



Commonwealth Edison
 One First National Plaza, Chicago, Illinois
 Address Reply to: Post Office Box 767
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March 1, 1985

Mr. Harold R. Denton, Director
 Office of Nuclear Reactor Regulation
 U.S. Nuclear Regulatory Commission
 Washington, DC 20555

Subject: Byron Generating Station Units 1 and 2
Braidwood Generating Station Units 1 and 2
Amendment 6 to Fire Protection Report
NRC Docket Nos. 50-454/455 and 50-456/457

- References (a): August 16, 1982 letter from T. R. Tramm to H. R. Denton.
- (b): June 17, 1983 letter from T. R. Tramm to H. R. Denton.
- (c): September 19, 1984 letter from T. R. Tramm to H. R. Denton.

Dear Mr. Denton:

This letter provides Amendment 6 to the Byron/Braidwood Fire Protection Report (FPR) which was submitted in reference (a). This amendment updates the FPR to include information which has been provided under separate cover and incorporate other changes which do not represent a decrease in the level of fire protection. No changes are being made to the fire protection program which require prior NRC approval according to Condition 6 of the Byron 1 Operating License, NPF-37.

Amendment 6 includes an update of Section 2.3, the fire hazards analysis (FHA). The FHA is being updated to be consistent with the changes and commitments made in other sections of the FPR in amendments 3 and 4. With this amendment, the FHA will be consistent with Chapter 3.0 (BTP conformance) and Appendices A5.7 and A5.8 (Appendix R conformance) which were revised in Amendment 3. The FHA will also now be consistent with Table 3-1 (NFPA code conformance) which was revised in Amendment 4.

Fire barriers identified in the FHA are also being revised in Amendment 6. Additions, deletions, and changes to ratings are described in the text and shown on the new multi-color figures of

	LTR	ENCL	
ADD. IE, WHITNEY, L	1	1	B002
NRR, Holovick	2	2	1/40
NRR, WOMBACH	1	1	

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 PDR ADOCK 05000454
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Section 2.3. These changes have not been previously reviewed by the NRC. They are being made without prior NRC approval because they do not decrease the level of fire protection. As required by Condition 6 of the Byron 1 Operating License, an analysis of the effects of these changes on the fire protection program has been completed to demonstrate that each deletion or downrating of a fire barrier does not decrease the level of protection. Attachment B to this letter documents the results of that analysis.

Also included with the revised FHA are updated combustible material inventories and calculated fire loads for each fire zone. Table 2.2-3 in Section 2.2 is also revised to reflect this change. In most cases, the previous inventories consisted of estimates prepared for the original FHA. While inventories for a few specific zones had been updated in the past, a general update had not been performed. The revised combustible inventories included in Amendment 6 for each fire zone reflect the "as-built" condition of the plant. These changes to the combustible inventories have not been previously reviewed by the Staff, but they are included here to fulfill our commitment to I&E Region III to update the FHA to reflect the "as-built" conditions of the plant. For each fire zone where the revised combustible inventory is higher than the previous one, an evaluation was performed to demonstrate that the level of fire protection has not been reduced. Documentation of this evaluation is included as Attachment C to this letter.

Also in Amendment 6, the commitments to perform certain activities at Byron are revised to indicate that the work has been completed. Other miscellaneous changes of a minor nature and some editorial corrections are included in the revised FHA.

Amendment 6 also includes an update of the status and schedule for resolving non-safety related NFPA code deviations in revisions to Table 3-1. Appendix A5.4 is also updated to reflect changes to the Halon and CO₂ suppression systems which were described in references (b) and (c) and to reflect the results of the acceptance testing of these systems. The changes to these systems have already been reviewed by the NRC Staff. They are included to document the "as-built" conditions of these systems.

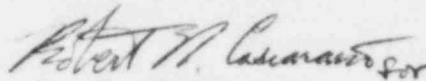
Attachment A to this letter provides an itemized summary and explanation of all changes included in this amendment. This attachment is provided as an aid to the NRC Staff in identification of changes, and it references, where applicable, where the changes have previously been submitted.

March 1, 1985

In summary, none of the changes to the Fire Protection Report included in Amendment 6 require NRC approval at this time. They either have been previously transmitted to the NRC under separate cover or in previous revisions to other sections of the FPR, represent an update of the Fire Hazards Analysis to reflect the "as-built" condition of the plant in response to a request from I&E Region III, or involve changes which do not represent a decrease in the level of fire protection. Please direct questions regarding this matter to this office.

One signed original and forty copies of this letter, the attachments and Amendment 6 are being provided for NRC review.

Very truly yours,



T. R. Tramm
Nuclear Licensing Administrator

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Attachments

9815N



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Section 2.3. These changes have not been previously reviewed by the NRC. They are being made without prior NRC approval because they do not decrease the level of fire protection. As required by Condition 6 of the Byron 1 Operating License, an analysis of the effects of these changes on the fire protection program has been completed to demonstrate that each deletion or downrating of a fire barrier does not decrease the level of protection. Attachment B to this letter documents the results of that analysis.

Also included with the revised FHA are updated combustible material inventories and calculated fire loads for each fire zone. Table 2.2-3 in Section 2.2 is also revised to reflect this change. In most cases, the previous inventories consisted of estimates prepared for the original FHA. While inventories for a few specific zones had been updated in the past, a general update had not been performed. The revised combustible inventories included in Amendment 6 for each fire zone reflect the "as-built" condition of the plant. These changes to the combustible inventories have not been previously reviewed by the Staff, but they are included here to fulfill our commitment to I&E Region III to update the FHA to reflect the "as-built" conditions of the plant. For each fire zone where the revised combustible inventory is higher than the previous one, an evaluation was performed to demonstrate that the level of fire protection has not been reduced. Documentation of this evaluation is included as Attachment C to this letter.

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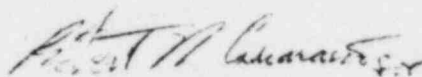
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Attachments

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ATTACHMENT A

SUMMARY OF CHANGES CONTAINED IN

B/B FPR AMENDMENT 6

<u>PAGE NO(s)</u>	<u>DESCRIPTION</u>
ii through v	Editorial corrections.
xix	Figure 2.3-41 added.
2.1-1	Second paragraph of Section 2.1 updated to reflect current status of assistance from fire protection engineers.
2.1-4	Editorial correction.
2.1-10	Second line in Section 2.1.4.1.b updated to reflect as-built conditions. Typographical error corrected in Section 2.1.4.2. Section 2.1.4.3.a was unclear and was modified. Item 2.1.4.1.d, which states that "all cable penetrations through any walls or floor slabs are sealed" is deleted and replaced with information concerning the Section 2.3 drawings and fire barrier location drawings (see Attachment B). Although Section 2.1.4.1 is titled "Fire Barrier Description," the statement in item 2.1.4.1.d is overly broad and felt to be potentially misleading. All cable penetrations through rated fire barriers are sealed. Detailed information to document this is available at the plant. This change does not decrease the level of fire protection at the plant.
2.1-11	A typographical error is corrected in Section 2.1.4.4.a. Statements (d) through (g) were deleted, since the updated combustible material inventories included in this amendment supercede these estimated values.
2.1-12	Portions of statement (i) that were superceded by the updated combustible material inventories were removed. Hydraulic oil and grease were added to the list of combustibles due to their use in fire loading determinations.
2.1-13 and 2.1-13a	The last line of Section 2.1.4.6.a has been deleted; deviations to NFPA 14 can be found in Table 3-1. Section 2.1.4.6.c was replaced with additional information concerning the intentions of the Section 2.3 drawings in relation to extinguishing and detecting capabilities.

ATTACHMENT A (Cont'd)

<u>PAGE NO(s)</u>	<u>DESCRIPTION</u>
2.2-17 through 2.2-33a	The majority of the changes are based on as-built conditions. All combustible inventories and the calculated combustible loading (also called fire load) have been reviewed and updated. Refer to Attachment C for an evaluation of fire load increases. These changes are reflected throughout the text of Section 2.3. All references to heat activation as a form of fire detection removed since it is not a form of fire detection. Several typographical errors have been corrected.
Figures 2.2-1 through 2.2-30	New fire zone boundary definition figures are provided. A few new fire zones are added, and minor boundary changes are made for a few zones, but all figures are included for completeness.
2.3-3	All changes and additions reflect as-built combustible inventory (refer to Attachment C).
2.3-4	Typographical error in second line corrected. Remaining changes based on as-built combustible inventory (refer to Attachment C).
2.3-5a	All changes reflect as-built combustible inventory.
2.3-6	Statement on fire severity in "Design-Basis Fire" section removed since this concept is no longer utilized. All further references to fire severity in Section 2.3 are removed for the same reason. All other changes on this page reflect as-built combustible inventories.
2.3-7	Statement on manual hose stations removed due to being repetitive. Statement on charcoal filters changed to reflect actual operating characteristics. All other changes reflect as-built combustible inventories.
2.3-8	The third paragraph in "Extinguishing and Detecting Capabilities" section modified to reflect actual operating conditions. All other changes reflect as-built combustible inventories (refer to Attachment C).

ATTACHMENT A (Cont'd)

<u>PAGE NO(s)</u>	<u>DESCRIPTION</u>
2.3-9	Changes reflect the fact that cables from both Unit 1 and Unit 2 are present in the upper and lower cable spreading rooms above and below the control room. The change also reflects the fact that Nelson cable transit blocks are not used in the ceiling, but these openings are still fire stopped.
2.3-11	First line was unclear and modified. All remaining changes are based on as-built combustible inventory (refer to Attachment C).
2.3-13	References to the specific heat of paper and fire severity removed as previously discussed. All other changes reflect as-built combustible inventory (refer to Attachment C).
2.3-14	Typographical error in fire barrier description corrected. Other changes based on as-built combustible inventory.
2.3-15 and 2.3-15a	Section 2.3.3 changed to reflect current information. This information was previously transmitted to the staff in a June 17, 1983 letter from T. R. Tramm to H. R. Denton. Changes described here are also mentioned in discussions for most of the cable spreading rooms described on pages 2.3-15 through 2.3-48a.
2.3-16	Typographical error in second paragraph. Fire barrier description for hatches expanded to explain that they have 3-hour rated fire barrier protection.
2.3-17	Statements concerning CO ₂ system and alarms clarified for correctness. Remaining changes reflect as-built combustible inventory.
2.3-18	Two trains of ionization detectors have been provided for all cable spreading rooms as agreed to with the NRC Staff. Other changes provide additional information about fire dampers.

ATTACHMENT A (Cont'd)

<u>PAGE NO(s)</u>	<u>DESCRIPTION</u>
2.3-19 and 2.3-19a	Updated information about the fire barrier description for Fire Zone 3.2-0 is provided. The change reflects the fact that the area of the ceiling which consists of the stairwell does not have a 3-hour rating. Since the stairwell enclosure on elevation 451'-0" is 3-hour rated, this does not represent a decrease in the level of fire protection. Other changes reflect the as-built combustible inventory.
2.3-20 and 2.3-20a	Based on as-built conditions of the ceiling and wall. The fire rating has not changed.
2.3-21	Additional information on fire dampers provided. Only one hose station is shown in Figure 2.3-9 and unclear statement concerning piping modified. Statements concerning CO ₂ system and alarms clarified for correctness. All other changes reflect as-built combustible inventory.
2.3-22	See reasons for Page 2.3-18.
2.3-23	Fire barrier description modified to reflect as-built conditions. The rating has not changed. Other changes reflect as-built combustible inventory.
2.3-24 and 2.3-24a	Statements concerning CO ₂ system and alarms clarified for correctness. Remaining changes based on as-built combustible inventory (refer to Attachment C) and current status of hard rubber fire hoses.
2.3-25	Statement on ionization detectors removed due to being repetitive. Two trains of ionization detectors based on as-built conditions. All additional changes on the page provided added information.
2.3-26	Changes to Section 2.3.3.7 based on as-built combustible inventory (refer to Attachment C).
2.3-27	Editorial correction on third line. Clarifications to CO ₂ system description as previously explained. A clarification regarding the standpipe system is added and the current status of the hand rubber hose is provided. As-built combustible inventories are described (refer to Attachment C).

