B09/21/[illegible]

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)
DISTRIBUTION FOR INCOMING MATERIAL 50-315/316

REC: DENTON H R
NRC

ORG: TILLINGHAST J
IN & MI PWR

DOCDATE: 09/13/78
DATE RCVD: 09/14/78

DOCTYPE: LETTER NOTARIZED: YES
SUBJECT:
FORWARDING INFO CONCERNING MOVEMENT OF HEAVY LOADS OVER SPENT FUEL AREAS AT SUBJECT FACILITY...W/ATT DRAWINGS.

COPIES RECEIVED
LTR 1 ENCL 1

PLANT NAME: COOK -- UNIT 1
COOK -- UNIT 2

REVIEWER INITIAL: XJM
DISTRIBUTER INITIAL:

********** DISTRIBUTION OF THIS MATERIAL IS AS FOLLOWS **********

NOTES:
I & E - 3 CYS ALL MATERIAL

GENERAL DISTRIBUTION FOR AFTER ISSUANCE OF OPERATING LICENSE.
(DISTRIBUTION CODE A001)

FOR ACTION: BR CHIEF ORB#1 BC**W/7 ENCL

D NEIGHBORS ENCL & DRWGS

INTERNAL:
REG FILE**W/ENCL
I & E**W/3 ENCL
HANAUER**W/ENCL
AD FOR SYS & PROJ**W/ENCL
REACTOR SAFETY BR**W/ENCL
EEB**W/ENCL
J MCGOUGH**W/ENCL
NRC PDR**W/ENCL
OELD**LTR ONLY
CORE PERFORMANCE BR**W/ENCL
ENGINEERING BR**W/ENCL
PLANT SYSTEMS BR**W/ENCL
EFFLUENT TREAT SYS**W/ENCL

EXTERNAL:
LPDR'S
ST. JOSEPH, MI**W/ENCL
TERA**W/ENCL
NSIC**W/ENCL
ACRS CAT B**W/16 ENCL

DISTRIBUTION: LTR 40 ENCL 39
SIZE: 2P+13P+4P

CONTROL NBR: 780720288

NA 46D

********** THE END **********

INDIANA & MICHIGAN POWER COMPANY
P. O. BOX 18
BOWLING GREEN STATION
NEW YORK, N. Y. 10004

September 13, 1978
AEP:NRC: 00077

Donald C. Cook Nuclear Plant Unit Nos. 1 and 2
Docket Nos. 50-315 and 50-316
License Nos. DPR-58 and DPR-74

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Denton:

By letter dated August 25, 1978, AEP:NRC: 00017, AEPSC informed the Commission that we would not be able to supply the information requested by Mr. V. Stello, Jr. of your staff, concerning the movement of heavy loads over spent fuel areas at the Donald C. Cook Nuclear Plant, until September 12, 1978. The enclosure to this letter contains the information requested by Mr. Stello.

Very truly yours,

John Tillinghast
Vice President

Sworn and subscribed to before
me this 13th day of September 1978
in New York County, New York

Kathleen Barry
Notary Public

KATHLEEN BARRY
NOTARY PUBLIC, State of New York
No. 41-4606792
Qualified in Queens County
Certificate filed in New York County
Commission Expires March 30, 1979

cc: (attached)

780720288

A001
S 1/1 Deuss
~~Encl~~ To
Neighbors

cc: R. C. Callen
G. Charnoff
P. W. Steketee
R. J. Vollen
R. Walsh
R. W. Jurgensen
D. V. Shaller - Bridgman

ENCLOSURE

QUESTION/REQUEST FOR INFORMATION

1. Provide a diagram which illustrates the physical relation between the reactor core, the fuel transfer canal, the spent fuel storage pool, and the set down, receiving or storage areas for any heavy loads moved on the refueling floor.

RESPONSE

1. Included, as Attachment No. 1, to this submittal are four (4) design drawings, two (2) for each unit of the Donald C. Cook Nuclear Plant, depicting the physical layouts requested. Please note that the spent fuel storage pool proper is a shared 'system' at the Donald C. Cook Nuclear Plant.

QUESTION/REQUEST FOR INFORMATION

2. Provide a list of all objects that are required to be moved over the reactor core (during refueling) or the spent fuel storage pool. For each object listed, provide its approximate weight and size, a diagram of the movement path utilized (including carrying height) and the frequency of movement.

