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LDR DETERMINATION OF WASTE STREAM DILUTION

OCT 14 1990

MEMORANDUM

SUBJECT: Guidance from Headquarters to help Determine Possible Violation of the Land Disposal Restrictions

FROM: Jeffery D. Denit, Deputy Director
Office of Solid Waste (OS-300)

TO: Bruce Smith, Director
Office of Hazardous Waste Programs (3HWO3)
Region III

This memorandum is written in response to your request for assistance from EPA Headquarters in making a Land Disposal Restrictions (LDR) determination for the Rhone-Poulenc facility located in Institute, West Virginia. As stated in your August 17, 1990, memorandum, Region III is concerned that the facility may be impermissibly diluting several waste streams subject to the LDR requirements. The restricted wastes of concern are: (1) F039 multi-source leachate wastewater streams from the Goff Mountain RCRA Landfill, from the site of Union Carbide's Private Trucking Operation, and from recovery well (RW-l); and (2) U025 dichloroethyl ether "chlorex" from the RW-1 well. The characterization data provided by Rhone-Poulenc show the F039 wastewaters as generated (prior to mixing) exceed both organic and metal LDR treatment standards, and U025 wastewaters as generated exceed the LDR treatment standard for dichloroethyl ether.

As described by Rhone-Poulenc in the document entitled "Treatment of Multisource Leachate in Rhone-Poulenc's Institute, West Virginia WWTU" submitted to EPA Region III on June 14, 1990, the treatment system consists of primary treatment (e.g., mixing, equalization, emergency diversion, neutralization and clarification) in tanks and secondary treatment (biotreatment and clarification) in surface impoundments. Before entering the primary treatment tanks, approximately 15,000 gallons per day (GPD) of F039 and U025 wastewaters subject to the LDR are mixed with approximately 4.5 million GPD of process water not subject to the LDR. The resultant wastewater mixture apparently meets the LDR levels for F039 and U025 wastewaters before entering the secondary treatment system. Rhone-Poulenc did not analyze for all regulated constituents or properly justify the selected constituents.

We believe that the facility may be violating the dilution prohibition. They have not provided evidence supporting that

legitimate treatment for LDR organic or metal constituents is occurring in their treatment system. We also believe that the facility may be in violation of land disposing nonwastewaters that exceed the U025 treatment standards because the facility appears to have interpreted a portion of the LDR requirements for nonwastewaters incorrectly. Our analysis is summarized below.

Possible LDR Dilution Prohibition Violation

Rhone-Poulenc argues that its system consists of an initial aggregation point which equalizes wastes, followed by legitimate centralized treatment in section 3005(j)(3) aggressive biological treatment impoundment. (Chambers letter, pp. 4-5.) We discuss this argument below with respect to organic and metal contaminants.

Organics

The Agency's discussion of this issue appears at 55 FR 22666. In general, we determined that initial aggregation of similar wastes followed by legitimate centralized treatment may be permissible (i.e., may not constitute impermissible dilution), even if treatment occurs in a surface impoundment or other land disposal unit (provided, of course, that the waste meets the treatment standard before land disposal occurs, or that disposal occurs in a section 3005(j)(11) impoundment). (Thus, the issue of treatment of organics in aggregation tanks is not relevant.) In determining what constitutes legitimate centralized treatment, we indicated that the clearest indication was use of the same type of treatment as that on which the treatment standard for the prohibited waste is based. Id. col. 2. While biological treatment was one of the treatment technologies relied upon by the Agency in establishing treatment standards for multi-source leachate, it is not the only treatment and is clearly not appropriate for all F039 constituents. (See Background Documents on BDAT for F039.) In addition, combination of leachate containing organics with process wastewater containing organics for biological treatment could be permissible aggregation, because it appears that the facility could be combining different wastes amenable to the same type of treatment technology. Id. col. 1. Before a final assessment could be made, Rhone Poulenc would need to submit characterization data demonstrating similarities in composition between leachate and process wastewaters (e.g., indicating biodegradable constituents at approximately the same concentration levels). A demonstration would also be needed indicating that the treatment impoundment is capable of treating toxic organics in the commingled wastewaters, i.e., that levels of these toxic organics are not so low as to go untreated in the Rhone Poulenc impoundment. Absent such a showing, EPA could not conclude that the impoundment is legitimately treating the organics in the prohibited wastes.

Assuming that the leachate is commingled with similar plant wastewaters and that biodegradation is the appropriate treatment for all of the F039 organics and for the plant wastewaters, the treatment of organics would be permissible.

