7066 G-000-704.59

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

06/24/95

DOE-1118-95
DOE-FN OEPA
25
LETTER

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

JUN 2 4 1995

DOE-1118-95

Mr. Paul Pardi, Group Leader
Southwest District Office
Division of Hazardous Waste Management
Ohio Environmental Protection Agency
Dayton, Ohio 45202-2911

Dear Mr. Pardi:

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

Enclosed is a copy of the consumption records (Enclosure 4) for the Fernald Environmental Management Project's Primary Calciner which the Ohio Environmental Protection Agency (OEPA) requested in a letter dated February 14, 1995, (Enclosure 1). Some additional information is also enclosed to further support reclassifying the Primary Calciner from a Hazardous Waste Management Unit (HWMU) to a Solid Waste Management Unit (SWMU).

If you have any questions, please contact Robert Danner at (513) 648-3167.

Sincerely,

David R. Kozlowski
Associate Director
Office of Safety and Assessment

FN:Danner

Enclosures: As Stated

cc:

J. Sattler, DOE-FN
T. Hagen, FERMCO

Recycled and Recyclable

Enclosure 1

7066

I-1486

OhioEPA

State of Ohio Environmental Protection Agency

Southwest District Office
401 East Fifth Street
Dayton, Ohio 45402-2911
(513) 285-6357
FAX (513) 285-6249

George V. Voinovich
Governor

February 14, 1995

RE: Classification of the Primary Calciner
U.S. DOE-FEMP
OH6890008976

Walter J. Quaider
Assistant Manager
Technical Support
U.S. DOE-FEMP
P.O. Box 398705
Cincinnati, Ohio 45239-8705

Dear Mr. Quaider:

This letter is in response to your correspondence dated August 16, 1994. In your correspondence you are requesting that the Primary Calciner be reclassified as a Solid Waste Management Unit (SWMU) verses a Hazardous Waste Management Unit (HWMU).

After review of your submittal, Ohio EPA concurs that the East Eimco Filter Cake would not cause the Primary Calciner to be classified as a HWMU. However, at this time, Ohio EPA does not concur with your position that Box Furnace Ash could not have been placed in the Primary Calciner. To assist us in making a final determination I am requesting that you submit to this office a copy of the consumption records which are in question for the Box Furnace. After review of requested records Ohio EPA will make a final determination regarding the reclassification of the Primary Calciner.

If you have any questions, please contact me at (513) 285-6083.

Sincerely,

Mark W. Metcalf
Environmental Specialist
Division of Hazardous Waste Management

Printed on recycled paper

Enclosure 2

The Primary Calciner, installed at the FEMP in 1953, is a gas-fired industrial furnace located on the east side of Plant 8. New burners and a new Steele Feeder System were installed on the furnace in 1984—1985. The Steele Feeder is a roller type device with a hopper loading attachment. Documents state that drawings of the Steele Feeder System configuration were destroyed. However, some photographs and a sketch of the Calciner (Figure 1) and associated equipment are included with this submittal.

Beginning in 1985 and continuing through 1989, the Primary Calciner was used to dry Plant 8 filter cake (VVB-001, VVB-002 and 069 materials) which was a wet sticky clay-like waste material. [Note: VVB is a coding system designation used by FEMP Materials Control and Accountability for material generated in Plant 8.] The Steele Feeder System was designed to accommodate this material. Enclosure 3 is a copy of the operating procedure revised in 1984 and 1985 to reflect the changes regarding the installation of the Steele Feeder System and the drying of the VVB waste materials.

Once the Steele Feeder System was installed, VVB-001, VVB-002 and 069 materials were dumped into the hopper and fed to the hearth via rototiller type tines of the feeder system. The material was subsequently pushed into the hearth via a roller type device equipped with two rabble arms. Any material that was chunk-like was not able to pass between the approximate one-inch spaced tines of the feeder system.

Materials fed into the Calciner after installation of the Feeder System were Plant 8 filter cakes consisting of a wet sticky clay-like material consisting of lime, lime precipitates, and diatomaceous earth. However, there appears to be one exception, on August 14, 1988, an entry noted on the Primary Calciner consumption record shows "box ash" (Enclosure 4 - Page 12). Enclosure 5 provides a description of the lot codes for materials fed into the Calciner for the period of January 4, 1988 through July 7, 1989.

The reference to "box ash" in the consumption record (Enclosure 4, Page 12) was assumed to mean ash taken from the Plant 8 Box Furnace. [Note: Usually, Plant 8 Box Furnace ash received in numerical source code designation of 824.] The entry "box ash" is not consistent with other Plant 8 consumption records.] The Box Furnace was a gas-fired industrial furnace used to dry and oxidize scrap uranium metal and other materials (filter cartridges, dust collector bags, etc.) to facilitate recovery in Plant 2/3. The Plant 8 Box Furnace ash was determined to be hazardous for the treatment of oily rags and gloves saturated with spent solvents (F-listed wastes). The ash from the Box Furnace was typically a chunk-like material. In the event further size-reduction of Box Furnace feed was required, the Plant 8 Oxidation Furnaces were used. The Plant 8 Oxidation Furnaces could oxidize a tennis ball sized chunk of metal into powder for uranium recovery.

