Nebraska Public Power District
Nebraska's Energy Leader

G. R. Horn
Senior Vice President, Energy Supply

NLS980034
February 23, 1998

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

Gentlemen:

Subject: Request for Exemption from 10 CFR 70.24(a), Criticality Accident Requirements
Cooper Nuclear Station, NRC Docket 50-298, DPR-46

References:

1. NRC Information Notice 97-77 dated October 10, 1997, "Exemptions From the Requirements of Section 70.24 of Title 10 of The Code of Federal Regulations"

2. NPPD Letter from Jay M. Pilant to R. B. Chitwood, United States Atomic Energy Commission (USAEC) dated August 17, 1973, "Nebraska Public Power District Special Nuclear Material License No. 1277"

3. USAEC Letter from L. C. Rouse to NPPD dated August 24, 1973.

4. 62 Federal Register 63825 and 63911, December 3, 1997.

As promulgated to the industry in the United States Nuclear Regulatory Commission (NRC) Information Notice (IN) 97-77, Reference 1, the NRC informed licensees of their enforcement policy for failure to meet 10 CFR 70.24 requirements.

Therefore, pursuant to 10 CFR 70.24(d) and 10 CFR 70.14(a), Nebraska Public Power District (District) requests permanent exemption from the requirements of 10 CFR 70.24(a), "Criticality Accident Requirements" for Cooper Nuclear Station (CNS). 10 CFR 70.24(a) requires that in each area where special nuclear material is handled, used, or stored, a monitoring system be

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maintained which will energize clearly audible alarm signals if accidental criticality occurs. In addition, emergency procedures must be maintained for each of these areas which address evacuation plans and drills, designate responsible individuals for determining the cause of the alarm, and placement of accessible radiation survey instruments for use in such an emergency. Furthermore, records of procedures must be maintained for these areas for the entire time SNM is in these areas, and superseded revisions must be maintained for 3 years.

Specific exemptions from 10 CFR 70.24 were previously granted to the District in the construction phase by Special Nuclear Material (SNM) license 1277 (References 2 and 3). However, the exemptions were not explicitly renewed when the 10 CFR Part 50 operating license was issued. The District believes the exemption is technically appropriate for the same reasons the NRC granted the exemptions in connection with the construction phase SNM license. A criticality accident monitoring system was and is not necessary at Cooper Nuclear Station.

The attachment to this letter contains the exemption request which the District believes per 10 CFR 70.24 (d) will demonstrate "good cause" for granting such exemption, and per 10 CFR 70.14 (a) will demonstrate that such an exemption is "authorized by law," "will not endanger life or property or the common defense and security," and is "otherwise in the public interest."

In addition to the aforementioned, the District recognizes the concurrent proposed rule and direct final rulemaking of 10 CFR 50.68 and 70.24, with an effective date of February 17, 1998, "unless significant adverse comments are received..." (Reference 4), which in part relieves licensees of the requirement to request exemptions from 10 CFR 70.24 provided the provisions of 50.68 are met. Until such time, however, pursuant to the existing enforcement guidance of Reference 1, the District is proceeding with an exemption request. In addition, should new fuel be received prior to the effective date of 10 CFR 50.68 and an exemption to 10 CFR 70.24 has not yet been granted to CNS, the District will ensure that appropriate monitoring during the use, handling, and storage of new fuel will be performed in accordance with 10 CFR 70.24. Should 10 CFR 50.68 be approved prior to the receipt of new fuel, the District will comply with either 10 CFR 50.68 or 10 CFR 70.24.

Therefore, the District respectfully submits that, in accordance with the requirements of 10 CFR 70.14(a) and 70.24(d), the NRC should grant the requested exemption from the requirements of 10CFR 70.24(a) prior to the next fuel receipt (currently scheduled for Summer 1998 in support of a Fall Refueling Outage) in the event that the provisions of Reference 4 are not effective before such time.

This request involves no change to radiation monitoring instrumentation, emergency procedures, Emergency Plan or Security Plan presently utilized at Cooper Nuclear Station.

Should you have any questions concerning this matter, please contact me.

