protect the State's valuable water resources, and urges the Governor to work with appropriate authorizes at the Federal level to achieve prohibition and to identify alternative methods to achieve acceptable air quality objectives.

Passed and Adopted, 1st day of September 1998.

CITY OF MILPITAS,
Milpitas, CA 95035, September 3, 1998.

HONORABLE PETE WILSON, *Governor,*
Sacramento, CA 95814.

Subject: Resolution Urging a Prohibition on the Use of MTBE in Gasoline

DEAR GOVERNOR WILSON: On September 1, 1998, the City Council of the City of Milpitas adopted Resolution No. 6810 urging you to employ your executive powers to prohibit the use of Methyl Tertiary-Butyl Ether (MTBE) and other ether oxygenates in gasoline in California. A copy of the Resolution is attached.

The City of Milpitas relies on local groundwater aquifers to supply over 40 percent of the water needs of its customers. Contamination of those groundwater supplies by MTBE or other ether oxygenates would create a very serious water quality problem, which would be extremely expensive to correct. The City's water customers, which include some of the largest electronic firms in the world, rely on high quality water for human consumption as well as industrial use.

Your efforts to prohibit the use of MTBE are appreciated.

Sincerely yours,

HENRY MANAYAN, *Mayor.*

MILPITAS, CA, RESOLUTION NO. 6810

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MILPITAS REQUESTING THE GOVERNOR TO PROHIBIT THE USE OF METHYL TERTIARY-BUTYL ETHER OR OTHER ETHER OXYGENATES IN GASOLINE

Be It Resolved by the City Council of the City of Milpitas, California ("City") as follows:

Whereas, Methyl tertiary-butyl ether ("MTBE") represents a threat to groundwater and surface water supplies in California; and

Whereas, MTBE is difficult and expensive to remove once it is in the water supply; and

Whereas, MTBE is highly soluble in water, shows a high degree of mobility in soils and persistence in the water and has a very low taste and odor threshold; and

Whereas, although the health effects of MTBE are not well known, it is a possible human carcinogen; and

Whereas, the City is responsible for developing and maintaining a safe, healthful, potable and reliable water supply for the more than 62,000 residents and water customers of the City; and

Whereas, the City's objectives include water quality protection and enhancement; and

Whereas, the City relies upon groundwater to supply the water needs of some of its customers; and

Whereas, MTBE has been detected at nearly 300 leaking underground storage tank sites in Santa Clara County; and

Whereas, MTBE has been detected at very low levels in at least one drinking water well at a location in the Santa Clara Valley not within the City; and

Whereas, the mechanisms of MTBE contamination include leading underground storage tanks, other gasoline storage and distribution systems, gasoline-powered water craft, storm water runoff, and rainfall washout; and

Whereas, to protect the public health and welfare the California Department of Health Services is in the process of promulgating a Maximum Contaminant Level for MTBE in drinking water.

Now Therefore, Be It Resolved, that the City Council of the City of Milpitas urges a prohibition on the use of MTBE or any other ether oxygenate as an additive to gasoline within the State of California.

Be It Further Resolved, that the City Council of the City of Milpitas urges the Governor to employ his executive powers to achieve removal of MTBE and other ether oxygenates as additives to motor vehicle fuels in the Sate of California in order to protect the State's valuable water resources, and to work with the appropriate authorities at the Federal level to achieve this prohibition and to identify alternative methods to achieve acceptable air quality objectives.

Passed and Adopted this 1st day of September, 1998.

MONTE SERENO, CA, RESOLUTION NO. 1868

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MONTE SERENO REQUESTING THE GOVERNOR AND THE LEGISLATURE TO PROHIBIT THE USE OF METHYL TERTIARY-BUTYL ETHER OR OTHER ETHER OXYGENATES IN MOTOR FUEL

Be It Resolved by the City Council of the City of Monte Sereno California ("City"), as follows:

Whereas, Methyl tertiary-butyl ether ("MTBE") represents a threat to ground water and surface water supplies in California; and,

Whereas, MTBE is difficult and expensive to remove once it is in the water supply; and,

Whereas, MTBE is highly soluble in water. shows a high degree of mobility in soils and persistence in the water and has a very low taste and odor threshold; and,

Whereas, although the health effects of MTBE are not well known, it is a possible human carcinogen; and,

Whereas, the City is responsible for developing and maintaining a safe, healthful, potable and reliable water supply for the more than 3000 residents and water customers of the City; and,

Whereas, the City's objectives include water quality protection and enhancement; and,

Whereas, the City relies upon ground water to supply the water needs of the majority of it's customers; and,

Whereas, MTBE has been detected at nearly 300 leaking underground storage tank sites in Santa Clara County: and.

Whereas, MTBE has been detected at very low levels in at least one drinking water well at a location in the Santa Clara Valley not within the City; and,

Whereas, MTBE has been detected at very low ground levels in treated water purchased from the Santa Clara Valley Water District by the City for the distribution to some of its residents: and,

Whereas, the mechanisms of MTBE contamination include leaking underground storage tanks. other gasoline storage and distribution systems. gasoline-powered water craft, storm water runoff. and rainfall washout; and,

Whereas, to protect the public health and welfare the California Department of Health Services is in the process of promulgating a Maximum Containment Level for MTBE in drinking water:

Now Therefore, Be It Resolved by the City Council of the City of Monte Sereno, California, That said City Council hereby urges a prohibition on the use of MTBE or any other ether oxygenate as an additive to motor filets within the State of California.

Be It Further Resolved,, the City Council of the City of Monte Sereno urges the Governor to employ his executive powers, and the Legislature to adopt laws to achieve removal of MTBE and other ether oxygenates as additives to motor fuels in the state of California in order to protect the State's valuable water resources, and urges the Governor and the Legislature to work with the appropriate authorities at the Federal level to achieve this prohibition and to identify alternative methods to achieve acceptable air quality objectives.

Passed and Adopted this 21st day of July 1998.

MORGAN HILL, CA, RESOLUTION NO. 5213

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MORGAN HILL REQUESTING THE GOVERNOR AND LEGISLATURE TO PROHIBIT THE USE OF METHYL TERTIARY-BUTYL ETHER OR OTHER ETHER OXYGENATES IN MOTOR FUEL.

Whereas, Methyl tertiary-butyl ether ("MTBE") represents a thereat to ground water and surface water supplies in California; and

Whereas, MTBE is difficult and expensive to remove once it is in the water supply; and

Whereas, MTBE is highly soluble in water, shows a high degree of mobility in soils and persistence in the water and has a very low taste and odor threshold; and

Whereas, although the health effects of MTBE are not well known, it is a possible human carcinogen; and

Whereas, the City is responsible for developing and maintaining a safe, healthful, potable and reliable water supply for the more than 30,786 residents and water customers of the City; and

Whereas, the City's objectives include water quality protection and enhancement; and

Whereas, the City relies upon ground water to supply the water needs of the majority of its customers; and

Whereas, MTBE has been detected at nearly 300 leaking underground storage tank sites in Santa Clara County; and

Whereas, MTBE has been detected at very low levels in at least one drinking water well at a location in the Santa Clara Valley not within the City; and

Whereas, MTBE has been detected at very low levels in treated water purchased from the Santa Clara Valley Water District by the City for the distribution to some of its residents; and

Whereas, the mechanisms of MTBE contamination include leaking underground storage tanks, other gasoline storage and distribution systems, gasoline-powered water craft, storm water runoff, and rainfall washout; and

Whereas, to protect the public health and welfare the California Department of Health Services is in the process of promulgating a Maximum Contaminant Level for MTBE in drinking water; now

Therefore, Be It Resolved by the City Council of the City of Morgan Hill that said City Council hereby urges a prohibition on the use of M]BE or any other ether oxygenate as an additive to motor fuels within the State of California.

And Be It Further Resolved that the City Council of the City of Morgan Hill urges the Governor to employ his executive powers, and the Legislature to adopt laws, to achieve removal of MTBE and other either oxygenates as additives to motor fuels in the State of California in order to protect the State's valuable water resources, and urges the Governor and the Legislature to work with the appropriate authorities at the Federal level to achieve this prohibition and to identify alternative methods to achieve acceptable air quality objectives.

Passed and Adopted by the City Council of Morgan Hill at a Regular Meeting held on the 5th day of August, 1998.

CITY OF SANTA CLARA,
Santa Clara, CA, 30 June 1998

HON. RICHARD MOUNTJOY,
California State Senate,
State Capitol Room 4062,
Sacramento, CA 95814.

Subject: Resolution Urging a Prohibition on the Use of MTBE

DEAR SENATOR MOUNTJOY: On 23 June 1998 the City Council of the City of Santa Clara adopted Resolution 6456 urging the Legislature to enact laws to prohibit the use of methyl tertiary butyl ether (MTBE) and other ether oxygenates in motor fuels in California. A copy of the Resolution is attached.

The City of Santa Clara relies on local groundwater aquifers to supply over 65 percent of the water needs of its customers. Contamination of those groundwater supplies by MTBE or other ether oxygenates would create a very serious water quality problem, extremely expensive to correct. The City's water customers, which include some of the largest electronics firms in the world, rely on high quality water for human consumption as well as industrial use.

Your efforts to prohibit the use of MTBE are appreciated.

Very truly yours,

JUDY NADLER, *Mayor,*
JENNIFER SPARACINO, *City Manager.*

SANTA CLARA, CA, RESOLUTION NO. 6456

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SANTA CLARA REQUESTING THE GOVERNOR AND THE LEGISLATURE TO PROHIBIT THE USE OF METHYL TERTIARY-BUTYL ETHER OR OTHER ETHER OXYGENATES IN MOTOR FUEL

Be It Resolved by the City Council of the City of Santa Clara, California ("City"), as follows:

Whereas, Methyl tertiary-butyl either ("MTBE") represents a threat to Round water and surface water supplies in California; and,

Whereas, MTBE is difficult and expensive to remove once it is in the water supply; and,

Whereas, MTBE is highly soluble in water, shows a high degree of mobility in soils and persistence in the water and has a very low taste and odor threshold; and

Whereas, although the health effects of MTBE are not well known, it is a possible human carcinogen; and,

Whereas, the City is responsible for developing and maintaining a safe, healthful, potable and reliable water supply for the more than 100,300 residents and water customers of the City; and,

Whereas, the City's objectives include water quality protection and enhancement; and,

Whereas, the City relies upon of its customers; and, ground water to supply the water needs of the majority; and

Whereas, MTBE has been detected at nearly 300 leaking underground storage tank sites in Santa Clara County; and,

Whereas, MTBE has been detected at very low levels in at least one drinking water well at a location in the Santa Clara Valley not within the City; and,

Whereas, MTBE has been detected at very low levels in treated water purchased from the Santa Clara Valley Water District by the City for the distribution to some of its residents; and,

Whereas, the mechanisms of MTBE contamination include leaking underground storage tanks, other gasoline storage and distribution systems, gasoline-powered water craft, storm water runoff, and rainfall washout; and,

Whereas, to protect the public health and welfare the California Department of Health Services is in the process of promulgating a Maximum Contaminant Level for MTBE in drinking water:

Now Therefore, Be It Resolved by the City Council of the City of Santa Clara, California, that said City Council hereby urges a prohibition on the use of MTBE or any other ether oxygenate as an additive to motor fuels within the State of California.

Be It Further Resolved,, the City Council of the City of Santa Clara urges the Governor to employ his executive powers, and the Legislature to adopt laws, to achieve removal of MTBE and other ether oxygenates as additives to motor fuels in the State of California in order to protect the State's valuable water resources, and urges the Governor and the Legislature to work with the appropriate authorities at the Federal level to achieve this prohibition and to identify alternative methods to achieve acceptable air qualify objectives.

SANTA CLARA COUNTY RESOLUTION ADOPTED MAY 12, 1998

Whereas, the Santa Clara County Board of Supervisors supports efforts to repeal the Federal requirement that gasoline contain oxygenates while maintaining air quality standards; and

Whereas, the Santa Clara County Board of Supervisors supports effort at the state level to eliminate MTBE from fuel; and

Whereas, the Santa Clara County Board of Supervisors supports continued reseal into the public heals impacts of MTBE In drinking water; and

Whereas, the Santa Clara County Board of Supervisors supports efforts to maintain air quality standards so state and Federal transportation funds linked to air quality are not put in jeopardy; and

Whereas, the Santa Clara County Board of Supervisors Supports Legislation; including H.R. 630 (Bilbray), S. 1576 (Feinstein), SJR 36 (Johannassen), SB 19 (Mountjoy); and opposes AB 2439 (Bower);

Now, Therefore Be It Resolved that the Santa Clara County Board of Supervisors is actively supporting measures remove or limit the level of MTBE in the water supply.

SANTA CLARA VALLEY WATER DISTRICT RESOLUTION NO. 98–10

REQUESTING GOVERNOR PETE WILSON TO PROHIBIT THE USE OF METHYL TERTIARY-BUTYL ETHER IN GASOLINE

Whereas, the Santa Clara Valley Water District (District) is responsible for managing water resources in Santa Clara County; and

Whereas, the District provides wholesale water supply for the more than 1.6 million residents of Santa Clara County; and

Whereas, Methyl Tertiary-Butyl Ether (MTBE) has been detected in the District's local reservoir, Vapored water, drinking water treatment plant influent and effluent, and groundwater; and

Whereas, MTBE has been at nearly 300 leaking underground storage tank sites in Santa Clara County; and

Whereas, the mechanisms of MTBE contamination include leaking underground storage tank systems, other gasoline storage and distribution systems, gasoline-powered watercraft, storm water runoff, and rainfall washout; and

Whereas, MTBE is difficult and expensive to remove once it is in the water supply; and

Whereas, MTBE is soluble, mobile, and persistent in the water cycle; and

Whereas, MTBE is a possible human carcinogen and has a low taste and odor threshold; and

Whereas, the District's objectives include water quality protection and enhancement.

Now, Therefore, Be It Resolved, by the Board of Directors of the District that said Board hereby urges a prohibition on the use of MTBE, or any other ether oxygenate, At an additive to motor vehicle fuels.

Be It Further Resolved,, that the Board of Directors urges the Governor to employ his executive powers to achieve removal of MTBE and other ether oxygenates as additives to motor vehicle fuels in the State of California in order to protect the She's valuable water resources, and urges the Governor to work with appropriate authorities at the Federal level to achieve this prohibition and to identify alternative methods to achieve acceptable air quality objectives.

Passed and Adopted by the Board of Directors of the Santa Clara Valley Water District on February 17, 1998.

SOUTH TAHOE PUBLIC UTILITY DISTRICT,
South Lake Tahoe, CA, March 19, 1998.

HONORABLE PETE WILSON, *Governor,*
State of California,
Capitol Building, First Floor,
Sacramento, CA 95814.

Re: Methyl Tertiary Butyl Ether (MTBE) in Gasoline

DEAR GOVERNOR WILSON: The South Tahoe Public Utility District is very concerned about MTBE in its water supplies. MTBE has been detected in three of the District's water wells and threatens two others.

The mechanisms of MTBE contamination include leaking underground storage tank systems, other gasoline storage and distribution systems, gasoline-powered water craft, storm water runoff, and rainfall washout. Once in the water supply, MTBE is difficult and expensive to remove. MTBE is soluble and mobile, and it is persistent in the subsurface environment. The health effects of MTBE are not completely understood, but MTBE is a possible carcinogen and has a low taste and odor threshold. The most effective way to prevent additional impacts to water supplies and public health from MTBE is to cease its use as an additive to motor vehicle fuel.

The Board of Directors of the South Tahoe Public Utility District urges you to employ your executive powers to achieve removal of MTBE and other ether oxygenates as additives to motor vehicle fuels in the State of California in order to protect the State's valuable water resources. The South Tahoe Public Utility urges you to work with appropriate authorities at the Federal level to achieve this prohibition and to identify alternative methods to achieve acceptable air quality objectives.

If you or your staff has questions, please call Mr. Rick Hydrick, Manager of Water Operations, at (530) 544–6474, extension 238.

Sincerely,

JAMES R. JONES, *President, Board of Directors.*

SOUTH LAKE TAHOE, CA, RESOLUTION NO. 2669–98

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE SOUTH TAHOE PUBLIC UTILITY DISTRICT URGING THE GOVERNOR OF THE STATE OF CALIFORNIA TO EMPLOY HIS EXECUTIVE POWERS TO ACHIEVE THE REMOVAL OF MTBE AND OTHER OXYGENATES AS ADDITIVES TO GASOLINE IN THE STATE OF CALIFORNIA

Whereas, Methyl Tertiary-Butyl Ether (MTBE) has been detected in water supplies within the service boundaries of the South Tahoe Public Utility District; and

Whereas, MTBE has been detected in water supplies in three drinking water wells and threatens two others within the service boundaries of the South Tahoe Public Utility District; and

Whereas, the mechanisms of MTBE contamination include leaking underground storage tank systems, other gasoline storage and distribution systems, gasoline-powered water craft, storm water runoff, and rainfall washout; and

Whereas, MTBE is difficult and expensive to remove once it is in the water supply; and

Whereas, MTBE is soluble, mobile, and persistent in the water cycle; and

Whereas, MTBE is a possible human carcinogen and has a low taste and odor threshold; and

Whereas, it is important to protect water quality and public health.

Now, Therefore, Be It Resolved, that the Board of Directors of the South Tahoe Public Utility District hereby urges a prohibition on the use of MTBE, or any other ether oxygenate, as an additive to gasoline.

Now, Therefore, Be It Further Resolved, that the Board of Directors of the South Tahoe Public Utility District urges the Governor to employ his executive powers to achieve removal of MTBE and other ether oxygenates as additives to gasoline in the State of California in order to protect the State's valuable water resources, and urges the Governor to work with appropriate authorities at the Federal level to achieve this prohibition and to identify alternative methods to achieve acceptable air quality objectives.

Passed and Adopted at a duly held Regular Meeting of the Board of Directors of the South Tahoe Public Utility District on the 19th Day of March.

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
RESOLUTION NO. 97–1850

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT BOARD OF DIRECTORS

Whereas, Zone 7 of Alameda County Flood Control and Water Conservation District, has as its charge the protection of the groundwater basin over which it lies: and

Whereas, the aforementioned protection extends to both the management of the groundwater supply as well as the quality of the water therein conned; and

Whereas, since the use of MTBE, methyl-tert-butyl ether, as a fuel additive began, the rapid spread of MTBE throughout the State of California's groundwater and surface waters has been documented; and

Whereas, the United States Environmental Protection Agency, the Centers for Disease Control and the California Department of Health Services have all recognized the probable carcinogenic, public health hazards, or aesthetic concerns of MTBE exposure; and

Whereas, recent analyses have shown that the use of dunking water wells in certain California cities has been lost due to MTBE contamination; and

Whereas, the hydrophilic properties of his have been documented as well as its ability to travel through the water cycle; and

Whereas, the rapid movement of MTBE through an aquifer has been demonstrated once contamination has occurred; and

Whereas, despite the use of Best Available Technologies, underground gasoline storage tanks including those within our area will leak, and gasoline will be spilled; and

Whereas, MTBE's resistance to biodegration and the difficulty of clean-up by standard practices has been documented; leaving prevention a more effective defense than remediation; and

Whereas, at this point in time, MTBE has not yet been found In the Zone 7 drinking water supply, and that the time to act is before contamination occurs; and

Whereas, it is nor in the best interests of public health to sacrifice water quality for air quality;

Now, Therefore Be It Resolved, that the Board of Directors of Zone 7 of Alameda County Flood Control and Water Conservation District, exercise its duties as the manager of the groundwater basin by recommending that the addition of MTBE to motor vehicle fuels be discontinued and that a more environmentally responsible fuel additive be employed to reduce harmful exhaust emissions; and

Be It Further Resolved,, that the General Manager of Zone 7 be directed to submit its resolution to the Governor's Office, USEPA, SWRCB, RWQCB, Air Resources Board, Bay Area Air Quality Management District and the Department of Health Services.

MESA CONSOLIDATED WATER DISTRICT RESOLUTION NO. 1207

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE MESA CONSOLIDATED WATER DISTRICT URGING THE GOVERNOR AND LEGISLATURE TO PROHIBIT THE USE OF METHYL TERTIARY-BUTYL ETHER GASOLINE

Whereas, Mesa Consolidated Water District's (Mesa) mission is to serve our customers through efficient management and distribution of a sufficient supply of quality water at a fair cost; and

Whereas, Mesa relies upon groundwater to supply the water needs of the majority of its customers, and relies upon imported surface water as a supplement supply, and

Whereas, Methyl Tertiary-Butyl Ether (MTBE) represents a threat to both groundwater and surface water supplies in California, and

Whereas, MTBE is a known carcinogen that does not biodegrade in the environment and is difficult and expensive to remove once it is in the water supply, and

Whereas, Mesa has urged the Orange County Water District Board of Directors, who act as our groundwater guardian, to lead a county-wide effort that requires petroleum companies remove MTBE from gasoline, and

Whereas, Mesa customers and other ratepayers should not bear the burden of expensive treatment costs when the problem could be stopped at the source, and

Whereas, Mess believes that coordinated state-wide as well as industry-wide efforts are essential to protect our groundwater basin and the customers who rely on a safe and reliable drinking water source.

Now, Therefore Be It Resolved, by the Board of Directors of the the Consolidated Water District, that the Board of Directors hereby urges the Governor and Legislature to lead a statewide effort to require that petroleum companies remove MTBE from gasoline.

Adopted, Signed and Approved this 27th day of August.

GILROY, CA, RESOLUTION NO. 98–41

RESOLUTION OF THE COUNCIL OF THE CITY OF GILROY REQUIRING GOVERNOR PETE WILSON TO PROHIBIT THE USE OF METHYL TERTIARY-BUTYL ETHER (MTBE) IN CALIFORNIA'S GASOLINE

Whereas, California's water supply is its most important natural resource and its protection is crucial to the fixture of California, and

Whereas, California's cities and communities rely on this water supply for their drinking water, to maintain agriculture as viable in California and for the daily life activities of all California citizens, and

Whereas, the approximately 60,000 people of the City Of Gilroy and the South Santa Clara County area rely exclusively on groundwater aquifers as the source of drinking water, and for agriculture uses, and

Whereas, California's water supplies lost through contamination will require new sources of water to be developed at a huge cost borne mostly by the State Government, and

Whereas, protecting this natural and valuable resource is critical to insuring the future of this great state and the success of California's economy, and

Whereas, the willingness of California leaders to insure this natural and critical resource is protected will be one of the measures by which future generations will judge present leadership, and

Whereas, this water supply is today, as are most water supplies in the State of California, threatened with irreparable harm from the gasoline additive Methyl Tertiary-Butyl Ether (MTBE), which has been detected in local aquifers and reservoirs, and

Whereas, it is known that once MTBE enters an aquifer or drinking water well, it cannot easily be removed, if at all, and that water source must be abandoned, creating an irreparable harm to a local community, and

Whereas, MTBE is a pervasive compound that by the time it can be detected, contamination has already occurred and the water supply has been rendered useless, thereby rendering prevention the only viable means to maintain water supplies free of MTBE, and

Whereas, to date, over 300 underground storage tanks alone in Santa Clara County have been determined to have been leaking MTBE, thereby creating a serious exposure to contamination of the water supply in one of California's most critical economic regions, and

Whereas, it is now urgent that the leadership of California take effective measures to stop further exposure and risk to this State's water supply from this gasoline additive.

Now, Therefore, Be It Resolved, the City County of the City of Gilroy urgently requests State of California immediately prevents further use of MTBE, or any other oxygenate, as an additive to motor vehicle fuels, and

Be It Further Resolved,, that the City Council of the City of Gilroy urgently requests the Governor to exercise his executive office and powers to insure the safety of California's water supply and resources by removing the additive MTBE and other ether oxygenates from motor vehicle fuels in the State of California and urges the Governor to work with the appropriate Federal officials to achieve this prohibition and to identify alternative methods to achieve acceptable air quality levels that do not expose the water supply of this great state and the future of its citizens to harm.

LOS ALTOS, CA, RESOLUTION NO. 98–24

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF LOS ALTOS ENTREATING GOVERNOR PETE WILSON TO PROTECT THE DRINKING WATER OF LOS ALTOS, BY PROHIBITING THE USE OF MTBE IN GASOLINE

Resolved by the City Council of the City of Los Altos, Santa Clam County, California, that

Whereas, MTBE poses a sloths threat to the drinking water of Los Altos by continuing to contaminate its sources of drinking water; and

Whereas, due to the vigilance of the California Water Service Company, our drinking water is safes but as long as MTBE is present in gasoline our wells are at risk; and

Whereas, MTBE's taste and odor makes contaminated drinking water unacceptable; and

Whereas, citizens of this State have right to demand that the sources of drinking water be MTBE-free;

Now, Therefore It Is Ordered, as follows: That the City Council of the City of Los Altos hereby entreats Governor Pete Wilson to rake immediate action to prohibit the use on MTBE, as an additive to gasoline.

LOS GATOS, CA, RESOLUTION 1998–139

RESOLUTION OF TOWN COUNCIL OF TOWN OF LOS GATOS REQUESTING THE GOVERNOR AND THE LEGISLATURE TO PROHIBIT USE OF METHYL TERTIARY-BUTYL ETHER OR OTHER ETHER OXYGENATES IN MOTOR IN MOTOR FUEL

Whereas, Methyl tertiary-butyl ether (MTBE) represents a threat to ground water and Eunice water supplies in California; and,

Whereas, MTBE has been detected in local reservoirs, imported water, ding water treatment plant influent and effluent, and groundwater; and

Whereas, MTBE is difficult and expensive to remove once it is in the water supply; and

Whereas, MTBE is highly soluble in water, is a high degree of mobility in soils and persistence in the water and has a very low taste and odor threshold; and,

Whereas, although the health effects of MTBE are not well known, it is a possible human carcinogen; and,

Whereas, MTBE been detected at nearly 300 leaking underground storage tank sites Santa Clara County; and,

Whereas, the mechanisms of MTBE contamination include leaking underground Storage tank systems, other gasoline storage and distribution systems, gasoline-powered watercraft, storm water runoff, and rainfall washout; and

Now Therefore, Be It Resolved, that the Town Council of the Town of Los Gatos hereby urges a prohibition on the use of MTBE or any other ether oxygenate as an additive to motor fuels within the State of California.

Be It Further Resolved,, that the Town Council of the Town of Los Gatos urges the Governor to employ his executive powers, and the Legislature to adopt laws, to achieve removal of MTBE and other ether oxygenates as additives to motor fuels in the State of California in order to protect the State's valuable water resources, and urges the Governor and the Legislature to work with the appropriate authorities at the Federal level to achieve this prohibition and to identify alternative methods to achieve acceptable air quality objectives.

Passed and adopted at a regular meeting of the Town Council of the Town of Los Gatos, California, held on the 8th day of September 1998.

LOS ALTOS HILLS, CA, RESOLUTION NO. 68–98

A RESOLUTION OF THE TOWN OF LOS ALTOS HILLS, REQUESTING GOVERNOR WILSON TO PROHIBIT THE USE OF METHYL TERTIARY-BUTYL ETHER IN GASOLINE

Whereas, the City Council of the Town of Los Altos Hills supports efforts to repeal the Federal requirement that gasoline contain oxygenates while maintaining air quality standards; and

Whereas, the City Council of the Town of Los Altos Hills supports efforts at the state level eliminate MTBE from fuel; and

Whereas, the City Council of the Town of Los Altos Hills support continued research into the public health impact of MTBE in drinking water; and

Whereas, the City Council of the Town of Los Altos Hills supports efforts to maintain air quality so state and Federal transportation funds linked to air quality are not put in jeopardy; and

Whereas, the City Council of the Town of Los Altos Hills supports legislation including H.R. 630 (Bilbray), S. 1576 (Feinstein), SJR 36 (Johannassen), SB1926 (Mountjoy) and opposes AB2439 (Bower).

Now, Therefore, Be It Resolved, that the City Council of the Town of Los Altos Hills supports measures to remove methyl tertiary-butyl ether (MTBE) gasoline so to preserve the quality of our water supply.

Passed and adopted this 19th day of August, 1998.

LOS GATOS VILLAGE ASSOCIATION,
San Jose, CA, August 30, 1998.

HONORABLE DIANNE FEINSTEIN,
United States Senate,
Washington, DC 20510.

DEAR SENATOR: On behalf of the Los Gatos Village Association, I am writing in support of legislation introduced by Senator Feinstein, S. 1576, and Congressman Bilbray, H.R. 630, which would eliminate the Federal requirement that California use oxygenated fuels.

By way of reference, Los Gatos Village Association is a 163 townhouse common interest development in the City of Los Gatos, California.

We are very concerned about Methyl Tertiary-Butyl Ether (MTBE) in water supplies throughout the state. In Santa Clara County, MTBE has been detected in the Santa Clara Valley Water District's local reservoirs, imported water, drinking water treatment plant influent and effluent, and groundwater. One drinking water supply has been shut down in the county while the source of trace MTBE concentrations is identified and remedied. Most importantly, MTBE has also been detected in groundwater at nearly 300 leaking underground storage tank sites in Santa Clara County, at concentrations as high as 430,000 parts per billion. Once in the water supply, MTBE is difficult and expensive to remove. MTBE is soluble and mobile, and it is persistent in the subsurface environment. The health effects of MTBE are

not fully understood, but it is known that MTBE is a possible carcinogen and has a low taste and odor threshold. The most effective way to prevent additional impact to water supplies and public health from MTBE is to cease its use as an additive to motor vehicle fuels. The Feinstein and Bilbray legislation would eliminate a Federal requirement that California use oxygenated fuels in its clean air gasoline while observing reduced vehicle emission levels. We are asking for your support of this critical legislation so that it can move forward in a timely way.

Thank you for your consideration.

Sincerely,

VICTOR ACEVEDO, *Association Manager.*

Exchange of Correspondence Between Senator Feinstein and EPA

UNITED STATES SENATE,
Washington, DC 20510, September 14, 1998.

HONORABLE CAROL M. BROWNER, *Administrator,*
Environmental Protection Agency,
Washington, DC 20460.

DEAR MS. BROWNER: I am writing you again to request action to address the contamination of California's drinking water by the gasoline additive MTBE. Since I last wrote you, a June 12, 1998 Lawrence Livermore National Laboratory has study found that MTBE is a "frequent and widespread contaminant" in groundwater throughout the state. MTBE has been found in public wells, private wells and reservoirs.

In your December 8, 1997 response to my November 3, 1997 letter in which urged you to immediately establish drinking water standards for MTBE, you indicated that MTBE is on the "draft Contaminant Candidate List for further evaluation to determine whether or not to regulate MTBE in drinking water." What is the status of this list and evaluation? Will MTBE be evaluated as a drinking water contaminant?

In the same December 8 letter, you indicated that under the Safe Drinking Water Act Amendments of 1996 EPA has the authority to promulgate interim regulations in cases of an "urgent threat to public health" and that "currently available information . . . would not be a sufficient basis to find that an urgent threat to public health' is present in this situation." In light of the growing incidence of MTBE contamination, is there now sufficient basis? If not, what would constitute "sufficient basis" to justify regulations?