RESPONSE

The following equipment is required to be moved over the reactor core during refueling:

Description	Approximate Weight (Lb.)	Primary Dimension
15 x 15 Spent Fuel Handling Tool*	397	35 Ft.
Upper Internals	116,000*/125,000**	-
Burnable Poison Rod Assembly Handling Tool	800*/634**	38.0 Ft.
Upper Internals Guide Tube Cover Tool	185	34.00 Ft
Irradiation Sample Handling Tool	230	48.0 Ft
15 x 15 New Fuel Handling Tool*	75	24.875" in.
Rod Control Cluster Thimble Plug Handling Tool	235*/270**	445* in/430** in
Shaft Tool*	145	214 in.
17 x 17 Spent Fuel Handling Tool**	412	35 ft
17 x 17 New Fuel Handling Tool **	85	24.5 in.
Manipulator Crane	42,700	-
Fuel Assembly	1,400 (max.)	12 Ft.
Polar Crane: Trolly	240,000	-
Polar Crane: Large Hook and Block	7,600	-
Polar Crane: Small Hook and Block	1,340	-

* Unit 1 Specific

** Unit 2 Specific

RESPONSE (Cont'd)

The specific movement paths of the objects listed above are dependent on the nature of the operation being performed. Hence it is not possibe to supply exact movement paths as requested. The specific object being removed from the reactor core is raised to a height sufficient to assure that the reactor vessel has.been cleared. The object is then moved away from the reactor core and transported to its 'final' destination as shown in the drawings included as attachment No. 1 to this submittal.

QUESTION/REQUEST FOR INFORMATION

3. What are the dimensions and weights of the spent fuel casks that are or will be used at your facility?

RESPONSE

3. The Cask Drop Protection System (CDPS) to be installed at the Donald C. Cook Nuclear Plant is designed to handle the largest, practicable spent fuel cask currently available, namely the National Lead Industries, Inc., (NL), No. 10/24 one hundred ton rail cask. The nominal parameters for the NP No. 10/24 rail cask, and the corresponding CDPS design parameters are as follows:

Parameter	NL No. 10/24 Cask	CDPS Design
Weight (Empty)	179,500 lbs.	200,000 lbs.
Length	170 ft.	170 ft.
Diameter (Overall	88 in.	88 in.

The CDPS to be installed at the Donald C. Cook Nuclear Plant is capable of handling different cask designs with one or more of the above parameters being smaller than the corresponding NL No. 10/24 rail cask parameter valve. The effects of a hypothetical, inadvertent cask drop are contained in our response to FSAR Question 14.15. The analysis contained therein is based on the inadvertent dropping of a spent fuel cask, the dimensions of which are given above under 'CDPS Design'. These results are bounding (worst case) results for a hypothetical cask drop accident, and the effects of a cask drop accident with a smaller cask (one or more design parameters smaller than the CDPS design parameters), would be correspondingly less.

QUESTION/REQUEST FOR INFORMATION

4. Identify any heavy load or cask drop analyses performed to date for your facility. Provide a copy of all such analyses not previously submitted to the NRC.

RESPONSE

4. The cask drop analyses and questions pertaining to an inadvertent cask drop over the spent fuel pool can be found in our responses to FSAR Questions 14.15.1 through 14.15.21.

QUESTION/REQUEST FOR INFORMATION

5. Identify any heavy loads that are carried over equipment required for the safe shutdown of a plant that is operating at the time the load is moved. Identify what equipment could be affected in the event of a heavy load handling accident (piping, cabling, pumps, etc.) and discuss the feasibility of such an accident affecting this equipment. Describe the basis for your conclusions.

RESPONSE

5. No heavy loads are carried over equipment required for the safe shutdown of either unit of the Donald C. Cook Nuclear Plant.

QUESTION/REQUEST FOR INFORMATION

6. If heavy loads are required to be carried over the spent fuel storage pool or fuel transfer canal at your facility, discuss the feasibility of a handling accident which could result in water leakage severe enough to uncover the spent fuel. Describe the basis for your conclusion.

RESPONSE

6. No heavy loads are required to be carried over the spent fuel storage pool or the fuel transfer canal at the Donald C. Cook Nuclear Plant.

To Prevent damage to the spent fuel pool which would result in water release severe enough to uncover spent fuel, a system of limit switches, interlocks and the necessary admininstrative controls will be installed. When this system is finalized, movement of the spent fuel cask over the spent fuel will be limited to the critical path as described in our responses to FSAR Question 14.15.4.

Movement of the spent fuel cask, while lowering or raising the cask to the top of the spent fuel pool - immediately adjacent to the outside edge of the pool wall, will be restricted to a vertical corridor directly above a knock-out section of the floor, which is designed to give way in the event of a cask drop event, allowing the cask to come to rest on the ground level without affecting the integrity of the spent fuel pool wall.

At present, any movement of the overhead (auxiliary building) crane over the spent fuel pool is under administrative control and is limited by means of limit switches and interlocks to a portion of the end of the pool away from stored fuel assemblies.

