UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
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JAN 31 2002

Ref: 8P-AR

Mr. Jim Hawke
Plant Manager
OMG Americas Apex Operations
P.O. Box 2407
St. George, Utah 84771

Re: Determination of Whether Particulate Matter Collection Devices at OMG Apex Operations are Air Pollution Control Equipment or Process Equipment

Dear Mr. Hawke:

The U.S. Environmental Protection Agency has completed its review of OMG Americas' proposal regarding the particulate matter collection devices at the OMG Apex Operations facility located on the Shivwits Band of the Paiute Indian Reservation near St. George, Utah. Specifically, you asked us to determine whether the particulate matter collection devices at the facility should be considered air pollution control devices or process equipment.

Given the information you have supplied in your original proposal, dated May 16, 2001, and subsequent submittals received by EPA on June 22, 2001, and July 17, 2001, EPA agrees that those particulate collection devices discussed in your proposal should be considered inherent to the process. Specifically, the internal baghouses or bin vents that are built into the equipment, and the six exterior baghouses identified by you as recovering and recycling product or intermediary product can be considered process equipment. Should OMG decide to install additional exterior baghouses, the purpose and operation of each will have to be reviewed before determining whether they are process or control equipment. Further, this determination has no bearing on the operations of the evaporation equipment used at the waste-water ponds.

The enclosure to this letter discusses this determination and analysis of your proposal. This determination is specific to the OMG Apex Operations' Tungsten Reclamation and Cobalt Processing Plants as they are currently configured and where they are currently located on the Shivwits Band of the Paiute Indian Reservation near St. George, Utah. This determination should not be used by any other facilities or for this equipment at any other location without a case-specific review.

If you have any further questions regarding this matter, please call Kathleen Paser at 303-312-6526.

Sincerely,

Richard R. Long, Director
Air and Radiation Program

cc: Penny Bassett, Environmental Manager, OMG Apex Operations
Michael F. McNally, Director of Environmental, Health and Safety, OMG Americas, Inc.
David Novello, Attorney
Andrea Adams, Consultant, RTP Environmental Associates, Inc.
Lora Tom, Chairwoman, Paiute Indian Tribe of Utah
Gayle Rollo, Tribal Administrator, Paiute Indian Tribe of Utah
Glenn Rogers, Chairman, Shivwits Band of the Paiute Indian Tribe of Utah
Tara Marlowe Director of Environmental Programs, Paiute Indian Tribe of Utah

Enclosure 1

OMG Americas submitted a proposal (dated May 11, 2001) to the EPA Region VIII Office of Partnerships and Regulatory Assistance, Air and Radiation Program. We received the proposal on May 16, 2001. The proposal asks that EPA evaluate the particulate collection devices at it's Apex Operations and determine whether these devices should be considered pollution control devices or inherent to it's process.

On May 24, 2001, EPA requested additional information and clarifications regarding the proposal via electronic mail to Andrea Adams of RTP Environmental, contractor for OMG Americas Apex Operations. EPA received the additional information on June 22, 2001 via electronic mail. The information indicated that OMG was in the process of making modifications that would allow them to more accurately monitor their baghouses for leaks or broken bags. However, the modification was not discussed in this submittal.

On June 24, 2001, EPA requested that OMG provide a discussion of the proposed enhanced monitoring. This discussion was received by EPA via electronic mail on July 17, 2001. OMG stated in their discussion that the enhanced monitoring is to be installed by late 2001 and into early 2002. On October 25, 2001, EPA inquired about the status of the monitoring modifications and on October 26, 2001, OMG confirmed that the parts for the enhanced monitoring had been purchased, but the system had not yet been installed. Therefore, this determination has been made with minor emphasis on the enhanced monitoring.

