PROGRAM: JFD VERSION: PC-1.1

DECO FERMI2 JFD AT 10-METERS FOR 1992
SITE IDENTIFIER: FERMI2
DATA PERIOD EXAMINED: 1/ 1/92 - 12/31/92

*** ANNUAL ***

STABILITY CLASS E

STABILITY BASED ON 1=A,2=B,...,7=G
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: .75 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	2
.76- 2.50	10	6	2	8	3	6	2	6	9	10	9	14	13	13	17	9	137
2.51- 4.50	24	29	9	14	14	13	20	20	37	29	51	79	64	69	44	36	552
4.51- 6.50	27	20	26	22	21	27	24	39	60	65	78	32	41	47	23	36	588
6.51- 8.50	13	16	29	23	34	34	25	24	59	66	39	8	8	14	6	12	410
8.51-11.50	3	13	12	14	20	20	16	30	27	54	30	4	3	11	1	3	261
11.51-14.50	0	0	0	2	5	5	13	18	15	20	15	0	1	2	1	0	97
14.51-18.50	0	0	0	0	0	0	9	1	4	9	2	0	0	2	0	0	27
18.51-23.50	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2
23.51-30.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30.51-39.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>39.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	77	84	78	83	97	105	111	138	211	253	224	137	130	158	92	96	2076

STABILITY CLASS F

STABILITY BASED ON 1=A,2=B,...,7=G
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: .75 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	2
.76- 2.50	5	4	4	0	3	1	5	6	5	6	11	10	23	14	13	14	124
2.51- 4.50	15	4	0	3	3	6	9	7	22	25	21	42	42	54	29	19	301
4.51- 6.50	14	2	0	2	3	4	3	9	10	8	1	2	2	2	3	8	73
6.51- 8.50	2	0	0	0	0	11	11	12	7	5	1	0	0	0	0	2	51
8.51-11.50	0	0	0	1	5	11	7	9	3	9	0	1	0	0	0	0	46
11.51-14.50	0	0	0	0	1	1	4	1	4	0	0	0	0	0	0	0	11
14.51-18.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.51-23.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23.51-30.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30.51-39.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>39.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	36	10	4	6	15	34	39	44	51	53	34	55	67	70	45	43	608

PROGRAM: JFD VERSION: PC-1.1

DECO FERMI2 JFD AT 10-METERS FOR 1992
SITE IDENTIFIER: FERMI2
DATA PERIOD EXAMINED: 1/ 1/92 - 12/31/92

*** ANNUAL ***

STABILITY CLASS G

STABILITY BASED ON 1=A,2=B,...,7=G
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: .75 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 2.50	1	1	1	1	1	1	1	0	3	1	2	6	8	13	14	9	63
2.51- 4.50	6	0	1	1	3	4	9	2	2	2	9	9	10	32	17	29	136
4.51- 6.50	4	0	0	0	1	5	3	4	4	0	0	0	0	0	3	6	30
6.51- 8.50	1	0	0	0	2	2	5	2	0	0	0	0	0	0	0	0	12
8.51-11.50	0	0	0	1	3	7	6	6	0	0	0	0	0	0	0	0	23
11.51-14.50	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	2
14.51-18.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.51-23.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23.51-30.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30.51-39.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>39.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	12	1	2	3	11	19	24	15	9	3	11	15	18	45	[illegible]	44	266

STABILITY CLASS ALL

STABILITY BASED ON 1=A,2=B,...,7=G
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: .75 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	5
.76- 2.50	25	18	13	11	10	16	11	15	22	26	25	44	52	48	51	36	423
2.51- 4.50	90	69	36	31	39	50	61	44	84	82	113	200	182	211	149	134	1575
4.51- 6.50	95	71	87	59	68	126	123	103	146	118	154	132	167	138	150	167	1904
6.51- 8.50	87	58	165	112	122	186	155	128	156	151	151	128	114	114	88	136	2051
8.51-11.50	65	49	119	113	174	121	95	123	123	186	212	82	69	122	75	103	1831
11.51-14.50	31	10	34	27	75	64	40	40	48	116	118	15	32	45	19	33	747
14.51-18.50	12	10	8	4	14	13	13	5	14	32	30	4	11	17	4	8	199
18.51-23.50	6	0	0	4	7	0	2	0	1	8	3	0	0	3	0	8	42
23.51-30.50	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
30.51-39.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>39.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	411	285	462	361	510	576	500	458	594	719	806	605	627	698	536	625	8778

