IWL VISUAL CONTAINMENT INSPECTION Indian Point Unit No. 2

IP2 – CISI – XXX Rev. 0 Date: 5/10/2005 Page: X of Y

### FORM VT – 3C CONTAINMENT INSERVICE INSPECTION RECORD OF VT – 3 /GENERAL VISUAL EXAMINATION

STATION/UNIT: IPEC / Indian Point No. 2 COMPONENT NO. : VCC – 34

ZONE No: 005

No.	Comment	Initials
1	Rebar exposed and corroded. This area has remained unchanged since previous inspection.	ng
2	Area of concrete just to the left of the duct at El. 156 has pitting/abrasion, pattern cracking, and bugholes.	hof
		0

	ATTACHME	N 8.3 OF IP.	<u> 197-06</u>	- 000	19	CEV, C	<u>7</u>	<u>GE 100</u>	6 01
	ENN JCLEAR	ENGINEERING	STANDAR	D	EN	N-EP-	S-003	Revision	0
	AGEMENT ANUAL	IWL Visual Contain	ment Insp	ection		Pa	ge 14	of 15	_,
IPEC Unit: <u>2</u> Interv	RECORD O	Attachment FAINMENT INSERVI F VT-3 / GENERAL	<u>CE INSP</u> VISUAL	EXAMI	NATIC	-		DE NA/L 00/	4
Component No.: V									-
Description: El. 148	– El. 168		Wor	k Orde	r No:	IP2-03	<u>3-29683</u>		-
Equipment Used: Cel	estron Gian	20x80 Binoculars		Limita	tions:	Acces	sible a	reas only	L
Reco	rding Condi	tion	RI	NRI	NI	N/A	C	omments	
eaching or chemical att	ack		$\boxtimes$					4	
brasion or erosion deg	radation				$\boxtimes$				
Pop outs and voids				$\boxtimes$				1	
Scaling					$\boxtimes$				
Spalls			$\boxtimes$					2,3,4	
Corrosion staining on co	ncrete surfac	ces	$\square$					2,3,4	
Cracks	, <u> </u>				$\bowtie$				
Exposed reinforcing stee	el							2,3,4	
Deteriorating of concrete	e coating, if a	pplicable				$\boxtimes$		······································	
Excessive corrosion of the surfaces	he exposed e	embedded metal			$\square$				
Detached embedment o	r loose bolts				$\square$				
Other					$\boxtimes$				
xamined By: <u>Mail of </u>	gnature/Level	to clarify Inspection areas $\underline{\mu}$ Date: $\underline{6/2/05}$	and location	ed By:	DRA	GUS	NJTA NJTA e/Level	Date: 6	z  c
Acceptable : Yes 🕅		Detailed VT-1 Exami	nation R	equired	Attack	nment 7	7.3)		
Comments:									
RE <u>Signature</u> <i>Richar</i>	Print/S	galan Kuch	Date:	6	19/0	15			
<u>Site Level III Review:</u>	Print/S	ignature/Level	<u>Date:</u>						
ANII Review:		plicable ignature	Date:						

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ATTACHMENT 8.3 of IP. RPT-OL-OCOL9 REV. O TAKE 107 OF 138

IWL VISUAL CONTAINMENT INSPECTION Indian Point Unit No. 2 IP2 – CISI – XXX Rev. 0 Date: 5/10/2005 Page: X of Y

#### FORM VT – 3C CONTAINMENT INSERVICE INSPECTION RECORD OF VT – 3 /GENERAL VISUAL EXAMINATION

STATION/UNIT: IPEC / Indian Point No. 2 COMPONENT NO. : VCC - 35

ZONE No: 006

No.	Comment	Initials
1	Form tie hole unfilled at El. 154.	Mg
2	Cadweld exposure with rust and staining from 9" long concrete spall. This area has remained unchanged since previous inspection.	ing
3	Rebar exposure with staining at 3 spots, 1" to 3" long due to $\frac{1}{2}$ " cover concrete spall. This area has remained unchanged since previous inspection.	ng
4	White deposit from concrete cover patch over exposed rebar at construction joint 6" long. Since previous inspection, rusting and staining has appeared with additional spalling.	ng
		0

	ATTACHMEN	<u> 8.3 of</u>	IP. RPT-	(Ha - D	0019	RE	1.0	PAGE	- 10	8 of 1.38
Entergy	ENN NUCLEAR	ENG	INEERING ST	ANDAR	.D	EN	N-EP-	-S-003	Rev	ision 0
	MANAGEMENT MANUAL	IWL Visua	I Containm	ent Insp	ection		Pa	ge 14	of	15
	<u>CON</u> RECORD O			E INSF			<u>on</u>			
IPEC Unit: 2	_Interval Period: 1	<sup>*t</sup> /2 <sup>nd</sup> Inspe	ction	_ Ins	pectior	n Repo	ort No.	: <u>IP2-C</u>	<u>)5-IW</u>	<u>L-001</u>
Component No	.: VCC - 36	Zone No:	001		C	rawin	ig No.:			
	El. 168 – El. 188	•						3-29683		
	ed: <u>Celestron Giant</u>	20x80 Bin	oculars	-				ssible a		only
	Recording Condit	ion		RI	NRI	NI	N/A	C	omme	ents
Leaching or chen	nical attack				$\boxtimes$				2,3	
Abrasion or erosi	ion degradation					$\boxtimes$				
Pop outs and voi	ds					$\boxtimes$				
Scaling			<u> </u>			$\boxtimes$				
Spalls						$\boxtimes$				
Corrosion stainin	g on concrete surfac	es				$\boxtimes$				
Cracks	<u>, , , , , , , , , , , , , , , , , , , </u>					$\boxtimes$				
Exposed reinforc	ing steel					$\boxtimes$				
Deteriorating of c	concrete coating, if a	oplicable					$\boxtimes$	<u> </u>		
Excessive corros surfaces	ion of the exposed e	mbedded n	netal			$\boxtimes$				
Detached embed	lment or loose bolts					$\square$				
Other					$\square$				1	
Examined By:	rint/Signature/Level ngineer Review:	Date: 4	<u>/z/os</u> _e	kamine	ed By:	DR Print/S	Signatu	νύτ∆ re/Level	Date	<u>: 6/2/05</u>
<u>Comments:</u>		- <u>D</u>	21							
RE <u>Signature</u> <i>j</i>	Kicha, C. Dake	gnature/Leve	1 loly	Date:	6	19/0	5			
<u>Site</u> Level III <u>Re</u>	eview:	ignature/Lev	<u>el</u>	<u>Date:</u>						
ANII Review:		olicable		<u>Date:</u>	<u></u>					

ATTACHMENT 8.3 OF IP-RPT-06-00019 REV. O PAGE 109 of 138

IWL VISUAL CONTAINMENT INSPECTION Indian Point Unit No. 2

IP2 – CISI – XXX Rev. 0 Date: 5/10/2005 Page: X of Y

### FORM VT – 3C

CONTAINMENT INSERVICE INSPECTION RECORD OF VT – 3 /GENERAL VISUAL EXAMINATION

STATION/UNIT: IPEC / Indian Point No. 2 COMPONENT NO. : VCC ~ 36\_\_\_\_\_

No.	Comment	Initials
1	Non-uniformity of surface color and texture observed at various locations in the zone. The condition does not indicate significant material deterioration of the concrete.	May
2	Minor leaching from dome spring line construction joint. This area has remained unchanged since previous inspection.	hef
3	2' long leaching from dome spring line construction joint. This area has remained unchanged since previous inspection.	Шf

	A	MENT B.3 OF 1	P.RPT-C	6.00	519	REV.	0 7	DACE	110 0	
Entergy	ENN NUCLEAR	ENGINEERIN	ENGINEERING STANDARD			ENN-EP-S-003 Revision 0				
Lincigy	MANAGEMENT MANUAL	IWL Visual Conta	inment Ins	pection		Page 14			5	
		Attachme [AINMENT INSER F VT-3 / GENERAI	VICE INSF			<u>)N</u>				
IPEC Unit: 2	Interval Period: 1	<sup>st</sup> /2 <sup>nd</sup> Inspection	Ins	pectio	n Repo	ort No.:	IP2-0	05-IWL-0	<u>)01</u>	
Component N	o.:VCC - 37	Zone No: 002	2	[	Drawin	g No.:				
	El. 168 – El. 188									
	ed: Celestron Giant		_					areas or	<u>ıly</u>	
	Recording Condi	lion	RI	NRI	NI	N/A	С	omment	s	
Leaching or che	emical attack		$\boxtimes$					6,9		
Abrasion or ero	sion degradation		$\square$					7,8		
Pop outs and vo	pids		$\square$					4,5		
Scaling					$\boxtimes$					
Spalls			$\boxtimes$					3,7		
Corrosion staini	ng on concrete surfac	es	$\boxtimes$					1,2,5		
Cracks				$\boxtimes$				9		
Exposed reinfor	cing steel		$\boxtimes$					5		
Deteriorating of	concrete coating, if a	oplicable				$\boxtimes$				
Excessive corro surfaces	osion of the exposed e	mbedded metal			$\boxtimes$					
Detached embe	edment or loose bolts				$\boxtimes$					
Other	r pictures may be attached				$\boxtimes$					
xamined By:	Print/Signature/Level Engineer Review: Yes XI No [] ( Richard Dake	Detailed VT-1 Exa	_	equirec	Print/S	Signatur	e/Level		2 <i>[</i> 2]	
<u>Site</u> Level III <u>F</u>	Review: Print/S	ignature/Level	Date:		<u> </u>	·	<u> </u>			
ANII Review:		plicable ignature	Date:							

ATTALHMENT 8.3 of 1P. RPT-06-00019 REV. O PAGE 111 OF 138

IWL VISUAL CONTAINMENT INSPECTION Indian Point Unit No. 2 IP2 – CISI – XXX Rev. 0 Date: 5/10/2005 Page: X of Y

### FORM VT – 3C CONTAINMENT INSERVICE INSPECTION

RECORD OF VT - 3 /GENERAL VISUAL EXAMINATION

STATION/UNIT: IPEC / Indian Point No. 2 COMPONENT NO. : VCC – 37

ZONE No: 002

No.	Comment	Initials
1	A small spot of steel is exposed and corroded with staining. It is not known whether this is reinforcing steel. This area has remained unchanged since previous inspection.	Mp
2	A small spot of steel is exposed and corroded with staining. It is not known whether this is reinforcing steel. This area has remained unchanged since previous inspection.	May
3	The concrete has cracked & bulged in a small area that is likely to spall off. By comparison to other similar areas it is believed to be a cadweld or reinforcing steel which is corroded due to insufficient concrete cover. This area has remained unchanged since previous inspection.	Met
4	Patch of shallow popouts just below El. 188.	hef
5	A popout exposing a cadweld with rust and staining (approx. 8" long) is visible. See photo U2-025107	lig
6	Leaching has occurred 6" long.	Nief
7	A joint spall and some pitting/abrasion is visible at El. 173.	hig
8	Area of light abrasion approximately 4' long was spotted between El. 168 and El. 178	mof
9	General pattern cracking, bugholes, and leaching between El. 168 and El. 178.	Mal
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		<u> </u>



