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January 22, 1971

SUBJECT: BULLETIN NO. 13 ⁷⁰² LEAD IN GASOLINE AND OTHER ITEMS
RELATING TO ENVIRONMENT

TO: ALL MEMBERS OF THE LEAD INDUSTRIES ASSOCIATION

Gentlemen:

Bulletin No. 12 was mailed to you on October 6. The situation as concerns lead in gasoline has slid essentially sideways though not for the better during the intervening period. There has been a substantial amount of activity in which the Association has been involved, but it has resulted more in developments of older programs and legislation than in new approaches.

This topical report is intended to bring you up-to-date. Items are presented by basic classification rather than chronologically.

NATIONAL

A. Clean Air Amendments of 1970 -

Committees of the two houses of congress met and reached a compromise agreement on the House and Senate bills previously passed, which more favors the Senate version (Muskie's) than that from the House. As a result, the Clean Air Amendments of 1970 were signed by President Nixon in mid-December and ordered printed December 17, 1970. Note: The official document has the identification "Report No. 91-1783". It appears to this writer that Section 211 - Regulation of Fuels - starting on page 24 is that section of primary interest involving lead. The bill does not mention lead. It does, however, grant to the "administrator" powers to regulate the manufacture and sale of additives under the following qualifications:

a) If any emission products of such fuel, or fuel additives, are endangering the public health or welfare, or,

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b) If emission products of such fuel, or fuel additive, will impair to a significant degree the performance of any emission control device or system which is in general use, or which the Administrator finds has been developed to a point that within a reasonable time it would be in general use were such regulation to be promulgated.

c) The bill provides that the Administrator before controlling or prohibiting the additive, must consider "all relevant medical and scientific evidence available to him, including consideration of other technologically or economically feasible means of achieving emission standards".

d) The manufacture of additives can, within 10 days of any regulation by the Administrator, require public hearings and,

e) The Administrator may not act if another fuel or fuel additive, to replace that in question, will produce emission which will endanger the public health and welfare to the same or greater degree than the use of fuel or fuel additives proposed to be prohibited.

f) The Clean Air Amendments would seem to preclude action by individual States (or political subdivisions thereof) along the line of prohibiting fuel additives unless earlier action has granted such authority to a State or subdivision thereof. Note: This latter condition would seem to leave California free to act as it wishes. There is certainly doubt as to what new actions can be taken, and quite possibly some actions (as in Buffalo, later described) may have to be rescinded.

If this general interpretation of the Clean Air Amendments of 1970 as concerns additives is correct, it clearly indicates a greater significance for the various approaches and documents being prepared by the National Air Pollution Control Administration. As an example, a Lead Liaison Committee working with NAPCA has recently reviewed (with the Government) a very damaging document aimed at establishing criteria for lead as related to health and safety. The Lead Liaison Committee includes members from the TEL industry, the LIA, ILZRO and lead producers. This committee is well aware of the importance of its assignment and is protesting the issuance of the forthcoming document without a third review. This aspect of activity will be followed as diligently and as aggressively as practical.

B. Environmental Protection Agency -

Earlier, considerations of Governmental action to establish the fate of lead additives in gasoline were slated to be under the jurisdiction of the Department of Health, Education and Welfare. A new agency known as the Environmental Protection Agency has been created under the direction of Mr. W.D. Ruckelshaus. Apparently the information and proposed regulations being prepared by HEW will now be under the jurisdiction of EPA. The Administrator referred to in the first item of this report will be an EPA man - undoubtedly Mr. Ruckelshaus.

STATES

A. California -

1. The California Air Resources Board held hearings on November 9 and November 10, 1970, and shortly thereafter adopted an extremely tight Air Quality Standard which limits lead in the ambient atmosphere to 1-1/2 micrograms per cubic meter. It was announced (in the press) that it might take as much as 15 years to implement this standard and in November specific proposals for implementation did not exist. Dr. J.F. Cole of ILZRO testified at these hearings.

2. On November 24, in California, the Transportation Committee of the California House held hearings under the jurisdiction of Representative Schabarum. Neither LIA nor ILZRO testified at this hearing for it was a follow-up on the earlier sessions. Lead's interests were covered by Mr. Howard Hesselberg, of the Ethyl Corporation.