Outline of Analysis

Introduction

Making a distinction as to whether equipment is air pollution control equipment or process equipment is very important as the calculations for determining the applicability of Clean Air Act requirements are based on the potential of a process to emit pollutants. The definition of *Potential to Emit* at 40 CFR 52.21(b)(4) and the 1990 Draft New Source Review Workshop Manual states that:

> "Potential to emit means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, provided the limitation or its effect on emissions is federally-enforceable, shall be treated as part of its design."

Therefore, a determination that the collection devices are process equipment (part of the physical and operational design) rather than control equipment would allow the source to incorporate the capture efficiency of this equipment when calculating the PTE without the need for a federally enforceable limit to recognize the equipment.

Criteria for Determining Whether Equipment is Air Pollution Control Equipment or Process Equipment

The criteria for determining whether equipment is air pollution control equipment or process equipment has been outlined in a November 27, 1995, letter from David S. Solomon, Acting Group Leader for EPA's Integrated Implementation Group to Mr. Timothy J. Mohin, Government Affairs Manager for the Intel Government Affairs Office.

The letter states that although......."current EPA regulations and policy allow air pollution control equipment to be taken into account if federally enforceable requirements are in place requiring the use of such air pollution control, there are situations for which case-by-case judgements are needed regarding whether a given device or strategy should be considered as air pollution control equipment or an inherent part of the process." The letter also provides a list of questions that the EPA believes should be considered when making a case-by-case judgement as to whether certain devices or practices should be treated as pollution controls or inherent to the process. These questions are as follows:

1. *Is the primary purpose of the equipment to control air pollution?*

2. *Where the equipment is recovering product, how do the cost savings from the product recovery compare to the cost of the equipment?*

3. *Would the equipment be installed if no air quality regulations are in place?*

According to this EPA letter, if the answers to these questions suggest that equipment should be considered as an inherent part of the process, then the effect of the equipment or practices can be taken into account in calculating potential emissions regardless of whether enforceable limitations are in effect.

Process Description

OMG, an international producer and marketer of high purity, metal-based specialty chemicals and powders, owns and operates the OMG Apex metals reclamation facility located in south-western Utah. The Apex Facility is an inorganic chemical processing facility which produces cobalt compounds from residues, byproducts, and cobalt chemicals and tungsten compounds from tungsten carbide scrap including soft scrap and hard scrap[1]. Their products currently consist of cobalt sulfate used in copper mining applications, cobalt carbonate used in animal feeding applications, cobalt nitrate used in the manufacturing of automobile air bags, cobalt oxides used for pigmentation in ceramics and glass, lithium cobalt oxides used in the manufacture of rechargeable batteries, and tungsten powders used in the manufacturing of hard metals and lighting products.

The majority of materials utilized and produced are powders, resulting in the potential for dust emissions. Because of the high value of both cobalt and tungsten raw materials and products, OMG considers all dusts collected in the process to be of value and reuses the material back into the process.

Equipment Configuration

1. Internal Baghouses

Throughout both plants, material is vacuum conveyed or pneumatically transferred (therefore completely enclosed) between process equipment to ensure that no product is lost to the atmosphere. This is the primary method by which solid material is moved within the process.

In most instances, the OMG process equipment is automatically equipped with an internal bin vent or baghouse (i.e., the equipment is designed with these collection devices "built-in") to capture and recycle intermediate and final product, minimize safety hazards within the plants, and minimize external contamination by unwanted particulate matter. The equipment with built-in collection devices includes the drop points, hoppers, feed and surge bins, screens, conveyers, transfer and receiving vessels, screens, blenders, weigh bins, and product silos.

[1]Hard scrap is tungsten carbide that has been formed into tools and other pieces that failed the manufacturer's quality control tests for shape or size or has been broken. Hard scrap may take the form of drill bits, cutting tool inserts, ball bearings, or projectile points. Soft scrap is a wet grinding sludge that is collected from the machining of the hard scrap parts.

According to OMG, the process equipment cannot run without the internal baghouse receiver since the units operate with 100% of the material passing through the filter receiver. In addition, the intermediate products captured in the internal baghouses are automatically reintroduced back into the process by design.