ATTACHMENT	8.3 of 1P.	RPT-06-	00019	<u> </u>	EV. C	PA	<u>CE 113 OF</u>
Entergy nuclear Management	ENGINEE	RING STANDAR	Ð	EN	N-EP-	S-003	<b>Revision</b> 0
Lineigy Management Manual	IWL Visual Cor	ntainment Ins	pection	ge 14	of 15		
CONT	Attachr	nent 7.2 ERVICE INSI	PECTIO	N			
	VT-3 / GENER				<u>NC</u>		
IPEC Unit: <u>2</u> Interval Period: 1 <sup>st</sup>	2 <sup>nd</sup> Inspection	n Ins	pection	n Repo	ort No.:	<u>IP2-0</u>	05-IWL-001
Component No.: VCC - 38	Zone No:	003	C	Drawin	ig No.:		
Description: EI. 168 – EI. 188		Woi	rk Orde	r No:	IP2-0	3-29683	
Equipment Used: <u>Celestron Giant</u>			Limita	tions:	Acces	sible a	reas only
Recording Conditi	on	RI	NRI	NI	N/A	C	omments
Leaching or chemical attack	- · · · · · · · · · · · · · · · · · · ·						1
Abrasion or erosion degradation				$\boxtimes$			
Pop outs and voids	······································						6
Scaling				$\boxtimes$			
Spalls		$\boxtimes$				3	8,4,5,7,8
Corrosion staining on concrete surface	es	$\boxtimes$					5,6,7
Cracks			$\boxtimes$				1,4,8
Exposed reinforcing steel		$\boxtimes$					5,6,7
Deteriorating of concrete coating, if ap	plicable				$\boxtimes$		
Excessive corrosion of the exposed er surfaces	nbedded metal			$\boxtimes$			
Detached embedment or loose bolts				$\boxtimes$			
Other (Note: Sketches or pictures may be attached to			$\square$				2
Responsible Engineer Review:	∑_Date: <u>6/z/c</u> Detailed VT-1 E			DRA Print/S	Signatur	e/Level	Date: <u>6</u> /2
RE Signature Retuine Dole fre	Juil Muli Inature/Level	Date:	6	19/0	15		
Site Level III Review: Print/Si	gnature/Level	Date:			······		
ANII Review: Not App Print/Sig		Date:					

ATTACMENT 8.3 # 1P-RPT-06-00019 REVIO PAGE 114 OF 138

IWL VISUAL CONTAINMENT INSPECTION Indian Point Unit No. 2

IP2 – CISI – XXX Rev. 0 Date: 5/10/2005 Page: X of Y

### FORM VT – 3C CONTAINMENT INSERVICE INSPECTION RECORD OF VT – 3 /GENERAL VISUAL EXAMINATION

STATION/UNIT: IPEC / Indian Point No. 2 COMPONENT NO. : \_\_\_\_\_ VCC - 38

No.	Comment	Initials
1	General joint cracking, minor leaching, and pattern cracking between El. 168 and El. 173.	Inof
2	Bugholes with visible rust at El. 174 approximately 10 feet from left boundary.	ing
3	General joint cracking, bugholes, and spalls between El. 173 and El. 178.	Inf
4	General pattern cracking, minor joint cracking, and light spalling between El. 178 and El. 183.	Inf
5	9"x3" concrete spall exposing cadweld sleeve with staining due to insufficient concrete cover. This spall remains unchanged since previous inspection.	Met
6	2 voids exposing 1" corroded steel with staining remain unchanged since previous inspection. See photo U2-035121	uof
7	9"x3" concrete spall exposing cadweld sleeve with staining due to insufficient concrete cover has had additional spalling since previous inspection. See photo U2-035121	inf
8	Joint crack with spalling is visible just below El. 188.	uof
		0



Annette	NENT B. 3 of IP. RPT	·06-1	0019	Re	V. 0	PAG	E 116 OF
Enteroy ENN NUCLEAR	ENGINEERING S	TANDAR	D	EN	N-EP-	S-003	<b>Revision</b> 0
Entergy Nuclear Managemen Manual	T IWL Visual Containm	ent Insj	pection		Pa	ge 14	of 15
RECORD	Attachment NTAINMENT INSERVIC OF VT-3 / GENERAL V	<u>e insf</u> Isual	EXAMI	NATIC			
IPEC Unit: 2Interval Period:	1 <sup>st</sup> /2 <sup>nd</sup> Inspection	_ Ins	pectior	n Repo	ort No.:	<u>IP2-C</u>	05-IWL-001
Component No.: VCC - 39	Zone No: 004		C	rawin	g No.:		
Description: EI. 168 – EI. 188		_ Wor	k Orde	r No:	IP2-03	3-29683	
Equipment Used: Celestron Gi	ant 20x80 Binoculars		Limitat	ions:	Acces	sible a	reas only
Recording Cor	dition	RI	NRI	NI	N/A	Co	omments
Leaching or chemical attack				$\boxtimes$			
Abrasion or erosion degradation				$\boxtimes$			
Pop outs and voids				$\boxtimes$			
Scaling			$\boxtimes$				1
Spalls				$\bowtie$			
Corrosion staining on concrete sur	faces			$\boxtimes$			
Cracks			$\boxtimes$				1
Exposed reinforcing steel				$\boxtimes$			
Deteriorating of concrete coating, i	fapplicable				$\boxtimes$		
Excessive corrosion of the expose surfaces	d embedded metal			$\boxtimes$			
Detached embedment or loose bol	ts			$\boxtimes$			······································
Other	<u></u>		$\boxtimes$				1
(Note: Sketches or pictures may be attach MMRK GETTLEMT Examined By: Moder Totem Rrint/Signature/Lev	Date: 6/2/05E		ed By: ⁻	DRA	GOS N ignature	JJ TA	Date: 6/2/
Responsible Engineer Review: Acceptable : Yes 🔀 No 🗌	(Detailed VT-1 Examina	ation Re	equired	Attach	nment 7	.3)	
Comments:							
RE Signature Richard Date	Signature/Level	Date:	6/	9/5	5	i	
ہ <u>Site</u> Level III <u>Review:</u> Prin	t/Signature/Level	<u>Date:</u>					
	Applicable t/Signature	<u>Date:</u>					

ATTACHMENT 8.3 .+ 19. 297-06-00019 REV. O PAGE 117 .F 138

IWL VISUAL CONTAINMENT INSPECTION Indian Point Unit No. 2

IP2 – CISI – XXX Rev. 0 Date: 5/10/2005 Page: X of Y

### FORM VT - 3C CONTAINMENT INSERVICE INSPECTION **RECORD OF VT - 3 / GENERAL VISUAL EXAMINATION**

STATION/UNIT: IPEC / Indian Point No. 2 COMPONENT NO. : VCC – 39

No.	Comment	Initials
1	General pattern cracking, bugholes, and an area of local scaling between El. 173 and El. 188.	ing
		0

	ATTACHMENT	8.3 of 11	P.RPT-	06-	00019	<u>k</u>	<u>er.</u> C	7	LE.	118 OF
Entergy	ENN NUCLEAR	ENGINE	ERING STA	ANDAR	D	EN	N-EP-	S-003	Rev	rision 0
Lineigy	MANAGEMENT MANUAL	IWL Visual Containment Inspection					Pag	ge 14	of	15
1		Attach FAINMENT INS F VT-3 / GENE		INSF			<u>DN</u>			
IPEC Unit: 2	Interval Period: 1	<sup>st</sup> /2 <sup>nd</sup> Inspectio	on	Ins	pectior	n Rep	ort No.:	IP2-0	<u> 25-IW</u>	<u>/L-001</u>
Component N	o.: VCC - 40	Zone No:	005		C	rawin	ig No.:			
Description:	El. 168 – El. 188			Wor	k Orde	r No:	IP2-03	8-29683	ł	
	ed: <u>Celestron Giant</u>	20x80 Binoci	ulars		Limitat	tions:	Acces	sible a	ireas	only
	Recording Condi	tion		RI	NRI	NI	N/A	C	omme	ents
Leaching or che	emical attack					$\boxtimes$				
Abrasion or eros	sion degradation				$\boxtimes$				2	
Pop outs and vo	bids					$\boxtimes$				
Scaling						$\boxtimes$				
Spalls						$\boxtimes$				
Corrosion staini	ng on concrete surfac	es				$\boxtimes$				
Cracks					$\boxtimes$				1,2	
Exposed reinfor	cing steel					$\square$				
Deteriorating of	concrete coating, if a	pplicable	_				$\boxtimes$			
Excessive corro surfaces	sion of the exposed e	mbedded meta	al			$\boxtimes$				
	dment or loose bolts					$\boxtimes$				
Other	<u> </u>				$\boxtimes$				1	
Examined By:	pictures may be attached IANK GETTHEUJAN (1998) Crint/Signature/Level	to clarify Inspectio	4		ed By:	DRA	Gog Bignatur		Date	<u>. 6/2/0</u>
Responsible E Acceptable : Comments:	Engineer Review: Yes 🔀 No 🗌 (	Detailed VT-1	Examinal	ion R	equired	Attac	hment 7	<sup>7</sup> .3)		
RE <u>Signature</u>	Richard Drake Printys	Bulliu All ghature/Level	Jel P	Date:	6	/9/	05			
<u>Site Level III F</u>		ignature/Level	<u>I</u>	<u>Date:</u>						
ANII Review:	Not App Print/S	olicable	!	<u>Date:</u>	<b>-</b>					

IWL VISUAL CONTAINMENT INSPECTION Indian Point Unit No. 2 IP2 – CISI – XXX Rev. 0 Date: 5/10/2005 Page: X of Y

### FORM VT – 3C CONTAINMENT INSERVICE INSPECTION RECORD OF VT – 3 /GENERAL VISUAL EXAMINATION

STATION/UNIT: IPEC / Indian Point No. 2 COMPONENT NO. : VCC – 40

No.	Comment	Initials
1	At El. 181 just to the left of the duct, bugholes, pattern cracking, and a crack (approx. 8" long and 1/8" wide) appears.	hof
2	Large area of abrasion and general pattern cracking from El. 176 to the dome.	Ing

