

BALTIMORE DIVISION SAFETY MEETING
Country Club of Virginia, Richmond, Va.

August 18, 1961

Approximate Meeting Schedule

6:00 - 6:30 P.M. - Examination of Displays
6:30 - 6:35 P.M. - Welcome - E. L. Mason
6:35 - 6:55 P.M. - Remarks - F. W. Cronin
6:55 - 7:35 P.M. - Remarks - J. W. Maynard
7:35 - 7:40 P.M. - Remarks - F. W. Cronin
7:40 - 9:00 P.M. - Refreshments and Dinner
9:00 - 9:55 P.M. - "Oil Fires" showing - J. W. Maynard
9:55 - 10:00 P.M. - Meeting Closed - E. L. Mason
10:00- 10:30 P.M. - General Discussion

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BALTIMORE DIVISION SAFETY MEETING

Country Club of Virginia, Richmond, Va.

August 13, 1941

Remarks Given by E. L. Mason

Gentlemen: In behalf of the Ethyl Gasoline Corporation, I want to welcome you to this Safety Conference and to say that we of the Baltimore Division do sincerely appreciate your time for this discussion this evening.

From time to time, we have had the pleasure of talking to each of you about safety problems in connection with tetraethyl lead and tank cleaning, and, I feel confident, we all agree it is something of common interest. Frankly, gentlemen, we do not claim to be super experts in safety matters and tank cleaning and have not invited you here this evening with any such idea in mind. To the contrary, we feel and hope that by having a meeting such as this, we can swap ideas and possibly be more efficient and safety conscious as a result. We are hoping each of you will participate in the question period that will follow Mr. Cronin and Mr. Maynard's discussion on the problems and hazards connected with tank cleaning in regard to tetraethyl lead as we see it.

But before turning this meeting over to Mr. Cronin, please allow me the opportunity to say that for the sixteen years the Ethyl Gasoline Corporation has been supplying its product to the oil industry. Today, approximately 90% of all gasoline marketed by our customers contains tetraethyl lead. Needless to say, we are most happy to feel we have contributed something to the high quality gasoline your respective companies have made available to the motoring public. Gentlemen, we

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of the Ethyl Gasoline Corporation do sincerely appreciate the business each of your companies have given us year in and year out. Believe me, we are most grateful and if given the opportunity will prove it to you in the best way we know how -- Service Rendered.

Sixteen years ago the price of tetraethyl lead was 12 per c.c. - today, the price is only .24 per c.c.: In business sixteen years and with sixteen price reductions in our product, I believe all of you will agree, speaks for itself.

Again thank you for coming out this evening and at this time I will turn the meeting over to Mr. Cronin, assistant manager of the Baltimore Division. Thank you. Mr. Cronin - -----.

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Remarks Given by F. S. Cronin

(Mr. Mason's introduction was acknowledged).

As we all realize, some type and size of organization is necessary to handle the details of any business, and at this point I feel that perhaps it is in order to say a few words concerning the organization which the Ethyl Gasoline Corporation has for this purpose. It has long been the feeling of the Ethyl Gasoline Corporation to maintain an organization beyond that simply necessary to manufacture, ship and collect the money for our products. The type of organization which we seek to maintain is one qualified to cooperate with and be of substantial service to the buyers of our products, whose purchases after all do permit us to remain in business. Our organization is extremely small in relation to the size of the industry we serve, but we are sincerely trying, through this small organization, to be an asset to the Petroleum Industry beyond the mere manufacture and distribution of tetraethyl lead.

Our organization has expanded and its efforts have taken various directions through the years we have been in business, and we now hope and believe that our field activities are sounder and more beneficial than at any time in the past. The direct responsibility for and supervision of the Ethyl Gasoline Corporation's field activities rests with ten Division Offices, coming under the New York Sales Department. It is through representatives working out of these offices that you normally maintain contact with our Company. There is a group of men termed Field Representatives who handle many of the necessities of our business

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and their services are available to our customers. This work may take the form of providing promotional and educational films and materials, giving talks, advising our customers' field offices of contract changes, handling matters in connection with the proper marking of pumps dispensing leaded gasoline, gasoline quality in the field and in addition are qualified to render and do handle numerous other services.