ATTACHMENT A (Cont'd)

<u>PAGE NO(s)</u>	<u>DESCRIPTION</u>
2.3-28	Additional information for clarification purposes with some editorial corrections.
2.3-29	Clarifications to fire barriers and fire damper descriptions. Other changes reflect the as-built combustible inventory (refer to Attachment C).
2.3-30	Clarifications to detection/CO ₂ suppression as previously discussed. Clarifications regarding standpipe system and an updated status for the hard rubber hose installation are included. Other changes reflect the as-built combustible inventory.
2.3-31	Additional information provided in center paragraph. Other changes based on as-built combustible inventory and update of detection system description.
2.3-32	Changes reflect as-built conditions of detection system and combustible inventory.
2.3-33 and 2.3-33a	Additional information provided in "Design Basis Fire" section. Changes to remainder of page reflect as-built conditions of detection and CO ₂ suppression systems (previously mentioned) and the combustible inventory.
2.3-34	Typographical correction in first line. Changes to third paragraph adds descriptions of floor fire rating. All changes in last three paragraphs reflect clarification of unclear statements or updates regarding the standpipe system and the Halon suppression system.
2.3-35	Changes reflect as-built conditions of the detection and suppression systems, and provide additional information regarding the fire dampers and the charcoal deluge system. The as-built combustible inventory is provided (refer to Attachment C).
2.3-36	Damper statement in second paragraph unclear and required corrections. Additional information provided to reflect as-built conditions of detection and suppression systems (previously discussed).

ATTACHMENT A (Cont'd)

<u>PAGE NO(s)</u>	<u>DESCRIPTION</u>
2.3-37 and 2.3-37a	First line redundant and removed. Remaining changes are editorial based on as-built combustible inventory (refer to Attachment C).
2.3-38	In "Protection Criteria and Measures" section, "total flooding" is substituted for "low concentration" for correctness. Additional and updated information on dampers and the detection system is provided. The remaining changes are based on the as-built combustible inventory.
2.3-39	Updated information about the detection and suppression systems (previously discussed) and the fire dampers is provided. Other changes reflect the as-built combustible inventory (refer to Attachment C).
2.3-40 and 2.3-40a	Two editorial changes in the second paragraph. In the third paragraph, the statement concerning fire dampers was corrected. The remaining changes reflect as-built conditions for the detection and suppression systems (previously discussed) and for the combustible inventory (refer to Attachment C).
2.3-41	In next to last paragraph, the NRC request concerning fire hose types has been completed. In the last paragraph, "total flooding" is substituted for "low concentration" for correctness; all additional references to a low concentration Halon system in Section 2.3 are similarly corrected.
2.3-42	In the first paragraph, the sixth line was out of place and removed and the last sentence was deleted since testing has demonstrated that extended discharge is not required in this room. All remaining changes and additions reflect as-built conditions of the detection and suppression systems (previously discussed) and the combustible inventory (refer to Attachment C).
2.3-43 and 2.3-43a	Changes present additional information on fire dampers and detection system and additional description for the design basis fire.

ATTACHMENT A (Cont'd)

<u>PAGE NO(s)</u>	<u>DESCRIPTION</u>
2.3-44 and 2.3-44a	Changes reflect as-built combustible inventory for Zone 3.3C-2 (refer to Attachment C) and update the fire barrier rating for the ceiling of Zone 3.3D-1 from 2 to 3 hours. Clarification in first paragraph indicates only one of two HVAC trains required.
2.3-45	Second paragraph clarified for correctness. Remaining changes and additions reflect as-built conditions for suppression equipment (previously discussed) and the as-built combustible inventory.
2.3-46	Editorial correction in last sentence of first paragraph of "Design-Basis Fire" section. Remaining changes and additions reflect as-built conditions of detection and suppression systems (previously discussed).
2.3-47 and 2.3-47a	Minor editorial changes in first paragraph. Remaining changes based on as-built combustible inventory and detection systems (previously discussed).
2.3-48 and 2.3-48a	All changes and additions based on as-built combustible inventories. Hose station for Zone 3.4A-2 is added at bottom of page 48.
2.3-49	The changes in the first and third paragraphs in the "Fire Barrier Description" section reflect the as-built status. (The ratings do not decrease.) The first two sentences in the last paragraph were removed due to being redundant. The last sentence was changed to reflect the as-built status (the fire door is a "door of label construction" instead of a Label "A" door).
2.3-50	In the "Combustible Materials" section, the last sentence in the second paragraph was removed due to being redundant. In the "Extinguishing and Detecting Capabilities" section, "the turbine building" was substituted for "an adjacent area" for correctness. The remaining changes are based on as-built combustible inventory.
2.3-51	Based on as-built combustible inventory.
2.3-52	The fire barrier description was changed to show the as-built details. The rating is still 3 hours.

ATTACHMENT A (Cont'd)

<u>PAGE NO(s)</u>	<u>DESCRIPTION</u>
2.3-53	The second paragraph in the "Protection Criteria and Measures" section was removed due to being redundant. The remaining changes reflect as-built combustible inventory or are editorial.
2.3-54 and 2.3-54a	Based on as-built combustible inventory.
2.3-55	Statement in "Protection Criteria and Measures" section concerning ionization detectors removed due to being redundant. Remaining changes based on as-built status or combustible inventory.
2.3-56 and 2.3-57	All changes based on as-built combustible inventories (refer to Attachment C).
2.3-58	Addition of second paragraph to explain up-rating of battery area walls to 3-hour rating. In "Protection Criteria and Measures" section, part of second sentence of second paragraph deleted because it is unnecessary, and change does not affect the fire hazards analysis.
2.3-58a	Based on as-built combustible inventory.
2.3-59	Redundant portion of second line removed. New fire loadings are calculated (they decreased). Fire barrier structural detail at bottom of page revised (no effect on fire rating).
2.3-60	Correction of minor error.
2.3-61	First mention of ionization detectors removed due to being repetitive. Typographical error in last paragraph corrected. Other changes based on as-built combustible inventory (refer to Attachment C).
2.3-61a	Deletion of statement on fire severity.
2.3-62	Clarification of type of suppression capability.
2.3-63 and 2.3-63a	The additions to the fire barrier description are for information purposes and reflect the as-built condition. Other changes also reflect the as-built combustible inventory (refer to Attachment C).

ATTACHMENT A (Cont'd)

<u>PAGE NO(s)</u>	<u>DESCRIPTION</u>
2.3-64	First mention of ionization detectors removed due to being repetitive. Redundant portion of first line of second paragraph of "Combustible Materials" section removed. Other changes based on as-built combustible inventory.
2.3-65	Based on as-built combustible inventory.
2.3-67	Redundant material in "Protection Criteria and Measures" section removed and substituted with fire damper information. Heat content of battery jar plastic removed due to being redundant. Other changes based on as-built floor area.
2.3-68	Deletion of statement on fire severity.
2.3-69	First correction is editorial. Remaining changes, additions, and removals reflect as-built conditions. They do not represent a decrease in the level of fire protection.
2.3-70	Redundant material removed from "Protection Criteria and Measures" section. Remaining changes based on as-built combustible inventory.
2.3-71	Portable extinguishers shown for this zone on Sheets 2 and 4 instead of 1 and 3. Fire barrier description title added for Fire Zone 8.2-1 and description revised to delete below-grade exterior walls as discussed in Attachment B. Other changes reflect as-built fire loading, and provide additional details regarding the sprinkler system and fire dampers.
2.3-72	First mention of automatic sprinkler system removed due to being redundant. Remaining changes reflect as-built status (change "will be" to "has been"), the as-built combustible inventory, or provide additional details about the sprinkler system.
2.3-73	Fire Zone 8.2-2 is shown on Sheet 4 instead of 2. Changes to the fire barrier description are in accordance with as-built conditions and are discussed in Attachment B. Other changes also reflect the as-built combustible inventory.

ATTACHMENT A (Cont'd)

<u>PAGE NO(s)</u>	<u>DESCRIPTION</u>
2.3-74	"Protection Criteria and Measures" section reflects revised fire barriers discussed on previous page. Reference to sprinkler system removed due to being redundant. Other changes reflect as-built combustible inventory (refer to Attachment C).
2.3-75 and 2.3-75a	Changes reflect as-built combustible inventory, provide additional details on suppression systems and fire barriers or update plant status.
2.3-76	Fire barrier description modified as discussed in Attachment B. "Protection Criteria and Measures" section changed to accurately reflect protection capabilities. Remaining changes reflect as-built combustible inventory.
2.3-77 through 2.3-79	Changes reflect as-built combustible inventories, or provide additional details about the fire barriers and suppression systems.
2.3-80	Redundant first sentence in "Protection Criteria and Measures" section removed. Remaining changes reflect as-built combustible inventory and status of fire-rated structural steel protective coating.
2.3-81	"Preaction sprinkler" substituted for "deluge" for correctness. Fire Zone 8.7A-0 is shown on Figure 2.3-12 instead of 2.3-8. Remaining changes are based on the as-built combustible inventory.
2.3-82	Fire Zone 8.7B-0 is shown on Figure 2.3-12 instead of 2.3-8. Remaining changes reflect the as-built combustible inventory, or are editorial.
2.3-83	First two sentences in "Protection Criteria and Measures" are redundant and removed. Manual extinguishing capabilities are shown on Figure 2.3-12 instead of 2.3-8. Remaining changes reflect as-built combustible inventory and provide additional details about the sprinkler system alarms.
2.3-84	The rolling steel door has an "A" label.

ATTACHMENT A (Cont'd)

<u>PAGE NO(s)</u>	<u>DESCRIPTION</u>
2.3-85 and 2.3-85a	Sentence concerning manual hose stations removed due to being redundant. Remaining changes are for clarification purposes or provide an updated combustible inventory.
2.3-86 through 2.3-87a	Changes provide as-built combustible inventories (refer to Attachment C) and provide additional details regarding the CO ₂ suppression system.
2.3-88	Redundant statement concerning manual hose stations removed. Other change provides additional details regarding the fire barrier.
2.3-89 and 2.3-90	Changes based on as-built combustible inventories and provide additional details regarding the CO ₂ suppression system.
2.3-91	The fire rating of exterior below grade walls is deleted as discussed in Attachment B. Under "Fire Barrier Description" the fire door in the east wall is changed to an "A" label door. The capacity of the transfer pumps is corrected. Also, a statement is added describing the lack of a fire damper in the smoke and heat vent for the room. This is not a decrease in the level of fire protection, as the smoke and heat vent would not work if a fire damper was installed.
2.3-92	"Foam-water" substituted for "foam" for correctness. Remaining changes delete redundant information or updates as-built combustible inventories (refer to Attachment C).
2.3-93	Changes based on as-built conditions of sprinkler system (discharge rates increased slightly).
2.3-94	The fuel transfer pumps are 20 gpm instead of 7 gpm.
2.3-95	The fire rating of exterior below grade walls is deleted as discussed in Attachment B. The east wall fire door rating is changed to Label "A".
2.3-96	Fire barrier description at bottom of page is revised to delete the rating of exterior below grade walls and floors as discussed in Attachment B. Redundant statement on ionization detectors removed. Remaining changes based on as-built combustible inventory and addition of suppression system as-built information.