Sincerely,

G. R. Horn
Senior Vice President
Of Energy Supply

/lrd
Attachment

cc: Regional Administrator
USNRC - Region IV

Senior Project Manager
USNRC - NRR Project Directorate IV-1

Senior Resident Inspector
USNRC

NPG Distribution

STATE OF NEBRASKA)
)
PLATTE COUNTY)

G. R. Horn, being first duly sworn, deposes and says that he is an authorized representative of the Nebraska Public Power District, a public corporation and political subdivision of the State of Nebraska; that he is duly authorized to submit this correspondence on behalf of Nebraska Public Power District; and that the statements contained herein are true to the best of his knowledge and belief.

G. R. Horn

Subscribed in my presence and sworn to before me this 23rd day of February, 1998.

Rita L. Pflasterer
NOTARY PUBLIC

GENERAL NOTARY-State of Nebraska
RITA L. PFLASTERER
My Comm. Exp. Dec. 19, 1999

ATTACHMENT 1
Cooper Nuclear Station
Request for Exemption from 10 CFR 70.24(a)
Criticality Accident Requirements

I. INTRODUCTION

Pursuant to 10 CFR 70.24(d) and 70.14(a), Cooper Nuclear Station (CNS) hereby requests a permanent exemption from the requirements of 10 CFR 70.24(a), "Criticality Accident Requirements." This request will demonstrate that per 10 CFR 70.14(a) an exemption is "authorized by law," "will not endanger life or property or the common defense and security," and is "otherwise in the public interest." Furthermore, this request will demonstrate that pursuant to 10 CFR 70.24 (d) "good cause" exists for requesting an exemption.

This request is an administrative matter and involves no change to radiation monitoring instrumentation, emergency procedures, and Security Plan or Emergency Plan presently utilized at CNS.

II. REGULATORY REQUIREMENTS

10 CFR 70.24(a) requires licensees authorized to possess special nuclear material in amounts specified in 70.24(a) to maintain a monitoring system and emergency procedures for the purpose of detecting and responding to accidental criticality. These requirements are applicable to CNS. Specifically, section 70.24(a) requires the following of licensees:

A. Maintain in each area in which such licensed SNM is handled, used, or stored, a monitoring system meeting the requirements of either paragraph (a)(1) or (a)(2), as appropriate, and using gamma- or neutron-sensitive radiation detectors which energize clearly audible alarm signals if accidental criticality occurs.

B. Maintain emergency procedures for each area in which licensed SNM is handled, used, or stored to ensure that all personnel withdraw to an area of safety upon sounding of the alarm. These procedures must include the conduct of drills to familiarize personnel with the evacuation plan, and designation of responsible individuals for determining the cause of the alarm, and placement of radiation survey instruments in accessible locations for use in such an emergency.

C. Retain a copy of current procedures for each area as a record for as long as licensed SNM is handled, used, or stored in the area. The licensee shall retain superseded portions of the procedures for three years after the portion is superseded.

III. JUSTIFICATION FOR GRANTING THE EXEMPTION REQUEST

10 CFR 70.24 (d) anticipates that relief from these requirements is appropriate in some circumstances and allows licensees to apply for an exemption from section 70.24 if good cause is shown. The District believes good cause exists based on:

A. Accidental criticality is precluded through fuel storage design, geometric spacing, and administrative controls. In addition, there are administrative controls on the quantity of forms of SNM, other than nuclear fuel, such that accidental criticality is precluded. Since criticality is precluded, there is no need for a criticality accident monitoring system.

B. The exemption meets the requirements for exemption, as specified in 10 CFR 70.14 (a). Compliance with section 70.24(a) would not serve the underlying purpose of the regulation.

C. Exemptions from 70.24 requirements were granted to CNS on 11/4/71, and as amended 8/24/73, in the construction phase SNM license (SNM 1277). However, the exemption was not carried forward when the Part 50 CNS operating license was issued. CNS believes the exemption is technically appropriate for the same reasons the NRC granted the exemption in connection with SNM 1277. A criticality accident monitoring system was and is not necessary at CNS.

The following analysis demonstrates justification for the granting of an exemption to 10 CFR 70.24(a).

AUTHORIZED BY LAW

The Commission's authority to grant the requested exemption from the requirements of Part 70 is codified in 10 CFR 70.14. In addition, 10 CFR 70.24(d) clearly states that the NRC has specific and express authority to exempt licensees from the requirements of 10 CFR 70.24. Therefore, granting the exemption is explicitly authorized under NRC regulations.

WILL NOT ENDANGER LIFE OR PROPERTY OR THE COMMON DEFENSE SECURITY

An exemption request will not endanger life or property or the common defense and security if the request meets the statutory standard of adequate protection to the health and safety of the public. To ensure protection of the health and safety of the public, the exemption request must demonstrate that accidental criticality is precluded. To further ensure the common defense and security are not endangered, the request must also demonstrate that the loss or diversion of SNM is precluded.

