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**RECLASSIFICATION OF THE PRIMARY CALCINER (HAZARDOUS  
WASTE MANAGEMENT UNIT 16)**

08/16/94

DOE-2190-94  
DOE-FN        OEPA  
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LETTER



**Department of Energy**  
**Fernald Environmental Management Project**  
 P. O. Box 398705  
 Cincinnati, Ohio 45239-8705  
 (513) 648-3155

AUG 16 1994  
 DOE-2190-94

Mr. Mark Metcalf  
 Southwest District Office  
 Division of Hazardous Waste Management  
 401 East Fifth Street  
 Dayton, Ohio 45202-2911

Dear Mr. Metcalf:

**RECLASSIFICATION OF THE PRIMARY CALCINER (HAZARDOUS WASTE MANAGEMENT UNIT 16)**

- Reference 1) Letter, J. Sattler to P. Harris, "FEMP Hazardous Waste Management Unit Issues," dated April 1, 1992
- Reference 2) Letter, P.D. Pardi (OEPA/SWDO) to J. M. Sattler, "DOE-FEMP, Hamilton County Hazardous Waste," dated June 2, 1992
- Reference 3) Letter, N.C. Kaufman and Thomas J. Rowland to Paul Pardi, "Status of FEMP Wastewater Treatment Units as HWMUs or SWMUs," dated May 13, 1993.
- Reference 4) Letter, Paul D. Pardi to N.C. Kaufman and Thomas J. Rowland, "DOE-FEMP Hamilton County Hazardous Waste," dated June 7, 1993.

In a letter to the Ohio Environmental Protection Agency (OEPA) dated April 1, 1992 (Reference #1), the Fernald Environmental Management Project (FEMP) provided a brief synopsis of the regulatory status of several of the Hazardous Waste Management Units (HWMU). The OEPA responded to that letter on June 2, 1992 (Reference #2), with comments and requested additional information. Regulatory status of some of the HWMUs have been addressed as information has been obtained over the past year. This letter responds to OEPA comments from the June 2, 1992 letter regarding the Primary Calciner (HWMU 16).

The Primary Calciner was installed in 1953 and operated intermittently until July 7, 1989. Prior to 1985, feed material for the Calciner was introduced into the furnace at the specified rate and calcined. Standard operating procedures indicate the purpose of the Calciner was to reduce the ammonia content of enriched Uranyl Ammonia Phosphate (UAP) filter cake and the free metal content of enriched black oxide to acceptable levels by calcination. The product was analyzed for uranium and isotopic content and transferred to the Refinery as feed for digestion. After 1985, the Calciner was used to

reduce the volume of non-Resource Conservation and Recovery Act (RCRA) enriched, low-concentration uranium materials in preparation for packaging and shipment for off-site disposal.

The original HWMU determination was based upon a review of material types and source codes of wastes fed into the Calciner during the 1980s. This review indicated that all the wastes except two were non-RCRA wastes. The two RCRA wastes were "Box Furnace Ash" and "East Eimco Filter Cake". The East Eimco Filter Cake is filtered sump cake, and the sump is considered part of the FEMP Waste Water Treatment System. Based upon the assumption that 1,1,1-Trichloroethane (TCA) was discharged to the Wastewater Treatment System at a concentration greater than 25 ppm, the East Eimco Filter Cakes were determined to be hazardous. The Box Furnace Ash was determined to be hazardous for the treatment of oily rags and gloves saturated with spent solvents (F001 and F002 RCRA hazardous wastes).

In September 1991, the FEMP submitted a draft report for the OEPA review titled "Application of the Mixture Rule Exclusion to the FEMP Wastewater Treatment System." Based on review of the data to support the wastewater flows and in consideration of OEPA comments on the draft report, the FEMP has concluded that wastewaters managed in its Wastewater Treatment System (WWTs) meet the conditions of the Mixture Rule Exclusion [40 CFR 261.3 (a)(2)(iv)(B) and OAC 3745-51-03(A)(2)(e)] and are not regulated as listed hazardous waste (References #3 and #4). Since the wastewaters were excluded from regulation as listed hazardous waste, the sludges generated from these are not hazardous waste under the derived-from rule (40 CFR 261.3 (a) (2) (iv) (B) and OAC 3745-51-03 (A) (2)(e)). The sludges have been tested, and do not exhibit any hazardous waste characteristics.

