Indiana Michigan
Power Company
500 Circle Drive
Buchanan, MI 49107 1373

INDIANA MICHIGAN POWER

March 28, 2002

AEP:NRC:2054

Docket No.: 50-316

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Stop O-P1-17
Washington, DC 20555-0001

Donald C. Cook Nuclear Plant Unit 2
ADDITIONAL INFORMATION REQUESTED BY NUCLEAR
REGULATORY COMMISSION BULLETIN 2001-01
(TAC NOS. MB2624 and MB2625)

Reference: Letter from M. W. Rencheck, Indiana Michigan Power Company (I&M), to NRC Document Control Desk, "Amended Response to Nuclear Regulatory Commission (NRC) Bulletin 2001-01: Circumferential Cracking of Reactor Pressure Vessel Head Penetrations Nozzles," dated December 6, 2001.

This letter provides information pertaining to reactor vessel head penetration (VHP) examinations performed at Donald C. Cook Nuclear Plant Unit 2 during the January 19 to February 28, 2002, Cycle 13 refueling outage. This information was requested by Nuclear Regulatory Commission Bulletin (NRCB) 2001-01, "Circumferential Cracking of Reactor Pressure Vessel Head Penetration Nozzles," dated August 3, 2001.

Item 5 of the Requested Information section in NRCB 2001-01 requested addressees to provide certain information within 30 days after plant restart following the next refueling outage. The information requested is stated below, followed by I&M's response with respect to the Unit 2 Cycle 13 refueling outage.

A088

Information Requested

a. *a description of the extent of VHP nozzle leakage and cracking detected at your plant, including the number, location, size, and nature of each crack detected;*

I&M Response

Examinations conducted during the January 19 to February 28, 2002, Cycle 13 refueling outage identified no nozzle leakage. Eddy current testing identified three small axial cracks in a 1-inch by 2-inch area on the inside diameter of Penetration # 74, approximately 3/8 inch below the J-groove weld elevation. The depth of the cracks was estimated to be less than 0.120 inches.

Information Requested

b. *if cracking is identified, a description of the inspections (type, scope, qualification requirements, and acceptance criteria), repairs, and other corrective actions you have taken to satisfy applicable regulatory requirements. This information is requested only if there are any changes from prior information submitted in accordance with this bulletin.*

I&M Response

In accordance with the referenced letter, the axial cracking in Penetration # 74 was evaluated as primary water stress corrosion cracking using the criteria in WCAP-14118, Revision 5, "Structural Integrity Evaluation of RV Upper Head Penetrations to Support Continued Operation: D.C. Cook Units 1 and 2." Based on these criteria, the cracks were determined to be acceptable for continued service. WCAP-14118, Revision 5, will be transmitted to the NRC by a separate letter.

Penetration # 32

Members of the NRC staff have verbally requested information regarding the disposition of indications identified during liquid penetrant testing (PT) on Penetration # 32.

A supplemental PT of the J-groove weld was performed on January 31, 2002. Three small indications with very little bleed-out were observed in the J-groove weld. All the indications are rounded. One was 3/32-inch diameter, located at 0 degrees (downhill), one was 1/16-inch diameter, located at 170 degrees, and one

was 1/32-inch diameter, located at 180 degrees. A supplemental eddy current test (ECT) was also performed on the J-groove weld. The ECT was designed for sensitivity of surface and near surface (i.e., approximately 0.050-inch depth) indications. The ECT confirmed the presence of the indications identified by PT, but no linear extent was seen. Since the indications were not aligned, they did not suggest the possibility of an underlying linear flaw. Therefore, surface conditioning was not necessary to address a recent occurrence at another plant in which minor surface conditioning of indications exposed a much larger linear flaw.

Additional Information

Visual examinations were accomplished using a remote crawler that was capable of observing 360 degrees around each VHP. In areas where the crawler could not gain access, manually operated remote video probes were used. These were also capable of observing 360 degrees around each VHP. Level II VT-2 examiners, qualified in accordance with the American Society of Mechanical Engineers (ASME) Code, Section XI, with additional familiarization about recent industry experience with primary water stress corrosion cracking were used to perform the inspection of the vessel head and penetrations using the remote viewing systems. There was evidence of boric acid from previous venting or leakage from control rod drive mechanism canopy seals on the VHP tubes above the reactor vessel head. However, there were no accumulations of boric acid identified on the vessel head or around any penetration.

Attachment 1 to this letter provides additional information pertaining to visual inspections performed on the VHPs. Originally, eleven VHPs contained indications in the J-groove weld area that appeared to be related to lack of fusion during original construction. Upon further analysis the indications for six of the eleven VHPs were determined to be overcalls by the analyst due to material grain structure or probe lift-off and, therefore, were not relevant indications.

Attachment 2 provides a listing of new commitments made in this letter.

Should you have any questions, please contact Mr. Gordon P. Arent, Manager of Regulatory Affairs, at (616) 697-5553.

Sincerely,

Michael W. Rencheck
Vice President, Strategic Business Improvements

/bjb

Attachments

c: K. D. Curry, w/o attachments
J. E. Dyer
MDEQ – DW & RPD, w/o attachments
NRC Resident Inspector
R. Whale, w/o attachments

AFFIRMATION

I, Michael W. Rencheck, being duly sworn, state that I am Vice President of Indiana Michigan Power Company (I&M), that I am authorized to sign and file this document with the Nuclear Regulatory Commission on behalf of I&M, and that the statements made and the matters set forth herein pertaining to I&M are true and correct to the best of my knowledge, information, and belief.

