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NL-16-032

March 16, 2016

Office of the NYS Attorney General
The Capitol
Albany, NY 12224-0341

SUBJECT: Entergy Transmittal of Indian Point 2 ASME Section XI, IWL Concrete Containment Inspection In Accordance With the Parties' Approved Settlement of License Renewal Contention NYS-24
Indian Point Unit Number 2
Docket No. 50-247
License No. DPR-26

REFERENCE:

1. Atomic Safety and Licensing Board Order (Approving Settlement of Contention NYS-24) ASLBP No. 07-858-03-LR-BD01 (January 26, 2012), (ADAMS Accession ML12026A431)
2. Settlement Agreement Regarding New York State Contention 24 (December 21, 2015) (attached as Appendix 1 to Reference 1)

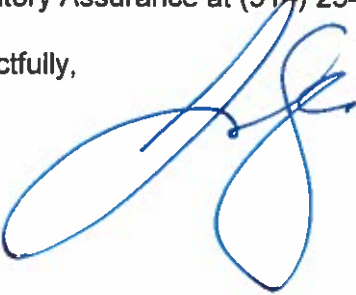
Dear Sir or Madam:

The purpose of this letter is to transmit the most recent ASME Section XI IWL inspection report for Indian Point 2 in accordance with the Atomic Safety and Licensing Board (ASLB) Order approving New York State's and Entergy Nuclear Operations, Inc.'s settlement, including dismissal, of Contention NYS-24, which concerned the structural integrity of the containment concrete at Indian Point Units 2 and 3 (Reference 1). The Settlement Agreement (Reference 2) is based, in part, on Entergy's agreement to provide New York State with "copies of the results of future ASME Section XI, IWL visual inspections and/or the results of inspections or tests that might replace, augment, or update these visual inspections of the exterior concrete surfaces of the containments."

Accordingly, I am enclosing a copy of Entergy Engineering Report IP-RPT-15-00029, "IP2 ASME Section XI, IWL Concrete Containment Inspection for 2015" which documents the results of the most recent IWL inspection at Indian Point Unit 2.

If you have any questions regarding this letter, please contact Mr. Robert Walpole, Manager, Regulatory Assurance at (914) 254-6710.

Respectfully,

A handwritten signature in blue ink, consisting of several large, overlapping loops and a final flourish that extends to the right.

LC/sp

Enclosure: Entergy Engineering Report IP-RPT-15-00029, "IP2 ASME Section XI, IWL Concrete Containment Inspection For 2015"

cc: NRC Public Document Room
Mr. Douglas Pickett, Senior Project Manager, NRC NRR DORL
Ms. Bridget Frymire, New York State Dept. of Public Service
Mr. John Sipos, Assistant Attorney General, Office of the Attorney General for the State of New York

ENCLOSURE TO NL-16-032

ENTERGY ENGINEERING REPORT IP-RPT-15-00029,
“IP2 ASME SECTION XI, IWL CONCRETE CONTAINMENT
INSPECTION FOR 2015”

ENTERGY NUCLEAR OPERATIONS, INC.
INDIAN POINT NUCLEAR GENERATING UNIT NO. 2
DOCKET NO. 50-247 AND 50-286



ENERGY NUCLEAR NORTHEAST
Engineering Report Cover Sheet

Engineering Report Title:

**IP2 ASME SECTION XI,
IWL CONCRETE CONTAINMENT INSPECTION
FOR 2015**

Engineering Report Type:

New Revision Cancelled Superseded

Applicable Site(s)

IP1 IP2 IP3 JAF PNPS VY WPO
ANO1 ANO2 ECH GGNS RBS WF3

EC No. N/A; 60146


Report Origin: Entergy Vendor
Vendor Document No.: N/A

Quality-Related: Yes No

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1.0 Scope and Objectives

This report satisfies the IWL requirements for the 1st period of the 2nd interval, and complements the report by Sargent & Lundy, “Containment Inservice Inspection First Period Examinations,” in 2000, IPEC Report IP-RPT-06-00019, “IP2 ASME Section XI, IWL Concrete Containment Inspection for 2005” and IPEC Report IP-RPT-10-00027, “IP2 ASME Section XI, IWL Concrete Containment Inspection for 2010”.

This report documents the general visual inspection of Class CC components and the Reinforced Concrete shell of Class CC pressure retaining components of the Vapor Containment (VC) for Unit 2 at Indian Point Energy Center. The inspection was done to identify signs of structural degradation that may affect structural integrity or leak tightness and to identify the required repairs and/or replacement activities to minimize degradation due to environmental condition and aging. In addition, previous findings of past inspections will be addressed.


This report was developed in accordance with the requirements of the ASME Boiler and Pressure Code, 2001 Edition/2003 Addenda, Section XI, Division 1, Subsection IWL as required and modified by NRC, Code of Federal Regulation, Title 10, Part 50, Section 55a, “Codes and Standards,”(10CFR50.55a). This inspection satisfies the requirements of the above code, as outlined in CEP-CII-004, Rev. 306, “General and Detailed Visual Examinations of Concrete Containments,” references 7.2.1 and 7.4.4, respectively.

2.0 Background

The Indian Point Unit 2 Nuclear Power Plant, located in Buchanan, New York is operated by Entergy Nuclear Northeast, formerly by Consolidated Edison. The Indian Point Unit 2 Nuclear Power Plant is a 1025(plus)-Megawatt electric, Westinghouse design, four-loop pressurized water reactor that was placed into commercial operation in August, 1974.

The containment structure is a reinforced concrete vertical cylinder with a flat base and a hemispherical dome. A welded steel liner is attached to the inside face of the concrete shell to ensure a high degree of leak tightness. The cylinder consists of a side wall measuring 148 feet from the basemat to the springline of the dome, and has an inside diameter of 135 feet. The sidewalls of the cylinder are 4’-6” thick, and the hemispherical dome is 3’6” thick. The structure is supported by a 9 ft. thick basemat, which rests directly on bedrock.

The original design of the containment preceded the issuance of ASME Section III, Division 2. As a result, the reinforced concrete primary containment was designed and constructed to the requirements of the American Concrete Institute, Building Code Requirements for Reinforced Concrete, ACI 318-63.

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3.0 Details

3.1 Qualification of Personnel

All of the inspections were performed under the direction of the IWL Responsible Engineer (RE). The RE is the Civil/Structural Design Engineering Supervisor at IPEC and a New York State Registered Professional Engineer in accordance with requirements of the ASME code. The Responsible Engineer has knowledge of the Design and Construction Codes as well as other criterion used in IP2's Containment.

The Responsible Engineer (RE) met or exceeded the following minimum qualifications:

- Knowledgeable or trained in the design, evaluation and performance requirements of structures,
- Degreed Civil/Structural Engineer,
- 10 years minimum related experience with a post-graduate degree and registered PE license.


The Inspection Engineers were members of the Civil/Structural group and met or exceeded the following minimum qualifications:

- Knowledgeable or trained in the design, evaluation and performance requirements of structures,
- Qualified to perform visual examination either directly or remotely, with adequate illumination, to detect evidence of degradation.

All inspections were performed by a VT-3 qualified individual with support from two degreed Civil/Structural Engineers. Due to availability constraints, the VT-3 role was performed by one individual for the first half of the inspection and another for the second half. The VT-3 qualified individual is also a Level II certified inspector. All participants were knowledgeable and trained in the design, evaluation and performance requirements of structures and qualified to perform visual examinations either directly or remotely, with adequate illumination, to detect evidence of degradation. All inspectors were qualified to perform their specific task. Each component inspection record has a signature from each of the supporting examiners and the primary signature from the VT-3, level II examiner on the Site Level Review line. This signature represents an examiner signature and the review signature. The walk-down team noted the conditions and areas of specific interest were photographed.

3.2 Qualification of Equipment

During the containment inspection movable tripod binoculars were used in bright daylight and shade. Indoors, existing building lighting was augmented with a hand held portable spotlight exceeding 55 foot-candle at 20 feet focused on the required area under examination. The light has a run time of up to 10 hours. The portable light was fully charged before each use and never operated longer than four hours straight.

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The acuity achieved met and exceeded the requirements of the neutral gray card to detect a 1/32" black line for visual examinations and therefore were acceptable to be used for General Visual Containment inspections. The equipment used was able to detect fine cracks and determine details of the surface from all vantage points.

Equipment used:

- Celestron 20x80 Giant Binoculars, No. 990176
- Stanley Light model SL5HS
- Luminance Meter Extech 401027, ID No. IP3-357004


The Stanley SL5HS Light was measured on May 6, 2015 by Joe Ruch, John Skonieczny, and John Kroells. The Celestron 20x80 Giant Binoculars was field tested on April 29, 2015 at a distance of 280 feet using a neutral gray card in natural light. This test was witnessed by Joe Peterson, John Skonieczny, and Joe Ruch and achieved the acuity required of the neutral gray card to detect a 1/32" black line. Due to the inclusion of different inspection personnel, the Celestron 20x80 Giant Binoculars was field tested again on August 19, 2015. This test was witnessed by Victor Dittrich, Richard Latortue, and Joe Ruch. Refer to Attachment 8.3 for additional details.

3.3 Accessible/Inaccessible Areas

The inspections were performed directly inside buildings which are adjacent to the Containment Building, and from the exterior using remote visual inspections. The locations of the remote observation points are listed and shown in Figure 1. Sections of the dome were inspected in 2009 via mobile crane and man basket. Since all three inspectors completed the supplementary inspection, credit was taken for the 2009 inspection. This vantage point greatly exceeds the previous vantage points used for partial inspection of the dome. The sides and slope of the dome were visible from the lower ground locations. The only portions that were inaccessible during this inspection are the attachment points between buildings, buried sections, the sections behind the plant vent, and the very top of the dome which is in Zone 7. Lower portions of Zone 7 were inspected as part of the dome sections of Zones 1-6. The results of the inspection did not find anything that would warrant exploration of the inaccessible areas. The inaccessible areas, other than the top of the dome, are identified on drawing 320792 in Attachment 8.1.

3.4 Acceptance Standards

The RE and inspectors found no indications exceeding the screening criteria listed in the IWL procedure; therefore no further evaluations were required for accessible or inaccessible areas.

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3.5 Evaluation of Results

The Responsible Engineer reviewed the inspection checklists/notes and assessed the current condition of the structure. All defects were evaluated for their effect on the structure based on the applicable ACI, AISC, ASME Section XI, and NY State Building Codes. References 7.3.2 and 7.3.3 were used to evaluate any flaws, indications, or degradation.

The condition of structures are classified into one of the following:

Acceptable – Acceptable structures are capable of performing their structural functions, including protection or support of safety-related systems or components. Acceptable structures are free of degradation, which could lead to possible failure.


Acceptable with Deficiencies – Structures that are acceptable with deficiencies are capable of performing their structural functions, including the protection or support of safety-related systems or components. The deficiencies (degradation) are acceptable, but need monitoring.

Unacceptable – Unacceptable structures are those which are degraded such that they are not capable of performing their structural functions, including the protection or support of safety-related systems or components.

3.6 Report Comparison

In the 2000 IWL Concrete Containment inspection report prepared by Sargent & Lundy, the Containment was divided into six zones around the circumference established to coincide with vertical boundaries drawn from the location of the six lightning arrestors. Within every one of the six zones, Sargent & Lundy observed sub-zones delineated by the bottom and top elevation of the segment. Every one of the sub-zones was given a component number. The number of sub-zones thus established was 47. Zone 7, Component number 48, is represented by the segment at the very top of the containment dome above the lightning arrestors.

This report maintains the number of segments in that there are 48 components that correspond to the 48 components covered by the 2000 IWL report. It should be noted that while the 2000 IWL report presents the inspection results for zones that list only the bottom elevation of the segment and the zone the segment is located in, such as IWL-043-002 meaning a segment in Zone 002 starting at Elevation 043', beginning in the 2005 report, the bottom and top elevations of the segment were added to the inspection forms. As such, segment IWL-043-002 in subsequent reports is given the added description of Elevation 43' to Elevation 68'. In both cases, the Component Number is VCC - 05.

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3.7 Inspection Dates

Due to availability of a qualified VT-3 inspector and weather delays, the inspection took place over an extended period of time. General visual examinations of all components were performed during the period beginning April 29, 2015 through September 11, 2015.

4.0 Operating Experience

The following are two examples of the Operating Experience throughout the industry, in regards to IWL Containment inspections:

4.1 OE12772 - North Anna

Inspection of North Anna Containment Concrete Structures Identifies Embedded Wood

Abstract:


During a required visual inspection of the U-1 and U-2 containment structures, several pieces of wood were discovered embedded in the concrete. To date, three pieces of wood have been discovered from the external visual inspection of Unit 1, and one piece in Unit 2. The wood was most likely part of the forms used during the initial construction of the units. Based on an evaluation of the defects and the design of the containment structure, structural integrity of the containment has not been compromised.

4.2 Event Number: 280-010730-1, Surry 1

Event Date: 7/30/2001, INPO Change Date 06/03/2002, Unit: 280, Surry 1
Event Title: Embedded Material in the Containment Structures

Event Summary:

During July and August, 2001, detailed inspection of both Surry Unit 1 and Unit 2 containment exterior concrete was conducted for the ASME Section XI, IWL base line inspection. Augmented detailed inspections of the containment dome areas were conducted during refueling outages, Unit 1 in November 2001 and Unit 2 in April 2002. The purpose of the inspections was to verify that no significant degradation of the containment concrete had occurred and to recommend actions necessary to prevent further degradation. The earlier detailed inspections of the containment concrete exterior resulted in finding numerous small cavities resulting from entrapment of air bubbles in the surface of formed concrete during placement and consolidation and


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numerous hairline cracks typical of concrete vessels subjected to elevated internal pressure testing. Minor surface defects were identified for future repair. During the augmented inspections in the refueling outages, small sections of dimensional lumber, debris, and wood chips were extracted from the containment dome areas, and the areas were patched. Three findings resulted in exposing the underlying reinforcing steel. The first involved repair of a spalled area down to sound concrete when a six inch long section of two by four lumber was found to extend into the structure past the reinforcing steel. The second was a five foot by three foot area of concrete that was missing the mortar and contained only coarse aggregate that extended sixteen inches into the structure. The third area involved a single reinforcing bar found without sufficient concrete cover. Repairs were made during the augmented inspection. Each of these areas was evaluated and found not to have adversely affected the ability of the containment structures to perform their design function. The containment structures were generally found to be in good material condition. The interface between the containment structure and grade was inspected with no findings. The interface between adjacent building slabs and the containment structure was inspected with no findings. The interfaces with adjacent structures were inspected with no findings. Embedded material had been cast into the containment structures during original plant construction. The slight depression of the wood below the adjacent concrete indicated that the wood was likely concealed below a thin layer of cement paste immediately following removal of the concrete formwork. Over time this thin layer of concrete has spalled off, leaving the wood exposed. This event is not significant because the containment structures for both units were capable of performing their design function. This event is **NOTEWORTHY** because three areas were found not to have sound exterior concrete covering the reinforcing steel.