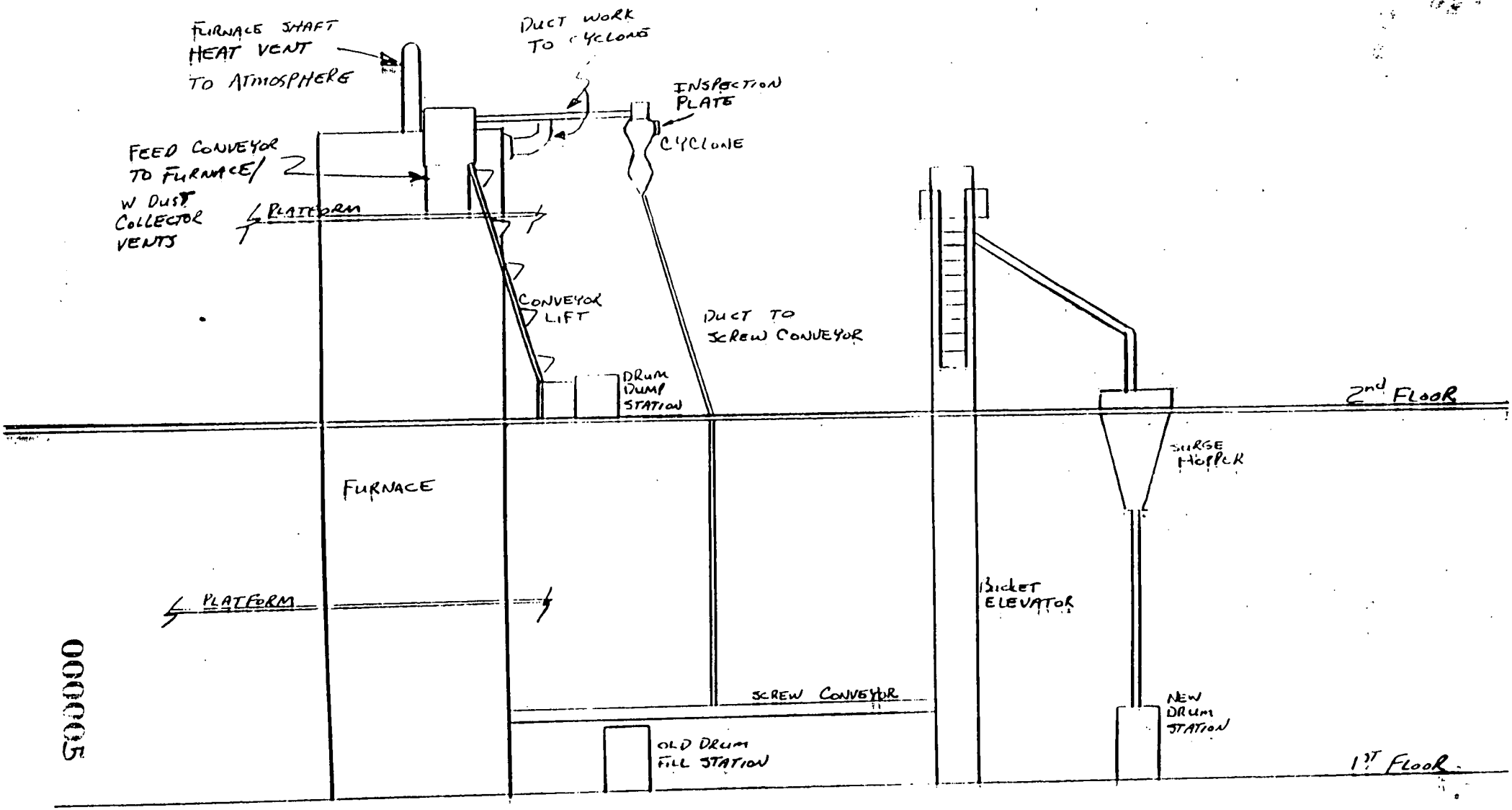
Log books/consumption records were kept in Plant 8 for each of the three furnaces (Oxidation Furnace #1, Oxidation Furnace #2, and the Primary Calciner). Conversations with plant personnel and a review of the consumption records indicates that the Box Furnace ash entry was inadvertently marked in the Calciner log book instead of the Oxidation Furnace #1 log book. (Note: Oxidation Furnace #2 was not operational in 1988). A review of the Plant 8 Oxidation Furnace records (Enclosure 6) show Box Furnace ash was consumed in the Oxidation Furnace #1 on July 4, 1988. No other instances of Box Furnace ash being consumed in any of the furnaces could be found.

In addition, the Primary Calciner feed hopper (see Photographs 1 and 2) was configured to accept wet sump cake which does not generate any airborne particulates when dumped. The Box Furnace ash was a dry chunk-like material and would have generated some particulates during the dumping process. In the late 1980s, airborne emissions generated by drum dumping operations inside plant buildings were controlled via process engineering and design. As seen in the photographs, the conveyor lift for the Primary Calciner was open to the building's work area, thus making the dumping of dry material unlikely.

In summary, the FEMP believes the Primary Calciner did not process RCRA waste based upon: 1) the inadvertent entry to the feed consumption record and 2) the Steele Feeder System would prevent dry chunk-like material (Box Furnace Ash) from being fed to the Calciner, and 3) a conveyor lift system not designed to handle chunk-like material without generating particulate emissions during dumping operations.

cmi\ac\95-0072.e2

SKETCH, PRIMARY CALCINER & EQUIPMENT



NCT 70

Figure 1

000005

Photograph 2

Photograph 1

NON-CONTROLLED COPY

NLO - FMPC MANUFACTURING STANDARDS

TITLE:			PROCEDURE NUMBER
SOP - PRIMARY CALCINER		7066	8-C-209
DIVISION & PLANT	SUPERSEDES	PREPARED BY	ISSUE DATE
Prod. - 8	8-C-209 09-13-65	Nelson Weichold	03-23-84
PAGE 1 REVISION DATE		REVISED BY	REVISION DATE
		Lisa Tilney	12-26-85

REFERENCES: MS-8-BE-420-6
SOP 8-C-905

R DEFINED SAFETY SYSTEMS INVOLVED: ____ YES __X__ NO

DESCRIPTION OF OPERATION AND EQUIPMENT

The primary calciner is a natural gas fired unit 13 foot - 6 inches in diameter consisting of a steel shell and eight lined hearths with three burners. The burners are on Hearth Numbers 3, 5, and 6 along with fans. Related equipment includes Dust Collector No. G43-27, caustic scrubber, and a bucket elevator discharge leading to a mobile hopper.

R The low level waste feed material is loaded on the Steele Feeder System and placed into the furnace at a specified rate. Calciner product is analyzed, put in a premarked mobile hopper, and transported to the silos for long term storage or placed in drums for off-site shipment.

ENVIRONMENTAL CONSIDERATIONS

It is the intention of NLO, Inc. to achieve and maintain those levels of air
R and water quality which will protect health and promote welfare and safety. The
R responsibility for limiting the uncontrolled or unintended release of pollutants rests with all personnel, both management and operators.

INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS

1. A respirator equipped with purple radionuclide cartridge shall be worn when dumping material from drums, loading material into calciner, and hooking up/sampling hopper.

2. Leather-palm gloves shall be worn when handling drums.

3. Operators must wear safety glasses at all times except when other eye protection, such as safety goggles are specified.

4. All incoming and outgoing skids are to be cleaned to remove oxides and gross contaminants.

5. Cover goggles are to be worn whenever there is a possibility of contact with material in process and when conditions of high temperature or pressure are encountered.

6. No smoking or open flame is permitted in the furnace area.

R - MATERIAL REVISED, ADDED, OR DELETED.

INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS (cont.)

7. Any circumstance which could have resulted in a significant intake of radioactive materials by inhalation, ingestion, or absorption will be immediately reported to a supervisor. The involved employees, wage or salary, will report to the Medical Department at the end of their shift to submit a urine sample and again report at the start of their next shift to
R submit another urine sample. The supervisor will inform the Industrial
R Hygiene Technician of the circumstance and file a Minor Event Report before the end of the shift during which the circumstance happened.

PROCEDURE

1. Check that Dust Collector G43-27 has drum positioned at discharge station.

2. If packaging product in hoppers, check fill level of mobile hopper at discharge station. Replace with empty hopper if hopper is full. If packaging in drums, check for drum at drumming station.

