UNITED STATES ENVIRONMENTAL PROTEC.
WASHINGTON, D.C. 20460

APR 19 1989

MEMORANDUM

SUBJECT: Applicability of Ore Mining New Source Performance Standards to Proposed Kensington Mining Project

FROM: James M. Elder, Director
Office of Water Enforcement and Permits

TO: Robert Burd, Director
Water Division
Region 10

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The Office of Water Enforcement and Permits has been requested to provide guidance on the applicability of the new source performance standards (NSPS) for Ore Mining at 40 CFR Part 440 to the proposed Kensington gold mining project located approximately 50 miles north of Juneau, Alaska. This project is at the preliminary stages of the NEPA review process. I understand that one of the options that may be considered as part of the NEPA review is disposal of mine tailings to marine waters. A key consideration regarding whether this disposal option should be included as part of the NEPA review is whether or not it is subject to the zero discharge limitation of the Ore Mining Regulation.

We have discussed this issue with your staff and have also consulted extensively with the Office of General Counsel and the Industrial Technology Division which developed and promulgated the Ore Mining Guidelines. On March 21, 1989, we met with representatives of the Kensington Project to provide them with an opportunity to explain the proposed mine's operation and present their views on the applicability of the Ore Mining regulations. Based upon these discussions and a review of the guidelines as well as documentation provided both by Region 10 and the Kensington Project, I have concluded that any discharge of process wastewater in association with mine tailings is covered by Subpart J of the Ore Mining regulation. Following is an outline of our analysis on this issue.

The mining operation at the Kensington Project scenario that we were asked to specifically focus on consists of mining gold containing ore, concentrating the ore through froth flotation, extracting the gold from the concentrate using cyanide and disposing of the somewhat dewatered tailings and extracted concentrate by mixing them (combined) with sea water for discharge through an outfall pipe into the Lynn Canal. The

mining operation is projected to mine about 3,000 tons per day (1,000,000 tons per year) of ore and will dispose of that amount of waste materials. If dewatered to 50 percent solids, some 3,000 tons or 720,000 gallons of process wastewater per day will be included with the tailings when they are impounded or discharged.

The ore mining regulation (40 CFR Part 440) was promulgated December 3, 1982. It contains Subpart J - Copper, Lead, Zinc, Gold, Silver, and Molybdenum Ores Subcategory, which applies to (inter alia):

(1) Mines that produce copper, lead, zinc, gold, silver, or molybdenum bearing ores or any combination of these ores from open pit or underground operations other than placer deposits.

(2) Mills that use the froth flotation process alone or in conjunction with other processes, for the beneficiation of copper, lead, zinc, gold, silver or molybdenum ores or any combination of these ores.

(3) [Heap leach copper ores]

(4) Mills that use the cyanidation process to extract gold or silver.

The new source performance standard for these mining operations requires:

440.104(b)(1) ... there shall be no discharge of process wastewater to navigable waters from mills that use the froth flotation process alone or in conjunction with other processes, for the beneficiation of copper, lead, zinc, gold, silver or molybdenum ores or any combination of those ores.

440.104(d)(1) ... there shall be no discharge of process wastewater to navigable waters from mills that use the cyanidation process to extract gold or silver.

The term "process wastewater" is defined at 40 CFR Part 401.11(q) to mean "any water which during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, by-product, or waste product."

Of particular applicability to Kensington are the zero discharge standards for the discharge of "process wastewater" from beneficiation and extraction operations. Kensington argues that, after dewatering, it is discharging "solids" and that, therefore, its discharge is not covered by the effluent standards. The difficulty with this argument is twofold. First, Kensington agrees that the so called solids will contain about 50 percent liquid which is clearly process wastewater according to the EPA definition. It can also be argued that the seawater which Kensington proposes to mix with the solids for transporting them to the seabed also becomes process wastewater because it comes into contact with a waste product while it is being processed.

