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Memorandum to

Dr. W. A. Machle

Dear Bill:

In our recent conversation you requested that I make for you a copy of the list of tentative projects upon ^{which} work might well be done in the future. The information is subtended. I have copied the list directly from my personal notebook with very few added explanatory notes. This list was begun about a year ago and has been added to from time to time as things have come up which seemed to be material for future projects, and are in ^{no} special order.

1. Tank ventilation

As you are aware considerable work has been done in a desultory sort of fashion on this general subject, and I think everyone agrees that more work would be valuable. I feel sure that this method of gas freeing would help our picture and be valuable to customers the Corporation as a means of shortening tank cleaning and cheapening the cost of such work.

2. Rate of Fluid Flow or Metered Blending

A study of the general problem of which the Proportioner is supposed to be one solution. There are several other methods which would accomplish the same results as the Proportioner and which might well be more acceptable to our Corporation and would undoubtedly be considerably cheaper for the customers.

3. Improvement in blending and storage tank design.

Lewis has made some effort to interest certain people in this subject as have I. There has been, however, no concerted effort to make definite recommendations, or to canvass the tank building and refining fraternities on the subject.

4. Qualifications of all Ethyl Corporation Safety Engineers in an adequate First Aid Course

In this connection the instructive movies in color recently prepared by Standard Oil Co. of California undoubtedly be of some assistance, at least in giving some ideas about the proper way of instructing our people.

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5. Studies of lead in atmospheres of tanks before, during, and after cleaning

EX This study would be intended to supplement and amplify the study of the analyses of actual sludges and residues from tanks which have been opened for cleaning. It might also open the way for the design of a "lead detector" for use in determining the safety of certain tanks.

6. Need for--and preparation of-- a well designed talking film having special reference to the safety problems of the Corporation. Such a film would be invaluable for the safety men in the field.

7. Study of possible lead bearing atmospheres and soils in the vicinity of points subjected to heavy or continuous concentrations of exhaust gases; e. g. tunnels and heavily travelled intersections. It would also be advisable to make check studies of exceptionally light or totally immune areas as a control.

8. Study possible means of more positive evacuation of weigh tanks to produce more rapid and efficient unloading of tank cars of Fluid, and to eliminate some of the troubles which now crop up.

9. Discussion and decision regarding the pros and cons of furnishing the Corporation Safety Engineers with some form of combustible gas indicator.

10. A complete revision and check to eliminate inaccuracies other objectionable features of the Corporation's drawings ~~in the xxxxxxxxxx~~ It is believed that this project is underway, but it is recommended that all new drawings be carefully checked and re-checked to make sure that they are in accordance not only with the present policies of the medical, safety and legal departments, but also with each other.

11. Uniform blank form for recording tank cleaning work.
This, of course, has already been designed and is to be sent to the field under the title "Safety Engineers Tank Cleaning Report Form".

12. Complete study of the subject of fire protection as applied to blending plants.
It is believed that this subject has never been completely exhausted, and that quite a few improvements could be made.

13. Study of the application of air movers of the venturi type as applied to the required Ethyl Fluid hood at laboratories of the Corporation's customers. A design quite a lot cheaper than the present one might be made; thus make the job of installation of this required equipment easier and less costly.

14. Study of formation of water emulsions in gasoline tanks

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15. Resistivity and/or conductivity of leaded versus non-leaded gasolines, as a possible means of determining rate of flow of Fluid during blending.
This has already been investigated and reported upon.
16. Conditions at remote blending points, i.e. outside the U. S. and Canada, as to blending technique, equipment, personnel training, possible exposures resulting from improper handling, and tank cleaning methods and training.
17. Possibility of applying spectroscopical or spectro-photrical methods of analysis to portable instruments to be used for determining the presence or absence of lead in the field. This might be possible in that such an instrument would only be designed for the recognition of one element, namely lead.
18. Division of present "strip-film"--- as well as any future stills or movies--- into convenient sections for more convenient and intelligent use at various types of field safety meetings. Also the possibility in this connection of using miniature slides instead of the strip film, thus making easier the sectionalizing of the subject matter.
19. Possibility of designing a "standard form" for safety meetings presented by our engineers in the field, so as to eliminate as far as possible the chance of one or more men mis-interpreting the company policy in the process of giving such talks.
20. Study of the various dye pots and dye addition systems at present in use by our customers, with the idea of learning about the methods, and possibly improving upon the design now presented by the Corporation.
21. Study of some method of supplying small (drum) customers at remote points such as Texas and the West Coast with small bulk shipments more or less in line with their financial and consuming ability. The purpose of such a study would be to eliminate as many drum shipments as possible and so to eliminate what is still one of our most fruitful sources of potential danger.
22. Study of some method of unloading and loading drums off and on ships, which would be acceptable and would be safer more convenient than the present "rope bridle" method. Some work has been done on this, but Manufacturing has refused even to consider such a possibility or to examine equipment which has been designed and used with great success.
23. Study of vapor-proofing Weightographs.

It is recommended that this subject be looked into in the near future as the present Weightographs are not satisfactorily vapor-proofed, although the Corporation sells them as such and insists upon the use of this particular equipment. This Corporation should not be placed in the position

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23. Mechanical agitation of blending tanks as a substitute for the present methods of circulation.

This subject, too, should have attention in the near future, first because the method is now in at many blending points with what appears to be signal success, and second because there is also believe that the older method was not entirely satisfactory as a means of getting all the lead solution. So far as I know each installation of kind of equipment must be separately passed upon and I feel that we should either officially approve it, or the reverse, after giving the subject some careful consideration.

24. Action of Fluid in long unloading lines, with particular reference to diversion and consequent potential exposure. Several tests have been made in the field and the data has been assembled and discussed in a recent report by E. O. Jones, submitted to both Dr. Keh and the New York office.

25. Preparation and presentation of a course in Safety. This to be primarily for those men entering the Corporation through the University graduate selection system, and who are being trained under the aegis of Ray Faller.

Faller has requested something of this sort, and it is contemplated that the Manual and other published material would be used as reference texts, and that all questionable matters would be interpreted for the men in the light of Corporation policy current at the time of the presentation.

26. Solicitation of properly equipped research and refinery laboratories of our larger and more cooperative manufacturing licensees for analysis of scale, sludge, and other suspect materials from tanks or other sources. Certain of these laboratories are doing a sporadic and incomplete job along these lines now for their own satisfaction. If a uniform method could be suggested and adopted, particularly as regards the separation of organic from inorganic lead, together with approved methods of sampling, our Corporation would be able to assemble a mass of useful data, and much of the lag between sampling time and the recording of the analysis would be eliminated. Such a plan would also serve to bring before us promptly any peculiar trend or condition, thus permitting immediate investigation while the causes could be studied, and before unfortunate consequences occurred.

I believe this suggestion is worthy of considerable study.

It is recognized that this list is by no means complete, and merely represents notes which have been jotted down over the last several years. Other projects have already occurred to you and will probably occur to me as time goes on. I hope, however, that this is what you had in mind during our conversation.

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