May 23, 1989

Docket No. 50-247

LICENSEE: Consolidated Edison Company of New York, Inc.

FACILITY: Indian Point Nuclear Generating Unit No. 2

SUBJECT: MEETING MINUTES REGARDING MAY 16, 1989 MEETING TO DISCUSS PROPOSED LICENSE AMENDMENT FOR AUTHORIZING AN INCREASE IN LICENSED POWER FOR INDIAN POINT UNIT 2 (TAC NO. 69542)

A meeting was held in the NRC One White Flint offices in Rockville, Maryland, with Consolidated Edison and NRC staff representatives to discuss the licensee's proposal for increasing the licensed thermal power of Indian Point Unit 2 from 2758 MWt to 3071.4 MWT. The meeting was requested by the licensee. Enclosure 1 is a list of the meeting attendees.

The licensee submitted a request for the proposed license amendment on September 30, 1988. Supplemental information supporting this amendment request was submitted on January 10, 1989, March 30, 1989, and April 14, 1989. Enclosure 2 is a copy of the licensee's handout that was discussed at the meeting. Staff representatives asked several questions regarding the submittals. The licensee provided clarification for the staff concerns. The staff will continue its review of the proposed license amendment.

Original signed by

Donald S. Brinkman, Senior Project Manager
Project Directorate I-1
Division of Reactor Projects I/II

Enclosures:
As stated

cc: See next page

[5/16/89 IP-2 MTG SUMMARY]

OFC	:PDI-1	:PDI-1	:PDI-1 RC	:	:	:	:
NAME	:CVogan CV	:DBrinkman:vr DB	:RCapra	:	:	:	:
DATE	:5/23/89	:5/23/89	:5/23/89	:	:	:	:

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DISTRIBUTION FOR MEETING SUMMARY DATED: May 23, 1989

Docket file
NRC PDR
Local PDR
JSniezek
PDI-1 Rdg
RCapra
DBrinkman
OGC
EJordan
BGrimes
ACRS (10)
H. B. Clayton
PSwetland, RI
CVogan
AToalston
CLiang
MHum
CSellers
JMinns
SRhow
JGuo
ALee
MChatterton

Mr. Stephen B. Bram
Consolidated Edison Company
of New York, Inc.

Indian Point Nuclear Generating
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cc:

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Assistant Attorney General
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ENCLOSURE 1

MEETING ATTENDEES

May 16, 1989 meeting to discuss Licensee's Proposal to Increase Licensed Power for Indian Point 2.

NAME	TITLE	ORGANIZATION
D. S. Brinkman	Senior Project Manager	NRC/NRR
A. Toalston	Electrical Engineer	NRC/NRR
Chu-yu Liang	Sr. Nuclear Engineer	NRC/NRR/SRXB
Martin Hum	Materials Engineer	NRC/NRR/EMTB
C. D. Sellers	Sr. Materials Engineer	NRC/NRR/EMTB
Steve Kline	Sr. License Engineer	Bechtel Serch
Alex Ball Jr.	Sr. License Engineer	Westinghouse Nuclear Safety
B. Samardzich	Senior Engineer	Westinghouse Nuclear Fuels
Louis Liberatori	Mgr. Safety Assessment	Con Edison
Roy F. Kim, Jr.	Senior Engineer	Westinghouse Sys. Engr.
M. P. Osborne	Mgr. Transient Analysis	Westinghouse Nuclear Safety
Gary G. Ament	Engineer	Westinghouse Nuclear Safety
J. J. Akers	Engineer	Westinghouse Nuclear Safety
J L. Minns	Health Physicist	NRC/DRPEP/NRR
R. H. McFetridge	Mgr. Systems Integration	Westinghouse Sys. Engr.
Getachew Tesfaye	Engineer	Con Edison
Paul Malik	Manager	Con Edison
Sang Rhow		NRC/ICSB/NRR
J. S. Guo	Reactor Systems Engineer	NRC/SPLB/NRR
Arnold Lee	Mechanical Engineer	NRC/EMEB/NRR
Jude Del Percio	Mgr. Regulatory Affairs & Safety Assess.	Con Edison
M. Chatterton	Nuclear Engineer	NRC/SRXB/NRR

INDIAN POINT UNIT 2 STRETCH RATING PRESENTATION TO NRC

MAY 16, 1989

AGENDA

INTRODUCTION & OVERVIEW	J. DELPERCIO
STRETCH PROGRAM RESULTS	P. MALIK
STRETCH PROGRAM SUBMITTALS	G. TESFAYE
CLOSING	J. DELPERCIO

INDIAN POINT UNIT 2 STRETCH RATING

OVERVIEW

PROVIDES NUMEROUS BENEFITS

- 3083.4 MWt
- IMPROVE OPERATING FLEXIBILITY
- INTEGRATED WITH OPTIMIZED FUEL PROGRAM
- INCORPORATES 25% TUBE PLUGGING MARGIN

