



Fort Calhoun Station
P.O. Box 550, Highway 75
Fort Calhoun, NE 68023-0550

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NRC

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Chief
Rules and Directives Branch
Mailstop T-6D 59
U. S. Nuclear Regulatory Commission
Washington, DC 20555

- References:
1. Docket No. 50-285
 2. Letter from NRC (J. Cushing) to OPPD (R. T. Ridenoure) dated January 6, 2003

SUBJECT: Comments on the Draft Plant-Specific Supplement 12 to the Generic Environmental Impact Statement Regarding Fort Calhoun Station, Unit 1 (TAC No. MB3402)

The Reference 2 letter transmitted for comments the draft plant-specific Supplement 12 to NUREG-1437, "Generic Environmental Impact Statement for License Renewal of Nuclear Plants," regarding the renewal of the operating license DPR-40 for Fort Calhoun Station, Unit 1.

Attached are the Omaha Public Power District comments on draft Supplement 12 to NUREG-1437. None of the comments have an impact on the conclusions of that document. This letter contains no regulatory commitments.

Please contact T. C. Matthews at 402-533-6938 if you have any questions.

Sincerely,

S. K. Gambhir
Division Manager
Nuclear Projects

TCM/tcm

Attachment

Template = ADH-013

F-RIDS = ADH-03
Call = J.S. Cushing (5XC9)

U. S. Nuclear Regulatory Commission

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Page 2

c: E. W. Merschoff, NRC Regional Administrator, Region IV (w/o Attachment)
A. B. Wang, NRC Project Manager (w/o Attachment)
W. F. Burton, NRC Project Manager (w/o Attachment)
J. S. Cushing, NRC Project Manager
J. G. Kramer, NRC Senior Resident Inspector (w/o Attachment)
NRC Document Control Desk
Winston & Strawn (w/o Attachment)

**Omaha Public Power District (OPPD) Comments on
Draft Supplement 12 of NUREG-1437,
“Generic Environmental Impact Statement
For License Renewal Of Nuclear Plants,”
Regarding Fort Calhoun Station, Unit 1**

1. Executive Summary, Page xvii, Lines 22-24 – This sentence incorrectly indicates that the OPPD application addressed chronic effects from electromagnetic fields. Consistent with Table B-1 of 10 CFR Part 51, subpart A, Appendix B, OPPD did not address this “NA” issue in the Environmental Report (ER) submitted with the license renewal application. This sentence should be revised accordingly.
2. Table 1-1, Page 1-9, Line 7 – Suggest adding a note to the “Permit Expiration or Consultation Date” column to indicate that the NPDES permit provides for ongoing water quality certification.
3. Figure 2-2, Page 2-3 – The Note included within the figure should be removed or revised to refer the reader to Section 2.1.7. It appears this was taken directly from the OPPD ER.
4. Section 2.1.3, Page 2-6, Lines 12 and 13 – This sentence indicates that the potable water supply is discussed in the subsections of this section. However, the municipal water supply and potable water use is discussed in Section 2.2.2. Therefore, the sentence should be revised to read, “Details of the once-through cooling system and groundwater withdrawals are discussed in the following sections.”
5. Section 2.1.3.1, Page 2-6, Line 22 – Delete text “and have recently been repeated at Fort Calhoun Station...”
6. Section 2.1.4.1, Page 2-9, Lines 39-40 and Page 2-10, Lines 1-8 – Revise text as follows, “...tanks located in the containment building; **and** auxiliary building. ~~and chemical and radiation protection (CARP) facility, respectively (OPPD 1999). Auxiliary and reactor wastes are then transferred to liquid waste collection tanks in the radioactive waste processing building (RWPB; OPPD 2001b). In this building~~ **In the Radioactive Waste Processing Building**, liquid wastes can then be processed through a charcoal filter and a demineralizer system, which remove most radioactive materials and dissolved solids. ~~Hotel~~ wastes can also be processed through the filters and demineralizer if necessary. The processed liquid waste is collected in one of two liquid-waste monitoring tanks and is sampled before being released to the overboard header. The overboard header is the only path through which liquid radioactive waste from the **plant** ~~containment building, auxiliary building, CARP facility, and the RWPB~~ can be released to the environment.