On September 24, 1997, I wrote you urging that you to examine MTBE contamination and requested recommend actions Congress might take. In your November 14, 1997 response, you indicated that by December 1988, all underground storage tanks installed prior to December 1988 must be upgraded, closed or replaced to meet requirements to prevent releases and meet Federal regulations.

As you know, leaking underground storage tanks are a major source of MTBE in drinking water supplies. More than 10,000 sites (according to a Lawrence Livermore June 11 study) have been already been contaminated. EPA officials have said in Congressional briefings that only half of the nation's 600,000 tanks will comply and unfortunately, the California Water Resources Board indicates that half of our state's underground storage tanks still need to be upgraded to prevent leaks. What action does EPA intend to take to bring these remaining tanks into compliance?

In your November 14, 1997 letter responding to my letter, you discussed an October 7, 1997 meeting of experts that EPA convened to develop a research strategy for fuel oxygenates. What is the status of that strategy? What research is planned on MTBE? Does the strategy include an effort to establish more clearly the effects of MTBE on human health, both ingested and inhaled?

Finally, since the California Air Resources Board regulations for clean air are stronger and more effective than the Federal regulations and the Air Resources Board has stated that California can meet these standards without MTBE, why would EPA not support an allowance for that?

I appreciate your many efforts to protect the nation's natural resources and I look forward to working with you to make California's drinking water safe and potable.

Sincerely,

DIANNE FEINSTEIN, *U.S. Senator.*

ENVIRONMENTAL PROTECTION AGENCY,
Washington, DC 20460, December 8, 1997.

HONORABLE DIANNE FEINSTEIN,
United States Senate,
Washington, DC 20510.

DEAR SENATOR FEINSTEIN: Thank you for your letter dated November 3, 1997, regarding the gasoline additive methyl tertiary butyl ether (MTBE) and groundwater contamination issues. You asked that the Environmental Protection Agency (EPA) consider the immediate establishment of drinking water standards and noted that you had not received a response to your September 24, 1997 letter on the issue of MTBE contamination. A response to your September 24, 1997 letter was sent on November 14, 1997. We have also enclosed a copy of that response for your convenience.

In our November 14, 1997 letter, we discussed the many fronts on which EPA is addressing questions about MTBE, including activities completed or underway by the Agency and throughout the Federal Government to accurately characterize the scientific and policy issues. With respect to drinking water, this work will substantially improve our knowledge of the occurrence and potential for human exposure to MTBE in drinking water sources across the country and improve our data base on the health effects of MTBE in drinking water. We do take very seriously the appropriate direction to EPA, in the Safe Drinking Water Act amendments of 1996, to use the "best available peer-reviewed science" in regulating drinking water contaminants. We believe the data obtained from these activities should help to fill the scientific gaps in our understanding of MTBE and other potential fuel oxygenates to better inform our decisions.

In the interim, the Agency is very near finalizing a Drinking Water Advisory on MTBE that will assist states and local communities in making important water supply and management decisions if MTBE is detected in a drinking water supply. The Advisory notes that most people will neither taste nor smell MTBE at levels below 20–40 parts per billion. Our best current information indicates that these concentrations are up to 100,000 times lower than levels found to show cancer or noncancer health effects in rodents. In other words, managing MTBE to levels that ensure consumer acceptance of the water (at or below this taste and odor threshold) will also provide a margin of safety from adverse health effects that is equal to or greater than the margin of safety generally provided by our National Primary Drinking Water Regulations.

Therefore, where MTBE contamination is found at the levels you described, the lack of consumer acceptability will ensure that the water supplier will act to provide drinking water at palatable, and thus cleaner and safer levels. Our Advisory was developed to assist water suppliers and communities in making these management decisions, and to communicate that current scientific data does not indicate MTBE poses a significant health risk from water that consumers will accept.

In addition, as part of implementing the Safe Drinking Water Act Amendments of 1996. the Office of Water has placed MTBE on the draft Contaminant Candidate list for further evaluation to determine whether or not to regulate MTBE in drinking water. Information gathered from the Agency's research and data collection efforts will be used to direct our determination of whether or not to regulate MTBE in drinking water within the timeframes specified in the 1996 Amendments. EPA has authority under the 1996 Amendments to promulgate interim regulations more quickly in cases of an "urgent threat to public health." However, we believe that, taken together, the necessity of public water systems to manage their drinking water supplies to ensure consumer acceptability, and currently available information about the problem, would not be a sufficient basis to find that an "urgent threat to public health" is present in this situation.

Thank you for contacting the Agency regarding this matter. If you have any further questions or need additional information, please do not hesitate to contact me, or have your staff contact Bill Diamond, Director of the Standards and Risk Management Division at 202–260–7575, or Jeannette Wiltse, Director of the Health and Ecological Criteria Division at 202–260–7317.

Sincerely,

ROBERT PERCIASEPE, *Assistant Administrator,*
Office of Water.

ENVIRONMENTAL PROTECTION AGENCY,
Washington, DC 20460, November 14, 1997.

Honorable Dianne Feinstein,
United States Senate,
Washington, DC 20510.

DEAR SENATOR FEINSTEIN: Thank you for your letter dated September 24, 1997, regarding the gasoline additive methyl tertiary butyl ether (MTBE) and possible groundwater contamination You asked the Environmental Protection Agency (EPA) to advise you on possible actions that would be appropriate in preserving our nation's water quality. I want to assure you that EPA takes seriously the issue of MTBE contamination of water.

As you know, in the Clean Air Act of 1990 (Act), Congress mandated the use of reformulated gasoline (RFG) in those areas of the country with the worst ozone or smog problems. The RFG program, which began In January 1, 1995, is currently required in 10 areas and voluntarily implemented in another 22 (these 32 areas are a total of 18 states and the Distinct of Columbia). As directed by the Act, RFG must contain a minimum oxygen content of 2 percent by weight, a maximum benzene content of 1 percent, and no lead, manganese, or other heavy metals. In June 1996, California required statewide use of its Phase II RFG. The "cleaner burning gasoline," which has stricter standards than the Federal RFG requirements. RFG accounts for about 30 percent of the gasoline nationwide.

RFG is required to reduce the emissions of both ozone-forming, volatile organic compounds (VOCs) and toxic pollutants by 15 percent with no nitrogen oxide (NOx) increase. The refiners' 1995/96 fuel data submitted to EPA indicate that the emissions benefits exceed the required reductions. EPA's 1996 Air Quality Trends Report showed that various toxic air pollutants, such as benzene; a known carcinogen, declined significantly between 1994 and 1995. Analysis indicates this progress may be attributable to the use of RFG. Starting in the year 2000, the required emission reductions are substantially greater, at about 97 percent for VOCs, 32 percent for tonics, and 7 percent for NOx.

Ethanol and MTBE are the primary oxygenates used in the RFG program to meet the oxygen content requirement MTBE is used in about 84 percent of RFG supplies because of economic reasons and its blending characteristics. MTBE is also often used in gasoline at lower concentrations as an octane enhancer in place of lead to reduce engine knocking.

It is important to compare the risks of any gasoline additive the components of gasoline it replaces. Studies to date have not indicated that MTBE poses any greater risk to health than other gasoline components, and is likely less harmful then other gasoline components, such as benzene, which is a known carcinogen. Although additional research is needed to determine Federal drinking water guidance levels and to conduct a comparative risk analysis, the White House Office of Science and Technology Policy (OSIP) report which is further discussed below, stated that, "the estimated upper-bound inhalation cancer unit risks for MTBE are similar to or slightly less than those for fully vaporized conventional gasoline, substantially less than that for benzene, a constituent of gasoline that is classified as a known human carcinogen; and more than 100 times less then that for 1,3-butadiene, a carcinogenic emission product of incomplete fuel combustion."

Pursuant to section 211 of the Act, EPA recently notified the fuels industry of the health effects testing it is required to perform for conventional and oxygenated gasoline (including MTBE). This exposure assessment and toxicology testing 11 commence shortly after the public comment period and will result in a greater understanding of the comparative risks associated with inhalation exposures to conventional and oxygenated gasoline fuels. The results of this research effort also may be helpful in characterizing risk in water by extrapolating the data to oral ingestion risk. Once this research is completed, the Agency-directed peer review will determine whether these fuels have been adequately tested or if more research will be required.

In regards to water, EPA recognizes that there have been detectors of MTBE ground water in various wells throughout California. MTBE detections at high concentrations result primarily from leaking underground fuel storage tanks, and possibly from transmission facilities. More than one million underground fuel storage tanks exist in the United States, and leaks from these tanks have been the focus of major programs to prevent or remediate such releases to the environment.

EPA's Underground Storage Tank Program is designed to minimize further contamination of water supplies by petroleum stored in underground tanks, including gasoline containing MTBE. The Program establishes requirements to upgrade tanks, prevent releases due to tank failures and overfills, detect and report leaks, and

clean up releases. Since the adoption of Federal underground storage tank (UST) regulations in 1988, over one million tanks have been closed. About half of the remaining one million active tanks covered by EPA's UST program have been upgraded or replaced. During the past decade, over 160,000 fuel releases have been completely remediated out of over 330,000 confirmed releases. All USTs installed after December 1988 are currently required to meet EPA regulations for preventing leaks and spills. All USTs installed prior to December 1988 must be upgraded, closed, or replaced to meet these requirements by December 1998. In addition to regulations for preventing leaks, EPA regulations have required leak detection methods to be in place for all USTs since 1993. Both EPA and the states perforce these regulations.

You asked our views on the appointment of a panel of scientists to investigate the extent of leakages and to offer specific recommendations to ensure the safety of our nations' groundwater supply. I want to make you aware that a scientific investigation of issues related to MTBE, including water contamination, was recently completed by a panel of experts. As mentioned previously, the White House Office of Science and Technology Policy convened an Interagency Oxygenated Fuels Assessment Steering Committee in May 1995 upon EPA's request. The Committee included representatives with various scientific expertise from a number of agencies including: U.S. Department of Agriculture, U.S. Department of Transportation, U.S. Department of Energy, U.S. Geological Survey, Centers for Disease Control and Prevention, National Oceanic and Atmospheric Agency, and EPA.

In February 1996, OSTP released its draft assessment of the wintertime oxygenated fuels program which looked at a broad range of issues related to the use of oxygenates in gasoline, including water quality impacts. The National Academy of Sciences (NAS), an independent body of scientists, was then asked by EPA to evaluate and peer-review OSTP's draft Oxygenated Fuels Assessment Report. NAS's comments were used by the Committee in developing the final document that was released in June 1991, entitled "Interagency Assessment of Oxygenated Fuels." As a result, this document is a thorough, comprehensive, and scientifically justifiable source of information on MTBE.

The final OSTP report stated that, "MTBE has been detected in 51 public drinking water systems to date based on limited monitoring in 5 states, however, when detected, the concentrations of MTBE were for the most part below the lower level of the current EPA health advisory. This indicates that the contamination of drinking water was not a major route of exposure for these few systems." The OSTP report also noted that, "Because of the very limited data set for fuel oxygenates in drinking water, it is not possible to describe for the Nation MTBE's occurrence in drinking water nor to characterize human exposure from consumption of contained drinking water." The OSTP report concluded that more monitoring and research would be needed to better characterize major sources of MTBE to the environment and to enable an exposure assessment for MTBE and drinking water.

As a result of this need for additional information, an Agency-wide Task force has been formed to develop a "Research Strategy for Oxygenates in Water." The Strategy will identify key issues and describe a strategy to obtain information to support health risk assessment and risk management in the areas of environmental occurrence, source characterization, transport and transformation, exposure, toxicity and remediation of water contamination by fuel oxygenates, such as MTBE.

On October 7, 1997. EPA convened a day-long meeting of over 50 experts on a broad range of MTBE-related issues to review a draft of the Research Strategy. The experts included representatives from industry, academia, consultants, and other government agencies. The attendees included: Dr. Goldstein of EOHSI's Department of Environmental Community Medicine; Dr. Denton of California Air Resources Board; Dr. Happel of Lawrence Livermore National Lab; Dr. Borghoff of Chemical Industry Instance of Toxicology, representatives from Santa Monica and the Santa Clara Valley Water District, Dr. Zogorski of U.S. Geological Survey, among many others. The information produced in this workshop is being used to help finalize the research strategy for fuel oxygenates and will help coordinate efforts by various organizations, public and private, to address the issues related to oxygenates water.

The Agency's Office of Water is expected to release this fall a provisional MTBE drinking water advisory that has been peer-reviewed by outside experts. This provisional advisory will be issued as part of EPA's longstanding Health Advisory Program to provide information and guidance to individuals or agencies concerned with potential risk from drinking water contaminant for which no national regulations currently exist. Based on existing taste and odor research, the MTBE advisory will recommend the concentration levels of MTBE in drawing water that are acceptable from an aesthetic perspective. The advisory will also have a discussion on the health effects of MTBE. While adverse health effects of MTBE exposure have been ob-

served in laboratory animal toxicity tests (including both cancer and noncancer effects and identify a potential for hazard to humans from exposure to the chemical), the animal tests were not conducted by exposing the animals to drinking water, but rather by air exposure or by introducing MTBE in oil directly to the stomach. Because of the way the tests were done, their results do not support confident estimates of the degree of risk MTBE may pose to humans from low-level drinking water contamination, and EPA is therefore not establishing a health-based advisory level at this time. However, the advisory will compare the concentrations within the acceptable organoleptic range to the available health data from the animal studies and will present margins of exposure to cancer and non-cancer effects. EPA, other Federal agencies, and private entities are conducting research to better characterize the potential health risks from MTBE exposure as well as several other aspects of MTBE's potential to contaminate the environment. When the human health aspects of the research become available, EPA's Office of Water will issue a final advisory to replace this provisional one.

In addition, the Safe Drinking Water Act (SDWA), as amended in 1996, requires EPA to publish a list of contaminants that may require regulation, based on their known or anticipated occurrence public drinking water systems. The SDWA, as amended, specifically directs EPA to publish the first list of contaminants (Contaminant Candidate List, or CCL) by February 1998, after consultation with the scientific community, including EPA's Science Advisory Board, and notice and opportunity for public comment. The amendments also require EPA by 2001 to select at lease five contaminants from the final CCL and make determination of whether or not to develop drinking water standards for them. The Office of Water published a draft CCL for public comment in the Federal Register on October 6, 1997. MTBE is included on the draft CCL based on actual MTBE contamination of certain drinking water supplies, e.g., Santa Monica and the potential for contamination of other drinking water supplies in areas of the country where MTBE is used in high levels. The SDWA provides EPA with the authority to take action (i.e. interim regulation) prior to the 2001 deadline if there is an urgent threat to human health.

EPA is aware that MTBE has been detected at elevated concentrations in groundwater near leaking fuel tanks throughout California, and that this has raised concerns regarding the occurrence of MTBE in drinking water supplies. The California Department of Health Services (DHS) advised public drinking water supply systems to monitor for MTBE in February 1996 and required monitoring by regulation in February 1997. Per this regulation, the systems in California must monitor their sources of drinking water which includes wells and surface water bodies. As of October 1997, approximately 10 percent of the 4,418 drinking water systems have sampled for MTBE, which includes about twenty percent of drinking water sources (2,268 of approximately 11,000 sources). Of the systems sampled, 16 (or 3.7 percent) have reported MTBE detections, and 28 (or 1.2 percent) of the sampled sources have detected MTBE. Most of the reported concentrations to date have been at low concentrations (e.g. below 20 micrograms per liter). Further sampling of California's remaining water supply systems will be necessary to understand the potential impacts of MTBE on drinking water resources. In the interim, State water agencies, with EPA assistance as necessary, should pursue swift remediation of leaking tanks serving as sources of groundwater contamination.

The United States Geological Survey (USGS) is continuing to conduct its National Ambient Water Quality Assessment (NAWQA) program designed to assess the status and trends of the Nation's groundwater and surface water quality. USGS is monitoring for VOCs, including MTBE, in storm water, shallow groundwater, and deeper groundwater in selected areas of the country. As an extension to the NAWQA program, EPA's Office of Water has entered into a cooperative agreement with the USGS to conduct an assessment of the occurrence and distribution of MTBE in the 12 mid-Atlantic and Northeastern States. Like California, these States have used MTBE extensively in the RFG and Oxygenated Fuels programs. This study will supplement the data gathered in California and will attempt to shed light on the important issues of (1) whether or not MTBE has entered drinking water distribution systems or impacted drinking water source supplies, and (2) determine if point (land) or nonpoint sources (air) are associated with detections of MTBE in groundwater resources. Activities are underway to begin collecting data in early 1998.

As you can see, we have a great deal of activity underway to protect the Nation's water supplies and to better assess the issues surrounding the use of gasoline containing MTBE. As mentioned before, many of the activities include direct involvement of scientists and health experts from organizations outside of EPA. Over the coming months these efforts will add to what is already known about MTBE and other components of gasoline.

Thank you for writing to the Agency with your concerns. I hope the above information is helpful, and if you have any farther questions. please do not hesitate to contact us.

Sincerely yours,

RICHARD D. WILSON,
Acting Assistant Administrator for Air and Radiation.

UNITED STATES SENATE,
Washington, November 3, 1997.

HONORABLE CAROL M BROWNER, *Administrator,*
Environmental Protection Agency,
Washington, DC 20460.

DEAR MS. BROWNER: I awn writing to urge that you consider the immediate establishment of drinking water standards for the gasoline oxygenated MTBE.

It is my understanding that the Environmental Protection Agency has been considering, for some time, the establishment of regulations pertaining to MTBE in drinking water. I hope that you will act quickly and decisively to ensure that our nation's drinking, water is protected from contamination.

So far, EPA has given communities with MTBE in their water supply very little guidance on the effects of large concentrations of MTBE in drinking water. While EPA has issued a non-binding draft lifetime health advisory of 70 parts per billion, (ppb), there is no enforceable Federal regulation on the concentration of MTBE in water.

Moreover, the health advisory does not protect public health. I know of several detections in California where drinking water wells contained much more than the Federal draft lifetime health advisory. I call to your attention a number of cases recently cited by the California Department of Health Services:

In Santa Monica, CA, officials have detected MTBE in City wells up to 130 ppb—over two times the current Federal advisory.

In the Presidio of San Francisco, one well contained a concentration of 120 ppb.

In Marysville, CA, city officials discovered MTBE at a concentration of 115 ppb.

As long as this standard is merely an advisory, existing Federal law does not prohibit these highly contaminated wells from being used for human consumption.

California has responded by passing, legislation which not only studies the extent and potential health impacts of MTBE in water supplies, but also requires the State Department of Health Services to establish a binding drinking water standard. I believe it is time for the Federal Government to provide some much needed leadership on the issue of MTBE.

I would also like to bring to your attention the fact that I have not received a response to my September 24, 1997, letter to you regarding the contamination of our nation's groundwater by gasoline additives such as MTBE. (A copy is enclosed.)

Thank you for your immediate attention. Please let me know of any decision you make in regard to this most pressing matter.

With warmest personal regards.

Sincerely yours,

DIANE FEINSTEIN, *United States Senator.*

UNITED STATES SENATE,
Washington, DC, September 24, 1997.

HONORABLE CAROL M. BROWNER, *Administrator,*
Environmental Protection Agency,
Washington, DC 20460.

DEAR MS. BROWNER: I am writing to request that the Environmental Protection Agency move as quickly as possible to examine the possible contamination of our nation's groundwater by gasoline additives such as Methyl Tertiary Butyl Ether (MTBE). I am hopeful you might advise me on possible legislative action in this area that would be appropriate for Congress.

I appreciate your past responses to me on the subject of the health effects of airborne ingestion of MTBE, but I am writing to you again because the problem of chemical contamination to our water supply appears to be quickly escalating.

MTBE groundwater contamination is a particularly serious problem in California, where leaks are occurring with more frequency. The growing concern prompted the California State Senate to pass bipartisan legislation to conduct a study on the safe-

ty and environmental effects of MTBE. The recent incidents in California that have caused this reaction dot the California landscape.

In Santa Monica, the City has shut down half of its well water supply as a result from MTBE leaking out of shallow gas tanks beneath the surface.

*In South Lake Tahoe, MTBE has been discovered in publicly owned wells approximately 100 feet from City Council Chambers and concentrations of the chemical are said to double each month.

In Santa Clara County, 250 underground fuel tank sites have leaked MTBE next to water wells used by the residents of San Jose and other nearby communities.

In Livermore, a gas station with a substantial leak is threatening a commonly used public drinking water well.

Groundwater contamination by gasoline additives such as MTBE has also been seen nationwide—from Alaska to North Carolina. For example, a 1995 report by the U.S. Geological Survey reveals that MTBE was detected in 27 percent of urban wells and springs throughout the United States. A newer study shows that 51 public systems and many private wells in five states could be contaminated.

As you know, Congress, concerned about the lack of compliance with clean air standards in certain regions in the country, amended the Clean Air Act in 1990 to mandate oil refineries add oxygenated formulas into gasoline. These oxygenates enable automobiles and trucks to reduce carbon monoxide emissions because they help burn gasoline more efficiently. MTBE, an octane booster which had been used in small quantities by the oil industry for many years, is a significant component of the reformulated gasoline.

Many scientists disagree about the long-term effects of MTBE ingestion. Some scientists believe there is a link between exposure or consumption of MTBE and certain types of cancer, asthma and other ailments. Researchers have noted that rats exposed to the chemical have developed various tumors, lymphomas, leukemia, as well as kidney and liver damage. Other scientists maintain that, because it leaves such a strong odor and taste in water at relatively low concentration levels, MTBE poses very little risk to the general public.

One option I would like you to consider is the appointment of a panel of scientists to investigate the extent of leakages and to offer specific recommendations to ensure the safety of our nation's groundwater supply. I would personally appreciate your advice on what legislative action I might pursue to amend the Clean Air Act to protect our air quality without sacrificing our groundwater.

I look forward to hearing your reply and to seeing your plan of action.

With warmest personal regards.

Sincerely yours,

DIANNE FEINSTEIN, *United States Senator.*

ENVIRONMENTAL PROTECTION AGENCY,
Washington, DC 20460, July 7, 1997.

HONORABLE DIANNE FEINSTEIN,
United States Senate,
Washington, DC 20510–0504.

DEAR SENATOR FEINSTEIN: Thank you for your letter of April 22, which was in follow up to your initial correspondence of April 11. I apologize for the delay in responding to your second communication, but I believe that the letter of May 15 from Mary Nichols, Assistant Administrator for Air and Radiation, addressed most of the specific questions you raised in your April 22 correspondence.

I can now provide you some additional information concerning one of the questions you raised about human exposure to combustion products of MTBE in gasoline. You asked, "Are EPA or other researchers measuring the quantity of combustion products of MTBE in the air to determine levels of human exposure? If EPA is not, why not?" Research on that point is included in a set of proposed required studies that would be conducted under provisions of the Fuels and Fuel Additives Rule, as authorized by Section 211(b) of the Clean Air Act. The Office of Mobile Sources in the Office of Air and Radiation is about to issue formal notification on these requirements to a consortium of oxygenate manufacturers. Although EPA scientists in the Office of Research and Development have been providing guidance and direction for this research, the responsibility for funding and implementing these required studies would be borne by the industry. The reason for this is to ensure that the costs of testing the environmental and health impacts of fuels and fuel additives are paid by the companies that stand to profit from the sale of these products, not by the taxpayers.

You also asked, "Are EPA or other researchers determining the combustion products of MTBE when used as an automobile fuel?" Extensive investigations of the combustion products of MTBE-gasoline and other formulations have been carried out not only by EPA but by a major program funded by the automobile and oil industries with EPA technical participation. In addition, the oxygenate manufacturers are required to provide EPA emissions data on MTBE-gasoline (as well as baseline gasoline and other oxygenate-gasoline mixtures) under provisions of the Fuels and Fuel Additives Rule noted above.

Let me assure you that we have been very much aware of the concerns raised in your letter and the attached correspondence from Dr. Peter Joseph of Pennsylvania, and I believe we have been taking appropriate steps to address those concerns. For example, studies to (a) determine whether tertiary butyl formate (TBF) can be detected in the atmosphere and (b) evaluate its irritancy potential were called for as early as an August 1995 draft of the Agency's "Oxyfuels Information Needs" document. Efforts to address those needs were subsequently funded by ARCO Chemical, with results thus far indicating that TBF is not an especially irritating compound by comparison to other known inhalation irritants. Also, when Dr. Joseph met with EPA scientists on April 9 (following his letter of April 5 to you), he was informed that, contrary to his expectations, TBF has not been detected in combustion emissions from MTBE-gasoline in tests conducted by EPA researchers explicitly looking for TBF. This is not to say that we have to come to any conclusion regarding the plausibility of any of Dr. Joseph's hypotheses. He has raised several provocative questions, which we are attempting to take into consideration as part of a much broader effort to understand fully the environmental and public health impacts of both conventional and oxygenated fuels.

I appreciate your active interest in this issue. Please do not hesitate to contact me if you have any further questions or concerns.

Sincerely yours,

HENRY L. LONGEST II, *Acting Assistant Administrator.*

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,
Washington, DC 20460, May 15, 1997.

HONORABLE DIANNE FEINSTEIN,
United States Senate,
Washington, DC 20510.

DEAR SENATOR FEINSTEIN: Thank you for your letter of April 11, 1997, to which you attached correspondence from Dr. Peter Joseph raising concerns about exposures to compounds in gasoline, including the oxygenate methyl tertiary butyl ether (MTBE).

As you know, the Clean Air Act (CAA) of 1990, Congress mandated the reformulated gas (RFG) program for those areas of the country with the worst ozone or smog problems. The program was developed through a cooperative process with industry, environmentalists, sand local governments to create a cost-effective program that requires "cleaner gasoline" to reduce automotive emission of ozone-forming pollutants and toxic materials. Ground-level ozone damages sensitive lung tissue and can result in permanent damage to lung tissue over the long term. Toxic emissions from conventional gasoline include materials like benzene which is known to cause cancer in humans. Toxic emissions from motor vehicles are estimated to account for roughly 50 percent of all cancers associated with exposure to air toxins.

RFG is blended with the same ingredients used to make conventional gasoline. The difference is that RFG has lower levels of certain compounds that contribute to air pollution and higher level of oxygenates to reduce harmful carbon monoxide emissions that result from incomplete combustion. As directed in the CAA, RFG must contain a minimum oxygen content of 2 percent, a maximum benzene content of 1 percent, and no lead, manganese, or other heavy mete Is. Ethanol, MTBE, and ethyl tertiary butyl ether (ETBE) are the main oxygenates currently capable of competing in the RFG market.

Last year, the National Academy of Sciences (NAS) reviewed an assessment of oxygenated fuels issues by the Office of Science and Technology Policy (OSTP). The NAS report stated that "it appears that MTBE-containing fuels do not pose health risks substantially different from those associated with nonoxygenated fuels." Therefore, the weight of scientific evidence at present would seem to indicate there are no identifiable adverse health effects associated with oxygenated gasoline that would not also be associated with conventional gasoline. Consistent with NAS recommendations, the Environmental Protection Agency (EPA) is continuing to identify additional areas of research to provide a basis for comparing gasoline/MTBE mix-

tures to gasoline without MTBE. EPA will propose the health testing requirements for the largest portion of this research in the coming months, while studies on acute effects are already beginning.

Asthma mortality rates have been steadily climbing during the last half of this century. A recent study by the National Institutes of Health reported a 34 percent increase in asthma rates from 1983 to 1993. The winter oxygenated fuels program, however, was not implemented on a widespread basis until 1992, and it was not until 1995, when the RFG program started, that higher volumes of MTBE production were seen.

Dr. Joseph's letter asserts that MTBE use in gasoline causes increased asthma rates. We have no evidence to support that proposition. To the contrary, a recent study conducted by Maine's Department of Human Services, which compared asthma hospitalization rates in counties with and without RFG, concluded that "the introduction of RFG (containing MTBE) into seven southern Maine counties has not resulted in an increase in hospitalization for asthma among residents of those counties."

Further, a study of the Pittsburgh metropolitan area hospital admissions for asthma between 1986 to 1992, found an 8 percent increase in asthma hospital admissions. This area of the country has never been a part of the RFG or oxyfuel program, and therefore the contribution of MTBE to the rising asthma rates, would be exceedingly small.

Dr. Joseph recently visited EPA and presented his findings regarding MTBE, asthma rates, and t-butyl formate (TBF), which has been the focus of a fair amount of his recent writings. He was made aware that a broad study of vehicle emissions resulting from the use of oxygenated fuels was currently underway in RTP, North Carolina, and that MTBE oxygenated fuels were studied and showed no evidence of TBF generation in the exhaust stream despite instrumental sensitivities down to the parts per trillion level. This, however, does not rule out the possibility that TBF may be formed from photooxidation of MTBE in the air.

ARCO Chemical has responded with a recently completed study to determine if TBF has the potential to cause pulmonary irritancy. The research showed that TBF does cause pulmonary irritancy in mice at over 500 ppm, which was directly compared to other formates of known irritancy, that produced similar animal breathing difficulties below 300 ppm. With ambient TBF levels expected in the low parts per billion, if it can be detected at all, the chance that TBF would cause pulmonary irritation among the general population is believed to be negligible. ARCO is also making preparations to determine what levels of TBF might be detected in ambient air in the Philadelphia region. Early results should be available in the fall, 1997.

I have enclosed copies of the reports and studies cited above for your review. I hope I have adequately addressed your concerns about MTBE, TBF, and reformulated saline. Please contact us if you have any additional questions or meets.

Sincerely yours,

MARY D. NICHOLS, *Assistant Administrator for Air and Radiation.*

UNITED STATES SENATE,
Washington, DC, April 22, 1997.

HONORABLE CAROL BROWNER, *Administrator,*
Environmental Protection Agency,
Washington, DC 20460.

DEAR ADMINISTRATOR BROWNER: I write to follow up on my April 11 letter in which I requested information on EPA's work to determine the adverse human health effects of methyl tertiary butyl ether (MTBE), a chemical used in reformulated gasoline to increase the oxygen content.

In addition to the requests in that letter, I would like to pose several additional specific questions:

Are EPA or other researchers determining the combustion products of MTBE when used as an automobile fuel? If EPA is not, why not?

Are EPA or other researchers measuring the quantity of combustion products of MTBE, in the air to determine levels of human exposure? If EPA is not, why not?

Is EPA conducting systematic studies of the increase in the incidence of asthma in specific cities, comparing cities with high levels of MTBE to cities without (for example, San Francisco compared to Portland, Oregon, or Los Angeles compared to Phoenix)? If EPA is not, why not?

Is EPA routinely monitoring the adverse health effects resulting from MTBE in cities, specifically tertiary butyl formate (TBF) from MTBE, as suggested by the National Academy of Sciences in 1996? If not, why not?

I am enclosing a letter raising these issues I received from Dr. Peter Joseph, Professor of Radiologic Physics in Radiology at the University of Pennsylvania Medical Center. I hope you will ask your staff to be in touch with him at 215–662–6679.

Thank you for your attention to these concerns. I look forward to hearing from you.