THE PROGRAM EVALUATED ESSENTIALLY ALL FACETS OF THE NSSS & BOP

- SYSTEMS
- COMPONENTS
- ACCIDENTS
- OPERATIONS

REVIEW PROCESS IN PROGRESS

- LIMITING ANALYSES SUBMITTED SEPT. 30, 1988
- FINAL ANALYSIS AND DOCUMENTATION SUBMITTED MARCH 30, 1989
- OPERATE AT 3083.4 (12/25/89)

NRC - CON EDISON COOPERATION IS ESSENTIAL

INDIAN POINT UNIT 2
STRETCH RATING PROGRAM

MAIN FEATURES AND CONSERVATISMS:

- ~ 30° TEMPERATURE RANGE
- REDUCED THERMAL DESIGN FLOW (90%)
- ANALYSES JUSTIFY 3083.4 MWt NSSS POWER
- 25% S/G TUBE PLUGGING
- CORE PEAKING FACTORS
  - F_Q = 2.32 (SAME AS PREVIOUS)
  - $F_{\Delta H}$ = 1.62 (INCREASED FROM 1.55)
- UPGRADE ANALYSES TO 1988 TECHNOLOGY
  - ITDP/WRB-1
  - BASH
  - NOTRUMP
- CONTAINMENT LOCA ANALYSIS/OFFSITE DOSE AT 3216 MWt

INDIAN POINT UNIT 2 PARAMETERS

	DESIGN BASIS	CURRENT OPERATION	STRETCH RATING RANGE	STRETCH RATING RANGE
NSSS POWER (MWt)	2770	2770	3083.4	3083.4
REACTOR FLOW (GPM/LOOP)	89,700	89,700	80,700	80,700
T_{COLD} (°F)	543.0	521.8	515.8	547.7
T_{AVG} (°F)	569.5	549.0	549.0	579.7
T_{HOT} (°F)	596.0	578.8	582.2	611.7
T No Load (°F)	547.0	547.0	547.0	547.0
ΔT (°F)	53.0	57.0	66.4	64.0
PRIMARY SIDE PRESSURE (PSIA)	2250	2250	2250	2250
STEAM PRESSURE (PSIA)	776	700	650	768
STEAM FLOW ($LB_M/HR. \times 10^6$)	11.66	11.66	13.25	13.31
ASSUMED S/G TUBE PLUGGING (%)	0	7	25	25

INDIAN POINT UNIT 2 STRETCH RATING PROGRAM

NSSS SAFETY AND OPERATIONS CONSIDERATIONS

- PRIMARY AND SECONDARY PLANT PARAMETERS
- LOSS OF COOLANT ANALYSIS
- NON-LOCA ANALYSES
- STEAM GENERATOR TUBE RUPTURE
- FUEL DESIGN
- MASS AND ENERGY RELEASES
- LOCA HYDRAULIC FORCING FUNCTIONS
- TECHNICAL SPECIFICATIONS
- CONTROL AND PROTECTION SYSTEM SETPOINTS AND ALARMS
- CONTROL SYSTEMS OPERATING MARGINS
- PLANT PROCEDURES
- OPERATOR TRAINING

INDIAN POINT UNIT 2

STRETCH RATING ANALYSES - FUEL

- FUEL FEATURES

  - 15X15 OPTIMIZED FUEL (ZIRC MIXING VANE GRIDS)
  - EXTENDED BURNUP FEATURES
  - THIMBLE PLUG DELETION

SUBMITTED SEPTEMBER 30, 1988, "APPLICATION FOR AMENDMENT TO LICENSE TO INCORPORATE WESTINGHOUSE OPTIMIZED FUEL ASSEMBLIES (OFA)", AS SUPPLEMENTED BY LETTER DATED DECEMBER 30, 1989 AND CLARIFIED BY LETTERS DATED JANUARY 20, FEBRUARY 7, MARCH 3, AND APRIL 14, 1989.

- WORK TO SUPPORT FUEL DESIGN CHANGE PERFORMED @ STRETCH RATED CONDITIONS

  - COVERS BOTH EXISTING AND NEW FUEL
  - USE IMPROVED THERMAL DESIGN PROCEDURE FOR DNB EVALUATIONS
  - PAD 3.4 FOR FUEL ROD DESIGN (WCAP-11873-A)
  - 3071.4 MWt