PROGRAM: JFD VERSION: PC-1.1

DECO FERMI2 JFD AT 10-METERS FOR 1992
SITE IDENTIFIER: FERMI2
DATA PERIOD EXAMINED: 1/ 1/92 - 12/31/92

*** ANNUAL ***

STABILITY BASED ON 1=A,2=B,...,7=G
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: .75 MPH

TOTAL NUMBER OF OBSERVATIONS: 8784
TOTAL NUMBER OF VALID OBSERVATIONS: 8778
TOTAL NUMBER OF MISSING OBSERVATIONS: 6
PERCENT DATA RECOVERY FOR THIS PERIOD: 99.9 %
MEAN WIND SPEED FOR THIS PERIOD: 7.3 MPH
TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 0

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
4.39	4.00	8.58	49.43	23.65	6.93	3.03

DISTRIBUTION OF WIND DIRECTION VS STABILITY

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
A	7	10	17	24	55	47	29	9	5	10	1	12	18	66	47	28	0
B	12	8	21	28	30	34	29	10	20	24	8	7	19	44	22	35	0
C	36	20	34	21	47	76	62	30	53	54	66	44	57	59	52	42	0
D	231	152	306	196	255	261	206	212	245	322	462	335	318	256	244	337	1
E	77	84	78	83	97	105	111	138	211	253	224	137	130	158	92	96	2
F	36	10	4	6	15	34	39	44	51	53	34	55	67	70	45	43	2
G	12	1	2	3	11	19	24	15	9	3	11	15	18	45	34	44	0
TOTAL	411	285	462	361	510	576	500	438	594	719	806	605	627	698	536	625	5

APPENDIX B: REVISED PROCESS CONTROL PROGRAM MANUAL

EFFECTIVENESS REVIEW

Reference LCR 92-0170-PCP

Revision Page of

********** PART 1: UFSAR [✓]NA **********

A) Quality Assurance Program

[ ]Yes [ ]No [ ]NA Does the change(s) cease to satisfy the criteria of 10CFR50, Appendix B or reduce UFSAR program commitments previously accepted by the NRC?

Provide the basis for each change on Attachment 2, Page 2.

B) Fire Protection Program

[ ]Yes [ ]No [ ]NA Does the change(s) adversely affect the ability to achieve and maintain safe shutdown in the event of a fire?

Provide the basis for each change on Attachment 2, Page 2.

***** PART 2: RADIOLOGICAL EMERGENCY RESPONSE PREPAREDNES PLAN [✓]NA *****

A) [ ] Yes [ ] No Does the change(s) decrease the effectiveness of the RERP Plan?

[ ] Yes [ ] No Does the RERP Plan, as changed, cease to meet the standards of 10CFR50.47(b) and 10CFR50 Appendix E?

Provide the basis for each change on Attachment 2, Page 2.

********** PART 3: SECURITY PLANS [✓]NA **********

A) Document

B) [ ] Yes [ ] No Does the change(s) decrease the effectiveness of the Physical Security Plan or Security Personnel Training and Qualification Plan prepared pursuant to 10CFR50.34(c) or 10CFR73?

[ ] Yes [ ] No Does the change(s) decrease the effectiveness of the first four categories of Informational Background, Generic Planning Base, Licensee Planning Base, and/or responsiblity matrix of the Safeguards Contingency Plan prepared pursuant to 10CFR50.34(d) or 10CFR73?

Provide the basis for each change on Attachment 2, Page 2.

********** PART 4: PROCESS CONTROL PROGRAM [ ]NA **********

A) [ ] Yes [X] No Does the change(s) reduce the overall conformance of the solidified waste product to existing requirements of Federal, State, or other applicable regulations? (Technical Specification 6.13)

Provide the basis for each change on Attachment 2, Page 2.

********** PART 5: ODCM [✓]NA **********

A) [ ] Yes [ ] No Does the change(s) reduce the level of radioactive effluent control required by 10CFR20.106, 40CFR Part 190, 10CFR50.36a, and Appendix I to 10CFR Part 50? (Technical Specification 6.14)

[ ] Yes [ ] No Does the change(s) adversely impact the accuracy or reliability of effluent, dose, or setpoint calculations? (Technical Specifications 6.14)

Provide the basis for each change on Attachment 2, Page 2.