Sincerely,

DIANNE FEINSTEIN, *United States Senator.*

UNITED STATES SENATE,
Washington, DC, April 11, 1997

HONORABLE CAROL BROWNER, *Administrator,*
Environmental Protection Agency,
Washington, DC 20460.

DEAR ADMINISTRATOR BROWNER: As you know, reformulated gasoline is sold in many American cities as one way to meet Federal air quality standards. Some experts maintain that methyl tertiary butyl ether (MTBE), a chemical used in RFG to increase the oxygen content, causes or contributes to adverse health effects. Some experts believe it is a major contributing factor to the rising incidence of asthma in this country.

I would appreciate information on and summaries of studies analyzing the adverse health effects of MTBE and in particular, any studies that might link its use to asthma. I would also appreciate knowing of any current studies underway and the agency's view of the health effects of MTBE.

I commend you for your efforts to improve the nation's air quality and I look forward to hearing from you.

Sincerely,

DIANNE FEINSTEIN, *United States Senator.*

UNIVERSITY OF PENNSYLVANIA SCHOOL OF MEDICINE,
HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA,
Philadelphia, PA, June 15, 1997.

SENATOR DIANNE FEINSTEIN,
Washington, DC, 20510–0504.

DEAR SENATOR FEINSTEIN: I recently attended the annual meeting of the Air and Waste Management Association in Toronto, Canada. The AWMA is the largest and best known association of professional environmental engineers and scientists. I was an invited speaker and presented my paper entitled "Changes in Disease Rates in Philadelphia following the Introduction of Oxygenated Gasoline". In that paper I document the huge increase in asthma and some other diseases that has taken place here since oxygenated gasoline with MTBE was mandated in 1992. I enclose a copy for your interest. Please note also the addendum in which I argue that the symptoms may be due to formic acid, a likely combustion byproduct of MTBE in fuel.

I am happy to say that my paper was mostly well received, not only by those that heard me speak, but apparently by many others who heard about my research by word of mouth later. I heard some very favorable comments from scientists and engineers from northern California.

Another paper that might interest you described work done by Professor Eatough of Brigham Young University in Utah. Professor Eatough found that when MTBE was mandatory in gasoline in the winter months, the amount of sulfuric acid in the air doubled! This result was totally unexpected and there was considerable discussion as to the possible cause. Sulfuric acid is certainly very irritating to the tissues of the respiratory system. I enclose a copy of the abstract of his paper, since the paper itself is probably a bit too technical to be understood by those without an advanced degree in chemistry.

My major concern now is the possibility that the EPA may enact the new air quality standards for ozone. You may know that these changes have been much discussed, and it is predicted that if they are made then large parts of the country will be redefined as out of compliance. I am extremely worried that such a step will force a major expansion of the use of MTBE Reformulated Gasoline (RFG). If I am right that MTBE is making asthma, the huge increase in MTBE usage will create far more problems for asthmatics than any possible benefit from a 10–15 percent reduction in ozone. Furthermore, such an expansion will make much more difficult any possible epidemiologic study comparing asthma in the RFG and non-RFG areas.

Thus, for two reasons, I believe such a move will be an enormous step in the wrong direction in terms of improving air quality and helping people with respiratory disease.

I have heard that two people who will play an important role in this decision are Senator John Chafee and Vice President Gore. I would like to suggest that you set up a meeting with these two men, a meeting at which I would have the chance to present my data, arguments, and conclusions. of course, I would welcome the presence of anyone else that you think may be interested, including the legislative staff of the people involved. I would suggest that a minimum of 1 hour be allocated to discuss this extremely complex and important issue.

I am hoping for a positive response to this suggestion.

Sincerely,

PETER M. JOSEPH, PH.D.,
Professor of Radiologic Physics in Radiology.

P.S. I also enclose a copy of a letter from Mrs. Cathy Simpson of Danville, CA. Mrs. Simpson is asthmatic and is convinced that her problems are aggravated by MTBE in gasoline. She testified at the Senate Transportation hearings on April 15.

ENHANCED FORMATION OF SULFATE AND NITRATE ASSOCIATED WITH THE USE OF OXYGENATED FUELS

FOR PRESENTATION AT THE AIR & WASTE MANAGEMENT ASSOCIATION'S 90TH ANNUAL MEETING & EXHIBITION, JUNE 8–13, 1997, TORONTO, ONTARIO, CANADA

Yinghua Du, Yuan Ren, Nolan F. Mangelson and Delbert J. Eatough, Department of Chemistry and Biochemistry, Brigham Young University, Provo, Utah

John A. Cooper, TRC Environmental Corporation, Beaverton, Oregon

Abstract

Oxygenated fuels are used in some western mountain valley communities to help in the control of CO during winter inversions. However, it is possible that oxygenated fuel use will increase $PM_{2.5}$ concentrations. The oxygen in these fuels may lead to increased concentrations of oxidants. In turn, the concentrations of atmospheric oxidants involved in SO2 and NO2 chemistry may increase. This may lead to increased conversion of SO2 and NOx to particulate sulfate and nitrate. To explore the possible presence of this enhanced atmospheric chemistry, samples of gas and particulate sulfur and nitrogen oxides were collected in 5/day sample sets during four 3-day inversion episodes at two locations in the urban areas of Utah Valley. Two of the episodes occurred during December 1995 when oxygenated fuels were used in the valley. The last two episodes occurred in February 1996 after the end of oxygenated fuel use on January 15. Fogs were absent during all four episodes. The results indicate that the conversion of SO2 to sulfate and NO2 to nitrate are both increased about twofold during the use of oxygenated fuels as compared to the non-oxygenated fuel periods The results, possible chemistry which may be related to the observed differences and implications for attainment of both the present and proposed new PM standard will be presented.

STATEMENT OF HON. THOMAS A. DASCHLE, U.S. SENATOR FROM THE STATE OF SOUTH DAKOTA

Thank you, Mr. Chairman. I commend you and Senator Baucus for holding this hearing to review the merits of oxygenates in the Federal Reformulated Gasoline (RFG) program, with particular emphasis on the role of the fuel additive MTBE.

I also want to acknowledge Senators Boxer and Feinstein, who have been at the forefront of the campaign to eliminate the presence of gasoline and gasoline components in water supplies. I am pleased to be able to join them in urging prompt action on this issue.

There should be no question about the importance of cleaning up contaminated water supplies and solving the California problem for the future. My purpose in testifying today is to help place the RFG-with-oxygenates program in perspective and offer some thoughts on how the situation identified by Senators Boxer, Feinstein and others might most effectively be addressed.

As the committee considers options for dealing with MTBE groundwater contamination, it is important to keep in mind Congress's objectives in authorizing the RFG-with-oxygenates program in 1990. It is also useful to note the remarkable envi-

ronmental achievements of the program since its implementation in 1995. And, it is essential to understand the fundamental distinction between RFG's oxygenate requirement and the fundamental problem we seek to redress.

Inadequate gasoline storage facilities that have allowed gasoline and all its components, of which MTBE has been the most well recognized, to contaminate water supplies is the cause of this problem, not the RFG program. Simply removing MTBE from the marketplace will not stop gasoline groundwater contamination. It will, however, have major negative effects on other important national priorities.

Let me begin by emphasizing my strong conviction that the RFG-with-oxygenates program has been highly successful, not only achieving but in many cases surpassing the multiple goals set by Congress when first enacted as part of the 1990 Clean Air Amendments. Moreover, it stands as a model of how the public and private sectors can work together to advance the public welfare in a safe and cost effective manner.

As the Chairman and Ranking Minority Member both know, the Senate extensively debated the merits of the RFG-with-oxygenates provision prior to its passage by a vote of 69 to 30 on March 29, 1990. A review of the Congressional Record debate shows that Congress had several major objectives in enacting the RFG-with-oxygenates program:

1. To improve air quality by reducing mobile source emissions (VOC ozone precursors; toxics; and NOx);
2. To improve energy security by reducing oil imports;
3. To stimulate the economy, especially in rural America; and
4. To provide regulatory relief to the automotive industry by cleaning up "dirty" fuel, which was a primary cause of urban pollution.

Since 1995, nearly one-third of all gasoline sold in the U.S. has been RFG-with-oxygenates, and there is no longer any need to speculate about its effect. The facts are in.

In an April 22,1998 letter to Rep. Bilirakis voicing opposition to legislation to waive the RFG oxygenate requirement, the American Lung Association and Natural Resources Defense Council referred to RFG as "one of the most successful programs enacted in the Clean Air Act Amendments." EPA Administrator Browner has called the RFG program the "most significant pollution reduction step since the phaseout of lead." In fact, EPA has concluded that RFG-with—oxygenates has met or surpassed the reduction goals set for VOC ozone precursors, toxics, carbon monoxide, and even NOx. In an August 25,1997 letter to the Director of Alabama's Department of Environmental Management, EPA's Director of Mobile Sources, Margo Oge, cited Phase I RFG as having achieved: ". . . 43 percent reductions in benzene and 25 percent reductions in mobile source related VOCs" as well as a net reduction of 24.6 percent in tonics," all of which exceed the requirements of the Act.

RFG has been acknowledged as an effective pollution reduction tool even by certain parts of the petroleum industry. I have attached an editorial from the Oil & Gas Journal written by an employee of Valero Refining, Cal Hodge, which makes an important distinction between the "oxygen atom" and the emissions impacts of an "oxygenate". Hodge states that, "Contrary to the assertion that the "oxygen" mandate only reduces VOC and CO emissions, the complex model shows oxygenates also provide significant reductions of toxic and NOx emissions." It is worth noting that Hodge cites ETBE as one of the top performers, with NOx emissions reductions of 5 percent, and toxic emissions reductions of more than 32 percent.

Remarkably, given all these environmental benefits, RFG's costs have been very low, averaging only 1 to 3 cents per gallon more than conventional gasoline. In some areas of the country, RFG has actually cost less than conventional gasoline. These costs are very close to the EPA estimates provided during the Senate debate and are well below the 20 to 25 cent per gallon figure provided by the oil industry at the time.

The RFG program has also appreciably improved our nation's energy security position. In June 1996, the General Accounting Office (GAO), at my request, analyzed the petroleum displacement effect of the RFG-with-oxygenates program. GAO found that, even after adjusting for the lower energy density of oxygenates, 305,000 barrels per day of imported petroleum will be displaced by the oxygenate portion of RFG in the year 2000. This amounts to 37 percent of the 10 percent imported petroleum displacement goal established by the Congress in the 1992 Energy Policy Act. GAO further calculated that, if all gasoline were RFG with oxygenates, nearly 800,000 barrels per day of imported petroleum would be displaced.

Energy security experts like Jim Woolsey, former director of Central Intelligence, and General Lee Butler, former commander, Strategic Air Command and principal air planner for Desert Storm, have spoken out frequently on the value of this near-to mid-term import displacement. Butler and Woolsey have expressed their support

for the RFG-with-oxygenates program not only as a commercial foundation to stimulate increased production of replacement fuels in the U.S., but because it is one of the few, if not only, meaningful near-term oil import reduction programs available. General Butler, speaking in his capacity as Chairman of the Clean Fuels Foundation, points out that: "It is the oxygenates in RFG that displace oil imports—the more RFG with oxygenates, the less oil imports, and the less reliance on an increasingly dangerous region of the world."

The RFG program has provided a significant shot-in-the-arm to our rural economy. As we all had hoped in 1990, the RFG-with-oxygenates program has stimulated new investments in ethanol and ether facilities in the U.S. Jobs have been created, and abundant supplies of grain and butane, which has been forced out of gasoline due to its evaporative contributions to ground level ozone, have been value-added to ethanol and ethers. The oxygenated fuels industry has responded in good faith to the 1990 law by investing billions of dollars in new plants all across the country.

I have attached a September 9, 1998 letter from Indiana Gov. Frank O'Bannon, Chairman of the Governors' Ethanol Coalition (GEC), to Missouri Governor Mel Carnahan, commending him on his recent decision to opt-in the St. Louis area to the RFG program. Governor O'Bannon, in citing the GEC's "strong support" of the RFG program, noted that it also "helps us build a strong market for ethanol." In addition to dominant market shares in RFG areas like Chicago and Milwaukee, ethanol has benefited from the State of Minnesota's implementation of a very successful year-round 2.7 wt. percent oxygen standard, modeled on the Federal law (the Senate amendment initially established a 2.7 wt. percent standard, before it was modified in conference). Other Midwestern States are considering following Minnesota's lead.

Despite these successes, many of us are disappointed that the RFG program has not resulted in more use of ethanol, and especially ETBE. I do believe, however, that expanded RFG use will result in more ethanol and ETBE use in the future. The St. Louis "opt-in" decision is a good example of how States can design their programs to encourage diversity of oxygenate use, and benefit motorists and refiners with price and product competition. Recently, Senator Lugar and I offered an amendment to the Agriculture Appropriations bill that directs the USDA to report to the Congress on ways to expand the use of ethanol and ETBE as we enter the post-2000 cleaner gasoline era. A choice among oxygenates—especially domestic oxygenates—is clearly best for motorists, workers, the economy and farmers.

I am told that a number of new areas are seriously considering RFG, including eastern Texas, Kansas City, Birmingham and others. The EPA has recently issued rulings opening the door for former non-attainment areas, and even those areas that have never been out of attainment, to "opt-in" to Federal RFG as a means of preventing non-compliance in the future. That is why the committee's deliberations today are so important; the precedents that could arise from precipitous action could severely damage the growth prospects of all oxygenates, not just MTBE.

Finally, RFG has helped the automotive industry meet tightening environmental standards. The 1990 Senate debate had an additional recurrent theme: while automobiles had gotten substantially cleaner in the years since lead phaseout, gasoline had gotten substantially dirtier. Thus, the RFG provision stemmed in part from the recognition that it was time for petroleum refiners to pick up their fair share of the burden for cleaner air.

I believe that the refining industry has responded well to the imposition of RFG. As we have seen, costs have been far less than what the oil industry predicted, and supplies have been readily available.

Nonetheless, the job is far from finished. Sulfur levels should be cut. In addition, aromatics levels should be reduced further, which would reduce combustion chamber deposits and driveability problems, as well as provide additional toxics emission reductions.

In an August 24, 1998 letter to the Texas Natural Resource Conservation Commission, the American Automobile Manufacturers Association (AAMA) wrote: ". . . AAMA encourages you to adopt the Federal Phase 2 Reformulated Gasoline Program (RFG) . . . Federal Phase 2 RFG will provide approximately the same sulfur levels as proposed in the low sulfur option, and will also provide additional benefits. Among these additional benefits, properly blended reformulated gasoline will:

—Lower emissions from all vehicles in the fleet, immediately upon implementation;

—Reduce air toxic emissions;

—Reduce the potential for cold start driveability problems that can increase emissions;

—Provide more consistent fuel quality . . . year-round;

—Provide a federally administered audit and compliance program."

Our goals as articulated in the 1990 Clean Air Act debate have been realized. The RFG-with oxygenates program has resulted in cleaner air, reduced oil imports and improved energy security, lower regulatory burdens on the automobile industry, and domestic economic growth, all at a low cost to the consumer. I am not aware of any other program available to us that can make such a multiplicity of claims, or that can be expanded so readily to provide even greater public benefits.

In my opinion, it would do serious harm if we were to tamper with the one part of the RFG program that ties all of these benefits together—i.e. the oxygenate standard. That being said, it is undeniable that, despite all of its benefits and advantages, the RFG program has exposed a glaring weakness In the nation's petroleum distribution system. The MTBE detected in drinking water supplies in California has drawn attention to a serious ancillary problem that demands immediate solution—namely, leaking underground storage tanks and distribution systems.

The problem faced by California is leaking gasoline, of which MTBE is only one of hundreds of components, not the RFG program. Clearly, this situation is unacceptable. We need to do whatever we can to prevent gasoline and all its constituent parts from contaminating our surface water and our groundwater. Gasoline simply does not belong in our water supplies.

The fact is, however, that simply removing MTBE, or any other oxygenate, from RFG will not solve the problem of leaking tanks and pipelines. There are many components of gasoline, and diesel and jet fuel for that matter, that are dangerous.

It is the leaks we must eliminate, not the oxygenates.

I have asked my staff to work with this committee, and with Senators Boxer and Feinstein, to identify near-term actions that can be taken yet this year, prior to adjournment, to address the problem of groundwater contamination in California. The Federal Government must assist California in its water remediation efforts and help ensure that leaking underground storage tanks are fixed as soon as possible. It is my hope that this problem can be solved immediately without imperiling the many important, and expanding, benefits of the RFG-with-oxygenates program.

Thank you.

STATEMENT OF THE HON. BRIAN BILBRAY, U.S. REPRESENTATIVE FROM THE STATE OF CALIFORNIA

Mr. Chairman, I want to first thank you for making the time on your committee's calendar to schedule this hearing, on an issue which is of such great significance to my home State of California. I am very pleased to be here today to continue my close work with my fellow Californian, Senator Feinstein, on the legislation we have respectively introduced in the House (H.R. 630) and here in the Senate (S. 1576). I also appreciate the interest of our California colleague, Senator Boxer, a member of this committee, and look forward to the discussions which will ensue and the testimony of the witnesses you have assembled on the other panels.

The fundamental facts about S. 1576/H.R. 630 are simple—it would allow the State's more stringent RFG program to operate in lieu of the overlapping, less stringent Federal RFG program, so long as the State program continues to demonstrate that it is achieving equal or better reductions in overall emissions of air tonics and VOCs.

EPA has recognized that the California program Is more stringent, and has stated as much in several Federal Register notices. Further, S. 1576/H.R. 630 is content-neutral and performance-based. I strongly believe that we need to focus more on outcome and less on process in setting environmental policy and protecting the public health. As a former member of the California Air Resources Board, I am very proud of California's role on the cutting edge of such strategies. We will have further elaboration on this from Mr. Dunlap in the second panel.

This legislation has been carefully constructed to build exclusively on California's unique, preexisting ability under the Clean Air Act to operate its own reformulated gasoline program. This is so for good reason; California has historically had unique air pollution challenges which require innovative and creative solutions. Congress, recognizing this, singled it out for special status in Section 211(c)(4)(b) of the Clean Air Act, which states "Any State for which application of section 209(a) has at any time been waived under section 209(b) may at any time prescribe and enforce, for the purpose of motor vehicle mission control, a control or prohibition respecting any fuel or fuel additive. " Under Section 209(b)(1) a waiver is provided to "any State which has adopted standards . . . for the control of emissions from new motor vehicles or new motor vehicle engines prior to March 30, 1966. " California is the only

State which meets this requirement; as a result, this legislation applies exclusively to California, and without further amendment (and the science to support or justify such amendment) cannot be utilized by any other State.

Mr. Chairman, I also want to make clear to this committee that I am highly sensitive to concerns which have been expressed previously that this bill might somehow be a "first step" in efforts to "undermine" the national oxygenate requirement. Let me again clarify that this is neither the intent nor the effect of S. 1576—it is applicable only to California. Questions about the national program itself may arise and may be legitimate, but they are a horse of an entirely different color, and one which may well be saddled up at some point in the future, perhaps by future Congresses during reauthorization of the Clean Air Act. However, that is a discussion for another time, and is not what we are about here today with Senator Feinstein's and my bill. Again, it is narrowly written to be California-specific and to meet California's unique circumstances; it cannot be "piggy-backed" upon by other States, without the appropriate congressional action. If other States should have similar intentions, that is certainly their prerogative—but that is a matter for individual States to decide, and to pursue on their own. California's exclusive status under the Act as written, and this bill which builds upon it, do not provide other States that opportunity.

Expanding further on this, Mr. Chairman, S. 1576 is content-neutral. It is written to provide California added flexibility to continue to meet and improve upon its already stringent emissions standards. In doing this, it does not mandate the use, nor does it ban the use, of any fuels additive which might be used to manufacture cleaner-burning gasoline in California. I would also point out that this legislation, which I first introduced in the 104th Congress as H.R. 3518, largely predates the current discussion in California over MTBE use in reformulated gasoline.

As Senator Feinstein recognized with her introduction, the beauty of this bill is that it is content neutral and outcome-based. By not mandating the use of particular "recipes" in California's cleaner-burning gasoline, S. 1576 provides the ability for the State to improve on its clean air successes, while being able to respond to previously unforeseen concerns that science may show to impact our environment and public health.

Science must be what guides us in these endeavors, and sound science is the foundation on which the California Air Resources Board has built its stringent reformulated gasoline program. My approach to this is simple—allow the State to "set the bar high" from an emissions reduction standpoint (as it has done), and allow it to have the added flexibility or options by which to reach that bar without mandates, one way or the other. Regardless of one's perspective on MTBE or any other additive, science is what must dictate this approach, not government mandates.

At the hearing on H.R. 630 which was held in the Commerce Committee this past Earth Day, there was testimony which suggested that this legislation would somehow result in "dirtier air" in California, or the "weakening" of our State's stringent standards. The implication that Senator Feinstein, myself, and the bipartisan legion of our California colleagues that support the bill would do anything to willingly undermine California's air quality is outrageous in and of itself, and in my mind simply indicates an unwillingness to discuss the bill in a factual manner.

California has the toughest air standards in the world, and is constantly seeking to improve them. Additionally, the California program is enforceable federally under its State Implementation Plan (SIP). It is therefore difficult to envision a scenario under this bill in which California would do anything but continue to build on the successes it has achieved to date in reducing air pollution. Both our responsibility to the public and simple reality indicate that clean air strategies in California will not be allowed to move backwards; rather we are working together to pioneer new gains in protecting the public health. I am certain that Mr. Dunlap will confirm California's resolve in this regard.

A last word on the public health merits of this bill, Mr. Chairman. At the Earth Day hearing on H.R. 630, I asked that several levers of support for the Bilbray/Feinstein legislation be included in the record. I do not wish to be redundant, but I do believe it is important for the Senators on this committee to be aware of this significant measure of support—from the California Air Pollution Control Officers Association, the South Coast Air Quality Management District, the San Diego County Air Pollution Control District, the Sacramento Metropolitan Air Quality Management District, the Santa Barbara County Air Pollution Control District, and the San Joaquin Valley Unified Air Pollution Control District, among others. Such an accounting from the ranks of California's clean air professionals further underscores the public health-oriented foundation of this legislation, and I would submit these letters to the record for the committee's consideration.

Finally, Mr. Chairman, I know that there have been concerns expressed by several Members, Senators, and other stakeholders, to which I know you are also sensitive, not about the practical effects of S. 1576 but about the potential for "opening up" the Clean Air Act. I am frankly pleased at the unanimity which is found here, and am reassured to see so many colleagues and other interested parties on the same proverbial page with Senator Feinstein and I on this. We have concerns about "opening up the Act" also. That is why the bill is drafted as narrowly as it is, and is structured to build upon California's existing unique status under the Clean Air Act. This bill is quite simply a narrow, targeted "fix" to strengthen a California-specific section of the Act.

This committee, and the House Commerce Committee, has on several occasions in recent years demonstrated its ability to shepherd though the legislative process bipartisan "rifle-shot" amendments to the Act, without "opening it up". I believe that such a scenario could be repeated in this instance, Mr. Chairman, and would have the utmost confidence in your ability to do so. I have similar confidence in Chairman Bilirakis and Chairman Bliley, both of whom have publicly stated their willingness to maintain the integrity of this legislation. I recognize that time is short in this session, and understand the concerns expressed by other stakeholders about the Act. However, given the assurances which have been delivered, I feel that we ought to be able to move forward in discussions of the bill without being distracted by concerns about "opening" the Act.

To conclude, Mr. Chairman, since the 104th Congress, I have tried to be as plain as I can about my intent with this bill, and believe that while differences in perspective may remain, there are no surprises here. It is my hope that the committee's time today will not be excessively occupied with extensive and redundant discussion of hypotheticals and conjecture. I would respectively submit that among the parties which have been and are in involved and interested in this issue, the practical effect of this bill is clear, and has been vigorously and thoroughly contemplated now for the better part of two Congresses.

What we can and should talk about and focus on today is the hard science and the facts which underlie the bill. In essence, California has different clean air needs than the rest of the nation. The Clean Air Act already reflects this. Going a step further, California has built the proverbial "better mousetrap", one which, with all due respect, may not have been envisioned during completion of the Clean Air Act amendments of 1990. S. 1576/H.R. 630 will build on those accomplishments to maximize the State's ability within the Act to address and improve upon its clean air strategies. This can occur without opening up the Act, or creating unmerited loopholes for other States without the requisite Congressional review. These are the facts that I hope will be discussed here today, and I look forward to the testimony of the witnesses.

On MTBE specifically, Mr. Chairman, I strongly suggest that we continue to be guided by science. We know there have been significant benefits in reducing smog-forming compounds throughout California as a direct result of cleaner-burning gasoline. I have a series of newspaper articles which reflect this, and which I would ask to be included in the record. On groundwater contamination, we know that there are problems with plumes resulting from tank leaks and spills, and are moving to address these. We are closer to having a much better understanding of the impacts of MTBE, from the University of California study and the California Energy Commission study. I will defer to Mr. Dunlap for an update on the status of those and other research efforts.

We must adhere to science even in the face of the difficult situations we face in parts of California which have experienced problems with groundwater contamination from MTBE. Quite clearly, Mr. Chairman, there are Q components of gasoline which belong in our drinking water, MTBE among them, and we must pursue every effort to correct and mitigate for the leakage and contamination problems which have been documented throughout our State. However, as the EPA has pointed out, it is important to compare the risks of any gasoline additive to the components of gasoline which it replaces. We must keep in mind that while MTBE certainly warrants additional careful research, its use in California's cleaner-burning gasoline has reduced considerably the presence of benzene, which is a known and dangerous human carcinogen.

I strongly believe that the flexibility provided under Senator Feinstein's and my legislation provide the tools California needs to best manage and respond to this situation. Again, the beauty of the bill is in the outcome-based process of providing the flexibility needed to continue to produce CBG by moving away from mandates, flexibility is provided also for responding to other public health concerns. As science provides us with the best strategies for responding to these concerns, we can and must continue to act swiftly to address them.

As the Secretary of the California EPA, Peter Rooney, testified to this committee on this issue previously (12/9/97) "The problem we are discussing here today is yet another example of what can happen when the Federal Government tells States not just what to do, but how to do it. Do not mandate technology. Set standards, hold us to them, but allow us to determine how best to meet them—in this case, through California's far stricter reformulated gasoline requirements that build in flexibility for producers."

In conclusion, I would like to again thank Senator Feinstein for her leadership on this important matter, and appreciate your consideration and that of this committee. Thank you, Mr. Chairman.

STATEMENT OF JOHN D. DUNLAP III, CHAIRMAN, AIR RESOURCES BOARD, CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

Thank you, Chairman Chafee and members of the committee for holding today's hearing on S. 1576, introduced by Senator Dianne Feinstein. On behalf of Governor Pete Wilson and Cal/EPA Secretary Peter Rooney, I appreciate the opportunity to provide California's thoughts on the measure before you today.

The Wilson Administration supports S. 1576, which would enable California's cleaner-burning gasoline program to reduce its dependence on MTBE and other oxygenated gasoline additives.

As the only State with its own gasoline program, California is in a unique legal and institutional position to be a proving ground for what can be accomplished nationally with a performance-based environmental program.

S. 1576 represents an opportunity for the entire nation to observe the outcome of California's trailblazing program. We also believe this bill can help California respond rationally and effectively to public concern over MTBE. If we are successful, the Federal Government would benefit from our experience with a market-oriented and performance-based approach. For these reasons, Congress ought to quickly pass S. 1576 and Rep. Brian Bilbray's H.R. 630, rather than waiting many months or even years to try to craft controversial national changes to the Federal oxygenate program.

As you probably know, California faces our nation's greatest air-quality challenges. Seven of the 10 metropolitan areas with the highest smog levels in the United States are in California. Because of these challenges, California has done more than any other State to reduce air pollution. In keeping with our tradition of leadership, California in 1996 introduced the world's cleanest gasoline.

The use of cleaner-burning gasoline in 1996 reduced peak smog levels by an average of 10 percent in Greater Los Angeles and 12 percent in Sacramento. No other single measure in California's history ever reduced air pollution so dramatically in its first year.

And yet, this unparalleled success has been overshadowed by public concern over the use of MTBE to meet Federal requirements for the addition of oxygen to gasoline.

In 1990, the U.S. Congress approved an amendment to the Federal Clean Air Act mandating the use of gasoline containing 2 percent oxygen by weight in regions classified as being in severe or extreme non-attainment for the Federal ozone standard. To remain in compliance with this Federal requirement, about 70 percent of the gasoline used in California during a given year must contain 2 percent oxygen by weight, year-round, with no exceptions. This includes gasoline used in the Greater Los Angeles area, Ventura County, San Diego and the greater Sacramento area.

In 1991, the year following the Federal Clean Air Act Amendments, the Air Resources Board (ARB) established its own cleaner-burning gasoline specifications. We went ahead with our own specifications because we determined that Federal Reformulated Gasoline would not provide sufficient clean-air benefits to enable California to attain the Federal ozone standard.

California's gasoline provides about twice the air-quality benefits of Federal Reformulated Gasoline. California gasoline reduces smog-forming emissions from motor vehicles by about 15 percent, compared to a 7 to 8 percent reduction from the current Federal gasoline.

The ARB has always viewed gasoline oxygenates such as MTBE as an important option that should be available to refiners for making cleaner-burning petroleum products. At the same time, it is possible to make commercial quantities of cleaner-burning gasoline without mandated levels of oxygenated additives. We believe strongly that Federal and State law should set content neutral performance standards for refiners to meet, rather than prescribing oxygen levels.

However, given the fact that most California gasoline was subject to the Federal oxygen requirement, the ARB in 1991 felt compelled to include the Federal oxygen requirement in its cleaner-burning gasoline specifications. Thus, California was committed to the use of oxygenated gasoline in order to remain consistent with the requirements of the Federal Clean Air Act.

The story does not end there. In 1994, California added flexibility to its gasoline regulations by approving the use of a predictive model. This model, developed by ARB with data from emissions tests involving a large number of motor vehicles and fuels, predicts emissions from various gasoline formulations.

If a refiner wishes to produce gasoline that varies from the ARB fuel specifications, including the oxygen requirement, it can do so provided that the predictive model indicates there will be no increase in emissions.

The predictive model changed our cleaner-burning gasoline program from a command-and-control program based on rigid fuels specifications to a "performance-based program" in which refiners concentrate on meeting emissions standards.

Because of the predictive model, refiners have incentives to develop innovative fuel formulations that offer advantages over conventional formulations.

Refiners also have the ability to evolve with changes in technology and market conditions, rather than remain rooted in the mindset that prevailed when the original specifications were adopted.

Refiners in Northern California routinely use the predictive model to reduce the oxygen content of their gasoline. One refiner is now producing and selling non-oxygenated gasoline. This is possible because the Federal oxygen requirement does not apply to most Northern California gasoline.

Incredibly, the Federal oxygen rule prevents those refiners from selling the Northern California gasoline with reduced or no oxygenates in Southern California, even though the Northern California gasoline provides twice the clean air benefits required by the Federal Government.

