ENGINEERING CHANGE NOTICE

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1. ECN 649525

Proj.
ECN

2. ECN Category (mark one) Supplemental ☐ Direct Revision ☒ Change ECN ☐ Temporary ☐ Standby ☐ Supersedeure ☐ Cancel/Void ☐	3. Originator's Name, Organization, MSIN, and Telephone No. H.R. Risenmay, PFP Process Engineering, T5-55, 373-3503 6. Project Title/No./Work Order No. Thermal Stabilization 9. Document Numbers Changed by this ECN (includes sheet no. and rev.) HNF-3425, Rev. 2	4. USQ Required? ☒ Yes ☐ No 7. Bldg./Sys./Fac. No. PFP/73T/234-5Z 10. Related ECN No(s). N/A	5. Date March 2, 1999 8. Approval Designator Q,S 11. Related PO No. N/A
12a. Modification Work ☐ Yes (fill out Blk. 12b) ☒ No (NA Blks. 12b, 12c, 12d)	12b. Work Package No. N/A	12c. Modification Work Complete N/A Design Authority/Cog. Engineer Signature & Date	12d. Restored to Original Condition (Temp. or Standby ECN only) N/A Design Authority/Cog. Engineer Signature & Date
13a. Description of Change The referenced document was changed to include In-Process items stored in vault 175 in Appendix A. A change was also included to insert a table in Appendix C that will be used to determine the thermal loading and the mass of material that can be stored in an individual item and remain within the 15 watt specification for vault storage. 13b. Design Baseline Document? ☐ Yes ☒ No			
14a. Justification (mark one) Criteria Change ☒ Design Improvement ☐ Environmental ☐ Facility Deactivation ☐ As-Found ☐ Facilitate Const ☐ Const. Error/Omission ☐ Design Error/Omission ☐			
14b. Justification Details The material stored in Vault 175 needs to be included in the earliest processing so that all items in vault 175 can be removed to lower the dose rate in the vault, thereby decreasing exposure of workers. A table was added to Appendix C and instructions in its use were added for calculating the thermal loading of items produced by the thermal stabilization process to ensure that vault storage specifications are met.			
15. Distribution (include name, MSIN, and no. of copies) See Distribution Sheet

649525

A-7900-013-3 (05/96) GEF096

**UNREVIEWED SAFETY QUESTION (USQ)
SCREENING AND EVALUATION**

1. Identification Number: HNF-3425/REV 3

USQ SCREENING

Page 1 of 3

2. Title: PFP THERMAL STABILIZATION FY 1999 BLEND PLAN

INSTRUCTIONS:

Respond to each question and provide justification for each response. A restatement of the question does not constitute a satisfactory justification or basis. An adequate justification provides sufficient explanation such that an independent reviewer could reach the same conclusion based on the information provided [DOE 5480.21, 10.e.1].

DESCRIPTION:

The changes to the Blend Plan added additional items for processing and a table to Appendix C with instructions for using the table. The In-Process items located in Vault 175 were added to Appendix A.

INTRODUCTION:

When the Blend Plan was first written the "In-Process" items stored in Vault 175 were missed and are now included. These items do not meet vault storage specifications for LOI and will be considered recycle items for processing. Including these items for processing will allow removal of as much material as possible from the vault, thereby, lowering the exposure of the workers. These items had been originally stored in HC-18BS and other gloveboxes and were moved to provide additional storage space and to lower exposure of workers.

With the processing of most of the items in HC-18BS there is now room to return the items to HC-18BS before material currently stored in the ZB vaults are transferred for processing.

All or most of the product quality oxide items stored in our vaults were added to Appendix C. A table was also added to Appendix C which details the isotopic values for the oxide items and calculates the amount of material of any specific run that can be placed in a product can and maintain the 15 watt limit to meet storage vault specifications. There is no chance of exceeding the 15 watt limit with items starting with the designations "LAO" or "PBO" but all items starting with the designation "BLO" are at risk of exceeding the specification if the can were to be filled.

SCOPE:

This Blend Plan specifies the items that are to be thermally stabilized at the PFP plant during the 1999 fiscal year processing campaign.

AUTHORIZATION BASIS:

The authorization basis documents include those listed in FSP-PFP-5-8, Section 2.23, Appendix A:

WHC-SD-CP-SAR-021 Revision 0-J (FSAR) and supplemental ECN's below

ECN-646623	ECN-616618	ECN-646804	ECN-708423
ECN-611939	ECN-643207	ECN-191508	ECN-629275
ECN-649765	ECN-649770	ECN-642356	ECN-631022
ECN-649956	ECN-649958		

WHC-SD-CP-OSR-010, Revision 0-I (OSR)

DOE/DP-0130, January 1995

HNF-2024, Rev 0-A

Letter FDH-9755047 R2, October 10, 1997

DOE-RL Letter 97-TPD-163, August 22, 1997

The documents of the above that were reviewed are FSAR section 6.2.2 and 6.4.1.2 as modified by ECN

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UNREVIEWED SAFETY QUESTION (USQ) SCREENING AND EVALUATION		
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649956 which discuss the thermal stabilization process; section 6.1.1.1 SNM Receiving/Sorting/Storing/Shipping, which discusses wattage limits on items stored in vaults, section 9.1.3, Radioisotope-Bearing Powder Spills; section 9.2.1C, Explosions; sections 9.2.2C, Gloveboxes MT-5/HC-21C Fire; section 9.2.4B, Reactive Material Stabilization (Gloveboxes MT-5/HC-21C); Table 9D.1.1 as modified by ECN 649956; section 9.3.5 Plutonium Inventory Characterization, which discusses effects of the different isotopes on Pu on heat generation; and OSR.

HNF-SD-CP-SAR-021, Rev. 1 draft does significantly change the amount of material that can be processed in a boat charge but until DOE gives their approval the new limits cannot be used.

CONCLUSION:
There is no USQ.

REFERENCES:

DOE/EIS-0244-F, Plutonium Finishing Plant Stabilization Final Environmental Impact Statement; Hanford Site; Richland, Washington; May 1996.

HNF-SD-CP-SAR-021, Rev. 1 draft.

QUESTIONS:

1. Does the proposed change or occurrence represent a change to the facility or procedures as described in the Authorization Basis?

☐ N/A ☒ No ☐ Yes/Maybe

BASIS: Handling of thermally stabilized material is considered normal operations. FSAR section 6.2.2 and 6.4.1.2 as modified by ECH 649956 discusses the thermal stabilization process. The changes being made to the blend plan are discussed above in the introduction. These product quality oxides and recycle items are an approved feed material. This document change does not represent any change to facility or procedures as described in the Authorization Basis.

2. Does the proposed change or occurrence represent conditions that have not been analyzed in the Authorization Basis?

☐ N/A ☒ No ☐ Yes/Maybe

BASIS: Handling of stabilized material does not go beyond any conditions mentioned in FSAR. Spills of plutonium bearing materials are covered in section 9.1.3, Radioisotope-Bearing Powder Spills, sections 9.2.1C and 9.2.2C, cover the risks for glovebox HC-21C from fires or deflagrations and determine that it is bounded by the risks of similar events in glovebox MT-5. The results of the analyses show that seismically-induced fires or deflagrations do not contribute significantly to the overall onsite or offsite doses resulting from a seismic event. Section 9.2.4B Reactive Material Stabilization (Gloveboxes MT-

UNREVIEWED SAFETY QUESTION (USQ) SCREENING AND EVALUATION

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5/HC-21C) discusses the thermal stabilization process and how it is bounded by the deflagration in MT-5. ECN 649956 provides changes to Table 9D.1.1 showing Pu oxide/Ash has an associated hazard with CO flammability. Section 9.3.5 Plutonium Inventory Characterization discusses effects of the different isotopes on Pu on heat generation. No new accident could be caused by the changes made to the Blend Plan as discussed in the introduction. The changes to the Blend Plan do not represent a change to the Authorization Basis.