3. The Environmental Defense Fund, with the Sierra Club and Friends of the Earth, have petitioned the Air Resources Board to consider an even more drastic action. Hearings will be held in Los Angeles on January 20 on a proposal that no new Californian registered and operated car shall exhaust more than 0.0 grams of lead per mile. Note: 0.0 grams per mile has been reported as meaning "no lead" in gasoline. From a basic specification point of view it is this writer's impression that 0.0 grams per mile means not more than 0.04999 grams per mile. We have been told that those pressing for the restriction, interpret the number as meaning essentially no lead. The topic may be one for debate. DuPont and Ethyl, among others, are testifying in California on January 20. The debate must be of necessity extremely technical on an engineering basis and it is felt that neither LIA nor ILZRO can reasonably contribute. Note: As of January 21 we learned that this matter has been deferred by the ARB.

4. In late September, the California legislation passed (and Gov. Reagan signed) Assembly Bill No. 919. This Bill covers older vehicle registration in California and says in effect that any vehicle with an engine compression ratio between 8.5 to 1 and 9 to 1 shall pay an extra \$50 per annum and further, that engines with a compression ratio over 9 to 1 shall pay \$100 extra per year.

5. Similarly Bill No. 1174 was passed and signed by Gov. Reagan which prohibits sale of cars - starting with 1972 models - if such cars require higher than 91 octane gasoline.

B. Arizona -

On November 20 the Arizona State Board of Health held hearings in Phoenix on the overall question. At the outset the hearings chairman announced that Arizona did not propose any legislation at this time but was asking for general information on the overall problem.

DuPont, Ethyl and this writer testified on behalf of lead's continuation. Numerous refinery company representatives also testified - more moderately than we have heard them in other cases. The automobile industry was represented by a western engineer of General Motors.

By-and-large, the Arizona hearings were quite reasonable. There were no spokesman for the Citizens environmental groups though there were some engineering professors who spoke strongly against lead.

It is not known what may next be expected from Arizona.

A copy of my testimony at Phoenix is attached.

CITIES

A. Buffalo - On December 21 the City of Buffalo, N.Y. passed an ordinance, with the following restrictions:

1. Each service station shall have at least one pump to furnish 1/2 gram maximum of lead per gallon as of September 1971.
2. No gasoline with more than 1/2 gram per gallon shall be sold after January 1, 1976 and,
3. No gasoline containing any lead shall be sold after January 1, 1980.

B. Dallas -

The City of Dallas is holding hearings on February 8 on a bill which is intended to duplicate Buffalo's.

C. New York City -

The New York City Council will hold hearings on potential New York action January 27, 1971.

Note: In view of the apparent limitations of the Federal Clean Air Amendments of 1970, it is not known whether such city restrictions and ordinances as described can be made legal.

It is quite likely this writer will testify at Dallas if hearings are actually held. I will testify before the New York City Council and will report to you later on what may develop.

GENERAL -

A) We recommend for your reading an article in the January issue of FORTUNE magazine, "Metallic Menaces in the Environment". This is a damaging article suggesting flatly that lead is going to be phased out of gasoline. It has been

very carefully prepared and there are few points which can be clearly knocked down. It is this writer's opinion that the article is unfair, more because of what it does not say than because of what it does say. We know of rebuttals being prepared, including our own. Primarily these rebuttals will take the form of letters to the editor of FORTUNE.

B) Mutual Broadcasting Radio - interview through arrangements made by Hill & Knowlton.

The Mutual Broadcasting Company will shortly embark on a series of 13 one-half hours broadcasts on environmental issues. Dr. Cole of ILZRO and the writer were interviewed on January 14. We covered "lead in gasoline" from the industry's point of view. The questions presented by the interviewer, Mr. Bill Bertenshaw, had been cooperatively arranged and though the general atmosphere was very informal, I believe the presentation will be worthwhile. We have been promised at least one week's notice as to the broadcasting time throughout the country and will advise you as much in advance as we can.

The balance of this report is concerned with other than lead in gasoline.

