



10 CFR 52.79

August 24, 2011
NRC3-11-0034

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555-0001

- References:
- 1) Fermi 3
Docket No. 52-033
 - 2) Letter from Jerry Hale (USNRC) to Peter W. Smith (Detroit Edison), "Request for Additional Information Letter No.4 Related to the SRP Sections 11.02, 11.04, 11.05 and 12.02 for the Fermi 3 Combined License Application," dated March 9, 2009
 - 3) Letter from Jerry Hale (USNRC) to Jack M. Davis (Detroit Edison), "Request for Additional Information Letter No. 42 Related to the SRP Section 12.03-04, 14.03.03 and 02.04.13 for the Fermi 3 Combined License Application," dated September 16, 2010
 - 4) Letter from Raj Anand (USNRC) to Jack M. Davis (Detroit Edison), "Request for Additional Information Letter No. 57 Related to the SRP Chapter 11 for the Fermi 3 Combined License Application," dated May 27, 2011
 - 5) Letter from Peter W. Smith (Detroit Edison) to USNRC, "Detroit Edison Company Response to NRC FSAR Request for Additional Information Letter No. 4 and ER Request for Additional Information Letter No. 2," NRC3-10-0010, dated February 16, 2010
 - 6) Letter from Peter W. Smith (Detroit Edison) to USNRC, "Detroit Edison Company Supplemental Responses to NRC Request for Additional Information Letter Nos. 18, 42, and 57," NRC3-11-0029, dated August 1, 2011

Subject: Detroit Edison Company Supplemental Responses to NRC RAI Letter
Nos. 4, 42, and 57

In References 2, 3, and 4, the NRC requested additional information to support the review of certain portions of the Fermi 3 Combined License Application (COLA). Responses to those Requests for Additional Information (RAIs) were provided in References 5 and 6. Attachments 1 through 3 of this letter provide supplemental responses to portions of References 5 and 6 as discussed in the attachments.

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NRO

If you have any questions, or need additional information, please contact me at (313) 235-3341.

I state under penalty of perjury that the foregoing is true and correct. Executed on the 24th day of August 2011.

Sincerely,



Peter W. Smith, Director
Nuclear Development – Licensing and Engineering
Detroit Edison Company

Attachments: 1) Supplemental Response to RAI Letter No. 4, RAI Question No. 11.04-2
2) Supplemental Response to RAI Letter No. 42, RAI Question No. 12.03-12.04-6
3) Supplemental Response to RAI Letter No. 57, RAI Question No. 11.04-4

cc: Jerry Hale, NRC Fermi 3 Project Manager
Adrian Muniz, NRC Fermi 3 Project Manager
Raj Anand, NRC Fermi 3 Project Manager
Michael Eudy, NRC Fermi 3 Project Manager
Bruce Olson, NRC Fermi 3 Environmental Project Manager (w/o attachments)
Fermi 2 Resident Inspector (w/o attachments)
NRC Region III Regional Administrator (w/o attachments)
NRC Region II Regional Administrator (w/o attachments)
Supervisor, Electric Operators, Michigan Public Service Commission (w/o attachments)
Michigan Department of Natural Resources and Environment
Radiological Protection Section (w/o attachments)

Attachment 1
NRC3-11-0034
(12 pages)

Supplemental Response to RAI Letter No. 4
(eRAI Tracking No. 2185)

RAI Question No. 11.04-2

NRC RAI 11.04-2

FSAR Section 11.4.1, STD COL 11.4-4-A states that the proposed plant will not utilize temporary low-level radioactive waste storage facilities to support plant operation. The ESBWR DCD, however, provides the capacity to store the amount of low-level radioactive waste that could be generated in 6 months of operation. Accordingly, the staff requests the applicant to describe the facilities plan for long-term storage of low-level radioactive wastes projected to be generated during operation of Fermi Unit 3, and the operational program addressing the long-term management and storage of such wastes using the guidance of Regulatory Guide 1.206 and Section 11.4 of the Standard Review Plan (NUREG-0800, Rev. 3).

Supplemental Response

Detroit Edison provided a response to NRC RAI 11.04-2 (eRAI Tracking No. 2185) within Detroit Edison letter NRC3-10-0010, dated February 16, 2010, (ML100500278) which contained COLA markups to incorporate Fermi 3 departure DEP 11.4-1, "Long Term Storage of Class B and C Low Level Radioactive Waste." Detroit Edison provided a supplemental response to NRC RAI 11.04-2 within Detroit Edison letter NRC3-11-0018, dated June 17, 2011, (ML11171A297), to remove the ESBWR DCD Tier 1 impacts associated with the departure.

This attachment supplements the response to RAI 11.04-2 to remove the departure information from FSAR Section 9.4. Departure DEP 11.4-1 reconfigured the Fermi 3 Radwaste Building (RWB) in order to increase the storage capacity for Class B and C low level waste. As part of the departure, FSAR Section 9.4.3.1 was revised to describe that the Radwaste Building General Area Ventilation System (RWGAVS) provides the capability to exhaust air from Class A, B and C storage areas to prevent build-up of hydrogen or biogas that may be vented from the Class B and C high integrity containers. Also as part of the departure, FSAR Section 11.4.2.2.4 states that hydrogen and biogas can be generated in packaged and stored waste. Section 11.4.2.2.4 further describes that the Radwaste Building HVAC System continuously ventilates the areas to prevent hydrogen or biogas from accumulating in general storage areas, and that these areas will be monitored with hydrogen/explosive gas detectors that will alarm in the Radwaste Control Room. The departure related information in FSAR Section 9.4.3.1 will be removed as it is not a departure from any information in Section 9.4.3.1 of the DCD and it is redundant to the description in Section 11.4.2.2.4. As part of this update, FSAR Table 1.8-201 and COLA Part 7 will also be updated to remove Section 9.4.3.1 from the list of affected sections.

In addition, as part of departure DEP 11.4-1, DCD Figure 12.3-21 was replaced by FSAR Figure 12.3-21R to show the radiation zones on elevation 4650. The changes from DCD Figure 12.3-21 to FSAR Figure 12.3-21R included deleting the movable shield walls in Room 6381 and changing the classification of Room 6381 from a mixture of Radiation Zone C and Radiation Zone F to entirely Radiation Zone C. The rationale for this change is that the skid-mounted processing subsystems located in Room 6381 will be individually shielded to allow personnel access in the room. Thus, the movable shield walls will not be used and the room will be classified as Radiation Zone C. A note to describe these features will be added to Figure 12.3-21R.