In addition, it has been determined that an incorrect entry was made on the Primary Calciner consumption records relative to the Box Furnace Ash. A review of the Primary Calciner consumption records indicate that "box ash" was fed to the Primary Calciner on August 14, 1988. This is the only entry in the entire set of consumption records that states ash from the Box Furnace was introduced in the unit.

Based on review of the Box Furnace (Enclosure 1), and Primary Calciner (Enclosure 2) process flow diagrams, along with interviews held with personnel who operated the Primary Calciner during the 1980s (Enclosure 3-5), it has been determined that it is infeasible that ash from the Box Furnace was introduced into the Primary Calciner. The Box Furnace ash consisted of large cinders which would have plugged the Primary Calciner rabble arms, thereby disabling the unit. Further, there is not sound logic to support why ash from one thermal treatment unit would have been introduced into another thermal treatment unit. These reasons are further reinforced by the process flow charts showing no connection between the Primary Calciner and the Box Furnace.

For these reasons, it has been determined that Box furnace ash would not have been processed through the Primary Calciner and that the "Box Ash" entry on the unit's consumption records was made in error. In summary, the Primary Calciner did not process RCRA waste based upon 1) application of the Mixture Rule Exclusion to Wastewaters managed in the FEMP Wastewater Treatment System and 2) the fact that the Primary Calciner did not manage Box Furnace Ash. The FEMP requests the OEPA concurrence to reclassify the Calciner from a HWMU to a

Solid Waste Management Unit (SWMU).

If you should have any questions concerning this matter or require additional information, please contact John M. Sattler at 513/648-3145.

Sincerely,

  
Walter J. Quaider  
Acting Associate Director  
Office of Safety, Operations and  
Technical Support

FN: Sattler

Enclosures: As stated

cc w/enc:

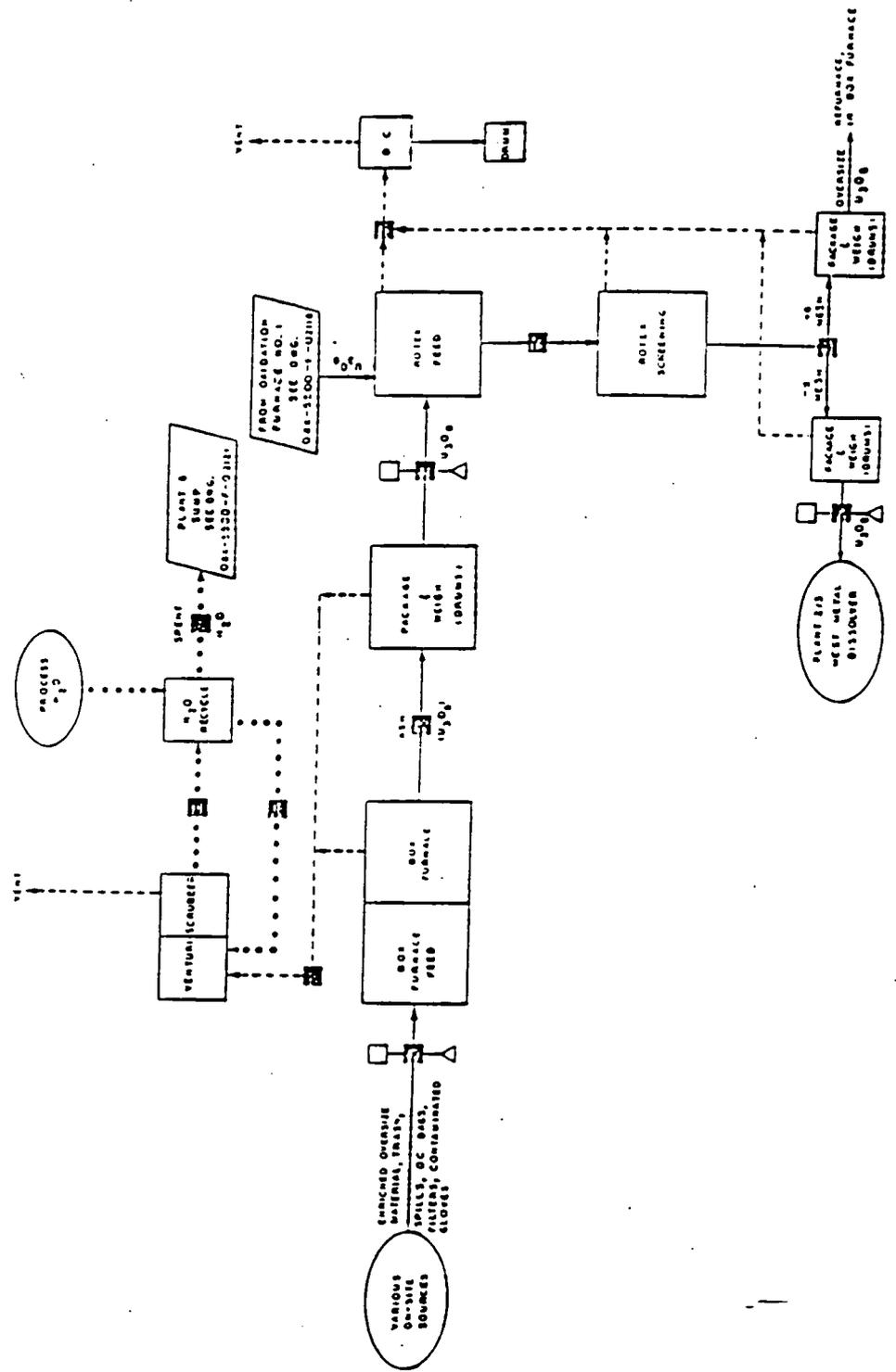
H. O'Connell, OEPA-Dayton  
T. Schneider, OEPA-Dayton  
J. Saric, USEPA Region V  
D. Schregardus, OEPA-Columbus  
K. Alkema, FERMCO/65-2  
Administrative Record, FERMCO  
RCRA Operating Record, FERMCO/30

cc w/o enc:

J. Van Kley, Ohio AGO  
M. McDermonntt, DOJ  
K. Hayes, EM-423, QO  
J. Curtis, FERMCO/8  
D. Ofte, FERMCO/1  
J. Theising, FERMCO/1  
M. Yates, FERMCO/2  
D. Rast, DOE-FN  
J. Reising, DOE-FN

Plt. 8 sump

- SYMBOLS:**
- Man's attitude, position and motion
  - △ PRECISION CONTROL RELEASE
  - PRECISION CONTROL, MAKE-UP/RELEASE OF CONTAINER COMPLETION
  - NEW INSTALLATION - PLANT SUMP 1 ETC.
  - ◐ PRECISION POSITION
  - MESSAGES AND SYSTEM
  - DC BUS CONNECTION
  - .... MESSAGES TO/FROM SYSTEM
  - SEE SYSTEM
  - INITIAL OPERATIONS OR RESOURCES
  - OPERATION IN PLANT, CONTINUED OR ANOTHER DRAWING





## ENCLOSURE 2, continued

The Primary Calciner is located on the east side of Plant 8, and is a gas-fired industrial furnace with eight vertical, cylindrical, refractory brick-lined hearths and an automatic rabble arm. Hearths 3, 5 and 6 are gas fired, and the remaining hearths are heated via circulation of latent heat through the furnace. The refractory-brick lined calciner is 13.5 feet in diameter and is constructed of steel. The Primary Calciner drum-dumping unit, feed conveyor system, and air pollution control equipment are located on the second floor of Plant 8. The discharge port and the product screw conveyor are located on the first floor. The product screw conveyor carries the material to the bucket elevator. The bucket elevator transfers the materials to the surge hopper, which is mounted between the second and first floors. Connected to the surge hopper, on the first floor, is a product discharge screw which transfers the material to the drumming station, located on the first floor of Plant 8.

