RECORD #245

TITLE: Access Controls For Spent Fuel Pools

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

NOV 9 1990

MEMORANDUM FOR: James H. Joyner, Chief
Facilities Radiological Safety
and Safeguards Branch
Division of Radiation
Safety and Safeguards, Region I

FROM: LeMoine J. Cunningham, Chief
Radiation Protection Branch
Division of Radiation Protection
and Emergency Preparedness
Office of Nuclear Reactor Regulation

SUBJECT: ACCESS CONTROLS FOR SPENT FUEL POOLS

I am responding to R.R. Bellamy's request, in his May 25, 1990 memorandum to me, for guidance concerning the "establishment of locked high radiation areas". As we understand that request, the situations of concern are those in which radioactive materials that can result in dose rates greater than 1000 mrem/hr are stored under water in a spent fuel storage (SFS) pool. The radioactive materials being stored are contained in buckets that are hung from railings around the SFS pool. We assume that when the materials are stored in the pool the dose rates above the pool in the vicinity of the stored materials are less than 100 mrem/hr.

The enclosed memorandum from the Health Physics Positions (HPPOS) data base (Enclosure 1) provides a partial response to Dr. Bellamy's request. This memorandum, which responded to a memorandum from Region III (Enclosure 2), indicates that, because of the inaccessibility to personnel of the area (under water) in which radioactive materials are stored, SFS pools (under water) are not considered to be high radiation areas and therefore the requirements of 10 CFR 20.203(c)(2) do not apply. The memorandum continues by saying that when a diver enters the pool or upon movement of highly radioactive materials stored in the pool, proper health physics controls must be instituted. Movement of radioactive material stored in the pool has the potential to create a high radiation area around the pool; however, a high radiation area is not created until movement of the material actually results in a radiation level, in an area that is accessible to personnel, that could result in a dose in excess of 100 mrem in any one hour. Therefore, the relative accessibility of radioactive material stored in brackets hung from railings around the pool has no bearing on the question of the applicability of the requirements of 10 CFR 20.203(c)(2).

NRC Information Notice No. 90-33, dated May 9, 1990, is also relevant. After providing reviews of a number of events in which sources of unexpected occupational radiation exposures were encountered in activities associated with SFS pools,

Contact: John Buchanan
49-23184

this notice provides suggestions (which are not requirements) for radiological control considerations that can help minimize the possibility of unexpected exposures from radiation sources in SFS pools.

The suggestions in this notice include "Measures to ensure that highly radioactive objects stored under water at one end of a line whose other end is secured above the surface of the pool are not unexpectedly pulled to the surface." Such measures may include locking mechanisms that prevent inadvertent and unauthorized withdrawal of such sources. This good practice is not a regulatory requirement; however, the requirements of 10 CFR 19.12, "Instructions to Workers," do apply to this situation. Thus workers in the SFS pool area must "be kept informed of the storage, transfer, or use of radioactive materials" stored in the pool and must be instructed in "precautions or procedures to minimize exposure" that may result from this method of storage. Appropriate formal training and posting of signs that warn of the hazards of source withdrawal are among the ways to meet this requirement.

We would appreciate the opportunity to discuss any potential enforcement actions in this area during the next year or so.

If you have any further questions regarding this matter, please contact me, Jim Wigginton, or John Buchanan.

/s/
LeMoine J. Cunningham, Chief
Radiation Protection Branch
Division of Radiation Protection
and Emergency Preparedness
Office of Nuclear Reactor Regulation

Enclosures:
(1) Memo. from L.B. Higginbotham, IE, to A.B. Davis, Region III, 7/9/80.
(2) Memo. from W.L. Fisher, Region III, to L.B. Higginbotham, IE, 6/11/80.