The Federal oxygen rule severely limits the flexibility that the ARB has given refiners of California gasoline. As I just pointed out, our predictive model still requires California gasoline to meet our State standards, which provide twice the clean-air benefits required by the Federal Government. The Federal oxygen rule may serve a purpose in the other 49 States, which do not have their own fuel specifications. But in California, which is the only State with its own comprehensive fuel standards, the Federal oxygen rule serves no useful purpose. It does not take pollutants out of the air; it only limits refiners' ability to develop the best ways to meet or improve upon our standards.

The growing public concern over MTBE provides California and the Congress with an important reason to support this bill. No Federal or State law mandates MTBE. But refiners have chosen to use MTBE in virtually all California gasoline, because it represents the most practical way by far to meet the oxygen requirement. Unfortunately, MTBE releases have severely impacted drinking-water supplies in the City of Santa Monica and the South Lake Tahoe area. MTBE also has been found at lower concentrations in other areas of the State, which has sparked widespread concern.

This concern is driven, in part, because the Federal oxygen rule gives refiners no viable alternative to the widespread use of MTBE in California. This had led many Californians to wrongly perceive that cleaner-burning gasoline represents a tradeoff between clean air and clean water. S. 1576 will correct that.

I am NOT suggesting that S. 1576 will prevent MTBE releases into water—California's underground tank upgrade program is the primary measure for protecting water from contamination by all fuel components.

I am NOT suggesting that S. 1576 represents a ban or restriction on the use of MTBE; here again, let me emphasize that the bill is content-neutral. MTBE should remain an option for all refiners.

But the key word here is "option". There is no inherent reason why cleaner burning gasoline must have 2 percent MTBE or any other oxygenate by weight. California refiners have shown that it is possible to make cleaner-burning gasoline with 1 percent oxygen, and even no oxygen at all.

By exempting California from the Federal oxygen rule, S. 1576 would give refiners the option of reducing the MTBE content of their gas throughout California. The bill would give refiners more options for using other oxygenates, such as ethanol. I also believe S. 1576 would ease some of the public concern over MTBE, because the public would see MTBE use evolve to a level that balances its benefits as a clean-fuels additive with the need to manage it as a potential water contaminant.

The bill still requires California gasoline to meet the world's cleanest standards. California needs all the air-quality benefits it is receiving currently from cleaner-burning gasoline, and we will not support any action that reduces those benefits.

S. 1576 simply allows refiners to take full advantage of the flexible fuel standards that have reduced air pollution and increased protection of the public health in my State.

In closing, I must emphasize again that S. 1576 represents an opportunity for California and the nation. As the only State with its own fuels program, California is a proving ground for what can be accomplished nationally. California refineries are the most modernized in the country. California's air quality infrastructure—including the nation's most sophisticated and extensive air monitoring network—enables us to verify the success of our gasoline program.

S. 1576 will allow our flexible gasoline program to provide its best response to public concern over MTBE. If our program deals successfully with that concern, the Federal Government at least would have the option of using California's experience as it addresses MTBE concerns nationally.

As long as California is subject to the Federal oxygen rule, our ability to respond to MTBE concerns will be extremely limited. The burden of addressing the growing unease over MTBE in California and other States will come full-force to the nation's capital, and it will remain here in the nation's capital.

I urge the committee to act favorably on S. 1576 as swiftly as possible. Thank you.

STATEMENT OF EDWARD O. SULLIVAN, COMMISSIONER, DEPARTMENT OF ENVIRONMENTAL PROTECTION, AUGUSTA, MAINE

Good afternoon. Chairman Chafee and members of the committee. I am Ned Sullivan, commissioner of the Maine Department of Environmental Protection, and I am pleased to come before you to share Maine's experience with the Federal reformulated gasoline program and with the oxygenate MTBE.

History of Maine's participation in the reformulated gasoline program

The Clean Air Act Amendments of 1990 required that reformulated gasoline be sold in the nation's worst ozone nonattainment areas. The law also provided that a State with lesser ozone nonattainment problems could participate in (" opt into") the program by making a formal request to the EPA administrator.

In 1991, as part of a regional action to achieve and maintain attainment with the Federal ozone standard, Maine's Governor John McKernan requested that the entire State participate in the program. EPA responded that Maine could only "opt in" counties described as marginal nonattainment or worse.

Maine eventually proceeded with RFG sales in 7 counties. The program was officially implemented January 1, 1995.

The RFG blend is the same one sold in parts or all of 11 northeast States and the District of Columbia. As required by Federal law, it must contain at least 2 percent oxygen. This is accomplished by adding an "oxygenate", which in Maine and most States, is MTBE.

Benefits provided by Maine's RFG program

The RFG program accounts for nearly one-third of the hydrocarbon emissions reductions Maine is required to achieve under the Clean Air Act. The program provides reductions comparable to a state-of-the-art vehicle emissions testing program—an option that was soundly rejected by Maine voters and lawmakers. As the remaining core component of Maine's Clean Air Plan, RFG was projected to reduce the amount of hydrocarbons emitted to Maine's air by seven tons per summer weekday.

Air quality in Maine has improved. Since the program has been in force, we have continued to see a downward trend in the number of days that monitored ozone levels exceed the Federal 1-hour standard. This has happened despite a slight increase in average temperature, which would be expected to trigger additional episodes. (CHART)

The improved air quality has been recognized by EPA, which has revoked the 1-hour ozone standard for four counties, effectively considering them to be in attainment. Maine and EPA are reviewing the summer's ozone data to determine whether additional counties can also be given a clean bill of health under the 1-hour standard.

In addition, we have monitored a reduction in the toxic compounds detected in ambient air. Motor vehicles are estimated to account for roughly fifty percent of all cancers associated with exposure to air toxins. However, RFG burns more cleanly and more completely destroys toxic components of gasoline, making the emissions themselves less poisonous. More to the point today, MTBE, as the oxygenate component of RFG, replaces some of the benzene in conventionally-blended gasoline.

(CHART) The first round of monitoring since RFG has been in use in Maine has shown a 22.5 percent reduction in benzene levels of ambient air. Benzene is a known carcinogen.

According to a study conducted by the Northeast States for Coordinated Air Use Management (NESCAUM), the cancer risk reduction associated with the use of RFG in the Northeast ranges from a low of 9 percent to a high of 12 percent as compared to conventional gasoline.

Public and legislative concern regarding Maine's RFG program

Despite these benefits, Maine people have been concerned about RFG use since before the program was even implemented. Health risk implications as well as cost and performance considerations were examined during public hearings and meetings.

During the first 2 months of the program (January and February 1995), the State's Bureau of Health received numerous complaints regarding the new gasoline blend. They included dizziness, lightheadedness and respiratory symptoms. Skin irritations were also reported. In March 1995, Governor King chartered a task force of health professionals to survey the literature on health risks, evaluate the health problems reported by Maine people, and consider the pros and cons, from a health perspective, of continuing to use RFG. The task force did not recommend banning RFG but did call for more air sampling and an additional study of MTBE health effects.

In every legislative session since January 1995, a bill has been introduced to terminate Maine's RFG program. In every instance, the primary argument against the program has been the health and environmental risks that some associate with MTBE. The resulting debates and calls for additional studies have thus far enabled the program to remain the cornerstone of Maine's clean air plan, albeit with shaky support.

During the last session, the State Bureau of Health gained legislative support for a drinking water standard for MTBE. The State toxicologist proposed that the standard be 35 ppb, and that was adopted by the legislature after considerable discussion. It was also understood at that time that the State's environmental protection agency (DEP) would take the more conservative position of cleaning up any water supply showing 25 ppb.

MTBE and Maine's ground water

Maine's Department of Environmental Protection first documented MTBE in ground water in 1985, 10 years before MTBE-containing RFG was sold in Maine. The contamination was linked to leaking underground or above ground gasoline storage tanks. We are now nearing completion of our underground storage tank replacement program, having removed more than 30,000 or 98 percent of them.

This past June, I reported to the Maine State Legislature on the levels of MTBE in drinking water supplies. Approximately 84 percent of the private wells showing detectable levels of MTBE had concentrations below DEP's 25 ppb threshold for taking action. Seven percent exceeded the State Bureau of Health's health guideline which was then 50 ppb. We are now updating our figures to address the recent adoption of a new health standard.

Also in June, the Bureau of Health reported to Governor King and the legislature that 23 of 333 public water supplies (approximately 7 percent) had detectable levels of MTBE. The mean concentration was 2.8 ppb.

Despite this history, public concern heightened sharply this spring as a string of contamination events focussed even more public attention on the potential for MTBE contamination of Maine's ground water. Notably, more than 60 percent of the population of Maine rely on wells for their drinking water supplies.

Briefly, those events included:

Gasoline contamination at a new state-of-the-art station and convenience store located 700 and 1,100 feet respectively from two public wells serving 3,000 customers in a growing community in southern Maine. MTBE was detected at trace levels in both wells: fortunately these levels appear to have peaked at approximately 3 ppb and are declining. MTBE at the gas station, however, reached 7,140 ppb and 499 ppb at an off-site monitoring well. The gasoline station has been shut down since April. The exact source of the contamination has not been pinpointed.

In May, private well contamination by MTBE was discovered in the adjoining town. Twenty-four wells had some detectable levels of the compound, with eleven showing contamination requiring filtration. The current thesis is that a car accident resulting in the spill of a small amount of gasoline led to this widespread problem.

During the same week in May, MTBE at nearly 500 ppb was detected in a well supplying an elementary school. The water is now being filtered for washing and

the school is relying on bottled water for drinking. One new well has been dug and another may be needed to fully rectify the problem. Again the cause seems to be spillage from a vehicle on site. The amount spilled was probably quite small.

In each instance, the public has seen high visibility contamination, by a compound many have already begun to distrust, caused by a relatively small, or even unknown, accident. This has contributed significantly to public anxiety.

Governor King has acted quickly and decisively by ordering that all public wells and 1000 private wells throughout the State be tested to determine the extent to which MTBE is showing up in Maine's drinking water. He has also ordered DEP to study alternatives to the current RFG formulation in the event that our study supports a decision to cease using MTBE. In addition, we are exploring measures to protect our ground water from new spills or leaks. Decisions will be made on next steps later this month once the test results have been analyzed.

Problem definition and proposed solution

We have quickly found ourselves in the midst of a public policy dilemma. We recognize the real clean air benefits produced in a relatively short time as a result of using MTBE-containing RFG in Maine. On the other hand, there appears to be growing evidence that this same product is causing water quality problems that may prove to be significant.

Given the need to maintain the improvements we have recorded in air quality, and the commitment to make additional strides toward cleaner air, we must continue to aggressively address pollution caused by petroleum-powered motor vehicles.

The problem seems to be the inflexibility posed by the Federal definition of RFG. It requires the use of oxygenates like MTBE at specified levels.

With growing public concerns, unfinished studies and the continuing need to develop a sound data base regarding the benefits and risks associated with MTBE, this requirement limits our options. It limits our ability to switch to other fuels that might not contain as much, or even any, oxygenate, yet offer the same, or greater, environmental benefit, at less environmental risk. It dictates a control strategy that may not be the best for Maine.

In contrast, with the exception of its mandate for a vehicle emissions testing program in Ozone Transport Region States, the Clean Air Act often sets performance standards while allowing flexibility as to how the goals are achieved. A prime example of this is the development of State plans to reduce emissions of volatile organic compounds by 15 percent. There are Federal guidelines and clear performance standards to be met, but the plans need not fit a specified template.

I believe that this should also be the model for RFG. Federal and State law should set content-neutral performance standards for gasoline that will provide the required air quality benefits: these same laws should not set prescriptive content volumes for refiners to meet.

Because they now do, Maine finds itself constrained as we try to develop the best clean air strategy. As a State we consume a tiny fraction of the national gasoline market. We are subject to a mandate that dictates a particular approach to our region's needs. We don't have the flexibility, let alone the clout, do what may be best for our State.

The States can meet the requirements and goals of the Clean Air Act, with your help. By setting tight performance standards instead of product mandates, the Federal Government paves the way for achieving the best results at least cost . . . results that tolerate no environmental backsliding but results that avoid environmental risk-shifting.

In conclusion, I would urge you to support legislation that would provide such flexibility nationwide. I would be happy to work with the committee in crafting such legislation.

Thank you for your attention.

STATEMENT OF DANIEL S. GREENBAUM, PRESIDENT, HEALTH EFFECTS INSTITUTE

Mr. Chairman, Senator Baucus, and members of the committee, I am pleased to have the opportunity to testify before you today to present the views of the Health Effects Institute (HEI) on the health effects of MTBE in gasoline. My name is Dan Greenbaum, and I am President of HEI, an independent, not-for-profit research institute, funded jointly by U.S. EPA and industry to provide high-quality, impartial, and relevant science on the health effects of air pollution to inform public and private decisions.

HEI, as one part of its larger strategic research plan for air pollution, has been engaged in scientific assessment and research on MTBE and other oxygenates added

to gasoline for several years. In 1995 and 1996, at the request of the White House Of lice of Science and Technology Policy (OSTP), and of the Administrator of EPA, we convened an Expert Panel to review all existing science on exposure to and health effects from the addition of MTBE and Ethanol to gasoline. Their report, The Potential Health Effects of Oxygenates Added to Gasoline, which I will present to you today, became part of the larger Interagency Assessment of Oxygenated Fuels completed by OSTP last year. Following that report, HEI launched a targeted program of studies to answer key remaining questions about these oxygenates, most notably the first studies of the potential interaction of MTBE in a mixture with gasoline, and studies comparing the body's metabolism of MTBE with other additives such as ETBE and TAME.

The Potential Health Effects of Oxygenates Added to Gasoline

In April 1996, the HEI Oxygenates Evaluation Committee—consisting of leading experts in toxicology, epidemiology, cancer, reproduction and development, and exposure, and chaired by the former Director of the National Cancer Institute Dr. Arthur Upton—issued the report of its 9-month review of all available data on the health effects of oxygenates added to gasoline. This study, which involved detailed review of over 300 individual studies of MTBE and ethanol, looked at the detailed effects of each substance and found that there were a number of potential short term and cancer health effects for MTBE whose existence in humans needed further investigation, but that there were not likely to be any health effects from ethanol at the levels to which most people would be exposed. The Committee then attempted to place the MTBE effects in the context of what the scientific community knows about the effects of exposure to vapors and emissions from gasoline that does not contain oxygenates. Overall, the Committee concluded that:

The potential health effects of exposure to components of conventional gasoline (without oxygenates) include short-tern and cancer effects similar to those that could result from exposure to gasoline containing oxygenates.

Adding oxygenates to gasoline can reduce the emission of carbon monoxide and benzene from motor vehicles, and thereby lower certain risks to members of the population. At the same time, using oxygenates increases exposure to aldehydes, which are carcinogenic in animals, and to the oxygenates themselves.

Adding oxygenates is unlikely to substantially increase the health risks associated with fuel used in motor vehicles; hence the potential health risks of oxygenates are not sufficient to warrant an immediate reduction in oxygenate use at this time. However, a number of important questions need to be answered if these substances are to continue in widespread use over the long term.

For the committee's benefit, I have attached a list of the members of the Oxygenates Evaluation Committee, and a copy of the report's executive summary. We have also provided the full report to your staff.

Further Analyses and Research on Oxygenates in Gasoline

Subsequent to the release of the HEI report, research and analyses continued on several fronts:

The Interagency Assessment of Oxygenated Fuels In June, 1997, the Office of Science and Technology Policy issued the results of its comprehensive review of the use of oxygenates in fuel. This review, which incorporated the HEI findings on health effects, and also analyzed the effects of oxygenates on fuel economy, engine performance, and water quality, drew similar conclusions to those of HEI on the health effects of MTBE. In reviewing the health effects, the Interagency Task Force also conducted a preliminary quantitative risk assessment for MTBE, based on animal cancer data, and concluded that:

" The estimated upper-bound cancer unit risks for MTBE are similar to or slightly less than those for fully vaporized conventional gasoline, substantially less than that for benzene, a minor constituent in gasoline that is classified as a know human carcinogen; and more than 100 times less than that for 1,3-butadiene, a carcinogenic emission product of incomplete fuel combustion."

The World Health Organization Earlier this year, the International Programme on Chemical Safety (IPCS) of the World Health Organization issued its Environmental Health Criteria for MTBE. They reached many conclusions similar to those of HEI and the Interagency Report and, as a result of an detailed review of the data on MTBE and cancer, concluded that:

" Based on these data, MTBE should be considered a rodent carcinogen. MTBE is not genotoxic and the carcinogenic response is only evident at high levels of exposure that also induce other adverse effects. The available data are inconclusive and prohibit their use for human carcinogenic risk assessment until outstanding complications in their interpretation have been addressed."

New research In keeping with the needs identified in the HEI report, additional research, funded by HEI, by industry in response to U.S. EPA requirements under section 211 of the Clean Air Act, and by other government agencies has gone forward to answer key questions, including understanding better (1) the way MTBE and other oxygenates such as ETBE and TAME are metabolized by the body, (2) how MTBE might cause cancer, and (3) the effects of MTBE-gasoline mixtures.

In addition, in response to concerns about the potential effects of MTBE in drinking water, the State of California in October, 1997 enacted legislation requiring a comprehensive analysis of the health and environmental significance of MTBE and other oxygenates by the University of California, and the U.S. EPA issued in April of this year a draft Research Strategy for Oxygenates in Water.

The studies underway as a result of these efforts are expected to provide new information over the next 12 to 18 months. To date, however, relatively few studies have been completed beyond those reviewed in the HEI Oxygenates Study.

The Issue of MTBE in Water Supplies

Both the HEI and the Interagency Task Force reports identified reports of water contamination by MTBE as a potential route of exposure, but noted that there were relatively few data on the extent of such contamination, or the health effects of ingesting rather than inhaling MTBE. The Interagency Report also noted that MTBE appears to move faster in ground water and is more resistant to biodgradation than other components of gasoline, although the data on this issue, particularly from field studies, is limited.

Given concerns about potential contamination of drinking water, California in 1991 established an "action level" for MTBE in drinking water of 35 µg/L, and U.S. EPA, in December, 1997, published a drinking Water Advisory for MTBE that identified the level of 20—40 µg/L as a level below which health effects are unlikely, and above which water users are likely to smell and/or taste MTBE before levels become unhealthful. Most recently, California is considering the establishment, in response to recent legislation, of a Maximum Contaminant Level, or "goal" of 12.5 µg/L.

In recent years, in response to drinking water concerns, there has been an increase in the sampling of water supplies for MTBE, especially in California. To date, the results of that sampling confirm the findings in the Interagency Report that MTBE is detected in a relatively small number of water sources of those tested, and of those where it is detected, relatively few have levels above existing or proposed levels of concern. Specifically, as of February, 1998, California had tested 24 percent (2,638) of all water sources in the State, and detected MTBE in 1.3 percent (34) of those sources. Of those 34 where MTBE was detected, five sources, which had been contaminated by leaking underground storage tanks, had levels in excess of the current California action level, and nine sources appeared to have levels exceeding the currently proposed M.C.L.

Thus, it appears that contamination to date has not been widespread, but that potential drinking water contamination by MTBE continues to be of some concern and regular monitoring, particularly of wells located near underground storage tanks, may be appropriate.

Summary and Conclusions

In closing, let me thank the committee again for this opportunity to testify, and summarize the key points of my comments:

First, reviews of the health effects of MTBE in gasoline by HEI and others have concluded that although potential health effects have been identified, the use of oxygenates in gasoline does not appear to substantially increase the risk of health effects from inhalation when compared to gasoline without oxygenates.

Second, questions about these health effects continue, and HEI, government agencies, and industry groups have studies underway to address them; and

Third, incidents of high levels of contamination of water supplies with MTBE have increased concerns about the health effects of ingesting MTBE, although more comprehensive sampling has suggested that such high-contamination incidents are relatively isolated to intense contamination incidents such as leaking underground storage tanks. Continued regular monitoring of water supplies may be appropriate to ensure that such risks do not become more widespread.

Thank you for your attention. I would be pleased to answer any questions you might have, and to provide other information that might help the committee's efforts.

STATEMENT BY AL JESSEL, SENIOR FUELS SPECIALIST OF CHEVRON PRODUCTS COMPANY

I. Introduction:

Thank you Mr. Chairman. It is my pleasure to be here before the committee today to testify in support of S. 1576. My name is Al Jessel, and I am a Senior Fuels Specialist of Chevron Products Company. Chevron Products Company is a wholly-owned subsidiary of Chevron Corporation, which is an international energy and chemicals company with operations and facilities located throughout the world. Chevron is the largest producer of California cleaner burning gasoline (CBG).

Chevron supports S. 1576 introduced by Senator Feinstein in the Senate, and similar legislation, H.R. 630, introduced by Congressman Bilbray and cosponsored by 48 other California members in the House of Representatives. This legislation would apply only to California, and would remove the duplication and conflict between the requirements of the Federal reformulated gasoline program and California reformulated gasoline program. I hope that after you hear the discussion today, and give this legislation its due consideration, you will move this legislation through the Senate Environment and Public Works Committee, and support its enactment into law.

II. History of California Fuels Authority Under the Clean Air Act

Congress has long recognized the serious and unique air quality concerns in the State of California and allowed the State to establish its own fuel regulations. Prior to 1970, California was free to regulate fuels on its own. In the 1970 Clean Air Act, Congress specifically included a waiver from Federal preemption for California fuel regulations in section 211(c)(4)(B) to preserve California's authority to regulate fuels. While preempting other States and localities from establishing fuel regulations except as needed and approved as part of a State Implementation Plan, Congress allowed California, alone among the States, the express authority in the 1970 Clean Air Act to establish its own statewide fuel regulations to help improve air quality.

From 1970 to 1990, California used this authority to establish numerous State fuel regulations. These included regulations such as: (1) maximum sulfur content in 1975, (2) maximum (Reid) vapor pressure in 1975, (3) reduced lead content in 1976, (4) regulation of manganese content in 1977, and (5) California Phase 1 reformulated gasoline in 1990.

California Phase 1 RFG requirements adopted in September 1990 provided new specifications for (Reid) vapor pressure, detergents, and deposit control additives, in addition to the complete phase out of lead in gasoline. These regulations became effective on January 1, 1992. At the same time California adopted Phase 1 RFG requirements, the State Air Resources Board indicated its intention to propose a more comprehensive set of specifications for a reformulated or "cleaner" burning gasoline. In November 1991 California adopted those Phase 2 RFG requirements, which became effective on March 1, 1996. California Phase 2 RFG was introduced into the marketplace beginning with the ozone season in 1996 and has been sold year-round since that time.

In 1990, however, Congress reauthorized the Clean Air Act and added provisions for Federal reformulated gasoline in the nine cities with the worst summertime ozone conditions. Included on that list were two cities in California—Los Angeles and San Diego. Also included were provisions allowing other cities to opt into the Federal RFG program, as well as mandatory participation if cities were "bumped" up to "severe" or "extreme" classification. Since 1990, a third California city—Sacramento has been added to the list of locations where Federal RFG requirements must be met. Therefore, practically speaking, the vast majority of gasoline sold in California falls under both the Federal rules and the more stringent State rules.

Unfortunately, the 1990 Federal RFG provisions were established under a different portion of the Clean Air Act—section 211(k)—than the portion containing the original California fuels waiver—i.e., section 211(c)(4)(B). The 1990 Amendments were silent on the relationship between the new Federal RFG requirements in section 211 (k), and the previously-existing California authority to establish its own fuel regulations under section 211(c)(4)(B). This silence has led to duplicative and overlapping State and Federal requirements on the California gasoline program. S. 1576 is intended to resolve this and fill the gap left in the Clean Air Act's intent thereby making it clear that California can develop its own fuels program without a counterproductive Federal overlay.

III. Comparison Between California and Federal RFG Programs

There are at least four major points of comparison between the California and Federal RFG programs.

First and foremost, the California CBG program provides greater emission reductions than does the Federal program. For reformulated gasoline currently in the marketplace, California CBG reduces nitrogen oxides (NOx) by 14 percent over conventional gasoline compared to the less than 1 percent for Federal (Phase I) RFG. In the year 2000 when Phase II Federal reformulated gasoline with its 6.8 percent NOx reduction becomes available, California CBG will still have lower emissions. EPA, in reviewing California's gasoline program has stated: "EPA believes that the standards for California gasoline are as stringent or more stringent than the proposed content and performance standards for Federal reformulated gasoline." (58FR11722, February 26, 1993).

Second, Similar to Federal RFG, California allows refiners to use a "predictive model" or "test certification" to certify gasoline formulations as long as California's strict emissions performance requirements are met. California limits ranges for eight different parameters in formulating gasoline, and additionally refiners must also meet octane requirements for automobile performance. Overlaying the Federal RFG program simply imposes further constraints on an already constrained system without enhancing air quality.

Third. enforcement of the California CBG program is based on periodic testing of gasoline from the various refiners to insure California CBG meets all State requirements. We have found this to be a very effective enforcement program. The Federal program relies more on self-monitoring, reporting, and recordkeeping, which we believe is less effective yet adds cost and complexity with no measurable air quality benefit. While EPA has recognized CARB's ability to enforce its rules effectively and has provided partial exemption for California from Federal enforcement mechanisms, the exemption sunsets at the end of 1999. Passage of S. 1576 would eliminate this unnecessary overlap.

Finally. Federal reformulated gasoline requires year-round oxygen as mandated in the 1990 Amendments, but is not required by California rules in the summer, or in the winter in a significant portion of the State. California's unique air quality problems have required unique solutions, among them a more stringent reformulated gasoline. To make the more stringent California formulations, refiners need flexibility to optimize how they blend gasoline, and make it cost-effectively. The oxygen mandate reduces this flexibility without providing an air quality benefit in the summer for ozone control. It is the stringent performance specifications for California CBG. not the oxygen content, that drives the exceptional improvements in air quality resulting from use of this gasoline.

Of most recent concern to Californians is the environmental impact of MTBE use. Several drinking water supplies have become contaminated with MTBE, the most widely-used oxygenate in California gasoline. Within Chevron, we have instituted a nationwide program to look at all of our gasoline handling systems and processes, especially those handling oxygenated gasoline. We have assessed what additional safeguards beyond those required under Federal and State laws we might implement to further minimize the potential for gasoline components contaminating drinking water sources. From that assessment we instituted a series of additional company control measures to further reduce the potential of release of gasoline into the environment.

The Federal oxygen mandate coupled with the more stringent California CBG emission reduction requirements, led refiners to use methyl tertiary-butyl ether, or MTBE, as the only practical oxygenate in California. While MTBE has many advantages in helping to meet California gasoline specifications, it also has a disadvantage common to all gasoline oxygenates, its high water solubility which makes it both more mobile and more difficult to remove from water than other gasoline components.

The public in California—our customers—have become so concerned about MTBE that a ban was only narrowly averted in the California legislature last year. Legislature mandated studies will be complete early next year at which time the Governor is required to make decisions about the future of MTBE in California gasoline.

Interestingly, the Federal oxygen content mandate, the stringency of the California CBG rules, and California's gasoline distribution system have restricted the use of some oxygenates like ethanol. Ethanol would make a good California gasoline blending component under certain circumstances. We believe the Federal mandate actually limits our ability to use ethanol in California CBG and I'm sure this was an unintended consequence.

We have made a great effort in California to caution against the precipitous banning of oxygenates as this opposite extreme would inevitably bring with it its own

set of unintended consequences such as disruption of a market that is already tightly constrained. The far better first step toward a solution is to remove the Federal overlapping requirement as proposed in S. 1576.

IV. Reasons S. 1576 is Needed and Benefits

S. 1576 sponsored by Senator Feinstein, and H.R. 630 by Congressman Bilbray would neither ban nor mandate fuel formulations, but would allow each California fuel provider to individually choose to produce the most cost-effective and environmentally desirable formulation while meeting the State's rigid emission reduction requirements. In fact, it would allow the State's performance-based program to work as it was intended by California and as Congress allowed for two decades from 1970 to 1990.

Note the passage of S. 1576 is structured to impact only States that are allowed under the Clean Air Act to regulate their own fuels (without Federal preemption)—and California is the only such State. Yet even with the passage of S. 1576, Federal oversight of the California RFG program will continue—as it rightly should—through the EPA's responsibility for assuring that the California State Implementation Plan for improving air quality is adequate and is carried out. Federal oversight will continue, but the State's reformulated gasoline program will benefit from more flexibility to refiners than exists today.

The benefits of S. 1576 include:

1. Optimizing product formulation—Because California RFG has stricter emission reduction requirements, refiners need more flexibility in how they make their fuels. The Air Resources Board has recognized this need and has provided much of the needed flexibility. Unfortunately, refiners are unable to take full advantage because of constraints imposed by overlapping Federal RFG rules. S. 1576 would allow individual refiners to further optimize their gasoline product formulation for California as long as they meet the emission performance targets. In the highly competitive gasoline marketing business, this benefits not only the refiners, but ultimately gasoline consumers.

2. Reducing use of oxygenates—The passage of S. 1576 will neither mandate nor ban the use of oxygenates such as MTBE. By removing the current oxygen mandate, S. 1576 will allow California refiners to optimize the use of oxygenates, potentially reducing those currently in use such as MTBE, and increasing others such as ethanol that are of less public concern. Chevron and other companies would welcome the flexibility to manufacture California CBG based on performance standards--not a mandated formula. Given this greater flexibility, some refiners may very well choose other oxygenates, oxygenate in lesser amounts, or no oxygenate at all. The passage of S. 1576 is a critical first step in that direction.

The refining industry in California has made a very significant financial commitment to produce California CBG. We take very seriously our role in helping improve air quality in the State, and have invested billions of dollars in California alone to make California CBG. The benefits of the California CBG program are very significant—it is the equivalent of taking 3.5 million cars off the road, solely by reducing air emissions from the California fleet. Passage of S. 1576 will allow refiners more flexibility to address the environmental concerns that have arisen since the introduction of California RFG while maintaining the air quality benefits to the public that have occurred by reducing emissions from vehicles.

V. Efforts to Work With Interests in California on Regulatory Chances

In addition to supporting S. 1576, we are also working closely with the State of California on a package of regulatory changes, which will hopefully provide some additional flexibility in the eight parameters regulated in gasoline while maintaining emissions performance. State regulatory changes are equally important to provide the formulation flexibility needed to reduce or eliminate the use of oxygenates in gasoline—without compromising the air emission reductions performance of California cleaner burning gasoline. Note, however that even with the passage of S. 1576 and the added regulatory flexibility, oxygenates will still be needed to address the wintertime CO non-attainment problem in Los Angeles, Fresno, and Lake Tahoe areas. Oxygenates are effective in reducing CO, particularly in the older automobile fleet.

VI. Chevron's Use of MTBE in California Cleaner Burning Gasoline

Last December Chevron appealed to Congress and California regulators to allow cleaner burning gasoline to be made without requiring oxygenates such as MTBE. We had concluded it may be possible to make a cleaner burning gasoline without oxygenates, and still reduce emissions to the same extent achieved with current standards. We urged industry to work cooperatively with Congress and California regulators to explore options for reducing or eliminating MTBE altogether.