7. Section 2.1.4.1, Page 2-10, Line 15 – Correct this sentence to read, “...discharged directly to the ~~condenser~~ **Raw Water System and then to the** circulating-water-discharge tunnel.
8. Section 2.1.5, Page 2-13, Line 2 – Directional qualifiers used in this sentence are contradictory. Delete “on the northeast portion of the facility.”
9. Section 2.1.5, Page 2-13, Line 18 – Insert “presently” between “are” and “taken”
10. Section 2.2.2, Page 2-18, Line 8 – The rate of water use should be indicated; therefore, revise the sentence to read, “...approximately 38 million L (10 million gal) **per month** of filtered, ...”
11. Section 2.2.2, Page 2-18, Line 15 – Delete “ionics”
12. Section 2.2.3, Page 2-19, Line 26 – This sentence indicates that temperature increase of the cooling water flowing through the main condensers at maximum power is approximately 12°C. In the license renewal environmental report (Section 3.1.3.2), OPPD states this temperature increase as a nominal temperature rise of 23°F. This equates to approximately 13°C rather than 12°C as stated in the SEIS, and should be changed. For clarification, a temperature increase of 23°F is applicable to summer conditions when ambient river temperatures are warm; however, OPPD notes that this temperature rise may be several degrees warmer when ambient river water temperatures are cooler because of increased thermal efficiency of the condensers.
13. Section 2.2.3, Page 2-19, Line 31 – This sentence indicates that average change in river temperature would be approximately 1°C (2°F) in a turbulent mixing system. However, using lowest monthly average river flow (January) of 20,982 and discharge temperature of 23°F above ambient, OPPD calculates that the increase in river temperature after complete mixing would be only 0.5°C (0.9°F). It is unclear whether this represents a discrepancy; if so, it should be resolved.
14. Section 2.2.3, Page 2-19, Lines 31-34 – Revise as follows: “During the winter, the total change in temperature may be greater as the upstream discharge of cooling water is performed to melt any ice in the river to prevent icing of the intake structure. **Under normal winter operating** these conditions, the total change in temperature may be as high as 18°C (32°F) between the intake and discharge of the cooling waters.”
15. Section 2.2.5, Page 2-22, Lines 10-12 – Revise sentence to read, “Fish Creek, a **small tributary that outfalls to the Missouri River, on the Fort Calhoun Station site** ~~which is located on Fort Calhoun Station and is the lowermost segment of the Missouri River,~~ provides little available...”

16. Section 2.2.5, Page 2-25, Line 1 – For clarity, revise the sentence to read, “There are six **listed** species that could ...”
17. Section 2.2.5, Page 2-25, Lines 26-29 – The location of the Platte River relative to Fort Calhoun Station should be noted.
18. Section 2.2.5, Page 2-25, Line 35-37 – This sentence implies that the amount of suitable habitat for the pallid sturgeon was discussed; however, the previous paragraph does not clearly discuss this point. Recommend enhancing the pallid sturgeon discussion to provide the basis for this sentence.
19. Section 2.2.7, Page 2-33, Lines 27-34 – OPPD has submitted corrections to data provided in the 2001 annual report (letter from OPPD (R. T. Ridenoure) to NRC (Document Control Desk) dated April 4, 2003 (LIC-03-0039)). As a result, the following changes should be made:
 - The air dose due to noble gases in gaseous effluents was 3.24×10^{-3} mSv (3.24×10^{-1} mrad) gamma (3.24 percent of the 0.10-mGy [10-mrad] gamma dose limit) and 1.19×10^{-2} mGy (1.19 mrad) beta (5.95 percent of the 0.20-mGy [20-mrad] beta dose limit)
 - The critical organ dose from gaseous effluents due to iodine-131, tritium, and particulates with half-lives greater than eight days was 4.83×10^{-2} mSv (4.83 mrem), which is 24.15 percent of the 0.15-mSv (20-mrem) dose limit.