Leaching or chemical attack       Image: Constraint of the exposed embedded metal surfaces       Image: Constraint of the exposed embedded metal surfaces       Image: Constraint of the exposed embedded metal surfaces         Poter of the exposed embedded metal surfaces       Image: Constraint of the exposed embedded metal surfaces       Image: Constraint of the exposed embedded metal surfaces       Image: Constraint of the exposed embedded metal surfaces         Deteriorating of concrete rot of the exposed embedded metal surfaces       Image: Constraint of the exposed embedded metal surfaces       Image: Constraint of the exposed embedded metal surfaces       Image: Constraint of the exposed embedded metal surfaces         Detached embedment or loose bolts       Image: Constraint of the exposed embedded metal surfaces       Image: Constraint of the exposed embedded metal surfaces       Image: Constraint of the exposed embedded metal surfaces         Detached embedment or loose bolts       Image: Constraint of the exposed embedded metal surfaces       Image: Constraint of the exposed embedded metal surfaces       Image: Constraint of the exposed embedded metal surfaces         Detached embedment or loose bolts       Image: Constraint of the exposed embedded metal surfaces       Im	of 15 5-IWL-001
MANUAL       IWL Visual Containment Inspection       Page 14         Attachment 7.2 CONTAINMENT INSERVICE INSPECTION RECORD OF VT-3 / GENERAL VISUAL EXAMINATION         IPEC Unit: 2       Interval Period: 1 <sup>st</sup> /2 <sup>nd</sup> Inspection       Inspection Report No.: IP2-05         Component No.:       VCC - 41       Zone No: 006       Drawing No.:         Description:       EI. 168 – EI. 188       Work Order No: IP2-03-29683         Equipment Used:       Celestron Giant 20x80 Binoculars       Limitations: Accessible and Context an	5-IWL-001
CONTAINMENT INSERVICE INSPECTION RECORD OF VT-3 / GENERAL VISUAL EXAMINATION         IPEC Unit: _2 _ Interval Period: 1 <sup>st/2<sup>nd</sup></sup> Inspection Inspection Report No.: _ IP2-O5         Component No.: _ VCC - 41 Zone No:O6      Drawing No.:         Description:El, 168 - El, 188       Work Order No: _ IP2-03-29683         Equipment Used:Celestron Giant 20x80 Binoculars       Limitations: Accessible and Component No: _ IP2-03-29683         Equipment Used:Celestron Giant 20x80 Binoculars       Limitations: Accessible and Component No: _ IP2-03-29683         Equipment Used:Celestron Giant 20x80 Binoculars       Limitations: Accessible and Component No: _ IP2-03-29683         Equipment Used:Celestron Giant 20x80 Binoculars       Limitations: Accessible and Component No: _ IP2-03-29683         Equipment Used:Celestron Giant 20x80 Binoculars       Limitations: Accessible and Component No: _ IP2-03-29683         Eaching or chemical attack       Image: Imag	
Component No.:       VCC - 41       Zone No:       006       Drawing No.:         Description:       El, 168 – El, 188       Work Order No:       IP2-03-29683         Equipment Used:       Celestron Giant 20x80 Binoculars       Limitations:       Accessible and to the second s	
Description:       EI. 168 – EI. 188       Work Order No:       IP2-03-29683         Equipment Used:       Celestron Giant 20x80 Binoculars       Limitations:       Accessible and the accessible accessible and the accessible accessibl	
Equipment Used:       Celestron Giant 20x80 Binoculars       Limitations:       Accessible and the second	
Recording Condition       RI       NRI       NI       N/A       Corr         Leaching or chemical attack       Image: Condition	
Leaching or chemical attack       Image: Second secon	eas only
Abrasion or erosion degradation       Image: Second s	nments
Pop outs and voids       Image: Scaling       I	1
Scaling       Image: Spalls	2
Spalls       Image: Constant in the second state in the second sta	
Corrosion staining on concrete surfaces       Image: Concrete surfacesurfaces       Image: Concrete surfaces	4
Cracks       Image: Constraint of the exposed embedded metal surfaces       Image: Constraint of the exposed embedded metal surfaces       Image: Constraint of the exposed embedded metal surfaces         Detached embedment or loose bolts       Image: Constraint of the exposed to clarify inspection areas and locations.)       Image: Constraint of the exposed to clarify inspection areas and locations.)       Image: Constraint of the exposed to clarify inspection areas and locations.)         Examined By: Image: Constraint of the exposed to clarify inspection areas and locations.)       Image: Constraint of the exposed to clarify inspection areas and locations.)	2,3
Exposed reinforcing steel       Image: Construction of the exposed embedded metal surfaces       Image: Construction of the exposed embedded metal surfaces         Detached embedment or loose bolts       Image: Construction of the exposed to clarify Inspection areas and locations.)       Image: Construction of the exposed to clarify Inspection areas and locations.)         Examined By: Image: Construction of the exposed to clarify Inspection areas and locations.)       Image: Construction of the exposed to clarify Inspection areas and locations.)	2,3
Deteriorating of concrete coating, if applicable       Image: Concrete coating, if applicable       Image: Concrete coating, if applicable         Excessive corrosion of the exposed embedded metal surfaces       Image: Concrete coating, if applicable       Image: Concrete coating, if applicable         Detached embedment or loose bolts       Image: Concrete coating, if applicable       Image: Concrete coating, if applicable       Image: Concrete coating, if applicable         Detached embedment or loose bolts       Image: Concrete coating, if applicable	
Excessive corrosion of the exposed embedded metal surfaces       Image: Constraint of the exposed embedded metal surfaces         Detached embedment or loose bolts       Image: Constraint of the exposed embedded metal surfaces         Other       Image: Constraint of the exposed embedded metal surfaces         (Note: Sketches or pictures may be attached to clarify Inspection areas and locations.)       Image: Constraint of the exposed embedded metal surfaces         Examined By: Image: Constraint of the exposed embedded metal surfaces       Image: Constraint of the exposed embedded metal surfaces	2,3
surfaces       Image: Contract of the state	
Detached embedment or loose bolts       Image: Content of C	
(Note: Sketches or pictures may be attached to clarify Inspection areas and locations.) MML GETTLEMIN Examined By: Mar Sittle Date: 6/2/05 Examined By: DRAG04 NUTA	<u></u>
Examined By: Mark State I Date: 6/2/05 Examined By: DRAG04 NUTA	
Personality Engineer Poview	Date: 6/2/0
Responsible Engineer Review:         Acceptable : Yes X       No (Detailed VT-1 Examination Required Attachment 7.3)	
Comments:	
RE <u>Signature</u> Rickard Diake Kalier Wheth Date: 6/9/05	
Site Level III Review: Date:	
ANII Review: Not Applicable Date:	

IWL VISUAL CONTAINMENT INSPECTION Indian Point Unit No. 2 IP2 – CISI – XXX Rev. 0 Date: 5/10/2005 Page: X of Y

### FORM VT – 3C CONTAINMENT INSERVICE INSPECTION RECORD OF VT – 3 /GENERAL VISUAL EXAMINATION

STATION/UNIT: IPEC / Indian Point No. 2 COMPONENT NO. : VCC – 41

No.	Comment	Initials
1	12" long Efflorescence (white deposit) from 3" radius chipped concrete. This area has remained unchanged since previous inspection.	hef
2	10" long cadweld sleeve exposed with staining due to spalling of (1/2") cover concrete. Since previous inspection, additional spalling exposing more rebar has occurred with some abrasion in the area.	Ng
3	10" long cadweld sleeve exposed with staining due to spalling of $(1/2")$ cover concrete. Since previous inspection, local pitting has occurred within the area.	ng
4	General large scaling between El. 171 and El. 181.	

	ATTACEMENT	<u>8.3 of</u>	IP. RPT	- 06	-0001	91	<u>lev. 0</u>	Pal	E 122.06
Entergy NUCLEAR		ENGINEERING STANDARD			EN	N-EP-S	S-003 Revision		
Emergy M.	ANAGEMENT MANUAL	IWL Visual	Containme	nt Insp	pection		Pag	ge 14	of 15
	CON RECORD O	FAINMENT I		INSF					
								174	
IPEC Unit: 2Int									
Component No.:	VCC - 42	Zone No:	001		C	rawir	ig No.:	<u></u>	
Description <u>: Dom</u>	10			Wor	k Orde	r No:	IP2-03	<u>8-29683</u>	
Equipment Used: _	Celestron Giant	20x80 Bind	oculars		Limita	tions:	Acces	sible a	reas only
Re	ecording Condi	tion		RI	NRI	NI	N/A	Co	omments
Leaching or chemica	l attack					$\boxtimes$			
Abrasion or erosion of	legradation				$\boxtimes$				3,4
Pop outs and voids					$\square$				2
Scaling						$\square$			
Spalls					$\boxtimes$				3,4
Corrosion staining or	o concrete surfac	es			$\boxtimes$				1
Cracks					$\boxtimes$				3,4
Exposed reinforcing	steel					$\square$			
Deteriorating of conc							$\square$		
Excessive corrosion surfaces	of the exposed e	embedded m	etal			$\boxtimes$			
Detached embedmer	nt or loose bolts	·····				$\boxtimes$			
Other						$\square$			
Examined By:	Signature/Level	<u>I</u> Date: 4			ed By:	DRA	Signature	AT UN	Date: <u>6/2</u> /
Acceptable : Yes		Detailed VT-	1 Examina	tion R	equired	Attac	hment 7	'.3)	
Comments:	<u></u>	7.	<u></u>						<u>-</u>
RE <u>Signature</u> <b>R</b> ick	and Drake Print/S	galua.		Date:	6	19/0	5		
<u>Site Level III Revie</u>	w: Print/S	ignature/Leve		Date:			<u></u>	<u> </u>	
ANII Review:		plicable ignature		<u>Date:</u>				<u></u>	

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ATTALMMENT 8.3 of IP. RPT-06-00019 REV. 0 PAGE 123 OF 138

IWL VISUAL CONTAINMENT INSPECTION Indian Point Unit No. 2

IP2 – CISI – XXX Rev. 0 Date: 5/10/2005 Page: X of Y

### FORM VT – 3C CONTAINMENT INSERVICE INSPECTION RECORD OF VT – 3 /GENERAL VISUAL EXAMINATION

STATION/UNIT: IPEC / Indian Point No. 2 COMPONENT NO. : VCC - 42

No.	Comment	Initials
1	Large rust stains are evident on the surface of the dome at and below the concrete pier which supports the lightning rod. Rust is clearly from lightning rod. This area has remained unchanged since previous inspection.	Nof
2	General areas of small popouts on surface of dome.	May
3	3' crack with spalling and abrasion at El. 200.	nof
4	4' crack with spalling and abrasion at El. 196.	Inof