3. Start Dust Collector G43-27 by pushing dust collector start button on calciner main control panel. Lighted amber light indicates collector is on.

4. Check that caustic scrubber is in operation.

5. Start the product elevator.

6. Start the discharge screw conveyor.

7. Start the shaft cooling fan.

8. Check that air is discharging freely from the top of the shaft.

9. Start the shaft drive motor.

   NOTE: Stop drive motor if rabble arms drag or if there is any other obstruction.

10. Calciner Purge

    10.1 Start combustion air blower by pushing button on calciner main control panel. Amber light indicates air blower is on.

    NOTE: When air blower is started, "Low Draft" red indicator lights will light. As combustion air pressure increases, "Low Draft" lights will go off.

    10.2 Check "High Gas Pressure" indicator light. If indicator is working properly, this light should remain on during purge.

    NOTE: At this time "High Gas Pressure" indicator light indicates high pressure in system due to high air pressure used during purging.

R - MATERIAL REVISED, ADDED, OR DELETED.

10. Calciner Purge (cont.)

10.3 Press "Calciner Purge On" button located on calciner main control panel.

NOTE: A white light will light when "Calciner Purge On" button is pushed, and remain on until purging is complete.

NOTE: A "Purge Complete" light will indicate when purge is complete.

11. Burner Ignition

11.1 Turn "Hearth No. 3 Burner" selector switch to "ON" position. Set temperature as specified by supervisor.

11.2 Press "Pilot Start" button. Hold button until neon indicator light is on. This light indicates hearth flame is on.

11.3 Repeat steps 11.1 and 11.2 for Hearth Nos. 5 and 6.

R 12. Loading Material into Calciner Using the Steele Feeder System

R 12.1 Turn on main disconnect.

R 12.2 Turn on main screw conveyor starter.

R 12.3 Turn on cross shaft screw conveyor disconnect.

R 12.4 Turn on skip hoist disconnect.

R 12.5 Push button for feeder main start.

R 12.6 Push button for cross shaft start.

R 12.7 Using fork truck, dump drum of material into skip hoist hopper.

R R 12.8 Engage the "UP" control and hold until hopper stops (upper limit switch stops hopper in the dumping position).

R R R 12.9 When hopper is empty, engage the "DOWN" control and hold until hopper stops (lower limit switch stops hopper in the ready to fill position).

R 12.10 Repeat items 12.7, 12.8, and 12.9 as necessary.

13. Load calciner at predetermined rate.

14. Periodically check calciner to assure that there is no buildup of material in front of the rabble arms. If there is buildup, stop loading operations until the furnace clears the material. Stop rabble arms if it is required to manually remove material.

R - MATERIAL REVISED, ADDED, OR DELETED.

PROCEDURE (cont.)

15. Packaging

15.1 Hopper

15.1.1 Fill hopper directly from product conveyor.

15.1.2 Sample hopper per item 17 (Sampling).

15.2 Drum

15.2.1 Check drum scale per SOP 8-C-905.

15.2.2 Place pre-tared drum in drumming station.

15.2.3 Place plastic liner in drum.

15.2.4 Fill drum to weight specified by supervisor.

15.2.5 Take approximately a one ounce pipe sample from each filled drum and place in a gallon container.

15.2.6 Complete identification and analysis request per items 17.2 and 17.3 (Sampling).

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PROCEDURE - (cont.)

16. Calciner Shutdown

16.1 Turn hearth burner selector switches to "OFF" position.

16.2 Continue rabbling to clear the calciner of all material.

16.3 Turn off the drive motor.

16.4 When temperature drops to 400° F, turn off the cooling fan.

16.5 Stop the cooling conveyor.

16.6 Stop the bucket elevator.

16.7 Shut down caustic scrubber system.

17. Sampling

17.1 Dip sample material from each full hopper. Sample size should equal approximately one-half gallon in volume.

17.2 Mark the material with the code "VVB-002" or "VVB-001," as notified by the supervisor.

17.3 Request analysis of sample per Manufacturing Specification No. 8-BE-420-6.

18. Emergency Shutdown

18.1 Turn off combustion blower at control panel which will automatically close the main gas solenoid valves.

18.2 If conditions permit, turn each of the hearth burner switches to "OFF," automatically closing the main gas solenoid valves.

18.3 If it is impossible due to smoke, fumes, or fire to shut off the blower, or turn off burner switches, close the main gas supply valve outside the north wall of Plant 8.

18.4 If necessary, sound local evacuation and/or pull the fire alarm box.

18.5 If the fire alarm is sounded, wait outside on the north (box furnace) pad to direct the fire brigade.

19. Maintenance Checks

19.1 Block Valve Leak Test

19.1.1 With burners operating, push and hold the "Leak Test" button located at column.

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19. Maintenance Checks (cont.)

19.1.2 Close manual valve located downstream of block valve.

19.1.3 Open test cock located after block valve.

19.1.4 Immerse the open end of the rubber tube from the test cock in container of water.

19.1.5 If bubbles continue to appear from the end of the tube after 5-10 seconds, block valve is not closing properly and maintenance is required.

19.2 Manual Reset Valve Leak Test

19.2.1 With all burners "OFF" and manual reset valve, block valve, and manual valve (gas line) closed, open the main manual shutoff valve.

19.2.2 Push and hold "Vent Test" push button.

19.2.3 Open test cock located between manual reset, and block valve.

19.2.4 Immerse the open end of the rubber tube from the leak test cock in a container of water.

19.2.5 If bubbles continue to appear from the end of the tube after 5 to 10 seconds, the manual reset valve is not closing properly and maintenance is required.

This SOP has been approved by the Chemical Plants Superintendent, General Superintendent, Health and Safety Division, and the Quality Control, Production Technology, and Nuclear Materials Control Departments.

AUTHORIZED BY:

R ORIGINAL SIGNED BY ASSISTANT MANAGER, DATED 03-23-84.

R SIGNATURE ON FILE IN QA/QC PROCEDURES GROUP OFFICE.

R - MATERIAL REVISED, ADDED, OR DELETED.

RECORD OF REVISIONS

PAGE	DATE	DESCRIPTION AND AUTHORITY
1 thru 6	03-23-84	Primary calciner modified to process VVB waste materials and procedure revised to reflect waste material operation per Change Request No. 877, initiated by R. L. Gardner.
1 thru 3A 5 thru 6	12-26-85	Environmental Considerations and paragraph for significant intake of radioactive materials revised to reflect current standard statements. Description of Operation and Equipment and Item 12 revised to include installation of the Steele Feeder System per SOP Change Request No. 1040, initiated by W. A. York.

LIST OF EFFECTIVE PAGES

PAGE	DATE
1 thru 3A	12-26-85
4	03-23-84
5 thru 6	12-26-85

R - MATERIAL REVISED, ADDED, OR DELETED.