Indiana Michigan Power Company

Michael W. Rencheck
Vice President, Strategic Business Improvements

SWORN TO AND SUBSCRIBED BEFORE ME

THIS 29 DAY OF March, 2002

Margaret M. Sunagel
Notary Public

My Commission Expires 11/23/2005

MARGARET MARY SUNAGEL
Notary Public, Berrien County, MI
My Commission Expires Nov 23, 2005

ATTACHMENT 1 TO AEP:NRC:2054

Westinghouse Report WDI-RVHP-002

"D.C. Cook 2
Reactor Vessel Head Penetration Inspection
Final Report"

Dated March 20, 2002

D.C. Cook 2
Reactor Vessel Head Penetration Inspection
Final Report

WDI-RVHP-002

March 20, 2002

Author: [original signed]

Verfied: [original signed]

D.C. Cook 2
Reactor Vessel Head Penetration Inspection
Final Report

1.0 DISCUSSION

During the D.C. Cook Unit 2 January 2002 outage, Westinghouse performed nondestructive examinations of all 78-reactor vessel head penetrations (RVHP). The inspections were performed in accordance with the following field service nondestructive examination procedures and Field Change Notices (FCN):

ISI-UT-002, Rev. 1 – "Time of Flight Ultrasonic Inspection of Reactor Vessel Head Penetrations"

ISI-UT-003, Rev. 0 – "Ultrasonic Inspection of Reactor Vessel Head Penetrations Using Pulse Echo Techniques"

WDI-UT-007, Rev. 0 – "Ultrasonic Procedure for Detection of Circumferential Indications in Reactor Vessel Head Penetration Welds – 0 Degree to 20 Degree Sword Probes"

WDI-UT-008, Rev. 0 – "IntraSpect Time of Flight Ultrasonic Inspection of Reactor Vessel Head Penetrations"

WDI-UT-009, Rev. 0 – "IntraSpect Ultrasonic Procedure for Detection of Circumferential Indications in Reactor Vessel Head Penetration Welds – 0 Degree to 20 Degree Probes"

WDI-ET-003, Rev. 0- "IntraSpect Eddy Current Imaging Procedure for Inspection of Reactor Vessel Head Penetrations", with FCN 001

ISI-ET-001, Rev. 2 – "Eddy Current Inspection of J-Groove Welds in Vessel Head Penetrations"

ISI-ET-002, Rev. 2 – "Eddy Current Procedure for Detection of Cracks in Vessel Head Penetrations With or Without Thermal Sleeves – Differential Gap Probe"

The vessel head penetrations were dispositioned based on an assessment of 1) results from the ultrasonic and eddy current examinations presented herein, 2) results from visual examinations of 100% of the penetrations from the top of the head, and 3) results from supplementary liquid penetrant examinations.

2.0 SCOPE OF WORK

The reactor vessel head penetration examination scope at D.C. Cook Unit 2 was based on a commitment to perform 1) qualified under-the-insulation visual examinations, or 2) surface examinations of the

penetration wetted surfaces, or 3) volumetric examinations to identify the presence of circumferentially oriented primary water stress corrosion cracking (PWSCC) on the OD surfaces of the penetrations above the J-Groove welds attaching the penetrations to the reactor vessel head.

The delivery system used for the vessel head penetration inspections at D.C. Cook Unit 2 was the Westinghouse DERI 700 manipulator. The DERI 700 is a multi-purpose robot that can access all head penetrations without repositioning and provides a common platform for all reactor vessel head penetration inspection end effectors. The manipulator consists of a central leg, mounted on a carriage, which in turn is mounted onto a guide rail. The manipulator arm, with elbow and removable wrist, is mounted onto the carriage, which travels vertically along the manipulator leg. The DERI 700 was used to deliver the 7010 rotating probe manipulator for eddy current and ultrasonic examinations of nine open penetrations and the ultrasonic gap scanner for ultrasonic time-of-flight examinations of sixty-nine penetrations. The eddy current gap scanner and Grooveman end effector were used for eddy current examinations of the inside diameter surfaces, J-Groove welds and outside diameter surfaces of nine penetrations.

The 7010 rotating probe manipulator delivers a rotating probe containing ultrasonic and eddy current probes to the ID surface of open reactor vessel head penetrations. The scanning motion is in the circumferential direction and the probe is indexed in the axial direction.

The eddy current and ultrasonic gap scanners are designed to position and guide "sword" probes into the annulus between the ID surface of the reactor vessel head penetration tube and the OD surface of the thermal sleeve and to manipulate the probe to provide the desired coverage. The nominal annulus size is 0.125". The sword probe design utilizes a flexible metal "sword" on which a pair of eddy current or ultrasonic probes are mounted in a spring configuration that enables the probes to ride on the ID surface of the penetration tubes. The scanning motion is in a vertical direction moving from a specified height above the weld toward the lower end of the penetration and the probes are indexed in the circumferential direction. The gap scanners consist of a probe tilt and drive unit to advance and reverse the probe in the tube/thermal sleeve annulus, a turntable to rotate the probe drive around the axis of the penetration, a lifting cylinder to raise and lower the tilt and drive unit and a centering device consisting of two clamping arms. The ultrasonic gapscanner also has a couplant delivery system.

The Grooveman end effector is designed deliver eddy current probes for examination of the surface of the J-Groove weld and the penetration nozzle OD surface. The eddy current probe holders are designed to conform to the geometry of the J-Groove welds and penetration OD surfaces which allow the probes to follow the contour of the assembly. Continuous positional and video feedback is provided to the operator to assist in examining the full surface of the weld and the penetration tube. Scanning of the penetration OD surfaces is conducted in a vertical direction and the probes are indexed in the circumferential direction. For scanning of the J-Groove welds, scanning is conducted in the circumferential direction, along the welds, and the index is in a direction perpendicular to the welds.

2.1 Rotating Probe Examinations

Rotating probe examinations were conducted on nine open reactor vessel head penetrations. These examinations included:

1) TOFD ultrasonic techniques demonstrated capable of detecting axial and circumferential reflectors on the tube OD surfaces with 5.0 MHz PCS24 probes in accordance with WDI-UT-008, Rev. 0; "Intraspect Time of Flight Ultrasonic Inspection of Reactor Vessel Head Penetrations",

2) eddy current examinations using crosswound coils operated at 400 KHz demonstrated capable of detecting axial and circumferential degradation on the tube ID surface in accordance with WDI-ET-003, Rev. 0; "IntraSpect Eddy Current Imaging Procedure for Inspection of Reactor Vessel Head Penetrations", and

3) 0^{o} and 20^{o}, 2.25 MHz longitudinal wave examinations of the J-Groove welds in accordance with WDI-UT-009, Rev. 0; "IntraSpect Ultrasonic Procedure for Detection of Circumferential Indications in Reactor Vessel Head Penetration Welds – 0 Degree to 20 Degree Probes".

