

INTERNAL CORRESPONDENCE

GA 1076

FROM R. T. Cheng

IN REPLY
REFER TO RTC:78-84

TO H. E. Runion

DATE June 15, 1978

SUBJECT GOCHEM OPERATIONS In Western Region

Except one explosive plant in Flagstaff, Arizona and another in Wyoming, GOICHEM's major western region operations are located in the Far East. Following are my assessments of the industrial hygiene and environmental concerns at these facilities.



R. T. Cheng

RTC/aln

attachment

CUSAROSS 00034

I. CHINA GULF PLASTICS CORPORATION

- A. Vinyl Chloride. Impressive progress has been achieved by CGPC in reducing workers' occupational VCM exposures. The time-weighted average VCM exposure for Toufen Polymer Plant workers was over 200 ppm prior to 1974; reduced to about 50 ppm by August 1976; further reduced to approximately 10 ppm, as surveyed in November 1977. Additional process modification and engineering and work-practices controls are needed to meet the 1 ppm VCM exposure standard of the U. S. and other advanced countries.
- B. Ethylene Dichloride. Based on the results of bioassay tests of ethylene dichloride (ECD) performed by the National Cancer Institute, NIOSH recently has recommended that EDC be handled in the workplaces as if it were a human carcinogen. EDC is currently used in CGPC and at CGPC's joint venture at TVCM Kaohsiung Plant. A walk-through industrial hygiene survey at Kaohsiung Plant indicates very high occupational EDC exposures. A comprehensive I.H. survey should be conducted and various engineering and work-practice control measures implemented to guard against over-exposure.
- C. Mercury. Occupational mercury vapor exposures at CGPC's Toufen Chlor-Alkali Plant have been reduced to acceptable levels through measures of local exhaust ventilation and dilution ventilation. However, the problems related to the treatment and disposal of mercury-containing wastewater should be investigated and solved to prevent potentially dangerous environmental hazards from occurring.
- D. Heavy metals, Dyes and Pigments. Exposures to dusts of lead, barium and chromium in the Extrusion Plant were mostly under control. It has been recommended that dye and pigments containing lead chromate be replaced with safer substitutes. A recent NIOSH bulletin warned that three widely-used benzidine-derived dyes were human carcinogens. A review of CGPC's 1977 inventory of dyes and pigments indicate that two dyes used at CGPC might be benzidine-derived dyes.
- E. Solvent Vapors. Occupational solvent vapor exposures have been reduced over the years since our first I.H. survey in February 1977. However, there were still excessive airborne solvent vapor concentrations in the Printing Shop and in the new Polyurethane Plant. Additional exhaust ventilation is required to lower solvent vapor exposures to safe levels.

- F. Air Pollution. CGPC does not have any VCM emission control devices for air pollution prevention. There have been complaints of excessive PVC dusts emission from PVC drying plant. An ambient VCM survey conducted in December 1976 showed 0.12 ppm VCM concentration at the fenceline downwind from Toufen Polymer Plant. CGPC has been cited for DOP fumes air pollution by local regulatory agency. Chlorine emissions from Chlor-Alkali Plant caused community air pollution complaints in 1976, but the problem has been under control during November 1977 industrial hygiene survey.
- G. Water Pollution. CGPC's wastewaters only receive primary treatment (settling in a pond to remove suspended solids) prior to discharge to a river leading to the ocean. There have been complaints of fish kill and crop damage from local community. CGPC's wastewaters contain VCM, mercury, solvents, DOP, salts, caustic soda, and plating room wastes (cyanides, chromium, etc.) CGPC needs a complete wastewater treatment plant. However, Taiwan's regulatory standard is not that stringent and existing standards not vigorously enforced.

II. ASIA POLYMER CORPORATION

Construction of Asia Polymer Corporation is scheduled for completion in 1979. Gulf holds 35% interest in this low density polyethylene joint venture. Industrial hygiene problems associated with low density polyethylene manufacturing process are noise, catalyst dusts, resin dusts, radiation (level and density gages), solvents exposures in the laboratory, mercury in the instrument shop, and CO in the warehouse. Ethylene air pollution emissions could cause crop damage.

III. CHINHAE FERTILIZER PLANT

Gulf has 25% interest in this joint venture. The plant has not been visited by any industrial hygienist. A comprehensive industrial hygiene survey should be conducted.

IV. CHEMICAL OPERATIONS OF ULSAN REFINERY

There is a huge petrochemical and downstream-chemicals operation at Ulsan Refinery, but I believe the operation is under GORAM, not GOCHEM.