********** PART 6: APPROVALS **********

A) Originator [signature] Date 7/29/92

B) Technical Expert Chris L. Hartty Date 7-29-92

C) Quality Assurance (Security Plans, QA Program) N/A Date

D) OSRO (Fire Protection Program, RERP Plan, Security Plans, PCP, ODCM) Robert J. Szkotnicki Date 8/5/92

DTC: [ ] TDLCR [ ] TCLCR [ ] TMPLAN

File: [ ] 1701.03 [ ] 1735 [ ] 1715.03

EFFECTIVENESS REVIEW DOCUMENTATION

Reference LCR 912-101701-IPICP

Revision Page of

Document PROCESS CONTROL PROGRAM

Listed below is each change by section and page; the reason for the change; and the basis for concluding that the revised plan or program continues to satisfy the criteria for that plan or program. Attach all appropriate analyses or evaluations justifying the change(s).

Section/Page	Change	Basis
3.4/7	Changed Title	Changed title of responsible person to reflect actual work conditions at present.
4.7/8	Added definition	The addition of the 4 definitions
4.9/9	Added definition	makes the PCP a "stand alone" document
4.11/9	Added definition	in respect to process operations.
4.12/9	Added definition	The definitions used will clarify the verbage used in the PCP that were removed during the T.S changes. These definitions do not change the requirements or process to meet specification requirements. (cont.)

DTC: [ ] TDLCR [ ] TCLCR [ ] TMPLAN

File: [ ] 1701.03 [ ] 1735 [ ] 1715.03

CONTINUATION SHEET

LCR 92-070-PCP

TSC

Revision Page of

A) Document PROCESS CONTROL PROGRAM

(ERD - cont.)

Section / Page	Change	Basis
5.0 / 10	Removed ref. to T.S. and added verbage in PCP. ~~to replace~~*	The action and applicability for Solid radioactive waste treatment is still required. With the removal of T.S. 3.11.3 from Tech Specs - these statements were incorporated into the PCP. No changes to the operation or process or final form of solidification is effected.* Therefore there is no effect on the waste product to meet the criteria.
6.2 + 6.3 / 11 + 12 + 6.4	Removed ref. to T.S and added to PCP.	* The verbage used in T.S. was incorporated into the PCP. (cont.)

CONTINUATION SHEET

LCR 9121-101701-1P1C1P

TSC [ ] [ ]-[ ] [ ] [ ] [ ]

Revision Page of

A) Document PROCESS CONTROL MANUAL

(cont.) 6.2+6.3/11+12 & 6.4	—	With transfer of requirements for Semiannual Radioactive Effluent Release Report and licensee initiated changes taken from T.S. and put in PCP will not effect solidification. There is no effect on the waste product to meet the criteria.
7.1.8/14	Removed ref. to T.S. 3/4 11.3	Section 3/4 11.3 was removed from T.S. and incorporated into section 5.0 of the PCP. No verbage change. Therefore there is no effect on the waste product to meet the criteria.
7.5.2, 7.6.2 & 7.7.2/15-17	Changed title of Shipping Supervisor ~~per~~ to Radwaste Shipping Supervisor	To align with title format for RW personnel. No effect on solidification criteria.

FERMI 2
PROCESS CONTROL PROGRAM MANUAL

Revision Summary:

1) Incorporated changes to PCP to support changes to Technical Specifications (Relocation of Radiological Effluent Technical Specifications).
2) Changed Shipping Supervisor to Radwaste Supervisor, Shipping.
3) Made editorial corrections.

Implementation Plan:

1) This revision goes into effect upon approval.
2) Ongoing work may proceed using previous revision.
3) No additional training is required.

Attachments - None

Enclosures - None

Procedures Management	*Information Services*
Date approved: 8/6/92	DSN: PCP MANUAL Revision: 15
Release authorized by: Louis L Hartz	DTC: TMPLAN File: 1715.01
Change numbers incorporated: N/A	Date: 8/6/92 Recipient:

TABLE OF CONTENTS

1.0 INTRODUCTION

1.1 Purpose

The Fermi 2 Process Control Program provides reasonable assurance that all Radwaste processed at Fermi 2 will be processed so that the final product will be suitable for both transportation to a disposal facility and disposal at that facility.