2.2 Time-of-Flight Ultrasonic Examinations With the UT Gapscanner

Sixty-four penetrations were examined using time-of-flight diffraction ultrasonic techniques with PCS24 probes demonstrated capable of detecting circumferentially oriented reflectors on the tube OD surfaces above the elevation of the J-Groove weld. These examinations were conducted with PCS24 probes directed along the tube axis in accordance with ISI-UT-002, Rev. 1; "Time of Flight Ultrasonic Inspection of Reactor Vessel Head Penetrations". These examinations were conducted with PCS24 TOFD 6.0 Mhz ultrasonic transducers.

2.3 Eddy Current Inspection of Penetration ID Surfaces With the ECT Gapscanner

The inside diameter surfaces of nine penetrations were inspected with eddy current techniques in accordance with ISI-ET-002, Rev. 2; "Eddy Current Procedure for Detection of Cracks in Vessel Head Penetrations With or Without Thermal Sleeves – Differential Gap Probe". These penetration locations were identified for eddy current inspection because they could not be completely examined with the time-of-flight diffraction ultrasonic technique. Centering buttons on the penetration thermal sleeves at these locations were at elevations that would not permit the ultrasonic probe to reach the desired height above the weld.

These inspections were performed using a pair of differentially connected pancake coils positioned at 45 degrees to one and other. The inspection frequencies were 600, 280 and 100 kHz in both the absolute and differential modes. The prime frequency was 600 kHz in the differential mode.

Penetrations where ID inspections were conducted included #1, #2, #3, #4, #5, #6, #7, #8 and #9.

2.4 Eddy Current Inspection of J-Groove Welds and Penetration OD Surfaces

The J-Groove welds and OD surfaces at ten penetration locations were inspected with eddy current techniques in accordance with ISI-ET-001, Rev. 2; "Eddy Current Inspection of J-Groove Welds in Vessel Head Penetrations". These penetration locations were identified for eddy current inspection because they could not be completely examined with the time-of-flight diffraction ultrasonic technique. Centering buttons on the penetration thermal sleeves at these locations were at elevations that would not permit the ultrasonic probe to reach the desired height above the weld.

These inspections were performed using a 3mm diameter, x-wound coil in a driver-pickup configuration. The inspection frequencies were 400 and 450 kHz.

Penetrations where J-Groove weld and penetration OD inspections were conducted included #1, #2, #3, #4, #5, #6, #7, #8, #9 and #32.

2.5 Summary of All RVHP NDE Inspections at D.C. Cook Unit 2

The following table provides a summary of all RVHP nondestructive inspections performed at D.C. Cook Unit 2 during the January 2002 refueling outage.

Penetration	ECT of J-Groove Weld and Penetration OD Surfaces	ECT of Penetration ID Surfaces	TOFD UT PCS24 Ax.	Rotating Probe	Qualified Visual (VT-2)	Liquid Penetrant (PT)
1	x	x				
2	x	x				
3	x	x				
4	x	x				
5	x	x				
6	x	x	x*			
7	x	x	x*			
8	x	x	x*			
9	x	x	x*			
10			x			
11			x			
12			x			
13			x			
14			x			
15			x			
16			x			
17			x			
18			x			
19			x			
20			x			
21			x			

22			x			
23			x			
24			x			
25			x			
26			x			
27			x			
28			x			
29			x			
30			x			
31			x			
32	x		x			x
33			x			
34			x			
35			x			
36			x			
37			x			
38			x			
39			x			
40			x			
41			x			
42			x			
43			x			
44			x			
45			x			
46			x			
47			x			
48			x			
49			x			
50			x			
51			x			
52			x			
53			x			
54			x			
55			x			
56			x			
57			x			
58			x			
59			x			
60			x			
61			x			
62				x	x	
63				x	x	
64				x	x	
65				x	x	
66			x		x	
67			x		x	

68			x		x	
69			x		x	
70			x		x	
71			x		x	
72			x		x	
73			x		x	
74				x	x	
75				x	x	
76				x	x	
77				x	x	
78				x	x	

* PCS24 TOFD UT examinations limited due to interference by the thermal sleeve centering buttons.

3.0 EDDY CURRENT AND ULTRASONIC INSPECTION RESULTS

3.1 Rotating Probe Examinations

A summary of results from the rotating probe examinations of nine penetrations is provided in the following table:

Penetration Number	PCS24 Axial	PCS24 Circumferential	0 Degree Longitudinal	20 Degree Longitudinal	Eddy Current
62	NDD	NDD	NDD	NDD	NDD
63	NDD	NDD	NDD	NDD	NDD
64	NDD	NDD	NDD	NDD	NDD
65	RI	RI	NDD	RI	NDD
74	NDD	NDD	NDD	NDD	RI
75	NDD	NDD	NDD	NDD	NDD
76	NDD	NDD	NDD	NDD	NDD
77	NDD	NDD	NDD	NDD	NDD
78	NDD	NDD	NDD	NDD	NDD

The sizes of the recordable indications (RI) identified by eddy current in penetration #74 were estimated using the PCS24 time-of-flight transducer pair aimed in the circumferential direction. When these results were compared to responses from the calibration notches, the size is conservatively estimated at less than 3.0 mm (0.12").

Recordable indications from the ultrasonic examination of penetration #65 are presented in the following table:

Channel	Range Deg.	Deg In	Max Location	Depth from ID	Depth from OD	Amp
2	200 to 205	5 .12"	202	.585"	.035"	127%

2	259 to 294	36	.864"	276	.436	.184"	127%
2	298 to 320	22	.528"	311	.480	.14"	127%
1	298 to 320	22	.528"	310	.551"	.069"	127%
4	298 to 320	22	.528"	310	.536"	N/A	114%
2	330 to 356	26	.624"	342	.482	.182"	127%
1	330 to 356	26	.624"	338	.515"	.105"	127%
2	15 to 34	19	.456"	20	.513"	.107"	127%
2	44 to 52	8	.192"	44	.564"	.056"	127%
2	57 to 70	13	.312"	59	.558	.062	127%

Ch 1. TOFD for detection of Axial Defects
Ch 2 .TOFD for detection of Circ. Defects
Ch 3. Zero degree Longitudinal
Ch 4 .20 degree Longitudinal shooting up into the head

This condition is similar to that identified in the PCS24 TOFD UT sword probe examinations of four other penetrations identified for additional investigation after examinations with the PCS24 sword probes. These reflectors appear to be associated with weld repairs of the partial penetration welds.

