

Memorandum Handled by J. B. Aug. Kessler

THE ASSOCIATED ETHYL COMPANY LIMITED

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OUR REF.

HE/LD.

YOUR REF.

O/ea.

12th February 45.

Dr. R.A. Kehoe,
Department of Applied Physiology,
University of Cincinnati,
Cincinnati, Ohio, U.S.A.

Dear Dr. Kehoe,

I am sending you herewith a copy of a letter received from the Anglo Iranian dealing with the small container operations and also the action on other matters arising out of my visit.

The clinical lead figures would seem to indicate a close degree of control on the part of the management at Abadam. We would naturally appreciate it if you could pass on to us your general observations on these data as a comparison between the current conditions and those which you observed.

Dr. Cassells and I will shortly be sending you a memorandum on studies being undertaken in can filling at installations in this country. The results are disconcerting especially in view of a considerable amount of effort which has been made in improvements to suction ventilation. This latter report should be ready for sending on to you during the course of the next few days.

With kind regards,

Yours sincerely,

H. Russell

Copy to:- T.R.A. Bevan Esq.

1. The first step in the process of the investigation is the identification of the problem. This is done by the investigator who is responsible for the investigation. The investigator must identify the problem and the scope of the investigation.

London E.C.2.

Dear Mr. Bevan,

During his recent visit to Abadan, Mr. Bossett discussed a number of technical points with the Management covering blending procedure, protection of plant and operation etc. which were further dealt with by correspondence through this office following a meeting with Mr. Fossett and myself at which Mr. K. B. Ross was present.

"With regard to the points raised in your memo No. 14374, we have the following comments:-

With the installation of the Simmons-Hawker machine the spray hazard has been reduced considerably. Provided the cap is put on as soon as the can leaves the filling machine there is very little spirit on top of the tins. What little there is comes from slight leaks from the valves. We are now experimenting with an air blast in the roller conveyor tunnel to ensure that there is no liquid left when the cans reach the crimping machine.

(B) Protection of Crimping Machine Operator

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playing on the tin top merely disseminated the vapours. We have tried taking the suction duct from the point nearest the crimper on the first Simmons-Hawker machine. The entrance duct is rectangular in shape and situated behind the crimping wheel. Droplets thrown backwards by the action of the rotating disc were collected to some extent by the suction system but those thrown towards the operator were beyond the suction effect. We propose as an experiment to alter the shape of the duct entrance and to connect this duct alone to one of the fans supplied with the Simmons-Hawker machines and thus provide a more powerful suction. We feel that we should concentrate on the provision of dried cans at the crimping machine, coupled with a powerful suction applied through a well designed entrance port. By these means what is probably the last remaining hazard in our four-gallon can filling operation can be removed.

(C) Ventilation

With the installation of the Simmons-Hawker machines the forced draught system has become obsolete. We have however retained it in use since during hot weather it provides more comfortable working conditions for the operators though contributing little to the dispersal of tetraethyl lead vapours. We now propose to try one fan for two filling sheds and if this is successful we shall ask you to provide full flame-proof equipment. The two fans released would be useful for supplying fresh air to the can factory.

(D) Static

We have now made arrangements to provide efficient earthing systems for the new machines.

(E) Improved blending facilities

It is now agreed that we shall install an eductor pump at the motor benzine lead blending plant and we have cabled our requirements for pump motor and pipe line alterations.

When the six point eductors for the old Aviation blending area and for the motor benzine blending area come forward we shall have to arrange for a new blending platform for the latter area, to replace the present congested arrangement. We have had this in mind for some time and we shall be writing shortly putting our proposals before your.

(F) Litre T.E.L. Cans for laboratory purposes

We confirm that we shall cable when supplies of litre cans of T.E.L. fluid are received, and also we shall indicate well in advance when replenishments are required.

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Since our last writing on lead poisoning precautions we have made several improvements to each of the areas concerned and have several others in hand and in project. These modifications and improvements are noted below:-

BLENDING AREAS

We have reached the conclusion that changing, washing, and messing facilities are inadequate at all blending areas. Drawings are in hand for a composite building for each area comprising a changing room with built in lockers which communicates with a wash room with three shower cubicles and a trough with hand washing facilities. Beyond the wash room a mess room is contemplated with a verandah extension.

P.O.D.

The greatest improvement yet made to the P.O.D. area is the installation of the Simmons-Hawker machines. Drawings exist for concreting and draining the whole filling area and construction will commence as soon as other important work permits.

BRAIN AREA

Two 35 gallon drum filling lines are at times engaged in filling 100 O.N. aviation spirit simultaneously. These two lines are undesirably close and it is felt that a suction draught system is essential to ensure complete safety. This we have in mind and we propose to use one of the fans from a Simmons-Hawker machine for a trial. Later we shall be asking you to provide fans and motors for this purpose.

Difficulties have been experienced in the case of the Brain Drum Filling Installation with the provision of protective clothing, washing facilities for the men, and laundry equipment for the clothing. These difficulties have now been overcome and all the men closely associated with filling operations are now protected. The extra clothing from the Brain Installation is a further load on the laundry and has had to be met by the provision of makeshift equipment. Complete security in this connection cannot be obtained until the projected Industrial Clothing Laundry is in operation."

In connection with the incidence of lead poisoning amongst the operators, Abadan state that during the hottest months of 1944, high lead spirit was filled infrequently and this was probably the greatest single factor in preventing lead poisoning last year. There has therefore been no opportunity for testing the protective measures under arduous conditions but the Brain Filling Installation is now engaged in a fairly heavy 100 O.N. filling programme and results are awaited.

They further inform us that a control system to check the clinical conditions of the workers has been instituted which operates as follows:-

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also sent to Dr. Kehoe
officers to be placed
in the file of
General Harrison

Storage and Export Department Lead Blenders, SEB. Class clinically and for lead in urine at three monthly intervals. are occasionally carried out at shorter intervals than three months usually called for by high lead in urine results. Despite the principles laid down by Dr. Kehoe both for sampling and estimation lead in urine results are sometimes obtained.

For the TP Class (P.O.D. 4 gallon can fillers) and for Drum fillers the present arrangement is that the men report to two-monthly intervals and are detained for 48 hours during which clinical examinations are carried out and two separate 24 hour samples are obtained for lead estimation. This double check was instituted to attempt to reduce the anomalous lead in urine results. Since the number in the TP and DF classes is large, such examinations are carried out on men only.

For the information of Dr. Kehoe, I am including medical the results of clinical examinations and lead in urine estimations for SEB Class and for selected men in the TP and DF Classes. These are compiled from our records and are somewhat abbreviated, if necessary expand the information.

You will notice that Abadan particularly stress the anomalies they obtain in estimations of the lead content of urine. You are enough to draw Dr. Kehoe's particular attention to this point and grateful in due course, for his reaction to pass on to Abadan.

Yours sincerely,

C. A. HARRISON

Mr. T. R. A. Bevan,
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