ATTACHMENT A (Cont'd)

<u>PAGE NO(s)</u>	<u>DESCRIPTION</u>
2.3-97	Changes reflect as-built combustible inventory (refer to Attachment C), as-built suppression system data, and change of east wall fire door to Label "A".
2.3-98	The fire rating of exterior below grade walls is deleted as discussed in Attachment B. The east wall fire door is changed to Label "A". The combustible inventory is updated to reflect as-built conditions.
2.3-99	Changes reflect as-built conditions of the suppression system (actual flow rates are provided).
2.3-100	Below grade exterior walls are deleted as fire barriers as discussed in Attachment B. As-built status is indicated ("will be" changed to "are").
2.3-101	Changes reflect as-built combustible inventory (refer to Attachment C).
2.3-101a	Material deleted as explained in note to page 2.3-6.
2.3-102	Changes reflect as-built combustible inventory (refer to Attachment C).
2.3-103	Typographical error corrected and remaining changes based on as-built combustible inventory.
2.3-104	Changes reflect as-built combustible inventory, and the manual hose stations available are updated.
2.3-105 and 2.3-105a	The fire rating of an internal floor is deleted. This is further discussed in Attachment B. An editorial correction is made in the second paragraph. Remaining changes based on as-built status and combustible inventory.
2.3-106	Changes reflect as-built combustible inventory (refer to Attachment C).
2.3-107	A number of wall and floor fire ratings are deleted as discussed in Attachment B. The remaining changes are based on as-built combustible inventory.

ATTACHMENT A (Cont'd)

<u>PAGE NO(s)</u>	<u>DESCRIPTION</u>
2.3-108	Typographical error corrected. Remaining changes based on as-built combustible inventory.
2.3-109	Fire ratings of exterior below grade floors and walls are deleted as discussed in Attachment B. Other changes reflect as-built combustible inventory.
2.3-109a	Top four lines moved from previous page (editorial).
2.3-111	Changes in component cooling pump area satisfies commitments made in Amendment 3 (dated June 1984) of the Byron/Braidwood Fire Protection Report. Redundant statements concerning hose stations, extinguishers, and ionization detectors removed. Remaining changes are based on as-built combustible inventory.
2.3-111a	Satisfies commitments made elsewhere in Amendment 3 (dated June 1984) of the Byron/Braidwood Fire Protection Report.
2.3-112	Typographical error involving reference to Figure 2.3-14 corrected. Component cooling pump change describes new partial coverage sprinkler system. The fire barrier description for the floor of Fire Zone 11.3-1 is revised to delete the rating. This floor was not previously shown on the 2.3 figures as having a rating. This corrects a discrepancy.
2.3-113	The fire rating of the containment common wall is deleted as discussed in Attachment B.
2.3-113b	Changes reflect as-built combustible inventory.
2.3-114	Automatic sprinkler system results from commitment made in Amendment 3. The fire ratings of a number of internal walls and floors are deleted as discussed further in Attachment B. Other changes reflect the as-built combustible inventories.
2.3-115	Changes reflect as-built combustible inventory (refer to Attachment C).
2.3-116	The fire rating of a number of internal walls and floors are deleted as discussed further in Attachment B. Other changes reflect the as-built combustible inventory.

ATTACHMENT A (Cont'd)

<u>PAGE NO(s)</u>	<u>DESCRIPTION</u>
2.3-117	See reasons for page 2.3-116.
2.3-118	Changes reflect as-built combustible inventory.
2.3-119	In "Protection Criteria and Measures" section, redundant statements concerning hose stations, extinguishers, and ionization detectors removed. See reasons for page 2.3-116. Refer to Attachment C.
2.3-120	Unessential statements removed from "Design-Basis Fire" section. The fire rating of the floor is deleted as discussed in Attachment B.
2.3-121	See reasons for page 2.3-116.
2.3-122	Typographical error in Section 2.3.11.26 corrected. Also see reasons for page 2.3-116.
2.3-123	Typographical error in Section 2.3.11.28 corrected. Remaining changes reflect as-built combustible inventory (refer to Attachment C), and revised floor thickness.
2.3-124 and 2.3-125	Changes reflect as-built architectural details (no changes to fire rating), corrections to equipment location, and as-built combustible inventory.
2.3-125a	Automatic sprinkler system results from commitment made elsewhere in Amendment 3. Remaining changes reflect as-built combustible inventory.
2.3-126	Redundant statement concerning ionization detectors removed. Remaining changes reflect as-built status.
2.3-127	Changes reflect addition of curb by the doors per NRC request and as-built combustible inventory.
2.3-128	Redundant statement concerning CO ₂ system removed. Additional details about fire dampers provided. As-built status of safety-related equipment provided. As-built combustible inventory provided.

ATTACHMENT A (Cont'd)

<u>PAGE NO(s)</u>	<u>DESCRIPTION</u>
2.3-128a	Additional detailed information to "Extinguishing and Detecting Capabilities" section provided to describe CO ₂ system. Remaining changes based on as-built fire loading (refer to Attachment C).
2.3-129 and 2.3-129a	Based on as-built combustible inventory (refer to Attachment C). Also additional details provided on fire dampers.
2.3-129b	The floor fire rating is deleted as discussed in Attachment B.
2.3-130	Redundant statement in "Protection Criteria and Measures" section concerning hose station and extinguishers removed. Editorial corrections in "Design-Basis Fire" section. Also see changes for page 2.3-116.
2.3-131 and 2.3-131a	Based on as-built status and combustible inventory.
2.3-132	Nonessential statements removed from "Design-Basis Fire" section. Remaining changes based on as-built combustible inventory.
2.3-133 through 2.3-135	See changes for page 2.3-116.
2.3-136	Editorial corrections based on as-built conditions. (Condensate Demineralizer not in this zone.)
2.3-137	Sprinklers for the stairwell and hatchway satisfy commitments made in Amendment 4 (dated August 1984) of the Byron/Braidwood Fire Protection Report. Remaining changes reflect as-built combustible inventory.
2.3-138	Redundant statements removed from "Protection Criteria and Measures" section. Also see changes to page 2.3-116.
2.3-139	Based on as-built combustible inventory.

ATTACHMENT A (Cont'd)

<u>PAGE NO(s)</u>	<u>DESCRIPTION</u>
2.3-139a	Typographical error in fourth line corrected. The fire rating of the containment buttress structure is deleted as discussed further in Attachment B. Remaining changes based on as-built combustible inventory.
2.3-139b	Statement deleted as discussed in the change to page 2.3-6.
2.3-140	The revised fire rating of the stairwell is discussed further in Attachment B.
2.3-140a	Based on as-built combustible inventory.
2.3-141	The containment wall fire rating is deleted as discussed in Attachment B. Remaining changes based on as-built combustible inventory.
2.3-141a and 2.3-141b	Based on as-built combustible inventory and minor revisions of architectural details/wall and floor slab thicknesses).
2.3-143	See changes to page 2.3-137.
2.3-144	Minor revisions to architectural wall and floor slab descriptions do not affect the fire ratings. An editorial correction is made to the Fire Hazards Panel number.
2.3-144a	Changes reflect the as-built combustible inventory (refer to Attachment C).
2.3-145	Two manual hose stations instead of one are available for a fire in this zone. Other changes reflect the as-built combustible inventory (refer to Attachment C).
2.3-146	Changes reflect the as-built combustible inventory.
2.3-147	Minor change to architectural details of wall descriptions. Revised "Design Basis Fire" description deletes mention of fire severity.
2.3-147a	"Control" substituted for "cabinet" for correctness. Remaining changes reflect as-built combustible inventory and fire loadings.

ATTACHMENT A (Cont'd)

<u>PAGE NO(s)</u>	<u>DESCRIPTION</u>
2.3-147b	The description of the fire rating of the dumb waiter walls is added. Other changes reflect as-built combustible inventory and minor revisions to architectural details which do not affect the fire rating of the walls and floors.
2.3-147c through 2.3-147e	Changes and additions reflect as-built combustible inventories and minor revisions to details of wall and floor descriptions.
2.3-147f	The wall common to the cable penetration area is non-rated. This is discussed in Attachment B. Other changes reflect as-built combustible inventory.
2.3-147g and 2.3-147h	Paragraph in center of page editorially simplified. Other changes reflect the revised fire barriers as discussed in Attachment C. The fire loading for Zone 11.6E-0 is revised to reflect the as-built combustible inventory (refer to Attachment C).
2.3-148	Redundant statement in "Protection Criteria and Measures" section concerning water spray system removed. The "as-built" status of the safety-related equipment is now indicated. The "as-built" combustible inventory is reflected in the changes (refer to Attachment C). Additional details regarding the charcoal filter deluge system are provided. Reference to fire severity is deleted from the design basis fire description.
2.3-149	The containment and exterior walls are no longer fire rated as discussed in Attachment B.
2.3-150 and 2.3-151	Updated information regarding the charcoal filter deluge system and the detection system are provided. Reference to fire severity is deleted in "Design Basis Fire" and an editorial correction is also made. Other changes reflect the as-built combustible inventories (refer to Attachment C).
2.3-154	Addition concerning duct penetrations is discussed further in Attachment B. Redundant statement concerning extinguishers and hose stations removed. Remaining change reflects fact that the skimmer pump is not safety-related.

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<u>PAGE NO(s)</u>	<u>DESCRIPTION</u>
2.3-155	Redundant information on heat content of oil removed. Remaining changes reflect as-built combustible inventory (refer to Attachment C).
2.3-156	"Building" substituted for "Accident" for correctness.
2.3-157	Redundant first sentence in "Protection Criteria and Measures" removed. Other changes reflect the 4-hour rating of the walls and ceiling and the as-built combustible inventory (refer to Attachment C).
2.3-158	Provides updated information on the Halon suppression system and deletes reference to fire severity.
2.3-159	The fire rating of a number of internal and external walls and floors have been deleted as described in Attachment B. Other changes reflect as-built combustible inventory (refer to Attachment C).
2.3-160 and 2.3-161	Minor architectural details are revised to reflect as-built conditions (no effect on ratings). Other changes reflect as-built combustible inventories.
2.3-162	The fire ratings of a number of interior walls have been deleted as described further in Attachment B. Other changes reflect as-built combustible inventories.
2.3-164	Changes based on as-built combustible inventory.
2.3-165	Revisions to fire barrier descriptions reflect commitments to upgrade the ratings of certain walls, and also reflect minor architectural changes to wall thicknesses which do not affect fire ratings. Remaining changes reflect as-built combustible inventories.
2.3-166	Fire Zone 14.6-0 shown on Figure 2.3-18 instead of 2.3-10 (Sheet 3). Deletions of wall fire ratings in the radwaste/service building are discussed in Attachment B. Other changes reflect as-built fire loadings (refer to Attachment C).

ATTACHMENT A (Cont'd)

<u>PAGE NO(s)</u>	<u>DESCRIPTION</u>
2.3-167	Redundant statement removed from "Protection Criteria and Measures" section. Remaining changes based on as-built combustible inventory (refer to Attachment C) and change from 4 to 3 manual hose stations available (3 provide adequate coverage).
2.3-168 and 2.3-169	Editorial corrections.
2.3-170	Fire hydrants identified as an extinguishing capability.
2.3-171	Fire hydrants identified as an extinguishing capability and Fire Zone 17.2-1 is specific to Byron only.
2.3-172	The cooling tower fans may be required for safe shutdown. In "Design-Basis Fire" section, number of tower cells required corrected. Fire Zone 17.2-2 is specific to Byron only. Remaining changes are based on as-built combustible inventories.
2.3-174 and 2.3-175	Redundant statement deleted from "Protection Criteria and Measures". Other changes, reflect as-built combustible inventories (refer to Attachment C).
2.3-176	"Fyrquel" substituted for "Oil". Exterior below grade walls are deleted as fire barriers as described in Attachment B.
2.3-176a	"Fyrquel" substituted for "Oil".
2.3-177	First change based on as-built combustible inventory (refer to Attachment C). Reference to fire severity is deleted. Minor change to thickness of structural wall is included.
2.3-178	Typographical error in second line of second paragraph corrected. The third paragraph's additional explanation is as discussed in Attachment B. The remaining changes are based on as-built combustible inventory (refer to Attachment C).
2.3-179	Editorial changes in "Extinguishing and Detecting Capability" and "Design-Basis Fire" sections. Remaining changes based on as-built combustible inventory.