See previous concurrence

*PRPB:DREP	*SC:PRPB:DREP	*D:OE	BPB:DREP
JDBuchanan:sg	JEWigginton	JLieberman	LJCunningham
11/7/90	11/7/90	11/8/90	11/19/90

Document Name: ACCESS CONTROLS

DISTRIBUTION
Central Files
PRPB Reading File
PDR
F. J. Congel
L. J. Cunningham
J. E. Wigginton
J. D. Buchanan
T. H. Essig
R. L. Anderson, TTC
A. B. Beach, RIV
W. H. Bateman, EDO
R. E. Erickson
W. D. Beckner
M. R. Knapp, RI
J. P. Stohr, RII
L. E. Norelius, RIII
D. A. Cool, RES
J. W. N. Hickey, NMSS
B. Murray, RIV
G. P. Yuhas, RV
J. C. Y. Wang (HPPOS)
L. R. Greger, RIII
R. A. Scarano, RV
D. M. Collins, RII

Enclosure 1

JUL 9 1980

SSINS 9300
Mail

MEMORANDUM FOR: A. B. Davis, Chief, Fuel Facility and Materials Safety Branch, Region III

FROM: Leo B. Higginbotham, Assistant Director, Division of Fuel Facility and Materials Safety Inspection, IE

SUBJECT: APPLICABILITY OF ACCESS CONTROLS FOR SPENT FUEL POOLS (AITS F03064030)

We have reviewed the applicability of 10 CFR 20.203(c)(2) to spent fuel pools as requested in your June 11, 1980 memorandum.

Materials in the spent fuel pool that could cause an individual to receive a dose in excess of 100 millirem to a major portion of the body in one hour are normally greater than 10 or more feet below the surface of the pool. Under these conditions, spent fuel pool areas are not high radiation areas due to their inaccessibility to personnel performing "above pool-surface" duties, and therefore, the requirements of 10 CFR 20.203(c)(2) do not apply.

However, when a diver enters the pool or upon movement of highly radioactive materials stored in the pool, proper health physics controls must be instituted.

If you have any questions regarding this explaination, please contact Jim Wigginton of my staff.

Leo B. Higginbotham
Assistant Director
Division of Fuel Facility and
Materials Safety Inspection, IE

cc: W. Fisher, R. III
L. Cunningham, IE
T. Murphy, LPB

CONTACT: Jim Wigginton
49-28108

8007250 322

OFFICE	IE:FFMSI	IE:FFMSI:AD				
SURNAME	JWigginton:hmb	LHigginbotham				
DATE	7/7/80	7/9/80				

NRC FORM 318 (9-76) NRCM 0240 ★ U.S. GOVERNMENT PRINTING OFFICE: 1976 - 626 - 999

Enclosure 2

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

JUN 1 1 1980

MEMORANDUM FOR: L. B. Higginbotham, Assistant Director, Division of Fuel Facility and Materials Safety Inspection, IE

THRU: A. B. Davis, Chief, Fuel Facility and Materials Safety Branch, Region III

FROM: W. L. Fisher, Chief, Fuel Facility Projects and Radiation Safety Section, Region III

SUBJECT: ACCESS CONTROLS FOR SPENT FUEL POOLS (AITS NO. F03064080)

Please clarify the applicability of 10 CFR 20.203(c)(2) to spent fuel pools. Radiation levels at some point within most spent fuel pools exceed 100mR/hr (or 1000 mR/hr for those licensees exempt from the 100 mR/hr requirement), but access to spent fuel pools normally is not controlled per 10 CFR 20.203(c)(2). Conceivably, a person could enter the water and reach an area containing radiation levels of 100 mR/hr (or 1000 mR/hr).

One of our licensees has asked whether access to spent fuel pools must be controlled per 10 CFR 20.203(c)(2). Similarly, must access be controlled in accordance with those technical specification requirements for locking areas containing radiation levels greater than 1000 mR/hr. Can the area be considered inaccessible to personnel and therefore not a high radiation area?

Your guidance will be appreciated.

W. L. Fisher

W. L. Fisher, Chief
Fuel Facility Projects and
Radiation Safety Section

cc: L. R. Greger

8007250 327