1.1.1 The Fermi 2 Process Control Program contains/controls the sampling, analyses, testing and formulation determinations to be made to ensure that the processing and packaging of solid radioactive waste will be accomplished in such a way as to assure compliance with 10 CFR Parts 20, 61 and 71 plus State, Burial Site and other requirements governing the disposal of solid radioactive waste. Process parameters specified may include, but are not limited to, waste pH, oil content, water content, solids content, ratio of solidification agent to waste and/or necessary additives for each type of anticipated waste, and the acceptable boundary conditions for the process parameters shall be identified for each waste type, based on laboratory scale and full scale testing or experience.

1.1.2 Change Control - The Fermi 2 Process Control Program also specifies the controls over changes in waste processing methodologies to ensure that any revised methodology is adequate to meet the requirements of ¶ 1.1.

1.1.3 Reporting - The Fermi 2 Process Control Program specifies the required regulatory reports regarding solid waste shipments and changes to the solid radwaste processing system.

1.1.4 Records - The Fermi 2 Process Control Program specifies the required records regarding reviews performed for changes to the Program.

1.2 Regulatory Basis

1.2.1 10CFR20.311 d(3) requires that all radwaste generators conduct a quality control program to assure compliance with 10CFR61.55 and 61.56.

1.2.2 10CFR50, Appendix A, General Design Criterion 60, specifies that a nuclear power plant shall be designed to handle radioactive solid waste produced during normal reactor operation, including anticipated operational occurrences.

1.2.3 10CFR61.56 specifies minimum waste form requirements for all radwaste, as well as specifications for stability when this is required by regulations or disposal site criteria.

1.2.4 The Nuclear Regulatory Commission's Technical Position on Waste Form, Revision 1, provides guidance on waste form test methods and results acceptable to the NRC staff for implementing the 10CFR61.56 waste form requirements.

1.3 Administrative Controls

1.3.1 All waste processing methodologies requiring stability in accordance with reference 2.3 included in the Fermi 2 Process Control Program shall be in compliance with the Nuclear Regulatory Commission's Technical Position on Waste Form, Revision 1. In some cases, the Nuclear Regulatory Commission has granted interim approval to a methodology, pending final approval. It is acceptable to use such methodologies when accompanied with an NRC interim approval cover letter.

1.3.2 Licensee initiated changes to the Fermi 2 Process Control Program shall be processed and documented in accordance with Fermi 2 Technical Specification 6.13.2.

1.4 Semiannual Radioactive Effluent Release Report*

1.4.1 Solid radwaste shipment data and discussions of major changes to the solid radioactive waste system shall be included in the Semiannual Radioactive Effluent Release Report in accordance with Technical Specification 6.9.1.8.

1.5 Records

1.5.1 Reviews performed for changes to the Fermi 2 Process Control Program shall be retained in accordance with Technical Specification 6.10, Record Retention.

* Licensee may choose to submit the information required in Section 6.2.2 as part of the annual UFSAR update.

2.0 REFERENCES

2.1 NRC Technical Position on Waste Form, Revision 1

2.2 10CFR20, Standards for Protection against Radiation

2.3 10CFR61, Licensing Requirements for Land Disposal of Radiative Material

2.4 Fermi 2 10CFR61 Compliance Program Manual

2.5 Technical Specification 6.10, Record Retention

2.6 Technical Specification 6.13.2, Licensee-Initiated Changes to the PCP

2.7 Technical Specification 6.15, Licensee-Initiated Major Changes to Radioactive Liquid, Gaseous, and Solid Waste Treatment Systems

2.8 UFSAR Chapter 11, Radioactive Waste Management

2.9 NE-85-0722, Nuclear Engineering Letter to NRC concerning Fermi 2 Process Control Program

2.10 NUREG - 0800, Section 11.2, Liquid Waste Management Systems

2.11 NUREG - 0800, Section 11.4, Solid Waste Management Systems

2.12 Safety Evaluation 88-0186, Revision 1, Present Use of Radwaste System Equipment

2.13 Safety Evaluation 91-0015, Temporary Storage of Mixed Waste in the Onsite Storage Facility (OSSF)

2.14 Design Calculation 4945, UFSAR Update Analysis for the Present Radwaste System Operations

2.15 Generic Letter 81-38, Storage of Low-Level Radioactive Wastes at Power Reactor Sites

2.16 Regulatory Guide 1.143, Design Guidance for Radioactive Waste Management Systems, Structures, and Components Installed in Light-Water-Cooled Nuclear Power Plants

