UNC Naval Products

UNC Naval Products
67 Sandy Desert Road
Uncasville, Connecticut 06382-0981
203/848-1511

April 8, 1987

Thomas T. Martin, Director
U.S. Nuclear Regulatory Commission
Region I
Division of Radiation Safety and Safeguards
631 Park Avenue
King of Prussia, PA 19406

Gentlemen:

Subject: USNRC Inspection 70-731/86-02

Reference: Letter on Subject, T. T. Martin to
N. C. Kaufman dated March 10, 1987

This is in response to the referenced letter, which responded to our letter of July 2, 1986, relative to the subject inspection. Based on the comments in your letter, UNC Naval Products acknowledges the item of non-compliance which was in question, and as noted in your letter, has already taken action to correct the deficiency. In the future, we will take necessary, timely action to amend our NRC license for the addition of fuel handling facilities to our plant.

Very truly yours,

N. C. Kaufman
President

/kjh

cc: R. J. Gregg
W. F. Kirk

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
631 PARK AVENUE
KING OF PRUSSIA, PENNSYLVANIA 19406

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MAR 10 1987

Docket No. 70-371

UNC, Incorporated
UNC Naval Products Division
ATTN: Mr. N. C. Kaufman
President and General Manager
67 Sandy Desert Road
Uncasville, Connecticut 06382

Gentlemen:

Subject: Inspection No. 70-371/86-02

Your letter dated July 2, 1986, in response to our letter dated June 2, 1986, provided corrective action for the violations identified during the subject inspection and expressed your disagreement with one of the violations.

Thank you for informing us of the corrective and preventive actions documented in your letter. These actions will be examined during a future inspection of your licensed program.

With regard to Appendix A, Item B, we have evaluated your response, taking into consideration the additional information you provided as a basis for refuting the violation. For the following reasons, we have concluded that the violation is correct as cited. Condition 9 of your current license, issued on February 2, 1985, authorizes use of special nuclear materials in those facilities that existed when the license was approved by the NRC. The specific restriction on use in existing facilities was added to your license as a result of discussions held prior to the approval of that license in 1985 and we understand that the reason for that restriction was made clear to your staff by NRC's Office of Nuclear Material Safety and Safeguards at that time. In any event, the reason for that restriction should be clear - the NRC can only authorize the use of SNM in facilities that it has reviewed and found suitable for the intended use of that SNM.

Additions to existing facilities, as in your case, are considered by the NRC to be new facilities, since they have not undergone NRC review for suitability. In addition, it is immaterial that the drawing which depicts the existing facilities is in Part II of your license (Demonstration Section). The bases for NRC's approval of your license in 1985 included only the facilities depicted on that drawing, at that time, as indicated by reference to that drawing in Part I of your license (Criteria Section). Therefore, a subsequent revision to that drawing, to show additions to those existing facilities after license approval, is not sufficient information for NRC to assess the use to which those additions will be put, i.e., that SNM will be used/stored therein. It is for this reason that providing a revised drawing to NRC for information only, as you did, cannot be considered adequate to meet your license condition.

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On the basis of the foregoing information, we concluded that the violation was correct as cited. However, we note that you have taken steps to correct this violation by letter to the NRC's Office of Nuclear Material Safety and Safeguards dated December 8, 1986, that requested your NRC license be amended to incorporate those facilities that did not exist on February 27, 1985, but in which SNM is now being used. The license amendment which resolves this matter was issued on February 9, 1987.

In order to meet your obligation pursuant to 10 CFR 2.201, please provide this office in writing, within 30 days, those actions you will take to prevent recurrence of this violation.

The response requested above is not subject to clearance by the office of Management and Budget under the Paperwork Reduction Act of 1980, PL 96-511.

Your cooperation with us is appreciated.

Sincerely,

Thomas T. Martin, Director
Division of Radiation Safety
and Safeguards

cc:
Public Document Room (PDR)
Nuclear Safety Information Center (NSIC)
State of Connecticut

bcc:
Region I Docket Room (w/concurrences)
Management Assistant, DRMA
Robert J. Bores, DRSS
J. Roth, DRSS
G. Bidinger, NMSS

UNC NAVAL PRODUCTS

UNC

Division of UNC Resources, Inc.
67 Sandy Desert Road
Uncasville, Connecticut 06382-0981
Telephone 203/848-1511

In Reply Please Refer To:
NIS-86-7-2

July 2, 1986

Mr. Thomas T. Martin, Director
Division of Radiation Safety
and Safeguards
U.S. Nuclear Regulatory Commission
Region 1
631 Park Avenue
King of Prussia, Pennsylvania 19406