There are two categories of SNM used, stored, or handled at CNS: sources and nuclear fuel. To prevent accidental criticality of SNM other than nuclear fuel (i.e., sources), the total quantity and design of sources must be less than that required to obtain a critical mass. Accidental criticality is precluded in the use of nuclear fuel by means of procedural controls, compliance with CNS Technical Specifications, and design characteristics. As described below and in subsequent sections of this Attachment, CNS provides adequate protection to the health and safety of the public by precluding accidental criticality during use, storage, and handling of SNM. In addition, as described below, CNS also provides adequate protection by precluding the loss or diversion of SNM.

A. Use of Special Nuclear Material

At CNS, SNM is primarily in the form of nuclear fuel. However, SNM also is used (and stored) in the form of sources for reactor start-up instrumentation, radiation monitoring equipment calibration, and fission detectors or as SNM used for sample analysis, instrument calibration or associated with radioactive apparatus/components. The quantity of SNM specified for a critical mass is identified in Section 1.1 of Regulatory Guide 10.3, "Guide for the Preparation of Applications for Special Nuclear Material Licenses of Less than Critical Mass Quantities." The total quantity and design of the SNM sources at CNS is insufficient to obtain a critical mass, so accidental criticality is precluded. Consequently, in accordance with 10 CFR 70.24(c), CNS is exempt from the requirements of 10 CFR 70.24(b) and therefore the remainder of the discussion will be directed toward irradiated and unirradiated nuclear fuel.

Nuclear fuel is used at CNS in the reactor vessel. Accidental criticality is precluded through compliance with the CNS Technical Specifications, including reactivity requirements (e.g., shutdown margins, limits on control rod movement, etc.), instrumentation requirements (i.e., reactor power and radiation monitors), and controls on refueling operations (i.e., refueling equipment interlocks). In addition, procedural controls provide that plant operators check instruments used for monitoring behavior of the nuclear fuel in the reactor to assure that the facility is operated in such a manner as to preclude accidental criticality. Access to the fuel in the reactor vessel while in use is not physically possible and is procedurally controlled during refueling, eliminating any concerns with loss or diversion of the fuel.

Since accidental criticality, and loss or diversion, is precluded, the requirements of 10 CFR 70.24(a) are not necessary for fuel used in the reactor vessel.

B. Storage of Special Nuclear Material

Nuclear fuel is stored in the spent fuel pool, on the refuel floor, and in areas specifically authorized by the Reactor Engineering Supervisor.

1. Spent Fuel Pool Storage

As described in CNS USAR Chapter X, Sections 3.3 and 3.5, the spent fuel storage racks are designed to maintain, when fully loaded with fuel assemblies, a subcritical configuration having a k-effective (k_{eff}) ≤ 0.95 for all normal and abnormal configurations.

Compliance with the CNS Updated Safety Analysis Report (USAR) and Technical Specifications (TS) ensures criticality is precluded. Procedural controls require strict review of fuel reactivity limits prior to placement of fuel in the spent fuel pool to ensure that TS and USAR compliance is met. Consequently, accidental criticality is precluded for storage in the spent fuel pool.

2. Refuel Floor Storage or Storage Area Specifically Authorized by the Reactor Engineering Supervisor

New fuel is temporarily stored on the refuel floor or area specifically authorized by the Reactor Engineering Supervisor prior to being inspected and stored in the spent fuel storage pool. New fuel is stored in accordance with the fuel manufacturer's recommendations. CNS procedures utilize fuel manufacturer requirements and criticality evaluations to support new fuel storage controls outside the spent fuel pool that will preclude criticality under optimum moderator conditions.

Since accidental criticality is precluded, the requirements of 10 CFR 70.24(a) are not necessary for fuel storage at CNS.

C. Handling of Special Nuclear Material

Handling of new fuel and irradiated fuel is carefully controlled and performed in accordance with the fuel manufacturer's recommendations. CNS procedures utilize fuel manufacturer requirements and criticality evaluations to support new fuel handling controls which will preclude criticality under optimum moderator conditions. CNS procedures for handling nuclear fuel strictly limit the number of fuel bundles which can be out of approved storage locations at any given time.