We have been actively working to help achieve this goal as described in the above testimony. We have produced significant quantities of gasoline in California without MTBE, while still meeting California's stringent performance standard for gasoline. During the past two summers our Richmond refinery in California has manufactured about half of its gasoline without any oxygenate—this represents about 10 percent of the total gasoline supplied by the oil industry to northern California. The California Air Resources Board recently eliminated the winter oxygen requirement for much of the same area so, once the State and Federal approval processes are complete, our Richmond refinery will be able to make non-oxygenate gasoline year around. However, full production of non-oxygenated gasoline is not possible now at Richmond due to the Federal oxygenate requirement in Sacramento, and lack of high octane components that can satisfy California's Cleaner Burning formulation constraints.

Supplying the entire California gasoline market without MTBE will require further refinery modifications, and additional changes to both Federal and State requirements as discussed in our testimony. We believe it is possible to replace gasoline which currently contains MTBE with a combination of ethanol-blended gasoline and non-oxygenated gasolines, while maintaining the clean air benefits that the California Cleaner Burning Gasoline program has provided. We urge Congress to enact S. 1576 into law. We also pledge to continue to constructively work with the California Air Resources Board as they look how to modify their regulations to allow refiners to use less MTBE to meet California's strict performance standards.

Thank you Mr. Chairman for the opportunity to testify before your committee today in support of S. 1576. I would be happy to answer any questions you or other members of the committee might have.

STATEMENT OF DOUGLAS A. DURANTE, EXECUTIVE DIRECTOR, CLEAN FUELS DEVELOPMENT COALITION

Introduction

Good afternoon Mr. Chairman and members of the committee. My name is Douglas Durante and I am testifying on behalf of the Clean Fuels Development Coalition (CFDC) where I have served as executive director for the past 10 years. CFDC actively participated in the legislative and regulatory aspects of the mobile source provisions of the Clean Air Act Amendments of 1990, including serving on the EPA advisory committee that negotiated the final rules for the successful Reformulated Gasoline Program (RFG) provisions. It is important to note that after thorough debate, the RFG amendments passed the Senate floor with overwhelming bipartisan support by a resounding fine! vote of 69–30. The Clean Air Act Amendments of 1990 went on to pass the House 401–21, and the Senate 89–10. Many of you on this committee were instrumental in that effort.

Background on CFDC's Legislative And Regulatory Involvement

CFDC is a non-profit organization with a diverse membership of more than two dozen member companies representing a variety of industry interests that include fuel oxygenate producers, American automobile manufacturers, an independent U.S. refiner, and others involved in the energy, agricultural and clean fuel businesses. Because of these diverse interests, CFDC has been involved in supporting clean fuel legislation and the development of national energy strategy which has fostered the development of clean fuel technologies.

CFDC supports the continued implementation of existing Federal and California cleaner burning fuel programs, which have the demonstrated ability to reduce air pollution. Many of CFDC's member companies produce and market the very products that are used to make gasoline burn cleaner. These include fuel oxygenates which are not only used to make California's gasoline burn cleaner but are also used in many other parts of the country that have air quality problems associated with the combustion of gasoline.

I should clarify that this testimony is being presented on behalf of CFDC and with the exception of our automobile manufacturers who have, at this time, taken a position of neutrality, all of our members strongly oppose S. 1576.

Position Summary

We were asked to direct our testimony to the merits of a prescribed formula that includes a 2.0 percent (wt) oxygen level such as in Federal reformulated gasoline as compared to a performance standard. We believe those merits are considerable and oppose legislative efforts to change the Federal formula. We were also asked to comment on S. 1576 and the progress of the RFG program. Simply put, RFG has

been a fuel quality specification that has reduced emissions of carbon monoxide; more harmful toxic compounds, like benzene; and those emissions that contribute to the formation of ground level ozone pollution, or urban smog. This fuel quality specification, to the credit of industry and government, has been administered safely, efficiently, cost-effectively, required no changes in consumer fueling and driving habits, and has had no adverse effects on vehicle performance. Reformulated gasoline, with oxygenates, has:

- Exceeded expectations for emissions and air quality benefits.
- Cost less than projected at under 3 cents per gallon nationwide.
- Consistently outperformed other formulations and substitutes.
- Reduced emissions in all vehicles using it, even more so in older cars.
- Reduced the consumption and import of crude oil.
- Provided States with an easily implemented option for reducing mobile source pollution.
- Gained widespread support throughout the U.S. based on its 3 years of success.

Some have promoted legislative change in order to address concerns of MTBE in water. We do not believe this objective can be attained simply by allowing California refiners to use the California Air Resources Board (CARB) formula. Other proponents of change are refiners who desire "flexibility" to meet emission reductions. The effect of providing such flexibility will be to strike down the prescribed Federal formulation which has been extremely effective in improving air quality and would necessitate amending the Clean Air Act.

As for the first objective relating to MTBE in water, we believe the focus of any corrective measures should be on the leaking gasoline tanks. Allowing a substitute formula that will still use MTBE as would be likely, is hardly the solution. Yet we believe it is worth finding a solution so that oxygenates remain in gasoline due to the many benefits they provide. The leaking gas tanks pose a threat to public health from exposure to a variety of chemical compounds currently in gasoline and must be dealt with.

The second objective of "flexibility" is unwarranted. In addition to its success in reducing ozone, Federal RFG is available and inexpensive and safe for its intended use. It does not impose any unique burden for California refiners. With the use of the complex model beginning this year, refiners indeed have numerous combinations they can utilize to meet the Federal standard which were not available several years ago when this legislation was first introduced. Most importantly, removing the oxygen requirement could result in a loss of air quality benefits. Amending the Clean Air Act would set a dangerous precedent for a nationwide undermining of what has been a successful program.

Legislative And Regulatory Background of Reformulated Gasoline

The authors of the Clean Air Act Amendments of 1990 recognized the increasing impact that emissions from the combustion of fuels played in polluting our nation's cities. They also recognized the value of reformulating gasoline to burn cleaner. The provisions, which passed the House and Senate with significant bipartisan support, included a primary specification for clean burning oxygen content in gasoline. In particular, two oxygen specifications were included in the Act: 2.7 percent (wt) for the control of carbon monoxide pollution during the winter months, the other at 2.0 percent (wt) to reduce harmful toxics year-round, and smog forming emissions in the summer high ozone season. The year-round program is commonly known as the Federal reformulated gasoline, or RFG program. It is important to note that although the Act specified the level of oxygen for these programs, it provided industry with flexibility to choose which fuel oxygenate to use. It allowed refiners to meet the standards through averaging, and provided for compliance flexibility by establishing performance standards.

With the passage of the Act as the foundation, the United States Environmental Protection Agency (EPA) embarked on an extensive regulatory negotiation process that reconciled the interests of the refining, petrochemical, and automotive industries and the environmental community. This regulatory negotiation process resulted in the final guidance for the wintertime oxygenated fuel program and the final regulatory requirements for the Federal RFG program. Although both programs have set clean burning gasoline specifications to reduce emissions, today's reformulated gasolines contain many of the same ingredients as those found in conventional gasoline, only at more optimal levels.

Cleaner Burning Reformulated Gasoline Program Success

We should all acknowledge that there is a lot we do not know about ozone formation. What we do know, however, is that RFG is working all over the country.

Southern California enjoyed a 40 percent reduction in ozone exceedences the summer after RFG was introduced and last year experienced the cleanest summer on record. Phoenix opted into the program in 1997 and had the first exceedence-free ozone season in 10 years. The presence of oxygenates in Federal RFG sold in California has yielded air quality and health benefits well in excess of the regulatory requirements. RFG may be providing some benefits we do not yet fully understand, and without such an understanding, it is impossible to guarantee the equivalency of a different recipe. For example, some of the models used to predict reductions not only fail to recognize offroad sources, which I will touch on in a moment, but may grossly underestimate the positive impact these fuels have on high emitters in the vehicle fleet. Failure to provide equivalency will only hurt the driving public and the small businesses which will have to make up the difference in achieving reductions in ozone and PM. When considering the success of the program, why make changes? The effects of allowing areas to use less than the RFG formula may not be cleaner fuels, cleaner air, or improved public health. Rather it will increase petroleum industry market share and provide more profits for some refiners.

We have done a great deal of work with the States over the past several years as they struggle with fuel choices as part of their overall clean air strategies. Since RFG is achieving and even exceeding required reductions wherever it is being used, States know exactly what they are getting. It has been our experience that since RFG is a specified, non-negotiable formula it is exactly what they are looking for. The EPA approves it, the amount of reductions and credits are understood, and the Federal Government helps States regulate and enforce the program. All of those benefits are lost when a State-prescribed performance fuel is adopted.

The specter of a patchwork, mismatched quilt of fuel programs presents the potential for an environmental nightmare. Almost any oil company would concede that such pockets of designer fuels are likely to be much more expensive and many are on record saying just that. The uniformity of RFG and the fact it can be exchanged in the marketplace are key factors in keeping the price down. Without that uniformity, overall fuel quality suffers and you could wind up with fuels that meet the letter of the law for some pollutants but send others through the roof. The driving force in fuel specifications would be getting State Implementation Plan (SIP) credits rather than improving overall public health. The binding parameters of the RFG Program make the ground rules clear to everyone and air quality objectives are more likely to be met. This eliminates the chance of States tinkering with a localized program every year and allowing inferior fuels to be in the marketplace.

Widespread support for RFG

The overall success of the RFG program has resulted in a broad base of support. Due to the mature market for RFG already in place, it is often possible to see RFG prices under conventional gasoline. Currently one-third of all U.S. gasoline, serving 80 million Americans, is RFG with oxygenates. The Department of Energy and the EPA have expressed strong support for the program and States continue to opt-in to the program, such as when Missouri recently elected to use RFG. In December 1997, 12 States and the District of Columbia voluntarily elected to remain in the RFG program, including committing to the more stringent Phase II RFG requirements which will take effect in the year 2000. The benefits are not going unnoticed by other States. Just last week the 22 member Governors' Ethanol Coalition wrote Missouri Governor Carnahan congratulating him for that decision. In that letter the Governors said, "the Coalition is a strong supporter of this program that offers significant benefits to public health through improved air quality. In the 3-years since the inception of the Federal reformulated gasoline program, it has been successful in reducing excessive ozone levels at a cost of less than three cents per gallon over conventional gasoline."

Fuel Oxygenates Enhance Energy Security and Reduce Crude Oil Imports

In addition to potential negative impacts on air quality gains, there is another very important issue that should be considered—energy security and the diversity of supply. During the CAA deliberations there was considerable interest by Congress in marrying this program with our energy security programs and goals. By requiring oxygenates as a clean source of octane in lieu of aromatics, Congress was jump-starting the market for ethanol, ETBE, and MTBE. Ethanol production in the U.S. increased 75 percent since the 1990 Clear Air Act. In addition to the direct displacement of gasoline, oxygenates further reduce imports by extending the volume of oil through increased gasoline yields. Refiners can get 1–2 percent more gasoline out of a barrel of oil by avoiding high end refining needed to reach high octane and add high octane oxygenates instead. This reduced processing requirement results in less stationary source emissions as well.

The transportation sector in this country is over 95 percent reliant on petroleum based fuels. Over 50 percent of this petroleum is now coming from foreign sources. The U.S. Department of Energy projects the nation will continue this trend and reach 70 percent reliance on crude oil imports by 2010. Today, more than ever, the nation's reliance on imported oil jeopardizes our security and economy.

Improved energy security was a factor in establishing the Federal formula and was reaffirmed in 1992 when the United States Congress recognized this threat and enacted the Energy Policy Act of 1992 (EPACT). EPACT requires the Secretary of Energy to determine the technical and economic feasibility of replacing 10 percent of projected motor fuel consumption with non-petroleum alternative fuels by the year 2000 and 30 percent by 2010. Oxygenates, which are contained in nearly half of our nation's gasoline, could continue to make a major contribution towards reaching these energy security goals. Without the Federal and California reformulated gasoline programs, a significant means of achieving this goal will be lost. The displacement of petroleum-based products achieved through the use of these clean air additives should not be overlooked. Most of our other national goals for alternative fuel use have not been meet, due in part to the massive task of retooling automobiles and establishing a new fuels infrastructure. Utilizing oxygenates in gasoline requires no such changes. The most definitive study to date on the impact of RFG on reducing imports was done last year by the General Accounting Office which found that more than 300,000 barrels of foreign oil were being displaced annually. As final note in this regard, as far back as 1992, the U.S. Alternative Fuels Council concluded that "reformulated gasoline, as the carrier of alternative fuels, is the least costly, most efficient way to substantially introduce these alternative fuels in the United States."

To the extent that ethanol is used in RFG, particularly in ETBE,the potential environmental and energy security benefits may be even greater. I should also point out that the development of ethanol facilities in California, which currently look very promising, would be adversely affected by a removal of the oxygen specification. Along those same lines both the ethanol and MTBE industries have considerable capital investment in establishing sufficient supplies and infrastructure to meet the demand resulting from the Federal formula. Much of that would be at risk if oxygen were an "optional" component of RFG.

Concerns With the CARB Formula

The first problem is the focus on the mass of emissions without regard to the level of toxicity or reactivity. Not all VOCs are alike in terms of toxicity or reactivity. Removing the oxygen standard could result in an increase of more carcinogenic compounds at the expense of less toxic ones and produce fuel that is more, rather than less, reactive -both because of an increase in the use of aromatics. A similar problem is almost certain to be true of fine particulates, or soot, which have just recently been the subject of new Federal air quality standards. We do not yet know precisely how motor fuels contribute to $PM_{2.5}$, which makes relaxation of RFG all the more problematic.

The second problem is the potential degradation of air quality from beyond just mobile sources. Off-road vehicles, small engines used in portable power equipment, and other non-regulated motors also use RFG and benefit from the oxygen content in the gasoline through reduced carbon monoxide emissions. These off-road sources are also estimated to be responsible for 10 or more percent of Volatile Organic Compounds (VOCs) in the emissions inventory nationwide according to DOT and EPA statistics. Both of these increases will ultimately tilt the playing field against the car manufacturers (and other stationary sources), which will have to make up the differences in terms of actually reducing ozone itself (rather than "mass" emissions) and $PM_{2.5}$ as well.

Conclusion

Throughout the development and implementation of these important Federal and State clean fuel programs, the petroleum refining industry has received a substantial amount of flexibility. Federal and State agencies have consulted the affected stakeholders and provided allowances to enable industry to deliver a complying product with the least amount of cost and disruption. In addition, after promulgation of the RFG program regulations, EPA responded to industry requests for additional flexibility by applying liberal interpretation to sections of the regulations pertaining to both modeling and in-use compliance.

With the need and interest for additional air quality control measures on the rise, successful fuel quality strategies are the most immediate and cost-effective way to obtain valuable air quality benefits. The introduction of inferior seasonal substitutes such as simply lowering the volatility of gasoline has proven to be ineffective in the

goal of reducing ground level ozone. Ultimately this could affect the ability of some areas to achieve air quality benefits and be a significant economic impediment to the economies of these areas.

For all areas of the U.S., RFG with oxygenates remains a common sense, cost-effective means for both fuel and air quality improvement.

I respectfully urge this committee to reflect on these comments in consideration of any legislation to alter this program. Such changes could result in a decrease in fuel supplies, reduced competition, lower fuel quality and driveability problems, and higher prices for the consumer.

S. 1576 will not improve air quality, casts a dangerous precedent for other States in that it actually could degrade air quality and wipe out the tremendous strides that have been made to date.

Mr. Chairman, thank you for this opportunity to testify on this important issue. I would also like to request that, in addition to this testimony, CFDC be allowed to provide information for the record in support of our comments.

STATEMENT OF ROBERT W. GEE, ASSISTANT SECRETARY OFFICE OF POLICY AND INTERNATIONAL AFFAIRS DEPARTMENT OF ENERGY

Mr. Chairman, members of the committee, I am pleased to submit for the record this statement discussing the Federal reformulated gasoline (RFG) program and S. 1576, which would amend the Clean Air Act as it relates to the Federal RFG program in California.

DOE has been actively involved in supporting the Environmental Protection Agency (EPA), since the passage of the Clean Air Act Amendments of 1990, in the development and implementation of the RFG program and in the analysis of its cost and benefits. Most recently, the Department of Energy:

- Conducted a reassessment of the cost-effectiveness of the Phase II nitrogen oxides (NOx) reduction requirements for RFG. This assessment was used by EPA as part of its basis for denying a petition to change the standards.
- Provided detailed comments to EPA recommending changes to the rules to limit State opt-outs from the Federal RFG program enabling refiners to avoid being put at risk by States withdrawing. at will. from the program.
- Provided analysis in support of EPA rules regarding foreign refiner gasoline quality baselines when those rules were challenged in the World Trade Organization (WTO). Subsequently, DOE provided additional analysis and comments to help guide the changes, in those rules, that were required to comply with the WTO ruling.
- Worked with EPA and the refining industry to make appropriate changes in the per gallon NOx reduction requirements that helped reduce the cost of RFG without compromising environmental quality.
- Last, DOE conducted a preliminary analysis of the investment requirements and cost for reducing sulfur levels in all gasoline.

These recent activities are a continuation of DOE involvement with the RFG program that traces back to the Clean Air Act Amendments of 199O, to the regulatory negotiation that laid the basis for the Federal RFG program? and to working with EPA and industry to help ensure a smooth program introduction on January 1, 1995. DOE has worked to help assure that the RFG program achieves its environmental goals while placing minimum burdens on consumers and avoiding, for reasons concerning energy security, any effect of reducing domestic refining capacity.

When Congress passed the RFG program requirements, it intended to provide multiple benefits. For example. oxygenates are required throughout the year. not just in the high-ozone season. as part of the plan to gain a wide range of benefits through gasoline reformulation. The DOE believes these benefits, relating to both the environmental quality and supply of gasoline are important and suggests that all parties proceed very carefully in making any changes to the Clean Air Act that would affect this aspect of the program. S. 1576 would modify the Federal RFG requirements by allowing California State requirements to be the only requirements applicable to gasoline in that State. The most important of these changes, from our perspective, is the bill's effective elimination of the requirement for oxygenates in RFG and the likely consequences that such a change would have.

In this context, I would first like to discuss issues related to how oxygenates affect the quality of gasoline. To the extent that this legislation would allow a reduction in the use of oxygenates, the benefits that oxygenates provide in the formulation of clean gasolines could be lost. Oxygenates provide primarily two fuel quality benefits:

1) Oxygenates in reformulated gasoline contribute to a high quality gasoline that runs well and provides the octane levels consumers want while helping to reduce

ozone forming emissions. DOE's analyses of Federal Phase 11 RFG performance requirements and other clean gasolines show that oxygenate use in general, and ethers like MTBE in particular, are economically attractive in formulating clean gasolines. even in the absence of an oxygenate requirement, because of their contribution to octane levels. distillation properties and dilution of undesirable components like sulfur and olefins. For example, a recently completed DOE analysis indicates that under the current economics of gasoline blending, if no oxygenates were required, two-thirds or more of the MTBE volume now used by east coast refiners in Phase II RFG would still be utilized. If oxygenate prices were cut for some reason by as little as a nickel per gallon, east coast refiners would not alter the volume of oxygenate use at all, because of the desirable properties of oxygenates relative to other possible blendstocks. Oxygenates would be the cost-effective source for the desired blendstock properties.

2) Oxygenates also help reduce air toxic emissions from reformulated gasoline. Gasoline is a mixture of different hydrocarbons with varying properties including toxicity. To achieve reductions in gasoline's overall toxicity, refiners must reduce aromatic hydrocarbons (especially benzene). By itself, aromatics reductions would rob the gasoline of octane and volume. however" oxygenates can restore octane and volume without refining more crude oil or making expensive refinery investments in new processing equipment. A detailed examination of 1996 RFG and conventional gasoline quality data, as reported to EPA under the RFG reporting requirements, has shown benzene and toxic emission reductions in RFG that substantially exceed the program requirements. In fact, most of the RFG produced in 1996 exceeded the Phase 11 (year 2000) requirements for toxic reductions. Some of this additional toxic reduction is directly attributable to the Clean Air Act requirement to use octane enhancing oxygenates, making it economically attractive for refiners to reduce aromatic and benzene levels.

I would now like to turn to several issues related to oxygenates use and gasoline supplies. The United States has moved into a period where consumers' demand for gasoline is coming close to overtaking the U. S. refining system's capability to produce it, particularly during summer months. We should be very careful that actions taken in the area of reformulated gasoline do not have unintended consequences of reducing the future available supply of gasoline. I would like to make three specific points:

1) From an energy security perspective, oxygenates provide a way to extend gasoline supplies. The transportation sector is almost totally dependent on oil. One of the few near-term options for reducing oil dependency is to expand our use of oxygenates. While it is true that some oxygenates are imported. a greater fraction of the oxygenates used in RFG is domestically produced than is the case for the oil used to produce the rest of the gasoline mixture. In addition. the Department is developing renewable oxygenate production technology that would not rely on any imported sources of energy. Nevertheless, even in the current market, oxygenate use in reformulated gasoline, which is primarily MTBE, saves over 200,000 barrels per day of oil use in the United States.

The potential for future savings is much greater. Expanding the use of renewable energy sources is an important goal of our Comprehensive National Energy Strategy, which will be achieved in part through greater use of oxygenates derived from domestic renewable sources. Ethanol. now produced mainly from corn. has an important role in meeting the oxygenate requirements of the RFG. Over time we expect that ethanol used in clean gasolines will increase, and the expanded production of ethanol will be based on a technology that uses non-food cellulosic feedstocks. The Department is developing improved feedstock and conversion technology to provide an economically competitive source of renewable transportation fuels that produce low air emissions, require no foreign sources of energy, and have extremely low emissions of greenhouse gases. We believe that Congress wanted to encourage the renewable ethanol industry when the Clean Air Act Amendments were passed and we think that preserving this opportunity for renewables is important.

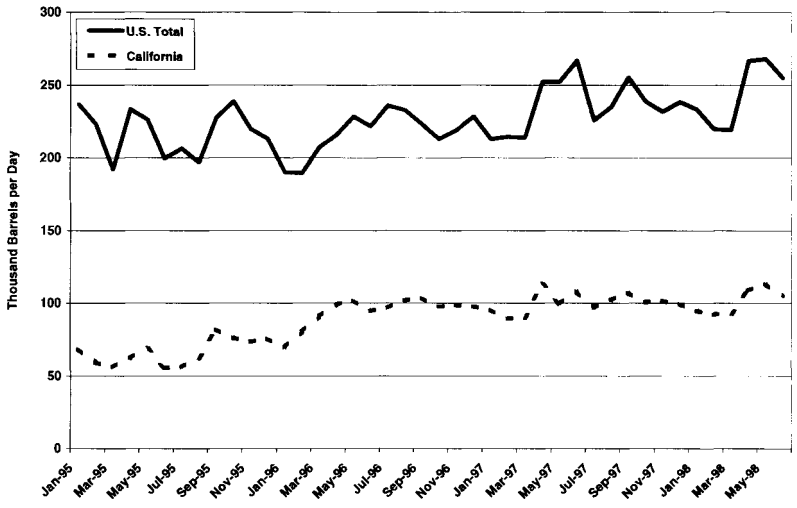
2) A key supply related issue that needs to be considered when contemplating changing the very important part of total Californians' demand for automotive fuel, currently about 900.000 barrels per day. Outside of California, MTBE plays a less significant but nonetheless important role. About 150,000 barrels a day are used, most of it in Federal reformulated gasoline. For east coast refiners who make about 60 percent of their gasoline reformulated with MTBE, this oxygenate also is important component of total gasoline volume, equal to the total gasoline output of a couple large refineries.

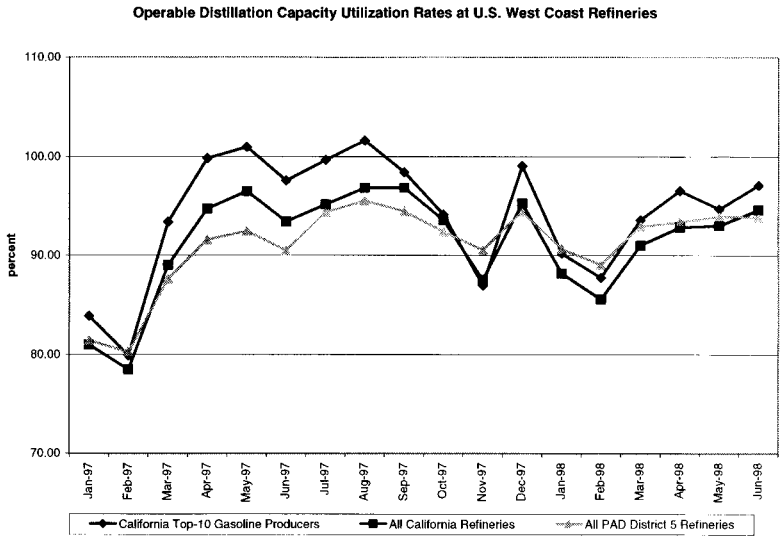
Our data, shown in Figure 2, suggest that the California refineries could not significantly reduce oxygenate use during the peak gasoline season without adding additional refinery capacity. Figure 2 shows the refinery operation situation in Califor-

nia in the summer of 1997 when the whole country experienced strong gasoline demand and price increases, and through June 1998. The top gasoline producing refineries in the State were operating at, if not above, sustainable capacity during the summer of 1997 and at similar levels again in 1998. That high level of capacity utilization was with the high level of MTBE use that I just pointed out. Without the option of running more crude oil, the only options to reduce MTBE use, and still meet gasoline demand during the peak season. would be to import other gasoline blendstocks or finished gasoline or reduce the production of other products. Because of California's very stringent gasoline and diesel standards, strong demand for all transportation fuels, and long and expensive transportation links to other supply regions (like the U.S. Gulf Coast)? these options do not appear to be economically attractive. For all of these reasons, any reduction in California oxygenate use as a result of this bill is likely to be limited.

In closing, I would like to point out that we recognize that the States have legitimate interests in this important public policy issue There is a danger. however, that S. 1576 could have a detrimental effect on the overall Federal RFG program and State gasoline quality regulations. While the immediate impact of this bill might be limited to gasoline regulation in California. it is clear that the States look to the Congress. which passed the Clean Air Act. for national leadership in this area. If an exemption were permitted for California, other States may also ask for legislation to modify Federal RFG requirements in their areas. In our opinion, this would result a significant impact on the environment, gasoline consumers, and the motor fuels industry--which has, in good faith, made investments to meet important environmental regulations that were originally called for by the Congress.

Figure 1. Refinery Inputs of MTBE





STATEMENT OF MARGO T. OGE, DIRECTOR OF OFFICE OF MOBILE SOURCES, OFFICE OF AIR AND RADIATION, ENVIRONMENTAL PROTECTION AGENCY

Thank you, Mr. Chairman and Members of the committee, for the invitation to provide a statement for the record for today's hearing. I am pleased to have this opportunity to share with the Committee the environmental benefits of the reformulated gasoline or RFG program, and to address issues raised by S. 1576, introduced by Senator Feinstein (D-CA).

S. 1576 would potentially exempt California gasoline in the Federal RFG areas from the Federal RFG requirements, including the 2.0 percent oxygen Clean Air Act (CAA) requirement. The bill states that California fuel requirements would apply in lieu of the Federal requirements under section 211(k) of the CAA "if [State] rules will achieve equivalent or greater emission reductions than would result from the application of the requirements" under the Federal RFG program with regard to the aggregate mass of emissions of tonics and ozone-forming compounds.

An understanding of the history of the Federal RFG program is important in order to put our views on S. 1576 in perspective. As you know, the Clean Air Act Amendments of 1990 included a number of requirements to lower the emissions from motor vehicles, including several fuels programs. The Clean Air Act achieved a delicate balance of vehicle and fuel emissions control programs only after extensive deliberations. The RFG requirements also emerged from the melding of several Congressional goals, including air quality improvements, enhanced energy security by extending the gasoline supply through the use of oxygenates, and encouraging the use of renewable energy sources.

In 1991, EPA established a broad-based advisory committee to reach a consensus on the many issues involved in developing proposed rules for the reformulated gasoline program. This committee successfully reached a historic "Agreement in Principle" or "Reg-Neg" agreement on August 16, 1991. Representatives of Federal and State governments, various affected industries, and environmental groups signed on to key aspects of the programs. This agreement has resulted in a cost-effective, highly successful program. One needs to be very cautious about initiating changes to the RFG program that could upset the balance of previous agreements that have led to the significant emissions reductions we are seeing today. Before any changes are made to the Clean Air Act, it is critical to assess the implications and consequences for the RFG and other air quality control programs.

The Federal reformulated gasoline program introduced cleaner gasoline in January 1995 primarily to help reduce ozone levels. Unhealthful ozone levels are still of significant concern in this country, with over 60 areas still in nonattainment of the current ozone standard, and more expected to exceed the newly established, 8-hour

ozone standard RFG is a cost-effective way to reduce ozone precursors such as volatile organic compounds (VOCs) and oxides of nitrogen (NOx), when compared to other air quality measures Phase II RFG, beginning in the year 2000, will reduce VOCs at an estimated average cost of $450 to $600 per ton and NOx at $3,500 to $4,000 per ton in 1997 dollars. The Federal RFG program is required in ten metropolitan areas which have the most serious ozone pollution levels. Three of these metropolitan areas are in California. Although not required to participate, areas in the Northeast, in Kentucky, Texas and Arizona that exceed the air quality standards for ozone elected to join, or "opt-in" to the RFG program as a cost-effective measure to help combat their pollution problems. At this time, approximately 30 percent of this country's gasoline consumption is reformulated gasoline.

The RFG program reduces ground level ozone and toxic pollutants from vehicle tailpipe and evaporative emissions. The RFG program requires that gasoline contain 2.0 percent minimum oxygen content by weight. The first phase of the REG program, from 1995 through 1999, is reducing emissions of ozone-forming volatile organic compounds and tonics by 15 percent ' and beginning in 1998, NOx by 1.5 percent. This is equivalent to taking more than 7 million vehicles off the road. In the year 2000, the second phase of the RFG program will achieve even greater benefits: a 27 percent reduction in VOCs, 22 percent reduction in tonics, and 7 percent reduction in oxides of nitrogen emissions that also contribute to the formation of urban smog.

We are often asked what "real world" evidence we have that the program is working We have analyzed data on the gasoline actually produced by refiners since the program began in 1995, and found that the RFG, on average, exceeded the requirements. Most notably, tonics reductions were about twice that required, with about a 30 percent reduction versus a 15 percent requirement.

Ambient monitoring data from the first year of the RFG program also shows strong signs that RFG is working. Benzene levels in gasoline, which are controlled by RFG and are considered to be a strong indicator of motor vehicle emissions impact on air quality, showed the most dramatic declines with a median reduction of 38 percent. RFG areas also showed significant decreases in other vehicle-related VOC concentrations. EPA will continue to analyze ambient VOC and tonics data further and evaluate evidence of the environmental impacts of RFG.

In light of the VOC, NOx, and air toxics reductions provided by RFG, the Governor of Missouri has recently requested to opt-in St. Louis to the Federal RFG program by June 1, 1999. The Governor has also indicated that he plans to request that RFG be supplied to Kansas City in the year 2000.

