9433.1987(05)

DENIAL OF DELISTING PETITION BASED ON EXISTING GROUNDWATER CONTAMINATION

OFFICE OF SOLID WASTE AND EMERGENCY RESPONSE

MAR 19 1987

Mr. Omar Muniz Diaz, P.E.
Manager - Safety, Health and Environmental Affairs
Union Carbide Caribe inc
Firm Delivery
Ponce, PR 00731

Reference: Delisting Petition for Union Carbide Caribe, Inc.
(#0658)

Dear Mr. Diaz:

The Permits and State Programs Division has completed its review of Union Carbide Inc.'s (UCCI) petition requesting the exclusion of its aeration basins, which are located at UCCI's Penuelas, Puerto Rico wastewater treatment facility and are presently classified by application of the derived-from and mixture rules as EPA Hazardous Waste Number K022 (distillation bottom tars from the production of phenol/acetone from cumene). Based on existing ground water contamination and results from our evaluation of aeration basin sludge, wastewater, and soil composition data, we will recommend to the Assistant Administrator for Solid Waste and Emergency Response that your petition be denied.

We believe that UCCI's aeration basins are at least partially responsible for contamination of the ground water underlying the wastewater treatment facility based on the detection of organic and inorganic contaminants in nearby monitoring wells and on the existence of a ground water mound beneath the basins. Monitoring well data submitted in support of your petition for monitoring wells 13B and 14B, which are immediately downgradient from the aeration basins, exhibit silver, mercury, and lead levels above their respective drinking water standards. Constituents found in these wells were also found in the wastewater and sludge of the

aeration basins and in the soils below the basins. These reported concentrations of heavy metals are above background levels and are most likely indicators of the downgradient ground water

transport of these contaminants from the aeration basins. Other contaminants (e.g., benzene, toluene, naphthalene, dimethyl phenol, fluoranthene, anthracene, chrysene, dibutyl phthalate, barium, cadmium, chromium, and selenium) were also reported as detected in nearby monitoring wells. With respect to monitoring

well 15B, UCCI has claimed that the contamination of ground water in its vicinity is a result of a leak from an underground concrete transfer pipe for influent to the wastewater treatment system. We believe, however, that the tracer test conducted to investigate this claim is inconclusive. The tracer test did not demonstrate that the leaking fluid would reach well 15B under normal conditions (i.e., in the absence of the test's rigorous pumping conditions). Therefore, we cannot conclude that the leaking fluid has reached well 15B and is solely responsible for the ground water contamination.

We believe that all units of the wastewater treatment facility and management area, including the aeration basins, have contributed to the ground water contaminations since a ground water mound uniformly surrounds the complex. We cannot conclude, however, that the area's ground water contamination is solely a direct result of seepage from the aeration basins since constituents similar to those found in basins are also contained in wastes found in other units of the wastewater treatment facility and waste management area. Even though underlying ground water is not potable, we consider the existence of ground water contamination to be sufficient grounds for petition denial.

In support of delisting decisions, the Agency uses a ground water transport model, the vertical and horizontal spread (VHS) model, that was developed to predict the environmental impact of toxicants leaching from wastes.1/ The Agency also has developed an organic leachate model (OLM) to predict the mobility of organic toxicants from land-disposed wastes. The OLM calculates organic leachate concentrations which may then be used as inputs to the VHS model. (See 50 FR 48944, November 13, 1985; 51 FR 27061, July 29, 1986; and 51 FR 41084, November 13, 1986.) The OLM and VHS models

were used to evaluates the sludge and wastewater contained in the aeration basins, as well as the soils below the basins. This analysis predicted that levels of certain constituents at a hypothetical drinking water well will exceed regulatory standards.

1/ As a result of the Hazardous and Solid Waste Amendments of 1984, the Agency is now required to consider all toxicants and factors that may cause the waste to be hazardous. In addition to these changes, the Agency has developed new tools to evaluate petitions. The VHS model (see 50 FR 48886-48967, November 27, 1985) is one of those tools used by the Agency in making delisting decisions regarding leachable toxicants contained in a land-disposed waste. The VHS model establishes a sliding regulatory scale that is based on the volume of waste generated and extract data. The model predicts the concentration of each toxicant at a hypothetical compliance point located 500 feet from the disposal site. The Agency considers the hazards presented by the waste by comparing the compliance point concentrations of the toxicants predicted by the VHS model with a regulatory standard of each toxicant.

Specifically, bromomethane, trichlorethylene, and 1,1,2,2-tetrachloroethane levels in the sludge; benzene, fluorene, phenanthrene, and tetrachloroethylene levels in the waste water; and bromomethane, trichloroethylene, and 1,1,2,2-tetrachlorethane levels in the soils generate compliance point concentrations that exceed health-based standards (i.e., fail the OLM/VHS model analysis). A summary of our analysis is presented in the following table. This table presents the maximum allowable level (MAL) for each constituent of concern, as determined by the VHS model, that would be allowed in the sludge, wastewater, or soil. The number of samples that exceed this level and the number of samples analyzed are also presented.

	MAL (ppm)	No. of Samples that Exceed MAL	No. of Samples Analyzed
Sludge:			
Bromomethane	0.69	1	8
Trichloroethylene	0.59	1	8

1,1,2,2-Tetrachloro-ethane	0.15	1	8

Wastewater:

Benzene	0.0076	6	24
Fluorene	0.013	2	14
Phenanthrene	0.013	2	14
Tetrachloroethylene	0.004	1	7

Soil:

Bromothane	0.69	3	10
Trichloroethylene	0.59	3	10
1,1,2,2-Tetrachloro-ethane	0.15	1	10

As a matter of policy, the Agency does not consider site-specific factors (such as ground water salinity and hydrogeologic site characteristics) when determining whether or not a petitioned waste is hazardous. Instead, because waste, once delisted, can be moved to any other site and be disposed, the Agency uses a model (OLM/VHS) with general applicability to evaluate the potential hazard. The model results combined with the existing ground water contamination discussed above are the basis for the Agency's intent to deny to your petition.

We conclude that the aeration basins and the materials contained therein present significant hazard to both human health and the environment. The basins should be considered hazardous and subject to regulation under 40 CFR Parts 262 through 265 and the permitting standards of 40 CFR Part 270. Accordingly, we will recommend to the Office Director and Assistant Administrator that a notice proposing to deny the petition be published in the Federal Register. Our policy is to give petitioners the option of withdrawing their petitions instead of publishing a negative finding in the Federal Register. If you prefer this option, you must send us a letter withdrawing your petition and indicating that the aeration basins are considered hazardous and will be managed as such. If you send such a letter, it should be forwarded to this office within 2 weeks of the date of receipt of today's correspondence. If you choose not to withdraw your petition, a proposed denial

decision will be published in the Federal Register. If you have any questions regarding any of the above, please contact Myles Morse of my staff at (202) 382-4788.

Sincerely,

Original Document signed

Susan Bromm
Acting Director, Permits
and State Programs Division

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cc: J. Utz, SAIC
F. Kozak, Region II
S. Siegel, Region II

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