We have been active in the fleet field for the past few years, using as a background the knowledge and experience which our Detroit Engineering Staff has acquired following its many years of close association with the automobile industry. The majority of our ten Divisions have at least one well trained fleet engineer whose services are available to our customers on automotive matters. We believe it can be said that the record shows that these engineers have demonstrated their ability and have been of assistance to our customers, especially today when fleet accounts faced with operating difficulties are prone to place the blame on gasoline and/or oil. In respect to gasoline, the interests of our customers and the Ethyl Gasoline Corporation are common and we are more than willing to do what we can to uphold these interests.

Where warranted, our Divisions are active in the farm market in supporting and encouraging the trend toward high compression gasoline burning tractors. We have a material interest in this as it furthers the potential for sales of leaded gasoline, but at the same time we are, in our opinion, rendering our customers a definite service since this movement changes the purchasing habits of the farmer from heavy fuels to the oil companies volume product - regular gasoline.

The foregoing activities may be considered as the "business or commercial" aspects of our field work, which brings us to the point

where we can discuss that activity which we include under the heading of "Safety".

While the technical advantages of TEL in gasoline are generally recognized, yet its use does present certain hygienic problems. Some of these hazards have long been recognized and consequently, since the very beginning, our field organization has always concerned itself with those existing from the time our products leave the Manufacturing Department to the point of sale to the consumer. This work originally was but a part of the field duties of our employees, but as our business increased the scope of these problems increased and, therefore, in 1936 the handling of these matters became a full time specialized activity with competent engineers being assigned to the work.

The control of hygienic problems in all operations after manufacture connected with fluid handling and loaded gasoline now rests with our Sales Department's staff of Safety Engineers and the Medical Department. The Medical Department is, of course, in no way under the direction of the Sales Department, but acts as a hygienic consultant and is directly concerned with questions of illness, disability and physical fitness for potentially hazardous employment, as well as matters pertaining to new or unusual hygienic problems. Our Safety Engineers take over the supervision of equipment and the mechanical procedures in the intermediate steps of transportation of fluid, the construction and operations of mixing plants, the control of hazardous procedures in connection with fluid and the handling of fluid at certain other special points. Possibly it should be mentioned at this point that regardless of their normal duties, all of the representatives in the Baltimore Division, and this is generally true of our other Divisions, have been given specific Safety training and

we do occasionally call upon them to handle certain Safety matters. Safety Engineers, however, are not called upon to assist in routine commercial or promotional affairs except insofar as the effectiveness of safety work might thereby be promoted.

The experimental work resulting in the use of tetraethyl lead as an anti-knock ingredient and more especially in the early stages of its manufacture revealed the toxicity of the compound in the form of acute and even fatal illnesses among those exposed to it. It was, therefore, recognized that if the product was to be exploited commercially, safe methods had to be devised for its manufacture and introduction into gasoline. Ethyl and "Q" fluids are poisonous when taken into the body and it is therefore apparent that safety in handling these products depends upon the use of methods which when adhered to with prudence and carried out with average intelligence, results in the avoidance of lead absorption. There have been cases of lead intoxication in the Petroleum Industry resulting from the use of TEL, and while the Ethyl Gasoline Corporation does not assume responsibility for the employees of our customers working with TEL, we will spare no effort to prevent mistakes or accidents leading to illness or death.

Insofar as it pertains to the immediate interest of this group, the possibility of sufficient exposure to TEL to result in an accident lies in the blending of Ethyl fluid with gasoline and in the cleaning of storage tanks. In the early days of our product the mixing of fluid with gasoline was accomplished in various ways, some of which you may be familiar with, such as the dispensing unit on the service station gasoline pump and later, in order to facilitate the mixing of larger volumes of Ethyl gasoline, pumps were devised to empty fluid containers into tank trucks, tank cars and stationary tanks. In this period fluid was then

supplied to the purchaser and was used without standardized supervision or control. These methods of mixing were not sound from a hygienic standpoint since they presented a wide-spread hazard among those required to operate the dispensing equipment. The eductor method of mixing was developed in the latter part of 1926 and this, with modifications, is the present method generally followed today with the mixing being done at refineries and terminals. The eductor method of mixing presents several advantages over the previous types in that it insures more uniform quality of the finished product, affords good control over blending procedures, involves the smallest possible number of individuals and there are no actual dangers to personnel if the proper equipment is used and proper procedures followed. Our Medical Department has for many years offered recommendations in respect to fluid blending and it can be said that, as a whole, the Petroleum Industry has given excellent cooperation to these recommendations. Consequently accidents are not known at present types of blending plants. The Industry has every right to be proud of this excellent record.