2.17 Utility Nuclear Waste Management Group (UNWMG) PCP Guidelines, LLW-86-65

2.18 Chem-Nuclear Topical Report CNSI-2 (4313-01354-01) Mobile Cement Solidification System

2.19 Chem-Nuclear Waste Form Topical Report, WM 97, WM 98, WM 101

2.20 CNSI RDS-1000 Radioactive Waste Dewatering System Topical Report, RDS-25506-01-P-A, Revision 1

2.21 CNSI Procedure FO-AD-002, Operating Guidelines for Use of Polyethylene High Integrity Containers

2.22 CNSI Procedure FO-OP-032-483, Set Up and Operating Procedure for the RDS-1000 Unit at Detroit Edison - Fermi 2

2.23 CNSI Procedure SD-OP-003, Process Control Program for Solidification of Stable Waste Forms

2.24 CNSI Procedure SD-OP-048, Process Control Program and Operating Procedure for In-Situ Solidification of Suspended Objects

2.25 CNSI Procedure SD-OP-063, Set Up and Operating Procedure for the Cement Solidification Unit

2.26 NSI Procedure SD-OP-064, Operating Procedure for the Portable Cement Solidification Unit No. 125

2.27 CNSI Procedure SD-OP-090-48306 Process Control Program for Cement Solidification of Oil, Oily Sludges and Oil Residues at Fermi II

2.28 CNSI Procedure SD-OP-097, Process Control Program for Cement Solidification of Unstable Waste

2.29 CNSI Procedure SD-OP-098, Waste Solidification in Chem-Nuclear Systems, Inc. Polyethylene High Integrity Container

2.30 Regulatory Guide 1.21, Measuring, Evaluating and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Material in Liquid and Gaseous Effluents from Light-Water-Cooled- Nuclear Power Plants, Revision 1, June 1974

3.0 RESPONSIBILITIES

3.1 The Superintendent of Radwaste/designee is responsible for the implementation of the Fermi 2 Process Control Program and ensuring the Vendors Process Control Program meets the requirements set forth by the NRC and that those Programs are approved by the OSRO prior to use.

3.2 The Radwaste Supervisor is responsible for interfacing with contracted vendors. The purpose of this interface is to ensure the timely and efficient processing of waste forms generated at Fermi 2.

3.3 All personnel working under this procedure shall know their responsibilities to the ALARA Program.

3.4 The Vendor and Radwaste Supervisor are to ensure that the general design of the processing equipment is in accordance with the vendor's topical report and that this equipment is installed, and tested in accordance with Reference 2.25 for Solidification and 2.22 for Dewatering.

3.5 The Vendor and Radwaste Supervisor are to ensure that the chemicals and/or materials used in a particular waste processing method are equal to or better than that which is required by the Vendor's approved Process Control Program.

4.0 DEFINITIONS

4.1 Batch

An isolated quantity of feed waste to be processed having essentially constant physical and chemical characteristics (i.e., the amount of waste contained within a tank). If new waste is added to the waste being processed then a new batch is created and further sampling is required.

4.2 Dry Active Waste (DAW)

Any dry radioactive material (i.e., contaminated tools, equipment, clothing, trash, etc.)

4.3 Dewatering

The process of removing liquids from wet radioactive waste so that the form of waste is suitable for disposal.

4.4 Encapsulation

The process of encapsulating, in cement, solid radioactive waste which is non-uniform in size and cannot normally be homogeneously mixed (i.e., filters, sources, etc.)

4.5 Free Standing Liquid

Liquid which is still visible after processing, or liquid drainable from the low point of a punctured container.

4.6 High Integrity Container (HIC)

A container which provides stability for the type of waste being processed in accordance with Reference 2.3.

4.7 Member(s) of the Public

Includes all persons who are not occupationally associated with the plant. This category does not include employes of the utility, or its contractors or vendors. Also excluded from this category are persons who enter the site to service equipment or to make deliveries. This category does include persons who use portions of the site for recreational, occupational, or other purposes not associated with the plant.

4.8 Prequalification Test Sample

Test conducted on laboratory samples to demonstrate the ability to produce an acceptable waste form using the type of wet waste and solidification agent expected.

4.9 Process Control Program (PCP)

The Process Control Program (PCP) shall contain the current formulas, sampling, analyses, tests, and determinations to be made to ensure that processing and packaging of solid radioactive wastes based on demonstrated processing of actual or simulated wet solid wastes will be accomplished in such a way as to ensure compliance with 10 CFR Parts 20, 61, and 71, state regulations, burial ground requirements, and other requirements governing the disposal of solid radioactive waste.