5.0 Summary of Results

This inspection was to identify signs of structural degradation and identify the required Repairs and/or Replacement activities to minimize degradation due to environmental conditions and aging. The inspection performed was a general visual examination. No further examinations were required. The summary of the field comments for the inspections are documented in Attachment 8.2. The inspection was performed using optical equipment with Zoom capability. The pictures shown in Attachment 8.3 were taken with a digital camera with inferior zoom capabilities. Therefore, the pictures do not show the same detail at which the examinations were performed.

The Vapor Containment (VC) building has typical concrete conditions over the surface of the structure. Expected minor cracking appears throughout the concrete surface due to the pressurization of the VC, along with numerous bugholes. Large

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areas of rust staining were visible under all six lightning arresters, and around the duct. Clearly, the rust staining comes from the lightning arresters and the metal from the duct and has no significant influence on the concrete containment. Also, several locations with visible leaching were found. The leaching, for the most part, appears to have remained unchanged for multiple inspection cycles, therefore categorizing the areas as in-active.

Prior to the initiation of the concrete inspections performed by Sargent & Lundy in 2000, Raytheon Engineers and Constructors was contracted to develop a report containing the visual acceptance criteria for the in-service inspection of the IP2 concrete containment structure. The report was issued as Report No. 91450.044-S-001. Included in the report are the margins available in the existing concrete reinforcing steel to resist the design basis forces and moments when compared to the allowable code stresses. Reflecting the variations in the actual stresses and resulting margins within the reinforcing steel at various locations in the containment structure, the Raytheon evaluation divides the containment into three distinct zones:

- **Red Zone:** Areas where small margin exists in the existing rebar. This area is located in the cylinder portion of the containment near transition areas such as the equipment hatch, personnel air lock, large mechanical/electrical penetrations and the intersection of the containment cylinder to the base-mat.
- **Green Zone:** All areas in the cylindrical portion of the containment structure with the exception of the areas contained in the red zone. The reinforcing steel in this zone contains large margins and concrete irregularities such as cracking and spalling can be tolerated in this region.
- **Yellow Zone:** Dome portion of the containment. This area also has large margins for the reinforcing steel and can tolerate concrete irregularities such as cracking and spalling. The difference between the yellow and green zones is the amount of available margins. The yellow zone has slightly less margin than the green zone.

A review of the 2015 IWL Recordable Indications, which numbered 107 vis-a-vis the Raytheon report, resulted in the conclusion that none of the indications represent structural concerns for the concrete containment structure. Also, none of these indications reduce the structural capacity or ability of the containment structure to perform its safety function. Some of the considerations made, which also reflect material developed in conjunction with previous IWL inspections, are as follows:

- Some corrosion was exhibited for all of the situations where rebar and/or cadwelds were exposed to the environment as a result of concrete spalling. Cadwelds are heavy walled cylinders used to splice together two pieces of rebar. Molten metal is injected into the cadweld cylinder to fuse together the two ends of rebar. These splices typically have a diameter twice that of the rebar they are joining. No flaking or aggressive corrosion processes were observed. The

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exposed areas of cadweld splices and reinforcing steel were in the approximately 4" by 3" or 9" x 3" range.

- Of the 48 components inspected during the IWL examination of the concrete containment structure, only Components VCC - 01, 02, 04, 05, 06, 11, 15, 16, 17, 22, and 23 are within the "red zone," as described above.

A comparison of the 2010 IWL observations versus the 2015 IWL observations for these zones is presented below:

No.	Zone	Elevation Range (Feet)	Component Number	2010 Observations	2015 Observations
1	001	034 to 043	VCC- 01	Minor leaching from patch at top of mat. 1" dia. Void with exposed steel	One additional void 6" x 2". Other indications unchanged since 2010 inspection.
2	002	034 to 043	VCC- 02	NRI: Honeycomb. RI: Flaking/peeling coating. 1/16" wide crack.	Conditions unchanged from 2010 inspection.
3	001	043 to 068	VCC- 04	Leaching from 20' long grout patch. Leaching from 9" dia. Patch at top of basemat junction to wall. 9" x 3" and 4" x 2" spalls exposing cadwelds Vertical rebar exposed 9" or less at 10 locations over 20' width at basemat junction. Exposed ribs of steel and scrap steel with 6" of cracking. Form tie hole partly filled or not filled.	Leaching is unchanged. Coating applied to cadwelds in 2009 has some minor degradation. Vertical rebar exposed 9" or less at 10 locations over 20' width at basemat junction remained unchanged; No change in exposed ribs or scrap steel. Form tie holes unchanged since 2000.
4	002	043 to 068	VCC- 05	10" long spall at floor level next to pen. MP-H. (Honeycomb from original placement). Crack with delamination nearby pen. MP-G. 18" wide x 12' high delamination at Elev. 49 below pen. MP-F. 5" x 1-1/2" delamination at floor level. Coating peeling/flaking	All existing indications remain the same as the 2010 inspection. Leaching 12' above floor level. Spalling behind PCV-1310A.
5	003	043 to 068	VCC- 06	2" dia. Surface defect + tie holes. Caulking covering a possible crack over a length of 10' observed.	2 exposed cadwelds with slight corrosion but no staining visible, no spalling. Everything else stayed the same as in 2010.
6	004	068 to 088	VCC- 11	Joint cracking over 10' length. General pattern cracking. Leaching stain from a patched popout. Coating degradation. Voids behind vent in alley.	All conditions remain unchanged from 2010.
7	004	088 to 108	VCC- 15	2' long leaching from construction opening grout. 4 spalls exposing cadwelds, 2 exposed misc. steel, 1 exposed wire	2" long leaching-unchanged. Cadwelds are the same. Wire and one misc steel are the same, other identified to be in another section. Scaling not properly identified in previous inspection


8	005	088 to 108	VCC-16	NRI: 2" popouts from form ties, exposed aggregates due to improper vibration.	Conditions remain unchanged from 2010
9	006	088 to 108	VCC- 17	8' long crack + pattern cracking.	No horizontal crack. Patter cracking remains. 2" long rebar exposed. 6' vertical crack.
10	005	108 to 128	VCC- 22	NI: Non-uniformity of surface color/texture.	NI: Non-uniformity of surface color/texture.
11	006	108 to 128	VCC- 23	NI; Non-uniformity of surface color/texture, bugholes	Non-uniformity of surface color/texture. Small area of scaling. Vertical hairline cracking with minor leaching.

- The remaining IWL inspection zones with exposed steel are located in the green and yellow stress zones as defined in the Raytheon acceptance criteria report. Per the Raytheon acceptance criteria report, for indications in the green and yellow stress zones, the maximum postulated reduction in reinforcing steel cross-section based on 40 years of corrosion will not result in any overstress conditions in the reinforcing steel. As a result, corrosion of reinforcing steel in the green and yellow zones due to spalling or cracking of concrete will not affect the structural integrity of the containment structure. To inhibit future corrosive attack, many of the indications with exposed steel were cleaned and coated.
- Of the total Recordable Indications, a large majority include findings concerning exposed cadweld splices and concrete related findings. The total area of exposed cadweld splices is very small, each being no larger than 10" x 4", when compared to the total surface area of the containment structure. The majority of these areas were cleaned and coated during the fall of 2009 to protect the exposed steel from future corrosive attack.

Reiterating statements made in the 2000 IWL report, the apparent cause for the observations noted are as follows:

- Normal concrete weathering over the approximately 42 years of exposure to the elements.
- The inherent non-homogeneous material property of concrete.
- Insufficient concrete cover. The spalling observed which exposed the cadweld splices were most likely caused by insufficient cover. This is due to the large diameter of the cadweld splices, which are approximately twice that of the reinforcing steel.

The increased spalling with exposed steel is contributed to the ILRT. The pressurization of containment has caused many of the previously identified areas with potential future spalls to indeed spall.

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Areas of abrasion/erosion were identified during the inspection. These areas were caused by lack of proper vibration and consolidation during construction. Over the years, the elements have caused the loose surface particles to erode. The amount of loss is minimal and the abraded/eroded areas do not impact the structural integrity of containment. The depth of the abrasion/erosion is insignificant and the degradation shows no evidence of acceleration.

All of the observations/findings resulting from the IWL inspection will be monitored as required by the IWL portion of ASME code to document and track any potential changes to the observations noted.

6.0 Conclusion

The Containment Structure remains fully capable of performing its design functions. **The Concrete Containment is Acceptable with Deficiencies** in accordance with ASME Section XI IWL. The IWL components and structures are capable of performing their structural functions, including protection or support of safety-related systems or components. The components and structures are free of degradation which could lead to possible failure.

7.0 Reference Material


7.1 Definitions

Containment: The composite structure that serves as a leak-tight barrier that supports the load of the inside pressure in the event of a reactor coolant or steam system leak and prevents the uncontrolled release of radioactivity to the environment under normal and postulated accident conditions.

Accessible Areas: Those areas of the containment pressure retaining surface, including integral attachments, that can be examined directly or remotely without installation of temporary means (i.e.: scaffolding or ladder) to accomplish the examination.

Inaccessible Areas: Those areas of the containment pressure retaining surface, including integral attachments that cannot be examined directly or remotely due to permanent obstruction (i.e.: Embedment in concrete, interference of plant equipment or structures).

General Visual Examination: A visual examination performed either directly or remotely to assess the general condition of the accessible containment surfaces and to detect evidence of degradation that may affect structural integrity or leak tightness.

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Structural Integrity: The ability of a structure or component to withstand prescribed design loads.

Evaluation: The process of determining the significance of examination or test results, including the comparison of examination or test results with applicable acceptance criteria or previous results.

Cracks: A complete or incomplete separation, of either concrete or masonry, into two or more parts produced by breaking or fracturing. The different types (e.g.: pattern, checking, hairline, D-cracking) of cracking are illustrated by photographs in ACI 201.1R-08 (see Figures A.1.1a-h, A.1.2a-c, A.1.3, and A.1.5).

Cracking of the concrete cover is a common mechanism for any concrete structure. This condition is normally a result of normal expansion and contraction, which occurs within the concrete due to variations in temperature and stress.

Passive Cracks observed in the concrete cover are acceptable for continued service and do not warrant a review by the IWL Responsible Engineer. Passive cracks are defined as those having an absence of growth (when compared to the baseline examination results) and absence of other degradation mechanisms at the crack (e.g.: bulging caused by corrosion buildup).


Distortion: Any abnormal deformation of concrete from its original shape. This condition is illustrated by photograph in ACI 201.1R-08 (see Figure A.2.2).

Distortion of the concrete structure would be a result of abnormal loading conditions (e.g.: earthquake, water hammer) and the damage would be primary concentrated in the concrete cover. However, internal structural degradation may be possible.

Efflorescence (Leaching): A deposit of salts, usually white, formed on a surface, the substance having emerged from below the surface. This condition is illustrated by photograph in ACI 201.1R-08 (see Figure A.1.1.g).

Efflorescence (also referred to as leaching) is caused by exposure of the concrete to flowing or penetrating water that results in the leaching of certain salts, including calcium hydroxide, for the concrete paste. This condition normally occurs at locations of high moisture penetration and flow, such as cracks.

Popout: The breaking away of small portions of a concrete surface due to internal pressure which leaves a shallow, typical conical depression. This condition is illustrated by photographs in ACI 201.1R-08 (see Figures A.2.7, A.2.7.1, A.2.7.2, and A.2.7.3).

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Scaling (including peeling): Local flaking or peeling away of the near surface portion of concrete or mortar. Scaling may be loss of coarse aggregate particles as well as mortar. This condition is illustrated by photographs in ACI 201.1R-08 (see Figures A.2.9.1a & b, A.2.9.2a & b, A.2.9.3a & b, A.2.9.4a & b, and A.2.9.5a & b).

Spall: A fragment, usually in the shape of a flake, detached from a larger mass by a blow, by the action of weather, by pressure, or by expansion within the large mass. A spall is normally a circular or oval depression or in some cases elongated depression over a reinforcing bar. This condition is illustrated by photographs in ACI 201.1R-08 (see Figures A.2.10.1, A.2.10.2, and A.2.11.a & b).


Corrosion: Disintegration or deterioration of concrete or reinforcement by electrolysis or by chemical attack. This condition is illustrated by photograph in ACI 201.1R-08 (see Figure A.2.16).

