DRAFT
SUBJECT TO CHANGES
RESULTING FROM 5/24 MEETING

May 26, 2006
LIC-06-0056

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk,
Director, Spent Fuel Project Office, Office of Nuclear Material Safety and Safeguards,
Washington, D.C. 20555

References:
1. Docket Nos. 50-285 and 72-054
2. "Standardized NUHOMS® Horizontal Modular Storage System for Irradiated Nuclear Fuel, Final Safety Analysis Report, Appendix K," NUH-003, Revision 8, dated June 2004.
3. Certificate of Compliance No. 1004 for the Standardized NUHOMS® System, Amendment 8, effective December 5, 2005.

SUBJECT: Fort Calhoun Station-Request for Exemption from NUHOMS® Certification of Compliance No. 1004, Amendment No. 8

Pursuant to the provisions of 10 CFR 72.7, "Specific exemptions," Omaha Public Power District (OPPD) requests an exemption from a requirement specified in 10 CFR 72.212, "Conditions of general license issued under §72.210." The specific exemption would be from the requirements of 10 CFR 72.212(a)(2), 10 CFR 72.212(b)(2)(i)(A), 10 CFR 72.212(b)(7), and 10 CFR 72.214, all of which require the licensee to comply with the terms and conditions of the certificate.

Specifically, OPPD is requesting an exemption from Technical Specifications 1.2.1(Basis), 1.2.11, and 1.2.17a associated with the Certificate of Compliance No. 1004, Amendment No. 8 for the standardized NUHOMS®-32PT storage system and the OS197L Transfer Cask. The requested exemption term includes loading of ten (10) 32PT canisters.

Approval of this exemption will allow Fort Calhoun Station (FCS) to maintain full core offload capability after the 2006 refueling outage and to provide flexibility for fuel storage options related to managing decay heat loads within the Spent Fuel Pool (SFP).

Spent fuel must be placed in dry storage prior to offloading 133 fuel assemblies from the core to the SFP during the upcoming 2006 refueling outage; this core offload is currently scheduled to begin on September 19, 2006. OPPD must load a minimum of three canisters prior to offloading the core in order to meet the following operational requirements: 1) The 23 cells adjacent to the cask loading area, must be vacant in order to meet 10 CFR 50.68 spent fuel operational requirements. 2) Cells must be available to provide flexibility for fuel storage options related to

managing decay heat loads within the SFP, and 3) cells must be available to wet 44 new fuel assemblies,

Fort Calhoun Station is preparing for a September refueling outage (RFO) that includes replacement of many major components including two steam generators, a reactor vessel head, and a pressurizer within the radiological controlled area (RCA). The likelihood of startup fuel damage as a result of introducing foreign material associated with NSSS replacements is increased, thus creating an increase likelihood of the need for full core offload.

Outside the RCA, component replacement includes a new main transformer and two low pressure turbines. The spatial, labor, and equipment resources needed to support these replacement activities have been identified for over a year and were methodically scheduled to follow Dry Fuel Storage activities to ensure industrial and radiological safety implications were minimized.

Approval of this exemption request is needed in order to continue efforts to ensure industrial and radiological impacts are minimized on the following activities:

- Fuel loading crews are retrained and site dry runs are completed by mid-July.
- A minimum of three canisters are completed prior to August due to component replacement activities.
- Ensure 44 new fuel bundles and 49 new control rods receipt inspections are completed and received in the SFP prior to RFO.

After loading a minimum of three canisters before the outage, OPPD intends to continue loading casks as conditions allow during the refueling outage and complete loading of all 10 canisters as soon as possible after the end of the outage.

In the event OPPD is unable to use a 75 ton system for the next loading campaign, OPPD is requesting approval to complete the currently planned loading of all ten canisters under this exemption. This will allow OPPD adequate lead time for procuring a different storage system, uprating the auxiliary building crane capacity, and/or modifying the auxiliary building and thereby avoiding similar spent fuel related operational constraints as described above during the next operational cycle.

To support the activities noted above, approval of the requested exemption is needed before June 30, 2006

No commitments to the NRC are made in this letter.

If you require additional information, please contact Thomas C. Matthews at (402) 533-6938.

Sincerely,

R. T. Ridenoure
Vice President - Nuclear

RTR/rlj

Attachments:

1. Fort Calhoun Station Exemption Request
2. FSAR Change Notice
3. Transfer Cask Shield Evaluation for a Single Assembly Misloading

cc: Director of Consumer Health Services, Department of Regulation and Licensure, Nebraska Health and Human Services, State of Nebraska

Fort Calhoun Station-Request for Exemption from NUHOMS® Certification of Compliance No. 1004, Amendment No. 8

Fort Calhoun Station
Request for Exemption from NUHOMS®
Certificate of Compliance No. 1004, Amendment 8

I. Exemption Request

Pursuant to the provisions of 10 CFR 72.7, "Specific exemptions," Omaha Public Power District (OPPD) requests an exemption from a requirement specified in 10 CFR 72.212, "Conditions of general license issued under §72.210."

The specific exemption would be from the requirements of 10 CFR 72.212(a)(2), 10 CFR 72.212(b)(2)(i)(A), 10 CFR 72.212(b)(7), and 10 CFR 72.214, all of which require the licensee to comply with the terms and conditions of the certificate. Specifically, OPPD is requesting an exemption from three of the Technical Specifications that are part of Certificate of Compliance (CoC) No. 1004, Amendment No. 8 for the standardized NUHOMS®-32PT storage system [1] to be used at Fort Calhoun Station (FCS).

OPPD is requesting an exemption from CoC 1004 Technical Specifications (TS) 1.2.1 (Bases), 1.2.11, and 1.2.17a. These specifications address transfer cask dose rates and the canister vacuum drying time limits.

OPPD will comply with all other Conditions of Use and Technical Specifications during fuel loading at FCS.

An exemption is requested by OPPD before July 1, 2006 because the submittal and approval of an amendment to CoC 1004 by Transnuclear, Inc. (TN), the Certificate Holder, can not be achieved in time to support the required loading schedule at FCS.

The requested exemption term includes loading of ten (10) 32PT canisters.

II. General Background

NUHOMS® Updated FSAR (UFSAR) [2] contains two alternate versions of a Transfer Cask (TC). They are referred to as the Standardized Cask (with a solid neutron shield) and OS197/OS197H/OS197FC cask (with a liquid neutron shield). This TC is used for loading/unloading fuel into/from a canister and moving a loaded Dry Shielded Canister (DSC) from the spent fuel/reactor building to the Horizontal Storage Module (HSM). In general the use of this cask requires a nominal 100 ton crane lift capacity.

In an effort to expand the capability of the NUHOMS® system to plants with reduced crane capacity, a light weight configuration of the OS197 was developed, referred to as the OS197L. The design intent of this cask is to

allow for the loading/unloading and transfer of the licensed DSCs (24P, 52B, 61BT, 24PT2, 32PT and 24PHB) and maintain the bounding crane load to less than 75 tons.