ATTACHMENT A (Cont'd)

<u>PAGE NO(s)</u>	<u>DESCRIPTION</u>
2.3-180	Revisions to the ceiling description reflect the as-built conditions and upgrade it to a 3-hour rating. Other changes reflect as-built combustible inventories.
2.3-181	A new fire loading is calculated (refer to Attachment C). Reference to fire severity is deleted. The stairwell enclosure is 2-hour rated. This does not represent a decrease in the level of fire protection. The combustible material inventory is updated.
2.3-182	A new fire loading is calculated (refer to Attachment C). Reference to fire severity is deleted.
2.3-183	Deletions of fire barrier ratings are discussed in Attachment B. Other changes update the combustible inventory (refer to Attachment C).
2.3-184	Deletions of fire barrier ratings are discussed in Attachment B. The storeroom on the second floor has been converted to offices.
2.3-185	An updated combustible inventory is provided. Automatic sprinklers no longer protect the storeroom which has been converted to offices. This does not decrease the level of fire protection.
2.3-186	Deletions of rated barriers are discussed in Attachment B. Minor detail of ceiling construction (non-fire rated) is provided.
2.3-187	Based on as-built combustible inventory.
2.3-188	Fire barrier deletions are discussed in Attachment B. Minor detail of floor construction is corrected. Combustible inventory is updated (refer to Attachment C).
2.3-189	Redundant line at bottom of page removed. Remaining change updates fire loading.
2.3-190	The fire loading is recalculated. The description of the deluge system is revised (although it is still an automatic system) and information on the detection system is added. The description for transformers 1W and 2W is now the same as for 1E and 2E. The fire loading for the unit auxiliary transformer is also revised due to a larger area being used.

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<u>PAGE NO(s)</u>	<u>DESCRIPTION</u>
2.3-191	The transformer fire loadings are revised. Refer to Attachment C.
2.3-193	Combustible inventory is updated.
2.3-194	Combustible inventory and fire loading is updated (refer to Attachment C). A clarification is provided to the ESW makeup pump suppression system. The separation of these pumps is revised from "over 50" to "approximately 40" feet. This does not represent a decrease in the level of fire protection, since they are not normally required for safe shutdown.
2.3-195	Tank room is "B" instead of "1". The exterior wall is discussed in Attachment B. Other changes reflect the as-built combustible inventory.
2.3-196	Tank room is "A" instead of "2". Remaining changes based on as-built combustible inventory for Fire Zone 18.11-2 and minor revisions to floor slab thickness for the circulating water pump hose (no effect on FHA).
2.3-197	Changes are based on as-built combustible inventory for Fire Zone 18.13-0 (no effect on fire ratings).
2.3-198	In "Protection Criteria and Measures" section, redundant statements concerning hose stations, extinguishers, and ionization detectors are removed. Other changes involve the updated combustible inventory.
2.3-199	Fire barrier revisions are further discussed in Attachment B. Redundant statement concerning ionization detectors removed.
2.3-199a and 2.3-200	Changes, deletions, and additions based on as-built combustible inventories and deletion of reference to fire severity.
2.3-201	Next to last sentence of page is redundant and was removed. Remaining change based on as-built combustible inventory.

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<u>PAGE NO(s)</u>	<u>DESCRIPTION</u>
2.3-202 and 2.3-204	Combustible inventory is updated.
2.3-205	The combustible inventory is updated and the detection system is revised to an electric rate of rise detector (the level of fire protection is increased because the new detector can be supervised).
2.3-206	The wall and floor descriptions are revised to reflect the current design (no fire ratings have changed). Other changes reflect the as-built combustible inventories.
2.3-208	Changes at top of page indicate that ceiling now has a 3-hour fire rating. Other changes update the combustible inventory.
2.3-209	Editorial corrections for Fire Zone 18.26-0 referral figures, misspelling of "perimeter" corrected. Other changes reflect as-built structural dimensions and new fire rating of north wall.
2.3-210	Changes reflect current architectural description and new 3-hour fire rating of north wall. Redundant last line of page removed.
2.3-211	Based on as-built combustible inventory (refer to Attachment C).
2.3-212	Top change reflects as-built fire loading (refer to Attachment C). Other change reflects difference in structural dimensions between Byron and Braidwood.
2.3-213	Information for "Protection Criteria and Measures" section at bottom of page added. Remaining changes based on as-built combustible inventory and addition of alarm description for sprinkler system.
2.3-214	"Combustible Materials" section heading added to top of page. Storage pad elevations removed due to not being essential to fire barrier description. "Curb" substituted for "pad" for correctness. "Protection Criteria and Measures" moved to next page.

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<u>PAGE NO(s)</u>	<u>DESCRIPTION</u>
2.3-215	"Protection Criteria and Measures" section moved from previous page. Remaining changes based on as-built combustibile inventory (refer to Attachment C).
2.3-216	Typographical error in fire barrier description corrected. Remaining changes based on as-built combustibile inventories.
2.3-217	Mention of sprinkler system is added. Elevation of gate house floor is corrected.
2.3-218	Redundant second sentence on page removed. Redundant next to last sentence on page removed. Remaining changes based on as-built combustibile inventory (refer to Attachment C).
2.3-219	Typographical error of Section 2.3.18.55 title corrected. Remaining change based on as-built combustibile inventory (refer to Attachment C).
2.3-220	The combustibile inventory for Fire Zone 18.35-0 is updated (refer to Attachment C). Relay house floor slab thickness is revised.
2.3-221	The fire loading of Fire Zone 18.36-0 is revised (refer to Attachment C). Editorial change to floor description for Fire Zone 18.37-0.
2.3-222	The fire loading of Fire Zone 18.37-0 is revised (refer to Attachment C).
Figure 2.3-0	New symbols for upgraded floors and walls and fire zone boundaries are added. A note is added by the fire detector symbol and Note 1 is added for water suppression systems.
Figures 2.3-1 and 2.3-2	The background has been revised to reflect the current general arrangement drawing.
Figure 2.3-3 (Sheets 1 and 3)	The roofs of the containment building and fuel handling building have been deleted as rated fire barriers as discussed in Attachment B, items 1 and 12, respectively.

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<u>PAGE NO(s)</u>	<u>DESCRIPTION</u>
Figure 2.3-3 (Sheets 2 and 4)	No change - included for completeness.
Figures 2.3-4 and 2.3-5	The containment walls are deleted as rated fire barriers. This is discussed in Attachment B, item 1. Fire zone numbers and boundaries are added.
Figure 2.3-6	The containment walls are deleted as rated fire barriers. This is discussed in Attachment B, item 1. Other minor changes reflect the "as-built" condition of the plant. Fire zone numbers and boundaries are added.
Figure 2.3-7	Fire zone numbers and boundaries are added.
Figure 2.3-8 (Sheets 1 and 3)	The containment walls are deleted as rated fire barriers. This is discussed in Attachment B, item 1. Fuel handling building exterior walls and some auxiliary building exterior walls are deleted as rated fire barriers as discussed in Attachment B, items 12 and 11, respectively. The L wall between column-rows 10 and 11 separating the turbine building from the auxiliary building is shown as a 3-hour rated wall, although it contains one nonrated penetration. This is discussed in Attachment B, item 19. Battery room fire walls, fire zone numbers, and boundaries are added. Minor changes reflect the "as-built" condition of the plant.
Figure 2.3-8 (Sheets 2 and 4)	Minor changes reflect the "as-built" condition of the plant.
Figure 2.3-9	Fire zone numbers and boundaries are added. Minor changes reflect the "as-built" condition of the plant.
Figure 2.3-10 (Sheet 1)	The containment walls are deleted as rated fire barriers. This is discussed in Attachment B, item 1. Fuel handling building exterior walls and interior walls at the equipment and personnel hatch have been deleted as rated fire barriers. This is discussed in Attachment B, item 12. Upgraded walls and floors, fire zone numbers, and boundaries are added. Minor changes reflect the "as-built" condition of the plant.

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<u>PAGE NO(s)</u>	<u>DESCRIPTION</u>
Figure 2.3-10 (Sheet 2)	The fire barrier along 1 row is added. Fire zone numbers and boundaries are added. Minor changes reflect the "as-built" condition of the plant.
Figure 2.3-10 (Sheet 3)	The containment walls are deleted as rated fire barriers. This is discussed in Attachment B, item 1. Fuel handling building exterior walls and interior walls at the equipment and personnel hatch are deleted as rated fire barriers. This is discussed in Attachment B, item 12. Upgraded walls and floors, fire zone numbers, and boundaries are added. Minor changes reflect the "as-built" plant condition.
Figure 2.3-10 (Sheet 4)	Minor changes reflect the "as-built" condition of the plant.
Figure 2.3-11	The containment walls are deleted as rated fire barriers. This is discussed in Attachment B, item 1. The stairwells at 11-12/Q and 24-25/Q are derated from 3-hour to 2-hour rated walls. This is discussed in Attachment B, item 9. Upgraded walls, fire zone numbers, and boundaries are added.
Figure 2.3-12 (Sheets 1 and 3)	The containment walls are deleted as rated fire barriers. This is discussed in Attachment B, item 1. The floor between 15-17/Q-W has been deleted as a rated fire barrier. This is discussed in Attachment B, item 8. Fire zone numbers and boundaries are added. Other minor changes reflect the "as-built" plant conditions.
Figure 2.3-12 (Sheets 2 and 4)	Fire zone boundaries and numbers are added. Minor changes reflect the "as-built" plant conditions.
Figure 2.3-13 (Sheet 1)	The below-grade exterior containment walls are deleted as rated fire barriers. This is discussed in Attachment B, item 1. Below-grade exterior walls of the main steam and feedwater pipe tunnels are deleted as rated walls. The floor separating the main steam pipe tunnel from the feedwater pipe tunnel is also deleted as a rated fire barrier. These are discussed in Attachment B, item 5. Below-grade exterior walls and floors

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PAGE NO(s)

DESCRIPTION

	<p>in several auxiliary building locations are deleted as rated fire barriers. This is discussed in Attachment B, item 7. Fire zone numbers and boundaries are added. Minor changes reflect "as-built" plant conditions.</p>
<p>Figure 2.3-13 (Sheet 2)</p>	<p>The below-grade exterior containment walls are deleted as rated fire barriers. This is discussed in Attachment B, item 1. Below-grade exterior walls of the main-steam and feedwater pipe tunnels are deleted as rated fire barriers. The floor separating the main steam pipe tunnel from the feedwater pipe tunnel is deleted as a rated fire barrier. These are discussed in Attachment B, item 5. Below-grade exterior walls and floors in several auxiliary building areas are deleted as rated fire barriers. This is discussed in Attachment B, item 7, along with a few internal floor fire barrier deletions. Fire zone numbers and boundaries are added. Other minor changes reflect the "as-built" conditions of the plant.</p>
<p>Figure 2.3-14 (Sheet 1)</p>	<p>The below-grade exterior walls and floor of the containment are deleted as rated fire barriers. This is discussed in Attachment B, item 1. Below-grade exterior walls of the main steam and feedwater pipe tunnels are deleted as rated fire barriers. The floor separating the main steam pipe tunnel from the feedwater pipe tunnel is deleted as a rated fire barrier. These are discussed in Attachment B, item 5. Below-grade exterior walls of the auxiliary building and the re-fueling water pipe tunnel are deleted as rated fire barriers. These are discussed in Attachment B, items 4 and 6, respectively. Fire zone numbers and boundaries are added. Other minor changes reflect "as-built" plant conditions.</p>
<p>Figure 2.3-14 (Sheets 2 and 4)</p>	<p>Below-grade exterior walls of the turbine building are deleted as rated fire walls. This is discussed in Attachment B, item 18. Fire zone numbers and boundaries are added. Other minor changes reflect the "as-built" plant conditions.</p>

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<u>PAGE NO(s)</u>	<u>DESCRIPTION</u>
Figure 2.3-14 (Sheet 3)	The below-grade exterior walls and floor of the containment are deleted as rated fire barriers. This is discussed in Attachment B, item 1. Below-grade exterior walls of the main steam and feedwater pipe tunnels are deleted as rated fire barriers. The floor separating the main steam pipe tunnel from the feedwater pipe tunnel is deleted as a rated fire barrier. These are discussed in Attachment B, item 5. Below-grade exterior walls of the auxiliary building and the re-fueling water pipe tunnel are deleted as rated fire barriers. Also, the interior floor between 19-21/Q-W is deleted as a rated fire barrier. These are discussed in Attachment B, items 4 and 6. Fire zone numbers and boundaries are added. Other minor changes reflect "as-built" plant conditions.
Figure 2.3-15	The below-grade exterior walls and floors of the auxiliary building are deleted as rated fire barriers. This is discussed in Attachment B, item 3. Fire zone numbers and boundaries are added. Other minor changes reflect the "as-built" plant conditions.
Figure 2.3-16	The below-grade exterior walls and floors have been deleted as rated fire barriers. This is discussed in Attachment B, item 2.
Figures 2.3-17 and 2.3-18	Minor changes to fire wall ratings and locations are addressed in Attachment B, items 13 through 16. Fire zone numbers and boundaries are added. Minor changes reflect the "as-built" plant conditions.
Figures 2.3-19 and 2.3-20	The exterior walls and floor of the fuel handling building have been deleted as rated fire barriers. This is discussed in Attachment B, item 12. Fire zone numbers and boundaries are added. Other minor changes reflect the "as-built" condition of the plant.
Figures 2.3-21 through 2.3-26	The background of these drawings has been updated, where required, to agree with the current general arrangement drawings. Fire barrier symbols have been deleted from all of these drawings. These drawings are no longer utilized to define fire barriers. The plan views provided in Figures 2.3-1 through 2.3-20 and the corresponding text of Section 2.3 present descriptions of all rated fire barriers.