3. Does the proposed change represent a test or experiment NOT described in the Authorization Basis that may affect the safe operation of the facility?

☒ N/A ☐ No ☐ Yes/Maybe

BASIS: The change to the procedure does not comprise a test or experiment.

4. Does the proposed change or occurrence represent a change to the Technical Safety Requirements or a reduction in the margin of safety defined in the Technical Safety Requirements?

☐ N/A ☒ No ☐ Yes/Maybe

BASIS: No Safety Limits for PFP are specified in OSR, so a margin of safety cannot be affected. No OSR change is proposed.

USQE #1 H. R. Risenmay
(Print Name)

H. R. Risenmay
Signature

Date: March 3,
1999

USQE #2 Mark W. Gibson
(Print Name)

Mark W. Gibson
Signature

Date: 3/3/99

If there is a YES/MAYBE response to questions 1, 2, 3, or 4, then a USQ Evaluation must be completed.

The following guidance should be considered when completing this screening. This guidance should not be considered all-inclusive; additional factors may need to be considered depending on the nature of the proposed change.

Does the proposed change:

- 1) Modify, add, or delete a safety class function of a structure, system or component stated in the authorization basis?
- 2) Alter the design of a structure, system or component as described in the authorization basis?
- 3) Modify, add, or delete the description of operation, operating environment, or analyses of any system or component described in the authorization basis?
Modify, add, delete or conflict with any of the design bases stated in the authorization basis?
- 4) Conflict with the principle or general design criteria stated in the authorization basis?
- 5) Modify, add, or delete any plant design features described in the authorization basis?
- 6) Modify, add, or delete a flow diagram or facility drawing provided in the authorization basis?
- 7) Create the potential for new system or component interactions (e.g., seismic, electrical breaker coordination)?
- 8)

THERMAL STABILIZATION FY 1999 BLEND PLAN

H. R. Risenmay

B&W Hanford Company, Richland, WA 99352

U.S. Department of Energy Contract DE-AC06-96RL13200

EDT/ECN: ⁶⁴⁹⁵²⁵ ~~637057~~ ¹⁻³⁻⁹⁹ UC: 510

Org Code: 15530 Charge Code: 100741

B&R Code: EW70030000 Total Pages: ⁴³ ~~42~~ ⁴² 3-3-99

Key Words: Thermal, Stabilization, Plutonium, Oxide, PRF, Sludge, Mixed Oxide, HC-21A, HC-21C, HC-18BS, HC-18M, Furnace

Abstract: This document identifies the non-metal feed material for thermal stabilization campaign.

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Release Approval Date

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Approved for Public Release

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I. INTRODUCTION

This Blend Plan documents the alternate feed material items for the thermal stabilization process that will be used in place of the metal items that were originally planned to be processed. Problems with resolution of the safety basis for the metal items resulted in the decision to run material that already had an established safety basis. Various in process and scrap recovery items stored in gloveboxes, plutonium oxide and plutonium oxide mixed with uranium oxide stored in 2736-Z vaults will be processed through the stabilization furnaces until the safety basis for the metal items has been resolved.

The purpose of thermal stabilization is to heat the material to 1000 degrees Celsius to drive off all volatile materials and leave the plutonium and/or uranium as oxides. The stabilized material will be sampled to determine the Loss On Ignition (LOI). The stabilized material must meet LOI of less than 0.5% to be acceptable for storage under DOE-STD-3013-94 specifications. Out of specification material will be recycled through the furnaces until the LOI limits are met.

II. MATERIAL TO BE PROCESSED

Feed material and items were selected using the criteria in the Process Control Plan (Reference). The lists in the appendices reflect the application of that criteria to the data available for each item. A classified database containing elemental weights and locations is separately available to assist operations and engineering in detailed selections.

A. IN-PROCESS RECOVERY MATERIAL

Various in-process materials are stored in Vault 175 and gloveboxes HC-18BS and HA-23S gloveboxes. These include:

- Samples and Standards
- Analytical laboratories miscellaneous scrap
- 2736-ZB miscellaneous scrap
- Battelle Northwest uranium scrap
- Process heels
- Low fired oxide
- Furnace recycle material
- Plutonium miscellaneous scrap and residues
- Plutonium - depleted uranium residues
- Plutonium - natural uranium compounds

Material cleaned out of the PRF gloveboxes has the potential to contain Tri-Butyl Phosphate (TBP) and is usually a moist sludge. This type of material has been run through the furnaces during a former thermal stabilization campaign.

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There are furnace batch limits imposed by the FSAR Section 9.2.1C of 500 grams plutonium and 10 grams of organic for these items. The PFP plant Environmental Impact Statement (EIS) imposes a lower limit of 240 grams Pu per batch with total batch weight limit of 500 grams. The miscellaneous scrap items that do not contain organic must also meet these gram limits per batch. The items selected for processing will meet these limits by splitting if needed during the furnace charge preparation process. The EIS limits will be examined and changed to match the criticality limits for the affected gloveboxes to increase processing throughput after all safety basis issues have been resolved.

The above items are stored in Vault 175 and gloveboxes HC-18BS and HA-23S and will be transported via conveyors or sealout/sealin process to glovebox HC-21A for charge makeup.

TOTAL ITEMS IN VAULT 175 (7" food pack cans) 6
TOTAL Pu (grams) See classified database

TOTAL ITEMS IN HA-23S (1/2 liter poly jars): 71
TOTAL Pu (grams): 3346
TOTAL Normal U (grams): 712

TOTAL ITEMS IN HC-18BS: 12
TOTAL Pu: See classified database

B. MIXED OXIDES

The mixed oxide material that will be stabilized is currently stored in the 2736-Z Vaults. Radiographs of some of the items indicates that the material is in one can, a plastic bag, and a final can. The radiographs of the cans indicate that in some instances the inner can may have failed and the material needs to be processed to remove any corrosive properties for stable, long-term storage and to meet DOE-STD-3013-94 specifications. The available data on packaging weight was examined and all light weight packages were selected for processing where the material type matches the operating parameters.

The batch limits imposed by the EIS on oxides are 600 grams of Pu per batch with total batch weight of 1200 grams and a glovebox limit of 2000 grams Pu. The items selected for processing will meet these limits by splitting if needed during the furnace charge preparation process. The EIS limits will be examined and changed to match the criticality limits for the affected gloveboxes to increase processing throughput after all safety basis issues have been resolved.

TOTAL ITEMS SELECTED (7" food pack cans):

373

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TOTAL ITEMS SELECTED (7" food pack cans):

373

C. OXIDES

Oxide material will be stabilized first until all safety basis issues have been resolved for material that is in greater need of processing. This material is currently stored in the 2736-Z Vaults. Radiographs of some of the items indicates that most of the material is in a lead cup inside a slip lid can, a plastic bag, and two clean overpack cans. The material will be processed to meet DOE-STD-3013-94 specifications.

The batch limits imposed by the EIS on oxides are 600 grams of Pu per batch with total batch weight of 1200 grams and a FSAR imposed total glovebox limit of 2000 grams Pu. To simplify calculations needed during processing, the material will be assumed to be 88% Pu (typical of product quality oxide) which will result in a batch size of 675 grams. The items selected for processing will meet these limits by splitting if needed during the furnace charge preparation process. The EIS limits will be examined and changed to match the criticality limits for the affected gloveboxes to increase processing throughput after all safety basis issues have been resolved. The FSAR analysis for thermal stabilization has been revised in HNF-SD-CP-SAR-021, Rev. 1, and when approved by DOE will raise the process batch limit to equal the criticality specification limit of 2500 grams/batch. After approval all documentation and procedures will be updated to the new limits.