NRC Regulatory Guide 1.206, Section C.IV.3.3, describes the processes associated with plant specific departures from the certified DCD. As described in subsection C.IV.3.3.2, an applicant or licensee may make a departure from Tier 2 information without prior approval under paragraph VIII.B.5 in the design certification rule appendices to 10 CFR Part 52. The Fermi 3 FSAR incorporates the ESBWR DCD by reference. It is anticipated that the final certification rulemaking for the ESBWR would have the same change process as that in the current appendices to 10 CFR Part 52 and in the proposed 10 CFR 52 Appendix E, "Design Certification Rule for the ESBWR Design." Using this methodology, the attached update to COLA Part 7 concludes that prior NRC approval is not required for all aspects of departure DEP 11.4-1.

Proposed COLA Revision

The attached markups include the following:

- Update to FSAR Section 9.4.3.1 to remove the departure information.
- Update to Table 1.8-201 to remove Section 9.4.3.1 from the list of sections impacted by the departure.
- Update to FSAR Figure 12.3-21R to add a note describing the skid-mounted processing subsystems and associated shielding.
- Update to COLA Part 7 to conclude that prior NRC approval is not required for departure DEP 11.4-1.

Markup of Detroit Edison COLA
(following 8 pages)

The following markup represents how Detroit Edison intends to reflect this RAI response in the next submittal of the Fermi 3 COLA. However, the same COLA content may be impacted by other COLA RAIs, other COLA changes, plant design changes, editorial or typographical corrections, etc. As a result, the final COLA content that appears in a future submittal may be different than presented here.

9.3.11 Zinc Injection System

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

9.3.11.2 System Description

Replace the second paragraph with the following.

STD COL 9.3.11-1-A A Zinc Injection System is not utilized.

9.3.11.4 Test and Inspections

Replace the second paragraph with the following.

STD COL 9.3.11-2-A A Zinc Injection System is not utilized.

9.3.11.6 COL Information

9.3.11-1-A Determine Need for Zinc Injection System

STD COL 9.3.11-1-A This COL item is addressed in Subsection 9.3.11.2.

9.3.11-2-A Provide System Description for Zinc Injection System

STD COL 9.3.11-2-A This COL item is addressed in Subsection 9.3.11.4.

9.3.12 Auxiliary Boiler System

This section of the referenced DCD is incorporated by reference with no departures or supplements.

with no

9.4 Heating, Ventilation, and Air Conditioning

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

~~9.4.3.1 Design Basis~~

~~RWGAVS~~

~~Add the following new bullet at the end of the first paragraph.~~

-
- ~~EF3 DEP 11.4-1~~ • The RWGAVS provides the capability to exhaust air from the Class A, B and C storage areas. This includes the ventilation of the area to prevent the buildup of hydrogen or biogas that may be generated in and vented from the stored Class B and C high integrity containers. This area will be equipped with hydrogen/explosive gas detectors.
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9.5 Other Auxiliary Systems

9.5.1 Fire Protection System

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

9.5.1.1 Design Bases

Codes, Standards, and Regulatory Guidance

Add the following at the end of this section.

EF3 SUP 9.5.1-1

Table 9.5-201 supplements DCD Table 9.5-1 for those portions outside the DCD and operational aspects of the fire detection and suppression systems.

9.5.1.2 System Description

Add the following after the first sentence in the first paragraph.

EF3 COL 9.5.1-4-A

Figure 9.5-201 and DCD Figure 9.5-1 provide simplified diagrams of the site-specific firewater supply piping.

9.5.1.4 Fire Protection Water Supply System

Water Sources

Replace the first paragraph with the following.

EF3 COL 9.5.1-4-A

Water for the Fire Protection System is supplied from a minimum of two sources: i) at least one "primary" source to the suctions of primary fire pumps and corresponding jockey fire pump and, ii) at least one "secondary" source to suctions of secondary fire pumps and corresponding jockey fire pump. The primary source is two dedicated,

Table 1.8-201 Departures from the Referenced Certified Design [EF3 SUP 1.8-3]

Number	Subject	FSAR Section
EF3 DEP 11.4-1	Long-Term, Temporary Storage of Class B and C Low-Level Radioactive Waste	1.2.2.10.2, 1.2.2.16.9, 9.4.3.1, 11.4, 11.4.1, 11.4.2.2.1, 11.4.2.2.2, 11.4.2.2.4, and 11.4.2.3.1

Figure 12.3-21R Radwaste Building Radiation Zones EI 4650

The configuration of this figure is not to be revised via this markup (see Fermi 3 COLA Part 9, "Proprietary and Sensitive Unclassified Non-Safegaurds Information" for figure details).

Only "Note 2" associated with Room 6381 is affected as shown on the right.

This markup contains no Proprietary or Sensitive Unclassified Non-Safegaurds Information.

(see Note 2 below)

ROOM	ROOM DESCRIPTION LIST
6100	ELEVATOR
6101	STORAGE A
6102	STORAGE B
6103	STORAGE C
6104	STORAGE D
6380	WASTE TREATMENT ROOM
6381	PROCESSING SUBSYSTEM AREA
6382	STORAGE
6383	WASTE ACCESS
6384	CLASS B/C STORAGE AREA
6385	CLASS B/C STORAGE AREA
6386	DEF. ACUTE WASTE STORAGE AREA
6387	DEF. ACUTE WASTE STORAGE AREA
6388	DEF. ACUTE WASTE STORAGE AREA
6389	DEF. ACUTE WASTE STORAGE AREA
6390	DEF. ACUTE WASTE STORAGE AREA
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6395	DEF. ACUTE WASTE STORAGE AREA
6396	DEF. ACUTE WASTE STORAGE AREA
6397	DEF. ACUTE WASTE STORAGE AREA
6398	DEF. ACUTE WASTE STORAGE AREA
6399	DEF. ACUTE WASTE STORAGE AREA
6400	DEF. ACUTE WASTE STORAGE AREA

