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ACLs PROPOSED BY UNION CARBIDE CORP., INSTITUTE, WV, COMMENTS ON

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

JUN 19 1987

MEMORANDUM

SUBJECT: Review of Alternate Concentration Limits Proposed
by Union Carbide Corp., Institute, West Virginia

FROM: Bob Kayser, Acting Chief
Land Disposal Permit Assistant Section (WH-563)

TO: Robert E. Greaves, Acting Chief
Waste Management Branch, Region III

As requested, the Land Disposal Permit Assistance Team (PAT) has reviewed the ACL proposal submitted by Union Carbide Corp. (UCC) in September, 1984. The review was performed by Mark Salee of the PAT. The following comments and recommendations have been developed based upon the PAT's interpretation of the current draft ACL guidance and policy.

The ACL Guidance document has gone through the Agency's Red Border review and is currently being reviewed by the Office of Management and Budget. A number of issues were raised during Red Border review of the ACL Guidance document. Decisions on these issues have been made and the document has been revised to reflect the recent decisions. An issue that impacts the Union Carbide ACL proposal pertains to ACLs based on discharge of contaminated ground water to surface water bodies. Part of the ACL policy is that contaminant plumes in usable ground water will not be allowed to increase in size. This applies to the areal extent of all contamination and contaminants at concentrations above allowable health or environmental exposure levels within the plume. Contaminants at concentration levels below allowable health or environmental exposure levels at the point of compliance could have ACLs established at the allowable health or environmental exposure levels.

ACLs based on contaminant discharge into a surface body can

be set at current contaminant concentrations that are above allowable health or environmental exposure levels at the point of compliance if the following conditions are met: 1) the facility property boundary is immediately adjacent to the surface water body, 2) the contaminant plume must have already reached the surface water body, and 3) the hazardous constituents are not causing a statistically significant increase in constituent concentrations over the background concentrations in the surface water body.

The following discussion assumes that all of the contaminant plume is discharging into the Kanawha River. However, from the information submitted in the proposal, it appears that the contaminant plume may be migrating off-site along the eastern property boundary, near well 6 (Well 6 has shown bis(2-chloroethyl) ether levels between 26 and 59 ppb). The proposal does not contain any information on the ownership, land use, or ground-water use off-site in this area. A more detailed investigation into the extent of migration of the plume in this area, and the land and water uses in this area is needed to fully evaluate the impacts from the ground-water contamination.

The ACLs proposed by UCC have been evaluated based on the above policy. After a comparison of the highest constituent concentrations detected in the monitoring wells, the allowable health or environmental exposure levels for those constituents, and the proposed ACLs (see Table I), the PAT concludes that the proposed ACLs for the three constituents are unacceptable. The proposed ACLs are greater than the highest detected concentrations of the constituents in the monitoring wells. Also, the highest detected concentrations of bis(2-chloroethyl) ether and antimony are greater than the allowable exposure levels for these constituents.

The concentration limits for these constituents could be set at the highest concentrations detected in the ground water if the constituents are not causing a statistically significant increase in their concentrations over their background concentrations in the Kanawha River. The reviewed proposal does not contain adequate surface water quality data to make this determination, nor does the proposal contain sufficient information to verify that all of the contaminated ground water is discharging into the Kanawha River.

Union Carbide states that,

> "no information exists within the wastewater treatment plant area concerning the piezometric surface in the underlying bedrock. However, the Kanawha River valley is known to be a major ground-water discharge area. Consequently, ground water in the bedrock flows vertically upward, entering the alluvium and ultimately the Kanawha River."

Additional information concerning the horizontal and vertical migration of the contamination is needed to verify this claim. Additional surface water quality data is also needed to determine if the discharge of contamination into the Kanawha River is causing a statistically significant increase over background concentrations in the surface water. Samples should be collected within the discharge zone of the contaminant plume during a period in which stream flow is near average conditions for the specific season. These samples should include water samples taken at mid-depth and sediment samples.