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<u>PAGE NO(s)</u>	<u>DESCRIPTION</u>
Figures 2.3-27 and 2.3-28	Minor changes reflect the "as-built" plant conditions.
Figure 2.3-29	The exterior walls of the diesel oil storage tank rooms are shown as 3-hour rated fire walls, although one nonrated penetration is present in each wall. This is discussed in Attachment B, item 20. Other minor changes reflect the "as-built" plant condition.
Figure 2.3-30	Minor changes reflect the "as-built" plant condition.
Figures 2.3-31 (Sheets 1 and 2)	Fire ratings have been deleted from various valve chamber walls and from portions of the walls of the cooling tower switchgear rooms. These changes are discussed in Attachment B, item 17. Fire zone numbers and boundaries are added.
Figures 2.3-32 through 2.3-40	On some of these figures, the background has been updated as required to agree with current general arrangement drawings and other FPR figures. All figures are included for completeness.
Figure 2.3-41	This is a new figure which now shows the condensate clean-up and technical support center building.
3-1	Remaining NFPA code deviations for equipment in non-safety-related areas (i.e., ones that do not affect safe shutdown) have all now been addressed. Paragraph 2 is revised to indicate this.
3-4 through 3-16, 3-19 through 3-31, 3-34 and 3-35, 3-37 and 3-38, 3-40 and 3-41, and 3-43 through 3-48	The status and schedule for resolving NFPA code deviations are revised to reflect the current status. Code deviations for non-safety-related equipment/areas are addressed. In accordance with license condition 6d, all modifications to equipment in safety-related areas resulting from the NFPA code review will be completed prior to exceeding 5% power. Any modifications to equipment in non-safety-related areas will be completed in accordance with the schedule specified for these items in this amendment.

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PAGE NO(s)

DESCRIPTION

A5.2-3

Item b under "Fire Suppression for Cable Spreading Areas" is clarified to clearly indicate that only one CO₂ suppression system is provided for the lower cable spreading areas as explained in CECO's September 19, 1984 letter from T. R. Tramm to H. R. Denton. This is consistent with license condition 6e. An editorial change is made in the last paragraph.

A5.4-2

Paragraph 3 is revised to indicate that fire hydrants are "approximately" 250 feet apart instead of "no more than" 250 feet apart. This is acceptable and does not represent a decrease in the level of fire protection, since a review for each station has verified that adequate coverage is provided by the existing arrangements for all structures and yard areas. A clarification is added to the last paragraph regarding water system isolation valves.

A5.4-4

Editorial change.

A5.4-5

Paragraph 4 is revised to indicate that not all isolation valves are supervised. Some are either locked or sealed open. This is in accordance with NFPA codes. Item a in the following paragraph is expanded to include a second possible mode of system operation. Item b is revised to indicate that loss of electrical power is not included in the hazard area "trouble" alarm.

A5.4-6

Paragraphs 1 and 2 are revised to indicate that the foam systems for the 50,000-gallon diesel oil storage rooms are now manual systems. This change was made in response to a Staff concern (refer to question 280.1) and completes a change made previously in Revision 3 to the FPR (June 1984) on page 2.3-92. A typographical error is corrected in paragraph 4. At the bottom of the page, a revision is made to the conditions which initiate the hazard area trouble alarm.

A5.4-7

The statement regarding how the foam systems are tested is revised to explain more clearly the testing procedure.

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<u>PAGE NO(s)</u>	<u>DESCRIPTION</u>
A5.4-8 and A5.4-8a	The description of the Halon system is expanded to include the modifications made to improve the system reliability. These were previously described to the NRC in a June 17, 1983 letter. The manual actuation procedure for both systems is clarified by adding reference to the zone selector valves.
A5.4-9	The halon system trouble alarm inputs are revised.
A5.4-11 and A5.4-11a	The first paragraph is revised to state the ionization detectors also initiate the CO ₂ system in the cable tunnels. The CO ₂ system description is expanded to describe the modifications which were made to improve the system reliability for the lower cable spreading areas. These modifications were previously described for the NRC in a September 19, 1984 letter. Editorial changes are made to the description of indicating lights for the system.
A5.4-12	Clarifications are added to the description of the ESF power supplies for the system. The last paragraph regarding testing is deleted. All CO ₂ systems have been tested in accordance with the applicable NFPA codes. Procedures to periodically test the systems in accordance with the NFPA codes are available at the stations.
A5.4-13	Clarifications regarding nozzles supplied for hose stations throughout the plant and hoses for the cable spreading areas are added. These changes are consistent with commitments previously made in Table 3-1 and Section 2.3. The paragraph on portable extinguishers is updated to reflect the current status.
A5.4-14	The third paragraph is revised to include the diesel oil storage tank rooms and to update the status of the cable spreading rooms detection systems.
A5.4-18	Sprinkler coverage of the component cooling pumps is added.

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<u>PAGE NO(s)</u>	<u>DESCRIPTION</u>
A5.4-23	Editorial correction.
A5.4-26	Suppression zone numbers are added for each system. The data under "Nozzles," "Heat Actuated Devices," and "Water Requirements" are updated to reflect the "as-built" conditions.
A5.4-27	Editorial corrections are made to the area headings. Data under "Sprinkler Heads" and "Flow Requirements" are updated to reflect the "as-built" conditions.
A5.4-28	Editorial corrections are made to the area headings. Data under "Flow Rate" and "Detectors" are revised to reflect the "as-built" condition. Note 1 is added to the table.
A5.4-29	Editorial corrections are made to the area headings and item 6. Data for detector quantity and Halon quantity discharged are updated to reflect "as-built" conditions. Item 5 was revised to reflect the actual concentration received instead of the design concentration. New line 7, "Holding Time" is added.
A5.4-30, A5.4-31 and A5.4-32	Editorial corrections are made to the area headings. Data for detector quantity, CO ₂ quantity, and duration of discharge are updated to reflect the "as-built" conditions. Item 10, "PredischARGE Time" is added.
Figure A5.4-1	This figure is revised to include more detail.
A5.8.23-1	This page is revised to indicate that the modification committed to has been completed.

ATTACHMENT B

SAFETY ANALYSIS OF FIRE BARRIER DELETIONS AND CHANGES

The following discussions provide a safety analysis of all fire barrier deletions and changes (down ratings only) included and described in Amendment 6 of the Fire Protection Report. All remaining fire barriers are precisely defined on Fire Barrier Location Drawings (not provided in the FPR) and are shown as accurately as possible in the FPR on the multi-color figures in Section 2.3. These fire barriers and each of their penetrations are subject to the surveillance and testing requirements of Technical Specification 3/4.7.11, "Fire Rated Assemblies".

1. Containment Building

The containment building floor slab, walls, and dome are deleted as rated fire barriers. Also deleted as rated fire barriers are all containment buttress structural enclosures except as follows: the buttress enclosure exterior structural walls for the one buttress nearest the system auxiliary transformer are maintained as 2-hour rated fire barriers from grade elevation (401 feet 0 inches) up to elevation 451 feet 0 inches. This barrier is provided to protect the buttress structure and post-tensioned tendons from an exposure fire at the system auxiliary transformers. There is no fire hazard to any of the buttress enclosures below grade and there is no significant exposure fire hazard to the other two buttress enclosures above grade. The walls, roof, and door of the structure enclosing the emergency personnel access hatch at elevation 401 feet 0 inches are maintained as 2-hour rated fire barriers to protect the hatch from an exposure fire at the system auxiliary transformer.

The containment building floor slab, walls, and dome are a minimum of 3-foot thick reinforced concrete. This structure could easily qualify as a 3-hour rated fire barrier if the penetrations through the walls were fire rated. The mechanical (piping, ventilation) and electrical penetrations are not designed as fire rated assemblies. Neither is the equipment access hatch at elevation 426 feet 0 inches. However, all of these penetrations are designed to maintain containment integrity following a LOCA or steamline break inside containment, with resulting containment pressures of up to 50 psig, and temperatures approaching 300° F. This requirement results in a very substantial construction for these penetrations so that they could withstand any fire exposure which can reasonably be postulated. Furthermore, the testing and surveillance requirements for maintenance of containment integrity are more rigorous than those for fire barriers.

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The containment walls are not relied upon to separate redundant safe shutdown equipment or cables. Thus, due to the substantial design and construction of the containment and its penetrations and the rigorous testing and surveillance requirements applied to them, deletion of the fire rating of the containment will have no safety significance and the level of fire protection in the plant will not be decreased.

(Affected FPR Figures: 2.3-3 (Sheet 1), 2.3-3 (Sheet 3), 2.3-4, 2.3-5, 2.3-6, 2.3-8 (Sheet 1), 2.3-8 (Sheet 3), 2.3-10 (Sheet 1), 2.3-10 (Sheet 3), 2.3-11, 2.3-12 (Sheet 1), 2.3-12 (Sheet 3), 2.3-13 (Sheet 1), 2.3-13 (Sheet 2), 2.3-14 (Sheet 1), and 2.3-14 (Sheet 3).)

2. Auxiliary Building Elevation 330 feet 0 inches

The floor slab and exterior walls are deleted as rated fire barriers. As this is below grade, there is no fire hazard and thus no need for a fire rating. This change does not result in a decrease in the level of fire protection in the plant.

(Affected FPR Figure: 2.3-16.)

3. Auxiliary Building Elevation 346 feet 0 inches

The rating of the floor slabs at elevations 343 feet 0 inches and 346 feet 0 inches, where previously shown, are now deleted. The ratings of the exterior walls are also deleted except for those portions of column/row L which are common to the turbine building. The deleted floor and wall areas are below grade and there is no fire hazard. Thus, this change does not result in a decrease in the level of fire protection in the plant.

(Affected FPR Figure: 2.3-15.)

4. Refueling Water Pipe Tunnels

The Units 1 and 2 refueling water pipe tunnels are deleted as 3-hour rated fire barriers. As they are below grade, there is no fire hazard and thus no need for a fire rating.

(Affected FPR Figures: 2.3-14 (Sheet 1) and 2.3-14 (Sheet 3).)

5. Main Steam and Feedwater Pipe Tunnels

The exterior below grade walls, floor, and ceiling of the main steam and feedwater pipe tunnels are deleted as rated fire barriers. As this is below grade, there is no fire hazard and no need for a fire rating.

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The floor separating the main steam pipe tunnel from the feedwater pipe tunnel is deleted as a rated fire barrier. This floor does not separate redundant safe shutdown equipment or cables, and thus it is not required for safe shutdown. Furthermore, there are negligible amounts of combustible materials in the pipe tunnels and, for this reason also, there is no need for a rated fire barrier between them.