Fuel handling operations within the spent fuel pool, between the spent fuel pool and reactor vessel, and within the reactor vessel are restricted by design and TS limitations to preclude accidental criticality. In addition, the safety analysis in the USAR (Chapter X, Section 3) demonstrates that even in a fuel handling accident (i.e., a dropped fuel assembly), criticality would be precluded.

CNS precludes loss or diversion of SNM by procedural controls which maintain source and fuel inventories and limit access to authorized personnel only. The absence of an accidental criticality monitoring system would not affect the capability of CNS to ensure SNM is safeguarded.

Since accidental criticality is precluded, the requirements of 10 CFR 70.24(a) are not necessary for fuel handling at CNS.

IN PUBLIC INTEREST

The NRC had not provided specific detailed guidance on how to apply the "public interest" standard under section 70.14(a). However, in a 1985 amendment to section 50.12(a), the NRC deleted the "public interest" standard in favor of defining the "special circumstances" that justify requesting an exemption from NRC regulations (50 Federal Register 50764, December 12, 1985). At the same time, the NRC implied that section 70.14(a) was not revised to be consistent with section 50.12(a) only because the NRC did not envision frequent use of section 70.14(a). It seems reasonable to accept that the NRC intends the "special circumstances" in section 50.12(a) to serve the same purpose as the "public interest" criterion of section 70.14(a) and that an exemption request which satisfies the special circumstances of 50.12(a) also satisfies the public interest element of 70.14(a).

Among the several special circumstances identified in section 50.12(a)(2), the following two are relevant to this exemption request:

(a)(2)(ii) Application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule; or

(a)(2)(iii) Compliance would result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted, or that are significantly in excess of those incurred by others similarly situated...

The basis for granting an exemption that would be in the public interest utilizes these two special circumstances, and is described as follows:

1. WOULD NOT SERVE AND IS NOT NECESSARY TO ACHIEVE THE UNDERLYING PURPOSE OF THIS REQUIREMENT

The explicit language of section 70.24 does not identify the purpose(s) for requiring an accidental criticality monitoring system and the associated emergency procedures. However, the regulatory history underlying this requirement indicates that:

> The following amendments [i.e., section 70.24] to these regulations [i.e., Part 70] is [sic] designed to assure that all licensees who are authorized to possess special nuclear material in amounts which may produce conditions of accidental criticality have in operation adequate alarm systems and emergency plans to evacuate personnel (23 Federal Register 8747, November 11, 1958 [Emphasis added]).

Based on this language, the NRC apparently promulgated section 70.24 to ensure licensees are aware of, and take appropriate response to, conditions of accidental criticality.

This language implies that where design and/or procedural safeguards ensure against conditions of accidental criticality in the first place, accidental criticality monitors would not be necessary. The NRC echoes support for this interpretation in its regulatory position contained in Section C.1 of Regulatory Guide 8.12, "Criticality Accident Alarm Systems," Revision 2, October 1988, as follows:

> "Section 70.24 of 10 CFR Part 70 requires alarm coverage 'in each area in which such licensed special nuclear material is handled, used, or stored...' whereas paragraph 4.2.1 of the standard states that the need for criticality alarms must be evaluated for such areas. If such an evaluation does not determine that a potential for criticality exists, as for example where the quantities or form of special nuclear material make criticality practically impossible or where geometric spacing is used to preclude criticality, such as in some storage spaces for unirradiated nuclear plant fuel, it is appropriate to request an exemption from 70.24." [Emphasis added.]

As described in the preceding discussion, and Section IV below, design characteristics, safety analyses, TS, and administrative controls ensure that accidental criticality is precluded. Therefore, the application of section 10 CFR 70.24(a) to CNS would not serve and is not necessary to achieve the underlying purpose of this requirement.

2. COMPLIANCE RESULTS IN UNDUE HARDSHIP AND IN EXCESS OF OTHERS SIMILARLY SITUATED

A criticality accident monitoring system requires a considerable expenditure of resources, including the design and installation of the system, the development and implementation of any associated emergency procedures, and the operation and maintenance of the system for the life of the plant. Accordingly, compliance with section 70.24(a) would result in an undue hardship and other costs that are

significantly in excess of those likely contemplated when this regulation was adopted.

In addition, various other nuclear facilities across the nation have already received exemptions from 10 CFR 70.24 (a) because they likewise have shown that accidental criticality is unlikely to occur. Consequently, compliance with 10 CFR 70.24 (a) would result in costs significantly in excess of those incurred by others similarly situated.