Ultrasonic examinations of penetration #75 were limited in the area of the previous weld repair due to irregular coupling. Eddy current results on the penetration inside diameter surface confirmed the absence of any degradation in the area of the weld repair.

3.2 Time-of-Flight Ultrasonic Examinations With the UT Gapscanner

Sixty-four penetrations were examined using time-of-flight diffraction ultrasonic techniques with PCS24 probes.

Four of those penetrations were identified for additional investigation with 0 degree and 45 degree sword probes in accordance with WDI-UT-007, Rev. 0; "Ultrasonic Procedure for Detection of Circumferential Indications in Reactor Vessel Head Penetration Welds – 0 Degree to 20 Degree Sword Probes" and ISI-UT-003, Rev. 0; "Ultrasonic Inspection of Reactor Vessel Head Penetrations Using Pulse Echo Techniques".

The characteristics of ultrasonic test results the four penetrations are summarized below:

No.	PCS 24 TOFD			45 Degree Shear			0 Degree Straight Beam		
	Ampl.	Depth	Length	Ampl.	Depth	Length	Ampl.	Depth	Length
#32	100%	0.19"	300^0 to 346^0	53%* 25%* 26%**	0.19"	304^0 to 314^0 316^0 to 322^0 340^0 to 346^0	47%**** 70%**** 70%****	0.10" 0.19"	303^0 to 306^0 311^0 to 335^0
#46	41%	0.21"	336^0 to 71^0	37%* 37%* 37%*	0.13"	339^0 to 348^0 6^0 to 10^0 15^0 to 57^0	42%**** 47%**** 47%****	0.12" 0.10" 0.10"	340^0 to 346^0 23^0 to 35^0 41^0 to 55^0
#35	43%	0.12"	41^0 to 57^0	24%*	0.12"	31^0 to 56^0	78%****	0.02"	39^0 to 45^0
#60	53%	0.11"	310^0 to 345^0	30%***	0.06"	323^0 to 327^0	24%****	0.09"	324^0 to 336^0

* With 18 dB of soft gain
** With 21 dB of soft gain
*** With 24 dB of soft gain
**** With 12dB of soft gain

In addition to the investigations by straight beam ultrasonics and 45 degree ultrasonics, penetration #32 was inspected by liquid penetrant testing over the J-Groove weld and by eddy current over the J-Groove weld and tube OD surface. The results confirmed one and other. Three rounded indications were identified; one near the 0 degree location, one at 170 degrees and another at approximately 180 degrees.

3.3 Eddy Current Inspection of Penetration ID Surfaces With the ECT Gapscanner

Eddy current examinations of nine penetration tube ID surfaces were conducted with the eddy current gapscanner. No detectable degradation (NDD) was identified in any of the penetrations. Inspection coverage and a summary of results are found in the following table.

Penetration Number	Uppermost Weld Elevation (in.)	Inspection Elevation (in.)	Inspection Results
1	6.3"	10.0"	NDD
2	6.8"	10.2"	NDD
3	6.8"	10.3"	NDD
4	6.8"	10.4"	NDD
5	6.8"	10.0"	NDD
6	6.9"	10.5"	NDD
7	6.9"	10.6"	NDD
8	6.9"	10.3"	NDD
9	6.9"	10.3"	NDD

3.4 Eddy Current Inspection of J-Groove Welds and Penetration OD Surfaces

Eddy current inspections of the ten J-Groove welds and penetration tube OD surfaces were conducted to the extent possible. All weld surfaces were prepared by grinding to a smooth finish. For this examination, penetrations were classified as containing no reportable indications (NRI), recordable indications, or reportable indications. Criteria for these classifications are found in the Analysis Logic Chart in ISI-ET-001, Rev.2, "Eddy Current Inspection of J-Groove Welds in Vessel Head Penetrations". Reportable indications are those exhibiting phase angles of 90° ± 15° (circumferential) or 270° ± 15° (axial), signal-to-noise ratios greater than 2:1, and lengths 9 mm or greater.

Penetration Number	Inspection Results Penetration OD Surface	Inspection Results J-Groove Weld
1	NRI	NRI
2	NRI	NRI
3	NRI	NRI
4	NRI	NRI
5	NRI	NRI
6	NRI	NRI
7	NRI	NRI
8	NRI	NRI
9	NRI	NRI
32	NRI	NRI

There were no reportable indications identified in any of the J-Groove weld or penetration OD surface inspections. One recordable indication was found in penetration #32 at approximately 0 degrees. Two other non-reportable indications were noted at the 170 and 180 degree locations.

Penetration #32

The eddy current inspection of penetration #32 identified one recordable indication in the J-Groove weld area with the following characteristics. Upon further analysis it was determined to coincide with liquid penetrant indication reported during the site PT of this penetration.

Penetration Number	Indication Classification	Altitude (mm)	Length (mm)	Angle (°)	Maximum Amplitude (Volts)	Associated Phase (°)
32	Rounded (0.12")	1.1"	0.12"	20 deg.	0.5V	93 deg.

4.0 DISCUSSION OF RESULTS

A total of 5 penetrations were identified for further investigation. Four were based on results from the PCS24 sword probe examinations and one based on results from the PCS24 rotating probe.

All indications had similar characteristics. All had amplitudes in the range 43% to 127% and apparent depths between 0.06" to 0.21" from the tube OD. All were at elevations within the weld zone, not above the weld. None of the indications were associated with a break in back-wall signal or the lateral wave.

For those detected with the PCS24 sword probes, all were visible during supplementary examinations with 0 degree longitudinal and 45 degree angle beam examinations suggesting a volumetric, rather than planar behavior. All also showed evidence of other small reflectors along, and parallel to, the tube-to weld interface.