4.10 Production Test Sample

A sample used to demonstrate the ability of the onsite solidification agent and waste batch to produce an acceptable waste form using the parameters identified in the PCP.

4.11 Solidifcation

Immobilization of wet radioactive wastes such as the evaporator bottoms, spent resins, sludges, and reverse osmosis concentrates as a result of a process which thoroughly mixes the waste type with the solidification agent(s) to form a free standing monolith with chemical and physical characteristics specified in the Process Control Program.

4.12 Unrestricted Area

Any area at or beyond the site boundary to which access is not controlled by the licensee for purposes of the protection of individuals from exposure to radiation and radioactive materials, or any area within the site boundary used for residential quarters or for industrial, commercial, institutional, and/or recreational purposes.

4.13 Waste Classification

The determination of waste class as outlined in Reference 2.3 (2.4) by radionuclide isotopic analysis and/or scaling factors between easy-to-measure isotopes and the difficult-to-measure isotopes.

4.14 Wet Radioactive Waste

Any radioactive liquid or liquid/solid slurry which does not meet the burial site requirements for free standing liquids (i.e. sludge, non-dewatered resin, evaporator bottoms, contaminated oil etc.)

5.0 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE

5.1 Solid Radioactive Waste Treatment Controls, Surveillance Requirements, and Bases

5.1.1 Radioactive wastes shall be solidified or dewatered in accordance with the appropriate Process Control Program(s) to meet shipping and transportation requirements during transit, and disposal site requirements when received at the disposal site.

5.1.2 Applicability

1. At all times

5.1.3 Action

1. With solidification or dewatering not meeting disposal site and shipping and transporation requirements, suspend shipment of the inadequately processed wastes and correct the Process Control Program, the procedures and/or the solid waste system as necessary to prevent recurrence.

2. With solidification and dewatering not performed in accordance with the Process Control Program:

   a. Demonstrate by test or analysis that the improperly processed waste in each container meets the requirements for transportation to the disposal site and for receipt at the disposal site.

   b. Take appropriate administrative action to prevent occurrence.

5.2 Surveillance Requirements

5.2.1 The Process Control Program shall be used to verify that the properties of the packaged waste meet the minimum stability requirements of 10CFR Part 61 and other requirements for transportation to the disposal site and receipt at the disposal site.

5.3 Bases

5.3.1 Solid Radioactive Waste Treatment

This control implements the requirements of General Design Criteria 60 of Appendix A to 10CFR Part 50. The process parameters included in establishing the Process Control Program may include, but are not limited to waste type, waste pH, waste/liquid/solidification agent/catalyst ratios, waste oil content, waste principal chemical constituents, and mixing and curing times.

6.0 REPORTING REQUIREMENTS

6.1 Reporting Condition of Non-Acceptance

6.1.1 Documentation of the following will be required in accordance with FIP-RA1-01, "General Regulatory Reporting Requirements," and FIP-RA1-02, "Notifications."

1. The failure of high integrity containers used to ensure a stable waste form. Container failure can be evidenced by changed container dimensions, cracking, or damage resulting from mishandling (e.g., dropping or impacting against another object).

2. The misuse of high integrity containers, evidenced by a quantity of free liquid greater than 1% of container volume or other misuse as prohibited by 10 CFR 61.56.

3. The production of a solidified Class B or C waste form that has any of the following characteristics:

   a. Contains free liquid in quantities exceeding 0.5% of the volume of the waste.

   b. Contains waste with radionuclides in concentrations exceeding those considered during waste form qualification testing accepted by the regulatory agency, which could lead to errors in assessment of waste class.

   c. Contains a significantly different waste loading than that used in qualification testing accepted by the regulatory agency.

   d. Contains chemical ingredients not present in qualification testing accepted by the regulatory agency, and those quantities are sufficient to unacceptably degrade the waste product and cannot be pretreated prior to Solidification.

   e. Shows instability as evidenced by crumbling, cracking, spilling, voids, softening, disintegration, nonhomogeneity or dimensional changes.

   f. Evidence of processing phenomena that exceeded the limiting processing conditions identified in applicable topical reports on process control programs (e.g., foaming, temperature extremes, premature or slow hardening and production of a volatile material).