LEGEND

A. PLANT RADIATION ZONES:

DESIGNATION DOSE RATE

- (A) $\leq 0.05 \mu\text{R/hr}$ (0.05 mrem/hr) UNCONTROLLED AND UNLIMITED ACCESS
- (B) $\leq 0.1 \mu\text{R/hr}$ (0.1 mrem/hr) CONTROLLED AND UNLIMITED ACCESS
- (C) $\leq 0.5 \mu\text{R/hr}$ (0.5 mrem/hr) CONTROLLED AND LIMITED ACCESS (30 hr/yr)
- (D) $\leq 2.0 \mu\text{R/hr}$ (2.0 mrem/hr) CONTROLLED AND LIMITED ACCESS (30 hr/yr)
- (E) $\leq 1.0 \mu\text{R/hr}$ (1.0 mrem/hr) CONTROLLED AND LIMITED ACCESS (30 hr/yr)
- (F) $\leq 10 \mu\text{R/hr}$ (10 mrem/hr) CONTROLLED AND IMPREST ACCESS
SPECIAL AUTHORIZATION IS REQUIRED (HIGH RADIATION ZONE)
- (G) $\leq 100 \mu\text{R/hr}$ (100 mrem/hr) CONTROLLED AND IMPREST ACCESS
SPECIAL AUTHORIZATION IS REQUIRED (HIGH RADIATION ZONE)
- (H) $\leq 1 \text{ mR/hr}$ (1000 mrem/hr) CONTROLLED AND IMPREST ACCESS
SPECIAL AUTHORIZATION IS REQUIRED (HIGH RADIATION ZONE)
- (I) $\leq 5 \text{ mR/hr}$ (5000 mrem/hr) UNCONTROLLED AND IMPREST ACCESS
SPECIAL AUTHORIZATION IS REQUIRED (HIGH RADIATION ZONE)
- (J) $> 5 \text{ mR/hr}$ (5000 mrem/hr) UNACCESSIBLE ZONE (VERY HIGH RADIATION ZONE)

C. DRAWING NOTES:

1- RADIATION ZONE LEVEL MAY BE MODIFIED WHEN TREATMENT SYSTEM IS OFF
BASED ON ACTUAL SURVEY RESULTS

(add following as Drawing Note 2)

2 - The skid-mounted processing subsystems, located in Room 6381, are individually shielded to allow personnel access in the room; which is classified as Radiation Zone C.

DTE Energy®



Detroit Edison

Fermi 3 Combined License Application

Part 7: Departures Report

(Includes Information on
Departures, Exemptions and
Supplemental Information)

Revision 3
February 2011

It is anticipated that the final certification rulemaking for the ESBWR would have the same change process as that in current appendices to 10 CFR 52 and in the proposed 10 CFR 52 Appendix E, "Design Certification Rule for the ESBWR Design." References in this part to the Design Certification Rule (DCR) or 10 CFR 52 Appendix E are understood to mean the proposed 10 CFR 52 Appendix E and the anticipated final ESBWR DCR.

Fermi 3
Combined License Application
Part 7: Departures Report

Introduction:

A departure is a plant-specific deviation from design information in a standard design certification rule. Departures from the reference ESBWR Design Control Document (DCD) are identified and evaluated consistent with regulatory requirements and guidance. Each departure is examined in accordance with 10 CFR 52 requirements. Although the ESBWR Design Certification Application is currently under review with the NRC, departures are evaluated utilizing the guidance provided in Regulatory Guide 1.206, Section C.IV.3.3.

The following departure is evaluated in this report:

EF3 DEP 11.4-1: Long-term, Temporary Storage of Class B and C Low-Level Radioactive Waste

Departure: EF3 DEP 11.4-1 - Long-Term, Temporary Storage of Class B and C Low-Level Radioactive Waste

Summary of Departure:

The ESBWR DCD identifies that on-site storage space for a six-month volume of packaged waste is provided in the Radwaste Building. The Fermi Unit 3 Radwaste Building is configured to accommodate a minimum of ten years volume of packaged Class B and C waste, while maintaining space for at least three months of packaged Class A waste. This departure is effected by reconfiguring the arrangement of systems and components within the ESBWR RWB volume. The systems structures and components reconfigured include the Low-Level Waste Management System (LWMS) and the Radwaste Building Fire Protection and Detection System. The markups identified here were previously provided under Detroit Edison Letter NRC3-11-0018, dated June 17, 2011 (ML11171A297).

Scope/Extent of Departure:

~~This departure affects Tier 1 information in the ESBWR DCD. This departure is identified in Part 10-ITAC Section 1.~~