The items in Appendix C with item ID starting with "BLO" can be loaded into the PUREX slip lid can to exceed the vault storage specification for thermal loading of 15 watts/item. Appendix C includes a table to be used with the Daily Operating Instructions (OI) and/or Process Traveler to specify the maximum material that can be combined into one item when processing the "BLO" items. The other items in Appendix C are also included in the table but are not at risk for exceeding the thermal loading specification.

TOTAL ITEMS SELECTED (7" food pack cans):

62

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III. PROCESS ORDER

Items to be processed through thermal stabilization are found in appendices A, B, and C. The items found in Appendix A that are located in Vault 175 and glovebox HC-18BS will generally be processed first followed by the material in Appendix C to get the process started with material that should have very few anomalies. After safety basis questions have been resolved the mixed oxide material in Appendix B will be processed. The exact order of processing will be specified in the Operating Instructions (OI) and will be based on guidance provided in this blend plan. Deviations from the sequencing guidance will be approved by Operations and Process Engineering by the daily OI approval signatures. Operations and Process Engineering will concur/determine items to process and approve each OI. The daily OI should take into consideration good ALARA practices to keep radiation dose and handling of items to a minimum. This would include processing of items from the same vault location at the same time. Other criteria in the Process Control Plan will also be adhered to during the selection of items each day.

In the tables found in appendix B the columns headed, "LITE," "OLD," and "HEAVY" are marked for items that are most desirable to process first. The preferred order when possible is to process the "ZQM-*" items first, followed by items marked in the "OLD" column, followed by all items marked in the "LITE" column, followed by the items marked in the "HEAVY" column. Items that are marked in two or more of the columns would be highest priority.

IV. REFERENCES

Process Control Plan for FY 1999 Thermal Stabilization, HNF-3393, Rev. 1; B&W Hanford Company; Richland, Washington; December 2, 1998

Thermal Stabilization Glovebox HC-21C; OSD-Z-184-00006, Rev. C-3; B&W Hanford Company; Richland, Washington; September 12, 1998.

Thermal Stabilization Process Flowsheet; PFD-Z-190-00004, Rev D-0; B&W Hanford Company; Richland, Washington; September 12, 1998.

Plutonium Finishing Plant Stabilization Final Environmental Impact Statement, DOE/EIS-0244-F; Department of Energy, Richland Operations Office, Richland, Washington; May, 1996.

Draft PFP Final Safety Analysis Report, HNF-SD-CP-SAR-021, Rev. 1, B&W Hanford Company, Richland, Washington, January 11, 1999.

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APPENDIX A

In following tables:

MAT: 50 = Pu
81 = Normal U

CAT: 5 = Plutonium conversion other scrap weapons grade
19 = Plutonium rec. miscellaneous scrap weapons grade
25 = Plutonium rec. incinerator ash FG
30 = 2736-ZB miscellaneous scrap
41 = Analytical laboratories miscellaneous scrap weapons grade
52 = Ctl. miscellaneous scrap fuels grade
61 = Stabilized oxide
64 = Stabilized C-line scrap
77 = BNW uranium scrap fuels grade 04
444 = Plutonium - Depleted Uranium alloy, fuels grade
482 = Plutonium oxide FG

COEI: 771 = Samples and standards
C00 = Plutonium nonconforming compounds
C01 = Oxides (low fired < 700°C, relatively pure)
C02 = Oxides (high fired)
C50 = Plutonium - Normal Uranium compounds
E00 = Nonconforming noncombustibles
G00 = Nonconforming residues
G01 = Process heels (residues left after leaching operations)

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IN-PROCESS FEED ITEMS LOCATED IN VAULT 175

VAULT 175			
ITEMID	MAT	CAT	COEI
61-96-09-903	50	61	C02?
61-96-09-904	50	61	C02?
61-96-09-905	50	61	C02?
61-96-09-932	50	61	C02?
61-96-11-1072	50	61	C02?
61-96-11-1073	50	61	C02?

IN-PROCESS FEED ITEMS LOCATED IN HC-18BS

HC-18BS			
ITEMID	MAT	CAT	COEI
25-96-04-159	50	25	C00?
482-96-12-082	50	482	C02?
482-96-12-604	50	482	C02?
482-98-07-058	50	482	C01?
482-98-07-635	50	482	C01?
61-96-09-901	50	61	C02?
61-96-09-944	50	61	C02?
61-96-12-1168	50	61	C02?
61-96-12-1170	50	61	C02?
64-96-01-018	50	64	C02?
64-96-01-019	50	64	C02?
64-96-02-031	50	64	C02?

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IN-PROCESS FEED ITEMS LOCATED IN HA-23S

HA-23S				
ITEMID	MAT	CAT	COEI	ELE. WT.
19-94-11-74	50	19	G00	10
19-94-11-78	50	19	G00	12
19-95-03-30	50	19	G00	12
5-91-02-05	50	5	E00	11
5-91-07-15	50	5	E00	4
5-91-07-13	50	5	E00	9
5-91-07-14	50	5	E00	8
B2940,47,51,61,63	50	5	E00	32
19-96-06-318	50	19	G00	10
5-92-08-14	50	5	G00	57
5-92-08-15	50	5	G00	24
5-89-10-92	50	5	E00	39
5-89-10-93	50	5	E00	39
5-89-10-95	50	5	E00	39
5-92-04-08	50	5	G00	9
30-92-07-03	50	30	C00	302
73-42-88-2-E64	50	77	C50	11
73-42-88-2-E64	81	77	C50	712
41-95-08-177	50	41	771	261
41-95-08-178	50	41	771	270
41-95-08-179	50	41	771	175
41-95-08-180	50	41	771	102
19-92-08-19-1	50	19	G00	24
19-94-08-23	50	19	G00	269
19-94-08-30	50	19	G00	48
19-96-07-462	50	19	G00	8
19-87-07-273	50	19	G00	84
19-92-08-18-1	50	19	G00	37
19-92-08-19-2	50	19	G00	11
19-87-07-274	50	19	G00	42
19-92-08-16	50	19	G00	41
19-92-08-16-1	50	19	G00	22
19-92-08-16-2	50	19	G00	47
19-92-08-20-1	50	19	G00	37
19-92-08-21-1	50	19	G00	21

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HA-23S				
ITEMID	MAT	CAT	COEI	ELE. WT.
19-92-08-22-1	50	19	G00	38
19-92-08-23	50	19	G00	83
5-96-10-1019	50	5	G01	20
5-96-11-1066	50	5	G01	23
5-96-11-1067	50	5	G01	10
5-96-11-1068	50	5	G01	35
5-96-11-1069	50	5	G01	32
5-96-11-1070	50	5	G01	31
5-96-11-1071	50	5	G01	21
5-96-11-1091	50	5	G01	11
19-96-09-960	50	19	G00	47
19-96-09-963	50	19	G00	44
19-96-09-966	50	19	G00	58
19-96-09-985	50	19	G00	21
19-96-09-986	50	19	G00	19
19-96-09-988	50	19	G00	20
5-96-11-1094	50	5	G01	12
5-96-11-1098	50	5	G01	33
19-96-09-832	50	19	G00	33
19-96-09-871	50	19	G00	54
19-96-09-962	50	19	G00	45
19-96-09-964	50	19	G00	37
19-96-09-965	50	19	G00	51
19-96-09-967	50	19	G00	45
52-87-03-81	50	52	C01	38
52-86-02-142-1	50	52	C01	21
52-86-02-142-2	50	52	C01	15
52-86-02-142-3	50	52	C01	25
52-86-02-142-4	50	52	C01	22
52-86-02-140-1	50	52	C01	25
52-86-02-140-2	50	52	C01	25
52-86-02-140-3	50	52	C01	28
52-86-02-141-1	50	52	C01	21
52-86-02-141-2	50	52	C01	21
52-86-02-141-3	50	52	C01	20