7.2 References: Commitment Documents

- 7.2.1 Code of Federal Regulations; Title 10, Energy; Part 50, Domestic Licensing of Production and Utilization Facilities; Section 50.55a, Codes and Standards
- 7.2.2 Code of Federal Regulations; Title 10, Energy; Part 50, Domestic Licensing of Production and Utilization Facilities; Appendix J, Primary Containment Leakage Testing for water-cooled Power Reactors
- 7.2.3 Regulatory Guide 1.147, Revision 12, Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1
- 7.2.4 USNRC NUREG-1522, Assessment of Inservice Conditions of Safety-Related Nuclear Plant Structures
- 7.2.5 USNRC Inspection Manual, Inspection Procedure 62003, Inspection of Steel and Concrete Containment Structures at Nuclear Power Plants
- 7.2.6 USNRC IN 97-11, Cement Erosion From Containment Sub-foundations at Nuclear Power Plants
- 7.2.7 USNRC IN 97-29, Containment Inspection Rule

7.3 References: Development Documents

- 7.3.1 ASME Boiler and Pressure Vessel Code, Section XI, Subsections IWE/IWL 1998 Edition, No Addenda

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- 7.3.2 ACI 201.1R-08, Guide for Making a Condition Survey of Concrete In-Service
- 7.3.3 ACI 349.3R-02, Evaluation of Nuclear Safety-Related Concrete Structures
- 7.3.4 Sargent & Lundy, “Containment Inservice Inspection First Period Examinations,” March 2000 – June 2000.
- 7.3.5 IP-RPT-06-00019, “IP2 ASME Section XI, IWL Concrete Containment Inspection for 2005”
- 7.3.6 IP-RPT-10-00027, “IP2 ASME Section XI, IWL Concrete Containment Inspection for 2010”

7.4 References: Interface Documents


- 7.4.1 IP-C-01 “Installation Procedure for Concrete Repairs”
- 7.4.2 EN-DC-150 Rev. 8, “Condition Monitoring of Maintenance Rule Structures.”
- 7.4.3 EN-DC-147, Rev. 6, “Engineering Reports”
- 7.4.4 CEP-CII-004, Rev. 306, “General and Detailed Visual Examinations of Concrete Containments.”
- 7.4.5 Report No. 91450.044-S-001, “Design Margins of the IP2 Containment Steel Liner,” Raytheon Engineers and Constructors.

7.5 References: Containment ISI Drawings

- 7.5.1 320792-00, “Containment ISI Concrete Layout.”
- 7.5.2 320793-00, “Containment ISI Concrete Dome.”
- 7.5.3 320785-00, “Containment ISI General Arrangement.”

8.0 Attachments

- 8.1 Figures and Drawings (5 pages)
- 8.2 Findings Summary (5 pages)
- 8.3 Inspection Reports (293 pages)
- 8.4 Inspector Resumes and Qualifications (10 pages)

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Attachment 8.1

FIGURES & DRAWINGS

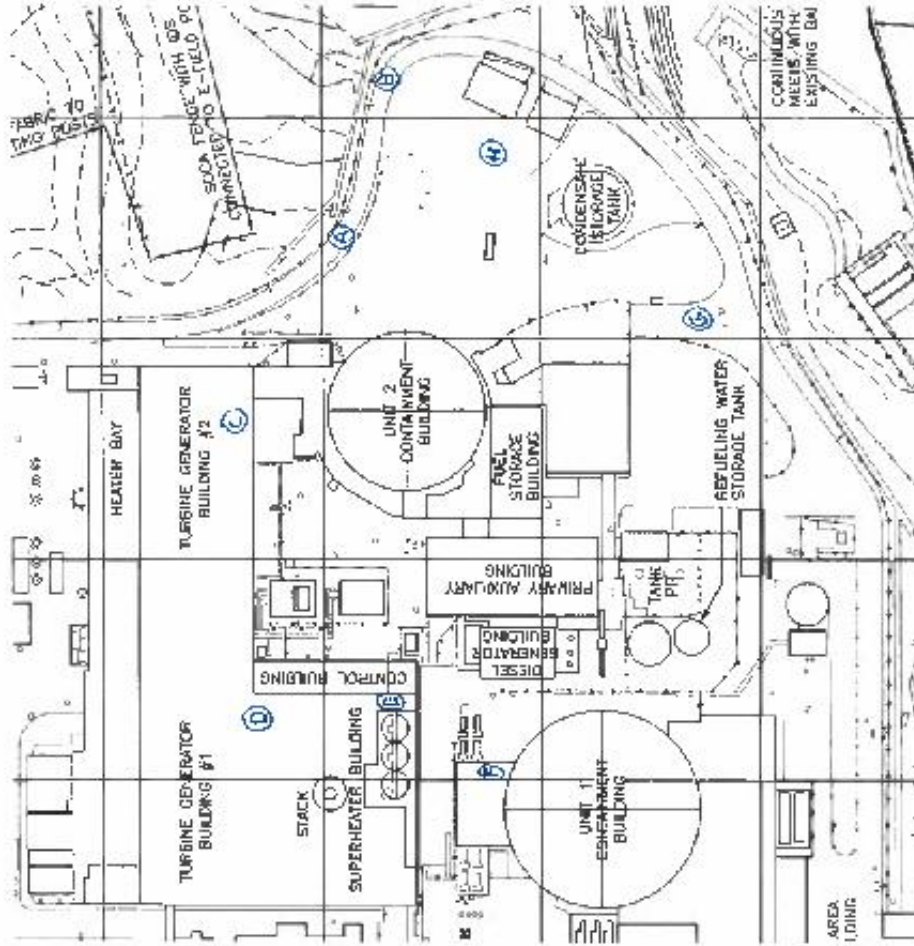


FIGURE 1

Vantage Points Used in Remote Visual Inspection		
Vantage Point	Description	Zones Examined
A	Along edge of road.	Zone 1 from El. 31' to El. 68'
B	Along edge of road.	Zone 1 from El. 68' to Dome
C	Edge of Turbine Building roof.	Zone 2 from El. 68' to Dome
D	Edge of Superheater Building upper roof.	Zone 3 from El. 68' to Dome
E	Edge of Superheater Building lower roof.	Zone 3 from El. 68' to El. 98'
F	Edge of NSB roof.	Zone 4 from El. 108' to Dome
G	Along edge of road	Zone 5 from El. 108' to Dome
H	On and north of condensate tank.	Zone 6 from El. 108' to Dome

Note: Zone 7 was inspected using a crane and manbasket in October, 2009.



IPEC

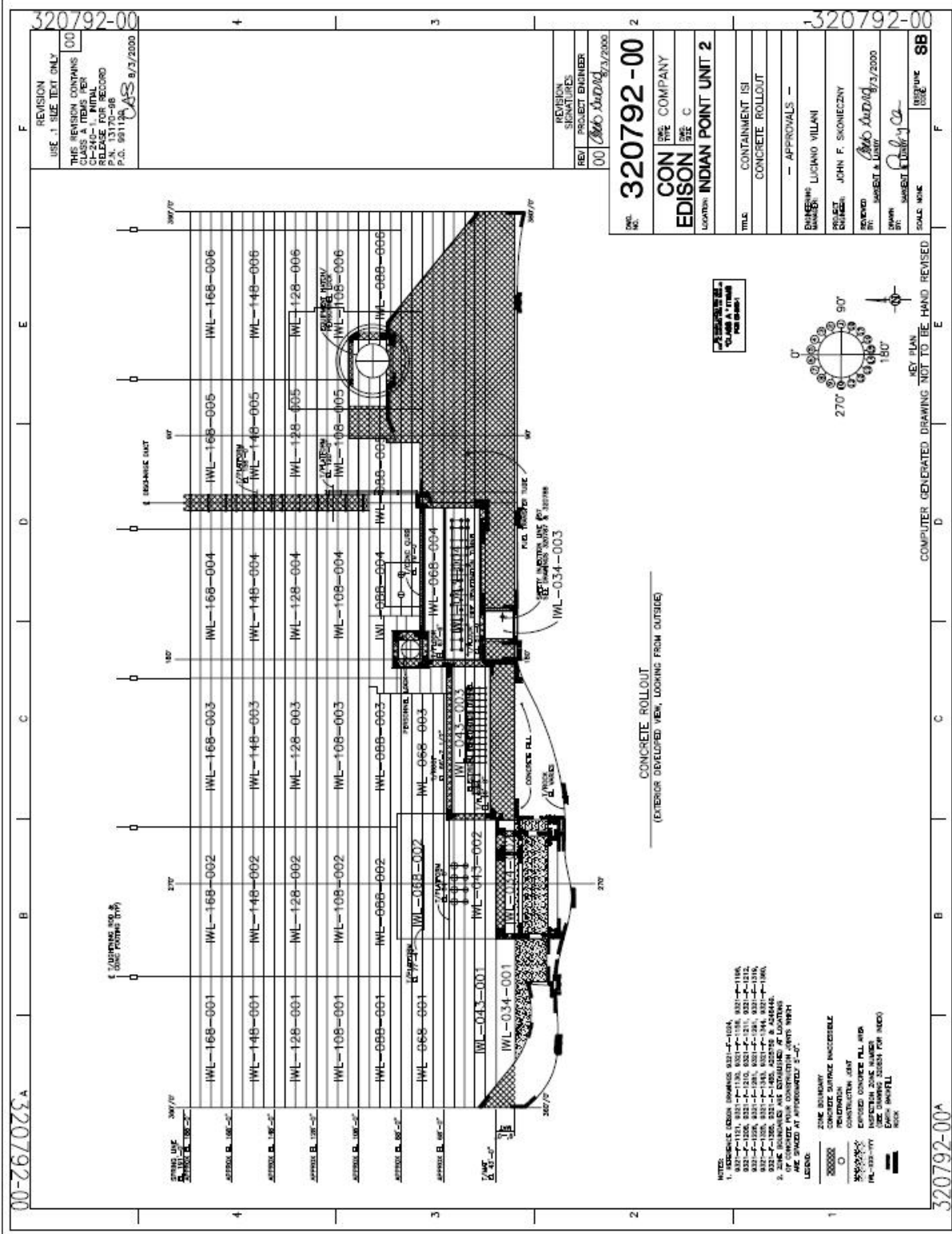
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IPEC

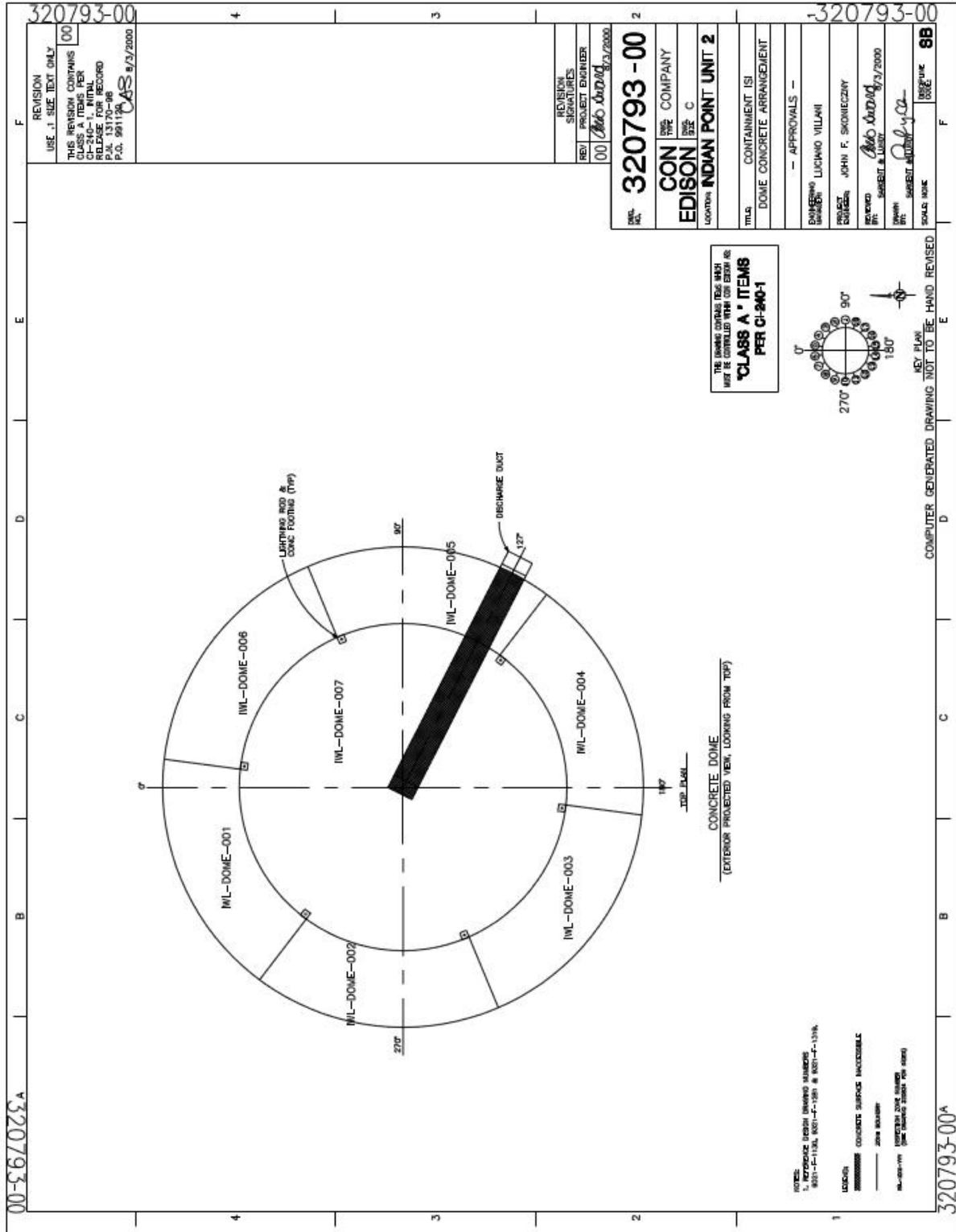
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IPEC