U.S. DEPARTMENT OF ENERGY  
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT  
FERNALD, OHIO

FERMCO CONTRACT  
DE-AC05-92OR21972  
PAGE 1 OF 1

## ENCLOSURE 3

RECORD OF TELEPHONE CONVERSATION TC:RP:(EP):93-0031

FROM: K. J. Dunbar

DATE: December 7, 1993

LOCATION: Trailer 38

TO: Glenn Rieman (Waste Characterization)/Jerry Erfman (Operator/Production  
Supervisor Primary Calciner 1984-1988) LOCATION: T-61

SUBJECT: PRIMARY CALCINER

Question:

Box Furnace Ash is documented in the Task 2-3 Files (Operating Record) as to have been put into the Primary Calciner.

Answer:

The Calciner and the Box Furnace are both furnaces and there is no need to place ash into another furnace. The Box Furnace Ash would have been put into the Rotex for milling and size reduction but not the Calciner.

Question:

Also, in review of a Waste Characterization determination MEF 50100 it was stated that the material was determined to be hazardous because the Primary Calciner was a HWMU since it burned oily rags containing TCA.

Answer:

The Calciner was not designed to burn any plastic or rags. If one attempted to place that type of material in the Calciner it would get caught in the Badger Feeder System which consisted of rotating intertwined teeth with an approximate one inch gap. Rags and plastic could never get inside the actual furnace. The feed screws would get plugged and the rag or plastic would need to be removed. The MEF 50100 is presently in the process of being corrected.

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## DISTRIBUTION:

J.P. Erfman  
J.P. Muskoff Jr.  
G.C. Rieman  
T.J. Walsh  
C.S. Waugh

ENCLSOURE 4

RECORD OF TELEPHONE CONVERSATION TC:RP:(EP):93-0040

FROM: Kathy Dunbar

DATE: December 20, 1993

LOCATION: Trailer 38

TO: Tim Huey (Plant 8 Production Supervisor 1980's)

LOCATION: T-61

SUBJECT: PRIMARY CALCINER

Question:

Box Furnace Ash is documented in the Task 2-3 Files (Operating Record) as to have been put into the Primary Calciner. In reviewing the "Consumption Records" from Plant 8 Primary Calciner there is an entry on 8-14-88 which states "box ash." Do you have any idea where that came from or why?

Answer:

There would never have been any box furnace ash placed in the Primary Calciner because it would have plugged up the rabble arms of the Calciner. Box furnace ash pieces are too large. Also, why would anyone put already burned incinerator ash into another incinerator?

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c: File Record Storage Copy 104.(11).6

000008

ENCLSOURE 5

RECORD OF TELEPHONE CONVERSATION TC:RP:(EP):93-0041

FROM: Kathy Dunbar

DATE: December 20, 1993

LOCATION: Trailer 38

TO: Everett Henry (Production Supervisor Plant 8 1980's)/Jerry Ogg  
(Production Supervisor 1980's) LOCATION: T-61

SUBJECT: PRIMARY CALCINER

Question:

Box Furnace Ash is documented in the Task 2-3 Files (Operating Record) as to have been put into the Primary Calciner. In reviewing the "Consumption Records" from Plant 8 Primary Calciner there is an entry on 8-14-88 which states "box ash." Do you have any idea where that came from or why?

Answer:

There would never have been any box furnace ash placed in the Primary Calciner because it would have plugged up the rabble arms of the Calciner. Box furnace ash pieces are too large. I have found before when checking "Consumption Records" that an incorrect entry had been made. This is definitely an incorrect entry because there would not be any Box Furnace ash put into the Primary Calciner.

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J. P. Erfman  
T. N. Huey  
E. H. Henry  
J. P. Muskoff Jr.  
J. W. Ogg  
G. C. Rieman  
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C. S. Waugh

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