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APPENDIX B

MIXED OXIDE ITEMS LOCATED IN 2736-Z VAULTS

In following tables:

ROWPED: Indicates the location of the item in the vault

CAT: 35 = Oxide for polystyrene
41 = Analytical laboratories miscellaneous scrap weapons grade
43 = Analytical laboratories scrap with uranium FG
56 = Ctl. Scrap with U FG
61 = Stabilized oxide
62 = Stabilized scrap
77 = BNW uranium scrap fuels grade 04
78 = BNW uranium scrap FG other
208 = Plutonium-Uranium oxide WG
404 = Plutonium-Uranium in mixed oxide gneo
411 = Plutonium-Depleted Uranium oxide WG
426 = Plutonium-Natural Uranium or Depleted uranium alloy FG
436 = Plutonium-Enriched Uranium oxide powder pellets FG
449 = Argonne scrap CZA
451 = 303-C scrap from BNW
461 = Plutonium NU-DEPL uranium oxide WG
478 = Plutonium-Natural Uranium-Depleted Uranium Oxide FG
850 = Radiation sources
950 = Plutonium-Enriched Uranium scrap from 324 building
955 = Fuel Pins

COEI: 290 = In fuel element and target fabrication process
291 = Fabricated fuel elements and targets product
771 = Samples and standards
C00 = Plutonium nonconforming compounds
C01 = Oxides (low fired < 700°C, relatively pure)
C40 = Plutonium-Depleted Uranium compounds
C41 = Plutonium-Depleted Uranium oxides (low fired)
C43 = Plutonium-Depleted Uranium oxides (high fired)
C50 = Plutonium NU compounds
C51 = Plutonium-Normal Uranium oxides (low fired)
C52 = Plutonium-Normal Uranium oxides (high fired)
C70 = Plutonium-enriched uranium compounds
C71 = Plutonium-enriched uranium oxides (low fired)
C72 = Plutonium-enriched uranium oxides (high fired)

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LITE: Indicates that the food pack can configuration only has two or three cans

OLD: Indicates that the item was put into storage prior to 10/79

HVY: Indicates that this item contains more Pu than those not marked

VAULT 1					
ITEMID	CAT	COEI	LITE	OLD	HVY
20563	950	290			
20564	950	290			
20565	950	290			
20566	950	290			
20569	950	290			
20752	950	290			Y
20766	950	290			
20912	950	290			Y
20041	950	290			
20044	950	290			Y
20092	950	290			
20093	950	290			
20913	950	290			
21461	950	290			
20500	950	290			
20501	950	290			
21528	950	290			
20502	950	290			
21817	950	290			
20503	950	290			
20504	950	290			
20561	950	290			
20562	950	290			
5531	950	290			
5530	950	290			Y

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VAULT 1					
ITEMID	CAT	COEI	LITE	OLD	HVY
5529	950	290			Y
605433	950	C52			Y
5218	950	290			
603301	950	C52			Y
5209	950	290			Y
603293	950	290			
603021	950	C43			
603013	950	290			
58803	950	290			Y
43101	950	290			Y
25204	950	290			Y
3048	950	290			Y
23768	950	290			Y
25205	950	290			Y
25482	950	290			
25479	950	290			Y
3134	950	290			
3050	950	290			Y
20722	950	290			Y
20723	950	290			Y
24492	950	290			Y
24431	950	771			
23891	950	290			Y
23354	950	C72			
22964	950	C52			
1784	950	290			Y
25028	950	290			Y
24270	950	290			Y
23949	950	290			Y
32355	950	290			Y

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VAULT 1					
ITEMID	CAT	COEI	LITE	OLD	HVY
11921	950	290			
43111	950	290			
43031	950	290			
24493	950	290			Y
22954	950	C43			Y
103051	950	290			
21802	950	290			
21532	950	290			
22188	950	290			
22187	950	290			
24054	950	771			
5532	950	290			Y
603015	950	290			
58801	950	290			Y
18388	950	C43			
18383	950	C43			
24948	950	290			Y
18382	950	C43			
24905	950	771			Y
603205	950	C52			
16055	950	C43			
23766	950	290			Y
24109	950	290			
24108	950	290			
24107	950	290			
21483	950	290			
21482	950	290			Y
12028	950	290			
25048	950	771			
24752	950	771			

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VAULT 1					
ITEMID	CAT	COEI	LITE	OLD	HVY
24551	950	290			Y
24309	950	771			
24950	950	290			Y
24949	950	290			Y
118385	950	C43			
24483	950	290			Y
24482	950	290			Y
24121	950	290			
24120	950	290			
24111	950	290			Y
24110	950	290			Y
10826	950	771			
10405	950	771			Y
21147	950	290			Y
21144	950	C52			Y
21143	950	C52			
20726	950	290			Y
20725	950	290			Y
16868	950	771			
288	950	771			
21394	950	290			
21440	950	C52			Y
20506	950	290			
605431	950	C52			Y
38521	950	C52			
20505	950	290			
20747	950	C43			
20746	950	C43			
14693	950	771			
931	950	771			Y

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VAULT 1					
ITEMID	CAT	COEI	LITE	OLD	HVY
21891	950	C52			Y
20776	950	C43			
21173	950	C43			
20750	950	C43			
34971	950	C52			Y
20749	950	C43			
20083	950	290			
20748	950	C43			
24515	950	290			Y
24514	950	290			Y
24513	950	290			Y
20792	950	C43			
5061	950	C52			
41861	950	290			Y
24518	950	290			Y
24517	950	290			Y
24516	950	290			Y
16071	950	290			Y
13581	950	C43			
22055	950	C43			
19788	950	290			
18387	950	C43			
21432	950	C52			
23430	950	290			Y
23428	950	290			
24490	950	290			Y
24436	950	290			Y
24112	950	290			Y
23767	950	290			Y
22717	950	C72			

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VAULT 1					
ITEMID	CAT	COEI	LITE	OLD	HVY
22716	950	290			Y
20568	950	290			
CZA-420-84-02-07	449	C43			Y
451-83-07-531	451	C41			Y
451-83-07-520	451	C41			
451-83-07-509	451	C71			Y
451-83-07-522	451	C41			Y
26049	955	290			
26050	955	290			
26051	955	290			
26052	955	290			
26053	955	290			
26054	955	290			
26055	955	290			
26056	955	290			Y
26057	955	290			Y
26058	955	290			Y
26059	955	290			
26060	955	290			
43-84-10-430	41	C40	Y		
ZQM-78-06-51	404	C01	Y	Y	
ZQM-78-06-39	404	C43	Y	Y	
ZQM-78-06-42	404	C43	Y	Y	
ZQM-78-06-43	404	C43	Y	Y	
ZQM-78-06-41	404	C43	Y	Y	
ZQM-78-06-28	404	C43	Y	Y	
ZQM-78-06-88	404	C70	Y	Y	
ZQM-78-06-31	404	C43	Y	Y	
ZQM-78-06-48	404	C01	Y	Y	
ZQM-78-06-33	404	C43	Y	Y	