The wall at column/row Q between 7 and 10 and the diagonal wall from Q/7 to the containment are deleted as rated fire barriers. The room between the pipe tunnels and the containment has no equipment and a negligible combustible materials inventory, thus, there is no safe shutdown significance to deleting the wall rating. The equivalent walls on the Unit 2 side are also deleted.

The exterior walls of the safety and relief valve houses above grade retain their fire rating as required to protect the equipment from an exposure fire at the transformers.

(Affected FPR Figures: 2.3-13 (Sheet 1), 2.3-13 (Sheet 2), 2.3-14 (Sheet 1), and 2.3-14 (Sheet 3).)

6. Auxiliary Building Elevation 364 feet 0 inches

All exterior walls are deleted as rated fire barriers except those discussed in the next paragraph. The deleted barriers are below grade, so there is no fire hazard and thus no need for a fire rating.

Exterior walls along column/row 4-8/P from elevation 377 feet to 383 feet and column/rows 8/L-P, 4-8/L, 28/L-M, and 28-32/L from elevation 373 feet 6 inches to 383 feet are retained as 3-hour rated barriers since they are common barriers to the diesel oil storage tank rooms. Also, the wall along column/row 16-20/W from elevation 379 feet to 383 feet is retained as a 3-hour rated fire barrier since this wall is common to the fuel handling building.

The wall separating the SI pump 1B room and the CV pump 1B room, the wall separating the SI pump 2B room and the CV pump 2B room, and the floors inside these pump rooms are deleted as 3-hour rated barriers. These barriers do not separate redundant safe shutdown equipment or cables and thus there is no need for a fire rating.

The floor of the RHR heat exchanger 2B room, the CV pump 2A room, the Unit 2 positive displacement charging pump room, the RHR heat exchanger 2A room, and the SI pump 2A room is deleted as a 3-hour rated barrier. The floor does not separate redundant safe shutdown equipment or cables.

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The barrier changes for elevation 364 feet do not result in a decrease in the level of fire protection in the plant.

(Affected FPR Figures: 2.3-14 (Sheet 1) and 2.3-14 (Sheet 3).)

7. Auxiliary Building Elevation 383 feet 0 inches

The exterior walls along column/rows 6/L-P, 12-16/Y, 20-24/Y, and 32/L-N have been deleted as 3-hour rated fire barriers. As they are below grade, there is no fire hazard and thus no need for a fire rating.

The floors of the Units 1 and 2 diesel fuel oil storage tank rooms have been deleted as 3-hour rated barriers. These "exterior" floors are below grade so there is no fire hazard and thus no need for a fire rating.

Also, the floor of the radwaste pipe tunnel (column/row 24-32/N-P) and the floor of the Unit 2 letdown and seal water heat exchanger rooms are deleted as 3-hour rated barriers. These floors do not separate redundant safe shutdown equipment or cables and thus there is no need for a fire rating.

The barrier changes for elevation 383 feet do not result in a decrease in the level of fire protection in the plant.

(Affected FPR Figures: 2.3-13 (Sheet 1) and 2.3-13 (Sheet 2).)

8. Auxiliary Building Elevation 401 feet 0 inches

The floors on both sides of the demineralizer area (column/rows 15-17/Q-W and 19-21/Q-W) and the floor of the surface condenser rooms (column/row 23-26/N-Q), except for a portion of the floor of room "A", are deleted as 3-hour rated fire barriers. These floors do not separate redundant safe shutdown equipment or cables and thus there is no need for a fire rating.

The barrier changes for elevation 401 feet do not result in a decrease in the level of fire protection in the plant.

(Affected FPR Figures: 2.3-12 (Sheet 1) and 2.3-12 (Sheet 3).)

9. Auxiliary Building Elevation 414 feet 0 inches

The 3-hour rated barriers enclosing the stairwells at column/rows 11-12/Q and 24-25/Q have been derated to 2-hour rated fire barriers. This change is in conformance with the requirements for stairwell barriers and does not result in a decrease in the level of fire protection in the plant.

(Affected FPR Figure: 2.3-11.)

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10. Auxiliary Building Elevation 426 feet 0 inches

The floor of the waste gas compressor and concentrates holding tank rooms (column/row 24-26/L-M) has been deleted as a 3-hour rated fire barrier. This floor does not separate redundant safe shutdown equipment or cables and thus there is no need for a fire rating.

(Affected FPR Figure: 2.3-10 (Sheet 3).)

11. Auxiliary Building Elevation 401 feet 0 inches

The exterior walls at column/rows 13-15/W and 21-23/W have been deleted as 3-hour rated fire barriers. These walls do not separate redundant safe shutdown equipment or cables. These walls are not considered to be subject to an external exposure fire and thus no fire rating is needed. This change does not result in a decrease in the level of fire protection in the plant.

(Affected FPR Figures: 2.3-8 (Sheet 1) and 2.3-8 (Sheet 3).)

12. Fuel Handling Building Elevations 401 feet 0 inches and 426 feet 0 inches

The exterior walls and roof of the fuel handling building have been deleted as rated fire barriers. There are no significant external fire hazards near this building. The interior walls and sliding steel doors at 13-15/W and 15/U-W on the Unit 1 side and 21-23/W and 21/U-W on the Unit 2 side are deleted as rated fire barriers. These walls separate the containment personnel/equipment hatch from the rest of the fuel handling building. They do not separate redundant safe shutdown equipment or cables nor are there significant in-situ fire hazards which require their presence. Thus, their elimination does not represent a decrease in the level of fire protection in the plant.

The walls and floors separating the fuel handling building from the auxiliary building are maintained as 3-hour rated fire barriers. A review of all penetrations of this barrier has revealed that eight wall and floor ventilation penetrations lack fire dampers. These penetrations are in walls and floors which separate the fuel handling building from the Unit 1 and Unit 2 pipe penetration areas (Fire Zones 11.3-1 and 11.3-2). Since the barriers in question do not separate redundant safe shutdown equipment or cables, and there is no safe shutdown equipment or cables in the fuel handling building, the lack of dampers in these eight penetrations is found to be acceptable. The walls and floors will continue to be shown with a 3-hour rating to ensure that the barrier is surveilled and maintained in accordance with the Technical Specifications and applicable station procedures.

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(Affected FPR Figures: 2.3-3 (Sheet 1), 2.3-3 (Sheet 3), 2.3-8 (Sheet 1), 2.3-8 (Sheet 3), 2.3-10 (Sheet 1), 2.3-10 (Sheet 3), 2.3-19, and 2.3-20.)

13. Radwaste/Service Building Complex Elevation 401 feet 0 inches

The elevator shaft exterior walls at column/rows 38-39/A and 44-44.5/A and the stairwell wall at 36-36.5/E have been deleted as 2-hour rated fire barriers. Also, the wall at 37-45/G has been derated to a 2-hour rated fire barrier. The radwaste/service building complex does not contain safe shutdown equipment or cables and, therefore, 3-hour rated fire barriers are not needed. These changes do not decrease the level of fire protection in the plant.

(Affected FPR Figure: 2.3-18.)

14. Radwaste/Service Building Complex Elevation 417 feet 0 inches

The elevator shaft exterior walls at column/rows 38-39/A and 44-44.5/A and the stairwell walls at column/rows 36.5/G.2-G.8 and 42-43/C have been deleted as 2-hour rated fire barriers. The radwaste/service building complex does not contain safe shutdown equipment or cables and, therefore, 2-hour rated fire barriers are not required. These changes do not decrease the level of fire protection in the plant.

(Affected FPR Figure: 2.3-18.)

15. Radwaste/Service Building Complex Elevation 433 feet 0 inches

The elevator shaft exterior wall at column/row 38-39/A and the exterior walls at column/rows 44-45/A and 45/A-A.4 have been deleted as 2-hour rated fire barriers. The duct walls at 41.5/D-D.1 and 41.5-43/D have been deleted as 3-hour rated fire barriers. There is no safe shutdown equipment or cables in the radwaste/service building complex and, thus, 2-hour and 3-hour rated fire barriers are not required. These changes do not decrease the level of fire protection in the plant.

(Affected FPR Figure: 2.3-17.)

16. Radwaste/Service Building Complex Elevation 451 feet 0 inches

The elevator shaft exterior wall at 44-44.5/A has been deleted as a 2-hour rated fire barrier. There is no safe shutdown equipment or cables in the radwaste/service building complex and, thus, 2-hour or 3-hour rated fire barriers are not needed. This change does not decrease the level of fire protection in the plant.

(Affected FPR Figure: 2.3-17.)

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17. Byron Essential Service Cooling Towers

All walls at the essential service cooling towers, except for those walls dividing the Unit 1 and Unit 2 electrical equipment room and the exterior wall separating the rooms from the respective entrance ramps, have been deleted as 3-hour rated fire barriers. The deleted barriers do not separate redundant safe shutdown equipment or cables and thus no fire rating is needed. These changes do not decrease the level of fire protection in the plant.

(Affected FPR Figures: 2.3-31 (Sheet 1 and Sheet 2).)

18. Turbine Building

All turbine building exterior walls below grade (369 feet to 401 feet) have been deleted as 3-hour rated fire barriers. Also, certain walls at column/row 35-37/E-G on elevation 401 feet have been deleted as 3-hour rated fire barriers. The walls below grade are not subject to an external fire hazard. Furthermore, there is no safe shutdown equipment or cables in the turbine building. Thus, there is no need for a fire rating for these walls. These changes do not decrease the level of fire protection in the plant.

(Affected FPR Figures: 2.3-14 (Sheet 2 and Sheet 4).)

19. "L" Wall at Elevation 451 feet 0 inches

This wall is currently shown as a 3-hour rated fire barrier on the FPR figures and is so described in the text. A review of all penetrations through this wall has revealed that two ventilation penetrations exist without fire dampers. One of these penetrations is located between 10-11/L and separates the turbine building main floor from the Train A control room ventilation equipment room. The other penetration is located between 25-26/L and separates the turbine building main floor from the Train B control room ventilation equipment room. These two ventilation equipment rooms and hence, the penetrations which lack fire dampers, are located over 200 feet apart. The turbine building main floor is a large open area with a very low combustible inventory. No credible fire can be postulated in this area which could simultaneously affect both ventilation equipment rooms which are separated by over 200 feet. Any credible fire would affect at most one train of control room ventilation equipment and thus could not affect safe shutdown of either unit. In addition, each of the control room ventilation equipment rooms is separated from adjacent auxiliary building rooms by 3-hour rated walls and floors. Thus a fire that spreads from the turbine building into one of these

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rooms would not spread any further. Since safe shutdown of either unit could not be affected, the lack of fire dampers in these two penetrations is acceptable and does not represent a decrease in the level of fire protection in the plant. The walls will continue to be shown and described as 3-hour rated fire barriers to ensure that they will be surveilled and maintained as rated fire barriers in accordance with the Technical Specifications and applicable station procedures.

(Affected FPR Figure: 2.3-8 (Sheet 1 and Sheet 3).)

20. Byron River Screen House

The walls and floors of both diesel oil storage tank rooms in the Byron River Screen House are described in the FPR as having a 3-hour rating. A review of all penetrations in these barriers has revealed that one ventilation penetration in the exterior wall of each room is lacking a fire damper. In each case, the opening is for a room exhaust fan. The exterior wall in each case does not separate redundant safe shutdown equipment or cables, nor are significant exterior fire hazards present. Thus the lack of a fire damper in each case could not affect safe shutdown of either unit and does not represent a decrease in the level of fire protection in the plant. The walls will continue to be shown and described as 3-hour rated fire barriers to ensure that they will be surveilled and maintained as such in accordance with the Technical Specifications and applicable station procedures.