IV. CRITERIA AS OUTLINED IN NRC INFORMATION NOTICE 97-77 AND PROPOSED RULING 10 CFR 50.68.

In October 1997, the NRC published Information Notice 97-77, containing seven criteria against with the NRC staff would evaluate 70.24(a) exemption requests. These seven criteria, which are discussed below, have been incorporated into direct final rulemaking on Criticality Accident Requirements, 10 CFR Parts 50.68 and 70.24 (Reference 62 Federal Register 63825 and 63911).

1. Plant procedures do not permit more than three new fuel assemblies to be in transit between their associated shipping cask and dry storage rack at one time.

New fuel bundles are received on site and transported to the Reactor Building in the approved shipping containers from General Electric (GE). The package of the fuel (both the metal inner container and wooden outer container) ensures that a geometrical criticality safe configuration is maintained during transport, handling, and storage. Each container holds two fuel assemblies. Each inner metal container is removed, one at a time, from its wooden shipping container and hoisted to the refuel floor to an approved storage location where all the metal containers are stacked in an geometrically safe configuration to prevent accidental criticality.

New fuel shipments are temporarily stored on the refuel floor in the metal shipping containers until the bundles are inspected and placed in the spent fuel pool. Inspection involves transferring a metal shipping container from the fuel storage location to the metal shipping container vertical support area, the cover is removed, and each fuel bundle is removed using the overhead crane and placed in the new fuel inspection stand; while the inspection proceeds the empty container is moved to a designated storage area and the next container is prepared. Strict limits are in place for the maximum number of fuel bundles allowed out of approved storage locations at any given time. Typically no more than two fuel bundles are out of the approved storage location on the refuel floor at any given time; CNS procedures strictly prohibit a fuel array of four or more fuel bundles outside normal storage areas or shipping containers. CNS procedures also allow no more than three fuel bundles to be out of metal shipping containers, Spent Fuel Storage Pool, spent fuel shipping cask, or reactor vessel at any one time.

The District believes this procedural limitation is consistent with the above criteria of no more than three bundles to be in transit between their associated shipping cask and storage location.

2. *The k-effective of the fresh fuel storage racks filled with fuel of the maximum permissible U-235 enrichment and flooded with pure water does not exceed 0.95, at a 95 percent probability, 95 percent confidence level.*

The maximum design basis k-effective (k_{eff}) for the new fuel storage vault (NFSV) with a fully loaded array is ≤ 0.90 under normal (dry) conditions (k_{eff} ≤ 0.95 in the flooded condition) as specified in Chapter X, Section 2.3 of the USAR and TS.

As described in Question (1) above, new fuel is transported in approved metal shipping containers in wooden crates. While in this packaging configuration, the fuel is not subject to the requirements of 10 CFR 70.24(a) since it is configured for transportation and is therefore subject to the regulations for transportation of radioactive material, 10 CFR 71.

The CNS NFSV is not currently used. New fuel shipments are stored on the refuel floor in the metal shipping containers until the bundles are inspected and placed in the spent fuel pool. This is a more convenient means for temporary storage of the new fuel bundles prior to their inspection and placement in the spent fuel pool. Handling from the truck bay to the refuel floor is controlled by CNS procedures and conducted such that a geometrically safe configuration is maintained at all times to prevent accidental criticality.

GE has performed analyses for the shipping and storage crates used and their arrangement. In order to prevent accidental criticality, it has been demonstrated that the fuel may be stacked in their metal shipping containers no more than four (4) boxes high with an inner array size of no more than 260 containers. This analysis takes into account the possibility of a moderator and thus is sufficient to demonstrate that accidental criticality is precluded.

CNS procedures also require area radiation monitor RMA-RA-2 to be operable and within 120 feet of the new fuel during handling, using, or storing on the refuel floor. Administrative controls exist to ensure that the entire controlled path and laydown area are within 120 feet of this monitor.

3. *If optimum moderation of fuel in the fresh fuel storage racks occurs when the fresh fuel storage racks are not flooded, the k-effective corresponding to this optimum moderation does not exceed 0.98, at a 95 percent probability, 95 percent confidence level.*

As discussed above, the design basis for the NFSV is based on a GE analysis and is included in the CNS licensing basis (USAR Chapter X, Section 2.0). However, this description does not include the requirements for a hypothesized optimum moderator configuration analysis.