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VAULT 1					
ITEMID	CAT	COEI	LITE	OLD	HVY
ZQM-78-06-30	404	C43	Y	Y	
ZQM-78-06-34	404	C43	Y	Y	
ZQM-78-06-35	404	C43	Y	Y	
ZQM-78-06-24	404	C43	Y	Y	
ZQM-78-06-23	404	C43	Y	Y	
ZQM-78-06-22	404	C43	Y	Y	
ZQM-78-06-47	404	C43	Y	Y	
ZQM-78-06-19	404	C43	Y	Y	
ZQM-78-06-21	404	C43	Y	Y	
ZQM-78-06-20	404	C43	Y	Y	
ZQM-78-06-14	404	C43	Y	Y	
ZQM-78-06-25	404	C43	Y	Y	
ZQM-78-06-36	404	C43	Y	Y	
ZQM-78-06-37	404	C43	Y	Y	
ZQM-78-06-49	404	C43	Y	Y	
ZQM-78-06-15	404	C43	Y	Y	
ZQM-78-06-16	404	C43	Y	Y	
ZQM-78-06-45	404	C43	Y	Y	
ZQM-78-06-18	404	C43	Y	Y	
ZQM-78-06-44	404	C43	Y	Y	
ZQM-78-06-17	404	C43	Y	Y	
ZQM-78-06-26	404	C43	Y	Y	
ZQM-78-06-50	404	C43	Y	Y	
ZQM-78-06-38	404	C43	Y	Y	
62-82-12-569	62	C40			Y
43-84-06-157	43	C43			
43-84-06-154	43	C43			
43-84-06-155	43	C52			
451-83-07-510	451	C71			Y
43-84-10-304	43	C43			

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VAULT 1					
ITEMID	CAT	COEI	LITE	OLD	HVY
62-82-09-87	62	C43	Y		
451-83-07-523	451	C41			Y
451-83-07-515	451	C71			Y
451-83-07-524	451	C41			Y
62-86-02-95	62	C40			
62-86-02-106	62	C01			
451-83-07-525	451	C71			Y
77-81-02-01	77	C70			
77-81-02-02	77	C70			
62-83-03-150	62	C40			
43-79-02-1631	43	C52			
451-83-07-521	451	C71			Y
62-86-02-94	62	C40			Y
43-79-03-1660	43	C51	Y		
451-83-07-526	451	C41			Y
451-83-07-517	451	C71			Y
451-83-07-513	451	C71			Y
451-83-07-514	451	C41			Y
451-83-07-516	451	C41			Y
451-83-07-518	451	C41			Y
451-83-07-519	451	C71			Y
451-83-07-511	451	C41			Y
451-83-07-512	451	C71			Y

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VAULT 2					
ITEMID	CAT	COEI	LITE	OLD	HVY
56-75-09-748	56	C40	Y	Y	
56-75-09-749	56	C40	Y	Y	
56-75-09-745	56	C40	Y	Y	
56-75-09-747	56	C40	Y	Y	
HUA-4-101-9-1	77	C50	Y		
HUA-4-25-682-1	77	C40	Y		
HUA-4-25-682-3	77	C40	Y		
197-XX-175-10	850	771			
198-XX-219-10	850	771			
199-XX-263-10	850	771			
HUA-4-25-682-2	77	C40	Y		
K-864	78	C50	Y	Y	
WA-31-20	77	C50	Y	Y	
WA-31-21	77	C50	Y	Y	
ANL-112-19-516-2	478	C40	Y		
ANL-112-19-516-1	478	C40	Y		
HUA-4-101-12,13-1	77	C50	Y		
ANL-112-16-503	426	C52	Y		
HUA-4-101-9-2	77	C50	Y		
WA-31-19	77	C50			
HUA-4-102-102A-5	77	C50			
HUA-4-101-11	77	C50	Y		
HUA-4-101-12,13-2	77	C50			
HUA-4-102-102A-6-2	77	C50			
HUA-4-25-683-1	77	C40	Y		
HUA-4-25-683-2	77	C40	Y		
WA-31-18	77	C50	Y	Y	
CZA-94-71-497	411	C40	Y	Y	
CZA-461-74-225	461	C43	Y	Y	

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VAULT 2					
ITEMID	CAT	COEI	LITE	OLD	HVY
CZA-461-74-226	461	C43	Y	Y	
MAN-122-10-12-1	436	C40			
MAN-122-21-17	436	C70			
MAN-122-10-12-2	436	C40	Y		
CZA-420-84-02-06	449	C43			Y
88-83-06-348	451	C51			
451-83-07-471	451	C51			
WA-31-13	77	C50			
451-83-07-459	451	C51			
WA-31-9	77	C50			
88-83-06-378	451	C51			
451-83-07-494	451	C41			
451-83-07-497	451	C41			
451-83-07-466	451	C51			
88-83-06-379	451	C51			
88-83-06-420	451	C51			
88-83-06-416	451	C51			
451-83-07-485	451	C41			
88-83-06-375	451	C51			
88-83-06-376	451	C51			
88-83-06-377	451	C51			
88-83-06-417	451	C51			
88-83-06-347	451	C51			
88-83-06-380	451	C51			
88-83-06-350	451	C51			
451-83-07-463	451	C51			
451-83-07-462	451	C51			
451-83-07-460	451	C51			
451-83-07-461	451	C51			
451-83-07-469	451	C51			

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VAULT 2					
ITEMID	CAT	COEI	LITE	OLD	HVY
88-83-06-346	451	C51			
88-83-06-349	451	C51			
88-83-06-419	451	C51			
451-83-07-457	451	C51			
88-83-06-415	451	C51			
88-83-06-421	451	C51			

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VAULT 4					
ITEMID	CAT	COEI	LITE	OLD	HVY
43-85-01-07	43	C43			
43-84-05-135	43	C41			
24613	950	290			Y
24614	950	290			
24725	950	290			Y
25033	950	290			Y
25272	950	290			Y
25522	950	290			Y
25527	950	290			Y
3047	950	290			
324-2	950	771			
324-6	950	771	Y		
324-3	950	771			
29801	950	290			Y
2578	950	290			
23724	950	290	Y		
23929	950	290			Y
25517	950	290			Y
25519	950	290			Y
25523	950	290			Y
25533	950	290			Y
25784	950	291	Y		
23153	950	290			Y
23154	950	290			Y
23734	950	290			Y
23928	950	290			Y
24036	950	290			Y
24064	950	290			Y
24124	950	290			Y

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VAULT 4					
ITEMID	CAT	COEI	LITE	OLD	HVY
24128	950	290			Y
24943	950	290			Y
24065	950	290			Y
24123	950	290			Y
24129	950	290			Y
24944	950	290			Y
25518	950	290			Y
25521	950	290			Y
25525	950	290			Y
25526	950	290			Y
25535	950	290			Y
25536	950	290			Y
25783	950	291			Y
23735	950	290			Y
24035	950	290			Y
25534	950	290			Y
23171	950	290			Y
22922	950	290			Y
23172	950	290			Y
23245	950	290			Y
25520	950	290			Y
23725	950	290			Y
25531	950	290			Y
24508	950	290			Y
25532	950	290			Y
24648	950	290			
25273	950	290			Y
23244	950	290			Y
25032	950	290			Y
25278	950	290			Y

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VAULT 4					
ITEMID	CAT	COEI	LITE	OLD	HVY
24066	950	290			Y
25107	950	290			Y
24067	950	290			Y
25398	950	290			
25260	950	290			Y
25489	950	290			Y
25528	950	290			Y
25529	950	290			Y
25516	950	290			Y
25530	950	290			Y
23726	950	290			Y
24724	950	290			Y
24771	950	290			
25106	950	290			
25274	950	290			Y
CZA-420-84-02-10	449	C40			
CZA-420-84-02-09	449	C40			
CZA-420-84-02-08	449	C40			
CZA-420-84-02-05	449	C40	Y		
CZA-421-84-02-04	449	C41			
CZA-472-84-02-03	449	C41			

APPENDIX C

OXIDE ITEMS LOCATED IN 2736-Z VAULTS

In following tables:

CAT: 112 = HEDL oxide for storage
 114 = Oxide fuels grade A line
 145 = Miscellaneous fuels grade samples
 173 = Oxide fuels grade

COEI: 454 = Dioxides product
 771 = Samples and standards

Use the following table to determine acceptable mass limits for individual items produced during thermal stabilization of oxide items. The last column on the right contains the amount of material from any run that will give 15 watts/item, which is the storage vault specification limit.

