

SINGAPORE - THE SHELL COMPANY OF
SINGAPORE LIMITED

KE 0020942

THE ASSOCIATED ETHYL COMPANY LIMITED

ARTILLERY HOUSE, ARTILLERY ROW, LONDON, S.W. 1

Telephone: ABBEY 3974

Telegrams: ETHYLPORT, SOWEST, LONDON

OUR REF. ST/3/240

YOUR REF.

11th December, 1950.

Dr. R. A. Kehoe,
University of Cincinnati,
College of Medicine,
Eden Avenue,
Cincinnati,
Ohio, U.S.A.

Dear Bob,

We regret to have to inform you of a second recent tank cleaning incident - on this occasion during the cleaning of an underground storage tank at Singapore.

For your information, we are enclosing a copy of a report with a covering letter which was sent by the Shell Company of Singapore to our Australian office. This report sets out the main details of the accident, but at the same time it discloses the lack of essential information on the part of the individual who was in charge of the tank cleaning operation, as well as poor staff work in not arranging suitable and immediate medical attention.

The point which makes this accident the more regrettable is that our tank cleaning regulations (which are in the possession of the Shell Company, Singapore) are always considered by Shell, London, as being the minimum precautions necessary during tank cleaning operations. In addition to this, an existing instruction from Shell, London, states that no underground tank should be entered without previous reference to the London office. No such reference was made in this case.

This unfortunate incident has been fully discussed with the Shell Company in London, and the Chief Engineer of Shell, Singapore, who was on leave in England at the time of the incident, was present at the discussion. We are confident that Shell will do all in their power to prevent a similar incident within their organisation. For our part we are undertaking a complete programme of tank cleaning discussions with our customers on a world-wide basis and we sincerely hope that our efforts will be successful in preventing any further accidents.

The latest information we have concerning the condition of the 3 Malayan labourers is that they are progressing favourably, and their recovery to full health is expected.

Yours sincerely,

Enc.
CHN/bjw

-KE 0020943

C. H. NOBLE.

P.O. BOX 643

SHELL HOUSE,
COLLYER QUAY,
SINGAPORE.

19th October 1950

In reply please quote
No. P.8191

PRIVATE & CONFIDENTIAL

The Associated Ethyl Co. Ltd.,
368 Collins Street,
Melbourne, C.I.,
Australia.

Dear Sirs,

WOODLANDS NORTH DEPOT - CLEANING OF GASOLINE TANKS -
SUSPECTED LEAD POISONING

Following up our cable to you of 11th October, and in response to your reply dated 12th October, we attach herewith a report from our Singapore Branch office which sets out full details in connection with the occurrence of probable lead poisoning in 3 Malay labourers consequent upon tank cleaning operations at Woodlands North Depot.

Tank No. 3 at this Depot is the centre tank of a group of horizontal, flat ended tanks, each 20'-0" diameter x 150'-0" long, constructed in 1941 in accordance with Air Ministry "fully protected" standards, i.e. the tanks are completely covered by some 30' of earth with a 2'-0" thick reinforced concrete casing around the tanks. There is a 2'-6" diameter access manhole at the front end of each tank, where are also located the pipe connections, and access to manhole and valves is by means of a concrete lined tunnel which also carried the pipelines. The tanks are braced internally with 4" x 3" angle iron rings and diagonal stays, at 10'-0" intervals. Along the top centre line of each tank are two 4" diameter connections, spaced at 37'-6" and 112'-6" from the front end, with vent pipes leading up through the earth cover to open air.

This tank was in use for a short period during the latter part of the Japanese occupation for the storage of Aviation Gasoline and was emptied late in 1945 but, as far as we know, was not cleaned out. The tank remained in this condition until late in 1947 when it was again put into commission for storage of 100 Octane Aviation Gasoline. No attempt was made to clean out the tank before recommissioning, as protective clothing and equipment was not available. Since 1947 the tank has been continuously in use for the storage of 100 Octane Aviation Gasoline containing approximately 4.3 cc of "Ethyl" fluid per 1 Imperial gallon.

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N 24426.01

In view of the long period since the tank was known to have been cleaned, a gas freeing and cleaning out was considered highly desirable, while at the same time this treatment was a necessary preliminary to the provision of a concrete bed along the tank bottom to facilitate drainage of water and to avoid the pockets of water retained by the bracing angle rings. Recalibration of the tank had also become necessary, which process would be simplified by the presence of the concrete bed, while recommissioning of the tank was becoming a matter of urgency in order to release other tankage at Woodlands South Depot for de-bricking and cleaning.

When the manhole was removed from the tank after the water filling operations, the bottom of the tank was found to contain a thin black liquid, with minute particles of solid matter in suspension, and unlike the thick, frothy slurry of sludge normally found in gasoline tanks. This was retained by the angle bracing rings to a maximum depth of 4 inches. No smell of gasoline or other offensive matter was present but only a slight muddy odour. After the washing out period and before personnel entered the tank a second time, only a very small quantity of this liquid remained in the tank, trapped behind the angle rings.

The attached report sets out in detail the work which was carried out on this tank, and the extent to which the various personnel were exposed to risk from lead fumes. It also explains how the three labourers were first affected, and the action taken in regard to medical examination and treatment. Dr. Frame - Dr. Bain is at present in the U.K. on leave - is writing to you giving in greater detail, from the medical point of view, particulars of the illness of these men; the present condition of two of them, Khamis bin Mohamed and Ali bin Abu Bakar, is that they are "progressing favourably", and the third, Ahmad bin Hamid, is now normal but is still in hospital under observation.

With regard to the availability of respirators referred to in para. 16 of the enclosed report, there were in fact 2 sets of "Bloman" hand operated blower type masks available at the site, but experience has shown that the air supply in these masks is quite inadequate for anything but the shortest period of use, in spacious surroundings, whereas for the extremely hot and badly ventilated conditions as existed in Tank No. 3 at Woodlands North, it would have been quite impossible to move around much less carry out work. In addition the hose of the apparatus is entirely inadequate for a tank 150' long. A power operated compressor unit, with 6 air-line masks, is available at Pulo Bukom installation, but this outfit is in more or less continuous use and could not be spared on loan to Woodlands. Three other power operated compressor units are on order with London, one for Pulo Samboe and two others for use at Malayan Depots, which were ordered at the time the difficulties in connection with cleaning Tank No. 3 at Woodlands were realised.

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We trust that the foregoing will inform you of the circumstances of this most unfortunate incident, and we shall continue to advise you as to the progress towards recovery which is made by the three men at present in hospital.

Yours truly,

For THE SHELL COMPANY OF SINGAPORE LIMITED

(Sgd) W. WRATTEN

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