A) Lead-based Paint Poison Prevention Act (HR 19172) has been passed and was signed by the President the week of January 11. This bill says in effect that paints containing more than 1% lead shall not be used on interiors, nor on exterior surfaces such as porch railings, window sills or other surfaces which can be chewed upon by children. LIA worked with the National Paint, Varnish and Lacquer Association during the time of hearings on this bill. The writer supported the position taken by NPVLA by telegram to the members of the congressional committee involved, with many acknowledgements received.

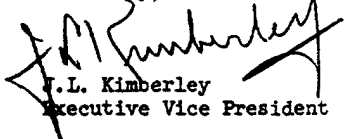
The bill is not ideal but neither is it as drastic as some versions given serious consideration would have been.

B) - Federal Water Quality Act - By mail of the week of January 11, U.S. members have had information from LIA on coming action as concerns plant water effluents. We must take this opportunity to emphasize that your company's cooperation in the development of effluent standards can be of great importance

CONCLUSION - If these thumbnail sketches of recent action prompt questions, do not hesitate to let me have them.

JLK/gt
Attach.

Sincerely,


J.L. Kimberley
Executive Vice President

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STATEMENT ON LEAD ADDITIVES

IN GASOLINE

PRESENTED BY

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BEFORE

The Arizona State Board of Health
Phoenix, Arizona

November 20, 1970

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My name is John L. Kimberley. I am executive vice president of Lead Industries Association, Inc., and am here today on behalf of LIA's 60 member companies engaged in the mining, production, manufacturing and fabrication of lead and lead products.

I wish to thank you for this opportunity to outline some of the values of lead in gasoline, evidence demonstrating the absence of deleterious health effects from automotive lead emissions, and even some of the problems which might well arise on lead's removal from gasoline.

We, too, believe in your objective. The people must be protected -- even at a loss to their pocketbooks -- but we believe the removal of lead from gasoline is a step in the wrong direction.

In the understandable and commendable drive to clean up our air, simple panaceas have been advanced where only complexity exists.

In the absence of proper knowledge and with the emotional and political pressures which have been applied, a considerable momentum has developed behind the catch-phrase "get the lead out" of gasoline, even though there is little evidence that such action would bring positive benefits and much evidence that the action could have adverse effects.

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Since their introduction in 1923, lead additives in gasoline have provided anti-knock qualities that make fuels smoother burning, more efficient, and less damaging to engines. They have made possible more powerful gasoline at lower refining costs and greater conservation of raw petroleum reserves than would otherwise have been possible.

The lead industry of the U.S. has an obvious interest in getting the facts and in helping to resolve this complex problem. We are talking about 20 percent of lead's total market. That's why I was authorized earlier this year to make an intensive investigation of all aspects of the developing problem and to represent the industry through the Lead Industries Association before those federal, state and community bodies considering the lead additives question.

LIA has taken a strong stand against proposals for the arbitrary elimination of lead additives from gasoline, based on its knowledge of 43 years of industry concern, research and general evidence. At the same time, we have consistently taken the position that efforts to reduce potentially hazardous emissions from automobile engines should include intensified research and further development of existing and potential means for reducing exhausted lead, which constitutes about one-third of 1 percent of total auto emissions.

We believe our position is fully supported by the following basic facts:

1. No data has been advanced to show that the amounts of lead exhausted from automobiles pose a health hazard, now or foreseeably.

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2. Much evidence, including that from federal research (U.S. Bureau of Mines), indicates that pollution problems could actually be increased if lead were to be eliminated from gasoline under current conditions, because of the probability of increased emissions of so-called aromatic compounds, known to contribute to smog and eye irritation and some considered carcinogenic.

3. Elimination of lead from gasoline and the maintenance of today's gasoline quality would involve massive expenditures by oil companies, auto companies and the public. These without assurance that there will be significant benefits in eliminating the carbon monoxides, unburned hydrocarbons and nitrogen oxides that constitute the major noxious automobile exhaust pollutants.

4. Pollution control systems for automobiles that work with leaded gasolines have been developed and demonstrated.

The drive for non-leaded gasoline is based heavily on the automotive industry's assumption that control systems (involving catalysts) are to be preferred and would work better and be longer-lasting with non-leaded gasolines. However, to this point there has been no assurance that this assumption is correct or that systems to work with non-leaded gasoline are anywhere near ready to be put on new model cars.