2. External Baghouses

Other equipment, such as the calciners and several dryers, are routed to an "add-on" or external baghouse, which via a fan draws uncontaminated reactionary air necessary for oxidation/reduction reactions through the equipment into the baghouse. Equipment directly associated with the calciners and dryers such as blenders, crushers, and screens which do not have internal bin vents or baghouses are also routed to these baghouses.

There are six external baghouses onsite which, according to the standard operating procedures provided by OMG, collect airborne particulate as a product or an intermediary product generated during various processing stages. The intermediary products captured in the external baghouses are manually recycled back into the process. The external baghouses and their functions are as follows:

- **Tungsten feed dryer baghouse:** The tungsten feed dryer baghouse is used to collect dust particulate from the tungsten Patterson dryer, the Steadman crusher and associated equipment. It is also a sizing system to separate the larger material from the fines. This baghouse fine material is collected into a supersack. The tungsten dryer/calciner operator monitors the supersack status and changes out the bag when full. This material is considered feed for the tungsten calciner and is fed into the calciner as it becomes available.
- **Tungsten calciner baghouse**: The tungsten calciner baghouse is used to collect dust particulate from the inside of the Harper calciner and associated equipment. This baghouse fine material is collected into a supersack. The tungsten dryer/calciner operator monitors the supersack status and changes out the bag when full. This material is considered feed for the tungsten calciner and is fed into the calciner as it becomes available.
- **APT dryer baghouse**: The APT dryer baghouse is used to collect the fines when conveying material into the product storage bin and from operation of the packaging system. This baghouse fine material is collected into metal drums. The tungsten crystallizer operator monitors the drum status and changes out the drum when full. This material is critical in the manufacturing of APT as it is used as seed in the crystallizer to initiate the crystallization of new batches of APT. The drums are collected and blended before use.
- **Cobalt carbonate dryer baghouse**: The cobalt carbonate dryer baghouse is used to collect dust particulate from the inside of the Littleford dryer, Spray dryer and associated equipment. This baghouse fine material is collected into a supersack. The cobalt operator monitors the supersack status and changes out the bag when

full. This material is considered feed for the cobalt oxide calciner and is fed into the calciner as it becomes available.

- **Cobalt oxide calciner baghouse**: The cobalt oxide calciner baghouse is used to collect dust particulate from the inside of the cobalt oxide calciner and associated equipment. This baghouse fine material is collected into a hopper at the base of the baghouse. The cobalt powders operator pneumatically transfers the material from the hopper into a calciner feed storage bin. This is done at least daily. At no time does material leave the confines of the hopper, piping and storage bin. This material is considered feed for the cobalt oxide calciner and is feed into the calciner storage bin.
- **Lithium cobalt dioxide calciner baghouse**: The lithium cobalt dioxide calciner baghouse is used to collect dust particulate from the inside of two calciners and associated equipment. This baghouse fine material is collected into a supersack. The cobalt powders operator monitors the supersack status and changes out the bag when full. This material is considered feed for the cobalt oxide calciner and is blended into "frit grade" cobalt oxide product. A typical frit production blend consists of 10% $LiCoO_2$ fines.

According to OMG, the tungsten calciner and cobalt carbonate spray dryer are interlocked with the baghouses and cannot operate unless the baghouses are on. For the equipment that is not interlocked, there are written procedures that direct the operator to start the baghouse equipment before they start any of the process equipment. In addition, standard operating procedures provided by OMG in their proposal indicate that in the event any baghouse goes down, the production circuit is shut down. The calciners used at the Apex facility cannot be shut down automatically because shut down will cause damage to the equipment. If the calciners were to stop rotating with hot material inside it could cause warping of the tubes. Hence, in a baghouse upset, OMG has provided that the standard procedure is to shut off the feeder unit to the calciners and allow the contents to finish their run, which typically takes 4-6 hours.