Isotope	Pu-238	Pu-239	Pu-240	Pu-241	Pu-242	Am-241		
Watts/gram	0.56757	0.0019288	0.0070824	0.1142	0.0001159	0.1142		
Run No.	%Pu-238	%Pu-239	%Pu-240	%Pu-241	%Pu-242	%Am-241	Watts/kg.	grams/pkg.
BLO-39-10-15	0.332	78.200	16.935	3.420	1.113	1.760	10.5	1427.4
BLO-39-10-16	0.392	73.132	21.025	3.833	1.618	2.100	11.9	1260.3
BLO-39-10-17	0.391	73.013	21.106	3.848	1.642	2.080	11.9	1261.1
BLO-39-10-18	0.383	73.583	20.685	3.771	1.578	2.460	12.2	1232.0
BLO-39-10-19	0.459	73.295	20.421	4.164	1.661	2.280	12.8	1169.5
BLO-39-10-20	0.687	75.333	17.202	5.234	1.544	2.150	15.0	999.7
BLO-39-10-021	0.769	76.047	15.954	5.670	1.560	3.160	17.0	879.9
BLO-39-11-01	0.675	76.341	16.149	5.287	1.548	3.160	16.1	931.9
BLO-39-11-02	0.702	76.057	16.160	5.482	1.599	3.190	16.5	909.0
BLO-39-11-03	0.780	76.199	15.723	5.716	1.582	3.240	17.2	870.1
BLO-39-11-04	0.837	76.417	15.301	5.907	1.538	3.280	17.8	842.6
BLO-39-11-05	0.807	76.458	15.244	5.954	1.537	3.220	17.6	851.6
BLO-39-11-06	0.862	76.431	15.155	6.015	1.537	3.330	18.1	828.1
BLO-39-11-07	0.868	76.385	15.142	6.071	1.534	3.310	18.2	824.8
BLO-39-11-08	0.954	74.624	16.128	6.452	1.842	3.060	18.9	795.3
BLO-39-11-09	1.034	74.330	16.163	6.563	1.910	3.190	19.6	765.8
BLO-39-11-10	1.005	74.594	16.056	6.470	1.875	3.120	19.2	779.9
BLO-39-11-11	1.024	74.242	16.274	6.552	1.908	2.770	19.0	787.6
BLO-39-11-12	1.009	74.064	16.433	6.562	1.932	3.120	19.4	774.1
BLO-39-11-13	1.010	73.887	16.569	6.563	1.971	2.800	19.0	788.4
BLO-39-11-14	0.990	74.004	16.534	6.525	1.947	3.200	19.3	776.2
BLO-39-11-15	0.966	74.349	16.422	6.373	1.890	3.170	19.0	790.3
BLO-39-11-16	0.410	51.878	36.453	7.181	4.078	4.020	18.7	801.9
BLO-39-11-17	0.285	47.395	40.540	7.306	4.474	4.050	18.4	816.3

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Isotope	Pu-238	Pu-239	Pu-240	Pu-241	Pu-242	Am-241		
Watts/gram	0.56757	0.0019288	0.0070824	0.1142	0.0001159	0.1142		
Run No.	%Pu-238	%Pu-239	%Pu-240	%Pu-241	%Pu-242	%Am-241	Watts/kg.	grams/pkg.
LAO-C**-226	0.062	81.586	16.590	1.410	0.352	0.100	4.8	3108.5
LAO-C**-227	0.070	81.809	16.400	1.370	0.351	0.106	4.8	3110.0
LAO-C**-228	0.058	82.254	16.000	1.360	0.328	0.095	4.7	3184.2
LAO-C**-229	0.058	82.033	16.200	1.370	0.339	0.081	4.7	3180.4
LAO-C**-230	0.056	82.109	16.160	1.320	0.355	0.061	4.6	3243.9
LAO-C**-231	0.060	81.656	16.490	1.430	0.364	0.068	4.8	3128.8
LAO-C**-232	0.055	82.009	16.210	1.380	0.346	0.086	4.7	3180.2
LAO-C**-233	0.058	81.984	16.240	1.380	0.338	0.071	4.7	3179.4
LAO-C**-234	0.067	81.980	16.250	1.360	0.343	0.085	4.8	3149.6
LAO-C**-242	0.060	82.072	16.190	1.340	0.338	0.136	4.8	3153.9
LAO-C**-245	0.062	81.876	16.360	1.350	0.352	0.144	4.8	3127.4
LAO-C**-247	0.059	81.940	16.360	1.300	0.335	0.128	4.7	3187.8
LAO-C**-259	0.061	81.898	16.360	1.340	0.341	0.112	4.7	3162.7
PBO-45-10-025	0.059	88.866	10.044	0.850	0.181	0.047	3.8	3962.8
PBO-45-11-032	0.112	84.129	13.397	2.086	0.276	0.006	5.6	2680.2
PBO-45-11-032C	0.105	84.770	12.928	1.923	0.275	0.133	5.5	2729.0
PBO-45-12-037	0.095	84.991	12.839	1.825	0.250	0.017	5.2	2889.0
PBO-45-12-038	0.115	84.824	12.687	2.114	0.260	0.009	5.6	2672.7
PBO-47-09-011	0.094	86.143	12.104	1.452	0.207	0.010	4.7	3176.8
PBO-47-09-011C	0.086	85.789	12.439	1.447	0.239	0.001	4.7	3208.6
PBO-47-09-012	0.091	86.137	12.107	1.458	0.207	0.008	4.7	3184.6
PBO-47-09-013	0.089	86.149	12.091	1.462	0.209	0.010	4.7	3188.8

** = 01 through 13

Note: Because Pu transforms to Am the Wattage/gram value for Am-241 is used in place of the value for Pu-241.

VAULT 1

ITEMID	CAT	COEI
BLO-38-11-004	145	771
BLO-38-11-010	145	771
BLO-39-10-15-001	114	454
BLO-39-10-15-002	114	454
BLO-39-10-15-003	114	454
BLO-39-10-15-004	114	454
BLO-39-10-15-005	114	454
BLO-39-10-15-006	114	454
BLO-39-10-15-007	114	454

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VAULT 1

ITEMID	CAT	COEI
BLO-39-10-15-008	114	454
BLO-39-10-15-009	114	454
BLO-39-10-15-010	114	454
BLO-39-10-15-011	114	454
BLO-39-10-15-012	114	454
BLO-39-10-15-013	114	454
BLO-39-10-15-014	114	454
BLO-39-10-17-002	114	454
BLO-39-10-17-003	114	454
BLO-39-10-17-004	114	454
BLO-39-10-17-005	114	454
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BLO-39-10-17-009	114	454
BLO-39-10-17-010	114	454
BLO-39-10-17-011	114	454
BLO-39-10-17-012	114	454
BLO-39-10-17-013	114	454
BLO-39-10-021-013	114	454
BLO-39-11-05-004	114	454
LAO-C10-234	112	454
LAO-C10-242	112	454
LAO-C10-245	112	454
LAO-C10-247	112	454
LAO-C10-259	112	454
PBO-45-10-025-001	173	454
PBO-45-11-032-001	173	454
PBO-45-11-032-002	173	454
PBO-45-11-032-003	173	454