ATTACHMENT	- 8.3 of 1P-RE	1-06	10019	<u>^                                    </u>	<u>ev. 0</u>	Pace	= 124 of
Enn Entergy nuclear management	ENGINEERING S	TANDAR	D	EN	N-EP-	S-003	<b>Revision</b> 0
Lincigy Management MANUAL	IWL Visual Containm	ent Ins	pection		Pa	ge 14	of 15
	Attachment AINMENT INSERVIO VT-3 / GENERAL V	<u>E INSF</u>					
IPEC Unit: <u>2</u> Interval Period: 1 <sup>st</sup>				-		102 0	
Component No.: VCC - 43	2011e NO02						
Description: Dome		wor	K Orde	r NO:	IP2-0	3-29683	
Equipment Used: <u>Celestron Giant</u>	20x80 Binoculars		Limitat	ions:	Acces	<u>sible a</u>	reas only
Recording Conditi	on	RI	NRI	NI	N/A	Ce	omments
Leaching or chemical attack				$\boxtimes$			
Abrasion or erosion degradation			$\square$				2
Pop outs and voids			$\square$				1,3
Scaling			$\boxtimes$				2
Spalls			$\boxtimes$				1,2
Corrosion staining on concrete surface	es S		$\square$				4
Cracks			$\square$				1,2
Exposed reinforcing steel				$\bowtie$			
Deteriorating of concrete coating, if ap					$\boxtimes$		
Excessive corrosion of the exposed er surfaces	nbedded metal			$\boxtimes$			
Detached embedment or loose bolts				$\boxtimes$			<u> </u>
Other			$\square$				2
(Note: Sketches or pictures may be attached to MARK, GETTLYMM Examined By: Mark, GETTLYMM Print/Signature/Level Responsible Engineer Review: Acceptable : Yes X No [] (D	Date: <u>6/2/05</u> E	Examin	ed By: โ	Print/S	Ge <u>s</u> Signatur	e/Level	Date: 6/2
Comments: RE Signature Richard Date	Palladi V u b	Date:	6,	1911	25		
Print/Sic Site Level III <u>Review:</u>	gnature/Level	Date:		10			
ANII Review: Not App Print/Sir	licable	<u>Date:</u>					

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IWL VISUAL CONTAINMENT INSPECTION Indian Point Unit No. 2

IP2 – CISI – XXX Rev. 0 Date: 5/10/2005 Page: X of Y

### FORM VT – 3C CONTAINMENT INSERVICE INSPECTION RECORD OF VT – 3 /GENERAL VISUAL EXAMINATION

STATION/UNIT: IPEC / Indian Point No. 2 COMPONENT NO. : VCC – 43

No.	Comment	Initials
1	A 5' long crack with spalls (width: ¼" to 2") and some deep holes.	Nof
2	General light to medium scaling, numerous joint spalls, pattern cracking, and areas of abrasion were found throughout the dome.	Ing
3	A small hole found in joint.	Mg
4	Large rust stains are evident on the surface of the dome at and below the concrete pier which supports the lightning rod. The rust is obviously dripping down from the lightning rod base support plate. No cracking is evident in the area so rebar corrosion is not suspected.	up

	ATTACHMENT	B.3 of 1P.RP1	<u>1-06-0</u>	0019	REL	0	PAGE	126 OF
Entergy	ENN NUCLEAR	ENGINEERING	S STANDAR	D	EN	N-EP-	S-003	Revision 0
Lintergy	MANAGEMENT MANUAL	IWL Visual Contair	nment Insp	pection		Pa	ge 14	of 15
}		Attachmer AINMENT INSERV F VT-3 / GENERAL	ICE INSF			<u>N</u>		
IPEC Unit: 2	_Interval Period: <u>1</u>	<sup>st</sup> /2 <sup>nd</sup> Inspection	ins	pectior	n Repo	ort No.:	: <u>IP2-C</u>	05-IWL-001
Component No	o.: VCC - 44	Zone No: 003		C	rawin	g No.:		
Description:	Dome		Wor	k Orde	r No:	IP2-0	3-29683	
Equipment Use	ed: <u>Celestron Giant</u>	20x80 Binoculars		Limitat	tions:	Acces	ssible a	reas only
	Recording Condit	tion	RI	NRI	NI	N/A	Co	omments
Leaching or cher	mical attack				$\boxtimes$			
Abrasion or eros	ion degradation				$\boxtimes$			
Pop outs and vo	ids		$\square$					1,5
Scaling				$\square$				7
Spalls								1,7
Corrosion stainir	ng on concrete surfac	es		$\boxtimes$				2,5,9
Cracks				$\boxtimes$				1,4,6,7
Exposed reinford	cing steel							3,5
Deteriorating of	concrete coating, if a	oplicable				$\boxtimes$		
Excessive corros surfaces	sion of the exposed e	mbedded metal			$\boxtimes$			
Detached embed	dment or loose bolts				$\boxtimes$			<u> </u>
Other	pictures may be attached			$\square$				2,8
Examined By: A Responsible E Acceptable : <u>Comments:</u>	Redinice Drake a	Date: <u>4/z/os</u>	hination R	equired	Print/S	ignatur	re/Level	Date: b fe-f
<u>Site</u> Level III <u>R</u>	<u>Print/S</u>	ignature/Level	Date:					
ANII Review:		olicable ignature	Date:	<u> </u>				

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ATTACHMENT 8.3 OF 1P-RPT-OL-00019 REV. O PAGE 127 OF 138

IWL VISUAL CONTAINMENT INSPECTION Indian Point Unit No. 2 IP2 – CISI – XXX Rev. 0 Date: 5/10/2005 Page: X of Y

### FORM VT – 3C CONTAINMENT INSERVICE INSPECTION RECORD OF VT – 3 /GENERAL VISUAL EXAMINATION

STATION/UNIT: IPEC / Indian Point No. 2 COMPONENT NO. : \_\_\_\_\_ VCC - 44

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Entergy	ENN NUCLEAR				ANDARD ENN-E				ision 0
Linicigy	MANAGEMENT MANUAL	IWL Visual Contain	ment Insp	pection		Pag	ge 14	of	15
		Attachmen AINMENT INSERV VT-3 / GENERAL	ICE INSF			<u>)N</u>			
IPEC Unit: 2	Interval Period: <u>1</u> *	<sup>t</sup> /2 <sup>nd</sup> Inspection	Ins	pectio	n Repo	ort No.:	IP2-0	<u>)5-IW</u>	<u>L-001</u>
Component No.:	VCC - 45	Zone No: 004		ſ	Drawin	g No.:			
Description: D									
- <u> </u>		20x80 Binoculars					sible a		only
	Recording Condit	ion	Ri	NRI	NI	N/A	C	omme	ents
Leaching or chem	ical attack				$\boxtimes$				
Abrasion or erosio	n degradation				$\boxtimes$				
Pop outs and void	s			$\boxtimes$				3	
Scaling					$\boxtimes$				
Spalls			$\square$					1,3,4	4
Corrosion staining	on concrete surfac	es		$\boxtimes$				5	
Cracks				$\boxtimes$				2	
Exposed reinforcir	ng steel				$\boxtimes$				
	oncrete coating, if a	· · · · · · · · · · · · · · · · · · ·				$\boxtimes$			
Excessive corrosic surfaces	on of the exposed e	mbedded metal			$\boxtimes$				
Detached embedn	nent or loose bolts				$\boxtimes$				
Other				$\boxtimes$				2	<b></b>
Responsible Eng	rint/Signature/Level	, ,	Examine	ed By:	Print/S	ignature	e/Level	Date	: 6/2/
Acceptable : Y <u>Comments:</u>	/es	Detailed VT-1 Exam	ination R	equirec	l Attach	nment 7	'.3) 		
RE <u>Signature</u> $\mathcal{R}$	Chen Drei Ke Print/Si	gnature/Level	Date:	6	14/	05			
<u>Site Level III Rev</u>	view: Print/S	gnature/Level	<u>Date:</u>						
ANII Review:	Not App Print/S	licable	Date:				<u></u>		

IWL VISUAL CONTAINMENT INSPECTION Indian Point Unit No. 2 IP2 – CISI – XXX Rev. 0 Date: 5/10/2005 Page: X of Y

### FORM VT – 3C CONTAINMENT INSERVICE INSPECTION RECORD OF VT – 3 /GENERAL VISUAL EXAMINATION

STATION/UNIT: IPEC / Indian Point No. 2 COMPONENT NO. : VCC – 45

No.	Comment	Initials
1	3" long spall at El. 193, approximately 5' from right boundary.	nof
2	General bugholes and pattern cracking between El. 188 and El. 208.	nof
3	Numerous joint spalls and popouts above El. 208.	Not
4	General light spalling over dome area.	uef
5	Large rust stains are evident on the surface of the dome at and below the concrete pier which supports the lightning rod. The rust is obviously dripping down from the lightning rod base support plate. No cracking is evident in the area so rebar corrosion is not suspected.	hol
		0

	ATTACHMENT &	3.3 of 1P.K	PTO	6-0	0019	LE	Y. O	PAG	E 130 OF 132	
ENN Enterov NUCLEAR Engineering sta					D	EN	ENN-EP-S-003 Revisio			
Entergy	MANAGEMENT MANUAL	IWL Visual Containment			ection		Pag	ge 14	of 15	
		Attachr AINMENT INSI F VT-3 / GENER	ERVICE	INSP			<u>DN</u>			
IPEC Unit: 2	Interval Period: <u>1</u>	<sup>st</sup> /2 <sup>nd</sup> Inspection	<u>n</u>	ins	pectio	n Repo	ort No.:	IP2-C	05-IWL-001	
Component No.	.: VCC - 46	Zone No:	005		C	Drawin	g No.:			
Description <u>:</u>	Dome			Wor	k Orde	r No:	IP2-03	3-29683		
Equipment Use	d: <u>Celestron Gian</u> t	20x80 Binocul	ars	. <u> </u>	Limita	tions:	<u>Acces</u>	<u>sible a</u>	reas only	
	Recording Condit	tion		RI	NRI	NI	N/A	Co	omments	
Leaching or chem	nical attack					$\bowtie$				
Abrasion or erosi	on degradation			$\boxtimes$					3	
Pop outs and void	ds			$\square$					6,8	
Scaling				$\boxtimes$					1	
Spalls					$\boxtimes$				1,2,3,4	
Corrosion staining	g on concrete surfac	es			$\boxtimes$				5	
Cracks					$\boxtimes$				7	
Exposed reinforci	ing steel					$\boxtimes$				
	oncrete coating, if a	•					$\boxtimes$			
Excessive corros surfaces	ion of the exposed e	mbedded metal				$\boxtimes$				
Detached embed	ment or loose bolts					$\boxtimes$				
Other						$\boxtimes$				
Examined By: Responsible Er	Print/Signature/Level	<u> Date:</u> <i>6/2/0</i>	≤Ex	amine	ed By:	<u>⇒</u> RA Print/S	Signatur	UJTA e/Level	Date: 6/2/0	
Acceptable : Comments:	Yes 🛛 No 🗌 (	Detailed VT-1 E	xaminat	ion R	equired	Attac	hment 7	7.3)		
RE <u>Signature</u>	Print/Si	gnature/Level	of of a	Date: _	6	14	05			
Site Level III <u>Re</u>		ignature/Level	<u>[</u>	<u>Date:</u>						
ANII Review:		olicable	<u>!</u>	Date:						