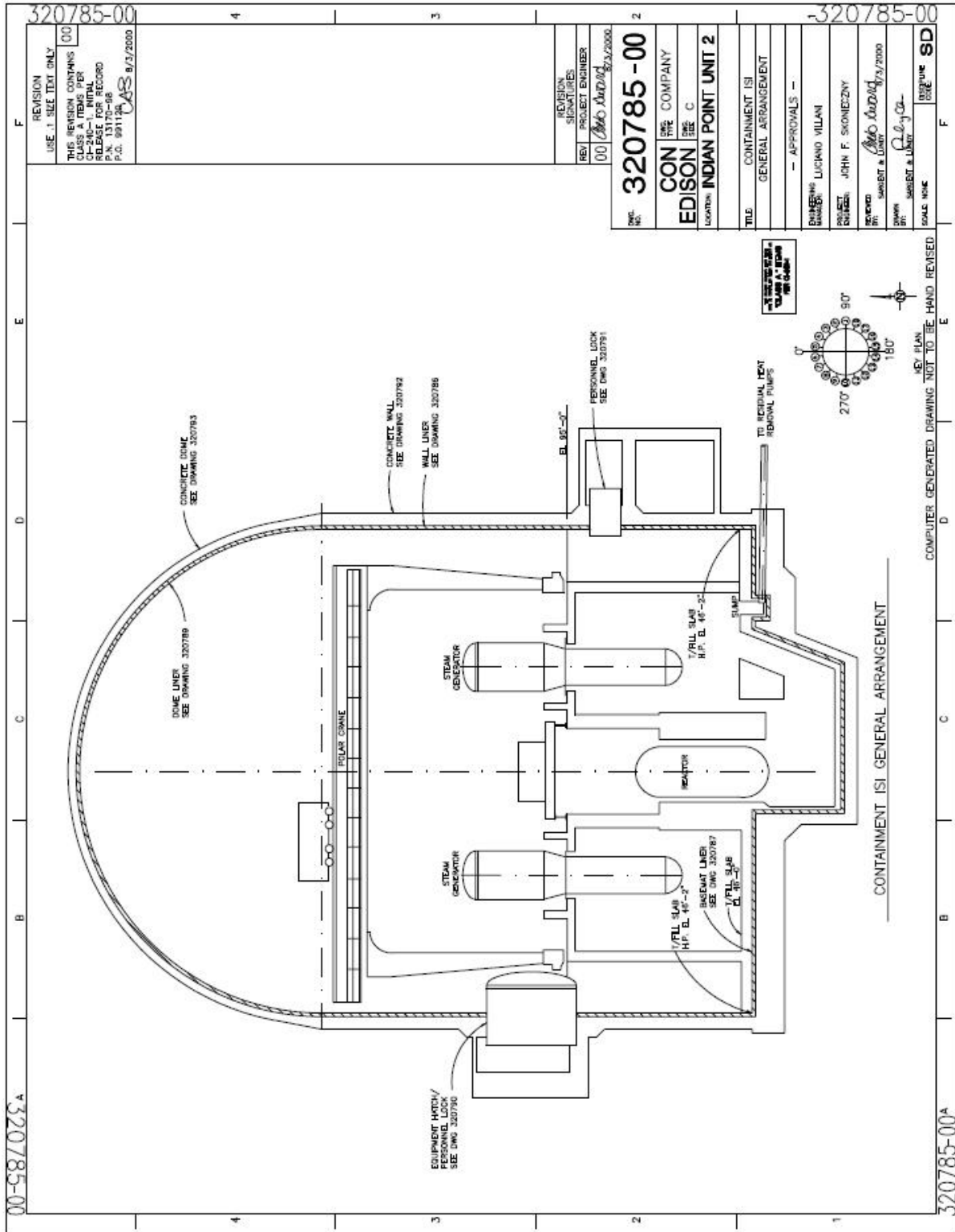
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Attachment 8.2

FINDINGS SUMMARY

FINDINGS SUMMARY:

COMP. NO.	ZONE NUMBER	ELEVATION	ACCEPTABLE	ACCEPTABLE WITH DEFICIENCIES	UNACCEPTABLE	REMARKS
VCC-01	001	34' – 43'		X		1" diameter void in concrete with exposed steel. 6" x 2" void.
VCC-02	002	34' – 43'		X		Area of honeycombing, cracking, and coating flaking/peeling.
VCC-03	003	34' – 43'	X			No recordable indications.
VCC-04	001	43' – 68'		X		Exposed steel with surface corrosion from spalled concrete.
VCC-05	002	43' – 68'		X		Exposed steel with surface corrosion from spalled concrete. Cracking with leaching. Coating flaking/peeling.
VCC-06	003	43' – 68'	X			No recordable indications.
VCC-07	004	43' – 68'	X			No recordable indications.
VCC-08	001	68' – 88'	X			No recordable indications.
VCC-09	002	68' – 88'		X		Joint cracking and spalling exposing aggregate.
VCC-10	003	68' – 88'	X			No recordable indications.
VCC-11	004	68' – 88'		X		A joint spall, leaching, coating flaking/peeling
VCC-12	001	88' – 108'		X		Abrasion adjacent to crack, exposed cadweld
VCC-13	002	88' – 108'		X		Large crack from spall approx. 4' long with abrasion, scaling, and a 2" dia. hole. Vertical cracking

Note: The majority of the exposed cadwelds, rebar, and miscellaneous steel were cleaned and coated in 2009.

FINDINGS SUMMARY:

COMP. NO.	ZONE NUMBER	ELEVATION	ACCEPTABLE	ACCEPTABLE WITH DEFICIENCIES	UNACCEPTABLE	REMARKS
VCC-14	003	88' – 108'		X		Two areas of reinforcing steel.
VCC-15	004	88' – 108'		X		Exposed rebar and cadweld, spalls, and popouts.
VCC-16	005	88' – 108'	X			No recordable indications.
VCC-17	006	88' – 108'		X		General abrasion and leaching.
VCC-18	001	108' – 128'	X			No recordable indications.
VCC-19	002	108' – 128'		X		Exposed cadwelds, abrasion, and leaching.
VCC-20	003	108' – 128'		X		Exposed cadwelds and rebar.
VCC-21	004	108' – 128'		X		Exposed rebar and cadwelds due to spalling.
VCC-22	005	108' – 128'	X			No recordable indications.
VCC-23	006	108' – 128'		X		Minor cracking with leaching.
VCC-24	001	128' – 148'		X		Exposed cadwelds and miscellaneous steel.
VCC-25	002	128' – 148'		X		Exposed cadwelds and miscellaneous steel.
VCC-26	003	128' – 148'		X		Exposed cadwelds and miscellaneous steel.

Note: The majority of the exposed cadwelds, rebar, and miscellaneous steel were cleaned and coated in 2009.

FINDINGS SUMMARY:


COMP. NO.	ZONE NUMBER	ELEVATION	ACCEPTABLE	ACCEPTABLE WITH DEFICIENCIES	UNACCEPTABLE	REMARKS
VCC-27	004	128' – 148'		X		Exposed cadwelds and miscellaneous steel.
VCC-28	005	128' – 148'	X			No recordable indications.
VCC-29	006	128' – 148'		X		Exposed cadwelds and leaching.
VCC-30	001	148' – 168'		X		Exposed cadwelds due to spalling.
VCC-31	002	148' – 168'		X		Exposed cadwelds and miscellaneous steel.
VCC-32	003	148' – 168'		X		Exposed steel and leaching.
VCC-33	004	148' – 168'		X		Exposed steel and popout.
VCC-34	005	148' – 168'		X		Exposed cadwelds, miscellaneous steel, and abrasion.
VCC-35	006	148' – 168'		X		Exposed cadwelds, miscellaneous steel, and leaching.
VCC-36	001	168' – 188'	X			No recordable indications.
VCC-37	002	168' – 188'		X		Exposed cadweld, miscellaneous steel, leaching and spalling.
VCC-38	003	168' – 188'		X		Exposed cadwelds, spalling, and leaching.
VCC-39	004	168' – 188'		X		Exposed cadweld due to spalling.

Note: The majority of the exposed cadwelds, rebar, and miscellaneous steel were cleaned and coated in 2009.

FINDINGS SUMMARY:

COMP. NO.	ZONE NUMBER	ELEVATION	ACCEPTABLE	ACCEPTABLE WITH DEFICIENCIES	UNACCEPTABLE	REMARKS
VCC-40	005	168' – 188'		X		Area of abrasion.
VCC-41	006	168' – 188'		X		Exposed cadwelds, scaling.
VCC-42	001	DOME		X		Spall, delamination and abrasion.
VCC-43	002	DOME	X			No recordable indications.
VCC-44	003	DOME		X		Exposed rebar and cadweld. Joint crack (approximately 1/4"x3').
VCC-45	004	DOME	X			No recordable indications.
VCC-46	005	DOME		X		Corrosion staining and popout.
VCC-47	006	DOME		X		Spalls, leaching and abrasion.
VCC-48	007	DOME		X		Leaching and void.

Note: The majority of the exposed cadwelds, rebar, and miscellaneous steel were cleaned and coated in 2009.


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Indian Point 2 Nuclear Power Plant



Attachment 8.3

INSPECTION REPORTS

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ATTACHMENT 7.1

DEMONSTRATION OF REMOTE EXAMINATION METHOD (SAMPLE)

Sheet 1 of 1

Plant: Indian Point Energy Center – Unit 2

Date: 4/29/15

EQUIPMENT USED:

CELESTRON 20 X 80 GIANT BINOCULARS, No. 990176

DESCRIPTION OF DEMONSTRATION: (Include discussion of appropriate viewing distance, lighting condition and resolution achieved.)

The neutral gray card with 2 line markings of thickness 0.015" and 0.03" to emulate concrete cracks was held at a measured distance of 280 feet from the Binoculars which were mounted on a tripod.

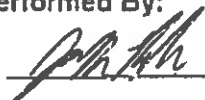
Weather Condition: SUNNY 70°F

Results: Both lines on the test card were clearly visible.

LIMITATIONS:

None.

Demonstration Performed By:

Signature:  Date: 4-29-15

Demonstration Witnessed By:

Signature:  Date: 4-29-15


Responsible Engineer Review:

Signature:  Date: 4/29/15

Quality Control Review:

Signature:  Date: 4/29/2015

Authorized Nuclear Inspector (ANII) Review:

Signature:  HEBUS Date: 12/15/15

Plant: Indian Point Energy Center – Unit 2Date: May 6, 2015**EQUIPMENT USED:**

Stanley SL5HS Light

Luminance Meter Extech 401027, ID No. IP3-357004 Calibration Due Date of
12/17/2015**DESCRIPTION OF DEMONSTRATION:** (Include discussion of appropriate viewing distance, lighting condition and resolution achieved.)

Based on an expected viewing distance of 20 feet or less for the visual examinations to be performed inside the Aux Boiler Feed Pump Building, the demonstration proved a light intensity in excess of 150 ft-candle was achieved at a distance of 20 feet using the Luminance Meter. The acceptable luminance is 50 ft-candle at 20 feet.

The test was conducted at the 5' elevation of the U1 Turbine Building with the background lighting at 1.0 ft-candle.

LIMITATIONS:

None

Demonstration Performed By:Signature: J. RuchDate: 5/6/2015**Demonstration Witnessed By:**Signature: J. SkoniecznyDate: 5/6/2015**Responsible Engineer Review:**Signature: R. DrakeDate: 5/31/15**Quality Control Review:**Signature: John KroellsDate: 5/6/2015**Authorized Nuclear Inspector (ANII) Review:**Signature: A. SchafinoDate: 12/15/15

**IPEC**

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ATTACHMENT 7.1

DEMONSTRATION OF REMOTE EXAMINATION METHOD

Sheet 1 of 1

Plant: Indian Point Energy Center – Unit 2Date: Jan 12, 2016**EQUIPMENT USED:**CELESTRON 20 X 80 GIANT BINOCULARS, No. 990176Entergy Character Card #2011-6028 with reverse side 18% neutral gray with 1/32" line and 1/16" line**DESCRIPTION OF DEMONSTRATION:**

The character on the card were visible at a measured distance of 300 feet from the Binoculars which were mounted on a tripod. The 2 line markings of thickness 0.015" and 0.03" on the neutral gray card to emulate concrete cracks were also clearly visible.

Weather Condition: Cloudy/ overcast 35 deg. F**LIMITATIONS:**None.**Demonstration Performed By:**Signature: J. Ruch  Date: 1/12/16**Demonstration Witnessed By:**Signature: R. Latortue  Date: 01/12/16**Responsible Engineer Review:**Signature: R. Drake  Date: 1/29/16**Quality Control Review:**Signature: V. Dittrich  Date: 01/12/16**Authorized Nuclear Inspector (ANII) Review:**Signature: A. Schiaffino  Date: 1/12/16

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

Plant: IPEC - Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001

Component No: VCC-01 Zone No: 001 Drawing No.: 320792

Description: EL. 34' - EL. 43' Work Order No: 52488501

Equipment Used: Celestron Giant 20x80 Binoculars Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
Abrasion or erosion degradation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Pop outs and voids	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2, 4
Scaling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Spalls	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Cracks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
Exposed reinforcing steel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3 (Vegetation)

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / [Signature] Date: 10/5/15 Examined By: R. Latorue / [Signature] Date: 09/29/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:

Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / [Signature] Date: 12/18/15
 Print/Signature/Level

Site Level Review: John Kroells / [Signature] Date: 9/29/15
 Print/Signature/Level

ANII Review: Allan Schiaffino / [Signature] Date: 12/15/15
 Print/Signature

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

STATION/UNIT: IPEC / Indian Point No. 2 COMPONENT NO.: VCC – 01

ZONE No: 001

No.	Comment	Initials
1	Minor area of leaching 9" dia. patch at top of basement at junction of wall. The leaching is considered inactive due to past monitoring. See photos Z1-001, Z1-002 and Z1-002A.	JK
2	1" diameter void in concrete with exposed steel. No change from since last inspection. See photos Z1-001, Z1-003 and Z1-003A.	JK
3	Vegetation growth on mat. No change since last inspection. See photos Z1-001 and Z1-003A.	JK
4	Small void 6"x2"x1" deep near left side with vertical crack from top of mat to ground cover < 1/16" wide. Seen in photos from last inspection but not included in report. No change visible. See photos Z1-001 and Z1-004.	JK



2015 Photo

IWL-034-001

Photo Z1-001



2015 Photo

IWL-034-001

Photo Z1-002



2005 Photo

IWL-034-001

Photo Z1-002A



2015 Photo

IWL-034-001

Photo Z1-003



2010 Photo

IWL-34-001

Photo Z1-003A



2015 Photo

IWL-034-001

Photo Z1-004

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

Plant: IPEC - Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001

Component No: VCC-02 Zone No: 002 Drawing No.: 320792

Description: EL. 34' - EL. 43' Work Order No: 52488501

Equipment Used: Stanley SL5HS Light Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Abrasion or erosion degradation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Pop outs and voids	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
Scaling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Spalls	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Cracks	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
Exposed reinforcing steel	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Deteriorating of concrete coating, if applicable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / *JR* Date: 10/5/15 Examined By: J. Skonieczny / *JSkonieczny* Date: 10-6-15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:

Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / *Richard Drake* Date: 12/18/15
 Print/Signature/Level

Site Level Review: J. Kroells / *John Kroells* Date: 9/29/15
 Print/Signature/Level

