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March 3, 1989

Re: Indian Point Unit No. 2  
Docket No. 50-247

Document Control Desk  
US Nuclear Regulatory Commission  
Mail Station P1-137  
Washington, DC 20555

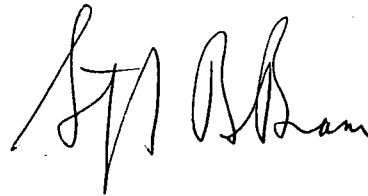
SUBJECT: Application for License Amendment to Incorporate Westinghouse  
Optimized Fuel Assemblies (OFA) - (TAC No. 69543)

This letter is in response to the request for additional information regarding our September 30, 1988 submittal entitled "Application for Amendment to Operating License." The Application requested an amendment to the Indian Point Unit No. 2 Technical Specifications to allow, effective with cycle 10, a fuel design transition to Westinghouse 15x15 OFA fuel through revisions to the applicable plant operating limitations. The request was for additional evaluation regarding the physics characteristics of OFA, which was transmitted in the course of a telephone discussion with your staff on February 2, 1989.

Indian Point Unit No. 2 OFA nuclear design is similar to the LOPAR nuclear design, except for a reduction in parasitic neutron absorption due to the replacement of seven Inconel grids of LOPAR fuel by Zircaloy grids. As shown in the attached Tables 1, 2, and 3, the physics parameters of OFA fuel during an all-OFA core cycle, as well as during transition cycles of mixed core consisting of OFA and LOPAR, are not significantly different from the all-LOPAR case. It is our understanding that use of the Westinghouse 15 x 15 OFA fuel has been approved by the NRC at Zion 1 and 2, Turkey Point 3 and 4, D.C. Cook 1 and Indian Point 3.

If you or your staff have any further questions, please contact Mr. Jude G. Del Percio, Manager, Regulatory Affairs.

Very truly yours,



Attachment/OFA4

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cc: Mr. William Russell  
Regional Administrator - Region I  
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Mr. Donald S. Brinkman, Project Manager  
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Senior Resident Inspector  
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Buchanan, NY 10511

Attachment

Response to Request for Additional Information on  
OFA Submittal dated  
September 30, 1988

Consolidated Edison Company of New York, Inc.  
Indian Point Unit No. 2  
Docket No. 50-247  
March, 1989

TABLE 1

## PEAKING FACTOR AND POWER SHARING COMPARISONS (TYPICAL VALUES)\*

	<u>All</u> <u>LOPAR</u>	<u>1/3</u> <u>QFA</u>	<u>2/3</u> <u>QFA</u>	<u>All</u> <u>QFA</u>
$F_{\Delta H}(\text{BOL-ARO-HFP})$	1.38	1.39	1.36	1.37
Power Sharings (HFP-ARO)				
Region X	.93	.93	.93	.93
Region X + 1	1.11	1.08	1.13	1.13
Region X + 2	.97	1.00	.96	.96
$F_{\Delta H}(\text{BOL-ARO-HZP})$	1.42	1.44	1.39	1.41
Power Sharings (HZP-ARO)				
Region X	.92	.92	.92	.92
Region X + 1	1.10	1.06	1.13	1.12
Region X + 2	.99	1.02	.98	.97

## Definitions:

$F_{\Delta H}$  - Nuclear Enthalpy Rise Hot Channel Factor is the ratio of the integral of linear power along the rod with the highest integrated power to the average rod power.

BOL - Beginning of Life  
 ARO - All Rods Out  
 HFP - Hot Full Power  
 HZP - Hot Zero Power

\*Does not include manufacturing and nuclear uncertainties.

TABLE 2

## CONTROL BANK WORTH AND KINETICS COMPARISONS (TYPICAL VALUES)\*

	<u>A11</u> <u>LOPAR</u>	<u>1/3</u> <u>QFA</u>	<u>A11</u> <u>QFA</u>
Bank D Worth (percent $\Delta\rho$ )**	.97	.95	.98
Moderator Temperature Coefficient (BOL-HZP-ARO) (pcm/°F)	1.54	1.11	1.73
Doppler Only Power Coefficient (BOL-HZP) (pcm/percent power)	-13.7	-13.8	-13.8

TABLE 3

## POWER PEAKING COMPARISONS VERSUS BURNUP (TYPICAL VALUES)\*

<u>Burnup (MWD/MTU)</u>	<u>F<sub>AH</sub></u> <u>A11</u> <u>LOPAR</u>	<u>F<sub>AH</sub></u> <u>1/3</u> <u>QFA</u>	<u>F<sub>AH</sub></u> <u>A11</u> <u>QFA</u>
0	1.38	1.39	1.37
150	1.37	1.36	1.38
1000	1.36	1.37	1.36
3000	1.39	1.39	1.39
5000	1.40	1.40	1.39
8000	1.39	1.38	1.38
10700	1.37	1.36	1.36

\* Does not include manufacturing and nuclear uncertainties

\*\* Beginning-of-Life (BOL), Hot-Full-Power (HFP), All-Rods-Out (ARO), Equilibrium Xenon.