

General Information or Other (PAR)

Event # 37036

Rep Org: HOLTEC INTERNATIONAL		Notification Date / Time: 05/26/2000 10:59 (EDT)	
Supplier: NAC INTERNATIONAL		Event Date / Time: 05/26/2000 (EDT)	
Last Modification: 05/26/2000			
Region: 1		Docket #:	
City: MARLTON		Agreement State: No	
County:		License #:	
State: NJ			
NRC Notified by: BRIAN GUTHERMAN		Notifications: DAN HOLODY R1	
HQ Ops Officer: FANGIE JONES		VERN HODGE (FAX) NRR	
Emergency Class: NON EMERGENCY		KEVIN RAMSEY (FAX) NMSS	
10 CFR Section:			
21.21 UNSPECIFIED PARAGRAPH			

10 CFR PART 21 REPORT

An audit of the company's Holtec-A shielding material test qualification and manufacturing program identified that a 10 CFR 21 report was not made in the wake of the company's discovery of defective neutron shielding material supplied under a safety significant procurement. The material, NS-4-FR, used for dry cask storage use contained internal voids where solid material was expected. The problem is lack of specific installation procedure to eliminate voids in the poured samples. The samples were still considered suitable for use in thermal stability testing. However, the samples failed and together with the voids was considered unsuitable for use. The firm supplying the basic component was NAC International of Norcross, GA. The problem was originally noted in April 1998. NAC was not informed, in part because Holtec was not aware of any installation in any cask with significant heat loads. Holtec has no information on actual usage or locations of use as they are not the supplier of the hardware with the potential defect.

Holtec has no NAC supplied NS-4-FR in any cask system supplied to its customers.

IE20

NRR-032



555 LINCOLN DRIVE WEST / HOLTEC CENTER / MARLTON, NJ 08053
PHONE: (856) 797-0900 / FAX: (856) 797-0909

Date: 5/26/00

To: NRC Operations Center

Fax No.: 301 816-5151

From: Brian Guterman

Copy to:

Reference: 10 CFR 21 Report

Number of Pages (Including this Sheet): 6

MESSAGE

Instructions for Sending (Holtec Use Only)

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OTHER HOLTEC LOCATIONS

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WE WOULD APPRECIATE YOUR CALLING 856-797-0900 (OPERATOR) IF ALL PAGES DON'T TRANSMIT CLEARLY.
THANK YOU.



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BY FAX¹ AND OVERNIGHT MAIL

May 26, 2000

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Subject: 10 CFR 21 Notification for Fabrication of NS-4-FR Neutron Shield Material

Reference: NRC Special Inspection of Holtec International No. 71-0784/00201, held May 18-19, 2000

Dear Sir:

Pursuant to Holtec Quality Procedure HQP 15.1, "Reporting of Defects and Noncompliances per 10CFR21", Holtec International hereby notifies the Commission of a potential defect in a shielding material (sold under the name of NS-4-FR) by NAC International of Norcross, Georgia. The detailed historical information with respect to the potential defect in this material is contained in proprietary Holtec Report HI-2002396, "Holtite-A: Development History and Thermal Performance Data" (Enclosure 1).

A focused audit of our company's Holtite-ATM shielding material test qualification and manufacturing program was conducted by the Holtec Users' Group on April 12-14. The audit report, issued to us on May 12, 2000 identified a *finding* related to Holtec's failure to follow its QA program with respect to 10 CFR 21 notification in the wake of the company's discovery of defective NS-4-FR material supplied under a safety significant procurement. Upon receipt of the audit report (Enclosure 2), the company's Quality Initiatives Committee informally reviewed this matter and determined that our failure to issue the Part 21 notification is inconsistent with our corporate practice to maintain a low threshold for reporting nonconformances and the corporate mission to uphold the highest levels of vigilance for public health and safety. Our quality procedure HQP 15.1 is currently being upgraded accordingly to ensure that a lapse such as delayed filing of this Part 21 notification does not occur again.

We trust that this filing also comports with the position of the NRC inspection team that visited our headquarters on May 18-19, 2000. The specific information required by 10 CFR 21.21(d)(4) is provided below.

¹ Cover letter only



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Name and Address of Individual Informing the Commission:

Mr. Mark Soler
QA Manager
Holtec International
Holtec Center
555 Lincoln Drive West
Marlton, NJ 08053

Identification of the Basic Component Supplied Which Contains a [Potential] Defect:

NS-4-FR neutron shield material.

