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

OCT 5 1977

MEMORANDUM FOR: H. D. Thornburg, Director, ROI, IE:HQ

FROM: B. H. Grier, Director, RI

SUBJECT: APPLICABILITY OF APPENDIX B TO SAFETY-RELATED CONSUMABLES (AITS # F10651H2)

The enclosed memorandum from the RI Lead QA Inspector deals with the need for an NRC position on the applicability of 10 CFR 50, Appendix B to safety-related consumables, in some graded or graduated fashion, to assure that such consumables will perform their safety-related function(s) in service.

We recommend that IE-NRR interface meetings be used to expedite clearer definition of the need for application of QA measures to assure that consumable materials are known to be acceptable when used (10 CFR 50, Appendix B, Criterion VIII). We are currently unable to enforce this portion of the Code of Federal Regulations because of the non-specificity of approved QA plans. Examples of LERs which resulted from failures in controls for consumables are provided with the enclosed memorandum. We regard this area as one in which we have precursors of significant problems, and one in which NRC should promptly take action.

Please feel free to contact any member of my staff with regard to these matters. Eldon Brunner (488-1240) is knowledgeable of the issues involved. Bill Ruhlman (488-1202) is knowledgeable of the technical and site/program specific items.

Boyce H. Grier
Director

Enclosure: As Stated

cc w/encl:
J. H. Sniezek, AD/FC, IE:HQ

oil, boric acid, lubricating oils whose loss could degrade critical components, demineralizer resins, sodium hydroxide for use in containment spray systems, weld rod, and snubber fluid. The Yankee Atomic Topical QA Plan, approved just prior to the Con Ed plan, contains reactor fuel, diesel fuel, boric acid and weld rod. These five facilities (IP 2, IP-3, MY, VY, and YR) are the only facilities that have docketed, approved QA plans which address safety-related consumables at all. These plans do not provide controls over gaskets, seals, "O" rings, grease and other lubricants (excluding lube oil) which account for the failures noted in Attachment A.

2.2 Non-Docketed "Q" Lists

As a result of a citation at Calvert Cliffs and unresolved items at R. E. Ginna and Salem, these three facilities have included some consumables on a non-docketed "Q" List. Calvert Cliffs has boric acid and diesel fuel, Ginna has bulk boric acid, diesel fuel and CVCS demineralizer resins. Salem has the same items plus all essential chemicals used to control chemistry. However, since the "Q" Lists are not part of the accepted QA program, they can be changed at will without NRC approval or review. All of these plans have the shortcomings mentioned above with respect to the failures identified in Attachment A.

2.3 Non "Q" Listed

Some of the other Region I facilities, notably those with standard Technical Specifications, do apply some controls to diesel fuel. Others apply control to weld rod and/or reactor fuel even though these items are not "Q" listed. While the plants in 2.2 above could change their "Q" lists, the items on these lists could be subject, usually, to enforcement action while they remain on the list. Since the items are not on a "Q" list (docketed or undocketed) for the remainder of the facilities, no direct enforcement action can be taken for failure to control these items. Of the 20 RI facilities, five are as described in 2.1, three as described in 2.2, and the remaining 12 are as described in 2.3.

3. Recommendations

A position should be formed, preferably during an IE-NRR interface meeting, with respect to consumables. This position should be similar to the position "APPLICABILITY OF APPENDIX B TO CHEMICALS AND REAGENTS."

While IE:HQ and NRR must ultimately define the NRC position, based on the experience in the field and discussions with RI licensees, I would recommend that a definition (items whose performance can affect the safety-related performance of identified structures, systems, and components) be given along with a list of examples (those listed in 2.1 plus those listed in the above referenced NRC position, plus lubricants, seals, HEPA filters, gaskets, packing, diaphragms and bellows). The formulated position MUST then be distributed to licensees. IE:HQ evidently is under the impression that IE Manual positions can be enforced (see Memo, Sniezek to Brunner, dated April 11, 1977, Subject - Pilgrim QA). This understanding is contrary to MC 2500 which states on page 2500-2 that: "...detailed inspection requirements include: ...IE interpretations....Any attempt to force inspection program requirements on the licensee constitutes misinterpretation of IE inspection philosophy and misuse of inspection procedures."

The position formed/issued should be clear in specifying that only the portions of the QA program which control the safety-related aspect of the particular consumable need to be applied (a graded/graduated QA philosophy). Thus, a grease compound could be purchased from any commercial vendor without applying any special controls. The grease compound would then have to be stored to prevent deterioration due to heat and/or contamination with foreign material. When issued for use, controls would have to assure that the grease compound was put directly into the required component, returned to storage if not used, subject to storage type controls in the shop, or not be used on safety-related components. The main objection voiced by licensees have been with the concept of applying a "full-blown" QA program to consumables (doing a source inspection at the boric acid mining installation or an evaluation of Mobil Oil to see if they have a QA program for grease). While the licensees' objections are pertinent, controls are necessary so that the requirements of 10 CFR 50, Appendix B, Criteria VIII, XIII, and XV may be enforced.

for W. A. Ruhlman
Lead QA Inspector

Enclosure: Attachment A

ATTACHMENT A

The examples listed below deal with cases where lack of control of a safety-related consumable was either known or believed to have contributed to the noted event or where QA controls would have provided better quality material.

FAILURES TO CONTROL CHEMICALS/RESINS WHEN MIXING/FILLING

Broken bags of boric acid crystals were found contaminated with cement, dust, dirt, and other foreign material. Boric Acid was a "Q" List item. Licensee was cited for failure to apply controls. (Report 50-309/77-17, Detail 10.b, item 309/77-17-08)

During normal operations, secondary water chemistry samples indicated increasing feedwater conductivity due to anionic contamination of a new batch of hydrazine mixed and injected into the feedwater system. (50-317 LER 77-22/3L)

LUBRICANT FAILURES

1A and 1B diesels (plant has only two diesels) inoperable due to binding of fuel rack linkage resulting from lack of lubrication. (50-272 LER 77-59/03L)

A piece of foreign material entered a motor bearing on a boric acid pump and caused overheating condition which seized the pump. (50-213 LER 77-3/3L)

Valve failed to close on remote signal because grease in the spring pack prevented torque switch operation. (50-289 LER 77-03/3L)

SEALS AND GASKETS FAILURES

Failure to maintain required negative pressure in the secondary containment due to a deteriorated seal on an outer door. (50-219 LER 77-8/3L)

Failure of a snubber to lock-up due to leakage out of sealing "O" rings; two cases. (50-220 LERs 77-23 and 77-26)

Vertical (RHR) heat exchanger floating head double jacketed steel clad asbestos gasket failed spilling 3×10^6 gallons of contaminated water. (50-271 LER 77-08/3L)

PACKING MATERIAL FAILURES

"B" Standby Liquid Control pumps' packing leaking excessively due to packing degradation. (50-333 LER 77-32)

Safety Injection Pump inboard seal excessive leakage due to packing failure. (50-29 LER 77-2/3L)