This departure affects Tier 2 information in the ESBWR DCD. This departure is identified in FSAR Sections 1.2.2.10.2, 1.2.2.16.9, 1.2.2.16.10, 1.2.2.16.11, 1.2.2.16.12, 1.2.2.16.13, 1.2.2.16.14, 1.2.2.16.15, 1.2.2.16.16, 1.2.2.16.17, 1.2.2.16.18, 1.2.2.16.19, 1.2.2.16.20, 1.2.2.16.21, 1.2.2.16.22, 1.2.2.16.23, 1.2.2.16.24, 1.2.2.16.25, 1.2.2.16.26, 1.2.2.16.27, 1.2.2.16.28, 1.2.2.16.29, 1.2.2.16.30, 1.2.2.16.31, 1.2.2.16.32, 1.2.2.16.33, 1.2.2.16.34, 1.2.2.16.35, 1.2.2.16.36, 1.2.2.16.37, 1.2.2.16.38, 1.2.2.16.39, 1.2.2.16.40, 1.2.2.16.41, 1.2.2.16.42, 1.2.2.16.43, 1.2.2.16.44, 1.2.2.16.45, 1.2.2.16.46, 1.2.2.16.47, 1.2.2.16.48, 1.2.2.16.49, 1.2.2.16.50, 1.2.2.16.51, 1.2.2.16.52, 1.2.2.16.53, 1.2.2.16.54, 1.2.2.16.55, 1.2.2.16.56, 1.2.2.16.57, 1.2.2.16.58, 1.2.2.16.59, 1.2.2.16.60, 1.2.2.16.61, 1.2.2.16.62, 1.2.2.16.63, 1.2.2.16.64, 1.2.2.16.65, 1.2.2.16.66, 1.2.2.16.67, 1.2.2.16.68, 1.2.2.16.69, 1.2.2.16.70, 1.2.2.16.71, 1.2.2.16.72, 1.2.2.16.73, 1.2.2.16.74, 1.2.2.16.75, 1.2.2.16.76, 1.2.2.16.77, 1.2.2.16.78, 1.2.2.16.79, 1.2.2.16.80, 1.2.2.16.81, 1.2.2.16.82, 1.2.2.16.83, 1.2.2.16.84, 1.2.2.16.85, 1.2.2.16.86, 1.2.2.16.87, 1.2.2.16.88, 1.2.2.16.89, 1.2.2.16.90, 1.2.2.16.91, 1.2.2.16.92, 1.2.2.16.93, 1.2.2.16.94, 1.2.2.16.95, 1.2.2.16.96, 1.2.2.16.97, 1.2.2.16.98, 1.2.2.16.99, 1.2.2.16.100, 1.2.2.16.101, 1.2.2.16.102, 1.2.2.16.103, 1.2.2.16.104, 1.2.2.16.105, 1.2.2.16.106, 1.2.2.16.107, 1.2.2.16.108, 1.2.2.16.109, 1.2.2.16.110, 1.2.2.16.111, 1.2.2.16.112, 1.2.2.16.113, 1.2.2.16.114, 1.2.2.16.115, 1.2.2.16.116, 1.2.2.16.117, 1.2.2.16.118, 1.2.2.16.119, 1.2.2.16.120, 1.2.2.16.121, 1.2.2.16.122, 1.2.2.16.123, 1.2.2.16.124, 1.2.2.16.125, 1.2.2.16.126, 1.2.2.16.127, 1.2.2.16.128, 1.2.2.16.129, 1.2.2.16.130, 1.2.2.16.131, 1.2.2.16.132, 1.2.2.16.133, 1.2.2.16.134, 1.2.2.16.135, 1.2.2.16.136, 1.2.2.16.137, 1.2.2.16.138, 1.2.2.16.139, 1.2.2.16.140, 1.2.2.16.141, 1.2.2.16.142, 1.2.2.16.143, 1.2.2.16.144, 1.2.2.16.145, 1.2.2.16.146, 1.2.2.16.147, 1.2.2.16.148, 1.2.2.16.149, 1.2.2.16.150, 1.2.2.16.151, 1.2.2.16.152, 1.2.2.16.153, 1.2.2.16.154, 1.2.2.16.155, 1.2.2.16.156, 1.2.2.16.157, 1.2.2.16.158, 1.2.2.16.159, 1.2.2.16.160, 1.2.2.16.161, 1.2.2.16.162, 1.2.2.16.163, 1.2.2.16.164, 1.2.2.16.165, 1.2.2.16.166, 1.2.2.16.167, 1.2.2.16.168, 1.2.2.16.169, 1.2.2.16.170, 1.2.2.16.171, 1.2.2.16.172, 1.2.2.16.173, 1.2.2.16.174, 1.2.2.16.175, 1.2.2.16.176, 1.2.2.16.177, 1.2.2.16.178, 1.2.2.16.179, 1.2.2.16.180, 1.2.2.16.181, 1.2.2.16.182, 1.2.2.16.183, 1.2.2.16.184, 1.2.2.16.185, 1.2.2.16.186, 1.2.2.16.187, 1.2.2.16.188, 1.2.2.16.189, 1.2.2.16.190, 1.2.2.16.191, 1.2.2.16.192, 1.2.2.16.193, 1.2.2.16.194, 1.2.2.16.195, 1.2.2.16.196, 1.2.2.16.197, 1.2.2.16.198, 1.2.2.16.199, 1.2.2.16.200, 1.2.2.16.201, 1.2.2.16.202, 1.2.2.16.203, 1.2.2.16.204, 1.2.2.16.205, 1.2.2.16.206, 1.2.2.16.207, 1.2.2.16.208, 1.2.2.16.209, 1.2.2.16.210, 1.2.2.16.211, 1.2.2.16.212, 1.2.2.16.213, 1.2.2.16.214, 1.2.2.16.215, 1.2.2.16.216, 1.2.2.16.217, 1.2.2.16.218, 1.2.2.16.219, 1.2.2.16.220, 1.2.2.16.221, 1.2.2.16.222, 1.2.2.16.223, 1.2.2.16.224, 1.2.2.16.225, 1.2.2.16.226, 1.2.2.16.227, 1.2.2.16.228, 1.2.2.16.229, 1.2.2.16.230, 1.2.2.16.231, 1.2.2.16.232, 1.2.2.16.233, 1.2.2.16.234, 1.2.2.16.235, 1.2.2.16.236, 1.2.2.16.237, 1.2.2.16.238, 1.2.2.16.239, 1.2.2.16.240, 1.2.2.16.241, 1.2.2.16.242, 1.2.2.16.243, 1.2.2.16.244, 1.2.2.16.245, 1.2.2.16.246, 1.2.2.16.247, 1.2.2.16.248, 1.2.2.16.249, 1.2.2.16.250, 1.2.2.16.251, 1.2.2.16.252, 1.2.2.16.253, 1.2.2.16.254, 1.2.2.16.255, 1.2.2.16.256, 1.2.2.16.257, 1.2.2.16.258, 1.2.2.16.259, 1.2.2.16.260, 1.2.2.16.261, 1.2.2.16.262, 1.2.2.16.263, 1.2.2.16.264, 1.2.2.16.265, 1.2.2.16.266, 1.2.2.16.267, 1.2.2.16.268, 1.2.2.16.269, 1.2.2.16.270, 1.2.2.16.271, 1.2.2.16.272, 1.2.2.16.273, 1.2.2.16.274, 1.2.2.16.275, 1.2.2.16.276, 1.2.2.16.277, 1.2.2.16.278, 1.2.2.16.279, 1.2.2.16.280, 1.2.2.16.281, 1.2.2.16.282, 1.2.2.16.283, 1.2.2.16.284, 1.2.2.16.285, 1.2.2.16.286, 1.2.2.16.287, 1.2.2.16.288, 1.2.2.16.289, 1.2.2.16.290, 1.2.2.16.291, 1.2.2.16.292, 1.2.2.16.293, 1.2.2.16.294, 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1.2.2.16.721, 1.2.2.16.722, 1.2.2.16.723, 1.2.2.16.724, 1.2.2.16.725, 1.2.2.16.726, 1.2.2.16.727, 1.2.2.16.728, 1.2.2.16.729, 1.2.2.16.730, 1.2.2.16.731, 1.2.2.16.732, 1.2.2.16.733, 1.2.2.16.734, 1.2.2.16.735, 1.2.2.16.736, 1.2.2.16.737, 1.2.2.16.738, 1.2.2.16.739, 1.2.2.16.740, 1.2.2.16.741, 1.2.2.16.742, 1.2.2.16.743, 1.2.2.16.744, 1.2.2.16.745, 1.2.2.16.746, 1.2.2.16.747, 1.2.2.16.748, 1.2.2.16.749, 1.2.2.16.750, 1.2.2.16.751, 1.2.2.16.752, 1.2.2.16.753, 1.2.2.16.754, 1.2.2.16.755, 1.2.2.16.756, 1.2.2.16.757, 1.2.2.16.758, 1.2.2.16.759, 1.2.2.16.760, 1.2.2.16.761, 1.2.2.16.762, 1.2.2.16.763, 1.2.2.16.764, 1.2.2.16.765, 1.2.2.16.766, 1.2.2.16.767, 1.2.2.16.768, 1.2.2.16.769, 1.2.2.16.770, 1.2.2.16.771, 1.2.2.16.772, 1.2.2.16.773, 1.2.2.16.774, 1.2.2.16.775, 1.2.2.16.776, 1.2.2.16.777, 1.2.2.16.778, 1.2.2.16.779, 1.2.2.16.780, 1.2.2.16.781, 1.2.2.16.782, 1.2.2.16.783, 1.2.2.16.784, 1.2.2.16.785, 1.2.2.16.786, 1.2.2.16.787, 1.2.2.16.788, 1.2.2.16.789, 1.2.2.16.790, 1.2.2.16.791, 1.2.2.16.792, 1.2.2.16.793, 1.2.2.16.794, 1.2.2.16.795, 1.2.2.16.796, 1.2.2.16.797, 1.2.2.16.798, 1.2.2.16.799, 1.2.2.16.800, 1.2.2.16.801, 1.2.2.16.802, 1.2.2.16.803, 1.2.2.16.804, 1.2.2.16.805, 1.2.2.16.806, 1.2.2.16.807, 1.2.2.16.808, 1.2.2.16.809, 1.2.2.16.810, 1.2.2.16.811, 1.2.2.16.812, 1.2.2.16.813, 1.2.2.16.814, 1.2.2.16.815, 1.2.2.16.816, 1.2.2.16.817, 1.2.2.16.818, 1.2.2.16.819, 1.2.2.16.820, 1.2.2.16.821, 1.2.2.16.822, 1.2.2.16.823, 1.2.2.16.824, 1.2.2.16.825, 1.2.2.16.826, 1.2.2.16.827, 1.2.2.16.828, 1.2.2.16.829, 1.2.2.16.830, 1.2.2.16.831, 1.2.2.16.832,