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ATTACHMENT 8.3 + 1P. RPT-06-00019 REV. O PAGE 131 + 138

IWL VISUAL CONTAINMENT INSPECTION Indian Point Unit No. 2 IP2 – CISI – XXX Rev. 0 Date: 5/10/2005 Page: X of Y

### FORM VT – 3C CONTAINMENT INSERVICE INSPECTION RECORD OF VT – 3 /GENERAL VISUAL EXAMINATION

STATION/UNIT: IPEC / Indian Point No. 2 COMPONENT NO. : VCC – 46

No.	Comment	Initials
1	General scaling, peeling, and spalling above the arresters.	Nef
2	Incipient spall near right rod.	HA
3	Area of abrasion with a joint spall approximately 15' right of the duct at El. 191.	ng
4	General minor spalls on the concrete surface of the dome.	Ing
5	Large rust stains are evident on the surface of the dome at and below the concrete pier which supports the lightning rod. The rust is obviously dripping down from the lightning rod base support plate. No cracking is evident in the area so rebar corrosion is not suspected. Corrosion staining is also evident at surface attachments for the discharge duct due to rusting of the attachment plates. These rust stains have remained unchanged since previous inspection.	hof
6	3" diameter void (shallow hole) under the duct edge. This area has remained unchanged since previous inspection.	MA
7	4' long horizontal crack and about 20 to 30 mils in width, 15" above the dome spring line. This area has remained unchanged since previous inspection.	Mg
8	Areas of small popouts between El. 188 and El. 196.	nof
		0

Аттясн	MENT 8.3 OF 1P.RP	T-06	-000	iq e	EV. O	PA	4E 132 OF	
Entergy nuclear Manageme	ENGINEERING ST	ANDAR	D	EN	N-EP-	S-003	<b>Revision</b> 0	
Emergy Manageme Manual	NT	ent Insp	ection	1	Pa	ge 14	of 15	
	Attachment 7 CONTAINMENT INSERVIC RD OF VT-3 / GENERAL VI	<u>e insf</u>			<u>DN</u>			
IPEC Unit: 2 Interval Perio	d: <u>1<sup>st</sup>/2<sup>nd</sup> Inspection</u>	Ins	pectio	n Repo	ort No.:	: <u>IP2-0</u>	05-IWL-001	
Component No.: VCC - 47	Zone No: 006		[	Drawin	g No.:			
Description: Dome		Wor	k Orde	r No:	IP2-0	3- <u>29</u> 683		
Equipment Used: Celestron (	Giant 20x80 Binoculars		Limita	tions:	Acces	ssible a	areas only	
Recording C	ondition	RI	NRI	NI	N/A	C	omments	
Leaching or chemical attack		$\boxtimes$					2	
Abrasion or erosion degradation		$\boxtimes$					2	
Pop outs and voids				$\boxtimes$				
Scaling				$\boxtimes$				
Spalls				$\boxtimes$				
Corrosion staining on concrete s	urfaces		$\boxtimes$				1	٦
Cracks			$\boxtimes$				2	٦
Exposed reinforcing steel				$\boxtimes$			· · · · · · · · · · · · · · · · · · ·	٦
Deteriorating of concrete coating					$\boxtimes$			
Excessive corrosion of the expose surfaces	sed embedded metal			$\boxtimes$				٦
Detached embedment or loose b	polts			$\boxtimes$				٦
Other				$\boxtimes$			<u>.</u>	
(Note: Sketches or pictures may be atta Examined By: Print/Signature/L Responsible Engineer Review Acceptable : Yes C No Comments:	Date: 6/z/05 E	kamino	ed By:	DPA Print/S	lignatur	NUTA re/Level	Date: 6/2/	Le
	Valen Level		1	679	105			
Site Level III <u>Review:</u>	rint/Signature/Level	Date:			<u>-</u>	<u></u>		
	ot Applicable rint/Signature	<u>Date:</u>		·				

ATTACHMENT 8.3 of 19-R9T-06-00019 REV. O PAGE 133 of 138

IWL VISUAL CONTAINMENT INSPECTION Indian Point Unit No. 2

IP2 -- CISI -- XXX Rev. 0 Date: 5/10/2005 Page: X of Y

#### FORM VT – 3C CONTAINMENT INSERVICE INSPECTION RECORD OF VT – 3 /GENERAL VISUAL EXAMINATION

STATION/UNIT: IPEC / Indian Point No. 2 COMPONENT NO. : VCC – 47

No.	Comment	Initials
1	Large rust stains are evident on the surface of the dome at and below the concrete pier which supports the lightning rod. The rust is obviously dripping down from the lightning rod base support plate. No cracking is evident in the area so rebar corrosion is not suspected. This area has remained unchanged since previous inspection.	lug
2	General pattern cracking, leaching, and numerous areas of abrasion on the surface of the dome.	liof
		0

ATT	ALHMENT	8.3 of 1	P-RPT-	06-	000	9 R	EV. O	PA	GE.	134 OF
Enterov NUC	NN LEAR	ENGIN	EERING STA	NDAR	D	EN	N-EP-S	S-003	Rev	ision 0
MANAG	ELAR GEMENT NUAL	IWL Visual (	Containmer	nt Insp	ection		Pag	ge 14	of	15
R	CON ECORD O	Attac TAINMENT IN F VT-3 / GEN	hment 7. ISERVICE	INSP	ECTIO	<u>N</u> NATIO	<u>DN</u>			
IPEC Unit: 2 Interval	Period: <u>1</u>	<sup>st</sup> /2 <sup>nd</sup> Inspect	tion	Ins	pectior	n Repo	ort No.:	IP2-0	<u> 05-IW</u>	<u>L-001</u>
Component No.: VCC	- 48	Zone No:	007		C	rawin	g No.:		i	
Description: Top of Do										
Equipment Used: Celes	tron Giant	20x80 Binoe	culars		Limitat	tions:	<u>Acces</u>	sible a	ireas	only
Record	ing Condi	tion		RI	NRI	NI	N/A	Co	omme	ents
Leaching or chemical attac	k			$\boxtimes$					4	
Abrasion or erosion degrad	lation					$\bowtie$				
Pop outs and voids				$\boxtimes$					3	
Scaling						$\bowtie$			_	
Spalls						$\bowtie$				
Corrosion staining on conc	rete surfac	es			$\boxtimes$				1	
Cracks					$\boxtimes$				2,4	
Exposed reinforcing steel						$\boxtimes$				
Deteriorating of concrete c	oating, if a	pplicable					$\square$			
Excessive corrosion of the surfaces	exposed e	embedded me	etal			$\boxtimes$				
Detached embedment or lo	oose bolts					$\boxtimes$				
Other		<u></u>			$\boxtimes$				4,5	
	ature/Level	To clarity Inspecti Date: 6/2	, <u>,</u>		ed By:	Carto	BHALL	<u>}</u>	Date	: <u>6265</u>
Responsible Engineer R Acceptable : Yes 🔀		Detailed VT-	1 Examinal	ion R	equirec	Attac	hment 7	<b>'</b> .3)		
Comments:			1 -					<u> </u>	<u></u>	
RE <u>Signature</u> Richard	Dave Print/S	ignature/Level	Jeohli	Date:	k	79	105			
<u>Site Level III Review:</u>	Print/S	ignature/Level		<u>Date:</u>						
ANII Review:		plicable Signature		<u>Date:</u>			<u></u>			

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ATTACHMENT 8.3 of IP. RPT-06-00019 REV. O PAGE 135 of

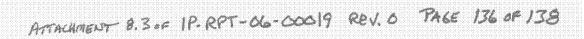
IWL VISUAL CONTAINMENT INSPECTION Indian Point Unit No. 2

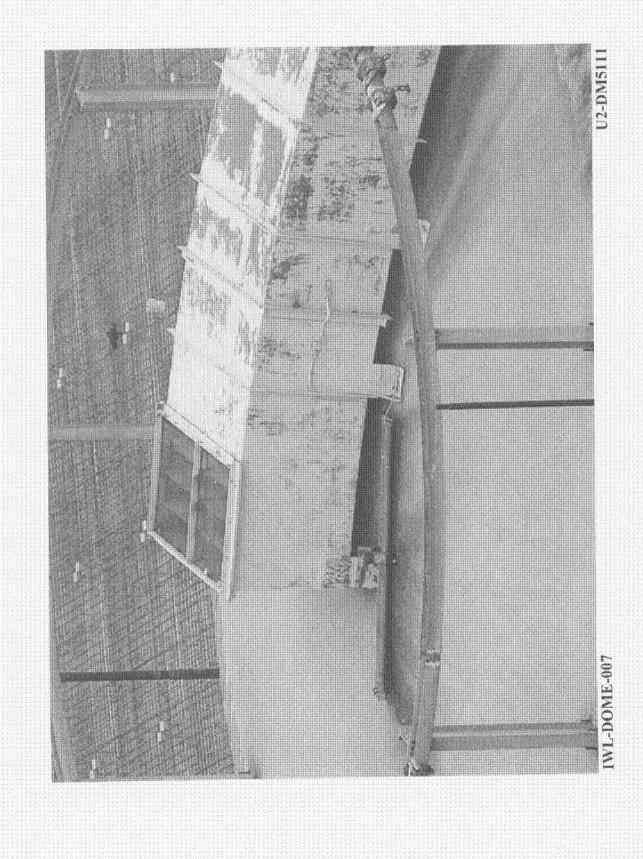
IP2 – CISI – XXX Rev. 0 Date: 5/10/2005 Page: X of Y 138