ENCLOSURE

QUESTION/REQUEST FOR INFORMATION

7. Describe any design features of your facility which affect the potential for a heavy load handling accident involving spent fuel, e.g., utilization of a single failure-proof crane.

RESPONSE

7. The auxiliary building crane will be interlocked using limit switches and relay logic so that the crane hook can never pass over the spent fuel cells and can only pass over the east end of the spent fuel pit proper during cask loading.

Two zones of protection will be provided. Zone 1, over the spent fuel cells, can never be entered by the crane hook and if an attempt is made to do so, the crane will automatically shut down.

Zone 2, over the local cask storage area can only be entered by the crane hook by by-passing a crane bridge limit switch located on the crane runway rail just east of the local cask storage area. To avoid unauthorized by-passing of this limit switch, a keyed by-pass control will be provided on the crane control cabinets located upon the crane walkway.

ENCLOSURE

QUESTION/REQUEST FOR INFORMATION

8. Provide copies of all procedures currently in effect at your facility for the movement of heavy loads over the reactor core during refueling, the spent fuel storage pool, or equipment required for the safe shutdown of a plant that is operating at the time the move occurs.

RESPONSE

8. No heavy loads are moved over the reactor core during refueling operations. Movement of heavy loads over the spent fuel storage pool is discussed in our response to Question 6. of this submittal.

ENCLOSURE

QUESTION/REQUEST FOR INFORMATION

9. Discuss the degree to which your facility complies with the eight (8) regulatory positions delineated in Regulatory Guide 1.13 (Revision 1, December, 1975) regarding Spent Fuel Storage Facility Design Basis.

RESPONSE

9. Regulatory Guide Position No. 1

The spent fuel storage facility including structures, fuel racks, cask drop protection system, and cranes which traverse over the pool are Category I Seismic Design.

Regulatory Guide Position No. 2

The spent fuel pit is wholly contained in the Category I Seismicly Designed Auxiliary Building which is designed to withstand the effects of tornado winds and missiles generated by these winds from entering the spent fuel pool.

Regulatory Guide Position No. 3

The response to this question is given in response to Questions No. 6 and No. 7 above.

Regulatory Guide Position No. 4

The auxiliary building which encloses the spent fuel pool is designed to contain all liquid leakage which occurs in this building to the environs of this structure prior to processing and to normally maintain a negative pressure within the building to control gaseous removal from the building.

The design of the ventilation and filtration systems meet Regulatory Guide 1.25 assumptions and the resulting radiation dose consequences from a fuel handling accident based on these assumptions are present in Chapter 14, Section 14.21 of the FSAR.

Regulatory Guide Position No. 5

The installation of the Cask Drop Protection System and restriction of cask movement to the critical path discussed in responses to Questions No. 6 and No. 7 above in conjunction with our responses to FSAR Questions 14.15.1 through 14.15.21 limits cask movement over the pool to an area that will not affect the stored spent fuel or uncover it in the inadvertent event of a cask drop (Regulatory Position C under Section C.5 in Regulatory Guide 1.13).

Regulatory Guide Position No. 6

Small diameter drains located within the spent fuel pool stucture directly under the pool floor liner do not breach the liner where installed solely to detect any small leakage through the liner. All piping which enters the pool is terminated at an elevation approximately six (6) feet above the stored spent fuel assemblies so that syphoning of water below this elevation will not occur should an inadvertent leak occur at any point in this piping (either in or outside the pool) or in the systems connected to it.

Regulatory Guide Position No. 7

Two (2) water level indicators are installed in the spent fuel pit which alarm both at a local control panel and in the control room in the event that the water level falls six (6) inches below nominal pool level. As mentioned in response to Regulatory Guide 1.13 Position No. 6 above, the pool water level cannot be inadvertently drained below an elevation six (6) ft. above stored fuel assemblies due to a break in any piping.

A radiation monitor located in the exhaust path of air sweeping over the pool activates the mechanism to channel the exhaust air entraining any radioactive gases through charcoal filters in the event of a High-Radiation-Level Alarm.

Regulatory Guide Position No. 8.

Since the spent fuel pit is wholly enclosed within the Auxiliary Building which is designed to withstand earthquakes, missiles originating in high winds, and turbine missiles, and the Cask Drop Protection System, controlled movement of the spent fuel cask, and restriction of the Auxiliary Building overhead crane movement over the pool except along the critical path during spent fuel shipment, are the design features to prevent loss of water from the pool in the inadvertent event of a heavy load drop. Hence, no water make-up system to add coolant is required.

ATTACHMENT TO AEP:NRC:00077