Indian Point Unit 2

FSAR Licensing Basis Non-LOCA Accident Analyses for Stretch Rating

	Accident	Analysis	Acceptance Criteria
A.	Uncontrolled Control Rod Withdrawal from a Subcritical Condition	OFA	DNB limit (non-ITDP)
B.	Uncontrolled Rod Cluster Control Assembly Withdrawal at Power	OFA/Stretch	DNB limit (ITDP)
C.	Rod Cluster Control Assembly Drop	OFA	DNB limit (ITDP)
D.	Chemical and Volume Control System Malfunction	OFA	Operator action time - Refueling: 30 min. - Startup: 15 min. - At Power: 15 min.
E.	Loss of Reactor Coolant Flow / Locked Rotor	OFA/Stretch	DNB limit (ITDP) RCS pressure % Fuel rods in DNB Clad temperature
F.	Startup of an Inactive Reactor Coolant Loop	N/A	
G.	Loss of External Electrical Load	Stretch	DNB limit (ITDP) RCS pressure
H.	Loss of Normal Feedwater	Stretch	No water relief from pressurizer
I.	Reduction in Feedwater Enthalpy	Stretch	DNB limit (ITDP)
J.	Excessive Load Increase Incident	Stretch	DNB limit (ITDP)
K.	Loss of All AC Power to the Station Auxiliaries	Stretch	No water relief from pressurizer
L.	Rupture of a Steam Pipe (Core Response) (M&E release to Containment)	Stretch	DNB limit (non-ITDP) Containment press.
M.	Rupture of a Control Rod Drive Mechanism Housing	OFA	Clad temp., % fuel pellet melt, fuel pellet enthalpy

LARGE BREAK LOCA ANALYSIS WITH BASH

CORE POWER: 3071.4 MW_T

STEAM GENERATOR TUBE PLUGGING: 25%

RANGE OF OPERATING TEMPERATURES:
$579.7^{o}F \leq T_{AVG} \leq 549^{o}F$

MODEL 44 OR 44F SG

15X15 OFA FUEL

90% THERMAL DESIGN FLOW

$F_Q = 2.32$

F-DELTA-H = 1.62

RESULTANT PEAK CLAD TEMPERATURE: $2039^{o}F$

SMALL BREAK LOCA ANALYSIS WITH NOTRUMP

CORE POWER: 3071.4 MW_T

STEAM GENERATOR TUBE PLUGGING: 25%

RANGE OF OPERATING TEMPERATURES:
579.7^{O}F $\leq T_{AVG} \leq$ 549^{O}F

MODEL 44 OR 44F SG

15X15 OFA FUEL

90% THERMAL DESIGN FLOW

$F_Q = 2.32$

F-DELTA-H = 1.65

RESULTANT PEAK CLAD TEMPERATURE: 1218.5^{O}F

INDIAN POINT UNIT 2 STRETCH RATING PROGRAM

NSSS SYSTEMS CONSIDERATIONS

- PRESSURIZER & S/G SAFETY VALVE SYSTEM
- CHEMICAL & VOLUME CONTROL SYSTEM
- RESIDUAL HEAT REMOVAL SYSTEM
- EMERGENCY CORE COOLING SYSTEM
- CONTAINMENT COOLING SYSTEM
- SERVICE WATER AND COMPONENT COOLING SYSTEM

INDIAN POINT UNIT 2 STRETCH RATING PROGRAM

NSSS EQUIPMENT DESIGN CONSIDERATIONS

- COMPONENT DESIGN TRANSIENTS
- REACTOR VESSEL
- REACTOR VESSEL INTERNALS
- CONTROL ROD DRIVE MECHANISMS
- STEAM GENERATORS
- PRESSURIZER
- REACTOR COOLANT PUMP
- REACTOR COOLANT SYSTEM PIPING
- AUXILIARY EQUIPMENT

INDIAN POINT UNIT 2 STRETCH RATING PROGRAM

BOP CONSIDERATIONS

- PLANT DESIGN FOR 3216
- BOP SYSTEM OPTIMIZED AND GUARANTEED AT 3083.4 MWt
- FI ROTOR
- NEW ELECTRICAL GENERATOR
- ALL BOP SYSTEMS WERE REVIEWED
  - FEEDWATER SYSTEM
  - STEAM SYSTEM (INCLUDES SAFETY SYSTEM)
  - CONDENSATE SYSTEM

RERATINGS ARE NOT NEW TO THE NRC

PLANT	OPERATING FLEXIBILITY	POWER LEVEL	T_{HOT} REDUCTION	TUBE PLUGGING	FUEL CHANGE
NORTH ANNA		★		★	
SALEM 1		★			
CALLAWAY	★	★		★	★
BYRON/BRAIDWOOD			★	★	
DONALD C. COOK	★	★	★	★	
VIRGIL C. SUMMER	★		★	★	★
INDIAN POINT 2	★	★	★	★	★

CONSOLIDATED EDISON

INDIAN POINT UNIT 2

NSSS STRETCH RATING - 3083.4 MWT

LICENSING REPORT

SECTION TITLE

CONSOLIDATED EDISON
INDIAN POINT UNIT 2
NSSS STRETCH RATING - 3083.4 MWT
LICENSING REPORT

CONSOLIDATED EDISON
INDIAN POINT UNIT 2
NSSS STRETCH RATING - 3083.4 MWT
LICENSING REPORT

NRC SUPPORT FOR REVIEW/APPROVAL OF INDIAN POINT UNIT 2 STRETCH RATING IS ESSENTIAL

LIMITING CONDITIONS SUBMITTAL	9/30/88
FINAL LICENSE AMENDMENT SUBMITTAL	3/30/89
CYCLE 10 START-UP	6/2/89
NRC APPROVAL OF STRETCH RATING	10/31/89
PLANT OPERATION AT STRETCH	12/25/89