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MINING WASTES FROM SEARLES LAKE OPERATIONS

United States Environmental Protection Agency  
Washington, D.C. 20460  
Office of Solid Waste and Emergency Response

June 30, 1993

MEMORANDUM

SUBJECT: Regulatory Status of Waste Streams from  
Searles Lake Operations

FROM: Sylvia K. Lowrance, Director  
Office of Solid Waste

To: Jeffrey Zelikson, Director  
Hazardous Waste Management Division, Region 9

This is to follow up on my February 14, 1992 memo to you regarding the status of certain wastes at Searles Lake brine mining operations. On May 8, 1992, the California Department of Toxic Substances Control requested a reconsideration of our interpretation regarding four waste streams, based on additional information, and a clarification regarding one additional waste stream. This memo fully addresses California's 1992 letter. As has been agreed to with your office, please share these final conclusions with the appropriate personnel at California EPA.

As you may recall, in the February 14, 1992 memorandum to Region 9, we stated that oil from:

(1) the Argus plant waste oil storage tank, (2) the Trona plant oil skimmer, (3) the Trona oil skimmer waste oil storage tank, and (4) the Trona plant extractant (crud) treatment process all were wastes from solvent extraction operations, which are beneficiation operations (40 CFR 261.4(b)(7)). Therefore, the waste oil retains the Bevill exemption.

However, based on further review of additional information provided by California and the facility, and also my staff's June

1992 site visit to Searles Lake, we now agree with California's conclusion that the oils from 1, 2, and 3 are clearly from machine maintenance operations, not from the solvent extraction operation. As such, these wastes are not uniquely associated with mining or mineral processing operations. (See attached February 14, 1992 memorandum for discussion on uniquely associated wastes.) Therefore, we believe the oils from (1) the Argus plant waste oil storage tank, (2) the Trona plant oil skimmer, and (3) the Trona oil skimmer waste oil storage tank are not, nor have ever been, exempt under 40 CFR 261.4(b)(7).

With respect to the Trona plant extraction (crud) treatment process, based upon our analysis, we believe that mineral processing begins at LLX2, at the point where boric acid is created. In particular, the basic operation at LLX2 is to selectively extract boron compounds from the brine and then react it with sulfuric acid to form boric acid. The latter part of the operation--where sulfuric acid reacts with sodium borate to produce boric acid--results in products and wastes that are physically and chemically dissimilar to the material that entered the operation--that is, the naturally occurring mineral has been destroyed and a new and relatively pure chemical compound has been created (see 54 FR 36619, September 1, 1989). In addition, the waste from this operation is relatively small volume and highly toxic, compared to the large volumes/low hazard waste that is considered to be "special waste" (see 54 FR 36595, September 1, 1989). The brine is discarded prior to this point and, therefore, retains the Bevill exemption as a waste from beneficiation operations. However, the waste oil from the Trona plant extractant (crud) treatment process is generated after mineral processing begins and, therefore, does not retain the Bevill exemption under 40 CFR 261.4(b)(7).

The May 8, 1992 letter from the California Department of Toxic Substances Control also asks for clarification as to the exempt status of the boiler ash pile. My February 14, 1992 memorandum stated that: "waste generated from the combustion of fossil fuels are exempt from RCRA Subtitle C regulations (40 CFR 261.4(b)(4)). Therefore, the boiler ash pile qualifies for the Bevill exemption." We agree with California that the boiler ash does not qualify under the same exemption as do beneficiation wastes under 40 CFR 261.4(b)(7); rather, the ash is a product of fossil fuel combustion that is exempt only under 40 CFR 261.4(b)(4).

I hope this clarification is of help to you and to the State.

I have attached a copy of the Searles Lake briefing that my staff prepared. It provides the in-depth analysis and evaluation that led to our above interpretations. your staff, as well sa California EPA's might find this detailed explanation useful. If your staff has any questions, please call Mr. Robert Tonetti, Chief, Special Waste Branch at 703-308-8424.