21. Pipe Tunnel in Radwaste and Remote Shutdown Control Room

The floor, walls, and ceiling of the radwaste and remote shutdown control room (Fire Zone 11.4C-0) are described in the text and shown in the figures of the FPR as having a 3-hour fire rating. An "L" shaped pipe tunnel passes through this room, suspended from the ceiling at elevation 401 feet 0 inch. The pipe tunnel passes through the 23 wall between L and M, turns left, and passes through the P wall between 23 and 24. The interior of the pipe tunnel is not provided with fire rated seals as it passes through the fire walls at column-rows 23/L-M and P/23-24. In addition, an unsealed ventilation penetration into the pipe tunnel is located in the 401 feet 0 inch floor in the area between 23-24/L-M. Thus, there are three unsealed penetrations through the fire barriers provided for the radwaste and remote shutdown control room. Although the floor and walls of this tunnel are of substantial construction, and are capable of carrying a fire rating, the structural steel supporting the tunnel is not fireproofed, and therefore,

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the tunnel is not fire rated. A discussion of the effect on safe shutdown of collapse of this tunnel was previously provided to the NRC by letter dated January 16, 1984. This showed that safe shutdown would not be prevented since alternate instrumentation and controls are available.

A review of each of the unsealed penetrations shows that the lack of fire ratings will not compromise safe shutdown capability. The fire walls at 23 and P separate the radwaste and remote shutdown control room (Fire Zone 11.4C-0) from the auxiliary building general area at elevation 383 feet 0 inch (Fire Zone 11.4-0). These walls do not separate redundant safe shutdown equipment. In fact, all of the cables for the remote shutdown panels instruments and controls are routed through Fire Zone 11.4-0 into Fire Zone 11.4C-0. The safe shutdown analysis has previously shown that a fire in either area will not prevent safe shutdown, and since the same cables are routed in both areas, a fire in both will not prevent safe shutdown. The unsealed ventilation penetration in the floor at elevation 401 feet 0 inch separates Fire Zone 11.4C-0 from Fire Zone 14.2-0 above. Fire Zone 14.2-0 contains only radwaste equipment, has no safe shutdown equipment or cables, and in fact, has a negligible fire loading due to the lack of in situ combustible materials. Thus, this unsealed penetration could not affect safe shutdown since it does not separate redundant safe shutdown components.

The cable tunnel itself does not represent a likely path for the spread of fire since it contains only piping, has no identified in situ combustible materials, and hence, has a negligible fire load. In summary, the lack of fire rated seals in the three identified penetrations does not represent a decrease in the level of fire protection since safe shutdown is not compromised as a result. The wall and ceiling will continue to be shown and described as 3-hour rated barriers to ensure that they will be surveilled and maintained as such in accordance with the Technical Specifications and applicable station procedures.

ATTACHMENT C

EVALUATION OF CHANGES TO COMBUSTIBLE INVENTORIES

Introduction

The combustible inventories and calculated fire loadings presently in the Fire Protection Report were originally prepared in 1977, and with a few exceptions, have not been updated. For Amendment 6, new combustible inventories have been prepared based on a field survey and a review of current design documents. Also, the floor areas of each fire zone have been recalculated based on the most recent structural and architectural drawings. As a result, the calculated fire loadings (Btu/ft²) have increased in many fire zones.

Attachment C contains an evaluation of each fire zone for which the calculated fire loading has increased. This evaluation was made to determine whether or not the increased fire loading represents a decrease in the level of fire protection provided for the plant. Factors considered in the evaluations include: whether the fire loading increased due to an increased combustible inventory, a decreased floor area, or both; the nature and distribution of any newly identified combustible materials; fire protection features such as fire barriers and extinguishing capability; and whether or not safe shutdown of the plant could be affected. Any increased fire loading in a fire zone within the turbine building, service building or any other outdoor location or remote structure is assumed to have no effect on safe shutdown capability, since they are separated from safe shutdown components by either 3-hour rated barriers, walls or floors of 3-hour construction, or distance. For each fire zone evaluated, each of these factors was considered, although the written evaluations may not mention each factor. In general, if the new higher fire loadings are comparable to previously accepted fire loadings in other fire zones with similar fire hazards and similar fire protection features, then they are deemed to be acceptable and are not considered to represent a decrease in the level of fire protection.

Evaluation for each fire zone with an increase in the calculated fire loading follows.

EVALUATION OF CHANGES TO COMBUSTIBLE INVENTORIES (Cont'd)

<u>FIRE ZONE</u>	<u>OLD FIRE LOADING</u>	<u>NEW FIRE LOADING</u>	<u>EVALUATION</u>
1.1-1	38,600	61,300	<p>The primary reason for the increased fire loading is the reduction in floor area used for its calculation. Actual floor area is used instead of gross fire zone area. Seven deviations from the guidelines of Appendix R have been identified for safe shutdown cables or components inside containment for Byron Unit 1. These are discussed in detail as deviations C.1 through C.7 in Appendix A5.8. All three containment fire zones are involved with one or more of these deviations. The increased fire loadings inside containment do not change the basis for justifying these Appendix R deviations. Thus, safe shutdown is not affected by the increased fire loading. The Unit 2 safe shutdown analysis has not yet been performed. The increased fire loadings will be considered when that analysis is performed. The new loading is comparable to other plant areas having manual extinguishing capability and does not represent a decrease in the level of fire protection.</p>
1.1-2	38,600	61,100	
1.3-1	10,000	18,900	<p>The primary reason for the increased fire loading is the use of actual floor area instead of gross fire zone area. The new loading is comparable to other plant areas having manual extinguishing capability and does not represent a decrease in the level of fire protection. Refer to the discussion for Fire Zones 1.1-1/1.1-2 of safe shutdown effects.</p>
1.3-2	10,000	17,900	
2.1-0	10,900	18,600	<p>The increased fire loading is due partially to an increased inventory of cable insulation and partially</p>

EVALUATION OF CHANGES TO COMBUSTIBLE INVENTORIES (Cont'd)

<u>FIRE ZONE</u>	<u>OLD FIRE LOADING</u>	<u>NEW FIRE LOADING</u>	<u>EVALUATION</u>
			to a decrease in the floor area used for the calculation. This zone has 3-hour rated boundaries so the increased fire loading will not affect the safe shutdown analysis. The new loading is comparable to other areas having manual extinguishing capability and does not represent a decrease in the level of fire protection.
2.1-1	42,300	45,600	The increase in the fire loading is not large enough to be significant. Also, this zone has 3-hour rated boundaries, so the increased fire loading will not affect the safe shutdown analysis.
3.2B-1	27,800	44,000	The increased fire loading is due primarily to a larger inventory of cable insulation. These zones all have 3-hour rated boundaries, so the increased fire loadings will not affect the safe shutdown analysis. The resulting fire loading is comparable to that of other fire zones protected with an automatic CO ₂ suppression system and does not represent a decrease in the level of fire protection.
3.2B-2	26,600	42,200	
3.2C-1	25,300	69,800	
3.2C-2	25,300	39,300	
3.3A-1	48,400	65,700	The increases in the fire loading are due partially to increases in the amount of cable insulation present and partially to decreases in the floor areas used for the calculations. These zones have 3-hour rated boundaries, so the increased fire loading will not affect the safe shutdown analysis. The new fire loadings are comparable to those in other areas with automatic gaseous suppression systems, and do not represent a decrease in the level of fire protection.
3.3A-2	48,400	52,300	
3.3B-1	51,500	98,900	
3.3B-2	51,500	87,500	
3.3C-1	37,700	96,900	
3.3C-2	37,700	75,200	
5.3-1	5,500	5,900	The increase in the fire loading is due primarily to the inclusion of gasketing and does not represent a significant increase in the fire hazard for the room.
5.3-2	5,500	5,900	

EVALUATION OF CHANGES TO COMBUSTIBLE INVENTORIES (Cont'd)

<u>FIRE ZONE</u>	<u>OLD FIRE LOADING</u>	<u>NEW FIRE LOADING</u>	<u>EVALUATION</u>
			These zones have 3-hour rated boundaries, so the increased fire loading will not affect the safe shutdown analysis.
5.5-1	31,900	34,700	The increases in fire loading are due primarily to decreases in the floor area used for its calculations. These zones have 3-hour rated boundaries, so the increased fire loading will not affect the safe shutdown analysis. The new loading is comparable to other areas having manual extinguishing capability and does not represent a decrease in the level of fire protection.
5.5-2	31,900	32,600	
8.1-0	4,490,000	5,010,000	The increase in the fire loading is due primarily to a decrease in the floor area used for its calculations. Since the increase in the combustible inventory is negligible, the automatic sprinkler system is still adequate for suppression and the change does not represent a decrease in the level of fire protection.
8.3-1	56,600	62,200	The increase in the fire loading is due primarily to decreases in the floor area used for its calculations. The new loading is comparable to other areas having manual extinguishing capability and does not represent a decrease in the level of fire protection.
9.2-1	103,000	193,000	The increases in fire loading are due to decreases in the floor area used for its calculations. These rooms have 3-hour rated boundaries, so the increased fire loading will not affect the safe shutdown analysis. The new loading is comparable to other areas having an automatic total flooding CO ₂ system and does not represent a decrease in the level of fire protection.
9.2-2	103,000	198,000	

EVALUATION OF CHANGES TO COMBUSTIBLE INVENTORIES (Cont'd)

<u>FIRE ZONE</u>	<u>OLD FIRE LOADING</u>	<u>NEW FIRE LOADING</u>	<u>EVALUATION</u>
9.3-1	1,760,000	1,770,000	The slight increase in the fire loading is due to a difference in rounding off the results of the fire loading calculations.
9.3-2	1,760,000	1,770,000	
9.4-1	1,760,000	1,770,000	
9.4-2	1,760,000	1,770,000	
10.1-1	9,060,000	9,950,000	The increases in fire loadings are due partially to increased combustible inventories (the floor sumps are conservatively assumed to be full of oil) and partially to decreased floor areas used for the calculations. These rooms are separated from other plant areas by 3-hour rated barriers. The increases in the calculated fire loadings are not sufficient to affect the level of fire protection.
10.1-2	6,410,000	9,430,000	
10.2-1	7,350,000	8,360,000	
11.1A-0	9,100	47,600	The increases in fire loading are due to the increase in the amount of lube oil present in the zone. The new loading is comparable to other areas having manual extinguishing capability and does not represent a decrease in the level of fire protection. Both of these zones have only one division of safe shutdown equipment or components present, but redundant equipment or cables are present in Fire Zone 11.2-0 located above these zones, and the floor at elevation 346'-0" is not fire rated. This was the subject of Appendix R deviations A.1 and A.2 in Appendix A5.8. The increased fire loadings here are not sufficiently large to change the basis for justifying these two Appendix R deviations. Thus, there will be no effect upon safe shutdown capability.
11.1B-0	9,100	44,800	

EVALUATION OF CHANGES TO COMBUSTIBLE INVENTORIES (Cont'd)

<u>FIRE ZONE</u>	<u>OLD FIRE LOADING</u>	<u>NEW FIRE LOADING</u>	<u>EVALUATION</u>
11.2A-2	15,500	23,600	The increases in fire loading are due partially to the increase in the amount of cable insulation, and partially to decreases in the floor area used for its calculations. The new loading is comparable to other areas having manual extinguishing capability and does not represent a decrease in the level of fire protection. This is a Unit 2 fire zone which is separated from Unit 1 safe shutdown components by significant distance and by walls and floors of substantial construction. Unit 1 safe shutdown will not be affected by the increased fire loading.
11.3A-1	Negligible	1,400	The increases in fire loading for these zones are due primarily to the increase in the amount of lube oil present in the pumps. The new loading is comparable to other areas having manual extinguishing capability and does not represent a decrease in the level of fire protection. Unit 1 Fire Zone 11.3A-1 and all three Unit 2 fire zones do not contain any Unit 1 safe shutdown components, and are separated from plant areas which contain Unit 1 safe shutdown components by distance and by walls and floors of substantial construction. The increased fire loadings in these rooms will thus not affect Unit 1 safe shutdown. Unit 1 Fire Zones 11.3D-1 and 11.3G-1 each contain only one division of safe shutdown components, but they are separated from redundant components by non-rated boundary walls. This is the subject of Appendix R deviations A.10, A.11 and A.12 in Appendix A5.8. The increased fire loadings here are not suf-
11.3A-2	Negligible	1,400	
11.3D-1	16,700	21,400	
11.3D-2	16,700	21,400	
11.3G-1	22,000	31,900	
11.3G-2	22,000	13,200	