Enclosure 4

Attachment 1a

Date: March 11, 1991

To: File

From: M. W. Salisbury

Subject: Consumption Records, Plant 8 Primary Calciner

The attached list is a summary of the consumption records for the Plant 8 Primary Calciner from January 4, 1988 through July 7, 1989. The records were obtained from WMCO's Materials Accountability and Control Group and consisted of the work sheets filled out by Plant personnel for the Primary Calciner. Additional work sheets for the furnace were not available.

Michael W Salisbury
M.W. Salisbury

Attachments

PRIMARY CALCINER
PRODUCTION AND CONSUMPTION WORK SHEET

DATE	LOT NUMBER	SHIFT
7-7-89	S095-817-0069-7174	*
	S095-817-0069-7174	3RD
7-6-89	S095-817-0069-7174	2ND
	S095-817-0069-7174	1ST
	S095-817-0069-7176	3RD
7-5-89	S095-817-0069-7179	2ND
6-23-89	S095-817-0069-7175	2ND
	S095-817-0069-7175	1ST
	7175	3RD
6-22-89	S095-817-0069-7175	2ND
	S095-817-0069-7175	3RD
6-21-89	S095-817-0069-7176	2ND
	S095-817-0069-7176	1ST
	S095-817-0069-7176	3RD
6-20-89	S095-817-0069-7179	2ND
	S095-817-0069-7179	*
	S095-817-0069-7179	3RD
6-19-89	7179	2ND
	7177	
	S095-817-0069-7177	1ST
6-16-89	S095-817-0069-7177	2ND
	S095-817-0069-7179	1ST
	S095-817-0069-7179	3RD

6-15-89	S095-817-0069-7179	2ND
	S095-817-0069-7180	1ST
	S095-817-0069-7179	
	S095-817-0069-7180	3RD
6-14-89	S095-817-0069-7180	2ND
	S095-817-0069-7179	1ST
	S095-817-0069-7197	3RD
6-13-89	S095-817-0069-7197	2ND
	S095-817-0069-7197	1ST
	S095-817-0069-7197	3RD
6-12-89	S095-817-0069-7198	2ND
6-9-89	S095-817-0069-7198	1ST
	S095-817-0069-7198	3RD
6-8-89	S095-817-0069-7201	2ND
	S095-817-0069-7201	1ST
	S095-817-0069-7201	3RD
6-7-89	S095-817-0069-7241	2ND
	S095-817-0069-7201	1ST
	S095-817-0069-7241	*
5-24-89	S095-817-0069-7241	3RD
5-23-89	S095-817-0069-7241	2ND
	S095-817-0069-7241	1ST
	S095-817-0069-7204	3RD
5-22-89	S095-817-0069-7199	2ND
	S095-817-0069-7204	
	S095-817-0069-7204	1ST
5-19-89	S095-817-0069-7204	2ND
	S095-817-0069-7204	1ST
	S095-817-0069-7199	3RD

5-18-89	5095-817-0069-7199	2ND
5-17-89	5095-817-0069-7199	1ST
5-13-89	5095-817-0069-7231	3RD
5-17-89	5095-817-0069-7231	2ND
	5095-817-0069-7231	1ST
	5095-817-0069-7231	3RD
5-16-89	5095-817-0069-7200	2ND
	5095-817-0069-7200	1ST
	5095-817-0069-7200	3RD
5-15-89	5095-817-0069-7200	2ND
	5095-817-0069-7228	1ST
5-12-89	5095-817-0069-7228	2ND
	5095-817-0069-7228	1ST
	5095-817-0069-7228	3RD
5-11-89	5095-817-0069-7230	2ND
	5095-817-0069-7230	1ST
	5095-817-0069-7230	3RD
5-10-89	5095-817-0069-7230	2ND
	5095-817-0069-7229	1ST
	5095-817-0069-7229	3RD
	5095-817-0069-7229	2ND
5-9-89	5095-817-0069-7229	1ST
	5095-817-0069-7232	3RD
5-8-89	5095-817-0069-7232	2ND
	5095-817-0069-7232	1ST
5-5-89	5095-817-0069-7232	2ND
	5095-817-0069-7233	1ST
5-4-89	5095-817-0069-7234	3RD
5-3-89	5095-817-0069-7238	2ND

5-13-89	S095-817-0069-7238	1ST
5-4-89	S095-817-0069-7233	
	S095-817-0069-7233	2ND
5-5-89	S095-817-0069-7233	3RD
5-3-89	S095-817-0069-7234	3RD
5-2-89	S095-817-0069-7234	2ND
	S095-817-0069-7238	1ST
	S095-817-0069-7238	3RD
	S095-817-0069-7238	2ND
5-1-89	S095-817-0069-7236	1ST
	S095-817-0069-7236	3RD
4-28-89	S095-817-0069-7236	2ND
	S095-817-0069-7236	1ST
	S095-817-0069-7237	3RD
4-27-89	S095-817-0069-7237	2ND
	S095-817-0069-7237	1ST
	S095-817-0069-7237	3RD
4-26-89	S095-817-0069-7237	2ND
	S095-817-0069-7239	1ST
	S095-817-0069-7239	3RD
4-25-89	S095-817-0069-7239	2ND
	S095-817-0069-7256	1ST
	S095-817-0069-7256	3RD
4-24-89	S095-817-0069-7256	2ND
	S095-817-0069-7256	1ST
	S095-817-0069-7256	3RD
4-21-89	S095-817-0069-7256	2ND
	S095-817-0069-7255	1ST
	S095-817-0069-7255	3RD

4-20-89	S095-817-0069-7253	2ND
	S095-817-0069-7253	1ST
	S095-817-0069-7253	3RD
4-19-89	S095-817-0069-7253	2ND
	S095-817-0069-7257	*
	S095-817-0069-7257	3RD
4-18-89	S095-817-0069-7257	2ND
	S095-817-0069-7257	1ST
	S095-817-0069-7209	3RD
4-17-89	S095-817-0069-7209	1ST
	S095-817-0069-7209	2ND
	S095-817-0069-7209	3RD
4-14-89	VVB-002	2ND
	VVB-002	1ST
	VVB-002	3RD
	VVB-001	
4-13-89	VVB-001	2ND
	VVB-002-002	
	VVB-001-001	
	VVB-002	1ST
	VVB-002	3RD
	VVB-001	
4-12-89	VVB-002	2ND
	VVB-001	
	VVB-001	1ST
	VVB-001	3RD
	VVB-002	
4-11-89	VVB-001	2ND
	VVB-001	1ST