The second hazard of concern to those of us here is, as has been stated, in connection with the cleaning of gasoline storage tanks. When Ethyl fluid was first used in gasoline only a relatively small number of storage tanks throughout the country were involved since there was only one grade of leaded gasoline, i.e., Ethyl gasoline. However, the present high percentage of leaded gasoline being marketed results in the fact that a very high percentage of our customers' storage facilities have, at one time or another, contained leaded gasoline, and these tanks may offer serious danger of exposure. The damage is

due to volatile organic lead compounds in sludge and scale. Frankly, this problem was not wholly anticipated and you may be interested in knowing that the first such accident occurred in England in 1928. Full details concerning this did not reach us in time to make a complete investigation, but there was evidence that lead had been a contributing factor to the illnesses of the workmen. The first tank cleaning accident in the United States involving TEL occurred in 1932 and there were further increases in the number of these accidents, especially in the middle thirties. I do not believe that it would contribute anything at this time to discuss either the total number of such accidents, or individual cases, but it may be stated that in those instances where proper investigation was possible, the reason or reasons for lead intoxication have been established with reasonable certainty.

Faced with definite knowledge of the situation, our Medical Department in 1932 strongly recommended that certain definite safeguards be taken in the cleaning of tanks which had contained leaded gasoline, and at the time of the organization of our Safety Department some of you may recall that we requested that you notify us of your tank cleaning plans and we did make effort to be present at such work, at least where the cleaning involved blending, spiked or large storage tanks. Little effort was made to cover the small field storage tank as it was not then established that hazard existed in such tanks. During this period when present at tank cleanings, our Safety Engineers collected sludge, scale and water samples, forwarding these to our Medical Department for scientific study. The results of this study were announced in the late spring of 1940, and what is of prime importance to us now is the fact that positive evidence showed that lead hazard was not confined to any one group or class of tank, but rather that any tank which has contained

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leaded gasoline, unless thoroughly cleaned, can be hazardous from a lead standpoint. It can probably be granted that not every tank having contained leaded gasoline presents an actual danger, but since some are and there are no known means today of checking whether a tank is dangerous or not, it is best to consider all tanks dangerous and that the recommended procedures be followed for all if proper hygienic protection in the industry is to be attained.

We do not profess to know more about actual tank cleaning methods as your experience is far greater than ours, but we do claim to know, as an organization, more about TEL than any other organization because of our knowledge and experience with the product, and therefore hope our recommendations will be given due weight.

We are interested in the welfare of your employees, but beyond that it is only common sense and good business for us to anticipate and investigate potential hazards connected with the use of our product. We feel that we are rendering you a service by contributing to the protection of the health of your employees, which we do by advising you of any actual hazards and most important the means by which to avoid serious consequence from any actual hazards.

Gentlemen, I have discussed certain phases of our safety work from a Company standpoint, and feel certain that we will all be interested in seeing and hearing about actual tank cleaning. I will, therefore, ask our Safety Engineer, Jack Maynard, to take over at this time.

MEMORANDUM BY J. H. HARRISON

LOAD ABSORPTION INTO THE HUMAN SYSTEM

In following reports means of avoiding load hazards in tank cleaning we must first determine the ways in which load can be absorbed into the human system.

There are three ways this can occur:

- a. By contact or rubbing.
- b. By breathing or inhalation.
- c. By absorption through the skin.

The instructions promulgated by our Medical Department contain but five rules which are designed to prevent load absorption into the human system. This is a copy of:

PRECAUTIONS FOR LOAD ABSORPTION WHICH MAY BE
PREVENTED BY THE FOLLOWING:

- 1.
- 2.
- 3.
- 4.
- 5.

Briefly they refer to or describe - the Airline equipment, Facemask, Clothing, Cleanliness and Blower.