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VAULT 1		
ITEMID	CAT	COEI
PBO-45-11-032-004	173	454
PBO-45-11-032-006	173	454
PBO-45-11-032-008	173	454
PBO-45-11-032-009	173	454
PBO-45-11-032-010	173	454
PBO-45-11-032-011	173	454
PBO-45-11-032-016	173	454
PBO-45-11-032-021	173	454
PBO-45-12-037-019	173	454
PBO-45-12-037-020	173	454
PBO-45-12-038-019	173	454
PBO-47-09-011-001	173	454
PBO-47-09-011-002	173	454
PBO-47-09-011-003	173	454
PBO-47-09-011-004	173	454
PBO-47-09-011-005	173	454
PBO-47-09-011-006	173	454
PBO-47-09-011-007	173	454
PBO-47-09-011-008	173	454
PBO-47-09-011-009	173	454
PBO-47-09-011-010	173	454
PBO-47-09-011-011	173	454
PBO-47-09-011-012	173	454
PBO-47-09-011-013	173	454
PBO-47-09-011-014	173	454
PBO-47-09-011-015	173	454
PBO-47-09-011-016	173	454
PBO-47-09-011-017	173	454
PBO-47-09-011-018	173	454
PBO-47-09-011-019	173	454

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VAULT 1		
ITEMID	CAT	COEI
PBO-47-09-011-021	173	454
PBO-47-09-011-028	173	454
PBO-47-09-012-001	173	454
PBO-47-09-012-002	173	454
PBO-47-09-012-021	173	454
PBO-47-09-012-022	173	454
PBO-47-09-012-024	173	454
PBO-47-09-012-025	173	454
PBO-47-09-012-026	173	454
PBO-47-09-013-004	173	454
PBO-47-09-013-006	173	454
PBO-47-09-013-007	173	454
PBO-47-09-013-008	173	454

VAULT 2		
ITEMID	CAT	COEI
LAO-C01-227	112	454
LAO-C01-228	112	454
LAO-C01-229	112	454
LAO-C01-230	112	454
LAO-C01-231	112	454
LAO-C01-232	112	454
LAO-C01-233	112	454
LAO-C02-227	112	454
LAO-C02-228	112	454
LAO-C02-229	112	454
LAO-C02-230	112	454
LAO-C02-231	112	454
LAO-C02-232	112	454
LAO-C02-233	112	454

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VAULT 2

ITEMID	CAT	COEI
LAO-C03-227	112	454
LAO-C03-228	112	454
LAO-C03-229	112	454
LAO-C03-230	112	454
LAO-C03-231	112	454
LAO-C03-232	112	454
LAO-C03-233	112	454
LAO-C04-227	112	454
LAO-C04-228	112	454
LAO-C04-229	112	454
LAO-C04-230	112	454
LAO-C04-231	112	454
LAO-C04-232	112	454
LAO-C04-233	112	454
LAO-C05-227	112	454
LAO-C05-228	112	454
LAO-C05-229	112	454
LAO-C05-230	112	454
LAO-C05-231	112	454
LAO-C05-232	112	454
LAO-C05-233	112	454
LAO-C06-227	112	454
LAO-C06-228	112	454
LAO-C06-229	112	454
LAO-C06-230	112	454
LAO-C06-231	112	454
LAO-C06-232	112	454
LAO-C06-233	112	454
LAO-C07-227	112	454
LAO-C07-228	112	454

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VAULT 2

ITEMID	CAT	COEI
LAO-C07-229	112	454
LAO-C07-230	112	454
LAO-C07-231	112	454
LAO-C07-232	112	454
LAO-C08-226	112	454
LAO-C08-227	112	454
LAO-C08-228	112	454
LAO-C08-229	112	454
LAO-C08-230	112	454
LAO-C08-231	112	454
LAO-C09-226	112	454
LAO-C09-227	112	454
LAO-C09-228	112	454
LAO-C09-230	112	454
LAO-C09-231	112	454
LAO-C10-226	112	454
LAO-C10-227	112	454
LAO-C10-228	112	454
LAO-C10-229	112	454
LAO-C10-230	112	454
LAO-C10-231	112	454
LAO-C10-232	112	454
LAO-C11-226	112	454
LAO-C11-227	112	454
LAO-C11-228	112	454
LAO-C11-231	112	454
LAO-C12-227	112	454
LAO-C12-228	112	454
LAO-C12-231	112	454
LAO-C13-228	112	454

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VAULT 2		
ITEMID	CAT	COEI
LAO-C13-231	112	454

VAULT 4		
ITEMID	CAT	COEI
BLO-39-10-021-001	114	454
BLO-39-10-021-002	114	454
BLO-39-10-021-003	114	454
BLO-39-10-021-004	114	454
BLO-39-10-021-005	114	454
BLO-39-10-021-006	114	454
BLO-39-10-021-007	114	454
BLO-39-10-021-008	114	454
BLO-39-10-021-009	114	454
BLO-39-10-021-010	114	454
BLO-39-10-021-011	114	454
BLO-39-10-021-012	114	454
BLO-39-10-021-014	114	454
BLO-39-10-16-001	114	454
BLO-39-10-16-002	114	454
BLO-39-10-16-003	114	454
BLO-39-10-16-004	114	454
BLO-39-10-16-005	114	454
BLO-39-10-16-006	114	454
BLO-39-10-16-007	114	454
BLO-39-10-16-008	114	454
BLO-39-10-16-009	114	454
BLO-39-10-16-010	114	454
BLO-39-10-16-011	114	454
BLO-39-10-16-012	114	454
BLO-39-10-18-001	114	454

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VAULT 4		
ITEMID	CAT	COEI
BLO-39-10-18-002	114	454
BLO-39-10-18-003	114	454
BLO-39-10-18-004	114	454
BLO-39-10-18-005	114	454
BLO-39-10-18-006	114	454
BLO-39-10-18-007	114	454
BLO-39-10-18-008	114	454
BLO-39-10-18-009	114	454
BLO-39-10-19-001	114	454
BLO-39-10-19-003	114	454
BLO-39-10-19-005	114	454
BLO-39-10-19-008	114	454
BLO-39-10-19-009	114	454
BLO-39-10-19-010	114	454
BLO-39-10-19-011	114	454
BLO-39-10-19-012	114	454
BLO-39-10-20-001	114	454
BLO-39-10-20-002	114	454
BLO-39-10-20-003	114	454
BLO-39-10-20-004	114	454
BLO-39-10-20-005	114	454
BLO-39-10-20-006	114	454
BLO-39-10-20-007	114	454
BLO-39-10-20-008	114	454
BLO-39-10-20-009	114	454
BLO-39-10-20-010	114	454
BLO-39-10-20-011	114	454
BLO-39-10-20-012	114	454
BLO-39-11-01-001	114	454
BLO-39-11-01-002	114	454

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VAULT 4		
ITEMID	CAT	COEI
BLO-39-11-01-003	114	454
BLO-39-11-01-004	114	454
BLO-39-11-01-005	114	454
BLO-39-11-01-006	114	454
BLO-39-11-01-007	114	454
BLO-39-11-01-008	114	454
BLO-39-11-01-009	114	454
BLO-39-11-01-010	114	454
BLO-39-11-01-011	114	454
BLO-39-11-01-012	114	454
BLO-39-11-01-013	114	454
BLO-39-11-01-014	114	454
BLO-39-11-02-001	114	454
BLO-39-11-02-002	114	454
BLO-39-11-02-003	114	454
BLO-39-11-02-004	114	454
BLO-39-11-02-005	114	454
BLO-39-11-02-006	114	454
BLO-39-11-02-007	114	454
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BLO-39-11-02-010	114	454
BLO-39-11-02-011	114	454
BLO-39-11-02-012	114	454
BLO-39-11-02-013	114	454
BLO-39-11-02-014	114	454
BLO-39-11-03-001	114	454
BLO-39-11-03-002	114	454
BLO-39-11-03-003	114	454
BLO-39-11-03-004	114	454