TN, the certificate holder for the NUHOMS system, utilized the 72.48 process to add the OS197L to the NUHOMS system and issued an UFSAR Change Notice (FCN) that added the description, analysis description, and analysis results for the OS197L system to the CoC 1004 UFSAR. In the following discussions the UFSAR, Revision 9, including FCN 321, Revision 1, is referred to as the UFSAR.

OPPD desires to use the OS197L transfer cask to load 32PT canisters using the 75 ton Auxiliary Building crane. In order for FCS to maintain full core offload capability (133 fuel assemblies) after startup from the 2006 refueling outage, to continue flexibility for fuel storage options related to managing decay heat loads within the SFP, and to provide sufficient space to wet new fuel, spent fuel must be placed in dry storage prior to core off-load to the SFP, which is currently scheduled for September 19th, 2006.

As part of the review process prior to initiation of fuel loading, NRC identified and verbally communicated several issues/concerns, which were responded to by OPPD. Continued communications among NRC, TN, and OPPD management has determined that submittal of an exemption request for three of the CoC 1004 Technical Specifications is the optimum path for use of the OS197L transfer cask at FCS.

For conservatism, OPPD is requesting that the exemption be based on loading of FCS fuel that is less reactive, and with significantly lower decay heat and source term than the Design Basis fuel assembly in CoC 1004 for the 32PT DSC. Specifically the CoC 1004 Design Basis Fuel Assembly (FA) in the 32PT DSC is the B&W 15 x 15 for shielding and the WE 14 x 14 for thermal, with a total canister decay heat load of 24 kW.

OPPD requests in this exemption to load FCS CE 14 x 14 FAs with a total canister decay heat load of 18.4 kW. The 18.4 kW value is selected as it is a significant reduction in the decay heat load of the canister from that of the Design Basis, and matches the administrative limit that FCS has conservatively imposed to limit doses at the ISFSI boundary.

OPPD has determined that it is acceptable and conservative to load the FCS FAs into the 32PT DSC utilizing the OS197L transfer cask because the FCS FAs are bounded by the design basis fuel assemblies that are evaluated in the current license in the UFSAR (see Table 1). As such, the requested exemption will not endanger life or property or the common defense and security.

The exemption will be in the public interest in that it will allow for the safe and efficient storage of spent nuclear fuel at FCS. NRC approval of the exemption will allow OPPD to maintain full core offload capability and flexibility for fuel storage options related to managing decay heat loads within the SFP.

The following discussion demonstrates the significant conservatisms present, and that the FCS FAs proposed are bounded by the NUHOMS®-32PT system design basis analysis presented in the UFSAR. It is noted that the only elements of the fuel loading operations impacted by this TS exemption are related to the fuel loading activities in the Auxiliary building and the transfer from the Auxiliary/Reactor Building to the HSM. Specifically, the storage mode at the ISFSI is not affected.

Table 1

Summary of Key Parameters for FCS CE 14 x 14 Fuel Assemblies and NUHOMS®-32PT DSC Design Basis Fuel Assemblies

	FCS CE 14 x 14 Fuel Assembly Parameters	NUHOMS®-32PT Design Basis Fuel Parameters
Maximum Total Decay Heat load per NUHOMS®-32PT DSC (kW)	18.4	24.0
Maximum Assembly Average Burnup (MWD/MTU)	45,000	45,000
Maximum Initial Bundle Average Enrichment (wt% U235)	4.514	5.0
Maximum Initial Uranium Content(MTU/Assembly)	0.380	0.475

An evaluation is presented below for the structural, thermal, and shielding NUHOMS® UFSAR sections as they are affected by the reduced parameters of the proposed FCS FAs.

Structural Evaluation

The structural evaluation of the NUHOMS®-32PT DSC is documented in the UFSAR. All of the design parameters for the design basis fuel assembly used in Chapter M.3 of the UFSAR (e.g., total fuel assembly weight and total decay heat load) bound the FCS fuel assembly. As a result, all of the structural evaluation results reported in the UFSAR are bounding for the FCS fuel assembly.

Thermal Evaluation

The thermal evaluation of the NUHOMS®-32PT DSC is documented in Chapter M.4 of the UFSAR. The method used for the thermal evaluation of the FCS fuel: 1) Evaluated the effective fuel properties (thermal conductivity) of the FCS fuel assembly and compared it with the NUHOMS®-32PT DSC design basis fuel [2]; 2) Determined the margin of conservatism between the FSC FA and the Design Basis FA to demonstrate that the corresponding thermal analysis results for the NUHOMS®-32PT DSC design basis fuel in the UFSAR can be conservatively used for thermal evaluation of the NUHOMS®-32PT DSC with the FCS fuel assembly.

As shown in Table 1, the maximum decay heat per DSC and maximum assembly average burnup for the FCS FAs are all bounded by the design basis values used for the NUHOMS®-32PT thermal evaluation.

The fuel assembly effective thermal conductivities for the FCS are addressed by a review of Figures M.4-19 through M.4-21 of the UFSAR. These figures demonstrate the significantly higher thermal conductivity of the FCS CE 14 x 14 FA over that of the Design Basis WE 14 x 14. As shown in the figures, the CE 14 x 14 FA has thermal conductivity values nominally 20% or higher than the Design Basis WE 14 x 14. This higher conductivity will reduce the ΔT, across and along the FA and result in lower fuel clad temperatures.

The maximum decay heat load for the FCS fuel assemblies proposed to be loaded in the NUHOMS®-32PT DSC is 18.4 kW per DSC. This is approximately 24% less than the design basis heat load for NUHOMS®-32PT DSC [2]. The FCS fuel thermal properties as described above will result in lower ΔT, across and along the FA and therefore the thermal evaluation in the UFSAR for the design basis fuel in the NUHOMS®-32PT DSC during transfer for normal, off-normal and accident conditions remains bounding for the FCS fuel assemblies with decay heat loads less than or equal to 18.4 kW/DSC.

Shielding Evaluation

Chapter M.5 of the UFSAR documents the shielding evaluation for the NUHOMS®-32PT DSC. Chapter M.5 of the FSAR states:

"The B&W 15x15 assembly is the bounding fuel assembly design for shielding purposes because it has the highest initial heavy metal loading as compared to the 14x14, other 15x15, and 17x17 fuel assemblies which are also authorized contents of the NUHOMS®-32PT DSC. In addition, the maximum Co59 content of the hardware regions for each assembly type is less than that of the B&W 15x15 Mark B fuel assembly."

The initial heavy metal content of the FCS fuel assembly is 0.380 MTU per assembly while the shielding design basis fuel assembly is 0.475 MTU. In addition, the total canister decay heat load (nominally proportional to source term) is reduced from the Design Basis 24 kW to 18.4 kW. Therefore, the design basis radiation source terms

for all burnup, initial enrichment and cooling lime combinations allowed to be stored in the NUHOMS®-32PT DSC remain bounding for the FCS fuel assembly. As a result, all of the storage dose rates reported in the tables in the UFSAR and dose rate limits reported in the Technical Specifications remain bounding for FCS FAs. The exemption to TS 1.2.1 and 1.2.11 addresses OS197L transfer cask dose rates.