S. 1576 raises the question of equivalency between California and Federal RFG and that raises complex scientific and /legal issues. In order to make a determination on the equivalency of the fuels, EPA would need to assess input from a wide variety of interested parties through a notice and comment rulemaking process.

As I mentioned before, there are three Federal RFG areas in California. Under the Clean Air Act, California has unique authority to establish State requirements that control fuel and fuel additives for the purpose of motor vehicle emission control. The CAA allows California to specify an oxygenate or the level of oxygen content (e.g., no oxygen) where Federal RFG is not required. In the Federal RFG areas (Sacramento, Los Angeles, and San Diego), however, the gasoline must still contain a minimum of 2.0 percent oxygen. (Note that this does not preclude refiners supplying these areas with RFG that meets the stricter CA standards). The Agency provided California an exemption from a number of Federal Phase I RFG enforcement requirements. The enforcement exemptions have gone a long way to ensure that California refiners meeting California RFG requirements are not faced with overlapping and/or duplicate enforcement requirements. This was based on a comparison of California's RFG program with the Federal Phase 1 program.

Oxygenates help to reduce emissions of ozone precursors, air tonics, carbon monoxide, and particulate matter by diluting or displacing gasoline components such as olefins, aromatics, and sulfur and by altering distillation properties such as T50 and T90. Oxygenates also increase octane without the need to invest in refinery capital improvements, and can extend the gasoline supply through displacement of some gasoline components.

For many refiners, if oxygenates were not used to produce RFG, levels of aromatics or olefins may have to be increased to provide octane. Both aromatics and olefins contribute to NOx and toxics formation, so refiners would have greater difficulty in meeting the RFG performance standards. Some level of oxygenate has historically been used by many refiners for octane purposes. Because the use of oxygenates by a refiner is often influenced by the volume of RFG produced, the amount of premium gasoline produced, refinery capability to produce other high octane blendstocks, and the price of purchased oxygenates, it would be important to ask

individual refiners how they would meet RFG standards without the use of oxygenates.

It should be noted that California refiners producing California RFG for markets outside of Federal RFG areas (e.g., San Francisco) are still using high levels of oxygenates (around 1.5 percent by weight or 8.25 percent by volume MTBE) to meet summer California RFG standards (i.e., standards that do not include an oxygen requirement). We have no reason to believe that the use of oxygenates would decline substantially if the requirement were eliminated. This was recently confirmed by a Department of Energy (DOE) analysis. As noted in DOE's statement, "if no oxygenates were required, two thirds or more of the MTBE volume now used by east coast refiners in Phase II RFG would still be utilized." Again, one needs to be cautious about changing the program's requirements where the benefit of doing so is not clear.

EPA, like many others, is concerned about drinking water contamination in California by the oxygenate, methyl tertiary-butyl ether (MTBE), which is used in California RFG. MTBE has been detected in ground and surface water in various areas throughout the country which, in some incidents, are a source of drinking water. For the most part, detections in ground water and surface water have been quite low (below 20 parts per billion, the lower end of EPA's December 1997 MTBE drinking water advisory for taste and odor). For instance, the California Department of Health Services requires public drinking water systems to monitor their sources of water (e.g., wells, surface water bodies) for MTBE. As of August 1998, 0.5 percent of the groundwater and 2.8 percent of the surface water sources sampled have detected MTBE above 5 ppb, the State's proposed secondary standard for taste and odor; MTBE detections at high concentrations in groundwater, such as those experienced in Santa Monica, result primarily from leaking underground fuel storage tanks, and possibly from distribution facilities.

These leaks are unacceptable regardless of whether or not MTBE is present in the gasoline. The Agency's underground storage tank (UST) program is expected to substantially reduce future leaks of all fuels and its additives, including MTBE from underground fuel storage tanks. All USTs installed after December 1988 must meet EPA regulations for preventing leaks and spills. All USTs that were installed prior to December 1988 must be upgraded, closed, or replaced to meet these requirements by December 1998. In addition to regulations for preventing leaks, the EPA regulations have required leak detection methods to be in place for all USTs since 1993. For the upcoming 1998 deadline, EPA recently issued its enforcement strategy which reinforced that after December 1998, it will be illegal to operate UST systems that are not equipped to protect against corrosion, spills and overfills. If EPA finds them in violation, the owners/operators will be subject to monetary penalties ($ 11,000 per day) for each violation throughout their period of non-compliance. Thus, EPA, State agencies and the fuels industry need to continue to work together to take appropriate measures to prevent fuel leaks from underground tanks and appropriately remediate those leaks that have already S. 1576 would not deal with concerns about fuel leaks from underground storage tanks, since oxygenates will continue to be used by refiners to meet emission standards and for octane purposes.

In conclusion, EPA strongly supports the reformulated gasoline program, given the substantial benefits of this program in reducing ozone precursors and toxics. We believe that oxygenates provide a valuable tool to refiners in meeting the emissions reduction requirements and replacing octane lost in the reformulation process (e.g., sulfur, olefin and aromatic reductions). Given the complex and far-reaching issues that S. 1576 raises that have not yet been addressed, and the potential negative impacts of revisiting Clean Air Act provisions, EPA cannot support the bill at this time.,

Thank you for the opportunity to discuss this important issue.

STATEMENT OF THE AMERICAN BIOENERGY ASSOCIATION

TAKING BIOMASS ENERGY INTO THE 21ST CENTURY

I am Megan Smith, Director of the American Bioenergy Association. I wish to submit comments for the record regarding Sen. Feinstein's bill, S. 1576, regarding reformulated gasoline in California.

I wanted to let the committee know that there is an exciting new industry about to emerge in California and across the U.S.: the conversion of biomass, or cellulose, to ethanol. In fact, there will be three biomass ethanol plants built in Northern California before 2000. The projects are:

- city of Gridley—will use waste from rice in the form of rice straw, alleviating open-field burning of straw which releases carcinogens and particulates in the form of PM_{10} into the air. This plant will also use forest/sawmill residues and will be coupled to an existing biomass power plant owned by Ogden Power.
- Sacramento Valley—a plant to be built by Arkenol, Inc., has already received permitting and will be converting rice straw as well using a different conversion method than the City of Gridley project.
- Plumas County—Collins Pine Company is planning to build a plant to rid of forest residues which are responsible for fuel loading and catastrophic fires in nearby forests; the plant will be sited by Collins' sawmill in Chester, CA, and will use sawmill residues as well.

There is also a plant being built in Jennings, Louisiana, that will use sugar cane bagasse and rice hulls as its feedstock, and a plant in New York State that will use the paper component of municipal solid waste.

Background

Biomass conversion to ethanol differs from the current starch-based ethanol industry in two ways:

- it is a much more cost-effective conversion process which will not require the ethanol tax incentive eventually (5–7 years approximately).
- it is a much more energy-efficient process, with estimates of up to three-fold increase over conversion of corn starch.

The biomass ethanol industry and U.S. Department of Energy is working with the existing corn-based ethanol industry to increase their efficiency by converting their corn stover/fiber to ethanol as well. We hope to help bring the cost of corn ethanol down through increasing its efficiency.

Not only will these biomass ethanol plants clean-up the air through reduction of air pollution from transportation fuels, but also by backing out pollutants associated with forest fires and open-field burning of agricultural crops such as rice straw. Eventually, we see conversion of the cellulose component of municipal solid waste (i.e., non-recyclable waste paper and yard trimmings) possible in California and across the U.S.

Sen. Feinstein's S. 1576:

This legislation gives the oil companies an excuse not to use oxygenates such as ethanol in their gasoline formulation. Ethanol blended at 10 percent with gasoline (E10) has many benefits; it is:

- biodegradable, unlike MTBE; during human consumption, it breaks down in the liver and is essentially non-toxic in the quantities MTBE has been found in California drinking water.
- beneficial to many aspects of air quality; while some environmentalists are concerned with E10's increased RVP and associated increase in volatile organic compounds (VOCs), this problem could actually be alleviated by having the oil companies change their blend-stock gasoline (to "sub-RVP" gasoline). Many feel that this is not as expensive to do as the oil companies assert, and may prove to be much cheaper than final litigation over MTBE claims.
- capable of backing out 10 percent or more of gasoline and associated toxics such as benzene which are now leaking out of underground storage tanks; again, ethanol is biodegradable.

Mr. Chairman, if the goal of S. 1576 is to alleviate MTBE leakage into drinking water, then ABA feels that S. 1576 is not the correct vehicle to address the problem. It is the leaking of MTBE that is the problem, and not EPA's oxygenate program. We hope that the committee will seriously consider finding another vehicle to take care of the leakage of MTBE other than S. 1576. Otherwise, California, along with the rest of the United States, may not see the fruition of the emerging biomass ethanol industry that can alleviate many environmental problems as well as helping to clean up our air with the clean gasoline additive, ethanol.

I hope that this brief overview for the committee is helpful. Please feel free to call me if you would like to discuss any further. We feel strongly that there is a future for biomass ethanol in the State of California and throughout the U.S.

Mr. Chairman, thank you for your consideration.

Sincerely,

MEGAN S. SMITH, *Director,*
American Bioenergy Association.

GOVERNOR'S ETHANOL COALITION,
Lincoln, NE, September 9, 1998.

HONORABLE MEL CARNAHAN,
Governor of Missouri,
State Capitol Room 216,
Jefferson City, Missouri 65101.

Dear Governor Carnahan: Congratulations on your decision to participate in the Federal reformulated gasoline program. As you know, the Coalition is a strong supporter of this program that offers significant benefits to public health through improved air quality.

In the 3-years since the inception of the Federal reformulated gasoline program, it has been successful in reducing excessive ozone levels at a cost of less than three cents per gallon over conventional gasoline. According to the United States Environmental Protection Agency, nearly 1.3 million tons of ozone-forming emissions will be prevented in the first phase of this program.

In addition to the clean air benefit of reformulated gasoline, this program also helps us build a market for ethanol. Through establishing an increased oxygen level during the winter months, ethanol will have the ability to compete win other oxygenates. These requirements will help us build the infrastructure necessary to ensure ethanol's competitive ability.

Once again, I would like to congratulate you on your decision to participate in the Federal reformulated gasoline program. It is my hope that the program will spawn the development of new ethanol facilities and help reduce dangerous ozone levels.

Sincerely,

GOVERNOR FRANK O'BANNON, *State of Indiana, Chair.*

STATEMENT OF THE NATIONAL MARINE MANUFACTURERS ASSOCIATION

Summary

The National Marine Manufacturers Association (NMMA) fully supports S. 1576. Senator Dianne Feinstein's important legislation amends the Clean Air Act to permit California's more stringent regulations for cleaner-burning gasoline to apply in the State rather than existing Federal regulations, as long as the California regulations continue to achieve equivalent or greater reductions in emissions. The bill would provide the much needed regulatory flexibility in the blending of cleaner-burning gasoline, without setting specific mandates on additives.

NMMA understands that Congress was well-intentioned when it passed the 1990 Clean Air Act Amendments that mandated that reformulated gasoline in specified areas contain at least 2 percent oxygen by weight in gasoline year-round. However, given concerns that have arisen regarding the use of certain oxygenates, Congress needs to reconsider this mandate, Congress should set the standards necessary to ensure clean air for California's citizens, but allow California's regulators to determine how best to meet these standards, while allowing for flexibility for producers.

By approving this bill, the committee will take an important step forward in restoring the public confidence in the safety of California's gasoline supply. Furthermore, the marine industry, whose end-users rely on the available fuel supply, are currently caught in the cross fire despite the millions of dollars invested to implement new, cleaner technologies.

That is not to imply that the Federal Government should ignore environmental problems. Congress should continue to set the standards necessary to ensure clean air for all citizens and to hold the States to these standards. However, Congress should not mandate the course of how to meet these standards. California's regulatory agencies are fully capable of protecting the environment. California's RFG program is California's responsibility and the State deserves regulatory flexibility.

SUPPLEMENTAL STATEMENT BY THE NATIONAL MARINE MANUFACTURERS ASSOCIATION

NMMA fully supports S. 1576. Senator Dianne Feinstein's important legislation amends the Clean Air Act to permit California's more stringent regulations for cleaner-burning gasoline to apply in the State in lieu of existing Federal regulations, as long as the California regulations continue to achieve equivalent or greater reductions in emissions. The bill would provide California petroleum refiners and marketers with the much needed regulatory flexibility in the blending of cleaner-burning gasoline, without mandating specific additives.

Historically, California has faced the most challenging air pollution problems in the nation, and consequently is the only State allowed by the Federal Clean Air Act

to develop and operate its own fuels program. NMMA understands that Congress was well-intentioned when it passed the 1990 Clean Air Act Amendments mandating that reformulated gasoline in specified areas contain at least 2 percent oxygen by weight in gasoline year-round. However, given current concerns that have arisen regarding specific oxygenates, Congress needs to reconsider this mandate. Congress should set the standards necessary to ensure clean air for California's citizens, but allow California's regulators to determine how best to meet these standards, while allowing flexibility for producers.

Marine Engine Industry has Worked with the EPA and CARB to Develop Cleaner Engines

While environmental issues will likely present the industry's most significant challenges for years to come, member companies of the NMMA-affiliated Association of Marine Engine Manufacturers (AMEM), are seizing the chance to turn environmental demands into opportunity. When the EPA determined that all averaged nonroad sources equal 10 percent of hydrocarbon emissions, NMMA members worked to develop new, cleaner burning engines. At the time, EPA determined that all recreational marine engines contribute only 3 percent of all the emissions in the U.S.

Since the marine engine industry began working with the EPA in 1991 on creating a plan to reduce overall hydrocarbon emissions, manufacturers have already funded major initiatives to develop new generation engines which are both environmentally responsive and consumer friendly. In 1996, the EPA established the first-ever emission standards for spark-ignited gasoline recreational marine engines. These standards became effective January of this year and will be phased in over a 9-year period.

Research and development investment by engine manufacturers—creating entirely new lines of products—will amount to an estimated $500 million. These improved engine lines will consist of a mix of four-stroke and various forms of direct injection two-stroke outboards. Gasoline sterndrive and inboard engines have adapted and added electronic fuel injection systems to achieve operational and efficiency gains and resulting decreased emissions. Attached are answers to frequently asked questions about the new technology engines and water quality that were compiled by Californians United to Save Boating.

NMMA and technical and regulatory specialists from its member companies are now assisting the State of California in the assembly of technical and marketing information that will help provide baseline data for the California Air Resources Board (CARB), working in collaboration with State water authorities, to develop new and more stringent emission standards for recreational marine engines. The marine industry understands that California will demand compliance performance from all recreational engines and on the fastest feasible timetable America's marine engine manufacturers have great confidence in the technical capability of the new engine designs being introduced, and because it is in the best interest of engine and boat manufacturers to have these new technologies penetrate the market as rapidly as possible, the marine engine industry will continue to extend every cooperation to CARB as it and other agencies develop new technical emission standards and a timetable for implementation.

The Federal Oxygenate Requirement Has Unintended Consequences

In the past several months, public concern about MTBE has spurred several California water districts to consider banning boating on some public waters that serve as drinking water reservoirs. The leading source of MTBE entering water supplies, however, is leaking underground storage tanks. Marine engines do discharge negligible amounts of gasoline into the water as part of the combustion process. With this in mind, the marine engine industry has been developing cleaner, new technology engines that have already started to arrive in the marketplace. Over the past several months, the marine industry has worked to educate California's water districts about the arrival of these new technologies.

Unwarranted public concern about California's Reformulated Gasoline (RFG) may lead to limits or bans on recreational boating, despite the introduction of dramatically improved marine engine technologies described earlier. In fact, legislation was introduced in the California State Assembly that would have banned the retail sale and use of all 2-cycle engines from all of California's lakes due to public concern about MTBE. While the Assembly did not pass the bill, the marine industry believes that the lack of regulatory flexibility in the California RFG program could jeopardize the marine engine industry's substantial and continuing investment in new technologies that would be better for the environment.

Economic Impact of Boat Bans

Boating may seem like a weekend hobby, but the industry represents a significant portion of California's economy. According to a report by the California Department of Boating and Waterways, boating contributed $1 I billion to the gross State product in 1995. Over 183,000 jobs were attributable to recreational boating in California and the State and local taxes collected as a result of recreational boating totaled $568 million in 1995.

The boating industry has special reason to be concerned about water quality. When developing the marine engine rule, the EPA found in its Regulatory Impact Analysis that boat dealerships, marina operators and other small businesses are very sensitive to changes in the economy and the ecosystem. Over 60 percent of all boaters fish, and declining fisheries, which may be due in part to declining water quality, will negatively impact consumer confidence and, therefore, will negatively impact local businesses.

Consequences Beyond California

With over 880,000 registered boats, California has more recreational boaters than any State except for Michigan. If boaters in California continue to be threatened with bans, the demand for boats will decline. This will have a great impact on communities in States like Rhode Island, Florida, Michigan, Illinois, Wisconsin and North Carolina that have large boat building plants and related businesses. Reduced outboard and personal watercraft sales will result in increased prices, which will in turn, result in consumers having less money to spend on marine accessory products. Employment will likely be affected for those manufacturers who produce, distribute and sell accessory marine products.

The boating industry is extremely affected by price points. To illustrate how sensitive to the marine industry is to economic changes, in the early 1990's, the imposition of the 10 percent "luxury tax" on boats costing over $100,000 resulted in a loss of over 25,000 U.S. jobs, thousands of boat dealerships and ancillary small supporting businesses, and millions of dollars for both the marine industry and the local economies that rely on the tax revenue that the marine industry provides.

Conclusion

Congress was well meaning when it developed California's RFG program with the 2-percent oxygenate mandate. Indeed, California has experienced a dramatic improvement in its air quality as a result of this Federal concern. However, sometimes technology development outpaces the law, and it seems time for the Federal Government to recognize that California's regulatory agencies are fully capable of protecting the environment.

By approving this bill, the subcommittee will take an important step forward in restoring the public confidence that has been shaken by the potential effects of the mandated product. Furthermore, industries like the marine industry, whose end-users rely on the available fuel supply are caught in the cross fire, despite the millions of dollars invested to implement new, cleaner technologies.

That is not to imply that the Federal Government should ignore environmental problems. Congress should continue to set the standards necessary to ensure clean air and water for all citizens and to hold the States to these standards. However, Congress should not mandate the course of how to meet these standards. This is California's responsibility and should be their choice.

STATEMENT OF CALIFORNIANS UNITED TO SAVE BOATING

FREQUENTLY ASKED QUESTIONS—RECREATIONAL BOATING AND WATER QUALITY

1. What is a "new technology marine engine'. and how is it different from existing marine engine technologies"

- The term "new technology" was coined by the U.S. Environmental Protection Agency (EPA) and refers to the new direct-injection two-stroke technology, four-stroke technology, or other technology used to reduce emissions.
- Direct-injection two-strokes, like OMC's FICHT outboards and Mercury Slarine's OptiMax outboards, have greatly reduced hydrocarbon emissions as well as greatly improved fuel efficiency and operating characteristics.
- Four-stroke engines are another low-emission high-fuel efficiency alternative.

2. How clean are direct-injection two-stroke and four-stroke technologies and how does their fuel efficiency compare?

- Both two-stroke and four-stroke engines achieve greater than 80 percent reductions in hydrocarbon emissions as compared with conventional two-stroke engines.

- The fuel efficient of direct-injection he two-stroke and four-stroke technologies on average is 30 percent better than conventional marine engine technologies.

3. I've heard that four-stroke engines have lower hydrocarbon emissions than direct-injection two-stroke engines. Is this true and if so, why?

- Emission testing of similar powered engines (where both direct injection two-stroke and four-stroke technology are used) has shown that the direct-injection two-stroke engines have slightly higher hydrocarbon emissions. However. manufacturers believe that because direct-injection two-strokes are a brand of new technology, they are expected to greatly improve as future development is encouraged.
- Four-stroke engine technology has been in production for decades.

4. Do direct-injection two-stroke engines use oil and does it get into the water? Do four-stroke engines?

- Direct-injection two-stroke engines are equipped with oil injection systems that precisely meter just enough oil to ensure reliable operation.
- Most of the oil is burned during the combustion process and only a small amount of oil is present in the exhaust.
- Four-stroke engines have lubrication sumps that contain oil and must be changed periodically like a car engine.

5. How much unburned fuel is actually getting into the water from existing technology two-stroke outboards and personal watercraft (PWC's)?

- California water district studies continue to show that the amount is very small. Recent data from East Bay Municipal Utility District (EBB) and Metropolitan Water District (MWD) indicates that benzene, ethyl benzene, toluene and xylene. (gasoline compounds of concern) are nearly undetectable. Some of the gasoline additive MTBE has shown up in areas of high boating, prompting some water districts to consider varying management practices on their reservoirs. The results continue to show that recreational boating does not constitute a threat to California's drinking water supplies.

6. What engines are currently powered by the different technologies? What does the future hold?

- Direct-injection two-stroke engines have been introduced first in the high horsepower range and are expected to move down the power range to below 20 horsepower.
- Four-stroke engines have been introduced in the low horsepower range and currently are somewhat limited in their ability to move up through the highest horsepower ranges due to their size and weight.

7. Can a customer upgrade an existing technology two-stroke engine to a new technology two-stroke engine?

- No. The new technology systems are extensive and designed as complete systems. They cannot be treated as simple bolt-one.

8. Do the new technology engines exhaust any unburned fuel into the water?

- New technology two-and four-stroke engines trap all incoming fuel in the combustion chamber and expose it to the combustion process.
- This ensures that the fuel is efficiently burned in the combustion process.
- Due to the fact that no combustion system can be 100 percent efficient, very small amounts of hydrocarbons are exhausted from the new technology two-stroke and four-stroke engines.

9. How many gallons of unburned fuel are exhausted per day during the operation of an existing technology two-stroke engine?

- A 50 horsepower engine operated for 4 hours during a full day of fishing will consume roughly eight gallons of gasoline. As a result, several ounces of fuel will be initially transferred to the water. This small amount immediately will begin to vaporize and biodegrade. It will be difficult to detect any presence of gasoline within a very short period.

10. How do personal watercraft emissions compare to outboard emissions?

- There are two things we need to look at to answer this question. First, we need to recognize that personal watercraft engines are physically smaller than outboard engines of the same horsepower. This requires the engine to operate at higher speeds resulting in higher emissions. The second reason for higher emissions from personal watercraft is that they generally are operated closer to full throttle, resulting in a greater amount of exhaust emissions.

11. How can water reservoir managers distinguish between existing and new technology engines?

- Four-stroke engines and direct-injection two-stroke engines are both new technologies and generally are identified by their motor cover decals.

• The National Marine Manufacturers Association (NMMA) also is investigating ways to provide more obvious identification of the existing and new technologies.

12. Why do we need both two-stroke and four-stroke technologies?

• A variety of boat designs use outboards. The performance characteristics of these new technology engines are different and one is better suited to a given application, addressing the consumers needs for weight, portability, acceleration and quiet operation.

13. Is it accurate to say that using an existing technology two-stroke engine is the same as pouring raw gas in the water?"

• Absolutely not. Although the exhaust of a conventional two-stroke outboard or personal watercraft contains some unburned fuel, it is at a temperature of several hundred degrees and is expelled in a narrow trail of exhaust behind the boat as it travels through the water. As this "tail" of exhaust leaves the hub of the propeller, it quickly rises to the surface where it is released into the atmosphere. Furthermore, at idle and off idle conditions, outboard motors are designed to emit exhaust through their "exhaust relief system" above the water. Under these operating conditions, they discharge little or no exhaust into the water.

• Several studies, conducted for the U.S. EPA in the 1970's, attempted to quantify the amount of hydrocarbons deposited into the water by conventional two-stroke outboard motors. Because of experimental difficulties associated with these types of tests, the results of these studies vary. They all indicate, however, that only a fraction of the gasoline used by the engine (somewhat between one-to-ten percent) is deposited in the water, and that small amount of gasoline immediately begins to volatilize from the water into the air.

• The scientific data clearly indicates that although 10–25 percent of the fuel consumed by an outboard bypasses the combustion process and exits the exhaust, only a fraction goes into the water. Trying to characterize unburned gasoline discharges from the operation of an outboard or personal watercraft as dumping liquid gasoline into the water is not only unfair and misleading, but scientifically incorrect.

14. Some people compare existing technology two-stroke marine engine hydrocarbon emissions with the oil spilled from the Exxon Valdez. Is this true?

• No. Unfortunately, this "junk science" promoted by a few extreme environmentalists has misled the public. If the concept behind this exaggeration were credible, then California water district analysis would be showing high levels of benzene, ethyl benzene, toluene and xylene (BETX) compounds and other components of gasoline.

• The fact is that the material discharged from the tragic Exxon Valdez disaster was a concentrated spill of liquid non-volatile heavy crude oil into a relatively small area of water. This spill was incapable of significant volatilization, and was so concentrated that it overwhelmed nature's ability to biodegrade it. This is totally different than the relatively small amount of hot exhaust and gasoline vapors that quickly pass through the water and are released into the atmosphere behind conventional outboard motors.

STATEMENT OF THE OXYGENATED FUELS ASSOCIATION

This is a statement for the record submitted by the Oxygenated Fuels Association (OFA) to the Committee on Environment & Public Works of the U.S. Senate with respect to the September 16, 1998 hearing concerning reformulated gasoline (RFG), methyl tertiary butyl ether (MTBE), and S. 1576. OFA appreciates this opportunity to present its views on these issues of vital interest to the oxygenated fuels industry.

OFA is a national and international trade association established in 1983 to advance knowledge about the use of oxygenated fuel components of gasoline. These additives not only improve the combustion performance of motor vehicle fuels, thereby significantly reducing automotive emissions and air pollution, but also replace or dilute many of the toxic compounds historically associated with gasoline emissions.

The Attributes and Environmental Benefits of MTBE

OFA member companies produce and market significant quantities of the oxygenated fuel components used in reformulated gasoline (RFG), wintertime oxyfuels, and California's cleaner-burning gasoline (CBG). MTBE, the oxygenate of choice, both in California and nationwide, is the prime pollution fighting component in cleaner-burning CBG and RFG.

The refining industry has been using oxygenates in gasoline for nearly 30 years. Oxygenates serve as both a high octane replacement for toxic lead and aromatic compounds in premium gasoline, as well as a non-petroleum energy alternative for

expanding supplies of transportation fuels. Oxygenates, such as MTBE, have been used as octane enhancers in the U.S. since 1979. The environmental benefits of oxygenates were first recognized in state-developed "clean fuel" programs as early as 1987, and then nationally acknowledged for their clean burning benefits in the Clean Air Act Amendments of 1990. As such, oxygenates are not new or unfamiliar gasoline compounds in the marketplace.

RFG is sold year-round in about 32 percent of the U.S. gasoline market throughout 17 States with the worst air pollution problems. The U.S. Environmental Protection Agency (EPA) estimates that since its introduction in January 1995, RFG has eliminated approximately 300 million tons of pollution from the nation's atmosphere. In California, reductions in vehicle emissions of volatile organic compounds, nitrogen oxide, sulfur dioxide, and carbon monoxide due to cleaner-burning gasoline are equivalent to the removal of 3.5 million vehicles from the State's roads. In addition, California residents' exposure to highly toxic benzene from vehicle emissions has been reduced by 40 to 50 percent by the use of CBG with oxygenates.

California's cleaner-burning gasoline is the world's cleanest gasoline. The citizens of California now enjoy the best air quality in decades because of cleaner-burning gasoline. In an October 1997 report entitled Cleaner-Burning Gasoline: An Assessment of Its Impact on Ozone Air Quality in California, the California Air Resources Board (CARB) examined the improvements in ozone air quality in three major areas of the State—the South Coast Air Basin, the Sacramento Metropolitan Area, and the San Francisco Bay Area. After factoring in control strategies for emissions from sources other than vehicles and for meteorology, CARB found that cleaner-burning gasoline, with MTBE as its principal pollution fighting additive, is directly responsible for an 11 percent improvement in air quality in the South Coast Air Basin and a 12 percent improvement in the Sacramento Area. In addition, CARB credits the State's clean gasoline program for reducing the public's exposure to cancer risk by 40 percent.

MTBE was first commercially used in Europe in 1973. It has been used in the United States since 1979 and in California since 1986. It is widely used as an octane enhancer and cleaner-burning octane alternative to lead and aromatics and is now the principal pollution-fighting ingredient in CBG and RFG. Because of its effectiveness in improving air quality, refinery operating requirements, state-of-the-art blending practices, ease of supply and distribution and basic marketplace economics, MTBE is the oxygenate of choice for most areas requiring RFG, comprising approximately 80 percent of the nationwide market for oxygenates. In California, MTBE is used in over 90 percent of CBG.

MTBE has been extensively studied for its impact on vehicle performance and air quality benefits. These studies have concluded that MTBE is effective and safe for use in gasoline. MTBE not only helps reduce toxic and ozone related emissions from reformulated gasolines, but has contributed to lower emissions of many criteria pollutants such as carbon monoxide, nitrogen oxide, sulfur dioxide, fine particulate, and lead.

Health Effects and Benefits of MTBE

MTBE has also been studied extensively for its health effects. The Office of Science and Technology Policy (OSTP), in its Interagency Assessment of Oxygenated Fuels Report, concluded that chronic, non-cancer health effects would not likely occur from environmental or occupational exposures to MTBE. In a review of the OSTP report the National Academy of Sciences concluded that MTBE would "not to pose a substantial human health risk." Likewise, the Health Effects Institute has determined that "adding oxygenates is unlikely to substantially increase the health risks associated with fuel used in motor vehicles; hence, the potential health risks of oxygenates are not sufficient to warrant an immediate reduction in oxygenate use at this time."

The European Centre for Ecotoxicology and Toxicology of Chemicals has concluded that "MTBE is not carcinogenic according to the criteria set forth in the European Union's Directive on Dangerous Substances" and that "the risk characterization for MTBE does not indicate concern for human health with regard to current occupational and consumer exposures."

The recent comparative health risk analysis conducted by the Northeast States for Coordinated Air Use Management (NESCAUM) concluded that Phase I Federal RFG (which contains MTBE) ". . . served to reduce the cancer risk associated with gasoline vapors and automobile exhaust compared to conventional gasoline by 12 percent." Additionally, the same study indicated that Phase II Federal RFG ". . . is expected to further reduce the public cancer risk . . . as compared to conventional gasoline by 20 percent."

The fact is, MTBE is one of the most studied compounds ever to be introduced into modern commerce. No fewer than 80 health studies have been completed to date, which collectively demonstrate that MTBE is not harmful when used for its intended purposes as an anti-pollution additive in gasoline.

The use of cleaner-burning gasoline that contains oxygenates like MTBE under the Federal RFG and the California CBG programs has achieved significant reductions in vehicle emissions that led to improved air quality and public health protection. These programs have lead to at least an 11 percent decrease in ozone exceedences in RFG areas, 15 percent decrease in summer VOC evaporative emissions, 7 percent decrease in total VOC emissions, 3 percent reduction in NOx levels, 25 percent reduction in air tonics such as benzene (at least 50 percent in California), 10 percent decrease in carbon monoxide (for wintertime oxyfuels areas), and 11 percent reduction of sulfur dioxide and 9 percent decrease in precursors of secondary particulate matter from vehicle emissions. These achievements have clearly met, or exceeded, the objectives of Congress in enacting the RFG with oxygenates program.

