Docket

Docket Nos: 50-315
and 50-316

APR 20 1981

LICENSEE: Indiana and Michigan Electric Company (I&MEC)

FACILITY: Donald C. Cook Unit Nos. 1 & 2

SUBJECT: SUMMARY OF MEETING HELD ON MARCH 18, 1981 WITH I&MEC AND AMERICAN ELECTRIC POWER SERVICE COMPANY TO DISCUSS HYDROGEN CONTROL MEASURES FOR THE DONALD C. COOK CONTAINMENTS AND THE SURVIVABILITY OF EQUIPMENT WITHIN THE CONTAINMENTS

By letter dated February 20, 1981 I&MEC committed to install an Interim Distributed Ignition System (IDIS) in D. C. Cook for hydrogen control in the containments. The letter further stated that I&MEC would be ready to have a technical meeting with the NRC staff on March 12, 1981 to discuss the hydrogen control measures. The meeting was held March 18, 1981. The attendee list is enclosed (Enclosure 1).

The meeting was divided into two sessions. The first part concerned the design and the schedule for the installation and activation of the hydrogen control system (IDIS). The second part focused on the survivability of equipment necessary following a hydrogen burn to achieve and maintain safe shutdown conditions.

1. Hydrogen Control Measures

The portion of the IDIS system in the containment will be installed during the next refueling outage for each unit. A total of 68 igniters in two trains (34 each train) will be installed. The design criteria, major design parameters and the location of the igniters are shown in Enclosure 2. A comparison of the IDIS designs for the Cook plant with those at McGuire and Sequoyah is shown in Enclosure 3.

As noted previously, AEP stated that in containment portion of the IDIS System will be installed during the upcoming refueling outage for both plants. However, they also indicated that the out-of-containment portion of the system will be installed later. Material for this had just recently been ordered and delivery is not expected for about 3 months. Considering installation time it was roughly estimated (at the meeting) that the IDIS will not be ready for activation until sometime this fall. Unit No. 2 was shutdown for refueling March 13, 1981 and is expected to startup in May. Unit No. 1 is expected to be shutdown in June and should be ready to startup 6 to 8 weeks later.

memo 4

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OFFICE							
SURNAME							
DATE							

NRC FORM 318 (10/80) NRCM 0240 OFFICIAL RECORD COPY ☆ USGPO: 1980—329-824

The next quarterly report is due to be submitted early in April. AEP indicated they will include in the reports the information necessary for our review. We made the following comments:

1. We asked AEP to provide a firm schedule for installation, check out and ready for activation of the IDIS System.

2. Any plan to have the IDIS ready for activation this fall is unacceptable. Our position is that the hydrogen control system has to complete and ready for activation prior to startup for each unit following the 1981 refueling outage.

3. AEP should be cognizant of the developments at the McGuire hearing and the issues that were considered during the hearing. For example, continuous burning in the upper plenum of the ice condenser compartment and the effect it could have on foam insulation should be investigated.

4. AEP should have final version of a control system (see example DIS) installed and approved by the end of January 1982 (the same schedule as Sequoyah). To meet this information required for NRC acceptance of the final control system should be submitted by June or July schedule

5. AEP was advised to consider modifying the proposed system to locate igniters near the ceilings in various regions of the containment in order to go in more advantage from upward flans propagation limits.

Equipment Survivability

AEP provided a preliminary list of equipment that is required following a hydrogen burn to achieve and maintain safe shutdown conditions (Enclosure 4). We indicated for the interim system an evaluation of the ability of the equipment to survive would be sufficient. For the Final System we indicated that the requirement for D. C. Cook is the same as for McGuire and Sequoyah, i.e.,: (1) the licensee must develop reliable calculational methods and complete scoping studies by June 1981, (2) establish a relationship between the environment of the available tests and the expected containment environment by June 1981, (3) perform scoping test due equipment prepared to hydrogen burn in D.C. Cool by June, 1981 and (4) qualify equipment need to survive the hydrogen burn to the expected conditons prior to January 31, 1982. AEP indicated that in the near future no additonal experimental information will be available in the time frame needed for the IDIS system. Further experimental work is being planned and in progress and will be available to support the final control system.