III. Technical Specification Exemption Requests

A. Technical Specification 1.2.1 (Bases)

1. Exemption Request - TS 1.2.1

Pursuant to the provisions of 10 CFR 72.7, "Specific exemptions," OPPD, Fort Calhoun Station (FCS) requests an exemption from a requirement specified in 10 CFR 72.212, "Conditions of general license issued under §72.210."

Certificate of Compliance No. 1004 (CoC), Amendment No. 8, includes Technical Specification 1.2.1 which controls fuel specifications. An exemption is requested from the statements in the Bases section that describe the transfer cask surface dose rates for the 24P and the 52B canisters. The exemption would allow disregarding the wording on the transfer cask surface dose rates in the Technical Specification Bases.

2. Background - TS 1.2.1

OPPD acknowledges that the description of the transfer cask surface dose rates, described in the Bases section of Technical Specification 1.2.1, cannot be met with the use of the bare OS197L transfer cask, and therefore an exemption is required. It is noted that OPPD will only load the 32PT canister, and not the 24P or the 52B DSCs.

3. Technical Justification - TS 1.2.1

10 CFR 72.7 specifies that "... the Commission may, upon application by any interested person or upon its own initiative, grant such exemptions from the requirements of the regulations in this part as it determines are authorized by law and will not endanger life or property or the common defense and security and are otherwise in the public interest."

The safety analysis of the NUHOMS®-32PT system is described in the current license in Appendix M of the Updated Final Safety Analysis Report (UFSAR) for the standardized NUHOMS® system [2]. The current Technical Specifications (TS) for CoC No. 1004 [1] that are issued to TN for the standardized NUHOMS® system contain the following requirements regarding the authorized content of the DSC:

Technical Specification 1.2.1, "Fuel Specifications, Functional and Operating Limits," states that "The characteristics of the spent fuel which is allowed to be stored in the standardized NUHOMS® system are limited by those included in Tables 1-1a, 1-1b, 1-1c, 1-1d, 1-1e, 1-1f, 1-1g, 1-1i, 1-1j, 1-1l, and 1-1m."

The fuel assemblies (CE 14 x 14) that OPPD proposes to load in the 32PT canister are fully compliant with the relevant Tables of the Technical Specification.

In addition, the Bases section of this TS contains the following wording regarding the radiological criterion:

> "The radiological design criterion is that fuel stored in the NUHOMS® system must not increase the average calculated HSM or transfer cask surface dose rates beyond those calculated for the 24P, 24PHB, 52B, 61BT, or 32PT canister full of design basis fuel assemblies with or without BPRAs. *The design value average HSM and cask surface dose rates for the 24P and 52B canisters were calculated to be 48.6 mrem/hr and 591.8 mrem/hr respectively based on storing twenty four (24) Babcock and Wilcox 15x15 PWR assemblies (without BPRAs) with 4.0 wt. % U-235 initial enrichment, irradiated to 40,000 MWd/MTU, and having a post irradiation time of five years. (italics by author)* To account for BPRAs, the fuel assembly cooling required times are increased to maintain the above dose rate limits."

OPPD proposes to load only the 32PT canisters at FCS under this exemption. Specific dose rate limits for the 32PT are not included in this Bases section. Any requirement for the transfer cask, in this case the OS197L, to meet the surface dose rate limits of this Bases section does not apply to OPPD, as neither the 24P or 52B canister will be loaded. Specific OS197L transfer cask dose rate measurements will be taken as noted in the following exemption for TS 1.2.11.

An evaluation of the required NUHOMS® UFSAR sections has been completed. The results of that evaluation for the structural, thermal, shielding, and criticality disciplines are summarized below for each of the three Technical Specifications to be exempted. An evaluation summarizing the impact on other UFSAR sections is provided for all three TS's at the end of this section.

Structural Evaluation

The structural evaluation of the NUHOMS®-32PT DSC is documented in Chapter M.3 of the UFSAR. All of the design parameters for the design basis fuel assembly used in Chapter M.3 of the UFSAR (e.g., total fuel assembly weight, temperatures, and pressures) are unchanged. As a result, all of the structural evaluation results reported in Chapter M.3 of the UFSAR remain bounding.

Thermal Evaluation

The thermal evaluation of the NUHOMS®-32PT DSC is documented in Chapter M.4 of the UFSAR. All of the design parameters for the design basis fuel assembly used in Chapter M.4 of the UFSAR (e.g., total fuel assembly burnup, cooling time, and decay heat) bound the proposed FCS FAs (CE 14 x 14) limited to 18.4 kW. As discussed in the General Background above, significant thermal margin is present. As a result, all of the thermal evaluation results reported in Chapter M.4 of the UFSAR remain bounding.

Shielding Evaluation

The shielding evaluation of the NUHOMS®-32PT DSC is documented in Chapter M.5 of the UFSAR. The design parameters for the design basis fuel assembly used in Chapter M.5 of the UFSAR (e.g., total fuel assembly burnup, cooling time, and source term) bound the proposed FCS FA's (CE 14 x 14) limited to 18.4 kW. As a result, all of the shielding evaluation results reported in Chapter M.5 of the UFSAR remain bounding.

Criticality Analysis

The criticality evaluation of the NUHOMS®-32PT DSC is documented in Chapter M.6 of the UFSAR. All of the design parameters for the design basis fuel assembly used in Chapter M.6 of the UFSAR (e.g., fuel assembly configuration, enrichment, and pool boron loading) are unchanged and the DSC geometry and materials are unchanged. As a result, all of the criticality evaluation results reported in Chapter M.6 of the UFSAR remain bounding.

B. Technical Specification 1.2.11

1. Exemption Request - TS 1.2.11

Pursuant to the provisions of 10 CFR 72.7, "Specific exemptions," OPPD, Fort Calhoun Station (FCS) requests an exemption from a requirement specified in 10 CFR 72.212, "Conditions of general license issued under §72.210."

Certificate of Compliance No. 1004 (CoC), Amendment No. 8, includes Technical Specification 1.2.11 which provides dose rate limits for the transfer cask. An exemption is requested from the Limit/Specification and Applicability. The exemption is justified because equivalent dose rate limits can be met through use of the shielding elements of the OS197L system at the FCS site using the 32PT DSC.

The exemption would be only for the 32PT DSC to be loaded with FCS FAs, and as such no exemption to TS 1.2.11a, 1.2.11b, or 1.2.11c is necessary.

2. Background - TS 1.2.11

OPPD acknowledges that the description of the transfer cask surface dose rates, described in the Technical Specification 1.2.11, does not explicitly address the supplemental shielding, and that the limits cannot be met with the use of the bare OS197L transfer cask alone.

3. Technical Justification - TS 1.2.11

10 CFR 72.7 specifies that "... the Commission may, upon application by any interested person or upon its own initiative, grant such exemptions from the requirements of the regulations in this part as it determines are authorized by law and will not endanger life or property or the common defense and security and are otherwise in the public interest."