Precautions 1 and 2, when followed, will protect your workman from load absorption by the first two methods, i.e., through the mouth and nose. Providing the facemask is in good condition and fits properly, the hoses and the blower is located in fresh uncontaminated air.

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Precautions 3 and 4 are designed to prevent the third method of lead absorption, i. e., through the skin. Proper clothing - full length coveralls, underwear (in cold weather), socks and cap, rubber gloves and boots to keep sludge from the workman's skin. Cleanliness - There is always the possibility of the clothing becoming soaked with sludge due to a spill, etc. In such cases the workman should bathe at once and put on clean clothes. Otherwise, the clothing should be changed (and sent to the laundry) and a bath taken at the end of each day. When the job ends during the day this should be done at that time. All equipment and tools should also be cleaned.

The fifth precaution regarding sludge is, I feel, of equal importance. To protect the workman inside the tank; it is also dangerous to handle ^{sludge} outside the tank. Such men should be similarly equipped as to clothing, gloves and boots. The best way to dispose of sludge is to bury it and gentleness, the pit is still a big problem. Do not want it just big in size, but to see that it be of sufficient capacity to hold all or two sludge and keep enough to at least two feet of dirt can be placed over the sludge to prevent it being uncovered in the future.

Gentlemen, we are proud to state there has never been an accident from lead when an Ethyl Gasoline Corporation representative has been present to observe a tank cleaning. Consequently we feel the precautions afford your workmen adequate protection from any lead hazard and should in no way increase the cost or time required for proper cleaning of tanks. Our experience in the field does lead us to say that increased time and cost in many cases is due to lack of and/or faulty equipment, tools and clothing on the job. Old style overalls that have lost their elasticity and cannot be used, straps on head-

seams broken, old worn-out sections of hose lining, rotten hose gaskets or no hose gaskets, blower horns and blowers in such poor condition they would not be able to perform emergency repairs. There are specialized articles and equipment as mentioned in the field. Lack of rubber gloves, boots, or boots in satisfactory condition, no ladder or means of getting in or out of a tank. Lack of suds (spark-proof) cleaning equipment or tools for repair work - brooms, shovels, rakes, safety rope, wrenches, etc. Most of these articles can be purchased locally but increase the time and cost of each job. (Emphasis on unnecessary costs rather than usual costs - L.L.C.)

We thought you might like to see the equipment and clothing I use in the part of the tank cleaning program. (Display around sides of tank. Each article to be briefly described including description of its most safety features. (including that and in in and of hose lining, advantages of wide vision tank over old style tank with small openings, etc.) You will note our Productions are listed in the list of the blower box for ready reference on the job. Also, a list of articles combined in each box. We want to call at your office from time to time and will, if you desire, be glad to assist in making up a list of necessary equipment and clothing and can supply the name of firms and cost of items required by the Productions.

The most frequent cause of accidents in tank cleaning operations is the presence of petroleum vapors in sufficient quantities to produce flammable mixtures or to cause asphyxiation. While this danger is not related to the tank cleaning, it is one we are all familiar with. There are several devices on the market for measuring the amount of con-

combustible vapor present at any location and we have borrowed from the manufacturer one of the latest types for your inspection. (Display).

Possibly one of your tanks is rather dirty and you plan to clean it. So let us consider this room as tank #6 at your Richmond bulk plant or terminal. (Enter colored waiter from U. O. of Virginia dressed in proper clothing and equipment - demonstration: Lowell Mason to turn blower while I show correct method of putting on harness, lifeline, safety rope, connecting tube assembly, facemask and hoodband).

"Thorough cleaning" is mentioned several times in our Precautions and I would like to discuss this term as it seems to have caused some confusion in the field. Many tank cleaning foremen feel that after they have done a "good" cleaning job it is ready for inspection or repairs by men in ordinary work clothes and not equipped with prescribed airline hose mask equipment. First, may I state there is a definite difference between a gas free and lead free tank. A "good" cleaning may render a tank gas free but would not necessarily make it lead free. Even after the "good" cleaning some sludge remains on the bottom and rust and scale on top, sides, uprights, swing lines, etc. of the tank. Lead can be present in the small quantities of sludge, rust and scale and in sufficient quantities to cause possible lead intoxication. Therefore, the tank may not be lead free after a "good" cleaning and our Precautions should be followed by all men entering the tank for any reason.

