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NAVY DEPARTMENT
BUREAU OF SHIPS
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CIRCULAR LETTER NO. 36

SUBJECT: Hazards of Entering Tanks which Have Contained
Leaded Gasoline.

1. The hazard of lead poisoning is present whenever men enter a stowage tank which has contained leaded gasoline. Tetraethyl lead compound added to gasoline to increase its anti-knock value is toxic and may enter the body through inhalation, skin absorption, or by way of the digestive tract. Serious cases of lead poisoning, several fatal, have occurred from exposure in tanks that have contained leaded gasoline, but these have occurred only when such tanks were cleaned without following recommended safeguards.

2. A tank which has contained leaded fuel may offer serious danger of exposure to lead poisoning, due to volatile organic lead compounds in sludge and scale which may be present even after flushing with water. A further danger exists from the inorganic lead compounds in the water bottoms and sludge resulting from treating operations other than tetraethyl lead. It is obvious, therefore, that no stowage tank used for leaded gasoline may be assumed to be free from a lead hazard, even though it is free of gasoline vapor as determined by a combustible gas indicator.

3. The entering of a tank is usually dictated by the need for cleaning, repair, or inspection. Finished leaded gasoline have been held in storage for as long as three years without deteriorating below specifications except in color. The interval between tank cleanings, therefore, may be a matter of years.

4. The special hazards in connection with the cleaning of tanks are:

(a) The Ethyl fluid may be trapped in the bottom sediment of leaded gasoline stowage tanks, and the agitation of this sediment of sludge, when cleaning the tanks, allows it to vaporize. This vapor may then be present, even though the tank has been gas-freed, as determined by the combustible gas indicator. This condition will exist until the tank has been thoroughly cleaned.

(b) Future changes in the composition of high octane gasoline will tend to increase the toxic hazards.

(c) The hazards of fire, explosion, and asphyxiation are also present.

5. In addition to the instructions and safety rules given in the Bureau of Ships Manual, the following precautions should be taken by personnel when entering tanks which have contained leaded gasoline.

(a) A blower-type or positive-pressure air line hose mask should be worn by any person who enters a tank which has contained leaded-gasoline but has not been thoroughly cleaned. This applies not only to tank cleaners but to all others who go into the tank for any purpose.

(b) Hose lines for air masks must be kept clean. If a workman notices any odor, as of gasoline, while wearing his mask, he must leave the tank at once and find the cause or get a new hose line.

(c) All workmen must wear clean clothing from the skin out; also acid-proof gloves and rubber boots of good quality and in perfect condition.

(d) Clothing must be changed and laundered, and a bath must be taken every day, either at the end of the day's work or when the job is finished. If at any time clothing gets soaked with gasoline or sludge, the workmen must bathe at once and put on clean clothes. At the end of each day, and after the job is completed, masks, boots, gloves, and tools must be cleaned.

(e) Sludge is a potential source of lead poisoning even after it has been taken out of the tank. It should be kept wet and buried at once in a place where it will not be uncovered later, or it should be placed in sealed containers which may later be disposed of at sea.

(f) Repairmen engaged in any type of work in tanks that have not been thoroughly cleaned must follow the instructions given above. If possible, all cold work should be done only after the tanks have been thoroughly cleaned. Welding and other hot work should never be done until the tanks have been cleaned and all areas that may get hot are down to clean metal.

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CHIEF OF BUREAU

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