Subject: USNRC Inspection No. 70-371/86-02

Ref: Letter on Subject, T. T. Martin to G. O. Amy dated June 2, 1986

Dear Sir,

This letter is in response to the referenced letter, which presented the results of the subject inspection. As can be seen from the details in the attachment to this letter, we have taken prompt, effective action to address the items of NRC concern presented in Appendix A to the referenced letter. In addition, we have specifically addressed additional items which were covered in the body of the inspection report. As reviewed in the attachment to this letter, we do not concur in all of the items identified by the NRC as items of noncompliance, and feel that we have provided sound reasons for our disagreement. We are, of course, prepared to discuss any of those items with you at your convenience.

Very truly yours,

N. C. KAUFMAN
President and General Manager

NCK/jmp

cc: R.J. Gregg
W.F. Kirk

Attachment

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ATTACHMENT TO LETTER, N. C. KAUFMAN TO
T. MARTIN, DATED JULY 2,1986

UNC RESPONSE TO NRC INSPECTION NO. 70-731/86-02

1. Appendix A, Item A, and Details of Inspection paragraph 3.a-Criticality Safety Postings (Posted limits not present for a fuel element on a table).

A fuel element used for development purposes was placed on a table which was located in a red dot area. The DWR routing instruction was stamped at the operation as "Observe Posted Criticality Limits" (rather than the normally used element stamp "Criticality Limit: 1 STD S.Q. - 10 elements"). Since the table was not specifically recognized on any area posting, no "Posted Criticality Limit" existed.

(1) The corrective steps which have been taken and the Results Achieved.

As noted in Details of Inspection paragraph 3.a, an NIS Authorization was issued to recognize the table. In addition, since criticality safety limits can be set forth by area postings or on NIS approved routing instructions, NIS and Engineering personnel have been reinstructed with respect to assuring that criticality safety instruction/limits given on routing instructions are compatible to general area posting of NIS Criticality Authorizations.

The operation, as performed, was safe, though not in compliance with requirements.

(2) Corrective Steps Which Will Be Taken To Avoid Further Violations.

As stated in paragraph (1) above.

(3) The Date When Full Compliance Will Be Achieved.

We are currently in full compliance.

2. Appendix A, Item B, and Details of Inspection paragraph 4.a Facility Modifications (Use of new auxiliary buildings without NRC approval).

During resolution of the NRC License issued in 1977, UNC moved the noted drawing E-740913-150 from Part I (NRC approved) to Part II (Information to NRC) with NRC concurrence so that minor building changes could be made by UNC; with the need for NRC concurrence being determined by the guidelines stated below. Attached are license pages showing that change (i.e. page 1-2 dated June 4, 1976 and May 3, 1977). The last sentence of paragraph 1.2.2 was also added to clarify the restrictions that would apply to new or modified areas or buildings: "The possession or use of SNM in any area or building shall not be permitted unless it conforms to NRC requirements (e.g. nuclear alarms)".

LICENSE: SNM-368, DOCKET NO. 70-371
NAVAL PRODUCTS DIVISION
PART I: CONDITIONS AND SPECIFICATIONS
CHAPTER: 1 - GENERAL INFORMATION
SECTION: 1.2 SITE AND FACILITIES

Revision
Approved JUN 04 1976
Issued
Supersedes

1.2 SITE AND FACILITIES

1.2.1 The Site

The 231 acre UNC site is located in the northeast corner of the town of Montville. It is bounded on the east by the Thames River, on the north by Trading Cove, and on the west and south by privately owned land. The nearest site boundary is to the north, at a distance of about 650 feet from the effluent stacks. The nearest residents is about 1400 feet to the west. There are about 300 people living to the west and south within a half mile of the plant. The total population of Montville in 1970 was 15,662.

The city of Norwich, which lies to the north of site, had a population of about 40,000 in 1970. The most densely populated area of the city is about two to three miles from the plant. The nearest occupied buildings in Norwich are about 2200 feet from the plant. The city of New London, with a 1970 population of about 32,000 is about 10 miles to the south.

The distance from the plant site to the east shore of the Thames River is about 3300 feet. The area within a one mile radius of the plant site includes woodlands, residences, light businesses, a few chicken farms, and two hospitals. Fort Shantock, a 183 acre State Park, is located about one mile to the south.

1.2.2 The Facilities

Operations conducted at the Montville site are located in buildings designated as follows (See Drawing No. E-740913-150).