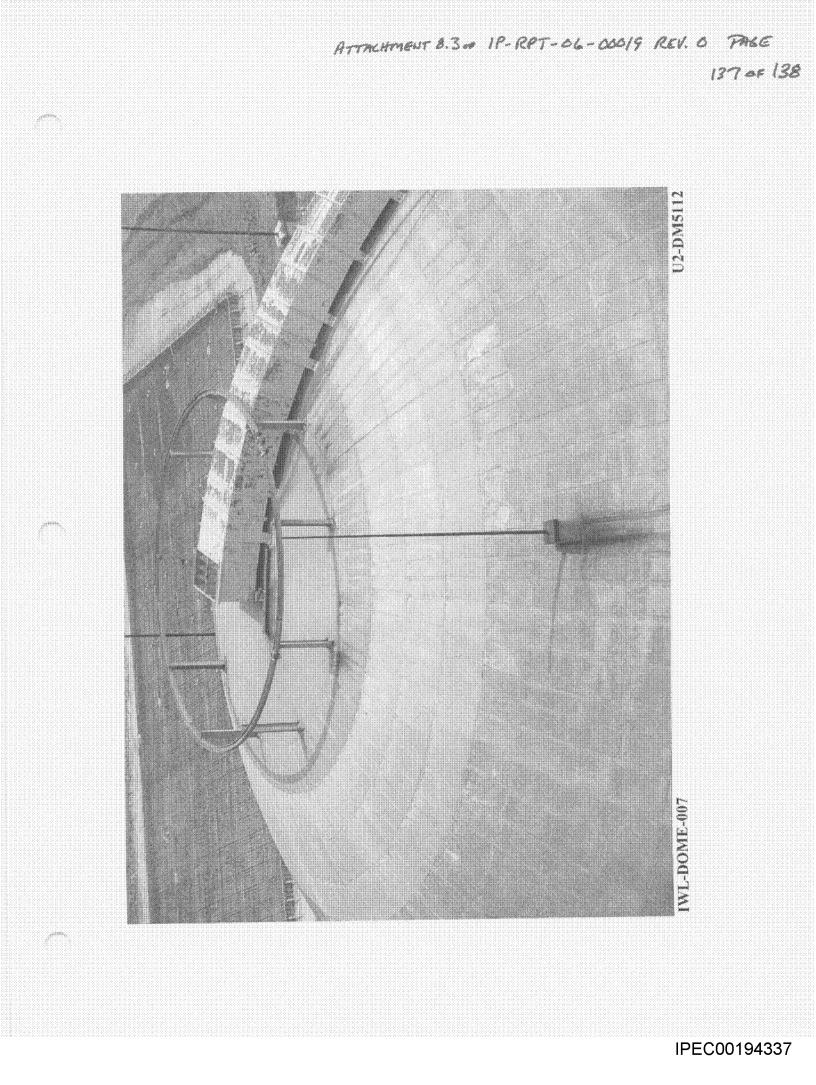
### FORM VT – 3C CONTAINMENT INSERVICE INSPECTION RECORD OF VT – 3 /GENERAL VISUAL EXAMINATION

STATION/UNIT: IPEC / Indian Point No. 2 COMPONENT NO. : VCC - 48

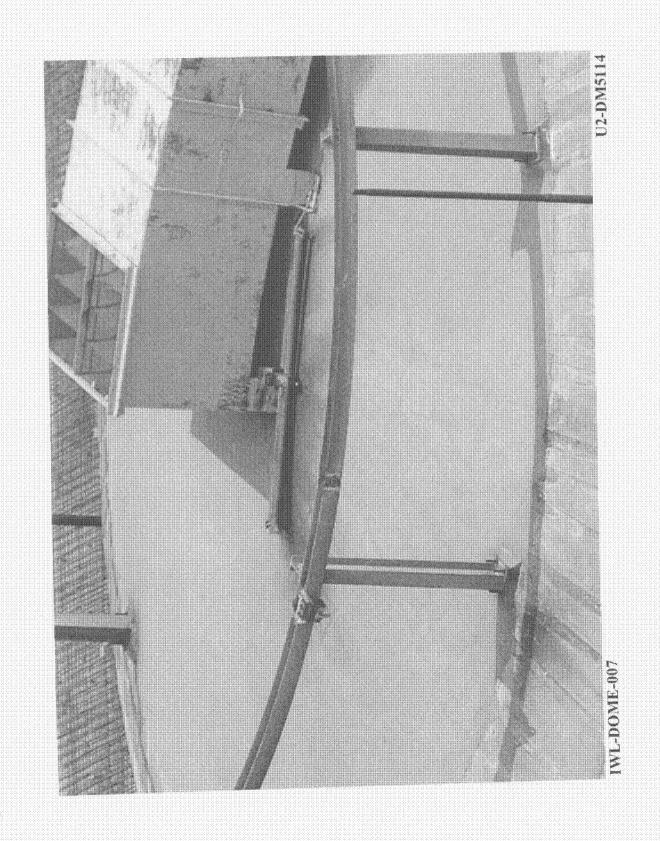
No.	Comment	Initials
1	Large rust stains are evident on the surface of the dome due to lightning rod rusting at all six locations. Also, visible surface rust appears clearly from exhaust duct steel. See photos U2-DM5111 and U2-DM5112	nof
2	Cracking exists at three elevations creating a full circle around the dome.	Mp
3	Visible void roughly 2" x 2".	ng
4	General leaching, pattern cracking, bugholes, and surface discoloration. See photo U2-DM5114	nof
5	Unidentified piece of concrete (approx. 4"x8") found on dome.	Net
		$\mathcal{O}$
si In		

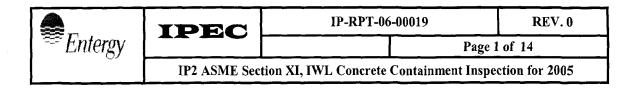






ATTACHMENT 8.3 . 1P-RPT-06-00019 REV. 0 PAGE 138 OF 138





## Indian Point 2 Nuclear Power Plant



# **ATTACHMENT 8.4**

# **QUALIFICATIONS & RESUMES**

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	<u>y NDE</u>	QUALIFICATION	AND CERTIF	ICATION	REC(	שאט
Name: <u>Mark</u>	Gettleman	SSN / ID #: _	098-40	-5038		
Method: <u>Visua</u>	al Examination		Certificati	on Level	: <u>II</u>	
Techniques: <u>VT-1</u>	-3		Certifi	cation Da	nte: 12	/9/2004
Special Qualificat	tions: _IWE/IWL		_Expiration I	Date:	12	2/1/2007
DUCATION						
Educational Fac	ility	Location		Degree / Di	ploma	Year
Philip Schyler HS	Albany, Nev	w York		Genera	al	1965-1969
Hudson Valley Comm.	College Troy, NY			NA		1971-72
Millwright School	West Milton	i , NY		NA		7/75
TRAINING						
NDE Training	1	Organization / Instruc	tor	Hours	······································	Dates
Visual Examination	Courter & C		5.7X	9		9/81
Visual Examination		CTR / H Stevens		1216		10/01 4/98
Visual Examination	Combustion			4		4/86
EXPERIENCE SUMM	ARY	Date / Location	······		Tata	I NDE Exp.
Employer		Dater Lucation		Hours	rota	INDE CAP.
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#### TRANSCRIPT OF CONTINUING EDUCATION ACTIVITIES

**ELECTRIC POWER RESEARCH INSTITUTE** NONDESTRUCTIVE EVALUATION CENTER 1300 Harris Blvd. • P.O. Box 217097

CHARLOTTE, NC 28221

Date:

24-APR-1998 PAGE 1 of

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Signature: Henry M. Stephens, Jr. Training Manager

Buchanan ,NY 098 - 40 - 5038

Indian Point 3 P. U. Box 215

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New York Power Authority

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# RICHARD S. DRAKE

# CIVIL/STRUCTURAL ENGINEERING SUPERVISOR

EDUCATION:	<u>Bachelor of Science Degree</u> in Civil Engineering Rutgers University, College of Engineering Graduated May '81 Cum Laude <u>Masters of Science Degree</u> in Civil/Structural Engineering Rutgers University, Jan. '85	
LICENSES:	Professional Engineer (PE): New Jersey and New York	
MEMBERSHIPS:	American Society of Civil Engineers Structural Engineering Institute (SEI/ASCE) Chi Epsilon (Civil Engineering Honor Society) Tau Beta Pi (Engineering Honor Society)	
EXPERIENCE:	Entergy Nuclear Northeast New York Power Authority	Nov. 2000 - present 1986 – Nov. 2000
	IPEC Civil/Structural Engineering Supervisor In charge of the Indian Point (IPEC) Civil/Structural Design E Group responsible for the dual operating PWR units design Ba modification. The group also was involved in work at the Mo decommissioning work. Resumed the role as the Responsible inspections of structures on site. This included all Structural I and ASME Section XI IWE/IWL inspections	asis and thballed Unit 1 Engineer for all Maintenance Rule
	IPEC Mechanical Engineering Supervisor M In charge of the Indian Point Energy Center (Combined Units Mechanical Engineering group and Designers. In charge of M Design Basis Control of Mechanical Systems in the plants. Du continued acting as the Civil/Structural Engineering Supervis Acting Design Engineering Manager.	Aodifications and uring this time I
e.	<b>Civil/Structural Engineering Supervisor</b> at IP3 Fe In charge of the Indian Point (IP3) Civil/Structural Group. Re supervising the site Civil/Structural Engineers maintaining th performing modifications to the plant structures and compon- performed pipe stress analyses, seismic qualifications, security erosion/corrosion evaluations. Was also the Responsible engi Maintenance Rule inspections of all structures on site and ASM IWE/IWL inspections.	e Design Basis and ents. Group also y, and neer for Structural
	Acting Manager Civil/Structural Engineering Group Ju In charge of the Corporate Civil/Structural Group supporting Point (IP3) and Fitzpatrick (JAF) Nuclear plants.	ine 1994 - Feb 1995 both the Indian

Page 1 of 2

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**RICHARD S. DRAKE** 

# CIVIL/STRUCTURAL ENGINEERING SUPERVISOR

#### Senior Civil/Structural Engineer

Corporate Structural Engineer performing design and analysis of piping systems and their supports. Reviewed and designed buildings and structures for earthquake and tornado loads in accordance with AISC, ACI, local and regulatory codes. Performed seismic qualification analyses of equipment and components for safety related systems. Member of the Westinghouse Owners Group Material Subcommittee.

Burns and Roe, Inc., Oradell, N.J. 1981 – 1986

# Stress Engineer

Performed extensive work using Finite Element computer analysis in the following areas: Special Fittings stress analysis, Piping systems time-history analysis, Thermal transient and fatigue analysis for containment penetrations and systems. Performed pipe support analysis and design according to AISC and local codes. Additional work performed for both nuclear and fossil power plants include hand and computer calculations for ASME class 1, 2, 3 and B31.1 piping analysis subjected to deadweight, thermal expansion, and dynamic loads. Computer programs used: ANSYS, ADLPIPE, FORTRAN, and STRUDL.

# Forensic Scheduling Engineer

Worked on planning and scheduling litigation support for evaluating construction delays and losses in the construction of a fossil fuel power plant. Prepared as-built schedules, manpower histograms, and legal reports analyzing the types of delays and their causes in all phases of construction.