EVALUATION OF CHANGES TO COMBUSTIBLE INVENTORIES (Cont'd)

<u>FIRE ZONE</u>	<u>OLD FIRE LOADING</u>	<u>NEW FIRE LOADING</u>	<u>EVALUATION</u>
			<p>ciently large to change the basis for justifying these Appendix R deviations. Thus, there will be no effect on safe shutdown capability.</p>
11.4A-1	128,000	141,000	<p>The increases in fire loading are due primarily to the increased lube oil inventory and to the addition of oil transient load. These rooms are separated from adjacent plant areas by 3-hour rated boundaries. The increased fire loadings will not affect the safe shutdown analysis. The new loading is comparable to other areas having an automatic total flooding CO₂ system and does not represent a decrease in the level of fire protection.</p>
11.4A-2	112,000	130,000	
11.4B-0	Negligible	20,900	<p>The increase in fire loading is due primarily to the increased combustible inventory and partially to a decrease in the floor area used for its calculations. This room has 3-hour rated barriers, and thus the increased fire loading will not affect the safe shutdown analysis. The loading is comparable to other areas having manual extinguishing capability and does not represent a decrease in the level of fire protection.</p>
11.6-1	36,300	39,800	<p>The increases in fire loadings are due to decreases in the floor area used for the calculations. The loadings are comparable to other areas having manual extinguishing capability and do not represent a decrease in the level of fire protection. Fire Zone 11.6-1 contains Division 12 safe shutdown equipment and cables. Redundant Division 11 safe shutdown components are located below this zone in Fire Zone 11.5A-1 and adjacent to this zone in the general area (Fire Zone 11.6-0). The walls and floors</p>
11.6-2	36,300	45,300	
11.6E-0	5,800	9,100	

EVALUATION OF CHANGES TO COMBUSTIBLE INVENTORIES (Cont'd)

<u>FIRE ZONE</u>	<u>OLD FIRE LOADING</u>	<u>NEW FIRE LOADING</u>	<u>EVALUATION</u>
			separating these rooms are not 3-hour rated barriers, but they have been uprated to non-rated fire barrier status. These barriers are described in Section 2.3 and shown on the color figures in Section 2.3. Additionally, the lack of rated fire barriers is the subject of Appendix R deviations A.7 and A.21 described in Appendix A5.8. The increased fire loading in this zone is not sufficient to change the basis for justifying these Appendix R deviations. The other two zones do not contain Unit 1 safe shutdown components, and are separated by both distance and walls of substantial construction from Unit 1 safe shutdown components. Thus, the increased fire loadings in these rooms will not affect safe shutdown of Unit 1.
11.7-0	35,200	69,300	The increase in fire loading is due partially to the addition of grease, gasketing, insulation and cable insulation, and partially to a decrease in the floor area used for the calculation. The loading is comparable to other areas having manual extinguishing capability and does not represent a decrease in the level of fire protection. This zone contains components from both trains of safe shutdown components. This deviation from Appendix R is discussed in Appendix A5.8 as deviation A.26. As discussed in that section, loss of both trains of ventilation equipment present in this zone would not prevent safe shutdown. This increased fire loading does not change this conclusion, and therefore, has no effect on the safe shutdown analysis.

EVALUATION OF CHANGES TO COMBUSTIBLE INVENTORIES (Cont'd)

<u>FIRE ZONE</u>	<u>OLD FIRE LOADING</u>	<u>NEW FIRE LOADING</u>	<u>EVALUATION</u>
11.7-1	2,300	2,800	The increases in fire loading are due partially to the increase in gasketing, and partially, to decreases in the floor area used for its calculations. These zones do not contain any safe shutdown components, and are separated from areas that do by barriers of substantial construction. The increased loading does not affect safe shutdown of the plant. The loading is comparable to other areas having manual extinguishing capability and does not represent a decrease in the level of fire protection.
11.7-2	2,300	2,800	
12.1-0	4,400	5,000	The increase in fire loading is due to decreases in the floor area used for its calculations. This room is separated from other plant areas by either 3-hour rated barriers or by barriers of substantial construction, and thus safe shutdown will not be affected by this increased fire loading. The loading is comparable to other areas having manual extinguishing capability and does not represent a decrease in the level of fire protection.
13.0	138,000	1,610,000	The increase in fire loading is due to the increase in paper volume along with the addition of gasketing and insulation. The loading does not represent a decrease in the level of fire protection, since the room is provided with an automatic total flooding Halon 1301 system, 4-hour rated fire walls and floors are provided, and it is located away from safety-related areas.

EVALUATION OF CHANGES TO COMBUSTIBLE INVENTORIES (Cont'd)

<u>FIRE ZONE</u>	<u>OLD FIRE LOADING</u>	<u>NEW FIRE LOADING</u>	<u>EVALUATION</u>
14.1-0	2,900	5,500	The increase in fire loading is due partially to the addition of cable insulation, and partially to a decrease in the floor area used for the calculation. This zone contains no safe shutdown components and is separated from areas that do by distance and by barriers of substantial construction. Thus, safe shutdown is not affected by the increased fire load. The loading is comparable to other areas having manual extinguishing capability and does not represent a decrease in the level of fire protection.
14.5-0	Negligible	1,100	The increase in fire loading is due partially to the addition of grease and cable insulation, and partially to a decrease in the floor area used for the calculation. This zone contains no safe shutdown components. The new fire loading is so low that the barriers to this room will prevent the spread of fire to adjacent areas and safe shutdown will not be affected. The loading is comparable to other areas having manual extinguishing capability and does not represent a decrease in the level of fire protection.
14.6-0	7,300	21,900	The increase in fire loading is due partially to an increase in oil drum transient load and dry active waste along with additions of gasketing and cable insulation, and partially to a decrease in the floor area used for the calculation. This zone has a partial coverage automatic sprinkler system. The loading is comparable to other areas having only manual suppression capability, and does not represent a decrease in the level of fire protection.

EVALUATION OF CHANGES TO COMBUSTIBLE INVENTORIES (Cont'd)

<u>FIRE ZONE</u>	<u>OLD FIRE LOADING</u>	<u>NEW FIRE LOADING</u>	<u>EVALUATION</u>
18.1-1	5,800	19,500	The increase in the fire loading is due to an increase in the combustible inventory of cable insulation. The boundaries of these zones are 3-hour fire rated barriers. The increased fire loading will thus not affect the safe shutdown analysis. The new fire loading is comparable to other areas having manual extinguishing capability, and does not represent a decrease in the level of fire protection.
18.2-1	4,400	9,100	The increase in the fire loading primarily is due to a decrease in the floor area used for the calculation, and for Zone 18.2-2, also to an increase in the combustible inventory. The boundaries of these zones are 3-hour rated fire barriers. The increased fire loading will thus not affect the safe shutdown analysis. The new fire loading is comparable to other areas having manual extinguishing capability, and does not represent a decrease in the level of fire protection.
18.2-2	4,400	15,200	
18.3-1	1,100	3,000	The increased fire loading is due entirely to a decrease in the floor area used for the calculation. The new loading is comparable to other plant areas having manual extinguishing capability and does not represent a decrease in fire protection. Components and cables from both divisions of safe shutdown equipment are located in Zone 18.3-1. This is identified as a deviation from the requirements of Appendix R and is discussed in Appendix A5.8 as deviation A.27. The increased fire loading
18.3-2	1,100	3,000	

EVALUATION OF CHANGES TO COMBUSTIBLE INVENTORIES (Cont'd)

<u>FIRE ZONE</u>	<u>OLD FIRE LOADING</u>	<u>NEW FIRE LOADING</u>	<u>EVALUATION</u>
			does not change the basis for justifying this deviation, and thus will not affect safe shutdown capability for Unit 1. Zone 18.3-2 contains no Unit 1 safe shutdown components and is separated from Unit 1 areas by considerable distance. Safe shutdown of Unit 1 will not be affected by the increased fire loading in this zone.
18.4-1	89,300	102,000	The increased fire loading is due partially to an increased combustible inventory and partially to a decrease in the floor area used in the calculation. The new loading is acceptable for this area because it is provided with 3-hour rated walls and floors. This does not represent a decrease in the level of fire protection.
18.5-1	6,300	8,700	The increased fire loadings are due partially to increased combustible inventories and partially due to decreased floor areas used for the calculations. The new fire loadings are comparable to other plant areas having manual extinguishing capability, and do not represent a decrease in the level of fire protection. Zones 18.5-1 and 18.5-2 contain no safe shutdown components and are separated from other plant areas by either 3-hour rated fire barriers or barriers of substantial construction. Thus, the increased fire loading in these zones will not affect safe shutdown. The other two zones are located in the service building.
18.5-2	15,100	20,800	
18.6-0	13,100	16,000	
18.9-0	6,000	6,900	

EVALUATION OF CHANGES TO COMBUSTIBLE INVENTORIES (Cont'd)

<u>FIRE ZONE</u>	<u>OLD FIRE LOADING</u>	<u>NEW FIRE LOADING</u>	<u>EVALUATION</u>
18.10A-18,660,000		8,670,000	The increase in the fire loading is due to round-off differences and is not significant.
18.10A-28,660,000		8,670,000	
18.10E-11,060,000		2,120,000	The increase in the fire load is due to a halving of the area used for the calculation. The resulting fire load is comparable to that for other transformers, and does not represent a decrease in the level of fire protection.
18.10E-21,060,000		2,120,000	
18.11-0 (By)	14,500	26,800	The increased fire loadings are due primarily to increased combustible inventories. The new fire loadings are comparable to other plant areas with manual extinguishing capability, and do not represent a decrease in the level of fire protection.
18.11-0 (Br)	14,200	16,500	
18.24-0	Negligible	2,800	The increase in the fire loading is due to an increased combustible inventory. The new fire loading does not represent a significant fire hazard and is not a decrease in the level of fire protection.
18.26-0	1,700	12,200	The increase in the fire loading is due to an increase in the combustible inventory. The new fire loading is comparable to other plant areas with manual extinguishing capability, and does not represent a decrease in the level of fire protection.
18.27-0	5,400	77,200	The new fire loading is due to an increased combustible material inventory. As this structure is an outlying building, and is not adjacent to any safety-related structures, the increased fire loading does not represent a decrease in the level of fire protection.

EVALUATION OF CHANGES TO COMBUSTIBLE INVENTORIES (Cont'd)

<u>FIRE ZONE</u>	<u>OLD FIRE LOADING</u>	<u>NEW FIRE LOADING</u>	<u>EVALUATION</u>
18.28-0	69,300	79,300	The new fire loading is due to an increased combustible material inventory. As this structure is an outlying building, and is not adjacent to any safety-related structures, the increased fire loading does not represent a decrease in the level of fire protection.
18.30-0	2,150,000/ 2,450,000	2,160,000/ 2,470,000	The increased fire loadings are due to slight decreases in the areas used for the calculations. The increases in the fire loadings are too small to be significant, and do not represent a decrease in the level of fire protection.
18.33-0	2,100	8,200	The increased fire loading is due to an increase in the combustible inventory. The new loading is comparable to that of other plant areas with manual extinguishing capability and does not represent a decrease in the level of fire protection.
18.34-0	174,000	663,000	The increased fire loading is due both to an increased combustible inventory and to a decrease in the floor area used for the calculation. As this is an outlying structure which is not adjacent to any safety-related structures, the level of fire protection is not decreased.
18.35-0	Negligible	4,500	The increased fire loading is due to an increased combustible inventory. The new fire loading is comparable to other plant areas having manual extinguishing capability, and does not represent a decrease in the level of fire protection.

EVALUATION OF CHANGES TO COMBUSTIBLE INVENTORIES (Cont'd)

<u>FIRE ZONE</u>	<u>OLD FIRE LOADING</u>	<u>NEW FIRE LOADING</u>	<u>EVALUATION</u>
18.36-0	4,200	4,300	The increased fire loadings are too small to be significant, and thus do not represent a decrease in the level of fire protection.
18.37-0	4,600	4,900	