6.2 Solid radwaste shipment data and reports of major changes to the solid radioactive waste system shall be included in the Semiannual Radioactive Effluent Release Report as specified below. This report shall be prepared and submitted in accordance with the Fermi 2 Offsite Dose Calculation Manual.

6.2.1 Solid Radwaste Shipment Data

The Semiannual Radioactive Effluent Release Report shall include the following information for each class of solid waste (as defined in 10 CFR Part 61) shipped offsite during the report period as outlined in Reference 2.30.

1. Container volume
2. Total curie quantity (specify whether determined by measurement or estimate)
3. Principle radionuclides (specify whether determined by measurement or estimate)
4. Source of waste and processing employed (such as dewatered spent resin, compacted dry waste, evaporator bottoms)
5. Type of container (such as LSA, Type A, Type B)
6. Solidification agent or absorbent (such as cement, urea, or formaldehyde)

6.2.2 Licensee-Initiated Major Changes to the Radioactive Waste Systems (Liquid, Gaseous, and Solid)*

Licensee-initiated major changes to the radioactive waste systems (liquid, gaseous, and solid) shall be reported to the Commission in the Semiannual Effluent Release Report for the period in which the evaluation was reviewed by OSRO. The discussion of each change shall contain:

1. A summary of the evaluation that led to the determination that the change could be made in accordance with 10CFR50.59
2. Sufficient detailed information to totally support the reason for the change without the benefit of additional or supplemental information
3. A detailed description of the equipment, components, and processes involved and the interfaces with other plant systems
4. An evaluation of the change which shows that the predicted releases of radioactive materials in the liquid and gaseous effluents and/or quantity of solid waste that differ from those previously predicted in the license application and amendments thereto

* Licensee may choose to submit the information called for in this section as part of the annual UFSAR update.

5. An evaluation of the change which shows the expected maximum exposures to a member of the public in the unrestricted area and to the general population that differ from those previously estimated in the license application and amendments thereto

6. A comparison of the predicted releases of radioactive materials in liquid and gaseous effluents and in solid waste to the actual releases for the period prior to when the changes are to be made

7. An estimate of the exposure to plant operating personnel as a result of the change

8. Documentation of the fact that the change was reviewed and found acceptable by OSRO.

6.2.3 Such changes shall become effective upon review and acceptance by OSRO.

7.0 PROCEDURE

7.1 General Requirements

7.1.1 All processing of radioactive waste shall be done under an approved Process Control Program including procedures (Section 2.0) for the type of waste being processed.

7.1.2 All solidification, dewatering, and sampling activities performed inside the RCA shall have an RWP in accordance with FIP-RC1-01, "Accessing and Working in Radiologically Controlled Areas."

7.1.3 The Quality Control functions shall be audited by the Fermi 2 QA Department in accordance with FIP-AS1-01, "Audits and Surveillances."

7.1.4 All HICs used at Fermi 2 for disposal of radioactive waste shall be approved for the type of waste being processed. This approval shall be based on the chemical and physical limitations of the container. Each HIC shall be certified that it meets the acceptance criteria set by the Certificate of Compliance.

7.1.5 Reference 2.4 provides instructions for developing scaling factors necessary for ensuring compliance with 10 CFR 61.

7.1.6 Preparation of manifest and shipping paperwork shall be in accordance with NPP-RC3-01, "Radwaste Shipping Operations."

7.1.7 All documents shall be maintained in accordance with FIP-RM1-01, "Records Management."

7.1.8 Solidifciation or dewatering shall meet shipping and transportation requirements during transit and disposal site requirements at the disposal site. If these requirements are not met, take action in accorfance with Section 5 of the PCP Manual.

7.2 Solidification Requirements

7.2.1 For high activity waste being solidified, where handling of the full sized Production Test Sample could result in personnel radiation exposure that is in consistent with the ALARA principles, a reduced sample size (25 ml) may be used.

7.2.2 A Production Test Sample shall be solidified from at least every tenth solidification from the same batch.

7.2.3 As a minimum the PCP for stable Cement Solidification Process shall require annually:

1. A Production Test Sample selected from the most recent production level solidification batch will be subjected to the testing requirements in Appendix A, Section II of the NRC Technical Position on Waste Form, Revision 1.

7.2.4 Unstable waste shall meet the following criteria:

1. Resist penetration

2. Free standing monolith

3. No free standing water

7.3 Dewatering Requirements

7.3.1 As a minimum the PCP for dewatering shall include and/or reference documentation necessary to ensure the dewatering process and equipment being used will produce a waste form that will meet the disposal facilities requirement for free standing liquids.