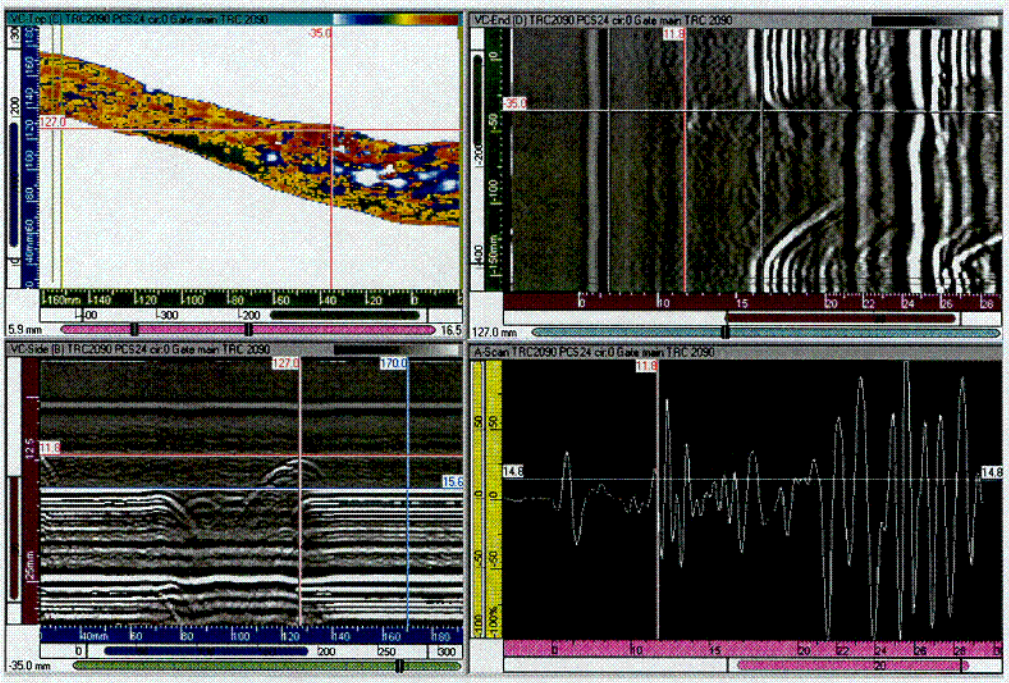
For penetration #65, the reflectors were detectable with both PCS24 probe pairs, aimed in the axial and circumferential directions. The reflectors were also detectable with the 20 degree longitudinal wave probe. Penetration #65 showed no boron deposits during the visual examination. Location #65 is a "qualified visual examination location".

In addition, penetration #32 was examined with liquid penetrant testing and by supplementary eddy current examination.

The supplementary eddy current examination was performed using a technique designed to provide sensitivity to surface, as well as near subsurface, flaws. In recent inspections of inconel welds, both in the US and in Europe, flaws were encountered that were only open to the surface at localized points. In one inspection of an Alloy 182 safe end weld, destructive testing showed that the flaw initiated at localized spots on the wetted surface and then propagated subsurface for the majority of the flaw. The metalography results were interpreted to indicate that there was a shallow (<0.01") surface layer in compression, which prevented crack initiation except at local spots. The eddy current method was designed as a volumetric examination to extend to approximately 0.050" subsurface, similar to the techniques commonly used for volumetric inspections of steam generator tubes. The eddy current method was used for the safe end weld examination and these quasi-surface flaws were detected and confirmed by destructive testing.

Given the similarity of the ultrasonic examination result characteristics in the affected penetrations, the rationale was to utilize penetrations #32 and #65 as a basis for disposition. The logic for dispositioning of these reflectors as associated with the welding process, and not a result of service-related degradation, is 1) the reflectors have characteristics that appear to be volumetric in nature, 2) supplementary surface examinations of the weld on penetration #32 by liquid penetrant and eddy current testing indicate there is no source of primary water to the areas where the reflectors were reported, and 3) penetration #65 is a "qualified visual examination" location and there was no evidence of boric acid deposits during the under the insulation visual examination.

Time of flight results for penetration #32 at 325 degrees are shown in the figure below:

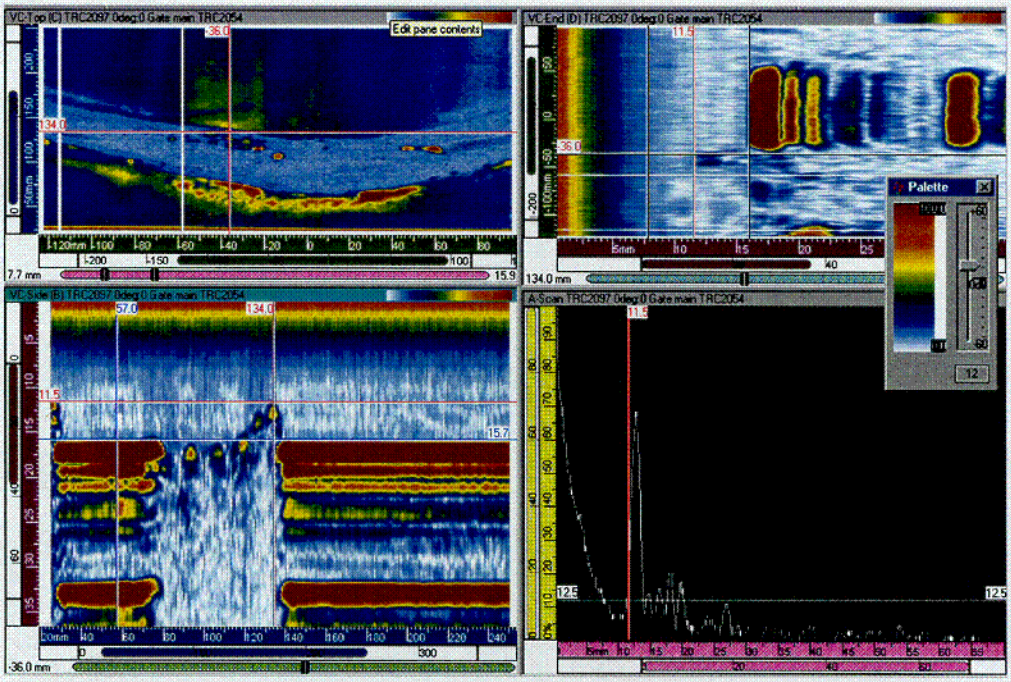


Observations regarding the TOFD results:

- The TOFD image shows 3 distinct reflectors at approximately 114, 120 and 127mm (4.48“, 4.72“ and 5.00“) axial position which gradually increase from ~1mm to 4.2mm (~0.04“ to 0.17“) in depth from the backwall. The end view shows they have an extent of some 15°.
- The amplitude of the indication(s) is relatively high suggesting the source(s) to be volumetric in nature.
- Two other reflectors are apparent along the weld fusion line at lower axial elevations having similar characteristics.
- The TOFD results show the top of weld at the indication location is 132 mm (5.2 in.), 5.0mm (0.20“) above the uppermost reflector. The reflectors are not above the weld.