3-11-89	VVB-001	1ST
	VVB-002	
	VVB-001	3RD
	VVB-002	
3-10-89	VVB-001	2ND
	VVB-001	1ST
	VVB-002	
	VVB-002	3RD
	VVB-001	
3-7-89	VVB-001	*
	VVB-002	
	VVB	*
	VVB-001	3RD
3-28-89	VVB-001	*
	VVB-002	
3-19-89	VVB-002	*
	VVB-001	1ST
3-17-89	VVB-002	3RD
	VVB-002	2ND
3-18-89	VVB-002	1ST
3-17-89	VVB-002	3RD
	VVB-001	
3-16-89	VVB-001	2ND
	VVB	1ST
	VVB-001	3RD
	VVB-002	
3-15-89	VVB-002	2ND
	VVB-001	
	VVB-	1ST

3-14-89	VVB-002	3RD
	VVB-001	
	VVB-002	2ND
	VVB-001	1ST
	VVB-001	
	VVB-002	
	VVB-002	3RD
3-13-89	VVB-001	2ND
	VVB-002	
	VVB	1ST
	VVB-002	3RD
3-12-89	VVB-002	2ND
	VVB-002	1ST
	VVB-002	3RD
3-11-89	VVB-002	2ND
	VVB-001	1ST
	VVB-002	3RD
3-10-89	VVB-002	2ND
	VVB	1ST
	VVB-002	3RD
3-9-89	VVB-002	2ND
	VVB-002	1ST
	VVB-002	
	S095-800-0042-0325 Doubtful was crossed in box	3RD
	VVB-002	2ND
3-8-89	VVB-002	1ST
	VVB-002	3RD
3-7-89	VVB-002	2ND
	VVB-002	1ST

000021

2

3-7-89	VVB-002	3RD
	VVB-001	
3-6-89	VVB-002	*
	VVB-002	*
	VVB-002	3RD
3-3-89	VVB-002	2ND
	VVB-002	1ST
	VVB-002	3RD
3-2-89	VVB-002	2ND
	VVB-002	1ST
	VVB-002	3RD
3-1-89	VVB-002	2ND
2-24-89	VVB-002	*
	VVB	*
	VVB-002	3RD
2-23-89	VVB-002	2ND
	VVB-002	1ST
	VVB-002	3RD
2-22-89	VVB-002	2ND
	VVC-002	3RD
2-21-89	VVB-002	2ND
	VVB-002	1ST
2-21-89	VVB-002	3RD
2-16-89	VVB-002	3RD
	VVC-001	
2-15-89	VVB-002	2ND
NOUE	VVB-002	1ST
	S109-917-0002-7004	1ST
2-16-89	VVB-002	1ST

2-15-89	VVC-001	3RD
	VVB (BRECCH, 002	
	VVB-002	
2-14-89	VVC-002	2ND
	001	
	VVC-001	1ST
	VVC-001	3RD
2-13-89	VVC-001	2ND
	-002	
	VVC-001	1ST
	VVC-001	3RD
2-10-89	VVC-001	1ST
	VVC-001	3RD
2-9-89	VVC-002	2ND
	-001	
	VVC-001	1ST
	VVC-001	3RD
2-8-89	VVC-001	2ND
	VVC-001	1ST
	VVC-002	3RD
	VVC-001	
2-7-89	VVB-001	1ST
	VVB-002	
	VVC-002	2ND
	001	
	VVC-001	3RD
	VVB-001	
2-6-89	VVC-001	2ND
	VVB-002	

2-5-23	VVB-002	2ND
	VVB-002	
	VVB-002	3RD
10-4-88	VVB-002	*
	VVB-001	
	VVB-002	*
	VVB-002	3RD
10-3-88	VVB-002	2ND
9-30-88	VVB-002	1ST
9-6-88	VVB-002	3RD
9-5-88	VVB-002	2ND
	VVB-002	1ST
	VVB-002	3RD
9-4-88	VVB-002	2ND
	VVB-002	1ST
	VVB-002	3RD
9-3-88	VVB-002	2ND
9-3-88	VVB-002	1ST
9-2-88	VVB-002	1ST
	VVB-002	*
9-1-88	VVB-002	*
	VVB-002	1ST
	VVB	3RD
8-31-88	VVB-002	*
	VVB-002	*
	VVB-002	
8-30-88	VVB-002	*
	VVB-002	*
	VVB-002	*

8-29-88	002		*
	VVB-002		*
	VVB-002		*
8-28-88	VVB-002		2ND
	VVB-002		1ST
	DRUM WASHER	Consumed in Box Size	3RD
	Sump CLEANOUT		
	VVB-002		
8-27-88	VVB-002		*
	VVB-002		*
	VVB-002		*
8-26-88	VVB-002		*
	VVB-002		1ST
	VVC-002		*
	NEW		
	VVC-002		
	OLD		
8-25-88	VVB-002		2ND
	VVB-002		1ST
	VVB-001		3RD
	VVC-002 NEW		
8-24-88	VVB-002		2ND
	VVC-002 NEW		
	VVB-002		1ST
	VVB-002		3RD
8-23-88	VVB-002		2ND
	VVB-002		1ST
	VVB-001		*
	VVB-002		

8-21-88	002	*
8-22-88	5050-001	1ST
8-21-88	VVB-002	2ND
	VVB-002	1ST
	VVB-002	3RD
8-20-88	VVB-002	2ND
	VVB-002	1ST
	002	3RD
8-19-88	VVB-002	2ND
	VVB-002	1ST
	VVB-002	*
8-17-88	VVB-002	*
8-18-88	VVB-002	2ND
8-17-88	VVB-002	2ND
8-18-88	VVB-002	3RD
8-17-88	VVB-002	3RD
8-16-88	VVB-002	2ND
	VVB-002	*
	VVB-002	1ST
8-15-88	VVB-002	2ND
	VVB-002	*
	VVB-002	3RD
8-14-88	VVB-002	2ND
	VVB	1ST
	VVB-002	3RD
	BOX ASH — unsolid	
8-13-88	VVB-002	2ND
	VVB	1ST
	002	3RD

8-12-88	VVB-002	2ND
	VVB-002	1ST
	VVB-002	3RD
8-11-88	VVB-002	2ND
8-9-88	VVB-002	*
8-8-88	VVB-002	*
	VVB-002	*
	VVB-002	3RD
8-7-88	VVB-002	2ND
	VVB-002	1ST
8-6-88	VVB-002	*
	VVB-002	3RD
8-5-88	VVB-002	2ND
	VVB-002	1ST
	002-VVB	3RD
8-4-88	VVB-002	2ND
	VVB-002	1ST
NONE	VVB-002	*
8-3-88	VVB-002	2ND
	VVB-002	1ST
	VVB-002	3RD
	VVB-001	
8-2-88	VVB-001	*
	VVB-002	
	VVB-002	1ST
	VVB-002	3RD
8-1-88	VVB-001	2ND
	VVB-002	
7-15-88	VVB-002	1ST