I should like to elaborate on these four points.

First, there have been a number of studies on the health effects of lead in the atmosphere since the mid-1920's and none have shown a danger to national health from lead in the atmosphere -- no matter what its source. There are no studies known to or studied by us that would alter the conclusions of those reports.

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These have included: U.S. Surgeon General (1926 and 1959); data without comment from the National Air Sampling Network (starting 1957); World Health Organization (1965); U.S. Public Health Service (1965); American Medical Association (1966), and the American Industrial Hygiene Association (1969).

The World Health Organization, U.S. Public Health Service and American Medical Association have come to the conclusion -- there is not now nor is there foreseen a threat to health from lead as from automotive emissions. The other studies to which I have referred have indicated no health hazard existed.

Time does not permit a reading of the various conclusions stated in the reports from the organizations cited, but they are to be found in an LIA Bulletin, "Facts About Lead and the Atmosphere" which is attached.

All this notwithstanding, the lead industry and additive manufacturers are continuing their research and surveillance of lead in the atmosphere.

In many such hearings as this, during 1970, I have heard the statement that "the burden of proof rests with industry." Repetitively I emphasize that the industry recognized this need 43 years ago, and that lead in the atmosphere has been researched with this need in mind since the introduction of gasoline additives. Our opponents -- pay no attention -- offer theory and fear in contradiction. One fine example of a fallacious approach to the claim that atmospheric lead is hazardous is to be seen in a report of research carried out by Dr. Henry A. Schroeder of Dartmouth Medical School. I can't say whether the news media or Dr. Schroeder has perpetuated this questionable data, but Schroeder's work was the basis for a statement which appeared in a New York Times editorial dated September 14.

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"When fed to test animals, lead in amounts which are now taken in by most human beings has reduced life spans by 20 percent, and increased infant mortality rates, sterility and birth abnormalities."

This "gem" apparently came from work reported by Dr. Schroeder in 1963 and 1965. In fairness to him, he reported other results in the January, 1970 issue of the Journal of Nutrition. I quote completely and exactly a footnote from the latter paper.

"Previous reports have stated that the dose of lead was 5 ppm (parts per million). This dose was incorrect. A typographical error in our laboratory instructions resulting in five times the desired dose being used, both in the experiments begun in 1960 and in those here reported.... When the error was discovered, the larger amount was continued."

My comment is that this is a rather casual way to admit that there was a 500 percent error in this so-called scientific experiment.

As also reported in the Journal of Nutrition, the early rats were deficient in chromium, an oversight that was corrected in the rerun.

A chart on results of the second go-round (with chromium sufficiency) showed no adverse effect by lead on the rats longevity, reproductive capability or general activity. They were vaguely reported to have coarse hair and to be logy as their ends approached at advanced ages -- the same ages as for the control animals. This in spite of the fact that the lead dosage was fed (not breathed) at levels over 227 times higher than a human's normal daily intake. Accepted authority states that man's daily average intake through food and drink involved lead at about 0.11 parts per million. The rats were fed 25 parts per million.

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I think it fair to state that giving credence to Schroeder's work would be much the same as suspecting that one aspirin is dangerous to humans and then finding that 227 tablets won't harm even a rat.

Second, there is the very real possibility that the changed composition of gasoline that would result from the elimination of lead would create both known and unknown problems.

A U.S. Bureau of Mines study (Report No. 7390) published in May, 1970, covered tests comparing leaded regular and premium gasolines with comparable non-leaded fuels. The conclusion was that the unleaded fuels' potential to create eye-irritating, smog-producing emissions increased by as much as 25 percent over the leaded fuels.

The very serious implications of this report were very well stated by Dr. Richard D. Cadle of the National Center for Atmospheric Research. An article on Dr. Cadle's position appeared in the April 20, 1970 issue of Chemical & Engineering News and said in part:

"In connection with any possible health hazard from the lead compounds that automobiles send into the atmosphere, Dr. Cadle believes that there is reason for alarm, but warns that quick solutions could build into problems of an entirely different stripe. He suggests, for example, that gasoline manufacturers who hope to replace leaded alkane gasoline with high-aromatic fuels should look at least twice before they leap.

