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BERYL PLANT AND RAFFINATE DISCARD CLASSIFICATION

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

MAR 15 1990

Mr. Richard Davis
Brush Wellman, Inc.
1200 Hanna Building
Cleveland, Ohio 44115

Dear Mr. Davis:

On November 30, 1989, at Brush Wellman's request, representatives of EPA's Office of Solid Waste (OSW) met with representatives of Brush Wellman at EPA Headquarters. At this meeting, Brush Wellman requested clarification of the Beville status of each of the three wastes addressed in the September 1 final rule, and provided additional information on the nature of the beryllium production operations conducted at the Delta, Utah plant. (Meeting minutes and a copy of Brush Wellman's written statement may be found in the docket for the September 1, 1989, final rule.)

At the November, 1989 meeting Brush Wellman requested that beryl plant discard and raffinate discard (processing raffinate) be reclassified as beneficiation wastes, and provided several statements supporting this position. First Brush Wellman reasoned that, in an operational sense, the beryl ore and bertrandite ore circuits produce identical intermediate products and very similar waste streams; to subject them to different regulatory requirements would therefore be arbitrary and unreasonable. Second, the key production steps that distinguish the beryl and bertrandite circuits (melting and fritting) involve only physical changes to the ore; nothing is added to or removed from the beneficiated ore during these operations, and they do not generate any waste streams (except for APC dusts). Indeed, it was stated that the purpose of the melting-fritting sequence is merely to change the crystalline structure of the mineral to make it more amenable to the leaching (beneficiation) that follows, rather than to purify or refine the mineral value. Finally, Brush Wellman contended that the two wastes that were

removed from the Bevill exclusion by the September 1 final rule has been explicitly studied in the Report to Congress on extraction and beneficiation wastes, and hence were de facto beneficiation wastes; i.e., their regulatory status had already been established.

In the September 1, 1989, final rule, EPA established the final definitions and criteria that would be used to determine which mineral processing wastes are eligible for the Bevill exclusion, and applied these criteria to all wastes for which existing information was adequate to make Bevill exemption status determinations. Based on public comments and additional analyses found in the dockets, the final definitions of mineral beneficiation and processing differed markedly from those employed in the November, 1988 and April, 1989 proposed rules. One of the key distinctions between the two types of mineral industry operations, as discussed in the preamble to the September 1, 1989, final rule, is that beneficiation operations, including those using heat, may alter the physical/chemical characteristics of or remove water and/or carbon dioxide from the ore or mineral but do not change its basic physical structure, while processing wastes are generally not earthen in character and are physically dissimilar to the ore or mineral (or beneficiated ore or mineral) that entered the processing operation.

Among the industry sectors (and associated wastes) that were addressed in the September 1 final rule was the primary beryllium industry, which consists solely of the Brush Wellman facility near Delta, Utah. In conducting its evaluation, EPA used information submitted by Brush Wellman in the form of public comments on notices of proposed rulemaking addressing the Bevill exclusion and in your response to the 1989 National Survey of Solid Wastes from Mineral Processing Facilities. The process flow diagram (enclosed) provided by Brush Wellman with its survey response indicates a dual beryllium production circuit, in one circuit beryl ore is used and in the other circuit bertrandite ore is used; each mineral undergoes a different series of steps that yield a "pregnant leach solution" that is combined and subjected to further purification steps.

In deciding whether the solid wastes generated by this plant were eligible for the Bevill exclusion, EPA evaluated each of the production steps in order to determine whether and where mineral

beneficiation operations end and mineral processing operations begin at the Brush Wellman facility. In the case of the bertrandite ore circuit, the facility's flow diagram indicates that essentially all of the operations from initial crushing and grinding through solvent extraction and stripping could be considered beneficiation operations, according to the Agency's final definition of beneficiation. In the beryl ore circuit, however, EPA's interpretation of the production steps employed was that the ore undergoes a mineral processing operation (melting) relatively early in the production sequence; hence, all steps following this initial processing step are, by definition, processing steps. Moreover, because the beryl leach solution arising from the beryl ore circuit is combined with that from the bertrandite circuit, all subsequent steps in the operation would be defined as processing operations, and all wastes generated from these steps would be defined as processing wastes, and hence subject to the high volume criteria.

After review and analysis of the new information provided by Brush Wellman in the November 30, 1989 meeting, EPA now concludes that all operations associated with the beryl and bertrandite ore circuits upstream of the iron hydrolysis step are beneficiation operations. As a consequence, the waste streams that are generated by these two production circuits, including beryl plant discard and processing raffinate, are mineral beneficiation wastes rather than processing wastes. Wastes generated downstream of the iron hydrolysis step, such as sludge leaching slurry are considered low volume mineral processing wastes, and are removed from the Bevill exclusion as of the effective date of the September 1, 1989, final rule.

EPA stresses that this decision reflects the application of the same criteria that were enunciated in the September 1 final rule. The Agency's change in position on the status of the wastes generated at the Delta, Utah facility is due solely to receipt of detailed information on the operations of that specific facility and was not available previously. This information suggests that EPA's previous determination was in error, in that the Agency's assumption (based on the response to the National Survey) was that the melting step resembled smelting or similar pyrometallurgical (processing) techniques, rather than serving as a means of recrystallizing the beryl ore (beneficiation) prior to leaching.

If you have any further questions concerning the Bevill status of these wastes, please contact Den Derkics or Bob Hall of my staff at 202-382-3608 or 202-475-8814, respectively.

Sincerely,

Original Document signed

Robert Tonetti
Acting Deputy Director
Waste Management Division

Enclosure