The safety analysis of the NUHOMS®-32PT system is described in the current license in Appendix M of the Updated Final Safety Analysis Report (UFSAR) for the standardized NUHOMS® system [2]. This analysis includes in calculation of dose rates for the configurations described above.

Dose rate measurements of the OS197L containing a loaded 32PT DSC will be taken at FCS at selected steps in the loading sequence. The specific dose rate parameters requested for the OS197L are contained in the following table:

Limit	Axial Direction Configuration	Radial Direction Configuration
a. 200 mrem/hr at 3 feet with water in the DSC cavity	• 32PT DSC inside OS197L in decon sleeve/bell • 750 gals drained • Inner Top Cover Plate in place and included in axial shielding • AWS system with integral shield in place and included in axial shielding • Measurement taken at vertical centerline of DSC, 3' from AWS shield	None Misload detection is not effective in the radial direction
b. 500 mrem/hr at 3 feet without water in the DSC cavity	None Primary ALARA exposure is from radial direction	• 32PT DSC inside OS197L in decon sleeve/bell • All water drained and vacuum dried • 6" carbon steel sleeve/bell included in radial shielding • Measurement taken at 3 feet from OS197L surface (17" from surface of decon shield)

In the axial direction, the shielded configuration of the 32PT DSC inside the OS197L is unchanged from that of the 32PT inside the OS197. Therefore the limits are unchanged and the exemption explicitly states the configuration for which the dose rates were calculated in the UFSAR and for which the measurements should be taken.

The axial measurement is the most favorable for identification of a fuel assembly misload condition. An analysis of the axial and radial dose rates for a potential fuel assembly misload of a 32PT DSC have been evaluated in TN calculation NUH06L-0502 [3]. The results of this

calculation show that a design basis assembly of Design basis burnup and 1 year cooling time located in the center of the DSC cavity would be easily detected by axial dose rate measurements from either the OS197 or the OS197L, since the calculated doses for this misloaded configuration far exceed Tech Spec 1.2.11(a) dose limits. This is as expected, since the OS197 and OS197L casks do not differ in axial shielding configuration and measurement in the axial direction eliminates the potential of other FAs to self-shield the misloaded FA. As the configuration is not altered in the axial direction between the OS197L and the OS197, there is no need to apply different dose rate limits. Section M.5 (Table M.5-3) of the UFSAR states that the 32PT axial "Wet" dose rate is 142 mrem/hr at 3 feet.

The radial measurement serves as an ALARA check, and misload detection through radial measurements are not reliable. The misload analysis of Ref [3] also demonstrates that a radial dose rate measurement for both the OS197 and OS197L casks would not detect a misloading via Tech Spec 1.2.11(b) for a misloaded assembly (1 year cooled) placed at the center of the DSC. However, a misloaded assembly placed other than at the center of the DSC may be detected via the dose rate measurements of Tech Spec 1.2.11(b), depending on the location, for both the OS197 and OS197L TC configurations. Thus the only reliable dose rate measurement to detect a misload is the axial measurement. Section W.5 (Table W.5-1) of the UFSAR states that the 32PT radial "Dry" dose rate within the OS197L and within the decon area/transfer trailer shielding is 122 mrem/hr on contact (outside surface of the shielding).

The ALARA function equivalent to that provided by the 1.2.11(b) TS is accomplished even though the radial shielding of the OS197L with the decon sleeve/bell is increased from that of the OS197. The intent of ALARA is reduction of exposure and the TS 1.2.11(b) limit of 500 mrem/hr will still assure that the 32PT used with the OS197L at FCS will provide equivalent or better shielding than the OS197 TC. Note that all operations utilizing the bare OS197L cask will be performed remotely.

Therefore, the use of the OS197L with measurements noted in this exemption will allow OPPD to meet the dual objectives of detecting fuel misload and maintaining dose rates ALARA.

An evaluation of the required NUHOMS® UFSAR sections was completed. The results of that evaluation for the structural, thermal, shielding, and criticality disciplines are summarized below for each of the three Technical Specifications to be exempted, followed by a combined summary of the remaining UFSAR sections.

Structural Evaluation

The structural evaluation of the NUHOMS®-32PT DSC is documented in Chapter M.3 of the UFSAR. This TS, and the exemption, have no impact on the structural evaluation. As a result, all of the structural evaluation results reported in Chapter M.3 of the UFSAR remain bounding.

Thermal Evaluation

The thermal evaluation of the NUHOMS®-32PT DSC is documented in Chapter M.4 of the UFSAR. This TS, and the exemption, have no impact on the thermal evaluation. As a result, all of the thermal evaluation results reported in Chapter M.4 of the UFSAR remain bounding.

Shielding Evaluation

The shielding evaluation of the NUHOMS®-32PT DSC is documented in Chapter M.5 of the UFSAR. As stated above, the axial configuration of the OS197L, including the decon area sleeve/bell is unchanged from the OS197, and therefore no application of different limits is necessary. The exemption explicitly defines the configuration to be measured and reflects the current UFSAR analysis of M.5.

The radial shielding of the OS197L, including the decon area sleeve/bell is documented in FCN 321, Rev. 1 and documents that the OS197L system configuration has increased shielding. As the radial measurement is not a reliable misload detection method, and serves only as an ALARA check, the increased shielding supports this ALARA function.

Criticality Analysis

The criticality evaluation of the NUHOMS®-32PT DSC is documented in Chapter M.6 of the UFSAR. This TS, and the exemption, have no impact on the criticality evaluation. As a result, all of the criticality evaluation results reported in Chapter M.6 of the UFSAR remain bounding.

C. Technical Specification 1.2.17a

1. Exemption Request - TS 1.2.17a

Pursuant to the provisions of 10 CFR 72.7, "Specific exemptions," OPPD, Fort Calhoun Station (FCS) requests an exemption from a

requirement specified in 10 CFR 72.212, "Conditions of general license issued under §72.210."

Certificate of Compliance No. 1004 (CoC), Amendment No. 8, includes Technical Specification 1.2.17a which provides time limits for vacuum drying for the 32PT. An exemption is requested from the Limit/Specification wording. Instead, OPPD will conservatively start the time limit for vacuum drying earlier in the loading sequence and will use helium as the backfill gas. No change to the time duration is requested.

The exemption would be only for the 32PT DSC and as such no exemption to TS 1.2.17, 1.2.17b, or 1.2.17c is necessary.

Justification of the specific exemption is that the start of the time limit for vacuum drying, irrespective of canister heat load, will occur at the time that the initial 750 gallons have been drained from the canister. Additional water will continue to be drained to meet crane weight limits. This will occur at FCS as the OS197L TC with 32PT is lifted to the fuel pool surface and the drain down of water from the canister cavity is performed.

2. Background - TS 1.2.17a

   OPPD proposes to start the vacuum drying clock (time limit) at the time of initial 750 gallon draindown. This will ensure that the initial conditions assumed in the vacuum drying analysis are met and therefore that the fuel clad temperature limits, which are the subject of this TS, are maintained below the values listed in the UFSAR.