Note: The corrected data above for 2001 was submitted along with the 2002 Annual Radiological Effluent Release Report. The NRC may want to use the 2002 data. Whichever data is used, the reference citation should be changed accordingly.
20. Section 2.2.8.2, Page 2-37, Line 24 – As indicated Highway 75 is a US highway not an interstate. Therefore, the parenthetical, “(I-75)”, should be deleted.
21. Section 2.2.8.5, Page 2-40, Line 11 - There is inconsistency between the population numbers cited for the 50-mile radius (760,514) on this page and that indicated in Table 2-8 (852,711).
22. Section 2.2.8.6, Page 2-44, Line 15 - Source of information in the table is cited as OPPD’s environmental report (ER). The ER does not cite a year 2002 in lieu payment so a new reference is needed.
23. Section 2.2.9.1, Page 2-45, Line 19 – Correct “east” to “west”
24. Section 2.2.9.1, Page 2-45, Line 29 and 36 – In Line 29 reference “Radin 1923” is not listed in the Section 2.3, References. In Line 36 the “Iowa” should be corrected to “Ioway.”

25. Section 2.2.9.2, Page 2-47, Line 21 – For clarity, indicate that U.S Highway 73 is now known as U.S. Highway 75.
26. Section 2.2.9.2, Page 2-48, Line 31 – The reference citation “McDonald 1926” is not listed in Section 2.3, References.
27. Section 2.2.10, Page 2-49, Line 41 – The reference citation “FWS (2001b)” appears to be incorrect. Reference to the 1990 Biological Opinion is made in the more recent FWS Biological Opinion cited as “FWS (2000)”.
28. Section 4.4.1, Page 4-27, Lines 5-7 – It should be clarified that the density values provided in this sentence is for the 50-mile region. Also, there is inconsistency between the population numbers cited for the 50-mile radius (760,514 vs. 852,711 vs. 852,717) in Sections 2.2.8.5 and 4.4.1.
29. Section 4.4.1, Page 4-28, Line 4 - The year 2000 population for the Omaha MSA was stated as 716,998 in OPPD’s ER. No population number was given in the ER for the Omaha MSA’s 1990 population. Therefore, suggest correcting the sentence to read, “...population was approximately 716,998 in the year 2000 (OPPD 2002).”
30. Section 4.4.5, Page 4-32, Lines 19-27 – As written, it is hard to differentiate between the exclusion zone (about 1265 acres) and that portion of the exclusion zone that constitutes the plant site (about 660 acres). OPPD owns the plant site, which lies entirely in Nebraska, and has perpetual easements on the remainder of properties in the exclusion zone, which lie mostly in Iowa (see ER section 2.1.3 and Figure 2.1-3). Suggest revising this paragraph accordingly. In Line 26 delete “in Nebraska” given that the plant site lies entirely in Nebraska and OPPD doesn’t own property in Iowa.
31. Section 4.4.6, Page 4-34, Line 31 – NRC identifies Colfax county as having minority population; however, this county is not listed as one of the counties falling within the 50-mile radius (see lines 15-17).
32. Section 8.1, Page 8-2, Line 22 and Page 8-3, Lines 22-29 – The NRC’s conclusions regarding the impacts related to OPPD’s payments in lieu of taxes is inconsistent between these two sections and does not follow from the current state requirements for such payments as appropriately described by the NRC on page 8-3, lines 12-20. Irrespective of the existence of FCS, OPPD would remain the retail supplier of electricity in its service territory and, in accordance with these state requirements, OPPD would continue to pay jurisdictions that now receive these payments, which are computed on the basis of a fixed payment established in 1957 and annual gross revenue from electricity sales. Therefore, termination of FCS operation would have no appreciable effect on these revenues and no associated impact would result. Discussion in Table 8-1 and Page 8-3 lines 22-29 should be revised accordingly.