C01

Straight beam results for penetration #32 at 324 degrees are shown in the figure below:



Observations regarding the straight beam results:

- The 0° image also shows 3 distinct indications above the interface that with correction for axial position from the recess appear to correspond almost exactly with those seen with TOFD. At this sensitivity level, we are unable to resolve responses from the bottoms of the the 3 mm deep (0.12 in.) and 5.0 mm (0.20 in.) deep OD EDM notches in the calibration standard, indicating relatively large reflecting areas.

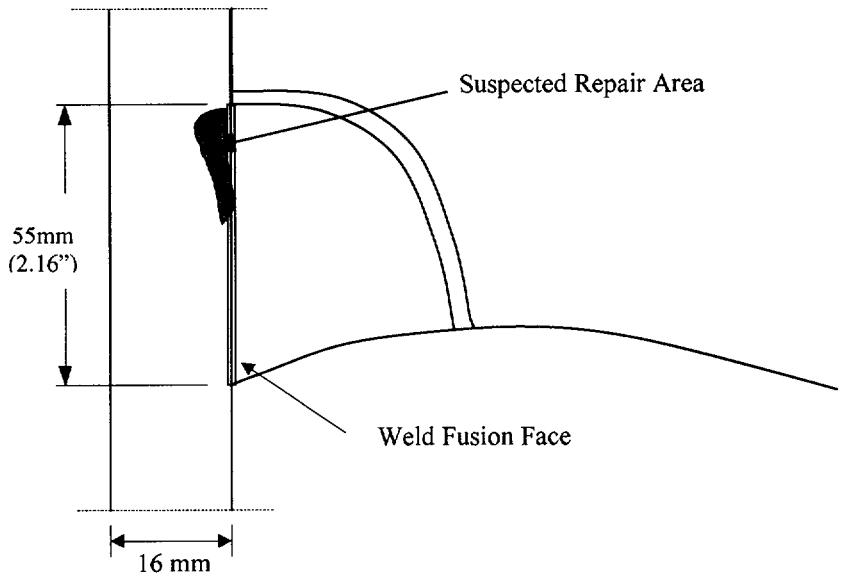
- The presence of these indications again suggest the source(s) to be more volumetric in nature.

- The two reflectors along the fusion line have similar characteristics in terms of amplitide and shape.

- The straight beam results show the top of weld at the indication location is 138 mm (5.4 in.), 4.0mm (0.16 in.) above the uppermost reflector. The reflectors are not above the weld.

C02

These reflectors are more likely attributed to a possible repair area, with regions of incomplete fusion, rather than discreet planar reflectors with circumferential extent. This assessment is shown in the figure below:



This assessment of the nondestructive examination results, along with the eddy current and liquid penetrant examinations of the J-Groove weld of penetration #32, as well as the lack of any evidence of boric acid during the visual examination of the top of the head at any of the penetrations indicates the reflectors identified during TOFD examinations of the reactor vessel head penetrations at D.C. Cook Unit 2 are associated with the welding process and not service-related.

As a conservative measure, an evaluation was performed which demonstrated high margin of structural integrity for fusion weld zone defects, in WCAP 14118, Rev. 5, "Structural Integrity Evaluation of RV Upper Head Penetrations to Support Continued Operation: D.C. Cook Units 1 and 2".

ATTACHMENT 2 TO AEP:NRC:2054

COMMITMENTS

The following table identifies those actions committed to by Indiana Michigan Power Company (I&M) in this document. Any other actions discussed in this submittal represent intended or planned actions by I&M. They are described to the Nuclear Regulatory Commission (NRC) for the NRC's information and are not regulatory commitments.

Commitment	Date
WCAP-14118, Revision 5 will be transmitted to the NRC by a separate letter.	April 30, 2002

Indiana Michigan
Power Company
500 Circle Drive
Buchanan, MI 49107 1373

INDIANA MICHIGAN POWER

March 28, 2002

AEP:NRC:2080
10 CFR 50.80

Docket Nos.: 50-315
50-316

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Stop O-P1-17
Washington, DC 20555-0001

Donald C. Cook Nuclear Plant Unit 1 and Unit 2
FORMATION OF INTERMEDIATE PARENT COMPANY

Pursuant to Section 184 of the Atomic Energy Act of 1954, as amended, and 10 CFR 50.80, Indiana Michigan Power Company (I&M), the owner and licensed operator of Donald C. Cook Nuclear Plant (CNP) Units 1 and 2, hereby requests the consent of the Nuclear Regulatory Commission (NRC) to the proposed corporate restructuring and resulting indirect transfer of control of the above captioned NRC licenses that will occur in connection with this reorganization.

The proposed restructuring will result in an affiliate company, Central and South West Corporation, becoming an intermediate parent company of I&M. Creation of this intermediate parent company will have no adverse financial, technical, or safety implications, and NRC's review and approval of the attached Application will enable American Electric Power Company, Inc. (AEP), I&M's ultimate parent company, to enhance the competitiveness and cost-effectiveness of its utility operations. AEP will remain the ultimate parent company of I&M after the reorganization.

I&M respectfully requests that the NRC issue an order consenting to any indirect transfer of control of the Facility Operating Licenses Nos. DPR-58 and DPR-74 resulting from this reorganization. I&M requests that NRC issue its approval by September 1, 2002, to permit closing of this transaction in the third quarter of 2002. Questions regarding this Application should be directed to Jeffrey D. Cross, Esq., General Counsel, 1 Riverside Plaza, Columbus, OH

43215-2373, (614) 223-1580; and to George L. Edgar at Morgan, Lewis & Bockius, LLP, 1111 Pennsylvania Avenue, N.W., Washington, D.C. 20004, (202) 739-5459 or gedgar@morganlewis.com.