ANII Review: Allan Schiaffino / *AS* Date: 11/17/15
 Print/Signature

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

STATION/UNIT: IPEC / Indian Point No. 2 COMPONENT NO. : VCC – 02

ZONE No: 002

No.	Comment	Initials
1	There are several pockets (8 total all less than 8" long) of unconsolidated concrete ("honeycomb") at the very bottom edge of the mat. These areas are due to lack of proper consolidation or loss of paste during original concrete placement and do not represent degradation. This area continues to be monitored with no changes since the baseline inspection. See photos Z2-001 through Z2-001E .	JK
2	Crack behind unistrut, 56" long & 1/16" wide, ends at ceiling and void below. In same location as item 1. No change since previous inspection. See photos Z2-002, Z2-002A, Z2-002B and Z2-002C .	JK
3	<p>There are a number of areas within this zone where the coating is flaking and peeling. There is no evidence that this is due to degradation of the concrete substrate. It is a coatings related issue and not containment degradation. No notable change since last inspection.</p> <ul style="list-style-type: none"> - Two areas flaking/peeling in main room. See photos Z2-003, Z2-003A, Z2-003B, Z2-004, and Z2-004A. - 9" x 7" area behind PCV-1310-B, Aux. Feed Pump 22 St. Supply, peeling due to heat damage. See photos Z2-005 and Z2-005A. - South corner 36" x 18" flaking/peeling. See photos Z2-006 and Z2-006A. - 	JK
	Area of abrasion described in comment 3 of the 2010 report was not able to be located during the current inspection.	JK



2010 Photo

IWL-034-002

Photo Z2-001



2010 Photo

IWL-034-002

Photo Z2-001A



2015 Photo

IWL-034-002

Photo Z2-001B



2015 Photo

IWL-034-002

Photo Z2-001C



2015 Photo

IWL-034-002

Photo Z2-001D



2015 Photo

IWL-034-002

Photo Z2-001E



2015 Photo IWL-034-002 Photo Z2-002



2010 Photo IWL-034-002 Photo Z2-002A



2010 Photo IWL-034-002 Photo Z2-002B



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2015 Photo IWL-034-002 Photo Z2-002C



2015 Photo IWL-034-002 Photo Z2-003



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2010 Photo

IWL-034-002

Photo Z2-003A



2010 Photo

IWL-034-002

Photo Z2-003B



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2015 Photo

IWL-034-002

Photo Z2-004



2010 Photo

IWL-034-002

Photo Z2-004A



2015 Photo

IWL-034-002

Photo Z2-005



2010 Photo

IWL-034-002

Photo Z2-005A



2015 Photo

IWL-034-002

Photo Z2-006



2010 Photo

IWL-034-002

Photo Z2-006A

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

Plant: IPEC - Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001

Component No: VCC-03 Zone No: 003 Drawing No.: 320792

Description: EL. 34' - EL. 43' Work Order No: 52488501

Equipment Used: Stanley SL5HS Light Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Abrasion or erosion degradation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Pop outs and voids	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Scaling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Spalls	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Cracks	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Exposed reinforcing steel	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / *JR* Date: 10/5/15 Examined By: R. Latortue / *R. Latortue* Date: 09/29/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:

Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / *R. Drake* Date: 12/18/15
 Print/Signature/Level

Site Level Review: John Kroells / *John Kroells* Date: 9/29/15
 Print/Signature/Level

ANII Review: Allan Schiaffino / *Allan Schiaffino* Date: 11/19/15
 Print/Signature

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

STATION/UNIT: IPEC / Indian Point No. 2 COMPONENT NO.: VCC – 03

ZONE No: 003

No.	Comment	Initials
	No comments.	

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

Plant: IPEC - Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001

Component No: VCC-04 Zone No: 001 Drawing No.: 320792

Description: EL. 43' - EL. 68' Work Order No: 52488501

Equipment Used: Celestron Giant 20x80 Binoculars Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5
Abrasion or erosion degradation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Pop outs and voids	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3
Scaling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Spalls	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1, 2, 7
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Cracks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
Exposed reinforcing steel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1, 2, 7
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other (exposed scrap steel)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4, 6

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / *JRuch* Date: 10/5/15 Examined By: R. Latortue / *R.Latortue* Date: 09/29/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:

Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / *Richard Drake* Date: 12/8/15
 Print/Signature/Level

Site Level Review: John Kroells / *John Kroells* Date: 9/29/15
 Print/Signature/Level

ANII Review: Allan Schiaffino / *AS* Date: 11/17/15
 Print/Signature

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

STATION/UNIT: IPEC / Indian Point No. 2 COMPONENT NO. : VCC – 04

ZONE No: 001

No.	Comment	Initials
1	Cadweld exposure due to 9" x 3" of spalling, insufficient concrete cover (less than 1/2"). The exposed cadweld was coated to inhibit future potential corrosion in 2009. Some degradation to the coating has occurred. Some cracks extend horizontally from the ends of the spall. See photos Z1-005, Z1-005A, Z1-006 and Z1-006A	SK
2	Exposed cadweld at spall. 4" x 2", at El. 51'. The exposed cadweld was coated to inhibit future potential corrosion. Some degradation to the coating has occurred since the last inspection. See photos Z1-005, Z1-005A, Z1-007 and Z1-007A	SK
3	One form tie hole not filled and one partially filled. These holes have remained in the same condition as several previous inspections.	SK
4	Scrap steel exposed at surface with some cracking approx. 6". No change noted since 2010 inspection. See photo Z1-008	SK
5	Leaching over a length of 20' close to joint from grout patch. This area has remained unchanged since the 2010 inspection. There has been no notable change since the baseline inspection. See photos Z1-009 and Z1-009A	SK
6	Ribs of some embedded steel (scrap) exposed at the surface at El. 44'. Some rust bleeding is apparent. Pitting noted in 2010 inspection was not identified.	SK
7	Vertical rebar exposure with rust marks maximum of 9" at 10 locations over 20' width at basement junction. This area remains unchanged since the previous inspection. See photos Z1-010 to Z1-010C	SK
8	A previously repaired area near AFB has degraded. See photo Z1-011	SK



2010 Photo

IWL-043-001

Photo Z1-005



2015 Photo

IWL-043-001

Photo Z1-005A



2009 Photo

IWL-043-001

Photo Z1-006



2015 Photo

IWL-043-001

Photo Z1-006A



2010 Photo

IWL-043-001

Photo Z1-007



2015 Photo

IWL-043-001

Photo Z1-007A



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2015 Photo

IWL-043-001

Photo Z1-008



2015 Photo

IWL-043-001

Photo Z1-009



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2010 Photo

IWL-043-001

Photo Z1-009A



2015 Photo

IWL-043-001

Photo Z1-010



2005 Photo

IWL-043-001

Photo Z1-010A



2015 Photo

IWL-043-001

Photo Z1-010B



2015 Photo

IWL-043-001

Photo Z1-010C



2015 Photo

IWL-043-001

Photo Z1-011

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001

Component No: VCC-05 Zone No: 002 Drawing No.: 320792

Description: EL. 43' – EL. 68' Work Order No: 52488501

Equipment Used: Stanley SL5HS Light Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11
Abrasion or erosion degradation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Pop outs and voids	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10
Scaling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Spalls	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1, 6, 8, 12
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Cracks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2, 9
Exposed reinforcing steel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other (delamination)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3, 7

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / [Signature] Date: 10/5/15 Examined By: J. Skonieczny / [Signature] Date: 10-6-15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:

Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / [Signature] Date: 12/18/15
 Print/Signature/Level

Site Level Review: John Kroells / [Signature] Date: 9/29/15
 Print/Signature/Level

ANII Review: Allan Schiaffino / [Signature] Date: 11/17/15
 Print/Signature

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

STATION/UNIT: IPEC / Indian Point No. 2 COMPONENT NO. : VCC – 05

ZONE No: 002

No.	Comment	Initials
1	A spalled area, previously approximated at 10" long, was found at the floor line directly below penetration MP-H. This area appears to have some unconsolidated concrete ("honeycomb") from the original placement of the concrete. This area has remained unchanged since previous inspection. See photos Z2-007, Z2-007A and Z2-007B . Location: Floor level @ BFD-79-3, Steam Generator 23 Aux. Feed Supply Check Valve (valve at head level). Additional Details: - Main spall is 12-1/2" x 3-1/2" with the largest width being 1/4". - Two voids/spalls 2" x 3" x 1/2" and 2" x 2-1/2" x 1/4" - Crack 19' long, 1/32" width (20" from floor) - 3"x2" spall in grout at top left of penetration MP-H. See photo Z2-007C .	JK
2	A crack with apparent delamination was found around the lower left edge of penetration MP-G. There is no notable change to this indication since baseline inspection. See photos Z2-008 and Z2-008A .	JK
3	A delamination was found at approx. El. 49' behind BFD-6-1. The area was estimated to be 30" at the widest part (top) and 18" at the lower portion by 12" high by combination of visual inspection and sounding the concrete (tapping the surface with a metal object). See photos Z2-009, Z2-009A and Z2-009B .	JK
4	This area was examined from the floor level at El. 43'. The examination distances were a maximum of 20 feet. While this distance exceeds the limits for direct visual examination, it was too short for use of the binoculars due to their minimum focal length. Lighting levels using the flashlight exceeded the 50 foot-candle requirement. The upper 5 feet of this zone were not visible for inspection by direct line of sight due to piping and structural steel obstructions. Area has been coated.	JK
5	There are a number of areas within this section where the coating is flaking and peeling. There is no evidence that this is due to degradation of the concrete substrate. It is a coatings related issue and not containment degradation. See sample photos Z2-010, Z2-010A, Z2-011 and Z2-012 .	JK
6	Although previously identified as rebar, the steel bar sticking out (~ 3/4" dia.) with rust and staining at El. 46' behind Rack 15 appears to be an anchor cut flush to the concrete and not reinforcement for the Containment concrete. The spall at this location is 2" x 3". See photo Z2-013 .	JK
7	Floor level delamination, 5" x 5" x 1/4" deep, at DPI-7291, 22 Steam Generator ΔP Indicator. See photos Z2-014 and Z2-014A . No notable change since the previous inspection.	JK
8	Spall with exposed cadweld, 11-1/2" x 3" x 3/8" deep (~4" exposed cadweld) having minimal surface rust located at floor level near DPI-7293. See photos Z2-015 and Z2-015A .	JK
9	Pattern cracking in zone believed to be from the ILRT testing performed every ten years. See photo Z2-016 .	JK
10	Sloppy joint with a 4" x 1" void. There is no evidence of rust staining from void. See photo Z2-017 .	JK
11	Leaching approximately 12' up from floor level. See photo Z2-018 .	JK
12	Spall behind PCV-1310A. See photo Z2-019 .	JK



2015 Photo

IWL-043-002

Photo Z2-007



2010 Photo

IWL-043-002

Photo Z2-007A



2005 Photo

IWL-043-002

Photo Z2-007B



2015 Photo

IWL-043-002

Photo Z2-007C



2015 Photo

IWL-043-002

Photo Z2-008



2010 Photo

IWL-043-002

Photo Z2-008A



2015 Photo

IWL-043-002

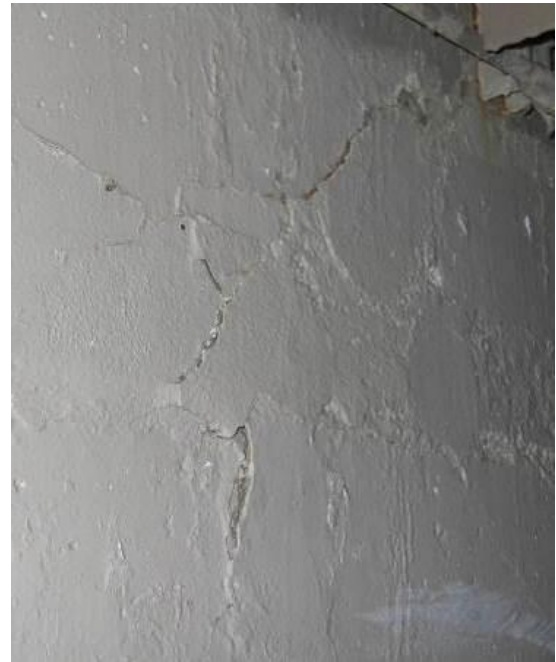
Photo Z2-009



2010 Photo

IWL-043-002

Photo Z2-009A



2005 Photo

IWL-043-002

Photo Z2-009B



2015 Photo

IWL-043-002

Photo Z2-010



2010 Photo

IWL-043-002

Photo Z2-010A



2015 Photo

IWL-043-002

Photo Z2-011



2015 Photo

IWL-043-002

Photo Z2-012



2010 Photo

IWL-043-002

Photo Z2-013



2015 Photo

IWL-043-002

Photo Z2-014



2010 Photo

IWL-043-002

Photo Z2-014A



2015 Photo

IWL-043-002

Photo Z2-015



2010 Photo

IWL-043-002

Photo Z2-015A



2010 Photo

IWL-043-002

Photo Z2-016



2010 Photo

IWL-043-002

Photo Z2-017



2015 Photo

IWL-043-002

Photo Z2-018



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2015 Photo

IWL-043-002

Photo Z2-019

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001

Component No: VCC-06 Zone No: 003 Drawing No.: 320792

Description: EL. 43' – EL. 68' Work Order No: 52488501

Equipment Used: Stanley SL5HS Light Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Abrasion or erosion degradation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Pop outs and voids	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2, 6
Scaling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Spalls	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Cracks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3, 10
Exposed reinforcing steel	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11
Deterioration of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other (bugholes, rough joint, abandoned anchors)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1, 5, 7, 9

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / *JR* Date: 10/5/15 Examined By: R. Latorue / *R.Latorue* Date: 09/29/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:

Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / *Richard Drake* Date: 12/18/15
 Print/Signature/Level

Site Level Review: John Kroells / *John Kroells* Date: 9/29/15
 Print/Signature/Level