Metals

It appears that Rhone-Poulenc is impermissibly diluting metals in its system. The same analysis used for organics would indicate that biological treatment is inappropriate for metals (Id. col. 1-2 ("An example of a type of treatment that is inappropriate for treatment of certain prohibited wastes would be biological treatment standards for metals. In these systems, metal removal is incidental and nowhere as efficient as systems designed to treat metals... 11). The initial aggregation step, in which metals are removed by settling, likewise probably does not constitute proper treatment of metals. As Rhone-Poulenc states, it is an aggregation step, not a treatment step; it achieves a homogenous mixture that allows optimization of biological treatment of organics. Adequate treatment of metals would require chemical precipitation or some other type of comparable treatment. (See Background Documents on BDAT for F039.) At the least, Rhone-Poulenc has not yet demonstrated that it can meet the F039 wastewater metals standards by use of primary treatment (i.e., settling in tanks for short periods of time).

Consequently, Rhone-Poulenc is taking a prohibited waste with treatment standards for metals, which does not meet those treatment standards as generated, mixing it with a large volume of wastewater, and introducing it to a system that does not provide anything more than incidental removal of metals. This appears to constitute impermissible dilution. LL at 22666 col. 1-2. (Rhone-Poulenc's argument that the leachate does not differ significantly from its process wastewater which is only treated by biological treatment does not prove anything; it may be that Rhone-Poulenc is not adequately treating the metals in its process wastewater either. The key here is that there are metal standards for multi-source leachate, Rhone-Poulenc's leachate as generated does not meet those standards, and the leachate only meets those standards after it is mixed in a treatment system that at no point does proper treatment for metals.)

Rhone-Poulenc submitted influent and effluent data from a lab-scale model in an attempt to demonstrate the applicability and treatment performance of the primary treatment system. The data submitted show only some reduction for a few regulated organic constituents and no data is provided to demonstrate removal rates for any metal constituents. While the final determination on a case-specific dilution issue should generally be made by the Region (or State), you should be aware of our concerns with these data submitted by Rhone-Poulenc. (In many

instances, our concerns are similar to those presented in a memorandum from Region III to Rhone-Poulenc on July 30, 1990.) The facility incorrectly labels their lab-scale experiment as a more stringent test criteria than that required by the Agency to demonstrate treatment performance and refers to the November 1989 proposal for the Third-Third rule. EPA proposed to require a reduction of at least one BDAT list constituent at the point of aggregation to demonstrate that the aggregation did not constitute impermissible dilution (54 FR 48372, 48494-48496). The reason the Agency did not finalize this criteria is because it was not stringent enough to provide the adequate information needed to make a reliable determination of legitimate treatment (55 FR 22665).

We believe that the lab-scale data are inadequate to demonstrate that appropriate treatment for F039 and U025 wastewaters is achieved before disposal into the surface impoundments. Not only should data from the actual full-scale treatment system be used to make a demonstration of treatment performance, but it should include removal rates for all regulated constituents determined to be present in the wastes. (For F039, the regulated constituents include over 200 constituents, regardless of the original constituent listings of wastes disposed in the landfill and surface impoundments.) Based on our experience, the type of treatment used by Rhone-Poulenc will likely not provide removal rates comparable to the levels otherwise needed to legitimately treat the metals present in the F039 wastes to BDAT levels; consequently, it appears the facility is diluting metals impermissibly to achieve the LDR levels for F039 wastewaters.

Possible Nonwastewater LDR Violation

It also appears that Rhone-Poulenc is in violation of various standards for nonwastewaters. First, with respect to the sludge derived from treating F039 wastewaters, the sludge received a two-year national capacity variance and consequently can only be disposed of in a minimum technology surface impoundment during that period or must comply with F039 nonwastewater standards. See Section 268.35(h). Section 3005(j)(3) impoundments do not meet the minimum technology requirement provisions unless they have received one of the section 3004(o)(2) or (3) waivers. See 53 FR 31185-186 (August 17, 1988) ("although many commenters stated that the retrofit waivers granted under 3005(j)(3) ... should also be recognized under the land disposal restrictions, the Agency disagrees. EPA believes that Congress would have included these waivers had it intended to do so.") Thus, absence compliance with a waiver from minimum technology requirements (the section 3004(o)(2) waivers are codified in 264.221(d) and (e) and 265.221(c) and (d)), the sludge cannot be placed in the surface impoundment.

With respect to the treatment standard for U025, the

standard must be met before land disposal of the waste. API v. EPA, 906 F. 2d 729, 735-36 (D.C. Cir. 1990). Consequently, the sludge in the impoundment must meet the nonwastewater U025 standard. In addition, further placement of the sludge in the Goff landfill is acceptable only if that landfill is a subtitle C unit (and the sludge would have to meet the U025 treatment standards before that land disposal as well).

Should you require additional information, please contact me at FTS 382-4627 or Richard Kinch at FTS 382-7917.

Attachments