This letter contains no new commitments.

Sincerely,

Michael W. Rencheck
Vice President, Strategic Business Improvements

/dmb

Attachment

c: K. D. Curry, w/o attachment
J. E. Dyer
MDEQ – DW & RPD, w/o attachment
NRC Resident Inspector
R. Whale, w/o attachment

AFFIRMATION

I, Michael W. Rencheck, being duly sworn, state that I am Vice President of Indiana Michigan Power Company (I&M), that I am authorized to sign and file this document with the Nuclear Regulatory Commission on behalf of I&M, and that the statements made and the matters set forth herein pertaining to I&M are true and correct to the best of my knowledge, information, and belief.

Indiana Michigan Power Company

Michael W. Rencheck
Vice President, Strategic Business Improvements

SWORN TO AND SUBSCRIBED BEFORE ME

THIS 29 DAY OF March, 2002

Notary Public

My Commission Expires 11/23/2005

MARGARET MARY SUNAGEL
Notary Public, Berrien County, MI
My Commission Expires Nov 23, 2005

ATTACHMENT TO AEP:NRC:2080

APPLICATION FOR ORDER CONSENTING TO INDIRECT TRANSFER OF CONTROL OF LICENSES

TABLE OF CONTENTS

I. INTRODUCTION

This Application requests the consent of the Nuclear Regulatory Commission (NRC) to the proposed indirect transfer of control of Indiana Michigan Power Company's (I&M) interests in the Donald C. Cook Nuclear Plant (CNP), Units 1 & 2. Pursuant to Facility Operating License Nos. DPR-58 and DPR-74, I&M is licensed to operate and to possess a 100% undivided ownership interest in CNP.

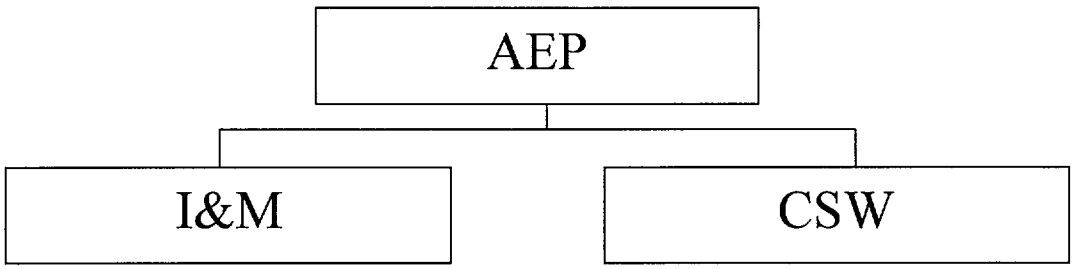
The proposed transfer involves an internal reorganization of the corporate structure of the parent holding company of I&M, which will result in an affiliate company, Central and South West Corporation (CSW), becoming an intermediate parent company of I&M. The proposed transfer will not involve any changes to I&M, will not involve any transfer of assets to or from I&M, will have no effect upon the management, organization, or day-to-day operations of CNP, and will not involve any amendments to the CNP licenses. In short, the proposed indirect transfer of control of the CNP licenses does not present any issue of safety or other regulatory significance to the NRC.

I&M and CSW are currently wholly-owned, direct subsidiaries of American Electric Power Company (AEP). AEP is a registered holding company under the Public Utility Holding Company Act of 1935, as amended, (PUHCA) whose shares of common stock are widely-held and publicly-traded on the New York Stock Exchange (Symbol AEP). Upon the completion of the reorganization, CSW will remain wholly-owned, direct subsidiary of AEP; I&M will be a wholly-owned, direct subsidiary of CSW. Thus, I&M will become a wholly-owned indirect subsidiary of AEP. Figure 1 reflects the relevant elements of the corporate structure before and after the proposed reorganization.

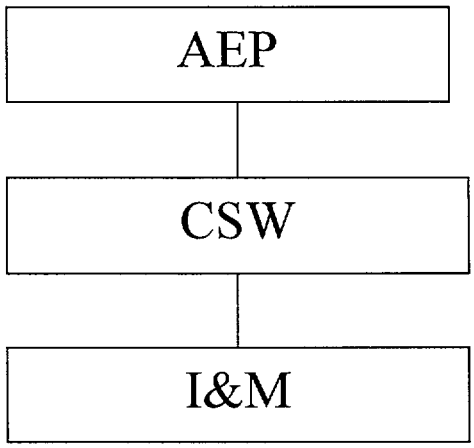
FIGURE 1

SIMPLIFIED ORGANIZATIONAL DIAGRAMS

Current Organization



After Proposed Reorganization



II. STATEMENT OF PURPOSE OF THE TRANSFER AND NATURE OF THE TRANSACTION MAKING THE TRANSFER NECESSARY OR DESIRABLE

The proposed reorganization will enable AEP to better conduct its generation business and other businesses currently owned by AEP in a competitive and cost-effective manner. I&M anticipates that CSW will obtain investment-grade securities ratings on its senior unsecured debt, which will be used to the advantage of its various directly and indirectly owned subsidiaries, including I&M.

III. GENERAL CORPORATE INFORMATION REGARDING CENTRAL AND SOUTH WEST CORPORATION

There will be no change to any of the general corporate information regarding I&M and AEP. The proposed reorganization will not result in any change in the name, address, business, organization or management of I&M or AEP, or in any change in the directors or officers of I&M or AEP. Thus, the only additional corporate information relevant to this application relates to CSW.

A. Name of Proposed Intermediate Parent Company

The name for the proposed indirect parent company is "Central and South West Corporation."

B. Address

1 Riverside Plaza, Columbus, Ohio 43215-2373

C. Description of Business or Occupation

CSW is a Delaware corporation engaged in owning the shares of electric utility companies and other energy related businesses. CSW will serve as an intermediate holding company for the transmission and distribution affiliates that are created through state restructuring and certain other AEP public-utility subsidiary companies that are not required to restructure, including, subject to state approval, I&M and other AEP vertically-integrated companies. CSW may engage in financings, issue securities, issue guarantees, enter into hedging transactions, and acquire debt and other securities for any affiliated public utility company.