The Presence of MTBE in Drinking Water

A great deal of concern has been expressed over recent discoveries of MTBE and other gasoline components which have been detected in drinking water sources—both groundwater aquifers and surface water bodies. The members of OFA share this concern and believe that neither MTBE, nor the many other chemical components of gasoline, should be present in the groundwater or surface water.

To properly address the problem of MTBE in drinking water, it is important to understand two fundamental things. First, when MTBE is detected in a water supply, it is most likely the result of gasoline releases. MTBE is not alone. The presence of MTBE is a signal that other more toxic gasoline components, such as the known human carcinogen benzene, have also been released into the water. Second, use of MTBE in gasoline is not the cause of the problem of MTBE and other gasoline components in water supplies.

Releases and leaks from underground storage tanks and pipelines are the main causes of MTBE and other gasoline components entering groundwater sources. Discharges of unburned fuel are the primary cause of MTBE and other gasoline components in surface water bodies. To ensure that MTBE and other gasoline components do not contaminate drinking water supplies, we must ensure that these releases, leaks and discharges do not occur and, should such events occur, clean-up and restoration should be promptly and effectively carried out.

Proposals to phaseout or ban MTBE will not solve the problem of water contaminated by gasoline. Reducing the level of or eliminating MTBE will not reduce the number of releases or leaks from underground storage tanks and pipelines, nor will it reduce the amount of unburned fuel that is discharged by marine engines into surface water bodies.

Statements have been made suggesting that the "corrosive" nature of MTBE is the main cause for the failure of underground storage tanks and thus responsible for the leakage of gasoline into certain ground water resources. A number of studies have concluded that these statements are without merit. A study prepared by James M. Davidson of Alpine Environmental, Inc. entitled MTBE Compatibility with Underground Storage Tank Systems concluded that MTBE is compatible with underground storage tanks and piping made from fiberglass; that the industry standard seals used on tanks and pipelines were compatible with the maximum MTBE concentrations allowed by law in gasoline (i.e. 15 volume percent MTBE); and that there was no scientific basis to support claims that MTBE was incompatible with glues used in fiberglass underground storage tank systems or vapor recovery systems.

The response to the problem of MTBE and gasoline in water supplies must be directed at the source of the problem—it must be directed at replacing old leaking underground tanks, upgrading underground tank and pipeline systems, improving leak monitoring and detection programs, and responding rapidly to releases that do occur. The State of California has taken a number of steps to fund efforts in this direction and OFA strongly supports these steps.

The Feinstein Legislation—S. 1576

OFA is opposed to S. 1576. OFA members believe that the main outcome of this legislation would be to allow the major oil companies to circumvent the Federal clean fuel specification for using oxygenates under the guise of more flexibility. Removing oxygenates will not result in cleaner air and could potentially lead to dirtier air. Repealing the oxygenate standard will also undermine many of the social and economic benefits of the RFG and CBG program. Most of all, enactment of this legis-

lation will set a negative precedent by undermining the Clean Air Act (CAA) for the economic benefit of a single interest group.

One of the arguments made in support of S. 1576 is that the overlapping requirements of the Federal RFG program and CARB's CBG program limit the refiners' flexibility to make cleaner-burning fuels. In addition, it is claimed that this inflexibility leads to higher costs for the refiners and ultimately the public. EPA has addressed many of the refining industry requests for additional flexibility over the last 2 years by applying a liberal interpretation of sections of the regulations pertaining to both modeling and in-use compliance. In fact, EPA is preparing to codify many of these changes which provide additional flexibility to all refiners in the overlapping areas.

OFA members also are opposed to S. 1576 because of the economic impact it would have. The oxygenate industry has invested billions of dollars in capital expenditures to meet the requirements of the CAA for California. To arbitrarily change those requirements at this point, before much of that investment is recaptured is simply unfair and unwarranted, particularly when this legislation will benefit a few large petroleum companies at the expense of all other market participants. Smaller refiners may be disadvantaged by the passage of S. 1576, since unfavorable economies of scale significantly raise the cost of clean fuel alternatives to small refiners preventing them from taking advantage of the other non-oxygenated alternatives that are generally available to the large oil companies.

The major assumption underlying S. 1576 is equivalency—that CARB's predictive model and CBG regulations will provide the same or greater emission reductions and overall environmental benefits as a fuel, which meets the RFG oxygen specifications of the CAA. One supporter of this legislation, CARE, stated that ''The Federal oxygen rule prevents (those refiners) from selling the Northern California gasoline with reduced or no oxygenates in Southern California, even though the Northern California gasoline provides twice the clean air benefits required by the Federal Government.'' This statement leaves the impression that Northern California gasoline is cleaner than Southern California gasoline. This is not true. Southern California gasoline with oxygenates is cleaner than Northern California gasoline and is more than twice as clean as Federal RFG.

The real issue is the backsliding of air quality. It is imperative that non-attainment areas in Southern California not lose the air quality benefits they have achieved with oxygenated CBG. Yes, these benefits are greater than the Federal standard but why would the State go back to just meeting the standard when they now have in place gasoline that is much cleaner than the standard.

CARB's own data demonstrates that Southern California gasoline—CBG plus oxygenates—is significantly more effective in reducing emissions than CBG alone. Blending oxygenates into gasoline displaces less environmentally beneficial components such as aromatics which in turn results in additional health benefits and a cleaner-burning gasoline.

Unfortunately, CARB's predictive model and CBG regulations are unlikely to ensure such a result. The model and regulations are so narrowly focused on tailpipe emissions of volatile organic compounds, nitrogen oxides and toxics coming from highway vehicles that they ignore the many other emission reduction benefits from the use of oxygenates. Removing the oxygen requirement will allow refiners to replace cleaner-burning oxygenates with less environmentally beneficial components such as aromatics and still satisfy the CBG regulations and the predictive model. However, the higher boiling temperatures and higher carbon content of such fuel components are more difficult to vaporize and bum under some engine conditions. In this case, replacing oxygenates in CBG will lead to higher emissions of carbon monoxide and fine particulate in the form of secondary aerosols. It will also contribute to greater emission deterioration over a vehicle's useful life by allowing increased deposit buildup in the combustion chamber of the engine. In addition, replacing the oxygenates with the higher carbon components will contribute to higher carbon dioxide emissions.

Another problem with CARB's predictive model is that it does not apply to emissions from non-highway or non-automotive engines such as farm equipment, lawn mowers, and leaf blowers. These non-automotive engines represent over 10 percent of the volatile organic compound emissions in the State of California. Due to the lack of sophisticated controls and catalyst systems in these smaller, simple carbureted engines, oxygen in the fuel used by these engines provides a substantial combustion benefit that is not duplicated by any other fuel properties in CBG. Therefore, emissions from these non-highway mobile sources will only increase under the provisions of this legislation.

The way in which one defines ''equivalency'' is of paramount importance in evaluating the merits of S. 1576. OFA believes that equivalency should be defined as no

"back-sliding" from air quality conditions that currently are being achieved in the RFG areas of California. The fact is, the use of CBG plus oxygenates is providing emission reductions significantly in excess of the requirements of the CAA, the CARB predictive model and the CBG regulations. We should not sacrifice these enhanced emission reductions by defining equivalency according to what meets the CARB predictive model and the CBG regulations.

Finally, this committee must be sensitive to the effect this enactment of S. 1576 will have on the fabric of the CAA and its programs. Proponents argue that the bill is limited only to California and therefore it will have no effect on the CAA or the national RFG program. The fallacy of this argument was vividly demonstrated at the committee's hearing when Commissioner Sullivan of Maine stated that Maine also would like to take advantage of the flexibility provided by S. 1576. It is interesting to note that Maine voluntarily subjected itself to the oxygenate requirements of the RFG program when the Governor choose to opt-in to RFG. Under the CAA, Maine already has the flexibility to opt-out of the RFG program if they can meet the requirements of their ozone plan without RFG. Commissioner Sullivan's statement is most likely an indication of how other States will react to enactment of S. 1576.

The Future of MTBE

The actions that the Committee on Environment and Public Works might take with respect to the Clean Air Act, the RFG program, and MTBE will be critical to the role that MTBE and other oxygenates play in our nation's efforts to improve and maintain air quality in the future. In determining its actions, this committee should be guided by the following facts:

1. CBG plus oxygenates and RFG are responsible for massive reductions in harmful air pollution from mobile sources in California and the nation.
2. Maintaining and improving air quality will be nearly impossible without CBG and RFG oxygenated with MTBE.
3. MTBE is necessary to meet the demand for CBG plus oxygenates and RFG. In California alone, motorists use 35–37 million gallons of gasoline per day, or about 13 billion gallons per year. The existing refinery configurations and available supply of other oxygenates are not adequate to replace MTBE and still meet this huge demand at a reasonable cost. The changes needed to meet air quality standards with MTBE would require additional massive investments to retool refineries, build oxygenate capacity, and in some cases add transportation and distribution facilities.
4. MTBE has been detected in a limited number of water supplies and action must be taken to respond to this problem and to prevent it, including full enforcement with current law and regulations.
5. When MTBE is detected in a water supply, it is not alone. The presence of MTBE is clear indication that other, more toxic compounds are also being released into the environment. The cause of such release are leaking underground storage tanks and pipelines and marine engines that are specifically designed to discharge unburned fuel. Ignoring this fact and simply banning MTBE or repealing the oxygenate mandate of the RFG program will not solve the water contamination problem.

The task for this committee, the EPA, the States, the oxygenated fuels industry, and all other stakeholders is to find a solution that addresses the legitimate problems associated with MTBE without losing any of the substantial benefits derived from MTBE. The State of California Legislature has taken steps in this direction by recently enacting several pieces of legislation which provide for extensive study and evaluation of MTBE and other oxygenates, direct the establishment of drinking water standards, require identification and monitoring of potential sources of water contamination, provide additional funding for and expedite the remediation of gasoline spills and leaks, and prohibit the delivery of any petroleum products to tanks not in compliance with the new standards. At the same time, California has refused to enact legislation, which would provide a "quick fix" by banning MTBE but would not solve the problems.

OFA trusts this committee will likewise render similar judgment. OFA's members are absolutely convinced that sound science, facts, and demonstrated results do and will continue to prove the efficacy of MTBE as a safe, effective pollution fighter and are prepared to work with this committee to solve any problems associated with the use of MTBE.

Thank you for the opportunity to present this statement.

OXYGENATED FUELS ASSOCIATION, INC.,
Arlington, VA, September 9, 1998.

HONORABLE BARBARA BOXER,
U.S. Senate,
Hart Senate Office Building,
Washington, DC 20510.

DEAR SENATOR BOXER: I read with great interest your recent press release and corresponding letter to U.S. Environmental Protection Agency Administrator Carol Browner regarding the need to clean-up fuel contaminated water in California. On behalf of the Oxygenated Fuels Association (OFA) and its member companies, I applaud your initiative. OFA shares your view that leaking storage tanks are the root of the fuel contaminated ground water problem and would like the opportunity to meet with you to discuss ways that we can work together to help protect California's air and water quality.

The OFA is firm in its resolve to keep motor fuel out of water. Gasoline, with its hundreds of compounds of which MTBE is but one, simply does not belong there. By ensuring that leaking storage tanks are quickly replaced, gasoline leaks can largely be eliminated. Under current law, all leaking storage tanks must be replaced by late December of this year. The OFA believes this action will go a long way toward preventing fuel from entering groundwater supplies.

We respectively disagree with your call to phaseout MTBE, an additive that is the single most effective tool in our efforts to reduce air pollution. MTBE has been instrumental in improving the health of Californians by providing significant air quality benefits throughout the State. In fact, California's cleaner burning fuel program is one of America's best environmental success stories, having contributed to the State's best air quality in 50 years.

The OFA is committed to being in the vanguard of finding a solution for the fuel-contamination problems, including full compliance with tank replacement and upgrading requirements. OFA also supported recent California legislation to establish a fund to help water agencies respond to fuel contaminated water problems.

The OFA firmly believes that clean air and water are not mutually exclusive. We are striving to ensure that Californians have both. Given your concern about California's air quality, I hope that we can work together to achieve this goal.

I look forward to discussing this issue with you in greater depth.

Sincerely,

TERRY WIGGLESWORTH, *Executive Director.*

A MESSAGE FROM THE OXYGENATED FUELS ASSOCIATION

MTBE, methyl tertiary butyl ether, is one of the fastest growing chemicals in the United States. Around the world there are now scores of plants manufacturing this gasoline component commonly referred to as an "oxygenate.' They have been used commercially in gasoline for over 25 years.

The recent growth of MTBE and other oxygenates is explained simply by the fact that they provide great benefits in reducing air pollution and toxic emissions associated with conventional gasoline. Today, over 100 million Americans are reaping the benefits of cleaner-burning gasoline with oxygenates like MTBE. The first big surge of growth for oxygenates came in the 1970's when harmful lead was required to be removed from gasoline. Then, Federal and State laws, such as the Clean Air Act Amendments of 1990 and California's cleaner burning gasoline program, mandated improvements through a new breed of "reformulated" and "oxygenated" gasoline to reduce harmful components.

Lately MTBE has been in the news. It has been a subject of much discussion in some newspapers, on radio talk shows and television news programs. Currently, there are legislative proposals regarding MTBE being considered in California and MTBE has appeared on the agendas of local water authorities and utility district boards.

The Oxygenated Fuels Association's role is to help provide answers to those questions. Since the early 1980's, this international trade association has led the way in sponsoring and disseminating scientific students and gathering, developing and analyzing information on oxygenates. We have included a variety of fact sheets, questions and answers, press releases, and other information on MTBE in this packet. We hope this information proves useful to you.

MTBE History and Background

Methyl tertiary-butyl ether (MTBE) is an oxygenate derived from natural gas and is used in gasoline to reduce vehicle exhaust emissions while maintaining high performance.

History

1940's: MTBE first designed as a fuel additive.
1970's: Manufactured and used commercially in Europe.
1979: Use in the U.S. as a replacement for lead to enhance octane.
1989: Introduced in Southern California in the first cleaner burning gasoline.
1990: Clean Air Act Amendments require the use of oxygenates to lower automotive air pollution in nine major metropolitan areas with the worst air quality, including southern California.
1992: Cleaner burning gasoline, containing 11 percent MTBE by volume or other oxygenates, used to satisfy Federal winter-month requirements to reduce carbon monoxide (CO) pollution in San Diego, Los Angeles Basin, Sacramento, and Bay Area.
1995: Federal reformulated gasoline program implemented, including seven California areas: L.A. County, Orange, Riverside, Sacramento, San Bernardino, Ventura, and San Diego.
1996: California's year-round cleaner burning gasoline program began statewide.

- Californians use 35 to 37 million gallons of gasoline per day, or about 13 billion gallons per year. MTBE is used in about 90 percent of gasoline sold in the State. Cleaner burning gasoline contains 11 percent MTBE (by volume). Over 30 percent of gasoline sold nationwide is cleaner burning reformulated gasoline.
- California Air Resource Board's 1996 Phase 2 reformulated gasoline program is oxygenate "neutral" i.e. it does not mandate what specific oxygenate should be used in cleaner burning gasoline. MTBE is the product of choice because of economics, availability, performance and quality.
- There is currently no feasible substitute for MTBE in California gasoline. Ethanol, for example, is not available in sufficient quantity to meet California's requirements. It also cannot be transported by pipeline and instead has to be trucked, railed, barged and/or transshipped into California at considerable additional expense. It must be blended into the gasoline at the terminals, which are not equipped to handle a large amount of ethanol blending. Because of its volatilibility, ethanol cannot be used year around without violating Federal and State pollution standards.

Health and Environmental Effects of Motor Vehicle Emissions

- Air pollution costs Americans $150 billion dollars each year in lost productivity, increased medical bills, and premature deaths. Motor vehicle emissions account for roughly half of the ozone, 75—90 percent of carbon monoxide, and about half of the airborne toxic cancer risk, according to the American Lung Association. The EPA estimates that nearly five million tons of ozone-forming emissions will be prevented in the first phase of the reformulated gasoline program (1995–1999).

Motor vehicle emissions from gasoline, without oxygenates, contain higher concentrations of the following pollutants:

- Benzene: the toxic effects include bone marrow injury and hematopoletic toxicity, including leuopenia, lymphocytopena, aplastic anaemia and leukemia.
- Carbon monoxide: interferes with the body's ability to absorb oxygen, which impairs perception and thinking, slows reflexes, causes drowsiness and can cause unconsciousness and death; if inhaled by pregnant women may threaten growth and mental development of the fetus.
- Carbon dioxide: as the major component of greenhouse gas emissions, may attribute to global warming.
- Nitrogen oxides: which contribute to ground level ozone or "smog" can increase susceptibility to viral infections such as influenza, bronchitis, and pneumonia.
- Sulfur dioxide: potent respiratory irritant; can impair lung function by constricting airways and damaging lung tissue; can aggravate asthma and emphysema.
- Volatile organic compounds: depending on the compound, the effects include eye irritation, respiratory irritation and cancer. The most abundant are hydrocarbons. Condensation of VOCs and sulfur dioxide creates Articulates, including smoke, soot and dust. VOCs are the precursors to the formation of ground level ozone.
- Ground level ozone (i.e., urban smog): an oxidizing agent that attacks cells and breaks down body tissues, even at low concentrations; irritates mucous membranes of the respiratory system; causing coughing, choking, damaged lung tissue and impaired lung function; reduces resistance to colds and pneumonia; can aggravate chronic heart disease, asthma, bronchitis and emphysema.

- Toxic emissions: a broad category encompassing many different compounds, including toxic hydrocarbons such as benzene, toluene, and 1,3-butadiene, are suspected or known to cause cancer, reproductive problems, birth defects and other health effects.

The Benefits of Cleaner Burning Gasoline with MTBE

Cleaner burning gasoline with MTBE has been extremely successful in fighting smog both in California and across the nation. Nine urban areas in California, using cleaner burning gasoline, are now meeting the U.S. EPA's national carbon monoxide standard of nine parts per million (ppm). Those include: Bakersfield, Chico, Fresno, Lake Tahoe N. Shore, Lake Tahoe S. Shore, Sacramento, San Diego, San Francisco, and Stockton.

- Smog, which is ground level ozone pollution, remains a serious local and regional air quality concern. Right now, 127 million Americans live in areas with poor air quality. California has some of the most polluted cities in the Nation and 50 percent of this air pollution comes from motor vehicles. A proven way to reduce ozone pollution is by using cleaner burning gasoline.
- In California, cleaner burning gasoline with MTBE is responsible for reducing benzene levels by 50 percent, smog forming emissions by 15 percent, and other air toxins by about 40 percent.
- Cleaner burning gasoline with MTBE reduces lung-damaging ozone and ozone precursors by 3 million pounds per day, including carbon monoxide by about 9.6 million pounds. This is equivalent to removing 3.5 million cars from the road.
- California's first stage smog alerts in 1996, the first year of the cleaner burning gasoline program, were down 50 percent compared to 1995, and 70 percent compared to 1994. The greater Los Angeles area enjoyed its best air quality year on record in 1996, with seven stage-one smog alerts compared to 14 stage-one smog alerts in 1995 and 23 in 1994. In 1970, the region experienced 148 stage-one smog alerts.
- According to the American Lung Association, air pollution costs Americans $ 150 billion dollars each year in lost productivity, increased medical bills, and premature deaths. Cleaner burning gasoline with MTBE helps to increase pulmonary comfort and reduces medical costs for thousands of Californians, both young and old, affected by respiratory problems.
- Nationwide, carbon monoxide concentrations have decreased by 37 percent over the last 25 years, despite large increases in the number of vehicles on the road and the number of miles they travel. In 1995 alone, the U.S. EPA trends report noted that average carbon monoxide concentrations had decreased by 10 percent. Carbon monoxide (CO) concentrations are a good barometer of the success of the nation's clean fuels program because CO pollution is primarily cause by the transportation sector.
- Studies estimate that the drop in carbon monoxide exposure following the introduction of MTBE can be expected to prevent or delay between 1,440 and 12,600 heart attacks each year nationally between 480 and 4,200 of which would have been fatal.

MTBE and Acute Health Effects

Over 80 scientific health studies on MTBE have been conducted to date, making it one of the most thoroughly studied chemicals in modern commerce. None of the studies have identified any health-related risks to humans from the intended use in cleaner burning gasoline.

- The White House Office of Science and Technology Policy, the Health Effects Institute and the National Research Council completed an extensive review of oxygenated fuel additives. The report concluded that there was little evidence of acute MTBE related health effects: "Adding oxygenates is unlikely to substantially increase the health risks associated with fuel used in motor vehicles . . ."
- When MTBE-oxygenated fuels were introduced in 1992 in Alaska, acute health complaints were reported. Preliminary studies by public health officials suggested an association between acute health symptoms and exposure to oxygenated gasoline with MTBE. However, more definitive and rigorous studies by the Centers for Disease Control and Prevention, U.S. EPA, Yale University, Rutgers University, John Hopkins and others disproved that association.
- Due to its low odor threshold, MTBE in gasoline is readily detected by some individuals and, thus, may be perceived as being a symptom-causing agent because it is easily identified.
- In three controlled chamber studies, performed at the EPA, Yale and the Swedish National Institute of Occupational Health, the effects of 1 hour exposures

to MTBE were compared to those of clean air and in one case ozone-forming volatile organic compounds. All three studies found no symptoms related to MTBE.

- MTBE poses a "low order" of acute toxicity in experimental animals exposed via oral, dermal and inhalation routes. There have been studies that have reported a sensitization to MTBE in humans exposed by skin contact to the MTBE or to gasoline containing MTBE.
- The Department of Human Service in the State of Maine released a descriptive study of asthma hospitalization among residents in counties using reformulated gasoline in July 1996. The study pointed out that asthma hospitalization rates were higher in non-reformulated gasoline areas than in the areas that use reformulated gasoline with MTBE.
- The University of Medicine and Dentistry of New Jersey studied State-employed gas station workers: 115 workers in northern New Jersey, where reformulated gasoline containing MTBE was used, were compared to 122 workers in southern New Jersey, where reformulated gasoline was not used. No differences were found in the frequency or number of complaints.

MTBE and Chronic Effects

There is no scientific evidence that MTBE causes cancer or chronic health effects in humans.

- The White House Office of Science and Technology Policy (OSTP), the Health Effects Institute and the National Research Council state that chronic non-cancer health effects (necrologic, developmental, or reproductive) would likely not occur during environmental or occupational exposures to MTBE.
- Using the low risk numbers that both the biological and statistical analyses indicate regarding cancer, it is clear that the benefits of using MTBE far outweigh any risks of not using MTBE. In fact, the California EPA has determined that cleaner burning gasoline, containing MTBE, has reduced cancer risks from vehicle emissions by about 40 percent, and lowered exposure to benzene in the air, a know carcinogen, by about 50 percent.
- Cancer involves damage to genes or gene formation. MTBE has been tested extensively in vitro and in viva for its gene toxicity potential. The results of these tests demonstrate that MTBE does not directly alter the genetic material of the cell.
- MTBE research shows that kidney tumors seen in rats exposed to massive doses of MTBE are clearly related to the binding of MTBE to a unique protein present in male rats. Humans don't make this protein, and, therefore, would not be at risk of developing kidney tumors from such exposures.
- Effects of MTBE vapor on reproduction and development have been evaluated in well-conducted inhalation studies with rats, mice, and rabbits. MTBE does not present a hazard to reproduction or development because no adverse effects on the embryo/fetus are noted except at levels that also cause considerable maternal toxicity.

MTBE in Groundwater and Surface Water

The failure to properly contain and distribute gasoline in underground storage tanks, gasoline pipelines, or powered watercraft gasoline tanks can cause MTBE and other gasoline constituents to reach groundwater and surface water.

- Leaking underground storage tanks at gasoline stations are the largest source of groundwater contamination by gasoline and its constituents. California has a program to upgrade or replace all of its leaky underground storage tanks by the end of 1998. The Oxygenated Fuels Association emphatically supports California's underground storage tank program.
- Gasoline leaks are also a source of other gasoline components such as benzene, toluene, and xylene. The US EPA and State environmental agencies have recognized gasoline leaks as a major source of groundwater pollution. It has enacted regulations and monitoring procedures to minimize their occurrence in the future.
- The presence of gasoline constituents in groundwater does not necessarily mean that the substances are in the water you drink. Groundwater refers to the water contained in underground aquifers. These aquifers may or may not be a source of drinking water for your area.
- Generally, MTBE travels more quickly in water than aromatics and will, therefore, be found on the leading edge of a spreading gasoline leak. If a high level of MTBE is detected in groundwater, it shows that there is a gasoline tank leak in the area, and groundwater contaminated with benzene and other aromatics is probably not far behind.
- According to the US EPA, two-stroke engines found on 75 percent of all powered watercrafts in the US, discharge 25 to 30 percent of their unburned gasoline and all of its constituents directly into the water.

- Accumulation of MTBE in surface water is highly unlikely. Studies show that MTBE will volatilize to the atmosphere following the cessation of boating and the release of MTBE to the water body.
- MTBE concentrations in standing water bodies will generally diminish quickly under common lake and environmental conditions. The rate of MTBE removal is faster than many other oxygenates and is similar to certain other gasoline components, namely benzene. Under most realistic lake and reservoir conditions, and assuming that reformulated gasoline releases have ended, MTBE is not likely to accumulate, and thus will not pose a significant threat to water quality in surface waters.
- There are no natural processes that could concentrate MTBE beyond its original level in groundwater and surface water. MTBE's concentration will always decrease by biodegradation, dilution, evaporation or natural processes.

MTBE and Drinking Water

The California Department of Health Services drinking water supply survey shows out of the 2,638 water sources tested for the presence of MTBE, only 1.3 percent of samples detected MTBE; however, only 0.2 percent of the samples contained MTBE concentrations greater than 35 parts per billion, which is the current State action level. Three of the samples were from the City of Santa Monica and one was an abandoned well.

- A State survey shows that only one major public water system, the City of Santa Monica, has been directly and adversely impacted by MTBE release to the groundwater. One of the well sites is 250 feet from a gas station where underground storage tanks have been leaking for a number of years. The other site is near two gasoline pipelines, nearly 50 potential gasoline leak sites, and two active earthquake faults. The city has reached a settlement with the parties responsible for the problem: leaking underground storage tanks. Presently, the site is being remediated of all gasoline contamination.
- MTBE has a distinct taste and odor, the latter detectable to most people at concentrations around 45 ppb. Because of its strong taste and smell, the public is unlikely to ingest it at any levels that may pose a health risk. US EPA has released a drinking water advisory recommending that MTBE does not exceed a range of 20 to 40 parts per billion based on most sensitive human odor or taste perceptions. The EPA advisory determined that this range is about 20,000 to 100,000 or more times lower than the exposure level at which health effects were observed in animal testing.
- Standard water treatment technologies currently in common use such as aeration, ozone oxidation, and carbon absorption, can remove MTBE.
- While the presence of gasoline and its constituents represents a continuing threat to water quality due to leaking underground fuel tanks, spills, and leaks from pipelines, the impacts on water quality are expected to be far less than has been suggested. MTBE is less dense than water and will not sink vertically through an aquifer.

Underground Storage Tanks and Site Remediation

In California, even though MTBE use has increased in recent years (especially since June 1996 when cleaner burning gasoline was implemented year-round across the State), there has been a steady decline in the numbers of new underground storage tank releases reported.

- The key to reducing gasoline chemicals, including MTBE in drinking water sources is underground gasoline storage tank leak prevention and early detection. California has an aggressive underground storage tank replacement program. State and Federal statutes require that all underground storage tanks installed before 1984 be removed, replaced or upgraded to meet current standards by December 22, 1998. The Oxygenated Fuels Association emphatically supports all State and Federal programs to replace deteriorating or leaking underground storage tanks.
- Conditions under which ground water contamination occur, due to leaking underground storage tanks, are site specific. Conventional clean-up methods already used for gasoline contamination can be effectively employed should MTBE be present.
- MTBE or MTBE fuel blends have little or no effect on fiberglass laminates and can be safely stored in fiberglass reinforced plastic underground storage tanks. Fiberglass reinforced plastic underground storage tanks for petroleum products are warranted to not leak for a period of 30 years when used with fuel blends with up to 20 percent MTBE.
- Several tests found MTBE-blended gasoline did not impact steel tanks, steel piping or other metal components in gasoline distribution systems. Of the common

gasoline additives, MTBE was found to be the least corrosive to steel and other metals.

- There are no scientific studies to support claims, by some, that MTBE causes underground storage tanks to leak due to the incompatibility with glues used in fiberglass underground storage tank systems, or due to incompatibly with vapor recovery systems.

MTBE: Questions and Answers

Supplied by the Oxygenated Fuels Association

Q: What is MTBE and why is it used in gasoline?

A: MTBE (methyl tertiary-butyl ether) is a high octane blending component derived from natural gas to add oxygen to gasoline which makes the fuel burn cleaner. Oxygen content is part of Federal and California government requirements for less polluting cleaner burning gasolines. Specifically, MTBE reduces vehicle exhaust emissions while maintaining high performance.

Q: How long has MTBE been in gasoline?

A: It has been used in gasoline for over 25 years. It was first used as a replacement for toxic lead compounds in gasoline. In the 1980's, MTBE was used to make premium gasolines. Because of its success in cleaning the air in places like Colorado and other States, Congress required the use of oxygenates like MTBE in the clean fuel program established in the 1990 Clean Air Act. MTBE has been used in winter gasoline in California for the past 6 years.

Q: How effective is MTBE blended gasoline in cleaning up the air?

A: MTBE has had a very significant impact in improving air quality. Adding MTBE to gasoline makes the gasoline burn more cleanly, which reduces tailpipe emissions such as carbon monoxide, toxins, and smog forming pollutants. According to the California Air Resources Board, cleaner burning gasoline reduces lung damaging ozone and ozone precursors by 3 million pounds per day, including carbon monoxide by about 2.6 million pounds. This is equivalent to removing 3.5 million cars from the road. In fact, nine urban areas in California are now meeting the U.S. EPA's carbon monoxide standards.

Q: What benefits does MTBE have over oxygenates?

A: Compared to the other oxygenates, MTBE is convenient for refiners to use, more cost effective, and more widely available.

Q: Can California use cleaner burning gasoline without oxygenates, such as MTBE?

A: While it has been done in a lab, it's not practical to make cleaner burning gasoline without oxygenates. Without them, refiners would have to invest billions of dollars in new infrastructure, making gasoline much more expensive.

Q: Has MTBE been subject to scientific analysis?

A: MTBE is one of the most studied components of gasoline. Over 80 scientific health studies on MTBE have been conducted to date, none which have identified any health related risks to humans from the intended use in cleaner burning gasoline. In a comprehensive review of MTBE health studies, the National Academy of Sciences (NAS) concluded: "Based on the available analyses, it does not appear that MTBE exposures resulting from the use of oxygenated fuels, are likely to pose a substantial human health risk."