3. Technical Justification - TS 1.2.17a

   10 CFR 72.7 specifies that "... the Commission may, upon application by any interested person or upon its own initiative, grant such exemptions from the requirements of the regulations in this part as it determines are authorized by law and will not endanger life or property or the common defense and security and are otherwise in the public interest."

   The safety analysis of the NUHOMS®-32PT system is described in the current license in Appendix M of the Updated Final Safety Analysis Report (U FSAR) for the standardized NUHOMS® system [2]. This analysis includes in M.4, calculation of fuel cladding temperatures for the vacuum drying condition.

   These analyses conservatively assume that the initial fuel clad temperature at the start of vacuum drying (and therefore the start of

the vacuum drying duration time limit) is 215°F. OPPD proposes to start the clock at the time that the initial 750 gallons have been removed from the canister prior to movement of the cask/canister to the decon area. The fuel cladding at this time will have just been removed from the fuel pool water within the canister (draining 750 gallons is anticipated to take approximately 1 1-2 hours) and will be approximately half submerged. Therefore the 215°F initial fuel clad temperature assumption is bounded.

All of the operations subsequent to the start of the vacuum drying clock, which include continued draining, movement of the cask/canister to the decon area, any refilling of the canister with fuel pool water, placement of the inner top cover plate and Automated Welding System (AWS), inner top cover plate welding, and start of actual vacuum drying, do not adversely impact the analysis assumptions of M.4. The cask/canister annulus will be maintained full to assure the boundary DSC exterior temperature of 215°F maximum. Therefore the vacuum drying thermal analysis documented in M.4 bounds this sequence.

Once the cask/canister is placed in the decon area, the canister will be refilled with fuel pool water to a level of 750 gallons removed. This is a conservative thermal action as it adds water, at a temperature less than 215°F, to the canister. The refilling is not done for thermal purposes, even though it is conservative, but to establish the necessary configuration to take the dose rate (wet) measurements noted previously in the request for exemption from TS 1.2.11.

It is anticipated, based upon a review of the loading sequence, that vacuum drying can be completed within the 31 hour limit of TS 1.2.17a. Should the end of vacuum drying not be accomplished within the TS 1.2.17a time limits, the TS action statement shall be entered, which requires that a helium atmosphere greater than 0.1 atm be established within 2 hours. Once accomplished, the vacuum drying clock can be reset and the vacuum drying restarted.

An evaluation of the required NUHOMS® UFSAR sections has been completed. The results of that evaluation for the structural, thermal, shielding, and criticality disciplines are summarized below for the Technical Specification to be exempted, followed by a combined summary of the remaining UFSAR sections.

Structural Evaluation

The structural evaluation of the NUHOMS®-32PT DSC is documented in Chapter M.3 of the UFSAR. This TS, and the exemption, have no impact on the structural evaluation. As a result, all of the structural evaluation results reported in the UFSAR remain bounding.

Thermal Evaluation

The thermal evaluation of the NUHOMS®-32PT DSC is documented in Chapter M.4 of the UFSAR. This TS, and the exemption, have no impact on the thermal evaluation. As a result, all of the thermal evaluation results reported in the UFSAR remain bounding. Fuel cladding temperatures during all operations from the fuel pool to final vacuum drying will be maintained at or below the values listed in the UFSAR.

Shielding Evaluation

The shielding evaluation of the NUHOMS®-32PT DSC is documented in Chapter M.5 of the UFSAR. This TS, and the exemption, have no impact on the shielding evaluation. As a result, all of the shielding evaluation results reported in the UFSAR remain bounding.

Criticality Analysis

The criticality evaluation of the NUHOMS®-32PT DSC is documented in Chapter M.6 of the UFSAR. This TS, and the exemption, have no impact on the criticality evaluation. As a result, all of the criticality evaluation results reported in the UFSAR remain bounding.

IV. Technical Justification – Remaining Sections of the UFSAR Associated with TS 1.2.1, 1.2.11, 1.2.17a Exemptions

Confinement Evaluation

The confinement evaluation of the system is documented in Chapter M.7 of the UFSAR. This section of the UFSAR is not adversely affected by the transfer cask dose rates or the start time/time limits for vacuum drying and therefore remains applicable when the revised cask dose rate measurements and vacuum drying start times are implemented.

Operating Systems

The operating procedures for the system are documented in Chapter M.8 of the UFSAR. This section of the UFSAR is not adversely affected by the specifics of transfer cask dose rate measurements. The transfer cask dose rates will be measured in the decon area, as listed in M.8 and the discussion for TS 1.2.11. The sequence of canister loading is unchanged by the earlier start of the vacuum drying clock, and the major sequence steps are not altered.

Test and Maintenance Program

The Test and Maintenance program for the system is documented in Chapter M.9 of the UFSAR. This section of the UFSAR is not adversely affected by the transfer cask dose rates or the start time/time limits for vacuum drying and therefore remains applicable when the revised cask dose rate measurements and vacuum drying start times are implemented.

Radiation Protection

Occupational Exposure and Off-site dose evaluations for the system are presented in Chapter M. 10 of the UFSAR. As addressed in the Shielding Evaluation discussion above, the Occupational Exposure and Off-site dose evaluations presented in Chapter M. 10 of the UFSAR remain bounding.

Accident Analysis

Accident analyses for the system are presented in Chapter 11 of the UFSAR. As addressed in the discussion for the Structural Evaluation, Thermal Evaluation, Shielding Evaluation, and Criticality Evaluation above, this section of the UFSAR is not adversely affected by the transfer cask dose rates or the start time/time limits for vacuum drying. Therefore, the accident analysis results presented in the UFSAR remain bounding.

Conditions for Cask Use -Operating Controls and Limits or Technical Specification

Conditions for cask use -operating controls and limits or technical specifications for the system are presented in Chapter 12 of the UFSAR which refers to the Technical Specifications for the CoC No. 1004. Except for the exemptions described above for TS 1.2.1, 1.2.11, and 1.2.17a, all other TSs remain limiting.

Quality Assurance

The Quality Assurance program to be applied to the system is described in Chapter M. 13 of the UFSAR. This section of the UFSAR is not adversely affected by the transfer cask dose rates or the start time/time limits for vacuum drying and therefore remains applicable when the revised cask dose rate measurements and vacuum drying start times are implemented.

Decommissioning

The decommissioning evaluation for the system is described in Chapter 14 of the UFSAR. This section of the UFSAR is not adversely affected by the transfer cask dose rates or the start time/time limits for vacuum drying and therefore remains applicable when the revised cask dose rate measurements and vacuum drying start times are implemented.

V. Environmental Assessment - TS 1.2.1, 1.2.11, 1.2.17a

The following information is provided in support of an environmental assessment and finding of no significant impact for the proposed exemption:

Identification of the Proposed Action

Pursuant to the provisions of 10 CFR 72.7, "Specific exemptions," OPPD requests an exemption from a requirement specified in 10 CFR 72.212, "Conditions of general license issued under §72.210." The specific exemption would be from the requirements of 10 CFR 72.212(a)(2), 10 CFR 72.212(b)(2)(i)(A), 10 CFR 72.212(b)(7) and 10 CFR 72.214, all of which require the licensee to comply with the terms and conditions of the certificate.