# A. G. Lichtenstein and Associates, Fairlawn, N.J.

1980

1986 - June 1994

# Bridge Inspector

Bridge inspector for a consulting engineering firm specializing in bridge and hydraulic design. Inspected bridges in New Jersey, New York City and Boston. Prepared as-built drawings and calculations in the analysis of the bridge inspection reports according to the AASHTO code.

# Dragos A. (Dan) Nuta

**Summary Of Relevant Experience** - Registered Professional Engineer with over thirty-eight years experience in civil-structural analysis and design and engineering mechanics analyses of structures, systems, and components for nuclear electric generating stations, Department of Energy facilities, and other large industrial facilities. Responsibilities consisted of managing, supervising, planning, cost and schedule control, and the actual performance of work extending from studies and proposal development, finite element static and dynamic analyses, civil-structural design and drawing preparation, equipment seismic and environmental qualification, seismic margin and risk assessment, to the preparation of PSAR, FSAR, and other licensing documents, interface with U.S.N.R.C and participation in licensing hearings, expert ACRS testimony , preparation of procurement documents, and construction support.

# **Technical Expertise Areas**

**Seismic Soil-Structure Interaction Analysis** - In depth expertise in the performance of seismic SSIA of various degrees of sophistication including elastic half-space spring-mass- dashpot representation, LUSH, CLASSI, and SASSI three-dimensional analyses. Member of expert panel established to revise U.S.N.R.C Reg. Guide 1.60 and to perform peer review for the NRC of the AP 1000 Westinghouse ALWR.

**PRA/Fragility Analysis -** Expertise in the performance of fragility analysis for structures, systems and components in support of PRAs or seismic margin analyses.

**Natural Phenomena Hazards Mitigation -** In depth expertise in establishing loads representative of natural phenomena hazard effects and the analysis and design to mitigate the hazards.

**Impulsive and Impactive Analysis -** In depth expertise in the performance of impulsive and impactive analyses. Former Chairman of ACI 349 Appendix C. Kinetic energies were associated with tornado missiles, cars, airplanes, and systems and components generated by collapsing structures.

**Dynamic Linear and Nonlinear Analysis -** Diverse expertise in the performance of analyses using the STARDYNE, ANSYS, ABAQUS, FLUSH, CLASSI, SASSI computer codes. Expertise in the assessment of vibration causes and mitigation measures. Knowledge extends from steel stack vibration under vortex shedding solved by spoilers or guy wires, to HVAC ducts requiring turning vanes, equipment and support vibration, and traffic induced elevated highway vibration and noise abatement measures.

**Equipment Seismic Qualification** - Extensive experience in equipment seismic qualification. Familiar with the SQUG/A-46 GIP methodology, including the use of GERS and "Class of 20" type information and IPEEE requirements. Familiar with the STERI and TERI methods and the process of commercial grade equipment dedication. Licensed to perform DOE and NRC EPRI / SQUG walkdown screening and seismic evaluations.

**Elevated Temperature Effects on Concrete** - In depth knowledge of the concrete degradation mechanisms, and effects on the concrete compressive strength, Young's modulus, Poisson's ratio, thermal conductivity, and other pertinent parameters governing reinforced concrete design.

ATTACHMENT 8.4 OF IP-RPT-06-00019 REV. O PAGE 7 OF 14

# Summary of Representative Experience

Client	Project
Entergy Nuclear Northeast	Indian Point Energy Center, Units 1, 2, and 3
Consolidated Edison of New York	Indian Point No. 1 & 2 Nuclear Stations
GPU	Oyster Creek and TMI Nuclear Facilities
Northeast Utilities Co.	Millstone Station Units 1, 2, and 3
Texas Electric Utility Co.	Comanche Peak SES Units 1 & 2
Houston Lighting & Power Company	Allens Creek NGS
Louisiana Power & Light Company	Waterford 3 SES
Carolina Power & Light Company	Shearon Harris Nuclear Generating Station
Washington Public Power Supply System	WPPSS Unit No.3.
U.S. Nuclear Regulatory Commission/LLNL	Fragility Analysis Methods Assessment
EQE/U.S. Nuclear Regulatory Commission	Revision of U.S.N.R.C Regulatory Guide 1.60
Public Service Electric & Gas	Salem/Hope Creek Revitalization Project
Westinghouse Hanford Company	Initial Pretreatment Module Project
United States Department of Energy	Heavy Water Reactor Facility
West Valley Nuclear Services Co., Inc.	West Valley Demonstration Project
Westinghouse Hanford Company	Tank 101-SY Hydrogen Mitigation Program
Westinghouse Savannah River Company	247-F Vault Upgrade
American Nuclear Society (ANS)	Nuclear Technology Journal
ERDA/Princeton Plasma Physics Laboratory	v Tokamak Fusion Test Reactor
Stauffer Chemical Corporation	1600 T/D Sulfur Burning/Spent Acid Regeneration Plant
E. I. DuPont de Nemours	1500 T/D Sulfuric Acid Plant
E. I. DuPont de Nemours	265 ST/D Sulfuric Acid Concentrator Plant
Humble Oil & Refining Company	Powerformer Unit
ESSO	Hydrodesulfurization Plant
Department of the Army	Army Ammunition Plant
Boston Edison Company	Venturi Scrubber Efficiency Optimization Research

A summary discussion of the work performed in support of the various projects listed above is provided in the attachment.

# **Employment History**

Entergy Nuclear Northeast, 2003 -Consolidated Edison Of New York, New York, 2001-2003. Washington Group International, New York and New Jersey, 1999-2001 Raytheon Engineers & Constructors, Ebasco Nuclear Division, New York: 1993-1999 Ebasco Services Incorporated, New York; 1973 - 1993 Ebasco Services/Chemical Construction Corporation, New York; 1967-1973

# **Education**

Purdue University	(West Lafayette, Indiana)	BSCE/1967
•	y (New York, New York)	M.S. Math/Computer Science/1970

# **Professional Registrations**

Registered Professional Engineer in the

State of New York State of Indiana

### **Professional Affiliations**

American Society of Civil Engineers - Member American Concrete Institute - Member American Concrete Institute, ACI 349 Committee - Member ASCE Nuclear Standards and Materials, Dynamic Analysis Committee - Member ASCE Nuclear Standards and Materials, ASCE 4 Committee - Member, ASCE 43-Chairman.

#### **Academic Affiliations**

The City College of New York	- Adjunct Professor - Structural Analysis and Design of
	Nuclear Plant Facilities.
Manhattanville College	- Professor - College Physics.
Dominican College	- Professor – Statistics, Mathematics.

### **Publications/Technical Papers**

A partial list of publications includes:

NUREG/CR-5270, Assessment of Seismic Calculation Methods," - co-author

"Pump Handbook" (Seismic Section), McGraw-Hill, New York.

ACI 349-01, "Code Requirements for Nuclear Safety-Related Structures," - co-author.

ASCE 4-2000, "Seismic Analysis of Safety-Related Nuclear Structures," - co-author.

ASCE Standard 43, "Seismic Analysis and Design of Nuclear Structures." - Cochairman

"Stiffness of Low Rise Reinforced Concrete Shear Walls," - co-author

# **Nuclear Generating Stations and Related**

# Entergy Nuclear Northeast and Consolidated Edison of New York

For the Indian Point No. 1 & 2 stations, performed structural assessments and operability evaluations, design and analysis of Structures, Systems, and Components (SSCs), SQUG evaluations and walkdowns, concrete repair and inspection, responding to Condition Reports, and preparing modification packages.

# **Oyster Creek and TMI Nuclear Generating Stations**

For the Oyster Creek and Three Mile Island Nuclear Generating Stations, performed Design Basis/Licensing Basis verifications, verification of calculation input, assessments of heavy drop/cask impact onto Reactor Building slabs, SQUG evaluations verifications, and seismic analysis and design of SSCs.

# Millstone Station - Units 1, 2, and 3

In support of the CMP/50.54(f) letter response effort, represented the Nuclear Licensing Department and the Unit 1 Civil/Structural Group. Participated in the process of commitment identification, development of Position Papers on General Design Criteria and Regulatory Guides, identification and verification of LB/DB/EDB statements for major Millstone Unit 1 systems, and configuration management revisions to procedures governing licensing activities. Involved in PI 1, 6, 7, 8, 10, 13, 16, and the Unit 3 PI 19.

# **Texas Utilities Electric Company**

For TU Electric's Comanche Peak SES Units 1 & 2 responsible for performing an in-depth analysis of the degradation in reinforced concrete properties under the effects of elevated temperatures. The "cold" upper feedwater bypass lines carried fluid with temperatures in excess of 320° F due to leaky valves. The concrete degradation addressed changes in the concrete compressive strength, Young's modulus, Poisson's ratio, and thermal conductivity. Nonlinear finite element analyses were performed to establish adequacy of the lined reinforced concrete containment.

# Houston Lighting & Power Company

As Lead Civil/Structural Engineer for the Allens Creek NGS, responsibilities included PSAR preparation, design criteria and specification preparation, and supervision and performance of analysis, design, and drawing preparation work. Participated directly in the performance of static and dynamic analyses, including soil-structure interaction. As Task Leader of the Design Assessment and Load Improvement programs, directed the development of loading criteria, analyses, etc., related to the BWR Mark III hydrodynamic loads.

# Nuclear Generating Stations and Related (Cont'd)

### Louisiana Power & Light Company

Supervising/Lead Engineer of the seismic soil-structure interaction analyses of the Waterford 3 Nuclear Island. As a result of the observed cracks in the concrete foundation, the analyses were performed in order to determine the effect of basemat flexibility on seismic structural responses including response spectra. The time history of dynamic soil pressures was also determined in order to assess the time history of axial forces in the mat at the observed crack locations.

#### Carolina Power & Light Company

Supervising/Lead Engineer for the seismic qualification work for equipment, systems, and subsystems for the Carolina Power & Light Company's Shearon Harris Nuclear Generating Station. Responsible for the preparation and interface with the NRC team during the SQRT audit.

#### Washington Public Power Supply System

Supervising/Lead Special Analysis Engineer performing equipment seismic qualification work and seismic analysis of systems and subsystems of the WPPSS Nuclear Project, Unit No. 3.

#### Lawrence Livermore National Laboratory/U.S. Nuclear Regulatory Commission

Consulting Engineer for the assessment of seismic margin calculation methods. As part of the assessment, established High Confidence of a Low Probability of Failure (HCLPF) capacities using the Conservative Deterministic Failure Margin Method (CDFM) and the Fragility Analysis (FA) method.

# EQE/U.S. Nuclear Regulatory Commission

Nominated to expert panel established to revise U.S.N.R.C. Regulatory Guide 1.60/1.61.