Identification of the Firm Supplying the Basic Component Which Contains a [Potential] Defect:

NAC International
655 Engineering Drive
Norcross, GA 30092

Nature of the [Potential] Defect and the Safety Hazard Which Could Be Created by the [Potential] Defect:

Samples of the NS-4-FR neutron shield material supplied by NAC International under Holtec's safety-related Purchase Order No. 7071MI (Appendix 2 of Enclosure 1) exhibited deviations in two areas:

1. The purchase order required that "The manufacturing processes and materials used to make the NS-4-FR samples shall be the same as that which has been used and shall be used in the future when manufacturing NS-4-FR for dry cask storage use." Contrary to this technical requirement in the purchase order, the NAC-supplied samples of NS-4-FR contained internal voids where solid shield material was expected to be present. In responding to Holtec's letter informing them of these voids and the requirements of the purchase order, NAC International stated, in part, "Observation of these voids is not surprising. Material formulation and mixing were controlled. Mixed material was poured into a mold without development of a specific installation procedure to eliminate



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voids in the cured sample²." The absence of a specific installation procedure to eliminate voids in the poured samples was contrary to the technical requirements of the purchase order and brought into question NAC International's ability to implement all requirements of a nuclear safety-related purchase order under their quality assurance program. Voids in the neutron shield material in an in-service dry spent fuel storage cask could create a substantial safety hazard in the form of increased dose rates from the cask.

2. Despite the voids in the samples as described above, Holtec still considered the samples suitable for use in thermal stability testing, since the chemical analyses of the samples seemed in order. After approximately 150-200 days of thermal testing at 325° F, the NAC-supplied NS-4-FR samples began failing as evidenced by splitting, bubbling, and a step change in weight loss. Disintegration of the neutron shield material, particularly in conjunction with potential voids as described in item 1 above, could create a substantial safety hazard in the form of increased dose rates from the cask.

The Date on Which the Information of Such [Potential] Defect was Obtained:

1. The information for item 1 above was obtained by Holtec corporate engineering on April 6, 1998. NAC International was notified of the observed anomaly by letter on April 20, 1998.
2. Conclusive evidence of thermal test failures described in item 2 above was obtained by Holtec's chief nuclear scientist in the Fall of 1998³. NAC International was not informed of these test results at that time for two reasons: a) considering the thermal test failures and unsatisfactory responses to the issue of voids in the samples, Holtec decided to suspend its efforts to qualify NAC International as a supplier of NS-4-FR neutron shield material and b) we were not aware that NAC had installed NS-4-FR in any cask with significant heat load which would cause elevated temperatures.

The Number and Location(s) of the Basic Component Which Contains the [Potential] Defect

Since Holtec is not the supplier of the hardware with the potential defect, the total number and locations where the basic component is in service is unknown to us.

² See Appendix 4 of Enclosure 1 for Holtec's April 20, 1998 letter and NAC's response of April 23, 1998.

³ See Appendix 6 of Enclosure 1.



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The Corrective Action Which Has Been, Is Being, or Will Be Taken, Name of Individual or Organization Responsible for the Action, and the Length of Time That Has Been, or Will Be Taken to Complete the Action:

Holtec suspended qualification of NAC International as an approved supplier of NS-4-FR neutron shield material after failure of the material samples in thermal stability tests. We are unaware of the status of corrective actions, if any, NAC International has taken or will be taking.

Any Advice Related to the [Potential] Defect about the Basic Component That Has Been, Is Being, or Will Be Given to Purchasers or Licensees:

Holtec has no NAC-supplied NS-4-FR in any of the cask systems supplied to its customers.

This submittal includes information in the form of Holtec Report Number HI-2002396, which is commercially sensitive to Holtec International and is treated by us with strict confidentiality. This information is of the type described in 10CFR2.790(b)(4). Portions of this report are considered proprietary to Holtec and are marked as such. The attached affidavit sets forth the bases for which the information is required to be withheld by the NRC from further disclosure, consistent with these considerations and pursuant to the provisions of 10CFR2.790(b)(1). It is therefore requested that the proprietary information enclosed be withheld from public disclosure in accordance with applicable NRC regulations. A non-proprietary version of this report will be submitted to the NRC by June 9, 2000.

If you have any questions or require additional information, please contact me at (856) 797-0900, extension 619.

Sincerely,

Mark Soler
QA Manager



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Approval:

K. P. Singh
K. P. Singh, PE, PhD

Concurrence:
Materials Specialist

Stan Turner ^{per} *Telecom*
Stan Turner, PhD, PE _{MP}

Concurrence:
Licensing

Brian Gutherman
Brian Gutherman, PE

cc: Mr. Oscar Shirani, ComEd (w/o encl. and attach.)
Mr. Kirk Lathrop, USNRC (w/encl. and attach.)
Mr. E. William Brach, USNRC (w/o encl. and attach.)

Attachment: Affidavit Pursuant to 10 CFR 2.790

Enclosures: 1. Holtec Report HI-2002396, "Holtite-A - Development History and Thermal Performance History", Revision 0, April 17, 2000 (proprietary version)
2. ComEd Audit Report on Audit No. SR-2000-289 dated May 9, 2000.

Document I.D.: HL1020-006