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7-17-88	002	*
	VVB-002	1ST
	VVB-001	*
	VVB-002	
7-13-88	VVB-002	*
	VVB-001	
	VVB-002	1ST
	VVB-002 NEW	3RD
	VVB-001	
7-12-88	002	*
	VVB-002	1ST
	VVB-002 NEW	3RD
	VVB-002 OLD	
8-11-88	002	*
7-11-88	VVB-001	1ST
	VVB-002	
	VVB-001 OLD	3RD
7-10-88	VVB-002	2ND
	W095	1ST
	VVB-002 OLD	3RD
	VVB-001	
7-9-88	VVB-002	2ND
	VVB-002	1ST
	VVB-001	
	VVB-002	3RD
	VVC-001	
7-8-88	OLD 002	2ND
	VVB-002	1ST
	VVB-001	

7-9-88	VVB-002 NEW	
	VVB-002 OLD	
7-7-88	002	2ND
	VVB-002	1ST
	VVC-001	
	VVB-001	*
	VVB-002	
7-6-88	VVB-002	2ND
	VVB-002	1ST
	VVB-002 OLD	3RD
	VVB-001 OLD	
7-5-88	VVB-002	*
	VVB-002	*
	VVB-002	3RD
7-4-88	VVB-002 OLD	2ND
	VVB-002	1ST
	VVB-002	3RD
	BREECH	
7-3-88	VVB-002	2ND
	VVB-002	1ST
	VVB-002 NEW	3RD
	VVB-002 OLD	
7-1-88	VVB-002	2ND
	VVB-002	1ST
	VVB-001	3RD
	VVB-002	
6-30-88	VVB-002	2ND
	VVB-002	1ST
	VVB-001	3RD

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6-30-88	VUB-001	3RD
	VUB-002 NEW	
6-29-88	VUB-001	2ND
	VUB-002	
	VUB-002	1ST
	VUB-001	3RD
	VUB-002 NEW	
6-28-88	VUB-001	2ND
	VUB-002	
	VUB-002	1ST
	VUB-002 NEW	3RD
	VUB-002 OLD	
6-27-88	VUB-002	2ND
	VUB-002	1ST
	VUB-002	3RD
6-26-88	VUB-002	2ND
	VUB-002	1ST
	VUB-002	3RD
6-25-88	VUB-002	2ND
	OLD	1ST
	VUB-002 NEW	3RD
	VUB-002 OLD	
6-24-88	VUB-002	2ND
	VUB-002	1ST
	VUB-002 NEW	3RD
	VUB-002 OLD	
	VUB-002	*
6-23-88	VUB-002	*
NONE	N003-5649-P034-0098	—

NONE	A093- 560 - 0034- 0272	
	5066- 513 - 0034- 0276	
	A093- 560- 0034- 0286	
6-23-88	A093- 560 - 0034- 0280	3RD
	N003 - 564 -0034- 0030	
	WET- 034-MATERIAL	
	5066.- 513 - 0034- 0276	
6-20-88	VVB- 002 NEW	1ST
6-19-88	VVB- 002	*
	VVB- 002 NEW	
6-20-88	VVB- 002 NEW FEED	3RD
6-19-88	VVB-002 NEW	1ST
	VVB- 002	3RD
6-16-88	VVB- 002	2ND
	VVB- 002	1ST
6-12-88	VVB-002	2ND
	VVB- 002	1ST
	VVB-002	3RD
6-11-88	VVB-002	2ND
	VVB- 002	1ST
	VVB- 002	3RD
6-16-88	VVB- 002	3RD
6-15-88	VVB- 002	1ST
6-10-88	VVB- 002	2ND
	S109- 817-0002- 7004	
	VVB- 002	1ST
	VVB- 002	*
6-3-88	VVB- 002	2ND
	VVB- 002	1ST

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6-7-88	VUB-001	*
	VUB-002	
6-8-88	VUB-002	2ND
	VUB-002	1ST
	VUC-002	*
	VUC-001	
6-6-88	VUB-002	2ND
	VUB-002	1ST
	VUB-002	3RD
6-5-88	VUB-002	2ND
	VUB-002	1ST
	VUB-002	3RD
6-4-88	VUB-002	2ND
	VUB-002	1ST
	VUB-002	3RD
6-3-88	VUB-002	2ND
6-3-88	VUB-002	3RD
6-2-88	VUB-002	2ND
	VUB-002	1ST
	VUB-002	*
6-1-88	VUB-002	2ND
	VUB-002	*
	VUB-002	1ST
	VUB-002	3RD
5-31-88	VUB-002	2ND
5-30-88	VUB-002	1ST
5-30-88	VUB-002	2ND
	VUB-002	1ST
	VUB-002	3RD

5-29-88	VVB-002	2ND
	VVB-002	1ST
	VVB-002	3RD
5-28-88	VVB-002	2ND
	VVB-002	1ST
	VVB-002	3RD
5-27-88	VVB-002	2ND
	VVB-002	1ST
5-26 88	VVB-002 NEW	2ND
	RESCH	
	VVB-002 NEW	
	VVB-002	*
	S125-817-0002-7019	*
	RAFFINATE CAKE	
5-25-88	VVB-002	*
	VVB-002	*
	VVB-001	3RD
	VVB-002	
5-24-88	S125-817-0002-7029	2ND
	VVB-001	
	VVB-002	
	VVB-002	1ST
	VVB-002	3RD
5-23-88	S125-817-0002-7019	2ND
	VVB-002	
	VVB-002	1ST
	VVB-002	3RD
5-22-88	VVB-002	2ND
	VVB-002	1ST
	VVB-002	3RD

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5-21-88	VUB-002	2ND
	VUB-002	1ST
	VUB-002	3RD
5-20-88	VUB-002	1ST
	VUB-002	—
5-19-88	VUB-002	2ND
	VUB-002	—
	VUB-001	3RD
	S125-817-0002-7023	
5-18-88	V003-811-V001-0001	—
	002	
	VUB-002	1ST
	S125-817-0002-7019	*
	VUB-002	
5-17-88	VUB-002	—
	VUB-002	1ST
	VUB-002	—
	VUB-002	—
5-16-88	VUB-002	3RD
5-15-88	VUB-002	*
	VUB-002	1ST
	S107-017-0002-7001	*
	VUB-002	
5-14-88	S125-817-0002-[illegible]272	*
	VUB-002	
	VUB-002	*
	VUB-002	
5-13-88	VUB-002	2ND
	VUB-002	1ST
	VUB-002	*