"It's conceivable that some of these aromatics could lead to the formation of carcinogenic by-products in the combustion process, although I don't know of any hard evidence to support that idea. Nevertheless, aromatic compounds generally are toxic, irrespective of whether or not they're carcinogenic.

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"Also, certain aromatic compounds have been found to be more severe in magnitude, more severe as eye irritants, than the peroxyalkyl nitrates formed from conventional gasolines. What I'm really saying here is that in the whole area of air pollution control, we shouldn't rush ahead with one solution before trying to anticipate the larger problems it may create."

Dr. Cadle's fears may have already been demonstrated to have real substance. This statement is based on events this summer in Japan. Because of a "lead poisoning scare" subsequently proven false, the Japanese government hurriedly last spring set a limit on lead in gasoline at about one-half of normal use. The lower-level lead fuel went on sale in Tokyo the first of July and in subsequent weeks the gasoline sold for cars in that large oriental city was of the reduced lead content. Nevertheless, about four weeks later, Tokyo was experiencing the worst smog crisis in its history -- attributed not to lead but to the reactive emissions that created the city-wide photochemical smog when the spring rain clouds passed and let the sun hit the gaseous automobile emissions of nitrogen oxides and unburned hydrocarbons. I quote from the October 17 edition of The New York Times:

"The Government (Japanese) began a campaign for lead-free gasoline, only to encounter new problems. Experts said that if lead were removed, petroleum companies would have to increase the level of hydrocarbons to produce equal performance.

"This in turn produced a phenomenon in Tokyo known as "white" or "photochemical" smog, as strong sunlight acted on the hydrocarbons in the atmosphere to produce a mist that caused thousands of cases of sore eyes, sore throats and breathing difficulties."

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Third, on the economic ramifications and other consequences of a quick switch to non-leaded gasoline, without good reason, the April 8 issue of The Wall Street Journal went into considerable detail, and can be summed up as follows:

1. The oil industry will have to make a major investment in new refining facilities, variously estimated from \$6 billion to \$10 billion, as well as an additional 6 to 8 percent annual draw down in petroleum reserves.

2. Small petroleum refineries may have to shut down because they do not have the capital resources to make the new investment.

3. Asphalt, the backbone of road building, would be curtailed since this product is made largely by the small refineries.

4. The hundreds of thousands of retail outlets for gasoline would have to install new gasoline pumps and gasoline storage tanks. The availability of pumps is strictly limited; the labor required to install them and the tanks will add to the inflation of construction costs.

5. Without lead in gasoline, oil companies would have to make greater use of benzene, toluene and xylene, thereby diminishing the supply of these materials to the petrochemical industry, with sharp inflationary consequences.

6. Sellers of bromine and sodium would lose a major market since these are the elements used in combination with lead for gasoline additives.

7. The lead industry would lose 20 percent of its total market. A replacement market cannot be found overnight. The problem is complicated by the fact that many lead producers have already made major capital outlays for recent plant expansions.

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Fourth and finally. In view of current technical developments for systems to control exhausts from leaded gasoline, LIA believes that restrictive legislation would severely handicap the development of the best systems for the solution of the problem. For example, in mid-summer 1970 Texaco announced development of a lead filter that would capture a substantial amount of the lead in the exhaust.

A major California company concerned with aircraft has also developed a promising trapping system for use on leaded fuels, involving chemical scrubbing from the gaseous state ahead of any catalytic reactor.

The California Air Resources Board earlier this year verified a Du Pont system which cut escaping hydrocarbons and nitrogen oxides to a level more than 50 percent below the state's proposed standards for 1975. The same device was shown to reduce carbon monoxide emissions more than 33 percent below these 1975 standards. And this is with leaded gasoline. Six such cars with the Du Pont system and carrying particulate traps are now under extensive test by California's Air Resources Board. Ethyl has a well advanced system with a slightly different approach.

These are important current developments indicating that much progress is being made in developing control systems that work effectively with leaded gasoline and that would also be capable of reducing lead and other particulate emissions.

As long as there is a reasonable doubt on the overall need for the reduction of the lead content of fuel, no legislative action should be taken. Lead additives have been in gasoline for 50 years without adverse health effects, and nothing has occurred in the past eleven months to change that fact.

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