33. Section 8.1, Page 8-2, Lines 24-25 and Page 8-4, Lines 9-26 – The NRC’s impact assessment with respect to historic and archeological resources is made in consideration of site land use following decommissioning (line 11). It not clear that future site land use is appropriately within the scope of license renewal except as considered in the context of developing alternative generation facilities on the site, and this aspect appears not to be considered for other impact categories. This approach is further confusing in that the potential impacts related to future land use are attributed to “decommissioning” later in the text (line 20). The NRC recognizes decommissioning and termination of operations as different actions in both the GEIS and its recently issued Supplement 1 to NUREG-0586, and neither of these actions appears to include disposition or use of the plant site following these actions. Suggest revising this paragraph accordingly.
34. Section 8.1, Page 8-4, Lines 9-26 – The location of resources of concern (DeSoto Town Site), which occur on the relatively undisturbed uplands between the rail spur and Highway 75, is unclear from the description, partly as a result of confused directions. The following revisions are suggested:
- Line 16 - Include a callout to Figure 2-3; replace “western” with “uplands in the southern”
 - Line 17 – Replace “southern” with “northern”.
 - Line 22 – Replace “northern” with “southern”.
 - Line 23 – Revise the sentence beginning on this line to read as follows (or equivalent): “Disturbance of this area, which lies south of the current railroad right-of-way, could have MODERATE to LARGE impact.”
35. Section 8.2, Page 8-6, Lines 24-30 – This paragraph appears to be misplaced, and seems more appropriately inserted after line 14 on page 8-7. In addition, in view of the NRC’s assumption of consistency with OPPD’s LRA ER, the plant size should be changed from 508-MW to 500-MW.
36. Section 8.2, Page 8-6, Footnote b – This footnote refers only to the coal-fired alternative, so the first sentence should be deleted. Also, in view of the NRC’s assumption of consistency with OPPD’s LRA ER, the plant sizes should be changed to approximately 500 gross MW and 475 net MW.
37. Section 8.2.1, Page 8-7, Lines 19-20 – The amount of ash cited in this sentence (74,000 tons) is incorrectly indicated as the total amount of ash that would be collected and disposed on the site. However, 74,000 tons represents only the amount of ash OPPD estimates would require disposal; OPPD assumes that the balance of the ash would be recycled (LRA ER, Section 7.2.3.1). The sentence should be revised accordingly.
38. Section 8.2.1.1, Table 8-2, Page 8-8, Line 7 – OPPD assumes that the NRC reduced

site acreage estimates provided by OPPD in its ER for a plant using a closed-cycle cooling system by 25-30 acres (average of 27 acres) as noted in the DSEIS, Table 8-3. Unlike the acreage estimates for land use, the estimate of 340 acres cited here for the Ecology impact category are not consistent with this assumption. It appears that acreage should be changed to 127 ha (313 ac).