The NFSV, as discussed previously, is not currently in use at CNS since it is more convenient to store new fuel on the refuel floor prior to inspection and movement to the spent fuel pool storage racks. In addition, administrative controls currently prevent the use of the NFSV.

However, to preserve flexibility for future activities, the NFSV is included in the scope of this exemption request. Prior to its use, it will be necessary to evaluate the NFSV with respect to optimum moderator configuration and make the appropriate administrative changes to support and control the use of the NFSV. CNS does not, however, intend to pursue this evaluation at this time since use of the NFSV is considered a contingency option and there is no current need for using this location.

4. *The k-effective of spent fuel storage racks filled with fuel of the maximum permissible U-235 enrichment and filled with pure water does not exceed 0.95, at a 95 percent probability, 95 percent confidence level.*

The design basis for the spent fuel pool is described in Chapter X, Section 3.0 of the USAR. In addition, TS impose limits on the k_{eff} of the spent fuel storage racks. The spent fuel storage racks are designed to maintain, when fully loaded with fuel assemblies, a subcritical configuration having a $k_{eff} \leq 0.95$ with the storage pool filled with unborated water, for all normal and abnormal configurations (including fuel handling accidents).

Holtec Report HI-971783, "Criticality Safety Evaluation of the Spent Fuel Storage Racks in the Cooper Nuclear Station For Maximum Enrichment Capability," defines the criteria for acceptable storage of fuel with maximum average enrichments up to 4.6 wt% U-235 such that the k_{eff} limit is satisfied (i.e., $k_{eff} \leq 0.95$). The analysis utilizes the CASMO-3 analytical model, verified by KENO5a and MCNP codes, considers normal and abnormal configurations, and includes calculation uncertainties and reactivity uncertainties associated with the manufacturing tolerances as well as all fuel types currently in use or might possibly be planned for use at CNS. The results of the analysis demonstrate that the spent fuel storage pool $k_{eff} \leq 0.95$ is maintained with 95% probability, 95% confidence level.

5. *The quantity of forms of special nuclear material, other than nuclear fuel, that are stored on site in any given area is less than the quantity necessary for a critical mass.*

The quantity of SNM sufficient for a critical mass is identified in Section 1.1 of Regulatory Guide 10.3, "Guide for the Preparation of Applications for Special Nuclear Material Licenses of Less than Critical Mass Quantities." Quantities ≤ 350 grams contained U-235, 200 grams of U-233, 200 grams of Pu (other than Pu-Be neutron sources), or that the sum of such ratios for all kinds of SNM in combination does not exceed unity, are insufficient to form a critical mass. The net total quantity and design of the SNM sources at CNS is far below that described in Regulatory Guide 10.3 above, and therefore insufficient to obtain a critical mass. The geometry of the SNM forms (small quantities in individual sources/detectors) is also not conducive to support the formation of a critical configuration.

The largest single amount of non-fuel SNM stored in the same location is approximately 1.1 gram Pu-238 (Pu-Be source). Other forms of SNM are the Intermediate Range Monitors (IRMs), Local Power Range Monitors (LPRMs), and Source Range Monitors (SRMs). The approximate quantity of fissionable material for each of these sources is listed below:

IRMs:	< 0.8 mg per detector
LPRMs:	< 2 mg per string
SRMs:	approx. 3 mg per detector

Currently five IRMs, one LPRM, and five SRMs are stored outside the reactor core or spent fuel pool. Considering the quantities of fissionable material contained within each monitor, it can be seen that the total quantity of SNM remains well below the limits of Regulatory Guide 10.3. In addition to the IRMs, LPRMs, and SRMs, CNS maintains Pu sources on site, each of which contain significantly less than 1 gram fissionable material. With the exception of nuclear fuel, all individual components containing special nuclear material currently stored or used at CNS are significantly below the limits specified in Regulatory Guide 10.3 to form a critical mass.

6. *Radiation monitors, as required by GDC 63, are provided in fuel storage and handling areas to detect excessive radiation levels and to initiate appropriate safety actions.*

GDC 63 requires that "appropriate systems shall be provided in fuel storage and radioactive waste systems and associated handling areas (1) to detect conditions that may result in loss of residual heat removal capability and excessive radiation levels and (2) to initiate appropriate safety actions."