Second, EPA stated in the preamble to the proposed rule that the zero discharge standard based upon recycling would result in "no discharge of pollutants," and the Agency concluded that this standard would "meet the definition of standard of performance permitting no discharge of pollutants." 47 Fed. Reg. 25697 (June 14, 1982). Since the new source performance standards for froth flotation mills were intended to prohibit the discharge of process wastewater, including wastewater pollutants, Kensington's proposed dewatering of the solid materials in the process wastestream would not remove them from the coverage of the regulation. Based on a review of the information provided by Region 10 and by Kensington and considering the effluent standards and definition of process wastewater as well as the preamble language on pollutants, I conclude that these mining wastes are indeed subject to regulation under the provisions of 40 CFR Part 440, Subpart J.

In our meeting with the Kensington representatives, they referred to the U.S. Borax Quartz Hill Mining operation which is located in the Misty Fjords National Monument, approximately 45 miles east of Ketchikan, Alaska. They suggested that since the Quartz Hill project was granted a BPJ permit, the Kensington Mine operation, by analogy, should also receive a BPJ permit and be excluded from coverage by the Ore Mining guidelines. For comparison, the Quartz Hill operation will result in the discharge of 40,000 to 80,0000 tons per day of process waste. The discharge will be 45% to 50% solids by weight and, thus, an additional 40,000 to 60,000 tons of water will also be discharged on a daily basis.

The NPDES Fact Sheet for the Quartz Hill operation notes that the Ore Mining regulation requires zero discharge of "process wastewater (including tailings)" from new source molybdenum mills. It explains that the Quartz Hill mine permit was developed on a BPJ basis rather than under the guideline only

because during the Ore Mining regulatory development process, Quartz Hill was specifically "excluded" from coverage due to an ongoing environmental review that had not been completed. No other mine was explicitly excluded from coverage in this fashion under the regulations. The Fact Sheet also notes that EPA concluded in its response to comments on the Ore Mining rule that the topography and climate associated with the Quartz Hill project did not differ significantly from the existing zero discharge mining operations that were considered in developing the rule.

Based on our review of the U.S. Borax Quartz Hill NPDES Fact Sheet, it appears that the analysis and rationale underlying the Quartz Hill permit supports the application of the zero discharge limit to Kensington. Kensington was not excluded from coverage as was U.S.Borax, and its process wastes are comparable to U.S.Borax's in terms of liquid content.

The Kensington representatives also suggested that EPA consider the Sunbeam mining permit as another example of where the Ore Mining regulation was not applied to a mining operation. I understand that the Region considered the Sunbeam mine to entail different processing procedures than proposed by Kensington and that, therefore, the same restrictions which apply to Kensington did not apply to Sunbeam. This Office has not evaluated the application of the Ore Mining regulations to the Sunbeam situation. It is possible that a closer examination of the Sunbeam facts may indicate that the Sunbeam mining operation is discharging process wastewater. However, a detailed analysis of the Sunbeam situation does not appear to be necessary to address the issues raised by Kensington.

A final consideration in our analysis was EPA's response to comments on the proposed Ore Mining regulation. In addressing the proposed zero discharge of process wastewater, the State of Alaska specifically noted in its comments on the proposed rule that such a discharge limit would "preclude disposal of tailings to marine waters". The State indicated that a case by case analysis would be preferable. EPA responded to Alaska's comment by explicitly acknowledging that " . . . as a practical matter, the treatment requirements of 440.124(a) would prevent the disposal of tailings slurry directly either to marine or non-marine waters." EPA also stated that "The Agency does not believe that it would be appropriate to alter the zero discharge requirement for froth flotation mills to permit the discharge of untreated tailings slurry solely in the case of discharges to marine waters." It is clear from this response to comment, that the Agency considered the situation posed by the Kensington froth flotation mill in developing the Ore Mining regulation and specifically determined that such mills should be covered by the zero discharge limitation.

Please feel free to give me a call if you have any questions regarding this analysis. If your staff needs more information on particular technical issues, they should contact either Ephraim King of this office (FTS 475-9539), or Ernst Hall of the Industrial Technology Division (FTS 382-7126).

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