39. Section 8.2.1.1, Table 8-2, Page 8-9, Line 8 – The following comments relate to Socioeconomics entries on this table:
- Operating staff for the coal-fired plant indicated in the comments column for the FCS site alternative should be changed from 15 to 250 per OPPD’s estimate in ER Section 7.2.3.1.
 - It is unclear for both of the site options what is meant by tax and/or wage “impacts” described for the operation-phase in the comments columns. OPPD notes that there would be a decrease in regional economic benefits from net decrease in jobs (from 772 to 250 or 15 for the FCS site or Nebraska City site options, respectively); the Nebraska City site option would result in the greater of these losses to communities near FCS. Any impact from the standpoint of “property taxes” would be small because OPPD’s in lieu payments would remain about the same, or could be reduced if net loss of jobs at FCS causes reduced population and thus reduced electric sales in a jurisdiction. OPPD suggests revision to clarify and make the respective assessments consistent with one another.
40. Section 8.2.1.1, Table 8-2, Page 8-11, Lines 1-2 – The loss of 757 jobs at Fort Calhoun Station indicated in the Comment Column for the FCS site option appears to be based on an operating workforce estimate of 15, which is applicable only to the Nebraska City site option, since an operating workforce for a coal-fired plant is already in place there. The estimated operating workforce for the FCS site option is approximately 250. OPPD suggests replacing “loss of about 757 jobs” with “net loss of about 522 jobs”.
41. Section 8.2.1.1, Page 8-11, Lines 10-12 – The NRC indicates on Page 8-6, lines 25-27 that, unless otherwise indicated, assumptions and numerical values used in Section 8.2.1 are from OPPD’s ER. However, OPPD did not estimate acreages needed for a once-through cooling option as stated in this section. It is suggested that the beginning of this sentence be reworded to “Based on OPPD’s estimates for a closed-cycle cooling system, the NRC estimates that . . . “. Also, for consistency with Table 8-2 entries, it would seem appropriate to change “10 ha (25 ac)” to “10-12 ha (25-30 ac)” on line 12.
42. Section 8.2.1.1, Page 8-11, Line 17 – Text on this line should be revised to clarify that “30-m-wide (100-ft-wide)” refers to assumed transmission right-of-way width.
43. Section 8.2.1.1, Page 8-12, Line 28 – For consistency with previously stated estimates

for land use requirements in Table 8-2, it appears that “60 ha (140 ac)” should be changed to “46 ha (114 ac)”.

44. Section 8.2.1.1, Page 8-13, Line 10 – OPPD assumes that the NRC reduced site acreage estimates provided by OPPD in its ER for a plant using a closed-cycle cooling system by 25-30 acres (average of 27 acres) as noted in the DSEIS, Table 8-3. Unlike the acreage estimates for land use, the estimate of 340 acres cited here for the Ecology impact category are not consistent with this assumption. It appears that acreage should be changed to “127 ha (313 ac)” if referring to the total acreage needed for the site. However, if the intention is to only discuss that portion of the acreage needed for developing coal and limestone delivery, storage, and handling facilities the appropriate acreage amount would be 200 acres. This discussion should be revised accordingly.
45. Section 8.2.1.1, Page 8-13, Line 38 – It appears that the first sentence on this line should be deleted because this section is intended to address impacts of the once-through cooling option.
46. Section 8.2.1.1, Table 8-3, Page 8-21, Lines 18-19 – As indicated on Line 4 of this page, no cooling ponds would be used for this alternative. Therefore, it appears that this entry for Groundwater Use and Quality should be “No change”.
47. Section 8.2.2, Page 8-22, Lines 3-4 – For clarity, OPPD suggests that the first sentence be revised to indicate that this section addresses impacts for a gas-fired plant considering two site options: the Fort Calhoun site and the Cass County site.
48. Section 8.2.2, Page 8-22, Line 11 – It appears that the sentence indicating that “infrastructure changes would be SMALL to MEDIUM” is inadvertent and should be deleted, since this section is merely describing the facility, not associated impacts.
49. Section 8.2.2.1, Page 8-23, Table 8-4, Line 7 – Since both the Fort Calhoun site and Cass County site have most onsite infrastructure required for the plant, OPPD suggests that the acreage requirements for the FCS site alternative be change to correspond to the requirement listed for the Cass County site; i.e., “10 ha (25 ac)“. Also, since both sites have offices, parking, and most roads required, it would be appropriate to replace this text with “and related facilities”, which may include onsite area needed for transmission and pipeline hookups, power block access road, etc.
50. Section 8.2.2.1, Page 8-30, Lines 4-5 – As noted in comment 23, OPPD would continue to be the retail supplier of electricity in its service territory and, under current state rules, would continue its payments in lieu of taxes to the same jurisdictions, regardless of the ultimate source of power (e.g., purchased power, new plant).