Building A
Building B
Building C
Building D
Building M
East Building
Building S

Building C is an office-type building and Building S is a warehouse. Specific operations in the other buildings are discussed in Chapter 10. Basic operations performed at Montville are as described in Section 1.1

LICENSE: SNM-368, DOCKET NO. 70-371
NAVAL PRODUCTS DIVISION
PART I: CONDITIONS AND SPECIFICATIONS
CHAPTER: 1 - GENERAL INFORMATION
SECTION: 1.2 SITE AND FACILITIES

Revision 2
Approved MAY 05 1977
Issued MAR 28 1977
Supersedes

1.2 SITE AND FACILITIES

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1.2.2 The Facilities

Operations conducted at the Montville site are located in buildings designated as follows (See Drawing No. E-740913-150 in Part II)

Building A
Building B
Building C
Building D
Building M
East Building
Building S

Building C is an office-type building and Building S is a warehouse. Specific operations in the other buildings are discussed in Chapter 10. Basic operations performed at Montville are as described in Section 1.3. The possession or use of SNM in any area or building shall not be permitted unless it conforms to NRC Requirements (e.g. nuclear alarms).

We have handled the additions of E-Plant Annex II and Annex III, B-South Unit II, H-Building and R-Building on this basis in the past. In all cases, including the most recent building additions, the NRC has been notified in advance via changes in the Security Plan and the Materials Control Plan (if appropriate).

Our "facilities" are changed several times a year by the addition of new equipment, deletion of old equipment, additions of auxiliary buildings or similar actions. As long as we are working within established criticality controls amd without causing any significant environmental effects, we consider we are working with "existing facilities".

We understand that when significant new buildings or significant new processes are planned that could affect the environment or criticality limits, such change will be submitted to the NRC for evaluation. However, the auxiliary buildings added were small additions to existing buildings, replacing paved areas adjacent to the buildings, and have no effect on the site environment. The activities performed in these additions were already being performed in the structures to which they were attached.

We do not agree that a violation of our license has occurred with respect to the words "existing facilities" under the background noted above.

In our current license (Letter W. F. Kirk to W. T. Crow dated January 22, 1986) page 9-15 and 9-16 described the auxiliary buildings now being commented upon by NRC Region I. Our letter (W. F. Kirk to W. T. Crow dated March 21, 1986) transmitted revised copies of Figure E-740913-150 for informational purposes only.

In the future, we will more promptly transmit building addition drawings to the NRC Uranium Fuel Licensing Group in addition to the information sent to NRC Security and Materials Safeguards Groups.

3. Appendix A, Item C, and Details of Inspection paragraph 5.a (3) Stack Air Samples (Possible effects on sampling of line lengths, line materials and line bends).

The samplers are located so that sample results assure that applicable limits are not exceeded for release of material to unrestricted areas. The bend radii of 3" - 6" and length of sample tubes used with tube diameter of 7/16"-3/8" I.D, are not considered to significantly affect sampler results. Use of tygon tubing (3/8" I.D) allows a visual determination to be made of possible particle deposition. No deposition has been observed over long time periods in the two sample lines (decon & sectioning area) using 10-12 foot lengths of heavy wall tygon. Most of the tubing run is vertical.

ATTACHMENT TO LETTER, N. C. KAUFMAN TO
T. MARTIN, DATED JULY 2,1986

UNC RESPONSE TO NRC INSPECTION NO. 70-731/86-02

A Sampler head was placed much closer to the decon duct sampling point in March 1986; no significant differences in results have been obtained to date (i.e. in a 2 month comparison the results were 0.16 DPM/M^3 1/3/86 to 3/14/86 and 0.12 DPM/M^3 3/14/86-6/10/86, excluding 3 days of cross- contamination by hands of technician).As stated in the NRC inspection paragraph 5.a (3), the sampling point of S-17 (Sectioning) is conservatively placed upstream of the filter.

The sample tube on the Health Physics Hood Stack is short (~ 8 ft) of 7/16" 1.D. Stainless steel with about 6 ft. of horizontal run and 2 ft. of vertical run, including 4 bends of about 6" radius. The contamination level of the Health Physics hood processing is significantly lower than processing associated with sectioning or decon ducts.

With respect to the NRC comment "10 CFR 20.106(a) states, in part, that a licensee shall not possess, use or transfer licensed material so as to release to an unrestricted area radioactive material in concentrations which exceed the limits specified in Appendix B, Table II of this part." NUREG 1112 (Environmental Assessment of UNC Naval Products) has evaluated airborne doses associated with this facility with the following results on page 40 of the report (1978-82 Data):

Dose to the maximally exposed individual

The 50-year dose commitments to the maximally exposed individual living at the nearest residence (425 m west of the plant) from the airborne effluents are shown in Table 4.5. The total-body dose of 0.013 millirem resulted primarily from the ingestion (76%) and inhalation (22%) pathways. Approximately 97% of the dose was attributable to the ^{234}-U released (Table 4.6). The highest organ dose of 0.17 was to the bone and was caused primarily by ingestion (76%) of ^{234}U (97%).