The exemption would be from a condition in Amendment 8 to CoC No. 1004 for the NUHOMS®-32PT storage system. Specifically, OPPD is requesting an exemption from TS 1.2.1(Bases), 1.2.11, and 1.2.17a. These exemptions would allow OPPD to store fuel assemblies using the 32PT DSC and the OS197L transfer cask.

The Need for the Proposed Action

Approval of this exemption will allow Fort Calhoun Station (FCS) to maintain full core offload capability after the 2006 refueling outage and to provide flexibility for fuel storage options related to managing decay heat loads within the Spent Fuel Pool (SFP).

Spent fuel must be placed in dry storage prior to offloading 133 fuel assemblies from the core to the SFP during the upcoming 2006 refueling outage; this core offload is currently scheduled to begin on September 19, 2006. OPPD must load a minimum of three canisters prior to offloading the core in order to meet the following operational requirements: 1) The 23 cells adjacent to the cask loading area, must be vacant in order to meet 10 CFR 50.68 spent fuel operational requirements. 2) Cells must be available to provide flexibility for fuel storage options related to managing decay heat loads within the SFP, and 3) cells must be available to wet 44 new fuel assemblies,

Fort Calhoun Station is preparing for a September refueling outage (RFO) that includes replacement of many major components including two steam generators, a reactor vessel head, and a pressurizer within the radiological controlled area (RCA). The likelihood of startup fuel damage as a result of introducing foreign material associated with NSSS replacements is increased, thus creating an increase likelihood of the need for full core offload.

Outside the RCA, component replacement includes a new main transformer and two low pressure turbines. The spatial, labor, and equipment resources needed to support these replacement activities have been identified for over a year and were methodically scheduled to follow Dry Fuel Storage activities to ensure industrial and radiological safety implications were minimized.

Approval of this exemption request is needed in order to continue efforts to ensure industrial and radiological impacts are minimized on the following activities: 1) Fuel loading crews are retrained and site dry runs are completed by mid-July; 2) A minimum of three canisters are completed prior to August due to component replacement activities; and 3) Ensure 44 new fuel bundles and 49 new control rods receipt inspections are completed and received in the SFP prior to RFO.

After loading a minimum of three canisters before the outage, OPPD intends to continue loading casks as conditions allow during the refueling outage and complete loading of all 10 canisters as soon as possible after the end of the outage.

In the event OPPD is unable to use a 75 ton system for the next loading campaign, OPPD is requesting approval to complete the currently planned loading of all ten canisters under this exemption. This will allow OPPD adequate lead time for procuring a different storage system, uprating the auxiliary building crane capacity, and/or modifying the auxiliary building and thereby avoiding similar spent fuel related operational constraints as described above during the next operational cycle.

The DSCs and Horizontal Storage Modules, consistent with the dry cask storage system, have been constructed and are available for loading operations.

Part 10 CFR 72.7 specifies that the NRC may grant exemptions from the requirements of 10 CFR Part 72 when the exemptions are authorized by law and will not endanger life or property or the common defense and security, and are otherwise in the public interest. OPPD concluded that the conditions for granting an exemption are met and has provided the justification in this submittal.

Environmental Impacts of the Proposed Action

The NRC completed an Environmental Assessment of Amendment No. 8 in March 2005 and reached the following conclusions:

"Considering the specific design requirements for each accident condition, the design of the cask would prevent loss of containment, shielding, and criticality control. Without the loss of containment, shielding, or criticality control, the risk to public health and safety is not compromised.

The staff reviewed the proposed changes and confirmed that the changes provide reasonable assurance that the spent fuel can be stored safely and that the changes meet the acceptance criteria specified in 10 CFR Part 72. The staff documented its findings in a Safety Evaluation Report. The occupational exposure is not significantly increased, and offsite dose rates remain well within the 10 CFR Part 20 limits. Therefore, the proposed action now under consideration would not change the potential environmental effects assessed in the initial rulemaking. Therefore, the NRC staff has determined that an acceptable safety margin is maintained and that no significant environmental impacts occur as a result of the amendment. Because the proposed changes will not change the environmental requirements for the storage of spent fuel, no change in environmental impact is anticipated."

OPPD concludes that the conclusions reached by the NRC in the Environmental Assessment for Amendment No. 8 remain valid with the implementation of more explicit transfer cask dose rate measurements and the start time/time limits for vacuum drying.

The fuel assemblies which OPPD plans to load into the canisters are bounded by the design basis fuel assemblies for dry fuel storage system as evaluated in the UFSAR. The procedures that OPPD has used for selecting, loading and storing its spent fuel will also meet all the Technical Specifications requirements. As such, the exemption will have no significant environmental impact. The exemption will not significantly increase the probability or consequences of accidents. The use of remote handling techniques for the OS197L TC during loading operations will be consistent with ALARA principles and will not adversely increase occupational or public radiation exposures. There are no changes being made in the types or amounts of effluents that may be released offsite, and there is no significant increase in occupational or public radiation exposure as a result of the proposed activities. Therefore, there are no significant radiological environmental impacts associated with the proposed exemption.

With regard to potential non-radiological environmental impacts, OPPD has determined that the proposed exemption has no potential to affect any

historic sites. It does not affect non-radiological plant effluents and has no other environmental impact. Therefore, there are no significant non-radiological environmental impacts associated with the requested exemption.

Environmental Impacts of the Alternatives to the Proposed Action

As an alternative to the requested exemption, the NRC could consider denial (i.e., the "no-action" alternative). Denial of the exemption would result in no change to the current environmental impacts. OPPD considers the "no-action" alternative to potentially impact OPPD's ability to provide safe, affordable, competitive, and reliable electrical power generation.

Alternative Use of Resources

The requested exemption does not involve the use of any different resources than those previously considered in the Final Environmental Statement for FCS, dated May 26, 2006. Accordingly, the proposed action is not a major federal action significantly affecting the quality of the environment.

VI. References

1. Certificate of Compliance No. 1004 for the Standardized NUHOMS® System, Amendment 8, effective December .5, 2005.
2. "Standardized NUHOMS® Horizontal Modular Storage System for Irradiated Nuclear Fuel, Final Safety Analysis Report, Appendix M," NUH-003, Revision 9, dated January 2006, including all issues FSAR Change Notices (Includes FCN 321, Rev. 1).
3. TN Calculation NUH06L-0502, Revision 0, OS197/OS197L Transfer Cask Shielding Evaluation for Single Assembly Misloading.