Class A, B, and C low-level radioactive waste is normally promptly disposed of at licensed offsite processing and disposal facilities. In the event that an offsite facility is not available to accept Class B and C waste shipments, the Fermi Unit 3 Radwaste Building waste storage space has been configured to accommodate at least ten years of Class B and C waste generated during plant operation. Shielding analysis results show that the dose rates in surrounding areas, both within the building and externally, are maintained below the allowable limits in accordance with the radiological area classification in FSAR Section 12.3.1.3. Long-term, temporary storage of Class B and C waste HICs, with design lifetimes of 300 years, will not have an adverse effect on the integrity of the waste containers. Periodic inspections will be performed to confirm container integrity during storage.

The increased Class C waste storage space exceeds that recommended in 11-3. The markups identified here were previously provided under Detroit Edison Letter NRC3-11-0018, dated June 17, 2011 (ML11171A297). of the on

Departure Evaluation:

This departure affects ~~Tier 1 and~~ Tier 2 information.

~~Tier 1: The Descriptions of the locations of Area Radiation Monitors (ARMs) in the Radwaste Building (RWB) have been modified to logically reflect the RWB layout. The number of ARMs in the RWB remains unchanged, only the room descriptions have been changed. Accordingly it does not:~~

- ~~1. Result in a decrease in the level of safety.~~
- ~~2. Present a risk to the public health and safety, or present inconsistencies with the common defense and security.~~

~~Tier 2:~~ This Tier 2 departure does not affect off-site dose rates or the integrity of waste containers in storage. As such, the potential for increased radiation exposure to members of the public is not created. Accordingly, it does not:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the plant-specific DCD;
2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety previously evaluated in the plantspecific DCD;
3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the plant-specific DCD;
4. Result in more than a minimal increase in the consequences of a malfunction of a SSC important to safety previously evaluated in the plant-specific DCD;
5. Create a possibility for an accident of a different type than any evaluated previously in the plant specific DCD;

6. Create a possibility for a malfunction of an SSC important to safety with a different result than any evaluated previously in the plant-specific DCD;
7. Result in a design basis limit for a fission product barrier as described in the plant specific DCD being exceeded or altered; or
8. Result in a departure from a method of evaluation described in the plant-specific DCD use.

~~Therefore, this departure has no safety significance.~~



This departure does not affect resolution of an ex-vessel severe accident design feature identified in the DCD.

Therefore, in accordance with Regulatory Guide 1.206, Section C.IV.3.3, and 10 CFR 52 Appendix E, Section VIII.B.5, this departure does not require prior NRC approval or an exemption from 10 CFR 52, Appendix E.

Attachment 2
NRC3-11-0034
(7 pages)

Supplemental Response to RAI Letter No. 42
(eRAI Tracking No. 4882)

RAI Question No. 12.03-12.04-6

NRC RAI 12.03-12.04-6

Subsection 12.3.1.5.1 of the ESBWR DCD Tier 2, Revision 6, states that the piping for the following SSCs will contain segments that will have to be run underground; 1) Condensate Storage Tank (CST) and CST Retention Area Drain, 2) Radwaste Effluent Discharge Pipeline, 3) Cooling Tower Blowdown Line, and 4) Hot Machine Shop Drain. This section of the DCD goes on to state that these lines will be kept as short and direct as possible. RG 4.21 states that applicants covered by 10 CFR 20.1406 should strive to minimize leaks and spills, provide containment in areas where such leaks might occur, and provide for detection that supports timely assessment and appropriate response. Fermi FSAR Subsection 12.3.1.5 provides supplemental information to address STD COL 12.3-4-A (which states that the COL Applicant will address the operational and post-construction objectives of RG 4.21). However, Fermi FSAR Subsection 12.3.1.5 does not include a description of site-specific provisions to minimize the potential for unmonitored and uncontrolled releases to the environment from underground piping.