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5-12-88	VVB-002	2ND
	VVB-002	3RD
	VVB-001	
	VVB-002	2ND
5-11-88	VVB-002	
	VVB-001	1ST
	S109-817-0002-7004	
	S125-817-002-7038	3RD
	VVB-001	
	S125-817-0002-7023	
5-10-88	VVB-001	1ST
	S125-817-0002-7072	3RD
	VVB-001	
	S125-817-0002-7084	*
5-9-88	S125-817-0002-7098	*
5-8-88	N003-811-V001-0001	
	S109-817-0002-7001	
	S125-817-0002-7083	*
	S125-817-0002-7098	
	N003-811-V001-0001	2ND
	S125-817-0002-7083	
	N003-811-V001-0001	*
5-7-88	N003-811-V000-0001	
	S125-817-0002-7088	
	S125-817-0002-7092	*
	S125-817-0002-7090	
	VVB-001	
	DUST COLLECTOR RESIDUE	

5-6-88	S125-817-0002-7077	*
	VUB-001	
	S125-817-0002-7077	1ST
	S125-817-0002-7023	3RD
5-5-88	S125-817-0002-7098	*
	VUB-002	1ST
	N003-311-V002-0002	
	RAFFINATE	
	VUC-002	3RD
5-4-88	N003-311-V001-0001	*
	RAFFINATE	
	N003-311-V001-0001	*
	V002-0001	
5-3-88	VUB-001	
	VUB-002 R EAST SIMMO CAKE	
	S125-817-0002-7092	*
5-2-88	S125-817-0002-7093	1ST
5-3-88	125	3RD
	VUB-001	
5-2-88	VUB-001	*
5-1-88	VUB-001	2ND
	S125-817-0002-7099	1ST
	S125-817-0002-7099	3RD
4-30-88	VUB-001	2ND
	S125-817-0002-7097	1ST
	VUB-001	3RD
4-29-88	VUB-001	3RD
	S125-817-0002-7093	

4-28-88	VVB-001	2ND
	S125-817-0002-7099	
	S125-817-0002-7083	1ST
	S125-817-0002-7093	*
	S125-817-0002-7097	2ND
4-27-88	S125-817-0002-7072	1ST
	S125-817-0002-7098	*
4-26-88	S125-817-0002-7095	2ND
NONE	S019-817-0002-7004	*
	S125-817-0002-7099	
4-25-88	VVB-001	2ND
	S125-817-0002-7073	1ST
	VVB-001	*
	S125-817-0002-7075	
4-24-88	S125-817-0002-7078	*
	VVB-002	*
	VVB-001	3RD
	S125-817-0002-7080	*
4-23-88	VVB-001	2ND
	S125-817-0002-7090	
	VVB-001	3RD
4-22-88	VVB-001	2ND
	S125-817-000-7091	
	S125-817-0002-7082	1ST
	VVB-001	3RD
4-21-88	S125-817-0002-7077	2ND
	S125-817-0002-7078	1ST
	VVB-001	
	VVB-001	3RD

4-20-88	S125-817-0002-7077	*
4-21-88	VVB-001	*
	S125	
4-20-88	S125-817-0002-7023	3RD
	S125-817-000 -7025	
	VVB-001	
4-19-88	S125-817-0002-7077	2ND
	S125-817-0002-7073	1ST
	S125-817-0002-7077	3RD
4-18-88	S125-817-0002-7080	2ND
	VVB-001	
	VVB-001	1ST
	S125-817-0002-7074	3RD
4-17-88	S125-817-0002-7080	2ND
	S125-817-0002-7076	
	S125-817-00002-7073	
	S125-817-0002-7095	1ST
	VVB-001	
	S125-817-0002-7078	
	S125-817-0002-7073	3RD
4-16-88	S125-817-0002-7076	2ND
	N003-564-0034-0001	
	N003-817-V001 + 0009	
	VVB-001	
	VVB-002	1ST
	S125-817-0002-7075	
	VVB-001	3RD
	S125-817-0002-7076	

4-15-88	S125-817-7075-0002	2ND
	VUB-001	
	S125-817-0002-7071	1ST
	S125-817-0002-7071	*
4-14-88	VUB-001	*
	VUB-002	2ND
	S125-817-0002-7072	
	S125-817-0002-7072	*
4-13-88	S125-817-0002-7089	1ST
	VUB-001	
	VUB-002	
	VUB-001	*
4-11-88	S125-817-0002-7065	1ST
	VUB-002	
	S125-817-0002-7065	2ND
4-12-88	S125-817-0002-7062	*
4-10-88	VUB-002	*
	0002-7070	*
	VUB-001	
4-9-88	S125-817-0002-7058	1ST
4-7-88	S125-817-0002-7062	2ND
	VUB-002	
	VUB-001	
4-8-88	S125-817-0002-7017	3RD
	VUB-002	
	VUB-002	*
	VUB-001	
	VUB-002	2ND
	S125-817-0002-7058	

4-7-88	VUB-002	*
4-10-88	VUB-001	
	VUB-002	
4-9-88	S125-817-0002-7067	*
	VUB-002	
	S125-817-0002-7061	*
4-11-88	S125-817-0002-7062	*
	VUB-001	
4-13-88	S125-817-0002-7058	*
4-12-88	VUB-002	*
	0002-7062	
	S125-817-0002-7079	1ST
4-7-88	S125-817-002-7070	3RD
4-6-88	S125-817-0002-7070	2ND
	S125-817-0002-7046	1ST
	VUB-002	
4-5-88	S125-817-0002-7066	*
	S125-0002-7064	
4-6-88	VUB-002	*
	VUB-001	
	S125-817-0002-7065	
4-5-88	S125-817-0002-7066	*
	VUB-002	3RD
4-4-88	S125	*
	S125-817-0002-7049	*
	S125-0002	3RD
4-3-88	VUB-002	*
3-31-88	VUB-002	
	S125-817-0002-7048	

4-1-88	VUB-002	*
	VUB-002	3RD
4-2-88	VUB-002	3RD
4-1-88	VUB-002	*
	S125-817-0002-7048	1ST
4-3-88	VUB-002	*
4-2-88	VUB-002	*
	VUB-002	*
3-31-88	VUB-002	3RD
3-30-88	VUB-002	*
	VUB-002	
	BREECH	
3-29-88	VUB-002	1ST
3-30-88	VUB-002	*
3-29-88	VUB-002	*
3-28-88	VUB-002	*
3-29-88	VUB-002	*
3-28-88	VUB-0002	*
3-27-88	VUB-002	*
	VUB-002	2ND
3-28-88	VUB-002	*
3-27-88	VUB-002	*
NONE	VUB-002	*
3-26-88	VUB-002	1ST
	VUB-002	*
	VUB-002	*
3-25-88	VUB-002	*
	VUB-002	
	VUB-002	*