# Public Service Electric & Gas

Performed ASME based calculations to facilitate the expeditious installation of spare Service Water Strainers replacing operating units. The calculations supported structural modifications to accommodate existing interface/anchorage details and verified the qualification at the new location.

# Department of Energy (DOE) Including Sites Environmental Clean-up

# Westinghouse Hanford Company

On the Initial Pretreatment Module Project, aimed at treating the waste from the Hanford single and doubleshell tanks to remove the cesium and destroy the organics, managed the work which involved the implementation of DOE Order 5480.28 on Natural Phenomena Hazards Mitigation and the revised accompanying standards. Both UCRL-15910 and DOE-STD-1020 were used in the work which followed the Hanford Site- specific standard SDC 4.1.

#### **United States Department of Energy**

While managing the 110 civil-structural engineers team for the Heavy Water Reactor Facility, implemented all DOE Orders in the performance of structural static and dynamic analyses, soil-structure interaction analyses, seismic margin/fragility analyses, and the assessment of structures, systems, and components under natural phenomena hazards loading. Since the project included Advance Reactor technology, the work also included a comprehensive structural assessment under severe accident scenarios. The severe accident scenarios considered the available decay heat, passive cooling via the steel containment vessel surface, hydrogen and inertant generation, and hydrogen deflagration and detonation.

#### West Valley Nuclear Services Co., Inc. (Westinghouse)

For the West Valley Demonstration Project, supervised the design and analysis of the Vitrification Facility, modifications to the Tank Farm to allow removal of the supernatant from the 600,000 gallon 8D-1 Tank and the sludge mobilization, and the analysis and design of the trench delivering the high level nuclear waste to the Vitrification Facility Melter. The work included static and dynamic analysis of the structures, systems, and components under loading which included natural phenomena hazards. A SASSI, frequency domain three-dimensional seismic soil-structure interaction analysis has recently been performed in support of seismic margin analyses of the completed facility.

# Westinghouse Hanford Company

As Supervising Structural Engineer for the Tank 101-SY Hydrogen Mitigation Program, performed seismic and dynamic analyses of the Test Chamber. The Test Chamber, designed to conduct experiments to establish means to reduce the violent hydrogen formation rollovers, penetrated through both the convective and non-convective layer. The dynamic modeling reflected viscosities in the range from 200 to 30,000 centipoise. The added mass, added damping, and drag factors are significantly affected by high viscosities.

#### Westinghouse Savannah River Company

While Lead Structural Engineer for the effort to upgrade the 247-F Vault to a higher Use/Performance Category used dynamic impact analyses and energy balance techniques to determine the adequacy of the concrete vault under impact loading caused by falling adjacent concrete block walls and other systems and components. A 28 kips, HVAC roof unit was part of the missile spectrum. Penetration, perforation, and spalling were considered in addition to assessment of the overall shear and flexural capacity.

# **Petrochemical and Environmental Area**

# **Stauffer Chemical Corporation**

As Project Civil Engineer for the 1600 T/D Sulfur Burning and Spent Acid Regeneration Plant located at Baton Rouge, Louisiana, was responsible for all structural, civil, and architectural design. Duties included overall project supervision, structural analysis and design, preparation of job specifications and design criteria, drawing preparation, estimating, bid evaluations, and client liaison. In addition to the design of steel and concrete structures, including systems and subsystems support, the work included the stabilization of steel stacks vibration induced by vortex shedding using spoilers.

# E. I. DuPont de Nemours

While Project Civil Engineer for the 1500 T/D Sulfuric Acid Plant located at Burnside, Louisiana was responsible for all structural, civil, and architectural design. Duties included overall project supervision, structural analysis and design, preparation of job specifications and design criteria, estimating, bid evaluations, and client liaison. Work included the performance of a soil investigation program, structural analysis and design, and drawings preparation.

# E. I. DuPont de Nemours

As Project Civil Engineer for the 265 ST/D Sulfuric Acid Concentrator Plant located at Deepwater, New Jersey, was responsible for all structural, civil, and architectural design. Duties included overall project supervision, structural analysis and design, preparation of job specifications and design criteria, drawing preparation, estimating, bid evaluations, and client liaison.

# Humble Oil & Refining Company

For the Powerformer Unit located at Bayway, New Jersey, performed structural analysis and design and developed reinforced concrete foundation and supports and steel drawings for systems and component support.

# ESSO

As Project Civil Engineer for the Hydrodesulfurization Plant at Bayway, New Jersey, was responsible for all structural, civil, and architectural design. Duties included overall project supervision, structural analysis and design, preparation of job specifications and design criteria, drawing preparation, estimating, bid evaluations, and client liaison.

# Petrochemical and Environmental Area (Cont'd)

# **Department of the Army**

While Project Civil Engineer for the Army Ammunition Plant located at Newport, Indiana was responsible for all structural, civil, and architectural design. Duties included overall project supervision, structural analysis and design, preparation of job specifications and design criteria, estimating, bid evaluations, and client liaison. Work included the performance of a soil investigation program, structural analysis and design, and drawings preparation.

#### **Boston Edison Company**

Performed research and development aimed at improving the collection efficiency of a wet venturi scrubber. Field parameters were monitored and compared to the analytical predictions. Statistics were used to develop enhanced efficiency strategies at a high confidence level and non-exceedance probability.

# PAUL M. BOWE

# **ENGINEER I**

EDUCATION:	EDUCATION: Bachelor of Science Degree in Civil Engineering Norwich University, Northfield, VT Graduate December 2004		
	Associates of Civil Engineering Technology Hudson Valley Community College, Troy, NY Graduate August 2002		
	Manhattan College: Graduate Courses Reactor Theory Radwaste	Dec 2005 – Mar 2006 Dec 2005 – Mar 2006	
	Undergraduate Courses:		
	Reinforced Concrete Design – designed and analyzed reinforced concrete structures, such as retaining walls, walls, footings, and columns, and gained a basic understanding of the strength and behavior of reinforced concrete members.		
	Applied Statics and Strength of Material – presented an analytical and practical approach to the principles and physical concepts of statics and strength of materials.		
EXPERIENCE:	Entergy Nuclear Northeast IPEC Engineer I Performed Maintenance Rule inspections, a IWL inspection, and prepared reports for b ESP Orientation training, reviewed calcula bases documents (owner of Containment D	ce Rule inspections, assisted in the Unit 2 prepared reports for both. Also, completed ing, reviewed calculations, and edited design	
	<u>Holbrook Lumber Co.</u> Estimator Designed residential and commercial floor engineered wood product. Analyzed both acting on the floor system and distributed b building as required.	live and dead loads	

ATTACHMENT 8.4 OF IP-RPT-06-00019 REV.0 PAGE 14A OF 14

# GOPAL BHALLA

#### SUMMARY

More than Twenty-Five years of broad domestic and foreign engineering experience, with focus on Mechanical Design Engineering in the field of power industry and oil industry. Having more than fifteen years of Indian Point experience and having extensive knowledge of plant drawings.

Proven expertise in the areas of Piping Layout Design, Stress Analysis, Flow Analysis, Operability Analysis and Pipe support Design.

Energetic, creative, result oriented person who communicates effectively at all organization levels.

#### COMPUTER SKILLS

Proficient in WINDOWS operating systems; Microsoft WORD, EXEL, AutoCAD, Microsoft OUTLOOK.

Knowledgeable in various in-house computer programs such as MOTIVA, MAXIMO, ECRIS PCRS etc.

Proficient in using the Piping Stress Analysis Program "ADLPIPE" on mainframe computer system as well as on PC. Also having knowledge of using the "PIPEFLO" program for flow analysis in piping systems.

Proficient in AutoCAD for drawing preparation and management.

#### TRAINING

Successfully completed the Four weeks Nuclear Plant System Course, which was given at inhouse training center.

Completed the course for ASME Section XI, which was conducted by ASME for In-service inspection and In-service testing of equipment at a nuclear facility. Also completed the course in Power Piping Code B31.1 conducted by ASME and a numerous other Piping Design Code related courses given by The Center for Professional Development.

#### MEMBERSHIPS AND AWARDS

American Society of Mechanical Engineers and Instrument Society of America.

Two-time winner of Employee of the quarter award and also winner of Focus'99 Team award in Con Edison.

#### EDUCATION

1971 - 1975 Institution of Engineers, (India) CalcuttaB.S. in Mechanical Engineering

1013 SUMMIT WOODS • NEW WINDSOR • NY 12553 PHONE (845) 567-0160 • FAX (914) 788-3337 • E-MAIL GHALLA@ENTERGY.COM

#### PROFESSIONAL EXPERIENCE

Captive Power Plants, in particular:

1987 – Present Entergy Nuclear North-East/Con Edison NEW YORK

#### Sr. Lead Engineer:

• Acting as a Lead in directing, assigning work to designers for plant drawings update, required to resolve the discrepancies between design documentation and as found conditions thru the PCRS system and ROI process. The updated drawings/documents are reviewed and approved by me for technical adequacy. I have extensive knowledge of the modification drawing development procedures. I was involved during development phase of the drawing control system (MOTIVA) and having extensive knowledge of troubleshooting the system.

Work assignments have developed expertise in the areas of Piping Design and Stress Analysis, Seismic Analysis, Operability Analysis of pipe supports based on ASME Section XI, In particular:

Developed the Modification packages for various Mechanical projects including stress analysis, technical drawings, pipe support design and engineering calculations including hydraulic flow analysis.

Performed studies and engineering calculations to evaluate the existing piping design for various systems of nuclear and fossil power plants.

Interaction with plant personnel and other departments during the development of the modification packages.

Assigned to support the nuclear plant during the refueling outage to justify the engineering decisions through calculations and analysis.

Interaction with construction crews and contractors during construction phase of the modification packages in nuclear and fossil power plants.

1985 - 1987 HAZEN & SAWYER, P.C., NEW YORK

Engineer Performed various engineering functions for Water Treatment, Waste Water Treatment, and

Development of flow diagrams for various systems such as aeration, filtration, inhibitor, polymer, natural gas, steam, and condensate systems.

Review and approval of mechanical shop drawings and engineering calculations.

Preparation of technical specifications for mechanical equipments such as pipe and pipefittings, valves, storage tanks, vessels, pumps and review of vendor specs and calculations.

1976 - 1985 ENGINEERS INDIA LIMITED NEW DELHI (INDIA) <u>Engineer</u>

Prepared technical specifications for mechanical equipments including turnkey projects such as DM water plants, effluent treatment plants, cooling towers and cooling water treatment facilities.

Performed engineering analysis of various piping systems for different chemical plants.

Assigned as a field resident engineer for more than two years during the construction of a large capacity urea and ammonia fertilizer plant

Developed equipment and piping layout designs for process, power, paper, chemical and non-ferrous metallurgical plants.