ANII Review: Allan Schiaffino / *AS* Date: 11/12/15
 Print/Signature

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

STATION/UNIT: IPEC / Indian Point No. 2 COMPONENT NO. : VCC – 06

ZONE No: 003

No.	Comment	Initials
1.	Two pieces of embedded steel, appearing to be anchors cut flush, are exposed at the surface of the concrete. Slight rusting is evident but no streaking or staining of the concrete. No notable change since 2005 inspection. See photo Z3-001 .	JK
2.	A small surface defect (< 2" dia.) and several unfilled form tie holes were noted but are insignificant relative to containment structural integrity. No notable change since 2005 inspection. See photo Z3-002 .	JK
3.	Caulk, possibly covering a crack, diagonally approx. 10' long. Condition remains the same since 2005 inspection. See photos Z3-003 and Z3-003A .	JK
4.	This area was examined from the floor level at El. 46'. The examination distances were a maximum of 20 feet. While this distance exceeds the limits for direct visual examination, it was too short for use of the binoculars due to their minimum focal length. Lighting levels using the flashlight exceeded the 50 foot-candle requirement. Approximately 10% of this zone was not visible for inspection by direct line of sight due to various obstructions.	JK
5.	General minor bugholes.	JK
6.	Void, 1" x 1" x 3/8" deep, located in quadrant nearest to Pipe Penetration wall. See photos Z3-004 and Z3-004A .	JK
7.	Rough joint, 2'-0" x 6", located in quadrant nearest to Pipe Penetration wall. See photos Z3-005 and Z3-005A .	JK
8.	Epoxy injection tubes near Pipe Penetration wall up to ~6'. See photo Z3-006 .	JK
9.	Cut anchors in top corner behind column. Slight corrosion is evident but no streaking or staining of the concrete. See photo Z3-007 .	JK
10.	Next to containment area cage, tight vertical crack intersecting horizontal joint with minor separation (<1/16")	JK
11.	Two partially exposed cadwelds near left side due to lack of cover. No spalling. See photos Z3-008 and Z3-008A .	JK



2010 Photo

IWL-043-003

Photo Z3-001



2010 Photo

IWL-043-003

Photo Z3-002



2015 Photo

IWL-043-003

Photo Z3-003



2005 Photo

IWL-043-003

Photo Z3-003A



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2010 Photo

IWL-043-003

Photo Z3-004



2010 Photo

IWL-043-003

Photo Z3-004A



2015 Photo

IWL-043-003

Photo Z3-005



2010 Photo

IWL-043-003

Photo Z3-005A



2015 Photo

IWL-043-003

Photo Z3-006



2015 Photo

IWL-043-003

Photo Z3-007



2015 Photo

IWL-043-003

Photo Z3-008



2015 Photo

IWL-043-003

Photo Z3-008A

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001

Component No: VCC-07 Zone No: 004 Drawing No.: 320792, 9321-2716

Description: EL. 43' – EL. 68' Work Order No: 52488501

Equipment Used: Stanley SL5HS Light Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Abrasion or erosion degradation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Pop outs and voids	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2, 8
Scaling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Spalls	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3, 4, 5, 6
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Cracks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9
Exposed reinforcing steel	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other (honeycombing)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / *JR* Date: 12/5/15 Examined By: R. Lalortue / *R. Lalortue* Date: 09/29/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:

Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / *Richard Drake* Date: 12/18/15
 Print/Signature/Level

Site Level Review: John Kroells / *John Kroells* Date: 9/29/15
 Print/Signature/Level

ANII Review: Allan Schiaffino / *Allan Schiaffino* Date: 11/17/15
 Print/Signature

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

STATION/UNIT: IPEC / Indian Point No. 2 COMPONENT NO. : VCC – 07

ZONE No: 004

No.	Comment	Initials
1	Approximately 10% of the concrete surface was not visible for inspection by direct line of sight due to congestion.	JK
2	Several form tie holes were found not filled. These have remained unchanged since previous inspections and are not significant relative to containment structural integrity.	JK
3	Spalling, approximately 2" diameter, visible from catwalk standing at CCW 6088, F1-609 High side stop. The spall has remained unchanged since 2005. See photos Z4-001 and Z4-001A .	JK
4	Some concrete honeycombing on the right side of penetration "KK". See photo Z4-002 .	JK
5	Spall, 4" x 6" x 1/8" deep, at floor level near Penetration "T". This was previously noted in the 2010 inspection. See photos Z4-003 and Z4-003A .	JK
6	Spall, 3" x 2" x 1/8" deep, floor level near Penetration "T". This was previously noted in the 2010 inspection. See photos Z4-003 and Z4-003B .	JK
7	Spalling at joint, 10' long. Joint has been coated over to prevent future spalling; therefore the deficiency will be categorized as non-recordable indication (NRI). This was previously noted in the 2010 inspection. See photos Z4-004 and Z4-004A .	JK
8	1" diameter void, appears to be manmade, and 3/4" void at penetration "GG" (upper first penetration from far right wall). See photos Z4-005 and Z4-005A .	JK
9	Minor pattern cracking and peeling/flaking coating in some areas.	JK



2015 Photo

IWL-043-004

Photo Z4-001



2005 Photo

IWL-043-004

Photo Z4-001A



2015 Photo

IWL-043-004

Photo Z4-002



2015 Photo

IWL-043-004

Photo Z4-003



2010 Photo

IWL-043-004

Photo Z4-003A



2010 Photo

IWL-043-004

Photo Z4-003B



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2015 Photo

IWL-043-004

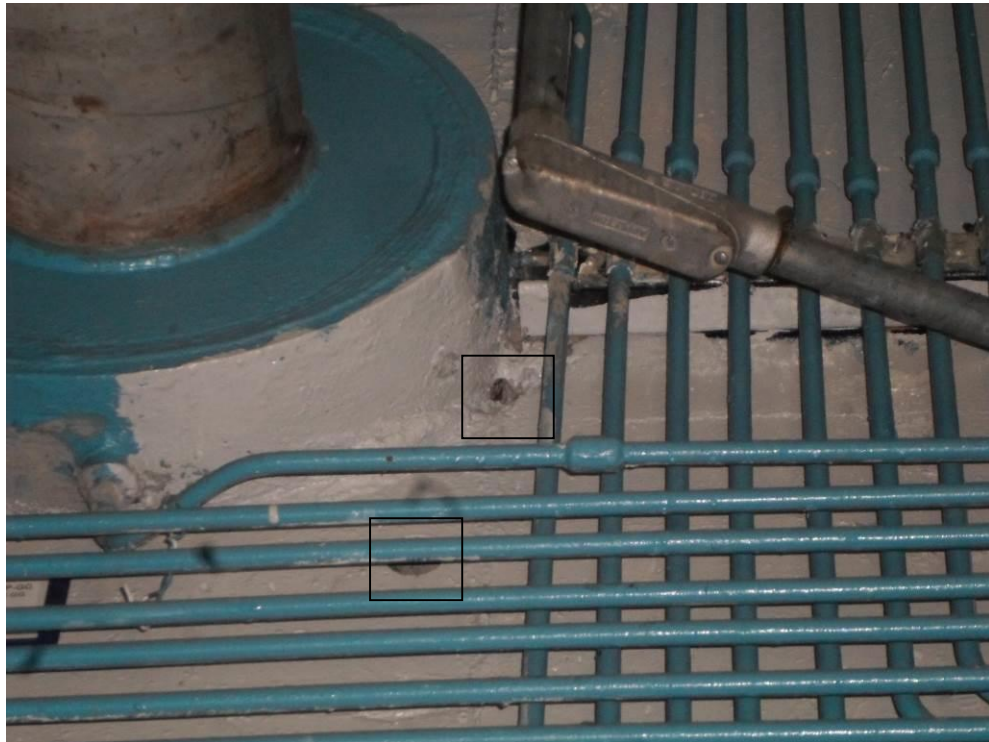
Photo Z4-004



2010 Photo

IWL-043-004

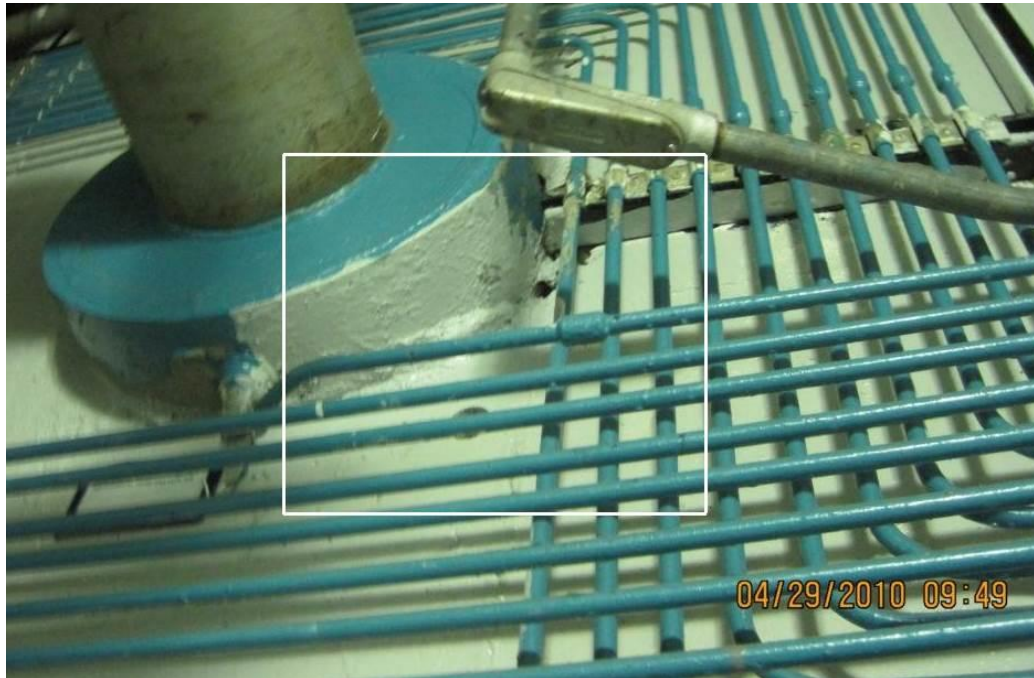
Photo Z4-004A



2015 Photo

IWL-043-004

Photo Z4-005



2010 Photo

IWL-043-004

Photo Z4-005A

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001

Component No: VCC-08 Zone No: 001 Drawing No.: 320792

Description: EL. 68' – EL. 88' Work Order No: 52488501

Equipment Used: Celestron Giant 20x80 Binoculars Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
Abrasion or erosion degradation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Pop outs and voids	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Scaling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Spalls	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3
Cracks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
Exposed reinforcing steel	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / *JR* Date: 12/5/15 Examined By: R. Latortue / *R. Latortue* Date: 09/29/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:

Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / *Richard Drake* Date: 12/18/15
 Print/Signature/Level

Site Level Review: John Kroells / *John Kroells* Date: 9/29/15
 Print/Signature/Level

ANII Review: Allan Schiaffino / *AS* Date: 11/17/15
 Print/Signature

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001

Component No: VCC-09 Zone No: 002 Drawing No.: 320792

Description: EL. 68' – EL. 88' Work Order No: 52488501

Equipment Used: Stanley SL5HS Light Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Abrasion or erosion degradation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3
Pop outs and voids	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8, 9
Scaling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Spalls	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3, 5, 10
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Cracks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3, 4, 5
Exposed reinforcing steel	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6, 7

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / [Signature] / Level Date: 10/5/15 Examined By: J. Skonieczny / [Signature] / Level Date: 10-6-15

Responsible Engineer Review:

Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / [Signature] / Level Date: 12/18/15

Site Level Review: John Kroells / [Signature] / Level Date: 9/29/15

ANII Review: Allan Schiaffino / [Signature] / Level Date: 11/17/15

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

STATION/UNIT: IPEC / Indian Point No. 2 COMPONENT NO. : VCC – 09

ZONE No: 002

No.	Comment	Initials
1	This area was examined from the platforms at El. 64'-8" and El. 76'-8". The examination distances were a maximum of 20 feet. While this distance exceeds the limits for direct visual examination, it was too short for use of the binoculars due to their minimum focal length. Lighting levels using the flashlight exceeded the 50 foot-candle requirement. Approximately 5% of the concrete surface was not visible for inspection by direct line of sight due to obstructions.	JK
2	There are a number of areas within this section where the coating is flaking and peeling. There is no evidence that this is due to degradation of the concrete substrate. It is a coatings related issue and not containment degradation. See sample photos Z2-020 through Z2-020C .	JK
3	Joint cracking and spalling exposing aggregate with coating covering area at El. 68' over a 20' span. No notable change since 2005 inspection. See photos Z2-021 and Z2-021A .	JK
4	Hairline pattern cracking (<1/32") at El. 70' approximately 25' from right boundary. Identified in previous inspection. See photo Z2-022 .	JK
5	Joint cracking, pattern cracking and minor spalling at El. 82', behind S/O Relief MS-45C. Identified in previous inspection. See photo Z2-023	JK
6	1-1/2" x 1-1/2" discolored area (rust color) at El. 68' behind MS-42. Same as last inspection. See photos Z2-024 and Z2-024A .	JK
7	Multiple retired anchors left embedded in containment at El. 77'. No degradation to concrete.	JK
8	There is a small void just below roof level behind MS-48A. See photo Z2-020C .	JK
9	Several form tie holes were found not patched. There is also a sloppily formed joint at this location. These are not significant relative to containment structural integrity. See photo Z2-025 .	JK
10	There is a spall behind the column at the far end of the room. See photo Z2-026 .	JK