7.4 Encapsulation Requirements

7.4.1 As a minimum the PCP for encapsulation shall include and/or reference documentation necessary to ensure the encapsulation process and equipment being used will produce a waste form that will meet the disposal facilities requirement as stated in step 7.2.4.

7.5 Solidification Process Control Program

7.5.1 Sampling

NOTE: To keep personal radiation exposure ALARA, the sample taken may be used for both test solidification and chemistry isotopic analyses.

1. Obtain a representative sample of the waste batch. This sample will be used to determine the actual process formulation for solidification. Record this information as required by the PCP.

2. Chemistry shall obtain a representative sample of the waste batch in accordance with "Chemistry Specification". This sample will be used for radiochemical analysis and to determine the quantity of oil in the batch of waste. Record this information as required by the PCP.

7.5.2 Waste Classification

NOTE: The Waste Classification and Production Test Solidification may be performed at the same time.

1. Prior to solidification, waste classification will be determined by the Radwaste Supervisor, Shipping. Record this information as required by the PCP.

7.5.3 Production Test Solidification

1. Radwaste will perform a test solidification of the waste batch in accordance with the PCP. Prior to the test solidification, Chemistry will obtain the pH of the waste. The pH of the waste will be adjusted, as necessary, to ensure it is within the desired range for the PCP to be performed. The pH will be adjusted using the guidelines specified in the PCP.

2. If pretreatment of the batch of waste is necessary, the test sample shall have the required pretreatment prior to the test sample solidification.

3. If the oil content of the waste batch is greater than 1% by volume, secure solidification operations and notify the Radwaste Supervisor. If the oil content of the waste batch is greater than 8% by volume then the solidification must be done using Reference 2.27.

4. If the initial Production Test Sample from a batch of waste fails to verify solidification, obtain representative samples from the same batch of that wet waste until at least 3 consecutive initial Production Test Samples demonstrate solidification prior to full scale solidification.

7.6 Dewatering Process Control Program

7.6.1 Sampling

1. Chemistry shall obtain a representative sample of the waste batch in accordance with "Chemistry Specification." This sample will be used for radiochemical analysis and to determine the quantity of oil in the batch of waste. Record this information as required by the PCP.

7.6.2 Waste Classification

1. Waste classification will be determined by the Radwaste Supervisor, Shipping. Record this information as required by the PCP.

7.7 Encapsulation Process Control Program

High activity filters, irradiated components, and other material which may require encapsulation.

7.7.1 Sampling

Chemistry shall obtain a sample of the waste to be encapsulated. This sample will be either a qualitative or a quantitative sample. This sample will be used for radiochemical analysis and to determine the quantity of oil in the waste.

7.7.2 Waste Classification

1. Prior to encapsulation, waste classification will be determined by the Radwaste Supervisor, Shipping.

8.0 ACCEPTANCE CRITERIA

8.1 Solidification Process Control Program

8.1.1 The test sample will be considered acceptable if it meets:

1. Free standing liquid requirements for the disposal facility

2. Stability requirements if it is evident from the physical appearance that the test sample will maintain its shape if removed from the container

8.1.2 Once the test sample demonstrates an acceptable waste form and waste classification is acceptable for near surface burial, solidification may be performed as per formulas stated in the PCP and the applicable operating procedures. The container shall be considered acceptable if it meets the solidification limitations set forth in the PCP and the disposal site requirements for free standing liquids.

8.1.3 Once solidification is completed the container will be stored in accordance with NPP-RC3-03, "Use of the Onsite Radwaste Facility," while waiting for shipment.

8.2 Dewatering Process Control Program

8.2.1 The container shall be considered acceptable if it meets the dewatering limitations set forth in the PCP and the disposal site requirements for free standing liquids.

8.2.2 The dewatering results will be recorded in accordance with Reference 2.22.

8.2.3 Once dewatering is completed the container will be stored in accordance with NPP-RC3-03, "Use of the Onsite Radwaste Facility," while waiting for shipment.

8.3 Encapsulation Process Control Program

8.3.1 The waste form will be considered acceptable if it meets the test requirements as outlined in the PCP and the free standing liquid requirements for the disposal site.

9.0 DOCUMENTATION

9.1 The data sheets shall be included in the file copy of the shipping package, as required by the applicable shipping procedure.

END