To further prevent unnecessary loss of high value tungsten and cobalt material, OMG has suggested installing a secondary 'safety' filter and monitoring system on all the external baghouses. According to OMG, the primary monitoring system currently in place monitors pressure drop across the main bags in the baghouse, However, OMG desires more sensitive protection against product loss. This secondary safety filter system could be installed on the discharge vent of each external baghouse and is designed to collect any dust that escapes the primary filters and will monitor pressure differential across this filter. If the pressure difference exceeds 4 inches of water column above the 'clean filter' pressure drop, an alarm would be activated and where possible the equipment would automatically shut down.

Analysis of Criteria for the Apex Operations

Criteria 1. Is the primary purpose of the internal and external baghouse equipment to control air pollution?

No. According to OMG, there are several reasons why both the internal and external baghouse were installed. None of the reasons OMG provided for having the equipment have bearing on the stationary source requirements of the Clean Air Act. These reasons consisted of:

- The internal baghouses provide conveyance in a clean, uncontaminated environment.
- The external baghouses provide the necessary clean reactionary air for oxidation/reduction reactions occurring in the calciners (it is part of the plant design to provide air in this manner). Without this air movement, the chemical processes would not proceed and no product would be produced. OMG has further stated that using the blowers without the baghouses would cause contamination and equipment malfunction. There are no bypass options in the process, all air must pass through the baghouses;
- Both internal and external baghouses collect valuable fines as product or an intermediary product which is then recycled back into the process.
- Both internal and external baghouses minimize health and safety hazards. If the process were designed to operate without the baghouses, dust would be emitted indoors, causing both health and safety hazards. The dust in the tungsten area is flammable. Without the baghouses, the dust emitted from the blowers would collect on the roof and equipment and cause a fire hazard. For the cobalt area, the issue is one of the protection of employee health. OSHA has placed an 8 hour time weighted average (TWA) permissible exposure limit (PEL) of 0.1 mg/m^3 of Co metal, dust or fume (29 CFR 1910.1000 Table Z-1). Additionally, the ACGIH has recommended a TWA threshold limit value (TLV) of 0.02 mg/m^3 for elemental and inorganic compounds of cobalt. According to OMG, to ensure that their workplace is within these limits they must be vigilant about maintaining and operating all the baghouses within manufacturers specifications and monitoring continuously.

Criteria 2. Where the equipment is recovering product, how do the cost savings from the product recovery compare to the cost of the equipment?

According to OMG, the cost savings from the product recovery is considerable and operating without the baghouses would not be economically feasible. In their proposal, OMG provided cost data from the United States Geologic Survey (USGS) for cobalt and tungsten compared to other metals in order demonstrate their economic value. Table 1 illustrates the average price in 1999 and the estimated price in 2000 as listed by the USGS.

Table 1. Cost Data for Various Metals		
Metal	**Average Price in 1999 ($/pound)**	**Estimated Price in 2000 ($/pound)**
Aluminum	0.66	0.75
Antimony	0.63	0.68
Arsenic	0.59	0.35
Cadmium	0.14	0.10
Cobalt	17.02	15.50
Copper	0.74	0.86
Lead	0.33	0.33
Molybdenum	2.68	2.68
Nickle	2.73	3.91
Selenium	2.55	3.82
Tin	2.77	3.15
Tungsten	2.49	2.60
Zinc	0.51	0.54
Source: U.S. Geological Survey, Mineral Commodity Summaries, January 2001.		

In making a comparison between the cost of the baghouses and the cost of the product recovered with the baghouses, OMG assumed a ten year life on each baghouse and only considered the external baghouses. The total equipment cost identified in Table 2 was determined by summing the cost of the baghouses, an estimate of the installation cost, and the annual operating costs over the ten-year life of each baghouse. The amount of product recovered was based on the annual potential throughput over of the ten-year life of the baghouses multiplied by an annual capacity factor for the processes. Table 2 provides a comparison of the cost savings for product recovery and the cost of the particulate collection equipment.