2015 Photo

IWL-068-002

Photo Z2-020



2015 Photo

IWL-068-002

Photo Z2-020A



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2015 Photo

IWL-068-002

Photo Z2-020B



2015 Photo

IWL-068-002

Photo Z2-020C



2015 Photo

IWL-068-002

Photo Z2-021



2010 Photo

IWL-068-002

Photo Z2-021A



2015 Photo

IWL-068-002

Photo Z2-022



2015 Photo

IWL-068-002

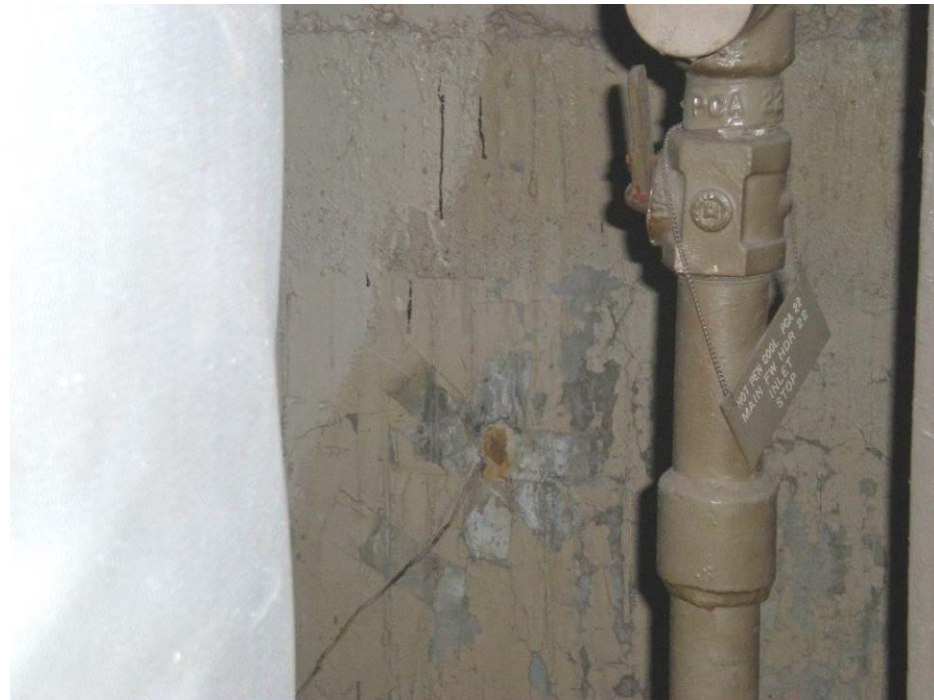
Photo Z2-023



2015 Photo

IWL-068-002

Photo Z2-024



2010 Photo

IWL-068-002

Photo Z2-024A



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2015 Photo

IWL-068-002


Photo Z2-025



2015 Photo

IWL-068-002

Photo Z2-026

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001

Component No: VCC-10 Zone No: 003 Drawing No.: 320792

Description: EL. 68' – EL. 88' Work Order No: 52488501

Equipment Used: Celestron Giant 20x80 Binoculars Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Abrasion or erosion degradation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Pop outs and voids	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7
Scaling	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8
Spalls	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1, 8
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6
Cracks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8, 9
Exposed reinforcing steel	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other (miscellaneous exposed steel, wood, bugholes)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2-6, 8

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / [Signature] Date: 10/5/15 Examined By: R. Latortue / [Signature] Date: 09/29/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:

Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / [Signature] Date: 12/18/15
 Print/Signature/Level

Site Level Review: John Kroells / [Signature] Date: 9/29/15
 Print/Signature/Level

ANII Review: Allan Schiaffino / [Signature] Date: 11/17/15
 Print/Signature

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

STATION/UNIT: IPEC / Indian Point No. 2 COMPONENT NO. : VCC – 10

ZONE No: 003

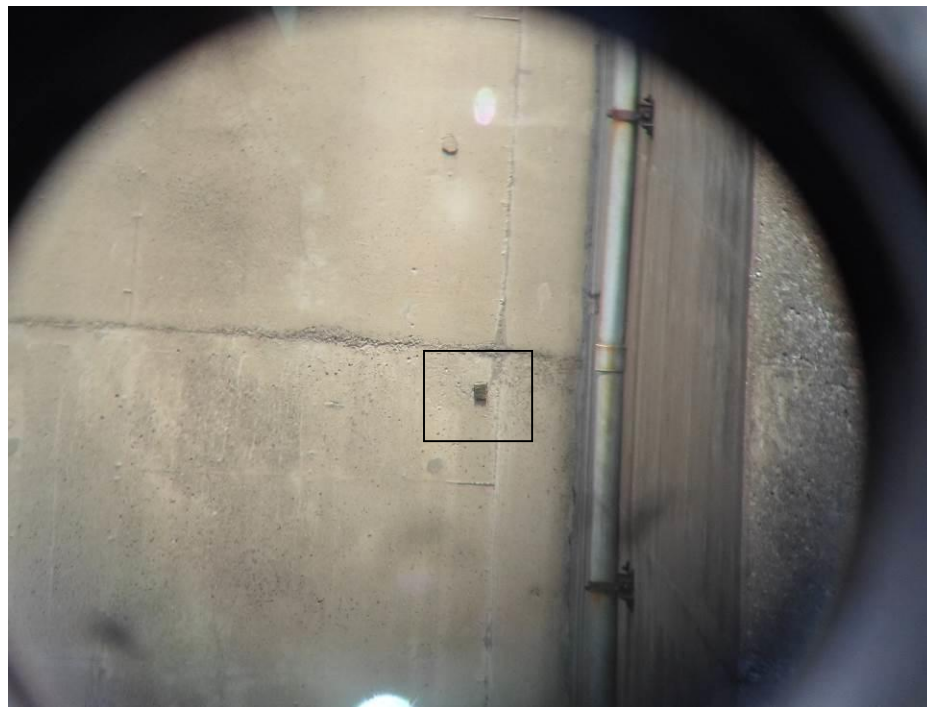
No.	Comment	Initials
1	At El. 68' in the right side of the zone, two possible cadwelds beginning to spall near the red zone. See photo Z3-009 .	JK
2	At El. 79' on the far right side in the red zone there is a possible piece of wood leftover from the formwork. See photo Z3-010 .	JK
3	Exposed miscellaneous wire (3" long) at El. 85'. Coated in 2009, no change in condition since previous inspection. See photos Z3-011 and Z3-011A .	JK
4	Exposed miscellaneous steel (3" long) at El. 87'. Coated in 2009, no change in condition since previous inspection. See photos Z3-011 and Z3-011B .	JK
5	Exposed miscellaneous steel (4" long) at El. 88'. Coated in 2009, no change in condition since previous inspection. See photos Z3-011 and Z3-011C .	JK
6	Exposed miscellaneous steel (1/2" diameter at 7 locations) at El. 88'. This location is in the red zone. Possibly cut off anchors. Some corrosion staining present. Condition previously identified with no noticeable change. See photos Z3-012, Z3-012A, Z3-012B and Z3-012C .	JK
7	3 form holes popouts and 4 partial popouts in the red zone. See photos Z3-013 and Z3-013A .	JK
8	General joint cracking with spalls, pattern cracking, scaling, and bugholes throughout the entire section. These conditions are minor observations that were identified previously.	JK
9	Some hairline cracking in the red zone. See photos Z3-012 and Z3-013A .	JK



2015 Photo

IWL-068-003

Photo Z3-009



2015 Photo

IWL-068-003

Photo Z3-010



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2015 Photo

IWL-068-003

Photo Z3-011



2009 Photo

IWL-068-003

Photo Z3-011A



2009 Photo

IWL-068-003

Photo Z3-011B



2009 Photo

IWL-068-003

Photo Z3-011C



2015 Photo

IWL-068-003

Photo Z3-012



2009 Photo

IWL-068-003

Photo Z3-012A



2009 Photo

IWL-068-003

Photo Z3-012B



2009 Photo

IWL-068-003

Photo Z3-012C



2015 Photo

IWL-068-003

Photo Z3-013



2015 Photo

IWL-068-003

Photo Z3-013A

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

Plant: IPEC -- Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001

Component No: VCC-11 Zone No: 004 Drawing No.: 320792

Description: EL. 68' – EL. 88' Work Order No: 52488501

Equipment Used: Stanley SL5HS Light Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
Abrasion or erosion degradation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Pop outs and voids	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6, 8
Scaling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Spalls	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9
Cracks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2, 3
Exposed reinforcing steel	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Deteriorating of concrete coating, if applicable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other (bugholes, abandoned anchors)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3, 7

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / *JR* Date: 10/5/15 Examined By: R. Latorue / *R. Latorue* Date: 09/29/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:

Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / *Richard Drake* Date: 12/18/15
 Print/Signature/Level

Site Level Review: John Kroelits / *John Kroelits* Date: 9/29/15
 Print/Signature/Level

ANII Review: Allan Schiaffino / *Allan Schiaffino* Date: 11/17/15
 Print/Signature

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

STATION/UNIT: IPEC / Indian Point No. 2 COMPONENT NO. : VCC – 11

ZONE No: 004

No.	Comment	Initials
1	An area approximately 20' x 8' was not visible for direct visual examination due to obstruction by electrical cabinets.	JK
2	Joint cracking approximately 10' long. Repair to cracked joint is beginning to flake off. See photos Z4-006, Z4-006A, Z4-006B and Z4-006C.	JK
3	General pattern cracking and bugholes. The condition was previously identified. See photos Z4-007, Z4-007A, Z4-007B and Z4-007C.	JK
4	Staining from previous leaching (~18" long) is visible from a patched popout area.	JK
5	6" x 8" area of failed coating on the Mezzanine. Minor degradation to concrete surface in this area has been painted over but is peeling / flaking. See photos Z4-008 and Z4-008A.	JK
6	1" dia. hole appears to be manmade at ceiling line where wall juts out. See photo Z4-009.	JK
7	Several drop-in anchors have been abandoned in-place in the alley between Containment and the Fan House. The anchors were used to erect scaffold around the vent stack. Leaving the anchors will not jeopardize containment integrity. See photo Z4-010 (typical).	JK
8	1-1/2" diameter void with no rust staining evident behind vent stack in alley. See photos Z4-011 and Z4-011A.	JK
9	Surface discoloration from metal inserts.	JK



2015 Photo

IWL-068-004

Photo Z4-006



2015 Photo

IWL-068-004

Photo Z4-006A



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2010 Photo

IWL-068-004

Photo Z4-006B



2005 Photo

IWL-068-004

Photo Z4-006C



2015 Photo

IWL-068-004

Photo Z4-007



2010 Photo

IWL-068-004

Photo Z4-007A



2010 Photo

IWL-068-004

Photo Z4-007B



2010 Photo

IWL-068-004

Photo Z4-007C



2015 Photo

IWL-068-004

Photo Z4-008



2010 Photo

IWL-068-004

Photo Z4-008A



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2010 Photo

IWL-068-004

Photo Z4-009



2015 Photo

IWL-068-004

Photo Z4-0010



2015 Photo

IWL-068-004

Photo Z4-011



2010 Photo

IWL-068-004

Photo Z4-011A

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001

Component No: VCC-12 Zone No: 001 Drawing No.: 320792

Description: EL. 88' – EL. 108' Work Order No: 52488501

Equipment Used: Celestron Giant 20x80 Binoculars Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Abrasion or erosion degradation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
Pop outs and voids	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1, 6
Scaling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Spalls	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Cracks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3, 4
Exposed reinforcing steel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)
 Examined By: J. Ruch / [Signature] Date: 12/15/15 Examined By: R. Latortue / [Signature] Date: 09/29/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:

Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / [Signature] Date: 12/18/15
 Print/Signature/Level
 Site Level Review: John Kroells / [Signature] Date: 09/29/15
 Print/Signature/Level
 ANII Review: Allan Schiaffino / [Signature] Date: 12/15/15
 Print/Signature



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2015 Photo

IWL-088-001

Photo Z1-012

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001

Component No: VCC-13 Zone No: 002 Drawing No.: 320792

Description: EL. 88' – EL. 108' Work Order No: 52488501

Equipment Used: Celestron Giant 20x80 Binoculars Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Abrasion or erosion degradation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3
Pop outs and voids	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3
Scaling	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1, 3
Spalls	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Cracks	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RI: 3, 7 NRI: 4, 5
Exposed reinforcing steel	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other (Miscellaneous embedded steel)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2, 6

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / *JR* Date: 12/5/15 Examined By: R. Latortue / *R. Latortue* Date: 09/29/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:

Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / *Richard Drake* Date: 12/21/15
 Print/Signature/Level

Site Level Review: John Kroells / *John Kroells* Date: 9/29/15
 Print/Signature/Level

ANII Review: Allan Schiaffino / *AS* Date: 12/15/15
 Print/Signature

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

STATION/UNIT: IPEC / Indian Point No. 2 COMPONENT NO. : VCC – 13

ZONE No: 002

No.	Comment	Initials
1	An area approximately 4' long by 1' high near the top of the section and in line with the southern-most relief valve silencer has aggregate exposed due to loss of surface paste and has remained in the same condition since the 2000 inspection. See photo Z2-027 .	JK
2	Misc. steel on horizontal form line between the middle relief valve silencers. Approximately 3" long. See photo Z2-028 .	JK
3	Large crack from spall approximately 4' long with abrasion, scaling, and a 2" diameter hole. This was noted in the previous inspection.	JK
4	Tight crack found in a joint between El. 103' and El. 108'. This was noted in the previous inspection.	JK
5	General tight joint cracks along El. 108'. This was noted in the previous inspection.	JK
6	Miscellaneous steel at roof level, approximately 4' to the left of the roof edge. See photo Z2-029 .	JK
7	Vertical cracking through bottom 3 rows at south side. Some pattern cracking. See photos Z2-030 and Z2-030A .	JK



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2010 Photo

IWL-088-002

Photo Z2-027



2015 Photo

IWL-088-002

Photo Z2-028



2015 Photo

IWL-088-002

Photo Z2-029



2015 Photo

IWL-088-002


Photo Z2-030



2015 Photo

IWL-088-002

Photo Z2-030A

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001

Component No: VCC-14 Zone No: 003 Drawing No.: 320792

Description: EL. 88' – EL. 108' Work Order No: 52488501

Equipment Used: Celestron Giant 20x80 Binoculars Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Abrasion or erosion degradation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Pop outs and voids	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Scaling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Spalls	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Cracks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5
Exposed reinforcing steel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1, 2
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other (Bugholes)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / [Signature] Date: 12/5/15 Examined By: R. Latorue / [Signature] Date: 09/29/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:

Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / [Signature] Date: 12/20/15
 Print/Signature/Level

Site Level Review: John Kroells / [Signature] Date: 9/29/15
 Print/Signature/Level

ANII Review: Allan Schiaffino / [Signature] Date: 12/15/15
 Print/Signature

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001
 Component No: VCC-14 Zone No: 003 Drawing No.: 320792
 Description: EL. 88' – EL. 108' Work Order No: 52488501
 Equipment Used: Celestron Giant 20x80 Binoculars Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Abrasion or erosion degradation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Pop outs and voids	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Scaling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Spalls	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Cracks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5
Exposed reinforcing steel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1, 2
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other (Bugholes)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