As described in the CNS USAR, Chapter 1 Section 6.4.4, area radiation monitors (ARMs) are provided to monitor for abnormal radiation at various locations in the reactor building, turbine, radwaste, and main control buildings. The monitors annunciate when abnormal radiation levels are detected. Radiation monitors are also provided on various lines to monitor either for radioactivity materials released to the environs via process liquids and gases or for process system malfunctions.

The objective of the ARM systems is to warn of abnormal gamma radiation levels in areas where radioactive material may be handled or inadvertently introduced. The monitors provide operating personnel with a permanent record and indication in the Control Room of gamma levels. In the event excessive radiation is detected, ARMs sound alarms locally and in the Control Room.

In addition to the ARMs, constant air monitoring units (CAMs) are operated at selected locations within the plant to continuously monitor levels of airborne activity and to alarm in the event selected set point values are exceeded.

The function of the ARMs and CAMs are included in radiation worker training, and employees are instructed to immediately evacuate the vicinity upon ARM or CAM alarms. Site procedures also provide direction for personnel to evacuate the area when ARMs or CAMs alarm on abnormal radiation or airborne radioactivity levels, as well as other operator actions to place the plant in a safe condition and prevent the release of radioactivity. This includes entry into emergency operating procedures providing for personnel evacuation and operator actions as necessary. During fuel handling operations or other core alterations, personnel admitted to the refueling floor are administratively required to be familiar with ARMs and evacuation procedure used if an alarm is received.

The Reactor Building Ventilation radiation monitoring system provides clear indication to operations personnel whenever abnormal amounts of radioactivity exist in the reactor building.

During planned operation other than refueling, the radiation monitoring system simply acts as a process safety system in monitoring the reactor building atmosphere for abnormal radioactivity. During fuel handling operations (including criticality tests with the reactor vessel head off), the refueling zone monitoring system acts as an engineered safeguard against the consequences of a refueling accident. The system design consists of four gamma detectors (two channels per division) mounted such that they can monitor the flow of gas through the reactor building plenum. The primary purpose of the monitors is to isolate the reactor building and initiate SGT system when excessive levels of radiation are detected; indication is also provided in the control room. Each of the four channels has two trips, the upscale indicating excessive radiation and the downscale indicating instrument trouble. One upscale trip (or one downscale trip)

will trip the division, and if both divisions are tripped then the Reactor Building is isolated, the SGT system is started, the various primary containment purge and exhaust valves are closed. The redundancy and arrangement of channels is sufficient to ensure that no single active component failure can prevent isolation when required.

Therefore, the District believes these monitors satisfy the requirements of GDC 63 at CNS in that they provide a means to detect excessive radiation and result in appropriate operational or personnel response.

7. *The maximum nominal U-235 enrichment is 5 wt percent.*

The CNS Technical Specifications do not limit U-235 enrichment. Enrichment is adjusted to meet power generation needs of the plant while keeping thermal limits within approved limits. The maximum lattice enrichment currently loaded into the CNS spent fuel pool is 3.91%, and the maximum bundle average enrichment is 3.50%. The maximum enrichment currently licensed by our fuel supplier, GE, is 5.0% U-235.

Therefore, the maximum nominal enrichment of new fuel assemblies at CNS is less than 5 wt% U-235.

VI. CONCLUSION

Because exemptions from the requirements of 10 CFR 70.24(a) for CNS are authorized by law, will not endanger life or property or the common defense and security, is in the public interest due to the presence of special circumstances, and is requested for good cause, CNS respectfully submits that, in accordance with the requirements of 10 CFR 70.14(a) and 70.24(d), the NRC should grant the requested exemption from the requirements of 10CFR 70.24(a).

Correspondence No: NLS980034

The following table identifies those actions committed to by the District in this document. Any other actions discussed in the submittal represent intended or planned actions by the District. They are described to the NRC for the NRC's information and are not regulatory commitments. Please notify the Licensing Manager at Cooper Nuclear Station of any questions regarding this document or any associated regulatory commitments.

COMMITMENT	COMMITTED DATE OR OUTAGE
CNS will put in place provisions to perform monitoring I.A.W. 10CFR70.24 in the event that a) 10CFR50.68 is not effective and b) an exemption from 70.24 has not been received prior to receipt of new fuel. In the event that 10 CFR 50.68 becomes effective, prior to the receipt of new fuel, the District will comply with either 50.68 or 70.24(a).	RE18
Prior to using the NFSV, an analysis will be performed such that the requirements of 10CFR50.68 OR 10CFR70.24 are met.	N/A (prior to use of NFSV)