D. Organization and Management

1. State of Establishment and Place of Business

CSW is a Delaware corporation whose principal place of business is Columbus, Ohio.

2. Board of Directors and Principal Officers

The names of the members of the Board of Directors of CSW and its principal officers, all of whom are U.S. citizens with the same mailing address as CSW, are as follows:

Board of Directors
E. Linn Draper, Jr.
Henry W. Fayne
Armando A. Pena
Robert P. Powers
Thomas V. Shockley, III
Susan Tomasky
J. H. Vipperman

Principal Officers	
E. Linn Draper, Jr.	President and Chief Executive Officer
Henry W. Fayne	Vice President
Thomas V. Shockley, III	Chief Operating Officer
Armando A. Pena	Treasurer
Thomas S. Ashford	Secretary

IV. FOREIGN OWNERSHIP, CONTROL, OR DOMINATION

The proposed reorganization is entirely internal to the AEP holding company system. Shares of common stock of AEP are widely held and publicly traded and will remain so after the reorganization. The reorganization will not result in any change in the direct or indirect ownership or control of AEP, the ultimate parent company of the licensee. Neither AEP nor I&M is currently owned, controlled or dominated by an alien, a foreign corporation or a foreign government, and the reorganization resulting in CSW as intermediate holding company will not have any impact on this status. As noted above, the members of the Board of Directors and principal officers of CSW are all citizens of the United States, and CSW will remain a wholly-owned subsidiary of AEP.

V. TECHNICAL QUALIFICATIONS

I&M will continue to be the plant operator, and the technical qualifications of I&M will not be affected by the proposed reorganization. There will be no physical changes to CNP in connection with the reorganization, no changes in the day-to-day operations of CNP, and no changes to the CNP licenses or technical specifications. The CNP nuclear organization will continue to have clear and direct lines of responsibility and authority. The introduction of CSW as an intermediate parent company of I&M will have no impact on the management of I&M, and it will not result in any personnel changes in the I&M nuclear organization.

VI. FINANCIAL QUALIFICATIONS

The financial qualifications of I&M will not be adversely affected by the proposed indirect transfer. The introduction of CSW as an intermediate parent company will not result in any change to I&M's financial qualifications or to the existing decommissioning funding arrangements for CNP.

I&M is and will remain a regulated "electric utility" within the meaning of 10 CFR 50.2 upon the completion of the reorganization and will remain financially qualified to hold CNP licenses pursuant to 10 CFR 50.33(f). I&M's current arrangements for the collection of decommissioning funding will remain in effect and will not be affected by the proposed indirect license transfer. I&M has filed its decommissioning funding reports with the NRC under 10 CFR 50.75(b) and 10 CFR 50.75(f)(1) and is providing financial assurance for decommissioning its ownership interests in CNP in accordance with NRC's regulations through an external sinking fund in which deposits are made monthly. After the proposed indirect license transfer, I&M will remain responsible for the decommissioning liabilities associated with its ownership interests in CNP and will continue to fund its decommissioning trusts for CNP in accordance with 10 CFR 50.75. The proposed indirect license transfer will have no effect upon I&M's decommissioning funding.

It is anticipated that CSW will obtain investment-grade securities ratings on its senior unsecured debt, which will be used to the advantage of their various directly and indirectly owned subsidiaries, including I&M. Thus, if anything, the proposed transfer will serve to enhance I&M's financial qualifications.

VII. ANTITRUST INFORMATION

This Application post-dates the issuance of the CNP's operating licenses, and therefore, no antitrust review is required or authorized. The Atomic Energy Act does not require or authorize antitrust reviews of post-operating license transfer applications. *See Kansas Gas and Electric Co., et al.* (Wolf Creek Generating Station, Unit 1), CLI-99-19, 49 NRC 441 (1999).

VIII. RESTRICTED DATA AND CLASSIFIED NATIONAL SECURITY INFORMATION

This Application for proposed indirect transfer does not contain any Restricted Data or other Classified National Security Information and does not involve any change in access to such Restricted Data or Classified National Security Information. I&M's existing restrictions on access to Restricted Data and Classified National Security Information are unaffected by the proposed transfer.

VIII. ENVIRONMENTAL CONSIDERATIONS

The requested consent to indirect transfer of control of the CNP licenses is exempt from environmental review because it falls within the categorical exclusion contained in 10 CFR 51.22 (c)(21) for which neither an Environmental Assessment nor an Environmental Impact Statement is required. Moreover, the proposed transfer does not involve any amendment to the facility operating licenses or other change that would directly affect the actual operation of CNP in any substantive way. The proposed transfer does not involve an increase in the amounts, or a change in the types, of any radiological effluents that may be allowed to be released off-site, and involves no increase in the amounts or change in the types of non-radiological effluents that may be released off-site. Further, there is no increase in the individual or cumulative operational radiation exposure, and the proposed transfer has no environmental impact.

X. PRICE-ANDERSON INDEMNITY AND NUCLEAR INSURANCE

The proposed indirect transfer will have no effect on the existing Price-Anderson Indemnity and nuclear insurance for CNP.

XI. OTHER REQUIRED REGULATORY APPROVALS

Other major regulatory approvals and rulings that may be required in connection with the proposed corporate restructuring and resulting indirect transfer of control include approvals and rulings from the Securities and Exchange Commission under PUHCA, the Federal Energy Regulatory Commission, and the Internal Revenue Service. I&M anticipates that other required approvals and rulings will be obtained by the third quarter of 2002.

XII. EFFECTIVE DATES

I&M requests that the NRC review this Application on a schedule that will permit the issuance of NRC consent to the transfer of licenses as promptly as possible, and in any event by September 1, 2002. I&M also requests that the NRC permit the close of the restructuring transaction to occur at any time within 90 days after NRC issues its approval. I&M will inform the NRC if there are any significant changes in the status of the other developments that have an impact on the schedule.

XIII. CONCLUSION

Based upon the forgoing information, I&M respectfully requests that the NRC issue an Order consenting to the indirect transfer of control of the Facility Operating Licenses, Nos. DPR-58 and DPR-74, for its operating authority and 100% undivided ownership interests in CNP. I&M requests that NRC's consent be provided by September 1, 2002.