To give you a better idea of the difference between gas free and lead free the A. P. I. rules on tank cleaning state: a tank may be considered gas free if an indicator shows the gas content to be .2 or 1% or

loss of gasoline vapors to air - this is 1/500. Our official recommendation is that a tank may be considered leak tight when 1/5,000,000,000 or less parts of vapor are in the air. Again considering this tank a tank to be used in a plant, this (being put from under table paper covered box) represents actual measurement of 1/5 or one-fifth hundredth of the value of air tank. Gentlemen, it would be safe to work here with this amount of gasoline vapors in the air. However, this (because small leak has been on small leak test represents the actual value of gasoline leak vapors for this tank. (Note: For future reference - lead to substantiate good record of white or anti-rust paint applied for work. This can be shown up to correct size for any work. Possibly "Lead Vapors" could be detected on the balloon and lead-bus vapor as rolled around in the balloon). With no means means of measuring such very low concentrations in air, it is necessary to remove as far as possible the remaining quantities of sludge, rust and scale in the tank by means of high pressure water and scraping the bottom with rags or brushes where it can be reached lead from. A recommendation on this question will be made for you by the Royal Canadian Inspection's representative on request.

A question which may be on your mind is the cleaning of mobile equipment such as transporters, tank cars, barges and tankers. Our official Department advises they have been unable as yet to find that harmful fumes lead exist in mobile equipment and therefore we have not requested that our Recommendations be followed in the cleaning of such equipment although you may do so if you wish. It would be well to point out, however, that while we have no evidence of a harmful fume lead in mobile equipment at the present time this does not mean the harmful cannot exist. If and when a harmful fume lead is indicated in mobile equipment you will be notified.

I would like to take a few minutes more to discuss what light

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would give us any ideas of your own, either during or following the discussion.

First, improved methods of tank cleaning to cut down the risks, costs and hazards of tank work. One oil company in this area has been working for a number of years on a vacuum cleaner method of cleaning tanks without removing the product. While we have not seen it in operation, they claim it to be satisfactory in removing normal amounts of loose sludge, rust and scale. Obviously this method of cleaning tanks, if successful, has many advantages and does not require the product be removed or tank entered. Another company in this area is working on methods of tank cleaning (without entering) using a pumpout brush, chiefly, however, for use in underground tanks. Also, our Chicago Division has an experimental program of tank cleaning along similar lines. One part of their equipment is a pump in which you might be well interested at the present time. (Picture of the pump and its accessories to be passed around the audience - the pump to be described pointing out the several ways it could be used - (a) to remove sludge (b) transfer product and (c) to create considerable water pressure for thorough cleaning.)

(A general discussion period to follow, including question and answer session. This portion of the program to be closed with a few remarks by Mr. Goshin.)

BALTIMORE DIVISION SAFETY MEETING

Country Club of Virginia, Richmond, Va.

August 18, 1941

Concluding Remarks Given by Mr. F. S. Greenin

Gentlemen, this subject of tank cleaning has been discussed with our customers' head offices, and our recommended procedures have received the approval of those offices. It is, therefore, up to us in the field to carry out this work as efficiently as possible. We will do all that we can to assist in the accomplishment of this, and as we have advised our customers, we will, upon notification, have a representative present whenever and wherever tanks are to be cleaned.

There is one point I would like to have clearly understood, and that is that tank cleaning is your responsibility and our men when on the job have no actual authority; they are simply there to advise, if necessary, on procedures as they may pertain to TIL. Our Company is spending a great deal of money to maintain this field tank cleaning advisory service, and we sincerely feel that this investment is well spent if through our efforts even one single accident may be avoided. Gentlemen, I do not believe there is a single individual here this evening who is willing to compromise with the health of his employees, and tank cleaning accidents involving lead are particularly unfortunate in that we are convinced that they are avoidable and they involve, not property damage, but personal damage to the human body.

In conclusion, the Ethyl Gasoline Corporation solicits the cooperation of the Petroleum Industry to eliminate tank cleaning accidents and in return for this cooperation, we shall not be found wanting.

(Following this dinner was served, after which the film was

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