In order to address objectives of RG 4.21 with respect to the monitoring of underground piping at Fermi, FSAR Subsection 12.3.1.5 should be modified to:

- 1. Include a listing of the SSCs at Fermi which will have piping segments which will be run underground.*
- 2. Include a description of the features associated with the underground piping for each of these SSCs to minimize contamination in accordance with the guidance provided in RG 4.21 and the requirements of 10 CFR 20.1406.*
- 3. Include a description of the monitoring program associated with the piping for each of these SSCs that will ensure that the potential for unmonitored, uncontrolled releases of radioactivity to the environment from these pipes will be minimized.*
- 4. Include a description of the portion of the discharge line that runs from the cooling tower blowdown to the point of release into the environment beyond the owner-controlled area or EAB. Include a description of the monitoring program associated with this portion of the discharge piping that will ensure that the potential for unmonitored, uncontrolled releases of radioactivity to the environment will be minimized.*
- 5. Incorporate by reference NEI Template 08-08A, which addresses the guidance provided in RG 4.21 and the requirements of 10 CFR 20.1406. NEI 08-08A states that the COL applicant will establish an on-site ground water monitoring program to ensure timely detection of inadvertent radiological releases to the ground water. Identify areas of the site to be specifically considered in this groundwater monitoring program.*

Supplemental Response

Detroit Edison provided a supplemental response to NRC RAI 12.03-12.04-6 (eRAI Tracking No. 4882) within Detroit Edison letter NRC3-11-0029, dated August 1, 2011, (ML11215A102) which included discussion of the buried blowdown piping segment at the Fermi 3 site. As

discussed in a conference call with the NRC staff on August 4, 2011, further information to support this description is provided here as a supplement to that response. As shown in the attached markups, further details are included in FSAR Section 11.2.3.2 "Radioactive Releases" to describe the design and monitoring of the buried Liquid Waste Management System (LWMS) discharge line. The attached markups supersede the FSAR Section 11.2.3.2 markups previously submitted in Detroit Edison letter NRC3-11-0029, dated August 1, 2011, (ML11215A102).

Proposed COLA Revision

See attached markups for FSAR Section 11.2.3.2.

Markup of Detroit Edison COLA
(following 3 pages)

The following markup represents how Detroit Edison intends to reflect this RAI response in the next submittal of the Fermi 3 COLA. However, the same COLA content may be impacted by other COLA RAIs, other COLA changes, plant design changes, editorial or typographical corrections, etc. As a result, the final COLA content that appears in a future submittal may be different than presented here.

release, these comprise <0.001% of the total annual release; therefore this augment will have little affect and is not a cost benefit augment.

Of the three augments which fall below the \$1000 per person-rem threshold value, none of these is cost-beneficial.

Note that the ESBWR Radwaste LWMS is designed to monitor and process all radioactive liquid streams and to provide water management for those streams. Under normal conditions, the water management is not expected to result in any routine release of radioactive effluents in the liquid discharges.

11.2.2.3 Detailed System Component Description

11.2.2.3.3 Processing Systems

Replace the first two paragraphs with the following.

STD COL 11.2-1-A

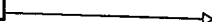
Specific equipment connection configuration and plant sampling procedures are used to implement the guidance in Inspection and Enforcement (IE) Bulletin 80-10 (DCD Reference 11.2-10). The non-radioactive systems, which are connected to radioactive or potentially radioactive portions of process LWMS, are protected from contamination with an arrangement of double check valves in each line. The configuration of each line is also equipped with a tell-tale connection, which permits periodic checks to confirm the integrity of the line and its check valve arrangement. Plant procedures describe sampling of non-radioactive systems that could become contaminated by cross-connection with systems that contain radioactive material. In accordance with the guidance in RG 1.109, exposure pathways that may arise due to unique conditions are considered for incorporation into the plant-specific ODCM if they are likely to contribute significantly to the total dose.

STD COL 11.2-2-A

Section 12.3 discusses how ESBWR design features and procedures for operation will minimize contamination of the facility and environment, facilitate decommissioning, and minimize the generation of radioactive wastes, in compliance with 10 CFR 20.1406. Section 13.5 describes the requirement for procedures for operation of radioactive waste processing system. Operating procedures for LWMS process systems required by

Section 12.3, Section 12.4, Section 12.5, and Section 13.5 address the requirements of 10 CFR 20.1406.

Insert #1 Here



11.2.6 COL Information

11.2-1-A Implementation of IE Bulletin 80-10

STD COL 11.2-1-A

This COL item is addressed in Subsection 11.2.2.3.

11.2-2-A Implementation of Part 20.1406


STD COL 11.2-2-A

This COL item is addressed in Subsection 11.2.2.3.

11.2.7 References

11.2-201 OMB Circular A-94, "Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs," October 29, 1992, Office of Management and Budget.

Insert #2 Here



11.3 Gaseous Waste Management System

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

11.3.1 Design Basis

Add the following at the end of this section.

EF3 SUP 11.3-1

Regulatory Guide 1.110 was used as the basis for a cost benefit evaluation to assess gaseous radwaste system augments. The overall principle behind Regulatory Guide 1.110 is to determine when it is economically feasible to implement an augmented system to reduce radiation exposure to the public further below the regulatory threshold. The regulatory guidance specifies that an augmented system should be implemented if the cumulative dose to a population within an 80 km (50 mile) radius of the reactor site can be reduced at an annual cost of less than \$1000 per person-rem or \$1000 per person-thyroid-rem.

Only the augments applicable to the ESBWR conceptual design are considered.

Cost Benefit Analysis Determination

Appendix A of Regulatory Guide 1.110 states that augments with a Total Annual Cost (TAC) lower than the reduced dose multiplied by \$1000 per

Insert #1

11.2.3.2 Radioactive Releases

Add the following after the end of the first sentence of the second paragraph.