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Attachments  
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United States Environmental Protection Agency  
Washington, D.C. 20460  
Office of Solid Waste and Emergency Response

February 14, 1992

MEMORANDUM

SUBJECT: Regulatory Status of Waste Streams from  
Searles Lake Operations

FROM: Sylvia K. Lowrance, Director  
Office of Solid Waste

TO: Jeffrey Zelikson, Director  
Hazardous Waste Management Division, Region 9

In reference to the July 12, 1991 letter (attached) from John J. Kearns, California Toxic Substances Control Program, to Administrator Reilly regarding the regulatory status of waste streams from Kerr-McGee Chemical Corporation (KMCC) Searles Lake operations, and subsequent discussions with Rich Vaille of your staff, I would like to provide you our analysis of the regulatory status of nine categories of wastes and/or waste management devices. (While the incoming letter from the state requests our assistance in determining whether or not the specific wastes or waste management devices in question are exempted from federal regulations because they are recycled or are recycling devices, it was decided that it would be more appropriate to address the Bevill status of these wastes--that is, to the extent these wastes or waste management devices are considered Bevill wastes or Bevill units, they are exempt from federal hazardous waste control whether or not the waste is recycled or the unit is a recycling device.)

My staff has reviewed a number of documents provided by the California Department of Toxic Substances Control (DTSC), KMCC, and the current operator of the Searles Lake facility North American Chemical Company (NACC). These documents include KMCC's responses to DTSC's and EPA's specific questions about the Searles Lake operations.

Each NACC plant at Searles Lake (namely, Trona, Argus, and Westend) has a number of complex chemical operations. In addition

to generating mineral extraction, beneficiation, and processing wastes, it appears that each plant also generates some wastes that are not "uniquely associated" with mineral extraction, beneficiation, or processing.

The concept of "uniquely associated" has been used consistently by the Agency as a factor in determining which wastes would remain under the Bevill Amendment. (See 45 FR 76619, November 19, 1980 and 54 FR 36616, September 1, 1989.) The Bevill exclusion does not apply to solid wastes such as discarded commercial chemicals; they are not uniquely associated with mineral extraction, beneficiation, or processing. Discarded commercial chemicals include finished mineral-derived products generated at these plants but found to be off-specification and, thus, are discarded. Other wastes not uniquely associated with mineral extraction, beneficiation, or processing include many cleaning wastes (such as a spent commercial solvent that was used in cleaning production vessels) and used lubricating oils.

Wastes that are not uniquely associated with mineral extraction, beneficiation, or processing may be subject to RCRA Subtitle C if they are characteristically hazardous or they are listed as hazardous. The promulgated rule applicable to the mixture of a characteristic hazardous waste with a Bevill-exempt waste or other solid waste states that such a mixture may be hazardous waste (see 54 FR 36622 September 1, 1989 40 CFR 261.3(a)(2)(i)). From the available information, it is clear that many exempt and non-exempt waste streams are mixed at various points in the Searles Lake operations.

However, in a recent court ruling, the Bevill rule applicable to mixtures was remanded to the Agency. As a result, the Agency is currently considering how to respond to the court's decision. One option the Agency is considering is to alter the current rule to allow mixing of small volume characteristic hazardous wastes with Bevill-exempt wastes. If the resulting mixture were not to pose any significant increased risk to human health or the environment, then the mixture would be an exempt waste. However, any such reconsideration would have to go through Agency rulemaking.

The following is our interpretation based on our current rules of the regulatory status of NACC's nine categories of wastes and/or waste management devices:

## 1 - Boiler Ash Pile

Waste generated from the combustion of fossil fuels are exempt from RCRA Subtitle C regulations (40 CFR 261.4(b)(4)). Therefore, the boiler ash pile qualifies for the Bevill exemption.

## 2 - Lime Waste Piles

From the available information, the operation that generated the waste appears to be a calcining operation. EPA has defined calcining as a beneficiation operation (40 CFR 261.4(b)(7)).

Therefore, the lime waste pile qualifies for the Bevill exemption.

## 3 - Trona/Argus Solid Chemical Waste Pile (SCWP); and

## 4 - Westend Solid Chemical Waste Pile (SCWP)

From review of available information, the wastes in these SCWPs appear to consist of: (1) wastes from Bevill-exempt beneficiation operations (40 CFR 261.4(b)(7)); (2) nonexempt mineral processing wastes (i.e., mineral processing wastes not on the list of 20 exempt wastes (40 CFR 261.4 (b)(7)(i)-(xx)); (3) wastes not uniquely associated with mineral extraction, beneficiation, or processing (e.g., discarded commercial chemicals); and (4) other discarded materials. Mixing some of these wastes (if any are characteristic or listed hazardous wastes) with Bevill-exempt waste or other solid waste may result in the mixture being a hazardous waste (40 CFR 261.3 (a)(2)(i)). However, insufficient information is provided to allow the Agency to determine whether waste mixtures in the Trona/Argus and Westend SCWPs are hazardous wastes. Note that under the current rule, the act of mixing a hazardous waste with a Bevill-exempt waste or other solid waste may also require a Subtitle C permit if treatment of the hazardous waste is occurring because of the mixing (see definition of treatment at 40 CFR 260.10). (Note: See also earlier discussion of EPA's reconsideration of the rule regarding mixtures of characteristic and Bevill-exempt wastes.)