3-24-88	VVB-002	*
	VVB-002	1ST
3-23-88	VVB-002	
none	VVB-002	*
3-24-88	VVB-002	*
3-23-88	VVB-002	*
3-22-88	VVB-002	*
	VVB-002	*
3-21-88	VVB-002	*
	VVB-002	*
	VVB-002	*
	VVB-002	
3-20-88	VVB-002	*
	VVB-002	1ST
3-18-88	VVB-002	3RD
3-17-88	VVB-002	2ND
3-18-88	VVB-002	*
3-17-88	VVB-002	*
3-18-88	VVB-002	2ND
3-19-88	VVB-002	2ND
3-20-88	VVB-002	*
3-14-88	VVB-002	*
	VVB-002	*
3-15-88	VVB-002	*
3-14-88	VVB-002	*
3-12-88	VVB-002	2ND
	VVB-002	*
3-11-88	VVB-002	*
	VVB-001	

3-12-88	VVB-001	3RD
3-13-88	VVB-002	*
	VB-001	
3-11-88	VVB-002	2ND
	VVB-001	
3-13-88	VVB-002	*
	VVB-001	3RD
3-10-88	VVB-002	2ND
	VVB-001	
3-11-88	VVB-001	3RD
	VVB-002	
3-10-88	VVB-002	3RD
3-9-88	VVB-002	*
	VVB-002	2ND
3-8-88	VVB-002	*
	VVB-002	
	VVB-001	
3-7-88	VVB-002	3RD
3-8-87	3RSSCH	*
	VVB-002	
3-2-88	VVB-002	*
3-3-88	VVB-002	*
3-2-88	VVB-001	1ST
3-3-88	VVB-002	3RD
	VVB-001	
3-2-88	VVB-002	*
	VVB-001	
	VVB-002	3RD
3-1-88	VVB-002	1ST

3-1-88	VVB-002	*
	VVB-002	3RD
2-29-88	VVB-002	*
	VVB-002	*
	VVB-001	
NONE	VVC-002	3RD
2-29-88	VVB-002	3RD
2-27-88	VVB-002	*
2-29-88	VVB-002	*
2-28-88	VVB-002	3RD
	VVB-001	
2-27-88	VVB-001	*
	VVB-002	
2-28-88	VVB-002	2ND
	VVB-001	
2-26-88	VVB-002	*
	VVB-001	
	VVB-002	*
NONE	VVB-002	*
2-26-88	VVB-002	3RD
2-25-88	VVB-002	*
NONE	VVB-002	3RD
	VVB-001	
2-23-88	VVB-002	1ST
	VVB-001	
	VVB-002	*
2-22-88	VVB-001	3RD
	VVB-002	
2-21-88	VVB-002	2ND

2-21-88	VUB-002	1ST
	VUB-002	3RD
2-20-88	VUB-001	2ND
	VUB-002	
2-20-88	BREECH	1ST
	VUB-002	
2-5-88	VUB-002	*
	VUB-001	
2-4-88	VUB-001	*
	VUB-002	
	BREECH	
	VUB-001	*
	VUB-001	3RD
2-3-88	VUB-001	2ND
	VUB-002	1ST
	VUB-001	
	VUB-001	3RD
	VUB-002	
2-2-88	VUB-001	2ND
	VUB-002	
	VUB-002	1ST
	VUB-001	
	VUB-001	3RD
	VUB-002	
2-1-88	VUB-001	2ND
	VUB-002	
	VUB-002	1ST
	VUB-001	3RD
	VUB-002	

1-31-88	VVB-002	*
	VVB-002	1ST
	VVB-001	3RD
	VUB-002	
1-30-88	VUB-001	2ND
	VUB-002	
	VVB-002	1ST
	VVB-002	3RD
1-29-87	VVB-001	2ND
	VUB-001	1ST
	VUB-002	
	VUB-001	3RD
	VUB-002	
1-28-87	VVB-002	2ND
	VUB-001	
	VVB-001	1ST
	VUB-002	
1-28-88	VUB-002	3RD
1-27-88	VUB-002	1ST
	VUB-001	
	VUB-001	*
1-25-88	VVB-002	3RD
1-24-88	VVB-001	2ND
	VUB-001	1ST
	VUB-002	
	VVB-001	3RD
	VUB-002	
1-21-88	VVB-001	*
	VVB-001	1ST
	VVB-002	

1-21-88	VVC-002	3RD
	VVB-001	
1-20-88	VVB-001	*
	VVB-001	1ST
	VVB-002	
	VVC-002	
	VVB-001	3RD
	VVB-002	
1-19-88	VVB-002	2ND
	VVB-001	
	VVC-00[illegible]	
	VVB-002	1ST
	VVB-001	3RD
	VVB-002	
1-18-88	VVB-002	1ST
	VVB-001	3RD
	VVB-002	
1-15-88	VVB-002	2ND
	VVB-002	1ST
	VVB-001	3RD
1-14-88	VVC-001	2ND
	VVC-002	
	VVB-001	1ST
	VVC-001	
	VVC-001	3RD
	VVB-001	
	VVB-002	
1-13-88	VVB-002	2ND
	VVB-001	1ST
	VVB-002	

1-13-88	VUB-001	1ST
	VUB-002	
	VUB-002	3RD
	VUC-002	
1-12-88	VUB-002	2ND
	W095-817-0058-9286	1ST
	VUC-002	
	VUB-001	
	VUC-002	
	VUB-002	
	VUC-002	3RD
1-11-88	VUC-002	2ND
	VUC-001	1ST
	VUB-001	3RD
	VUB-002	
	VUC-002	
1-10-88	VUB-002	2ND
	VUB-001	
	VUB-001	1ST
	VUB-002	
	VUB-002	3RD
	VUB-001	
	VUC-002	
1-9-88	VUC-002	2ND
	VUB-002	
	VUB-001	
	VUB-001	1ST
	VUB-002	
	VUC-002	3RD

-7-87	VVC-002	3RD
1-8-87	VVB-002	2ND
	VVC-002	
1-8-88	VVC-002	1ST
1-7-88	VVB-002	2ND
	VVC-002	
	VVC-002	1ST
	VVB-002	
1-7-87	VVC-002	3RD
1-6-88	VVC-002	2ND
1-6-88	VVC-002	*
	VVC-002	3RD
1-5-88	VVC-002	2ND
	VVC-002	1ST
	VVC-002	3RD
1-4-88	VVB-001	2ND
	VVC-002	1ST

CONSUMPTION RECORDS -- PRIMARY CALCINER

FEMP Lot Code Number	Material
0069	wet sump or filter cake, non-oily & non-halide
001	discard process residues, trailer cakes, waste slurries, raffinates
002	sump cake - copper contaminated low uranium
042	sludges, cleanout, non-oily, for roasting

Lot Marking System consists of five basic elements as follows:

I - production order number

II - origin or source code

III - class or enrichment code

IV - material description code

V - lot or sequence number

Materials fed into the Calciner were primarily wet sump cakes/filter cakes from various production processes.