51. Section 8.2.2.2, Table 8-5, Page 8-32, Lines 6, 7, and 8 – Cooling ponds are not included in the representative plant alternative design as described in the introductory text on page 8-31. Therefore, OPPD suggests replacing “development of a cooling pond” with “use of a cooling tower” on line 6, deleting “and ponds” on line 7, and replacing entry in line 8 with “No change”.
52. Section 8.2.3, Table 8-6, Page 8-35, Line 6 – In view of the state’s current rules for in lieu tax payments as discussed in previous comments, OPPD suggests replacing “tax base” with “tax and wage impacts from employee earnings” and add “In lieu tax payments would remain unchanged” in the Comments column entry for the FCS option.
53. Section 8.2.2 – Note that in the OPPD ER, OPPD specifically limited the natural-gas-fired alternative at the Cass County site to closed-cycle cooling. Use of once-through cooling at this site is rendered impractical due to the limited availability of cooling water and limited ability of Four Mile Creek to handle associated discharge. NRC should reconsider the viability of a once-through system at this location.
54. Section 8.2.3, Page 8-36, Line 9 – FCS does not have a cooling canal system. For accuracy, OPPD suggests deleting the word “canal” on this line.
55. Section 8.2.3, Page 8-39, Lines 16-18 – In view of the state’s current rules for in lieu tax payments as discussed in previous comments, OPPD suggests that this sentence be replaced with one indicating that OPPD’s in lieu tax payments would remain essentially unaffected by FCS operations termination and decommissioning.
56. Section 8.2.3, Table 8-7, Page 8-41, Lines 15, 16 – The bases for impact assessment in this table are inconsistent with the coal and gas alternatives in that cooling towers were assumed to be used for the closed-cycle cooling system (see pages 8-21 and 8-31) and this table address the use of cooling towers only in all areas except Groundwater Use and Quality. Suggest deleting mention of ponds on line 15 and replacing entry in line 16 with “No change”.
57. Section 8.2.5.4, Page 8-45, Lines 3-5 – For clarification, the 167-MW of hydroelectric generating capability mentioned here and in OPPD’s ER (Table 7.2-3) denotes developed capability in the year 1998, not potential undeveloped capability. Therefore, the NRC may wish to revise or delete this text.
58. Section 8.2.6, Page 8-51, Table 8-8, Line 7 – The NRC notes that the impact assumptions in this section for the gas-fired generation contribution are the same as those made in Section 8.2.2, adjusted for reduced generating capacity. As noted previously, since both the Fort Calhoun site and Cass County site have most onsite infrastructure required for the plant, OPPD suggests that the acreage requirements for the FCS site alternative be change to correspond to the requirement listed for the Cass

County site; i.e., “10 ha (25 ac)“. Also, since both sites have offices, parking, and most roads required, it would be appropriate to replace this text with “and related facilities”, which may include area needed for onsite transmission and pipeline hookups, power block access road, etc.

59. Section 8.2.6, Page 8-52, Table 8-8, Line 4 – In the Comments column for the FCS site option, suggest replacing “the tax base” with “ the tax and wage impacts from employee earnings”. Suggest revising the entry for the Cass County site accordingly. OPPD suggests deleting use of the term “tax base” in this context, since that term is normally associated with property taxes. As indicated in previous comments, Nebraska rules require OPPD to make payments to jurisdictions in their service territory in lieu of taxes, primarily based on retail electricity sales (OPPD is the exclusive retail supplier). Therefore, there would be no change in these in lieu payments under this alternative. However, there would be a net loss of jobs in the region (difference between FCS employment and gas-fired plant employment), and associated reduction in economic activity. The text should be revised accordingly.
60. Section 9.1, Page 9-4, Lines 30-32 – NRC incorrectly indicates that OPPD’s license renewal application presents an analysis of chronic effects from electromagnetic fields. Mention of this “n/a” issue should be deleted from the sentence.