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PETROLEUM REFINERY SLUDGE REGULATIONS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Mr. James B. MacRae, Jr.
Acting Administrator
Office of Information and Regulatory Affairs
Office of Management and Budget
New Executive Office Building
Room 3019
Washington, D.C. 20503

Dear Mr. MacRae:

The purpose of this letter is to summarize the Agency's response to issues raised in OMB's review of the petroleum refinery sludge hazardous waste listing regulation. Since receiving your letter on September 6, 1990 the Agency has spent considerable time reviewing the issues raised, re-analyzing the data that support the rule, and developing written responses, the most recent of which we sent to you on October 5. Both the Deputy Administrator and I have spent significant amounts of time personally on this matter; we have both been briefed by staff on the issues, we have formulated the Agency's response, and we have met with you or talked personally on the phone. As late as the morning of October 16 EPA and OMB staff were engaged in detailed discussions on the text of the preamble. I am sure you will agree that the Agency has been quite responsive to your concerns.

As you know, the fundamental purpose of this regulation is to complete the work begun in 1980 when the Agency listed the first group of primary wastewater treatment sludges from petroleum refining. A major weakness in the original listing was that it failed to capture all of the primary sludges generated at petroleum refineries. This final listing regulation simply completes RCRA coverage of the these primary wastewater treatment sludges, all of which have the potential to present significant risks to human health when mismanaged. I therefore strongly encourage you to complete your review of this important regulation. Your speedy action is particularly important since the Agency is now under order of the U.S. District Court for the District of Columbia to promulgate this rule by October 22, 1990.

Following is a summary of the Agency's responses to your concerns in the order presented in your letter.

EPA's Decision to List Is Based on Arbitrary Distinctions Between Waste Types

Your September 6 letter raised two concerns about the scope of the listing determination. Your first concern is that the preamble fails to document the distinction between primary separation and biological separation sludges and thus calls into question the Agency's rationale for listing the former but not the latter. You provide data to support your conclusion that the levels of hazardous constituents in the two types of sludges are similar enough to justify the listing of both. Your second concern is that the listing determination fails to account for the variability in levels of hazardous constituents in the primary sludges and thus over-regulates.

With respect to your first concern, the Agency has never intended to include biological sludges in this listing nor have we published any documents suggesting that we were considering such an action. Our intent has always been simply to regulate the primary sludges that were not captured by the 1980 listings. Since biological sludges were not within the scope of the rulemaking, we have never undertaken a major sampling effort and therefore have only limited data. This limited data and our engineering judgment lead us to believe that biological sludges contain significantly lower levels of many hazardous constituents than primary sludges and thus pose less of a risk to human health and the environment. In attempting to re-create the figures shown in the table on page 4 of your letter, we realized that your figures for the concentration of hazardous constituents in biological treatment sludges include data from some units that would be regulated as primary treatment units under this listing. Your figures therefore overstate the concentration of hazardous constituents in aggressive biological treatment sludges and do not by themselves provide a rationale for listing biological treatment sludges. In our October 5 letter we transmitted new preamble language and data that more clearly explain why the Agency cannot justify the listing of biological sludges at this time.

Your letter also states that the levels of hazardous constituents in primary sludges vary by orders of magnitude

across facilities and between units and thus the listing is over-inclusive. The Agency's data do not support this conclusion. While it is true that individual constituent concentrations vary, virtually every sample of primary separation sludge collected by the Agency contains one or more hazardous constituents several orders of magnitude above the applicable health-based levels.

Thus, notwithstanding variation among constituent concentrations, these data clearly demonstrate that all primary sludges have the potential to pose a risk to human health.

Selective Application of the Factors for Consideration in § 261.11 (a) (3)

Potential for Human Exposure

Your letter states that the Agency has not provided evidence of contamination in drinking water wells down-gradient of petroleum refineries. In response, we have provided preamble language documenting evidence found in Region VI of contamination of RCRA groundwater monitoring wells by currently listed primary separation sludges. As we stated in our earlier written response and in our October 4 meeting, it would be time-consuming and costly for the Agency to monitor drinking water wells (as opposed to monitoring wells) for the purposes of regulation development. Even if the monitoring data were collected, it would also be difficult to identify the specific source of any contamination detected due to the prevalence of contaminants surrounding petroleum refineries. The same limitation on identifying contamination sources applies to monitoring conducted by public drinking water treatment utilities. Therefore, as a standard practice, we rely heavily on modeling of constituent fate and transport to predict the potential for drinking water contamination from particular wastestreams. In the case of this industry, we have an unusually large database containing real-world information on toxic constituents, current management practices, site hydrogeology, and distances to public and private wells. It is our view that the fate and transport model, coupled with extensive real-world data inputs and the Region VI damage cases provide clear evidence of the potential for these sludges to contaminate down-gradient drinking water sources when they are mismanaged.

Factors Inadequately Addressed in the Draft Preamble
Risk Reducing Effects of Drinking Water Regulations

Your letter suggests that the benefits analysis and the decision to regulate should take into account both the effects of existing regulations under the Safe Drinking Water (SDWA) and the effects of contaminant taste and odor on drinking water use. You imply that it would be less costly to society to rely on SDWA regulations to prevent human exposure to any groundwater contamination through public drinking water treatment systems and to rely on contaminant taste and odor to prevent human exposure through private wells.