Table 2. Cost Savings for Product Recovery Versus Cost of Equipment			
Equipment ID	**Equipment Description**	**Cost Savings for Product Recovery**	**Cost of Equipment**
BH-700901	Tungsten Feed Baghouse	$39,803	$153,000
BH-7106	Tungsten Calciner Baghouse	$1,288,872	$208,000
BH-7550	Tungsten APT Dryer Baghouse	$228,942	$37,800
BH-17012	Carbonate Dryer Baghouse	$369,102	$153,000
BH S 105C	Cobalt Oxide Calciner Baghouse	$3,561,847	$208,000
BH S-116C	Lithium Cobalt Dioxide Calciner Baghouse	$3,239,298	$208,000
TOTAL		$8,727,864	$967,800

The total numbers provided by OMG indicate that the cost savings from recovering product far exceeds the cost of collection equipment.

Criteria 3. Would the equipment be installed if no air quality regulations are in place?

Yes. In fact, the particulate collection devices had been installed in the absence of Clean Air Act (CAA) requirements.

Since the Apex facility is located on the Shivwits Band of the Paiute Indian reservation, the State of Utah's, minor source pre-construction permit program and state implementation plan (SIP) do not apply to the source. In addition, no tribal implementation plan (TIP) has been submitted by the Paiute Indian Tribe of Utah or approved for the Shivwits Band of the Paiute Indian Reservation, and EPA has not promulgated a federal implementation plan (FIP) for the area of jurisdiction governing the Shivwits Band of the Paiute Indian Reservation. Hence, there has been no minor source permitting requirements for the facility.

The Apex Facility is however, required to comply with federal air pollution control requirements. Those requirements for which the facility is potentially subject include, the Prevention of Significant Deterioration (PSD) regulations at 40 CFR § 52.21, New Source Performance Standards (NSPS) at 40 CFR, Part 60, National Emission Standards for Hazardous Air Pollutants (NESHAP) at 40 CFR, Part 63, the Chemical Accident Prevention Program at 40 CFR, Part 68, the Stratospheric Ozone and Climate Protection regulations at 40 CFR, Part 82, and the Title V Operating permit regulations at 40 CFR, Part 71.

EPA has extensively reviewed the construction and potential-to-emit (PTE) history of the Apex facility and confirmed that throughout the history of the plant, no Federal Regulations have applied to the source by virtue of annual emission levels. Please note that the PTE was evaluated without taking the baghouses and bin vents into consideration. In addition, it has been determined that the facility was not subject to any NSPS or NESHAP regulations at the time the baghouses were installed. The Apex Facility became subject to the Title V Operating Permit requirements when Part 71 was promulgated in February of 1999, and to the Chemical Accident Prevention regulations when they were promulgated. Further, NSPS-Dc reporting requirements became applicable in 1998 when OMG installed a natural gas fired boiler. In addition, the facility is now considered a major stationary source with respect to the PSD rules at 40 CFR 52.21, but PSD requirements have not yet been triggered due to modifications made at the facility.

Regardless, the internal and external baghouses outlined in this proposal were installed and operating before the Apex facility was subject to these CAA requirements. Hence, there were no CAA requirements at the time that the baghouses were installed.

Conclusion

After reviewing the OMG proposal, EPA Region 8 agrees that OMG has demonstrated that its operations meet the three criteria outlined in the 1995 letter written by EPA's Integrated Implementation Group. Hence, The internal and external baghouses at the OMG Apex Operation's Tungsten Reclamation and Cobalt Processing Plants identified in their proposal are process equipment. Specifically, the internal baghouses are inherent to the design of the process equipment, and the six external baghouses have the primary purpose of collecting product, conveying material and clean reactionary air, and preventing fire and health hazards.