## 5 - Percolation Pond

Wastes disposed of at the percolation pond come from three effluent sources: the Trona plant, the Argus plant, and the Westend plant. Each plant generates a number of separate waste streams that

cumulatively make up the plant's effluent. The largest volume waste stream in each plant is spent brine while smaller-volume waste streams include floor washings, vessel cleanouts, and other sources. Some of these smaller-volume waste streams are not uniquely associated with mineral extraction, beneficiation, or processing. If these non-uniquely associated wastes are characteristically hazardous, then under the Agency's promulgated rule applicable to mixtures, mixing them with Bevill exempt waste such as brines) may result in the mixture being hazardous. Similarly, mixing a nonexempt mineral processing waste with an exempt beneficiation waste (such as brine) may result in the mixture being hazardous. (Note: See also earlier discussion of EPA's reconsideration of the rule regarding mixtures of characteristic and Bevill exempt wastes.)

According to recent EPA rulemakings, all wastes generated after mineral processing begins are considered either mineral processing wastes or wastes that are not covered by Bevill because they are generated after the operations that process an ore or mineral. Mineral processing wastes do not retain the Bevill exemption unless they are one of the 20 permanently exempt mineral processing waste. (None of the wastes at Searles Lake are among the 20 permanently exempt mineral processing wastes.)

In order to determine the exempt status of each of these effluents, it is necessary to determine where in each plant's operations beneficiation ends and mineral processing begins.

#### Trona Plant

Based on available information, mineral processing begins at step LLX2 where sulfuric acid is added to the NCS/sodium borate mixture to produce sodium sulfate and boric acid. The sodium borate is acid-digested by the sulfuric acid to produce two new compounds, namely sodium sulfate and boric acid. This acid digestion is the start of mineral processing operations (see 54 FR 36618). Wastes generated before this step, including spent brine, are beneficiation wastes and subsequently retain the exemption.

As discussed above, wastes generated during or after the LLX2 step are either mineral processing wastes or wastes that are not covered by Bevill because they are generated after the operations which process an ore or mineral. Regardless, these wastes do not retain the Bevill exemption.

## Argus Plant

From the information provided, it appears that the operations AP1 through AP16 at the Argus plant are beneficiation operations because they are primarily washing, dissolution, crystallization, and filtration (40 CFR 261.4(b)(7)). Therefore, the spent brine and other beneficiation wastes generated from the Argus plant are Bevill-exempt wastes.

## Westend Plant

Mineral processing begins at step WB5 where, similar to the boric acid production at the Trona plant, sodium borate- is acid digested using sulfuric acid to produce two new compounds, namely sodium sulfate and boric acid. This acid digestion is the start of mineral processing operations (see 54 FR 36618). Wastes generated prior to this step, including spent brine, are beneficiation wastes and subsequently retain the exemption.

Wastes generated during or after the WB5 step are either mineral processing wastes or wastes that are not covered by Bevill because they are generated after the operation of processing an ore or mineral. These wastes do not retain the Bevill exemption.

The anhydrous sodium sulfate production operation at WB7 is a beneficiation operation because it is primarily crystallization and filtration (40 CFR 261.4(b)(7)). Therefore, the spent brine generated from WB7 is a Bevill exempt waste.

6 - Oil Skimmer (Trona Plant);

7 - Oil Skimmer Storage Tank (Trona Plant); and

8 - Argus Plant Waste Oil Storage Tank

The waste oils from these three units are wastes from solvent extraction operations, which are beneficiation operations (40 CFR 261.4(b)(7)). Therefore, the waste oil retains the Bevill exemption.

9 - Extractant (Crud) Treatment Process

The extractant (crud) treatment process treats waste oil from

the solvent extraction unit at the Trona Plant. As previously stated, waste oil from the solvent extraction unit a beneficiation waste. Residuals from the treatment of beneficiation wastes are also beneficiation wastes. Therefore, wastes from the extractant (crud) treatment process retain the exemption. (It should be noted that the State is not precluded from applying its own waste oil standards to the oily wastes generated at the Searles Lake facilities.)

I hope this is useful in your efforts to determine the regulatory status of the wastes at NACC Searles Lake. If your staff needs to discuss this matter further, please contact Robert Tonetti of my staff at (703) 308-8424.