EF3 SUP 11.2-2

The LWMS discharge pipe from the Fermi 3 Radwaste Building is a buried stainless steel line with no valves, vacuum breakers, or other inline components and is enclosed within a guard pipe and monitored for leakage to comply with 10 CFR 20.1406. The LWMS discharge line connects to the circulating water system blowdown line within the Exclusion Area Boundary for dilution below the limits of 10 CFR 20 Appendix B, Table II, Column 2. Dilution at this point, downstream of the connection to the circulating water system blowdown line is supplied by the circulating water system. The diluted flow is discharged from the circulating water system through the blowdown line which extends into Lake Erie. The blowdown line is a buried high density polyethylene pipe with no valves, vacuum breakers, or other inline components in the blowdown line downstream of the LWMS connection as required by DCD Subsection 12.3.1.5.1. Monitoring for leakage downstream of LWMS connection is per NEI 08-08A (Reference 11.2-202) as described in Subsection 12.3.1.5.2. This monitoring will be implemented as part of the Fermi 3 groundwater monitoring program.

Insert #2

11.2-202

Nuclear Energy Institute, Generic FSAR Template Guidance for Life Cycle Minimization of Contamination, NEI 08-08A.

Attachment 3
NRC3-11-0034
(6 pages)

Supplemental Response to RAI Letter No. 57
(eRAI Tracking No. 5633)

RAI Question No. 11.04-4

NRC RAI 11.04-4

FSAR Section 11.4, "Solid Waste Management System [SWMS]," is incorporated by reference from the ESBWR Design Control Document (DCD), Revision 8, with Departure EF3 DEP 11.4 1. In Revision 3 of Section 11.4, Departure EF3 DEP 11.4-1 indicates changes to system component capacities for the SWMS, and includes Figures 11.4-1R and 11.4-2R, and Tables 11.4-1R and 11.4-2R. Figure 11.4-1R includes the revised system process diagram.

The proposed redesigned solid waste management system included the revised system process diagram in Figure 11.4-1R. However, the process diagram shows pumps in series in two places, with no holding tank or other equipment separating the pumps. This is shown for the:

- 1) Reactor Water Cleanup System (RWCU)/Fuel and Auxiliary Pools Cooling System (FAPCS) – the top process line, showing the high activity circulation and high activity transfer pumps, and*
- 2) Condensate Filter Backwash Drain/Equipment-Floor Drain Subsystem Filter Backwash Drain/Dewatering Fill Head – the lower process line, showing the low activity circulation and low activity transfer pumps. These pumps are shown as tandem units in parallel but the figure does not show if these pumps provide redundancy since they are lacking isolation valves.*

Additionally, the figure appears to be incomplete, in that the detail of the diagram is not sufficient for the NRC staff to fully evaluate whether the system processes are consistent with the regulatory position in Regulatory Guide 1.143 and Branch Technical Position 11-3.

It is not clear from this figure how these pumps are meant to operate, since dual pump units in series may be prone to cavitation. Please provide additional clarifications on the system operation and on the use of these pumps.

Supplemental Response

Detroit Edison provided a supplemental response to NRC RAI 11.04-4 (eRAI Tracking No. 5633) within Detroit Edison letter NRC3-11-0029, dated August 1, 2011, (ML11215A102) which included a proposed revision of the Fermi 3 solid waste management system process flows on Figure 11.4-1R. As discussed in a conference call with the NRC staff on August 4, 2011, further clarification to support this revision is provided here as a supplement to that response, specifically Figure 11.4-1R is updated to standardize the tank suction point locations and pump feeds such that the decant pump connections are on the top and the circulation pump connections are on the bottom. The following changes have also been made to FSAR Figure 11.4-1R to more clearly depict the system processing capabilities depicted in 11.4-2R:

- The sources feeding into the tanks were revised to identify all feeds depicted in FSAR Figure 11.4-2R.
- The text for the branch flow path shown downstream of the High Activity Circulation Pumps has been updated to reflect the possible recirculation to any tank and the Low Activity Transfer Pumps.

- The text for the branch flow path shown downstream of the Low Activity Circulation Pumps has been updated to reflect the possible recirculation to any tank and the High Activity Transfer Pumps.
- The change in descriptions for the branch flow paths downstream of the High and Low Activity Circulation Pumps eliminates the need for depicting the crosstie line between these pumps and the branch flow paths that was shown in the markup to FSAR Figure 11.4-1R that was part of the supplemental response to NRC RAI 11.04-4 within Detroit Edison letter NRC3-11-0029, dated August 1, 2011, (ML11215A102).

The attached markups supersede the FSAR Figure 11.4-1R markups previously submitted in Detroit Edison letter NRC3-11-0029, dated August 1, 2011, (ML11215A102).

Proposed COLA Revision

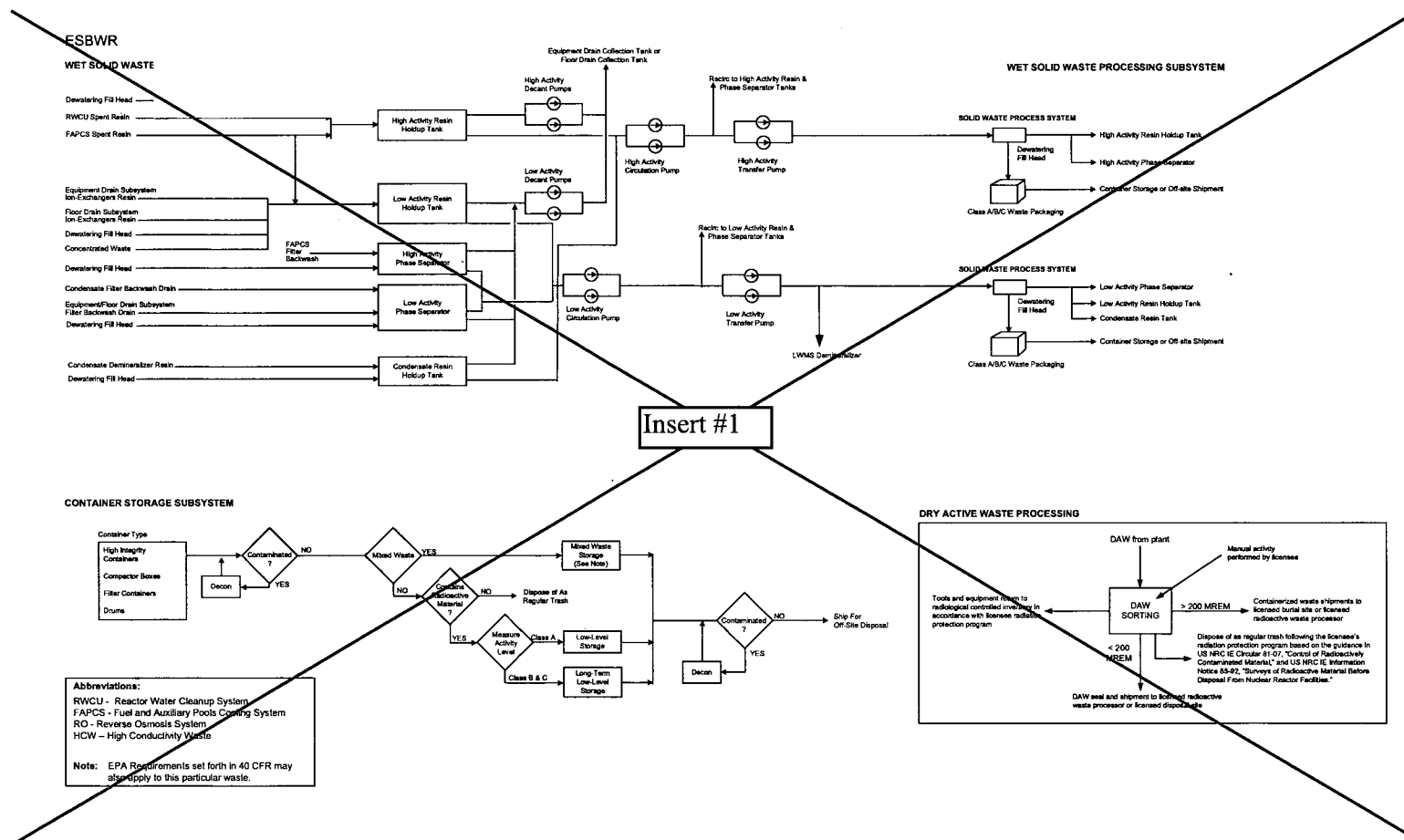
See attached markup of Figure 11.4-1R.