FSAR Change Notice

Transfer Cask Shield Evaluation for a Single Assembly Misloading

OPPD Exemption Request

From

NUHOMS CoC No.1004 Amendment 8

OPPD Agenda

• Introductions	Harry Faulhaber
• Meeting Objectives	Harry Faulhaber
• Background Discussion	Matt Pohl
• Technical Content	Bernie Van Sant
• Closing Remarks	Sudesh Gambhir

Meeting Objectives

Purpose:

Discuss OPPD's Intended Exemptions to Support Loading 32PT DSCs at FCS

Outcomes:

- Clear Understanding Of Exemption Request
- Establish Realistic Schedule
- Determine Levels And Timing Of Support

Background

- Need For Exemption Request
  - Maintain Full Core Off-load Capability
  - Spent Fuel Management Requirements
  - Simplify Fuel Handling During Core Reload

Schedule

- Time Frame
  - Request Submitted by May 26, 2006
  - Need Date For Exemption is June 30, 2006
    - Fuel Loading Crews Training
    - Mobilize Equipment
    - Cask Loading Campaign
    - Outage Interactions

Technical Content of Exemptions

- Technical Specifications Section 1.2, Functional and Operating Limits
  - 10 - 32PT Canister Campaign
  - FCS Fuel vs. Design Basis Fuel
    - Heat Load 18.4 kW vs. 24 kW
    - Average enrichment 4.514% vs. 5.0%
    - MTU/Assembly .38 vs. .475

T.S. 1.2.1 "Fuel Specifications" (Bases)

- FCS Fuel is bounded by Table 1-1a thru 1-1m
- Bases statement does not apply to 32PT
- Cask Dose Rate Measurements Addressed in T.S. 1.2.11
- UFSAR Evaluations are Bounding

T. S. 1.2.11 "Transfer Cask Dose Rates"

- Exemption From Limits/Specification and Applicability
- Justification of Equivalent Dose Rates With Supplemental Shielding
- UFSAR Evaluations are Bounding

T.S. 1.2.17a "32PT DSC Drying Duration Limit"

- Exemption From Tech. Spec. Initial Conditions at the Start of Vacuum Drying
- Justification of OPPD Initial Conditions
- UFSAR Evaluations are Bounding

OPPD 72.48 Scope

- Procedure Changes To Vacuum Drying
- Removal of Ram Access Cover

Environmental Assessment

- No Impact From Changes to Dose Measurement
- No Impact From Changes to Vacuum Drying
- Positive Impact From FCS Fuel
- No Impact to Non-radiological Plant Effluents
- Conclusions for Amendment 8 Remain Valid

Safety Benefits of Single 10 Canister Loading Campaign

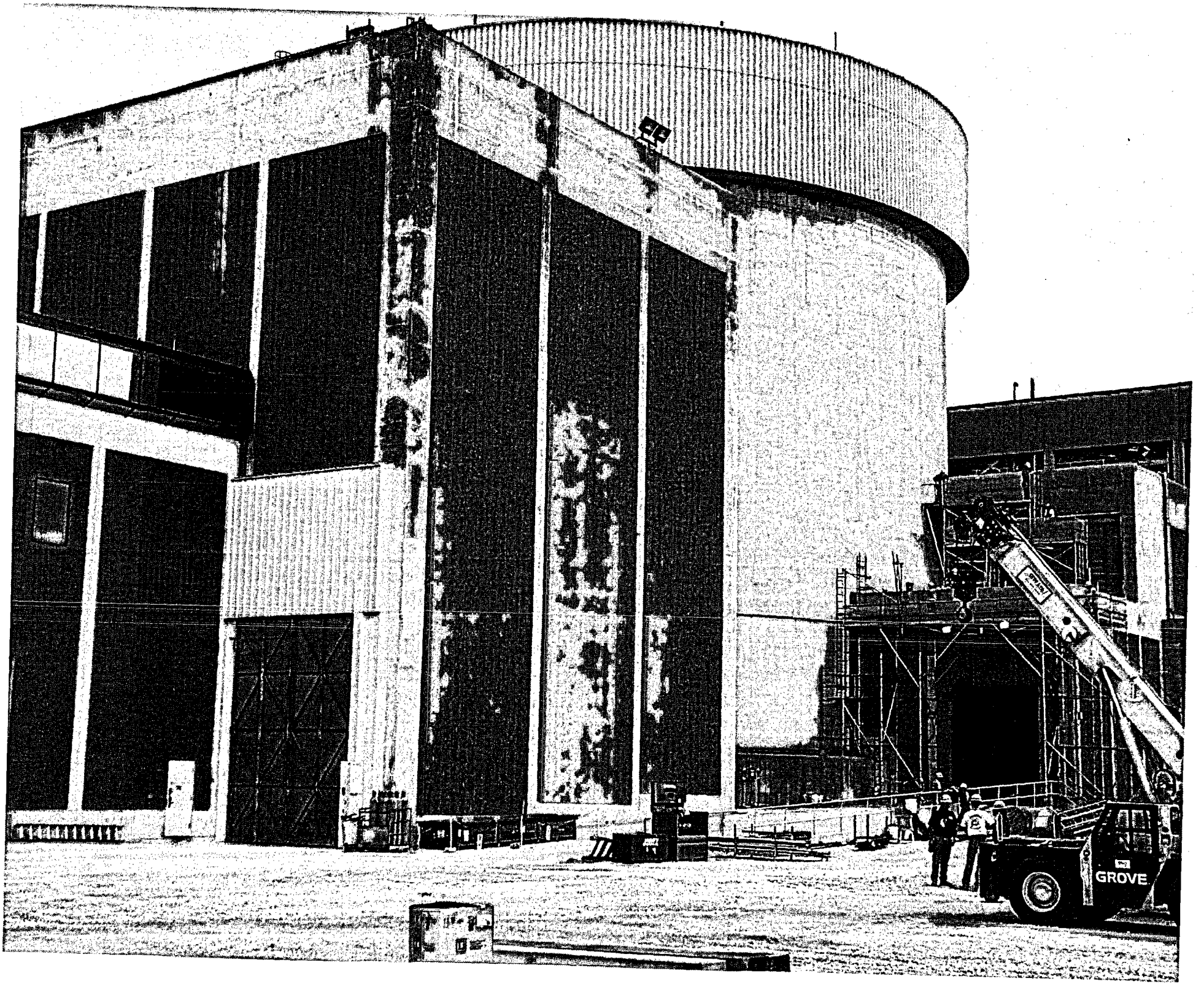
- Maximize Decay Heat Dispersion
- Experienced Crew
- Maintain Full Core Offload Capability