The Agency views this approach, which focuses on cleanup, as contrary to both the statutory goals of RCRA and the Agency's pollution prevention strategy. Prevention of pollution often has proven to yield long-term benefits. The Agency nonetheless agrees that the existence of drinking water regulations for some of the hazardous constituents of primary separation sludge is relevant to the quantitative benefits calculation. However, drinking water regulations do not exist for all of the hazardous constituents, most notably the polynuclear aromatic hydrocarbons that are common in the petroleum sludges at issue here. The Agency did not therefore invest its limited analytical resources in a further refinement of the benefits analysis to measure the exact impact of drinking water regulations. We did provide in our October 5 letter additional language for the preamble and the Regulatory Impact Analysis (RIA) that qualitatively addresses this limitation in the analysis.

Contaminant taste and odor would be an unreliable approach to protection of private well users. The concentration threshold at which people taste and smell contaminants varies, and in the case of benzene, the threshold is several times higher than the drinking water regulatory level. Such an approach would obviously not be effective for contaminants that have neither taste nor odor.

The Agency also does not dispute the fact that treatment of contaminated groundwater is less costly in the short term than full implementation of RCRA Subtitle C. We are not convinced however, that the long-term costs to society would indeed be lower, given the mandates of both RCRA and CERCLA to clean up contamination and the essentially unquantifiable value of an uncontaminated natural resource. The policy and legal implications of implementing a treatment approach are profound, and would require the Agency to undertake a comprehensive rethinking of the RCRA and CERCLA programs. We do not believe that it is appropriate to undertake

such an effort at this time or in the context of this individual rulemaking. We would welcome the opportunity to discuss the environmental implications of relying on groundwater treatment instead of prevention and remediation later this fall as we begin to prepare for the reauthorization of RCRA.

Other Appropriate Considerations

1) Alternative Means of Achieving Equivalent Risk - Reduction Benefits at Less Cost

You suggest that EPA should have given further consideration to a range of alternatives for the regulation of primary separation sludge. Examples given include a de minimis approach, a Subtitle "D" or "D+" approach, and the more novel idea of regulating only when contamination in drinking water wells has actually been detected and the refinery has failed to provide either treatment or alternative water supply. Your letter goes on to state that full implementation of Subtitle C dampens pollution prevention incentives by regulating all of the sludges to the same degree of stringency regardless of their level of toxicity.

Based on further analysis, we have found first that petroleum refinery primary wastewater treatment sludges are unlikely to qualify for a de minimis exemption from Subtitle C regulation. Since 1980 the industry has been unable to lower constituent levels to meet even the hazardous waste delisting levels, so we do not consider a de minimis approach to be viable. Second, we do not have statutory authority to develop or enforce Subtitle D regulations for this industry at this time, nor are we aware of the legal authority under which your final regulatory alternative could be implemented. We therefore did not pursue analysis of these options in our RIA.

The Agency could consider pursuing a concentration-based listing or tailoring existing Subtitle C requirements to this particular industry in hopes of reducing the costs of compliance. However, neither approach is likely to produce dramatic savings in this industry. The toxicity and mobility of these sludges would probably prevent the Agency from establishing concentrations that would allow substantial volumes to escape regulation. It would also be difficult to justify significant deviation from established Subtitle C engineering standards. Both approaches would require a new data collection and analysis effort as well as a re-proposal of the rule. We do not think it is appropriate to consider a

fundamental change in our regulatory approach for petroleum refining waste at this late stage in the process" particularly when the standards for newly listed sludges would vary in approach from standards that apply to virtually identical sludges that have been listed since 1980. We do believe, however, that both concentration-based listings and tailored standards are worthy of consideration in the future for those wastestreams where it is appropriate. There are policy, legal, and resource issues to be evaluated before the Agency can fully implement either approach. We would be happy to discuss these issues with you at your convenience.

We do not agree with your statement that listing discourages pollution prevention. Our experience has been that listing under Subtitle C creates a strong incentive to reduce waste volume, to improve the efficiency of wastewater treatment systems, and to recycle and re-use waste materials. Based on this experience and information provided to us by the refining industry, we would expect the same incentives to exist for these petroleum sludge listings.

2) Upper-Bound Excess Lifetime Cancer Risk is Within EPA's Acceptable Risk Range

Your letter indicates that the excess cancer risks presented by primary treatment sludge are within the 10-4 to 10-6 "acceptable" range. Your letter fails to point out that OMB used average upper-bound cancer risks to the exposed population to document this statement as opposed to the cancer risks posed to the maximally exposed individuals (MEI's) at individual refineries. Historically, EPA has set standards to protect against MEI cancer risk levels in the 10-4 to 10-6 range.

3) Costs Exceed Benefits by at Least an Order of Magnitude

EPA is aware that the projected costs of complying with the petroleum refinery sludge listing exceed the benefits we have been able to quantify. It is extremely difficult to quantify the health and environmental benefits of prevention regulations and we would welcome any advice OMB may have on improving our techniques for benefits estimation. We provided in the attachments to our October 5 letter a discussion of the factors that have caused us to under-estimate benefits. These include exposure pathways not analyzed, constituents not included in the analysis, and future populations not accounted for. We believe that the incentives to

reduce waste volumes and upgrade wastewater treatment systems, the closing of a long-standing gap in RCRA regulatory coverage, and the consistency with previous listing decisions are all factors in addition to the cost/benefit ratio that must be considered in this final regulatory decision.

In closing, I would like to say that EPA appreciates the time and effort that you and your staff have devoted to the review of this regulation. You have pointed out some issues which required fuller discussion in the preamble and have raised broad policy issues that clearly merit further consideration as we look to the future of the hazardous waste program. However, given the existence of a gap for 10 years in RCRA regulatory coverage of primary separation sludges and the court order requiring the Administrator to take final action on this rule by October 22, the Agency finds there is a compelling need to complete our work on the petroleum refinery sludge listing and promulgate this final rule.

Sincerely,

Don R. Clay
Assistant Administrator

cc: F. Henry Habicht, II