The total-body and organ doses resulting from the airborne releases are only a small fraction of the applicable NRC regulations of 500 millirem/year to the total body, 3000 millirem/year to the bones, and 1500 millirem/year to the other organs, designated in or derived from 10 CFR Part 20. Similarly, the doses are well below the Environmental Protection Agency (EPA) standards for the uranium fuel cycle (40 CFR Part 190). The total-body dose is only about 0.052%, the bone dose about 0.68%, and the lung dose about 0.004% of the EPA standard of 25 millirem/year for the total body and these organs.

Additionally, the total-body dose of 0.013 millirem is only about 0.012% of the background for the area (110 millirem/year), and thus the contribution to the existing background levels would be negligible.

Dose to the population within 80 km of the plant site

The 1980 population distribution with an 80-km (50-mile) radius of the plant site is shown in Tables 3.4 and 3.5. A total of 3,597,500 persons live within this area. The population dose commitments from the routine annual releases of radionuclides (Table 4.4) are shown in Table 4.7. The total-body dose to the population of 0.015 man-rem is only about 0.000008% of the population dose of 1.8 x 10^6 man-rem resulting from natural background radiation.

We believe under the above circumstances that any small survey errors that the NRC considers may be present (but which UNC has demonstrated are not present) fall with the survey criteria of 10 CFR 20.201 (b)(2):

"are reasonable under the circumstances to evaluate the extent of radiation hazards that may be present".

4. Appendix A, Item D, and Details of Inspection paragraph 5.g. Contaminated Shoe Covers (Shoe covers washed at our facilities were not checked under any required procedure).

(1) The Corrective Steps Which Have Been Taken And The Results Achieved

On-site laundering of shoe covers has ceased and been returned to the off-site laundry vendor (INS). This vendor performs alpha and beta-gamma monitoring of all laundered items as specified in the purchase order prior to returning them to UNC. Operating Personnel have been reinstructed on the need for NIS review, approval and documentation of controls.

(2) Corrective Steps Which Will Be Taken To Avoid Further Violations

See above paragraph 4 (1)

(3) The Date When Full Compliance Will Be Achieved

We are currently in full compliance.

5. Other

While not required to respond to other inspection comments, we wish to make the following comments.

a. Details of Inspection paragraph 3.b.(2) Storage Box Transfer Cart (Control of a specified number of elements was difficult to determine)

The NIS authorization has been revised to "the capacity of the box" since a safe cross-section and appropriate spacings are maintained.

b. Details of Inspection 3.b(3) Glovebox Enclosure Fire Safety (Use of flammable solvent in air in open glovebox during cleanout)

UNC RESPONSE TO NRC INSPECTION NO. 70-731/86-02

Isopropyl alcohol wipedowns are used to clean equipment and components at several locations within our facilities. Measurements have been made that show the air concentrations encountered are well below the lower explosive limit. When flammable materials are used, no-smoking limits apply and other sources of ignition are not present. The flammable liquids used in such material cleaning operations are limited to small quantities. The use of non- flammable solvents present health hazards or product prohibitions.

c. Details of Inspection 3.c Housekeeping

Accumulation of combustible materials in the areas noted (1) under Building M room air supply fan located adjacent to Shop II Manager's office (2) Building A basement, and (3) upper level of East Plant low bay area, has been minimized.

d. Details of Inspection, paragraph 7.a Uranium Content of the Facility Septic Field

Revised figures 3,4, and 6 were prepared and transmitted to NRC Licensing (W. Crow) on April 22, 1986.

Our vendor was requested to review all uranium data and identified a transcription error; 235 U had been reported as dpm instead of pCi. With this error corrected, the 234/235 ratios are as expected.

The vendor has recounted the samples and states that the isotopic data is considered correct. This revised information will be sent to NRC-NMSS by July 11, 1986. There does appear to be similar ratios between the total U value in micrograms per gram of sample and the total isotopic picocuries per gram of sample. Natural uranium to which a small amount of enriched uranium has been added would have such values.

e. Details of Inspection, paragraph 7.b Liquid Radwaste Analyses

Composite retainer samples of rad waste have been collected for particle size analysis. The data is expected to be available in August. We will continue this investigation until data-supported conclusions are obtained. The information will be discussed with the NRC inspector during future visits.