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VAULT 4		
ITEMID	CAT	COEI
BLO-39-11-03-005	114	454
BLO-39-11-03-006	114	454
BLO-39-11-03-007	114	454
BLO-39-11-03-008	114	454
BLO-39-11-03-009	114	454
BLO-39-11-03-010	114	454
BLO-39-11-03-011	114	454
BLO-39-11-03-012	114	454
BLO-39-11-03-013	114	454
BLO-39-11-03-014	114	454
BLO-39-11-04-001	114	454
BLO-39-11-04-002	114	454
BLO-39-11-04-003	114	454
BLO-39-11-04-004	114	454
BLO-39-11-04-005	114	454
BLO-39-11-04-006	114	454
BLO-39-11-04-007	114	454
BLO-39-11-04-008	114	454
BLO-39-11-04-009	114	454
BLO-39-11-04-010	114	454
BLO-39-11-04-011	114	454
BLO-39-11-04-012	114	454
BLO-39-11-04-013	114	454
BLO-39-11-04-014	114	454
BLO-39-11-05-001	114	454
BLO-39-11-05-002	114	454
BLO-39-11-05-003	114	454
BLO-39-11-05-004	114	454
BLO-39-11-05-005	114	454
BLO-39-11-05-006	114	454

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VAULT 4		
ITEMID	CAT	COEI
BLO-39-11-05-007	114	454
BLO-39-11-05-008	114	454
BLO-39-11-05-009	114	454
BLO-39-11-05-010	114	454
BLO-39-11-05-011	114	454
BLO-39-11-05-012	114	454
BLO-39-11-05-013	114	454
BLO-39-11-06-001	114	454
BLO-39-11-06-002	114	454
BLO-39-11-06-003	114	454
BLO-39-11-06-004	114	454
BLO-39-11-06-005	114	454
BLO-39-11-06-006	114	454
BLO-39-11-06-007	114	454
BLO-39-11-06-008	114	454
BLO-39-11-06-009	114	454
BLO-39-11-06-010	114	454
BLO-39-11-06-011	114	454
BLO-39-11-06-012	114	454
BLO-39-11-06-013	114	454
BLO-39-11-06-014	114	454
BLO-39-11-07-001	114	454
BLO-39-11-07-002	114	454
BLO-39-11-07-003	114	454
BLO-39-11-07-004	114	454
BLO-39-11-07-005	114	454
BLO-39-11-07-006	114	454
BLO-39-11-07-007	114	454
BLO-39-11-07-008	114	454
BLO-39-11-07-009	114	454

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VAULT 4		
ITEMID	CAT	COEI
BLO-39-11-07-010	114	454
BLO-39-11-08-001	114	454
BLO-39-11-08-002	114	454
BLO-39-11-08-003	114	454
BLO-39-11-08-004	114	454
BLO-39-11-08-005	114	454
BLO-39-11-08-006	114	454
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BLO-39-11-09-010	114	454
BLO-39-11-09-011	114	454
BLO-39-11-09-012	114	454
BLO-39-11-09-013	114	454
BLO-39-11-10-001	114	454
BLO-39-11-10-002	114	454

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VAULT 4		
ITEMID	CAT	COEI
BLO-39-11-10-003	114	454
BLO-39-11-10-004	114	454
BLO-39-11-10-005	114	454
BLO-39-11-10-006	114	454
BLO-39-11-10-007	114	454
BLO-39-11-10-008	114	454
BLO-39-11-10-009	114	454
BLO-39-11-10-010	114	454
BLO-39-11-10-011	114	454
BLO-39-11-10-012	114	454
BLO-39-11-11-001	114	454
BLO-39-11-11-002	114	454
BLO-39-11-11-003	114	454
BLO-39-11-11-004	114	454
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BLO-39-11-11-011	114	454
BLO-39-11-11-012	114	454
BLO-39-11-11-013	114	454
BLO-39-11-11-014	114	454
BLO-39-11-12-001	114	454
BLO-39-11-12-002	114	454
BLO-39-11-12-003	114	454
BLO-39-11-12-004	114	454
BLO-39-11-12-005	114	454
BLO-39-11-12-006	114	454

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VAULT 4		
ITEMID	CAT	COEI
BLO-39-11-12-007	114	454
BLO-39-11-12-008	114	454
BLO-39-11-12-009	114	454
BLO-39-11-12-010	114	454
BLO-39-11-12-011	114	454
BLO-39-11-12-012	114	454
BLO-39-11-12-013	114	454
BLO-39-11-13-001	114	454
BLO-39-11-13-002	114	454
BLO-39-11-13-003	114	454
BLO-39-11-13-004	114	454
BLO-39-11-13-005	114	454
BLO-39-11-13-006	114	454
BLO-39-11-13-007	114	454
BLO-39-11-13-008	114	454
BLO-39-11-13-009	114	454
BLO-39-11-13-010	114	454
BLO-39-11-13-011	114	454
BLO-39-11-13-012	114	454
BLO-39-11-13-013	114	454
BLO-39-11-14-001	114	454
BLO-39-11-14-002	114	454
BLO-39-11-14-003	114	454
BLO-39-11-14-005	114	454
BLO-39-11-14-006	114	454
BLO-39-11-14-007	114	454
BLO-39-11-14-008	114	454
BLO-39-11-14-009	114	454
BLO-39-11-14-010	114	454
BLO-39-11-14-011	114	454

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VAULT 4

ITEMID	CAT	COEI
BLO-39-11-14-012	114	454
BLO-39-11-14-013	114	454
BLO-39-11-14-014	114	454
BLO-39-11-15-001	114	454
BLO-39-11-15-002	114	454
BLO-39-11-15-003	114	454
BLO-39-11-15-004	114	454
BLO-39-11-16-001	114	454
BLO-39-11-16-002	114	454
BLO-39-11-16-003	114	454
BLO-39-11-16-007	114	454
BLO-39-11-16-008	114	454
BLO-39-11-16-010	114	454
BLO-39-11-17-001	114	454
BLO-39-11-17-002	114	454
BLO-39-11-17-003	114	454
BLO-39-11-17-004	114	454
BLO-39-11-17-005	114	454
BLO-39-11-17-006	114	454
BLO-39-11-17-007	114	454
BLO-39-11-17-008	114	454
BLO-39-11-17-009	114	454
BLO-39-11-17-010	114	454
BLO-39-11-17-011	114	454
BLO-39-11-17-012	114	454
BLO-39-11-17-013	114	454
BLO-39-11-17-014	114	454
BLO-39-11-17-015	114	454
LAO-C02-251	112	454
LAO-C03-245	112	454

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VAULT 4		
ITEMID	CAT	COEI
LAO-C04-253	112	454
LAO-C05-246	112	454
LAO-C06-253	112	454
LAO-C08-248	112	454
PBO-45-12-038-021	173	454
PBO-45-12-038-027	173	454

DISTRIBUTION SHEET

To Distribution	From PFP Process Engineering	Page 1 of 1			
		Date March 3, 1999			
Project Title/Work Order HNF-3425, Rev. 3, Thermal Stabilization FY 1999 Blend Plan		EDT No. N/A			
		ECN No. 649525			

Name	MSIN	Text With All Attach.	Text Only	Attach./ Appendix Only	EDT/ECN Only
T. A. Brown	T5-15	X			
E. R. Crawford	T5-50	X			
E. L. Davis	T5-09	X			
M. W. Gibson	T5-55	X			
R. E. Heineman	T5-50	X			
A. L. Ramble	T5-54	X			
R. D. Redekopp	T5-15	X			
L. L. Reed	T5-57	X			
H. R. Risenmay	T5-55	X			
P. E. Roegel	T5-15	X			
R. W. Szempruch	T5-55	X			
M. G. Thien	T5-09	X			
Central Files (Original + 1)	B1-07 - A3-33	X			
DOE/RL Reading Room	H2-53	X			