Markup of Detroit Edison COLA
(following 2 page)

The following markup represents how Detroit Edison intends to reflect this RAI response in the next submittal of the Fermi 3 COLA. However, the same COLA content may be impacted by other COLA RAIs, other COLA changes, plant design changes, editorial or typographical corrections, etc. As a result, the final COLA content that appears in a future submittal may be different than presented here.

Figure 11.4-1R Solid Waste Management System Process Diagram

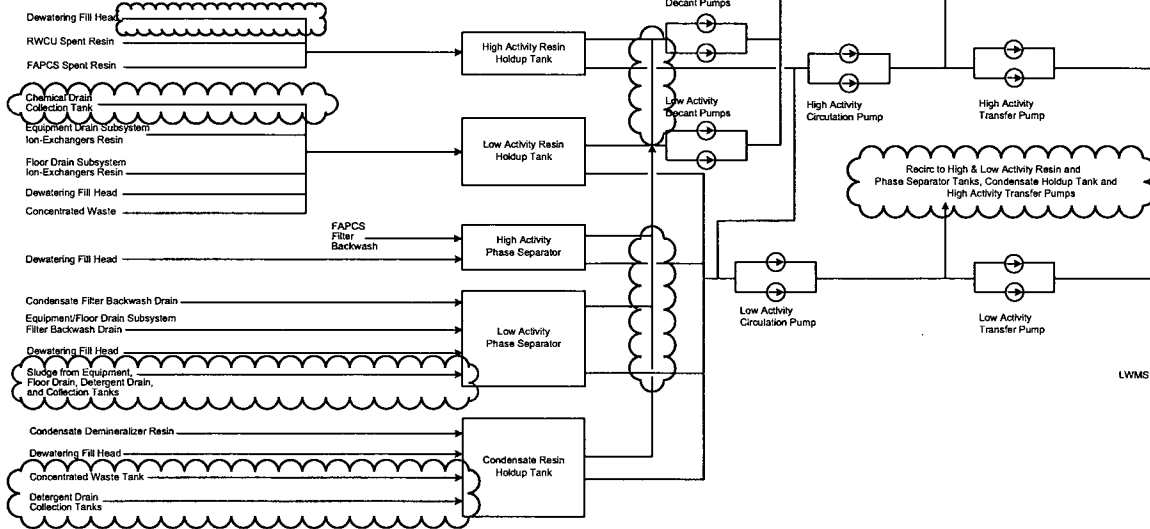
[EF3 DEP 11.4-1]



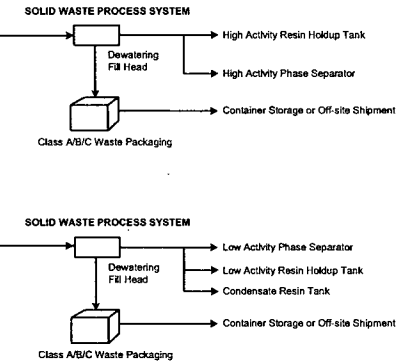
Insert #1

ESBWR

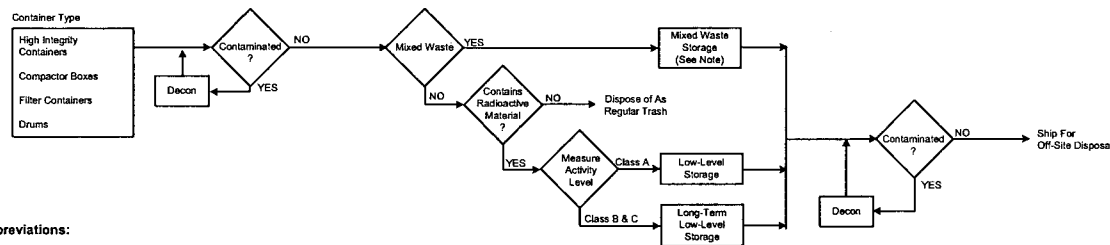
WET SOLID WASTE COLLECTION SUBSYSTEM



WET SOLID WASTE PROCESSING SUBSYSTEM



CONTAINER STORAGE SUBSYSTEM



Abbreviations:

RWCU - Reactor Water Cleanup System
FAPCS - Fuel and Auxiliary Pools Cooling System
RO - Reverse Osmosis System
HCW - High Conductivity Waste

Note: EPA Requirements set forth in 40 CFR may also apply to this particular waste.

DRY ACTIVE WASTE PROCESSING