Original signed by
Sydney Miner
Sydney Miner, Project Manager
Operating Reactors Branch #1
Division of Licensing

Enclosures:
1. List of Attendees
2. Design Criteria....
3. Comparison of Designs
4. Preliminary List
cc w/enclosures
See distribution list

OFFICE		ORB#1:DL	ORB#1:BL		
SURNAME		SMiner:ds	SVarga		
DATE		4/17/81	4/ /81		

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MEETING SUMMARY - IMEC
OPERATING REACTORS BRANCH NO. 1
DIVISION OF LICENSING
March 18, 1981

DISTRIBUTION

Docket File ✓ 315
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S. Varga
Project Manager
OELD
OI&E (3)
C. Parrish
ACRS (10)
NRC Participant
NSIC
TERA
E. Case

cc: Licensee with short cc list

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

April 20, 1981

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and 50-316

LICENSEE: Indiana and Michigan Electric Company (I&MEC)

FACILITY: Donald C. Cook Unit Nos. 1 & 2

SUBJECT: SUMMARY OF MEETING HELD ON MARCH 18, 1981 WITH I&MEC AND AMERICAN ELECTRIC POWER SERVICE COMPANY TO DISCUSS HYDROGEN CONTROL MEASURES FOR THE DONALD C. COOK CONTAINMENTS AND THE SURVIVABILITY OF EQUIPMENT WITHIN THE CONTAINMENTS

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Sydney Miner, Project Manager
Operating Reactors Branch #1
Division of Licensing

Enclosures:
1. List of Attendees
2. Design Criteria....
3. Comparison of Designs
4. Preliminary List

cc w/enclosures
See distribution list

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Enclosure 1

ATTENDANCE LIST - H_2 CONTROL

NRC

Sydney Miner

J. W. Shapaker

C. G. Tinkler

W. R. Butler

BECHTEL

Steve Kline

AEPSC

Kelvin Shiu

Stephen J. Milioti

K. J. Vehstedt

EQUIPMENT SURVIVABILITY

NRC

Sydney Miner

P. R. Matthews

R. G. LaGrange

F. Orr

Z. R. Rosztoczy

AEPSC

K. J. Vehstedt

Stephen J. Milioti

Kelvin Shiu

BECHTEL

Steve Kune

INTERIM DISTRIBUTED INGNITION SYSTEM

DESIGN CRITERIA

- All igniters are located in areas well mixed by the hydrogen skimmer/air recirculation system.
- All igniters are located above maximum flood-up level.
- All DIS cable inside containment will be in conduit.
- All DIS components will be seismically mounted (SSE).
- Trains "A" and "B" of the DIS are to be electrically isolated from each other.

MAJOR DESIGN PARAMETERS

- A total of 68 igniters; 34 per train
  - 12 on outside of biological shield wall
    - 2 in vicinity of PRT
    - 4 in each of the two fan/accumulator rooms
    - 2 in each SG/PZR enclosure (total of 10)
  - 12 in upper volume dome area
    - 2 on each SG/PZR enclosure (total of 10)
  - 14 distributed in I.C. upper plenum
- Manual activation
- Normal and emergency power from ESF source
- Igniter "box" meets NEMA-4 specifications
- Utilizes GMAC model 7G glow plugs and Dongan transformers as were tested @ Fenwal

COMPARISON OF DIS DESIGNS

Enclosure 3

SUBJECT	COOK PLANT	McGUIRE	SEQUOYAH
No. of Igniters	68	62	45
Igniters	GMAC 7G	GMAC 7G	GMAC 7G
Igniter Assembly	<----------No Significant Differences---------->		
Igniter Mounting	Seismic	Seismic	TVA "1-L"
Igniter Locations	<----------Similar Locations	Distributed Throughout Containment-->	
No. of Trains	2	2	1
Power Supply	DIS Specific; 600V ESF Bus (EDG)	Part of Standby Lighting (EDG)	Part of Standby Lighting (EDG)
Control	Manual	Manual	Manual
Location of Control	Main Control Room or Auxiliary Building	Aux. Building	Aux. Building
Clasix Analysis	Temperature Reduction Due to LV Spray	No Significant Differences---------->	

Enclosure 4

ICC/"HYDROGEN BURN" EQUIPMENT*

Item	Qualification	Comment
SG Nr Level	LOCA/MSLB	2 of 3 per generator below flood-up
PZR Level	LOCA/MSLB	In Instrument Room - Will not see burn
PZR Pressure	LOCA/MSLB	In Instrument Room - Will not see burn
CT Sump Level	IEEE-323	Submerged - Will not see burn
Core Exit t/cs	Engineering judgement	Utilize fire retardant cables
Loop RTDs	LOCA/MSLB	--
RCS WR Pressure	LOCA/MSLB	Below flood-up - Will not see burn
CT Pressure	---	Transmitter is Outside Containment
PORV/SV Indication	LOCA/MSLB	Confirmatory Information; Not Vital
PORV Block Valves	LOCA	
Solenoids on PZR PORVs	LOCA/MSLB	
Air Return Fans	LOCA/MSLB	Peak "Clasix Temp." Below MSLB Temp.
H_2 Skimmer Inlet Valves	LOCA	Functionally not required following burn
H_2 Recombiners	LOCA/MSLB	
DIS Components		

*Inside Containment

MAY 0 4 1981