



DIRECTIVE NUMBER: 9441.05(85)

TITLE: Exemption of Waste Streams Resulting from Extraction, Beneficiation, or Processing of an Ore or Mineral

APPROVAL DATE: 2-4-85

EFFECTIVE DATE: 2-4-85

ORIGINATING OFFICE: Office of Solid Waste

☒ **FINAL**

☐ **DRAFT**

LEVEL OF DRAFT

- ☐ A — Signed by AA or DAA
- ☐ B — Signed by Office Director
- ☐ C — Review & Comment

REFERENCE (other documents):

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Key Words: Mining Wastes, Exclusion

Regulations: RCRA §3001(b)(3)(A)(ii), 40 CFR 260.10

Subject: Exemption of Waste Streams Resulting from Extraction, Beneficiation, or Processing of an Ore or Mineral

Addressee: Charles F. Findley, Director, Air and Waste Management Division, Region X

Originator: John H. Skinner, Director, Office of Solid Waste

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Summary:

Waste streams directly resulting from the reduction and distillation steps used to produce zirconium, hafnium, or titanium sponge are uniquely associated with processing these metals and are therefore excluded from regulation under Subtitle C of RCRA. The formation of zirconium, hafnium, and titanium ingots from sponge material or scrap does not constitute "extraction, beneficiation, or processing of an ore or mineral," because the metal was already separated from the ore or mineral before this step. Therefore, the waste streams generated by ingot formation are not excluded from regulation under Subtitle C of RCRA.

Waste streams generated during the fabrication and finishing steps and treated in crucible burn pots do not constitute "extraction, beneficiation, or processing of an ore or mineral," since the metal has already been extracted from the ore or mineral in previous steps. The fines, turnings or chips, floor sweepings, grinder sludge, and other wastes generated from the fabrication and consolidation processes do not qualify for the mining waste exclusion.

According to the definition of incinerator in §260.10, both the smokehouse facility and crucible burn pots used in the production of these metals are incinerators and require a RCRA permit. Both are enclosed devices and use crude forms of controlled flame combustion to break down wastes. (Subsequently, data were submitted to Region X by Teledyne Wah Chang Albany, convincing the Region that the wastes were not "ignitable" and that their incineration, therefore, did not require a permit.)

FEB 4 1985

MEMORANDUM

SUBJECT: Applicability of RCRA Subtitle C to the
Teledyne Wah Chang Albany Facility

FROM: John H. Skinner, Director
Office of Solid Waste (WH-562)

TO: Charles F. Findley, Director
Air and Waste Management Division, Region 10

On August 8, 1984, you requested that the Part B application submitted by Teledyne Wah Chang Albany (TWCA) be reviewed to determine whether the treatment of certain wastes at the facility is subject to the requirements of Subtitle C of RCRA. TWCA's Part B application has been reviewed by the MITRE Corporation (report attached) to assist in the clarification and resolution of two issues:

- Whether the hazardous wastes produced by TWCA and burned in the smokehouse facility and crucible burn pots are exempt from RCRA by the mining waste exclusion in Section 3001(b)(3)(A)(ii) of the Act.
- Whether the combustion processes used by TWCA constitute incineration, or thermal treatment other than incineration, as defined in 40 CFR 260.10.

I. APPLICABILITY OF MINING WASTE EXCLUSION

A. Introduction

TWCA engages in the primary production of zirconium, hafnium, and titanium. Production of these metals consists of:

- 1) Preparatory steps to transform the metals into a form that can be reduced. ^{1/}
- 2) Reduction and distillation steps to produce a zirconium, hafnium, or titanium sponge.
- 3) Crushing, blending, alloying, and melting of the sponge to form an ingot.
- 4) Fabrication and finishing steps.

For each of the three metals, the following waste streams are generated by the reduction and distillation steps used to produce the zirconium, hafnium, or titanium sponge, and, therefore, are uniquely associated with the processing of these metals:

- 1) Crucible jolting ring material,
- 2) Crucible dump station salt,
- 3) Magnesium chloride salt sortings, and
- 4) Magnesium chloride salt and metal.

For a fifth waste stream, sponge handling salt, is generated during the production of an ingot from the zirconium, hafnium, or titanium sponge. Ingot production involves breaking up and crushing the sponge, blending crushed sponge material from different production runs, adding alloys, and melting the mixture to form an ingot. The sponge handling salt is generated by the breaking and crushing steps. TWCA sometimes purchases titanium scrap to form ingots as well. The five wastes from the above processes are treated in the smokehouse facility.

Additional wastes are generated during the fabrication and finishing steps. They are treated in the crucible burn pots.

B. Regulatory Status of Waste Streams

1. Wastes Treated in Smokehouse Facility

The reduction and distillation processes used to produce the zirconium, hafnium, and titanium sponges are essential to the separation of these metals from the ores and minerals in

^{1/} In the past, rather than performing this step on titanium ore itself, TWCA has purchased titanium chloride. This does not affect our analysis of the status of the wastes generated by processing titanium chloride in the subsequent three steps.

ch they occur. Therefore, the four wastes streams listed above which are generated by these processes are excluded from regulation under Subtitle C of RCRA.

The formation of zirconium, hafnium, and titanium ingots from sponge material or scrap (in the case of titanium) does not constitute "extraction, beneficiation, or processing of an ore or mineral" because the metal has already been separated from the ore or mineral before this step. In other words, the feedstock for the ingot formation process is neither an ore nor a mineral. Therefore, the sponge handling salts generated by ingot formation are not excluded from regulation under Subtitle C of RCRA.

2. Wastes Treated in Crucible Burn Pots

The waste streams treated in the crucible burn pots are generated by the fabrication and consolidation of zirconium, hafnium, titanium, niobium, tantalum, and vanadium. These processes simply shape the metal after it has been extracted from the ore or mineral; they do not constitute "extraction, beneficiation, or processing of an ore or mineral." Therefore, the fines, turnings or chips, floor sweepings, grinder sludge, and other wastes generated by these processes, do not qualify for the mining waste exclusion.

II. APPLICABILITY OF RCRA INCINERATOR REGULATIONS

We conclude that both the smokehouse facility and crucible burn pots are incinerators under the definition in 40 CFR 260.10. Both are enclosed devices and use crude forms of controlled flame combustion to break down waste. Therefore, the RCRA permit for TWCA should regulate these combustion devices as incinerators.

Attachment