Q: Is MTBE a carcinogen?

A: There is no evidence that MTBE causes cancer or chronic health effects in humans. In fact, according to the California Air Resources Board, there is a 40 percent decrease in the cancer risk from exposure to benzene and other taxies from using cleaner burning gasoline containing MTBE.

Q: What about these studies that show MTBE causes tumors in rats and mice?

A: While very high doses of MTBE induced tumors in some laboratory rats and mice, there has been no identified link to cancer in humans. The US EPA and health experts are confident that MTBE poses no adverse health effects from the intended use in cleaner burning gasoline.

Q: Is MTBE getting into groundwater?

A: There have been incidents of MTBE and other gasoline components getting into groundwater. Generally, this occurs when there are leaks from underground storage tanks. The standard practice in the industry is to fix the leak and clean up the contaminated soil and groundwater. California has an aggressive underground storage tanks replacement program. State and Federal statues require that all underground

storage tanks installed before 1984 be removed, replaced, or upgraded to meet current standards by December 22, 1998.

Q: Is there drinking water contamination from MTBE?

A: According to the most recent data supplied by the State Department of Health Services, only 1.3 percent of the 2,638 water sources tested had detected MTBE; however, only 0.2 percent of the samples contained MTBE concentrations greater than 35 parts per billion, which is the current State action level. Three of the samples were from the City of Santa Monica and one was an abandoned well.

Q: What is a safe drinking water level for MTBE?

A: No one should be drinking water that contains MTBE or any other gasoline component. However, EPA is-last advisory recommends that MTBE does not exceed a range of 20 to 40 parts per billion based on the most sensitive human taste or odor perceptions. This is the equivalent to 2 or 3 tablespoons in 150,000 gallons of water (equal to about 6 in ground swimming pools).

Q: Can MTBE cause underground storage tanks to leak?

A: There is no evidence to support that claim. Tank and service station equipment manufacturers are very familiar with gasoline blends containing MTBE. Fiberglass reinforced plastic underground storage tanks for petroleum products are warranted to not leak for a period of 30 years when used with fuels blends with up-to 20 percent MTBE by volume Which is double the amount used in cleaner burning gasoline). In addition, several tests found MTBE-blended gasoline did not impact steel tanks or other metal components in gasoline distribution systems.

Q: Can MTBE in water be remediated?

A: Yes. The same cleanup techniques used to remove gasoline contamination from groundwater can be used with MTBE.

Q: What about reports of surface water containing MTBE?

A: MTBE and other gasoline constituents have been detected in several lakes in California. The primary source of MTBE in these lakes is released from marine engines used for recreational boating, particularly two stroke engines. Scientific studies show that MTBE, like other components in gasoline, will evaporate quickly from the surface water once the source of MTBE has ceased.

[Oxygenated Fuels Association Press Release, February 23, 1998]

OXYGENATED FUELS ASSOCIATION APPLAUDS EAST BAY MUD FOR NEW MARINE ENGINE PURCHASE PLAN; URGES RAPID DEVELOPMENT OF ENVIRONMENTALLY SAFER MARINE ENGINES NATIONWIDE

Arlington, VA.—Charles T. Drevna, Director of Government and Regulatory Affairs for the Oxygenated Fuels Association (OFA), today applauded a decision by the East Bay Municipal Utility District (EBMUD) to spend $420,000 to replace two-stroke marine engines in the agency's municipal watercraft with the less polluting four-stroke variety.

"This is a responsible and effective action taken by a major water authority to protect the regional water quality by limiting the amount of gasoline and oil which would otherwise be discharged into the surface waters," Drevna said. "We also applaud EBMUD for recognizing that the problem of power craft pollution of surface waters is a problem of engine design and inadequate fuel and oil containment, and not a problem of individual components of gasoline, such as the anti-pollutant gasoline additive, MTBE."

Drevna contrasted EBMUD's action with a recent statement by the National Marine Manufacturers Association (NMMA) which attempted to place the blame for polluting two-stroke marine engines on MTBE. Instead of falsely accusing MTBE, the ozone-scrubbing anti-pollution ingredient in cleaner burning gasoline, Drevna urged manufacturers of two-stroke marine engines to rapidly develop and bring to market marine engine systems that are much mote environmentally friendly than many of today's models which discharge 25 to 30 percent of their raw fuel and oil directly into lakes, rivers and streams. Drevna noted, "EBMUD's decision to select the less polluting four-stroke engines for its official watercraft sends an important signal to marine engine manufacturers that polluting two-stroke engines are no longer acceptable on California's water ways."

Drevna added, "It is environmentally unacceptable for manufacturers to design, build and sell two-stroke marine engines, which are often used to power popular personal water craft such as jet skis, that discharge raw, unburned fuel and oil into surface waters as part and parcel of their operational cycle. It is equally unacceptable for the NMMA to try and confuse the issue by suggesting, as it did recently,

that taking MTBE out of gasoline will eliminate the problem of inadequately designed, environmentally incompatible two-stroke engines,'' he added.

''The issue here is not MTBE, or any of the other hundreds of individual components in gasoline. The issue is the routine discharge of what amounts to thousands of gallons of raw fuel every year into America's recreational waters, fuel which includes such components as benzene, a known human carcinogen, and other toxic chemicals such as toluene, ethylbenzene and various xylene compounds, none of which belong in water,'' Drevna explained.

Drevna noted that when MTBE is placed in gasoline to make it burn more cleanly, it replaces some of these toxic compounds in every gallon. ''Still, gasoline, whether it is oxygenated or not, belongs in secure fuel tanks and properly operating engines,'' Drevna said.

Drevna explained that OFA's call for cleaner, more environmentally compatible marine engines is by no means an attempt to prevent or restrict the use of pleasure craft on U.S. lakes and other waterways. ''Recreational users of water craft bought these engines in good faith and they should not be punished,'' he said.

Drevna noted that the U.S. Environmental Protection Agency has called for a 9-year, phased-in improvement of two-stroke marine engines. He also noted that some manufacturers are also advocating an accelerated timeframe in California to design and develop less polluting engines a position OFA strongly supports.

Without the accelerated improvement of these engines, estimates are that it will take to the year 2025 to replace approximately 75 percent of the marine engines with the newer, less polluting engines. But Drevna said the timetable was inadequate to protect America's surface waters.

''Today's call by OFA is for marine engine manufacturers to begin immediate phaseout of the current two-stroke engine technology, not only in California, but throughout the nation, and to bring to market more environmentally responsible engines as rapidly as possible,'' Drevna concluded.

[Oxygenated Fuels Association Press Release, March 12, 1998]

SACRAMENTO AREA MEETS FEDERAL CO STANDARD

CLEAN FUELS GROUP HAILS AIR QUALITY IN 10 CALIFORNIA CITIES

Arlington, VA.—Charles T. Drevna, Director of Government and Regulatory Affairs for the Oxygenated Fuels Association (OFA), today hailed Sacramento for meeting the Federal clean air health standard for carbon monoxide (CO). Noting that most CO pollution comes from cars and trucks, Drevna attributed most of the region's improved air quality to the use of cleaner-burning reformulated gasoline with anti-smog ingredients like MTBE (Methyl tertiary Butyl Ether) and improved automotive emissions technology.

The Sacramento area is one of 10 urban regions throughout California using the more environmentally friendly oxygenated fuels which were notified by the U.S. EPA that they had come into compliance with the national nine parts per million (ppm) CO standard.

''Thanks to California's specially formulated 'green' fuel, the citizens of Sacramento are able to enjoy cleaner, healthier air,'' Drevna said. He added, ''Sacramento's achievement is all the more impressive because, like all of California, the citizens of Sacramento are driving more cars, more miles than ever before.''

In 1996, according to the latest available statistics from the U.S. Department of Transportation, drivers in the Sacramento area collectively drove a total of some 26.6 million miles each and every day during the year. ''Despite such impressive levels of vehicle use, which has almost surely increased since 1996, the residents of Sacramento have been able to meet this tough Federal anti-pollution standard,'' Drevna noted. ''It's simply a case of having your car, and being able to drive it too,'' Drevna said, adding, ''The icing on this particular cake is the clean fuel which allows for geometric increases in driving levels while providing for decreased levels of pollution.''

Drevna said CO is produced when fuel is burned inefficiently, and can be a problem in colder weather when air is heavier and harder to mix with fuel. ''By adding an oxygenate like MTBE to gasoline, the fuel is able to combust more completely even in colder temperatures, thereby reducing tailpipe pollutants like CO,'' Drevna said. He said that CO pollution can be a special problem for young children, senior citizens, pregnant women and individuals suffering from asthma and related problems.

In addition to Sacramento, the other nine urban areas in California now meeting the U.S. EPA's CO standard are: Bakersfield, Chico, Fresno, Lake Tahoe North Shore, Lake Tahoe South Shore, Modesto, San Diego, San Francisco and Stockton.

[Oxygenated Fuels Association Press Release, April 15, 1998]

OXGENATES INDUSTRY RESPONDS TO TOSCO'S ETHANOL PILOT PROGRAM

Arlington, VA.—"Tosco's announcement today that it will institute a 6-month pilot program substituting ethanol for MTBE at 50 "76" branded gasoline stations in three California counties is flawed in one major aspect—it needlessly and incorrectly denigrates MTBE, the preferred anti-pollution ingredient used in over 80 percent of California's cleaner burning gasoline." So said Charles T. Drevna, Director of Government and Regulatory Affairs for the Oxygenated Fuels Association (OFA) today in response to the Tosco announcement.

"Tosco, and every other oil refiner in California, has always had the freedom of choice to choose what ever oxygenate they feel can best meet the State's cleaner burning gasoline specifications," Drevna explained. He added that refiners around the country routinely determine which oxygenate best suits their individual refinery configurations based upon prevailing market forces and logistics. Such decisions are made without public fanfare, Drevna said, adding, "Unfortunately, Tosco's announcement seems to be designed more as an exercise in public relations rather than a serious attempt to test a true substitute oxygenate that can work for the entire State."

Drevna pointed out that there is not enough ethanol available to replace MTBE in California's 900,000 barrel-a-day demand for cleaner burning gasoline. "To suggest that this pilot program, limited to 50 stations in Marin, Sonoma and Contra Costa counties, can eventually translate into a State-wide program is not credible," Drevna said.

In addition, Drevna noted that the water contamination problem mentioned by Tosco will not be solved by using ethanol as opposed to MTBE. "Neither MTBE, nor ethanol, nor any of the hundreds of other components of gasoline, should be leaking into groundwater from old, corroding underground tanks," Drevna said. He added. "We need to replace these tanks with modern systems that prevent leaks. That way, we can continue to have the clean air that oxygenated fuels provide, while ensuring that water quality is not degraded by gasoline leaks."

[Oxygenated Fuels Association Press Release, April 15, 1998]

OXGENATES INDUSTRY RESPONDS TO SIERRA CLUB CALL FOR WATER QUALITY INVESTIGATION IN CALIFORNIA

Arlington, VA.—Charles T. Drevna, Director of Government and Regulatory Affairs for the Oxygenated Fuels Association (OFA), today strongly took issue with a Sierra Club press statement that appeared to single out MTBE for the State's water pollution problems. In addition, Drevna said that calling for an Auditor General's investigation of the State's water regulatory agencies for alleged failure to protect the State's drinking water supplies is unnecessary and counterproductive.

"While we applaud the Sierra Club and other environmental interests for the concerns regarding California's water quality, singling out MTBE as a primary pollutant is both irresponsible and incorrect," Drevna said. He added that leaking underground gasoline tanks are responsible for discharging raw gasoline into shallow underground aquifers, and that MTBE is one of hundreds of chemical constituents in gasoline, including the more dangerous benzene, toluene, xylene and ethyl benzene, that sometimes end up in ground water.

But, Drevna noted, "MTBE groundwater contamination in California is isolated and limited and, except in a couple of well-publicized cases, far below any levels which would impact human health or the environment."

Drevna also took exception to comments that MTBE was ". . . very expensive and difficult to remove from water. The fact is MTBE can be safely and effectively removed from groundwater with existing technology. In fact, MTBE has been in use for many years, both as an octane enhancer to replace lead and as a pollution fighting ingredient, and conventional remediation technologies have proven to be technologically and economically feasible."

Drevna added, "We believe that the regulatory agencies in California with responsibilities for ensuring water quality have done, and are continuing to do, a good job in protecting the State's drinking water supplies."

"We agree that more money is needed to help ensure compliance with tough Federal and State rules which require better underground storage tank integrity, site monitoring and product handling. We also agree that smaller gasoline retailers are in danger of economic extinction if they do not get help to replace their leaking tanks."

"But, the bottom line is clear," Drevna continued, "cleaner burning gasoline with MTBE is cleaning up California's air. The State now enjoys the best air quality it has seen in 50 years. With the continued vigilance of the State's water agencies, and adequate funding, we also believe that California's water quality is also improving dramatically. Californians don't have to make a Hobson's choice between clean air or clean water. They can have both; they deserve to have both."

[Oxygenated Fuels Association Press Release, March 12, 1998]

STUDY FINDS MTBE WILL DISSIPATE RELATIVELY QUICKLY FROM CALIFORNIA SURFACE WATERS DUE TO COMMON LAKE AND ENVIRONMENTAL CONDITIONS

Arlington, VA.—A California consulting firm has recently published a technical report that shows that concentrations of MTBE in standing water bodies will usually diminish quickly under common lake and environmental conditions once the source of MTBE has ceased. The report states, "The rate of MTBE removal is faster than many other oxygenates (e.g. ethanol and TEA) and is similar to certain other gasoline components, namely benzene."

"As a result of the latest research, we now better understand that the disappearance of MTBE and other fuel constituents in surface waters is due to volatilization and not lake mixing," said John Kneiss, Director of Health and Product Stewardship for the Oxygenated Fuels Association (OFA). "Furthermore, MTBE is not likely to accumulate, and thus will not pose a significant threat to water quality in California's surface waters," Kneiss added.

MTBE and other gasoline constituents have been detected in several lakes in California. The primary source of MTBE in these lakes is releases from motorized recreational boating, particularly those equipped with two-stroke engines.

The report prepared by Malcolm Pirnie, Inc., of Oakland, California, presents a scientific model that predicts the rate of disappearance of MTBE and other fuel components in most typical lake and reservoir conditions once the source of MTBE has been terminated.

Charles T. Drevna, Director of Government and Regulatory Affairs for OFA, noted, "Many of today's two-stroke engines discharge 25 to 30 percent of their raw fuel and oil directly into lakes, rivers and streams. MTBE, or any of the other hundreds of individual components in gasoline, which include benzene, a known human carcinogen, and other toxic chemicals, belong in the marine engine, not in drinking water sources."

According to the Malcolm Pirnie study, the concentrations of MTBE in lakes and reservoirs in California will decrease rapidly following cessation of recreational boating. This model can be an effective tool in determining an appropriate recreational boating period. A termination date could be established at a point in time to permit sufficient volatilization of MTBE and other gasoline components, thus helping to ensure satisfactory water quality at the intake of a surface water treatment plant.

MTBE, methyl tertiary butyl ether, is used as a component of cleaner burning gasoline. According to the California Air Resources Board, cleaner burning gasoline with MTBE reduces lung-damaging ozone and ozone precursors by 3 million pounds per day, including carbon monoxide by 2.6 million pounds. This is equivalent to removing 3.5 million cars from the road.

Engineers in the Oakland office of Malcolm Pirnie, a national environmental consulting firm, conducted the research which was commissioned and supported by OFA. Malcolm Pirnie, Inc. is a consulting firm devoted principally to solving environmental problems. It provides a comprehensive array of services to both industry and governmental agencies relating to drinking water, air and water pollution control, solid/hazardous waste management, and environmental management/restoration.

[Oxygenated Fuels Association Press Release, March 12, 1998]

OFA TESTIFIES AGAINST BILBRAY BILL IN CONGRESSIONAL TESTIMONY; WARNS STATE EXEMPTION FROM FEDERAL CLEAN FUELS STANDARDS WILL DEGRADE CALIFORNIA'S AIR QUALITY GAINS

Arlington, VA.—The Oxygenated Fuels Association (OFA) told a congressional panel today that a bill exempting many of California's major metropolitan areas from having to comply with Federal cleaner burning gasoline regulations would turn back the clock on California's highly successful clean fuel's program and re-introduce dirtier gasoline and dirtier air to the State.

Speaking on behalf of OFA, Marvin Schlanger, Executive Vice President and Chief Operating Officer of ARCO Chemical Company, told members of the Health and Environmental Subcommittee of the House Commerce Committee, "we oppose this legislation."

Schlanger explained, "The main outcome of this bill would be to allow the major oil companies to circumvent the Federal specification for using oxygenates under the guise of more flexibility."

Schlanger added, "Though this bill argues for flexibility, it is not for flexibility to make cleaner fuels. It only provides the flexibility to make dirtier fuels and there are not enough safeguards in the California Air Resources Board (CARB) Cleaner Burning Gasoline (CBG) regulations to prevent this from happening."

The bill in question, H.R. 630, was introduced in the House by Representative Brian Bilbray (D-CA) on February 6, 1998. It would amend the 1990 Clean Air Act Amendments to allow California to drop the oxygen standard in cleaner burning fuel used in the State's Federal nonattainment areas of Greater Los Angeles, San Diego, San Francisco, Sacramento and surrounding vicinities.

Schlanger said the bill would undermine the 1990 Clean Air Act and set a negative national precedent by encouraging additional States to opt out of the Federal clean fuels program. Schlanger noted that if the Bilbray bill passes, the only identifiable beneficiaries would be large gasoline refiners who will undoubtedly attempt to duplicate their California success by attacking the reformulated fuel programs in other States.

Currently, 18 States plus the District of Columbia use cleaner burning gasoline either State-wide or in major metropolitan regions within the States. Approximately one-third of all gasoline used in the U.S. is reformulated gasoline with oxygenates, and about 80 percent of this clean gasoline pool uses MTBE as the oxygenate of choice.

Schlanger added that oxygenates, like MTBE, are an integral component of cleaner burning gasoline. "MTBE not only helps reduce tonics and ozone related emissions from reformulated gasolines, but in addition has contributed to lower emissions of many criteria pollutants such as carbon monoxide, nitrogen dioxide, sulfur oxides, fine particulates, lead, and also carbon dioxide, a greenhouse gas," Schlanger said. He noted that many of these environmental benefits could not be duplicated without using oxygenates like MTBE.

Schlanger emphasized a series of major points to Members of the Subcommittee during his testimony, as follows:

- Oxygenates are not new or unfamiliar compounds in gasoline. Oxygenates have been widely used in the U.S. for nearly 30 years, and MTBE has been used in gasoline for 20 years.
- MTBE in particular has been extensively studied for its impact on vehicle performance, health effects, and air quality benefits. These studies conclude that MTBE is effective and safe when used as intended in gasoline.
- None of the hundreds of constituent components in gasoline, including MTBE, belong in ground or surface waters. If they are detected, it is the result of leaking underground storage tanks or pipelines.
- Neither MTBE nor any other oxygenate causes underground storage tank leaks. Reducing the amount of oxygenates in California's gasoline will not reduce the number of future tank leaks, or solve any of the related liability issues. Use of more sophisticated leak monitoring and detection methods is a better solution for controlling liability and potential contamination of groundwater.
- Reducing the oxygenate content in California's gasoline will result in increased pollution from older vehicles, as well as increased emissions from non-automotive engines that power lawn mowers, leaf blowers, farm equipments and related machines. Such non-automotive engines contribute up to 10 percent of volatile organic compound (VOC) emissions nationwide.

Finally, in concluding his testimony, Schlanger told the Subcommittee that the Bilbray bill provides no additional benefit to cleaning the nation's air, and should

not be allowed to take up anymore of Congress' valuable time. "We should not be amending the Clean Air Act for the economic benefit of a few companies," Schlanger said.

He added, "Cleaner burning gasoline with MTBE is cleaning up California's air. The State now enjoys the best air quality it has seen for 50 years. American's don't have to make a choice between clean air or clean water. We can have both we deserve both."

AMERICAN LUNG ASSOCIATION—NATURAL RESOURCES DEFENSE COUNCIL,
April 29, 1998.

HONORABLE MICHAEL BILIRAKIS,
Chairman, Subcommittee on Health and Environment,
House Commerce Committee,
U.S. House of Representatives,
Washington, DC 20515.

Dear Chairman Blirakis: On behalf of the public health and environmental organizations who have been most involved in the implementation of the reformulated gasoline program, we are writing to oppose passage of H.R. 630. We oppose this bill because any alleged benefits gained by its enactment are far outweighed by the risk of subjecting one of the most successful programs enacted in the Clean Air Act Amendments to potential amendments that could greatly reduce or eliminate its effectiveness. We do not see any significant detrimental environmental effects from the current version of the bill because it applies only in California which requires gasoline to be cleaner than Federal RFG. However, we believe that if Congress considers H.R. 630 or any other bill to amend the Clean Air Act, a number of environmentally damaging amendments may be offered and adopted.

Preliminary data indicates that the use of reformulated gasoline is significantly lowering ambient levels of ozone and toxic air pollution. The California Air Resource Board estimates that its Cal Reform II was the principal program responsible for an 18-percent reduction of ozone in Los Angeles and a 10 percent reduction in San Francisco during 1997. Ambient levels of benzene, a known carcinogen, are 55 percent lower in Los Angeles. While not as dramatic, cities using Federal RFG arc reporting lower ambient ozone and toxics levels. These benefits should grow as Phase II Federal RFG (similar to Cal Defoe II) is used in these cities beaming in the year 2000.

There is no present need for Congressional action to modify the RFG program. Congress will have an opportunity to review the HAG program along with all the other air pollution reduction programs when it next reauthorizes the Clean Air Act. Indeed, reauthorization may begin next year. Until then, we urge that Congress let the implementation of this program proceed without disruption in order to reduce air pollution and protect public health and the environment.

We are concerned that reformulated gasoline constituents, including but not limited to MTBE, have been detected in water. Especially in shallow groundwater aquifers, there is evidence that MTBE and other gasoline constituents are leaching through soil and contaminating water supplies. The best evidence we have seen does not suggest that MTBE poses a unique or greater health risk distinct from that posed by other gasoline constituents. Nevertheless, gasoline is a dangerous substance. It is clear is that a more aggressive effort to reduce or eliminate the leakage of all gasoline and its constituents is needed, not only in California but nationwide.

Much needed research on this and other potential health risks posed by human exposure to MTBE is befog pursued intensively in California and elsewhere Congress would greatly benefit from waiting for the results of this research before undertaking amendments to the reformulated gasoline provisions of the Clean Air Act.

We ask that this letter be included the record accompanying the hearing held on H.R. 630 on April 22.

Sincerely,

FRAN DILLS, *Deputy Managing Director,*
American Lung Association.

JANET S. HATHAWAY, *Senior Attorney,*
Natural Resources Defense Council.

MEMBER COMPANIES OF THE OXYGENATED FUELS ASSOCIATION

Arco Chemical Company

Belvieu Environmental Fuels, Inc.
CDTECH (Catalytic Distillation Technologies)
Coastal Refining & Marketing
ECOFUEL, S.P.A.
Enron Clean Fuels Company
Huntsman Corporation
Methanex Incorporated
Neste Oy
Qatar Fuel Additives Company Limited
Sabic Americas, Incorporated
Texaco Refining & Marketing
Texas Petrochemicals Corporation
United Catalysts, Incorporated
Valero Marketing and Supply Company

[Oxygenated Fuels Association Press Release, July 22, 1998]

CLEAN FUELS GROUP CONDUCTS COMPREHENSIVE ODOR TESTING FOR MTBE IN DRINKING WATER

Arlington, VA.—The Oxygenated Fuels Association (OFA) today released the results of the most comprehensive "chemical aesthetics" test to date on the ozone fighting gasoline component, Methyl-tertiary Butyl Ether (MTBE) to help ensure California's drinking water quality and potability. MTBE is a major ingredient in California's cleaner burning gasoline, which has dramatically improved air quality throughout the State.

The study probed the individual abilities of a wide range of consumers to detect MTBE in drinking water, using one of the most sensitive of human senses, the sense of smell. The intention of this study was to collect reproducible, reliable and useful data using an accepted protocol which was subjected to scrutiny by an independent Expert Advisory Panel. Continents on the protocol were solicited from California's Department of Health Services (DHS) and the Association of California Water Agencies (ACWA).

"With data collected from the largest number of subjects ever used for this kind of MTBE testing, the results showed that the average perception of test participants to deflect MTBE in drinking water was at concentrations of I 5 parts per billion (ppb)," said John Kneiss, Director of Health Sciences and Product Stewardship for OFA. Kneiss said that, based on the test results, OPA supports setting a secondary (aesthetic) State standard for MTBE in drinking water at no lower than the 15 ppb level.

"Such a secondary standard fully equates with the sensory range of other aesthetic evaluations of MTBE in drinking water," Kneiss noted. He added that the 15 ppb level would "shield more than 95 percent of the consuming population from threshold perceptions of MTBE in water and would be consistent with the standard settings rational used by the State of California and the U.S. Environmental Protection Agency for other constituents in water."

The study design for the comprehensive test was developed by Malcolm Pirnie, Inc., a California-based national environmental consulting firm. The test itself was recently conducted by National Food Laboratory, located in Dublin, California.

Previous studies to evaluate the aesthetic properties of MTBE used a smaller number of "professional" panelists and had protocol limitations that impacted test results. This new study followed the established American Society for Testing and Materials (ASTM) protocol for evaluations by a substantially larger panel of non-professional test subjects (in this case, 57 consumers). In addition, to maximize panelist responses, odor-free bottled water from a commercial supplier was used for the testing procedure.

Finally, the protocol, the testing procedures, and the interpretation of the study's results were subjected to review by an Expert Advisory Panel, consisting of Dr. Richard Berk of the University of California, Los Angeles (UCLA), Dr. Mel Suffet, also of UCLA, and Dr. Mike McGuire, of McGuire Environmental Consultants.

The test procedures called for each consumer "panelist" to sniff three separate, odor-neutral plastic cups of water and to identify which one contained a concentration of MTBE. In this study, the sample that smelled "different from the other two samples" was declared the sample containing MTBE. If the consumer was unable

to detect any difference in odor, they were asked to guess which cup contained the MTBE.

In addition to standard statistical analysis, a more rigorous assessment of the test results, conducted by Dr. Bak, took into consideration the possibility of incorrectly Messing which cup contained MTBE, as well as any incorrect identification of a cup containing the bottled water as having MTBE in it. When the statistical analysis of such human errors were calculated, using the more rigorous methodologies, the analysis showed that the concentration at which 5 percent or less of the population might detect the presence of MTBE in water would be no lower than 22 ppb.

Based on the overall evaluation of the testing and statistical analysis, the expert panel concluded that the more conservative, direct results of the odor test data (i.e., the 15 ppb detection) should be used in setting a secondary standard that Filly maintains water quality for the consuming population.

A copy of the MTBE odor study is available by calling Carolyn Anderson at OFN at 703–841–7100. Fax requests can be sent to 703–841–7720 A comprehensive summary of the study can also be downloaded from OFA's web site at www.ofa.net.

STATEMENT OF TOSCO CORPORATION

Mr. Chairman and members of the committee: This statement is submitted on behalf of Tosco Corporation in support of the bipartisan bills sponsored by Senator Feinstein (S. 1576) and Congressman Bilbray (H.R. 630). The bills will allow California cleaner burning gasoline ("CARB Gasoline") to satisfy Federal reformulated gasoline ("RFG") requirements in California, so long as CARB Gasoline provides emission reductions at least equivalent to Federal RFG. These bills provide a critically important opportunity to preserve the air quality benefits of the Federal and State RFG programs while safeguarding California's drinking water supplies.

Tosco is one of the largest refiners and marketers of gasoline in California. We operate three refineries in California, which produce significant amounts of CARB Gasoline. We market CARB gasoline through our network of 1,600 retail outlets in the State which sell under our Union 76, Circle K and BP brands.

Our company has taken the lead in calling for reduced use of MTBE in California. In October 1997, we directed a letter to the California Air Resources Board (CARB) expressing our concern about potential MTBE contamination of drinking water. Our letter urged adoption of the Feinstein-Bilbray legislation as "a good first step" which would provide the flexibility refiners need to begin shifting away from MTBE.

As a refiner serving the California market, we find ourselves in a "catch 22" situation where the Federal RFG requirements and the shared gasoline distribution system operate to effectively leave us no choice but to use MTBE to meet the clean fuel standards in California. Passage of the Feinstein-Bilbray legislation would eliminate the Federal year-round oxygenate mandate in California and enable us to meet California's stringent fuel standards with less oxygenate, no oxygenate, or with other oxygenates, such as ethanol.

Tosco strongly believes that Congress has the opportunity, by enacting the Feinstein-Bilbray legislation, to facilitate an immediate reduction in MTBE use in California without any adverse effect on the air quality goals of the Federal RFG program. In this regard, we can assure this committee that, if the present bill becomes law, our company will immediately take appropriate steps to phaseout the use of MTBE in California.

Health impacts aside, MTBE has a low odor and taste threshold which will make drinking water unacceptable to the consumer. And since oxygenates are not necessary to produce clean gasoline, we do not see the logic in continuing to mandate their use on a year-round basis. The mandate is especially anomalous in the face of the potential threat to drinking water supplies posed by MTBE.

Passage of the Feinstein-Bilbray legislation will neither mandate nor ban the use of MTBE in California. By removing the current oxygen mandate, the legislation will simply allow California refiners to use lesser amounts of oxygenates or no oxygenates at all. Under California's performance-based standards, the air quality benefits of the Federal and State RFG programs will be maintained.

In addition, we believe ethanol can play an important role in replacing MTBE in California. In April of this year, Tosco initiated a pilot program to substitute ethanol for MTBE in gasoline sold at about 50 of our Union 76 retail outlets in Northern California. Although this represents a small portion of our California fuel sales, the pilot program has demonstrated that CARB gasoline can be produced using ethanol in place of MTBE. We have received very positive consumer response to this program and we hope to be able to extend the pilot program beyond its initial 6-month duration.

Because gasoline blended with MTBE dominates California's shared pipeline distribution system, it is currently not feasible to produce and distribute commercial scale volumes of base gasoline suitable for blending with ethanol. To the extent that the refining industry's dependence on MTBE is reduced by enactment of Feinstein-Bilbray, a parallel distribution system could evolve for handling base gasoline for ethanol blending. This option could prove to be particularly feasible in CO nonattainment areas, primarily in Southern California, where oxygenated gasoline will continue to be required during the winter season.

Finally, I want to assure the committee that Tosco stands ready to work with Congress, and with Federal and State regulators, on measures to protect both air quality and water quality. Tosco has made a substantial financial investment in equipment to produce CARB gasoline. We are proud of our role in helping to improve air quality in California, and we are confident that, with the passage of Feinstein-Bilbray, we will be able to help reduce the risk of water contamination from MTBE in gasoline.