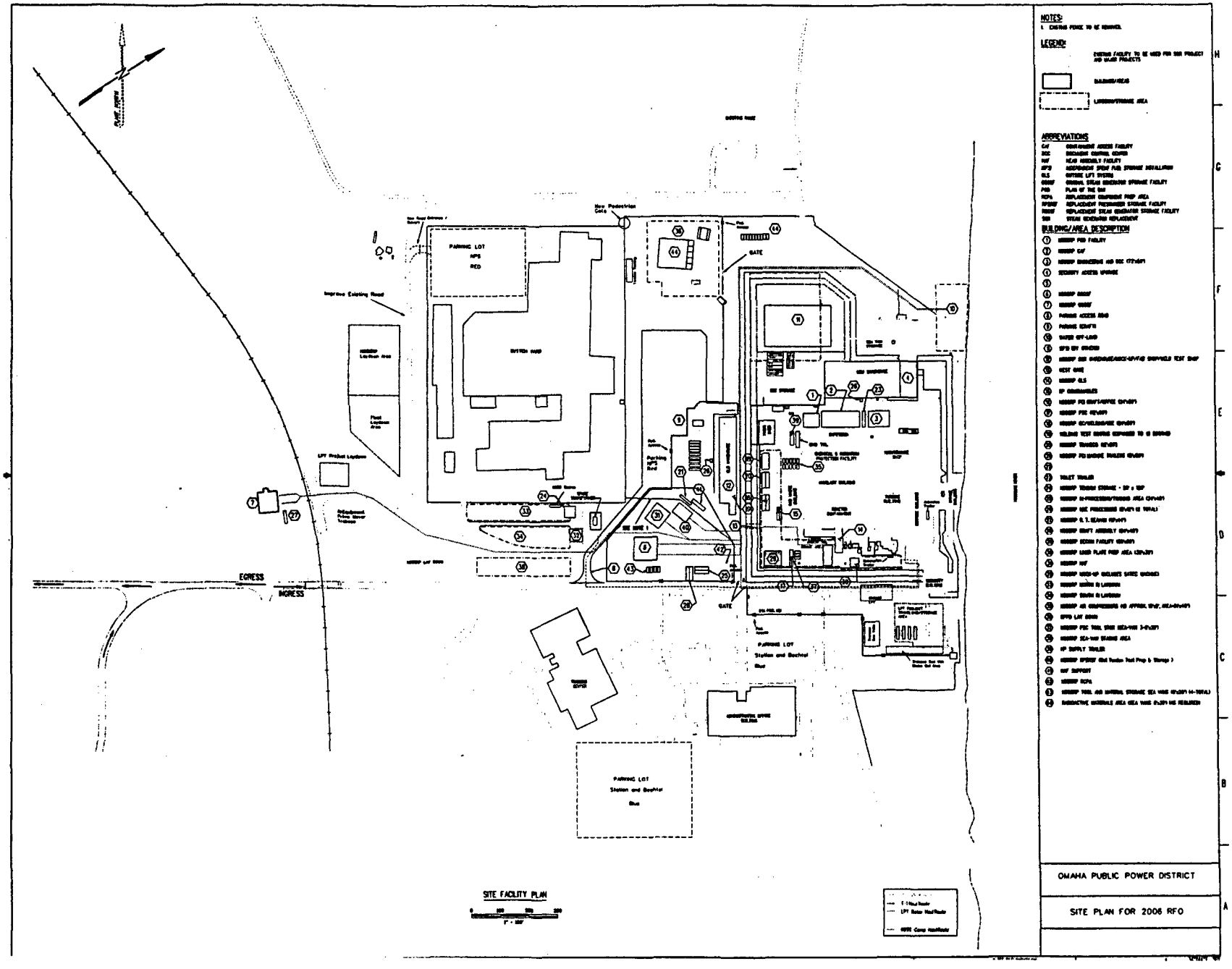
Conclusions

- Best interest of the public
- Enhances Nuclear Safety
- Enhances Security
- No Negative Environmental Impact

Review of Desired Outcomes

- Is content of the exemption request sufficient?
- Is the proposed schedule achievable?
- What support is needed during NRC review?


GROVE



NOTES:

1. EXISTING FENCE TO BE REMOVED.

LEGEND:

EXISTING FACILITY TO BE USED FOR THIS PROJECT AND MAJOR PROJECTS

BUILDING/AREA

LAYDOWN/STORAGE AREA

ABBREVIATIONS

CAF	CONFINEMENT ACCESS FACILITY
ECC	EXCAVATE CONTROL CENTER
HAF	HEAD ASSEMBLY FACILITY
ISFSI	INDEPENDENT SPENT FUEL STORAGE INSTALLATION
LLS	EMERGENCY LIFT SYSTEM
OSGF	ORIGINAL STEAM GENERATOR STORAGE FACILITY
PSD	PLAN OF THE DAY
RCPA	REPLACEMENT CONFINEMENT PREP AREA
RPSSF	REPLACEMENT PRESSURIZER STORAGE FACILITY
RSGF	REPLACEMENT STEAM GENERATOR STORAGE FACILITY
SGR	STEAM GENERATOR REPLACEMENT

BUILDING/AREA DESCRIPTION

1. [illegible] FEB FACILITY
2. [illegible] CAF
3. [illegible] ENGINEERING AND ECC (12'x50')
4. SECURITY ACCESS UPGRADE
5. [illegible]
6. [illegible] SHOP
7. [illegible] STORE
8. PARKING ACCESS ROAD
9. PARKING EXPAND
10. WATER SUPPLY
11. SFS DRY STORAGE
12. [illegible] SGR ENGINEERING/MOCK-UP/FUEL SHIPPING TEST SHOP
13. TEST CAVE
14. [illegible] GLS
15. EP ENGINEERING
16. [illegible] FEB EXPANSION (24'x50')
17. [illegible] FEC (40'x50')
18. [illegible] ECH ENGINEERING (24'x50')
19. WELDING TEST SHOPS EXPANDED TO 10 BOOTHS
20. [illegible] TRAINING (40'x50')
21. [illegible] FEB ENGINEERING TRAILERS (40'x50')
22. [illegible]
23. TOILET TRAILER
24. [illegible] TRAINING STORAGE - 20' x 100'
25. [illegible] EX-PROCESSED/TRAINED AREA (24'x50')
26. [illegible] SGC PROCESSED (24'x50') (6 TOTAL)
27. [illegible] S. T. SEAMS (40'x40')
28. [illegible] SHIFT ASSEMBLY (24'x50')
29. [illegible] DESIGN FACILITY (60'x50')
30. [illegible] LOAD PLATE PREP AREA (30'x30')
31. [illegible] MF
32. [illegible] HOOD-UP ENCLOSURE SHED (40'x50')
33. [illegible] SHOPS (2 LOCATIONS)
34. [illegible] SHOPS (2 LOCATIONS)
35. [illegible] AIR COMPRESSORS HD APPROX. 10'x5', AREA=(50'x50')
36. SPFS LAY DOWN
37. [illegible] FSC TOOL STAGE AREA=(100' X 60'x30')
38. [illegible] SEA-100 STAGING AREA
39. HP SUPPLY TRAILER
40. [illegible] SPENT (Old Tendon Test Prep & Storage)
41. MF SUPPORT
42. [illegible] RCPA
43. [illegible] TOOL AND MATERIAL STORAGE SEA 1000 (5'x30') (4 TOTAL)
44. RADIOACTIVE MATERIALS AREA AREA 1000 (5'x30') NO RESIDENCE

OMAHA PUBLIC POWER DISTRICT

SITE PLAN FOR 2006 RFO