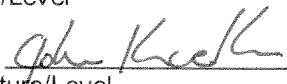
Examined By: J. Ruch / Date: _____ Examined By: R. Latortue / Date: _____
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:

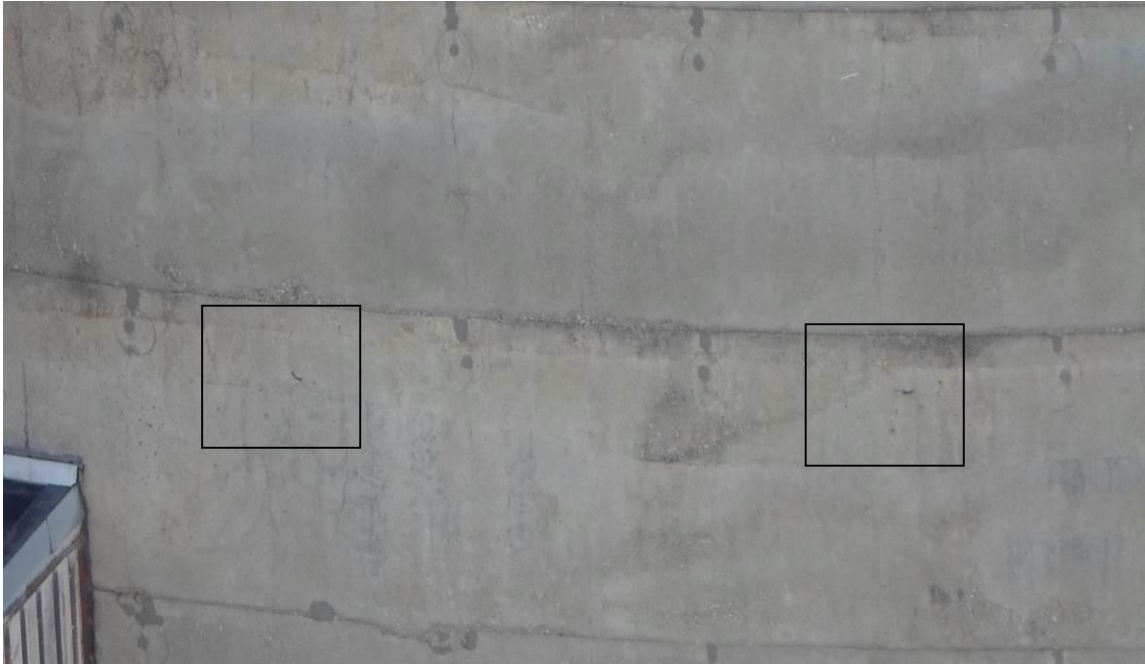
Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / Date: _____
 Print/Signature/Level

Site Level Review: John Kroells /  Date: 9/29/15
 Print/Signature/Level

ANII Review: Allan Schiaffino / Date: _____
 Print/Signature



2015 Photo

IWL-088-003

Photo Z3-014



2010 Photo

IWL-088-003

Photo Z3-014A



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IP-RPT-15-00029

REV. 0

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2010 Photo

IWL-088-003


Photo Z3-014B



2015 Photo

IWL-088-003

Photo Z3-015

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001

Component No: VCC-15 Zone No: 004 Drawing No.: 320792

Description: EL. 88' – EL. 108' Work Order No: 52488501

Equipment Used: Celestron Giant 20x80 Binoculars Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
Abrasion or erosion degradation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Pop outs and voids	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
Scaling	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5
Spalls	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3, 4
Cracks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1, 2
Exposed reinforcing steel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / *JR* Date: 10/5/15 Examined By: R. Latortue / *R Latortue* Date: 09/29/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:

Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / *Richard Drake* Date: 12/21/15
 Print/Signature/Level

Site Level Review: John Kroells / *John Kroells* Date: 9/29/15
 Print/Signature/Level

ANII Review: Allan Schiaffino / *AS* Date: 12/15/15
 Print/Signature

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

STATION/UNIT: IPEC / Indian Point No. 2 COMPONENT NO. : VCC – 15

ZONE No: 004

No.	Comment	Initials
1	General pattern cracking and discoloration over concrete surface.	JK
2	2' long crack with minor leaching from top of construction opening closure grout. Several small vertical cracks are surrounding this area. Minimal leaching from the top edge of the grout. All cracks are hairline and leaching is minor. Leaching is not changed for several inspections so it is considered inactive and not recordable. See photos Z4-012A and Z4-013.	JK
3	<p>Note: See photos Z4-012, Z4-012A and Z4-012B for general area of this section.</p> <ul style="list-style-type: none"> - Exposed cadweld (9" x 3") with additional spalled concrete at El. 103'. Steel was coated in 2009. See photos Z4-012, Z4-012A, Z4-012B and Z4-014. - Exposed miscellaneous steel (1" long) at El. 104'. Steel was coated in 2009. Popping out slightly more since the previous inspection and appears to be a cadweld. See photos Z4-012, Z4-012A, Z4-012B and Z4-015. - Exposed cadweld (9" x 3") with additional spalled concrete at El. 105'. Steel was coated in 2009. See photos Z4-012, Z4-012A, Z4-012B and Z4-016. - Exposed embedded wire rope (1/2" dia x 6" long) at El. 105'. Steel was coated in 2009. See photos Z4-012A and Z4-017. - Exposed cadweld (9" x 2") with additional spalled concrete at El. 106'. Steel was coated in 2009. See photos Z4-012, Z4-012A, Z4-012B and Z4-018. - Exposed cadweld (9" x 3") with additional spalled concrete at El. 107'. Steel was coated in 2009. See photos Z4-012, Z4-012A, Z4-012B and Z4-019. <p>Exposed miscellaneous steel (1" long) previously identified as located at El. 104' is actually at El. 109' and has been moved to the next section.</p>	JK
4	Approximately 5 bugholes with rust streaks and local spalling occur between El. 107' and El. 108'. Update => Only 1 bughole remains visible during the 2010 inspection due to the coating efforts in 2009. The rust streak is minimal.	JK
5	Scaling (12" x 5") at El. 107' in cluster of exposed cadwelds listed above. See photos Z4-012, Z4-012A and Z4-012B.	JK



2015 Photo

IWL-088-004

Photo Z4-012



2010 Photo

IWL-088-004

Photo Z4-012A



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2005 Photo

IWL-088-004

Photo Z4-012B



2015 Photo

IWL-088-004

Photo Z4-013



2009 Photo

IWL-088-004

Photo Z4-014



2009 Photo

IWL-088-004

Photo Z4-015



2009 Photo

IWL-088-004

Photo Z4-016



2009 Photo

IWL-088-004

Photo Z4-017



2009 Photo

IWL-088-004



Photo Z4-018



2009 Photo

IWL-088-004

Photo Z4-019

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001

Component No: VCC-16 Zone No: 005 Drawing No.: 320792

Description: EL. 78' – EL. 108' Work Order No: 52488501

Equipment Used: None Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Abrasion or erosion degradation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Pop outs and voids	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
Scaling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Spalls	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
Cracks	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Exposed reinforcing steel	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2, 4


(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch /  Date: 10/5/15 Examined By: R. Latortue /  Date: 9/29/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:

Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake /  Date: 12/21/15
 Print/Signature/Level

Site Level Review: Victor Dittrich /  Lvl II Date: 9-28-15
 Print/Signature/Level

ANII Review: Allan Schiaffino /  Date: 12/15/15
 Print/Signature

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

STATION/UNIT: IPEC / Indian Point No. 2 COMPONENT NO. : VCC – 16

ZONE No: 005

No.	Comment	Initials
1	Three sets of two popouts (approx. 2" dia.) behind the duct (approx. El. 97', El. 102' and El. 107') possibly from unfilled form ties or drilled holes. See photo Z5-001.	<i>AWD 9-28-15</i>
2	Exposed aggregate due to loss of matrix from initial vibration. Cement paste streaks due to improper form work installation is visible. Rust stains appear from surface mounted steel. No change since 2005 inspection. See photos Z5-002, Z5-002A, Z5-002B and Z5-002C.	<i>AWD 9-28-15</i>
3	An additional 10' of inspected elevation (El. 78' – 88') was added to this component and pertain to comment 2 above.	<i>AWD 9-28-15</i>
4	Drop-in anchors were installed to allow scaffold to be built for painting of the vent stack. See sample photos Z5-002A and Z5-002B.	<i>AWD 9-28-15</i>



2015 Photo

IWL-088-005

Photo Z5-001



2015 Photo

IWL-088-005

Photo Z5-002



2015 Photo

IWL-088-005

Photo Z5-002A



2010 Photo

IWL-088-005

Photo Z5-002B



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2005 Photo

IWL-088-005

Photo Z5-002C

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001
 Component No: VCC-17 Zone No: 006 Drawing No.: 320792
 Description: EL. 88' – EL. 108' Work Order No: 52488501
 Equipment Used: None Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2, 5
Abrasion or erosion degradation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
Pop outs and voids	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Scaling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Spalls	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Cracks	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RI: 5, NRI:2
Exposed reinforcing steel	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3 (Vegetation)

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / *JR* Date: 10/5/15 Examined By: R. Latortue / *R. Latortue* Date: 9/29/2015
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:

Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / *Richard Drake* Date: 12/21/15
 Print/Signature/Level

Site Level Review: Victor Dittrich / *Victor A. Dittrich* Lv II Date: 9-28-15
 Print/Signature/Level

ANII Review: Allan Schiaffino / *AS* Date: 12/15/15
 Print/Signature

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

STATION/UNIT: IPEC / Indian Point No. 2 COMPONENT NO. : VCC – 17

ZONE No: 006

No.	Comment	Initials
1	8' long horizontal crack at El. 91' identified in past inspection. Inspected up close and appears to only be a pour line and is not a structural concern. See photo Z6-001	<i>AMD 9-28-15</i>
2	General pattern cracking, abrasion, and leaching between El. 88' and El. 95'. These deficiencies were previously identified in 2005. All are minor and show no evidence of being active or worsening.	<i>AMD 9-28-15</i>
3	Vegetation growth on the component is very minor only	<i>AMD 9-28-15</i>
4	2" long exposed rebar at El. 93' near hatch area. See photo Z6-002	<i>AMD 9-28-15</i>
5	6' Tall vertical crack on equipment hatch protrusion area. Up to 1/32" wide. Some leaching from the lower portion of the crack. See photo Z6-003	<i>AMD 9-28-15</i>



IPEC

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REV. 0

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2015 Photo

IWL-088-006

Photo Z6-001



2015 Photo

IWL-088-006


Photo Z6-002



2015 Photo

IWL-088-006

Photo Z6-003

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001

Component No: VCC-18 Zone No: 001 Drawing No.: 320792

Description: EL. 108' – EL. 128' Work Order No: 52488501

Equipment Used: Celestron Giant 20x80 Binoculars Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2, 3, 4
Abrasion or erosion degradation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Pop outs and voids	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
Scaling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Spalls	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Cracks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5
Exposed reinforcing steel	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / *JR* Date: 10/5/15 Examined By: R. Latortue / *R. Latortue* Date: 09/27/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:

Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / *Richard Drake* Date: 12/21/15
 Print/Signature/Level Print/Signature/Level

Site Level Review: John Kroells / *John Kroells* Date: 9/29/15
 Print/Signature/Level Print/Signature/Level

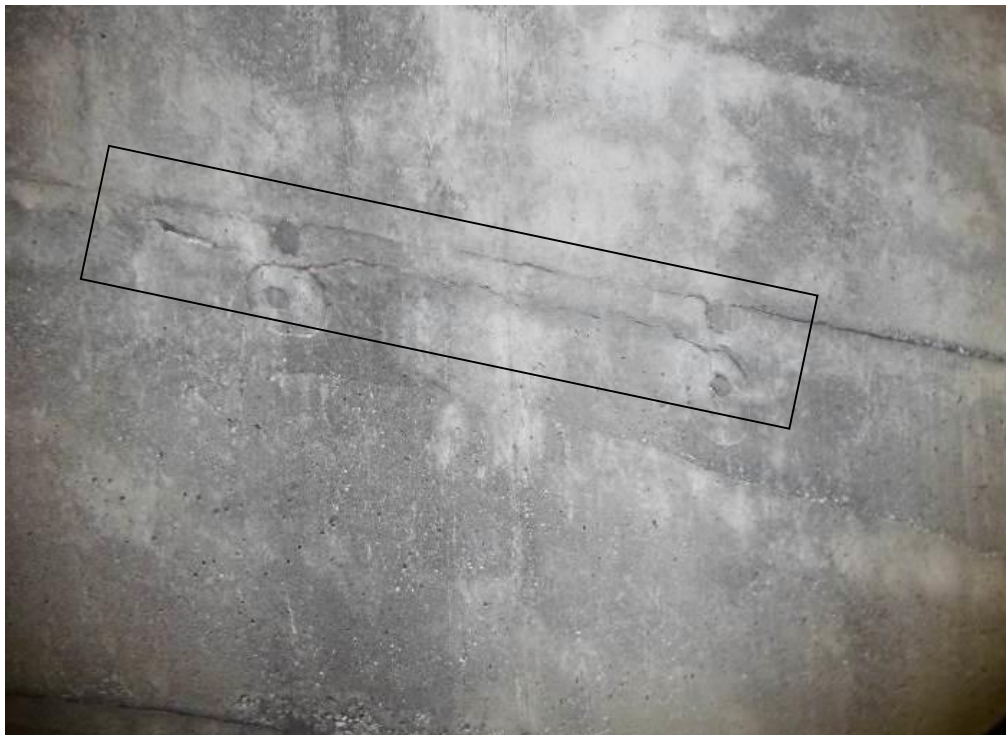
ANII Review: Allan Schiaffino / *AS* Date: 12/15/15



2015 Photo

IWL-108-001


Photo Z1-013



2015 Photo

IWL-108-001

Photo Z1-014

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

Plant: IPEC - Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001

Component No: VCC-19 Zone No: 002 Drawing No.: 320792

Description: EL. 108' - EL. 128' Work Order No: 52488501

Equipment Used: Celestron Giant 20x80 Binoculars Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3, 6
Abrasion or erosion degradation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3
Pop outs and voids	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3
Scaling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Spalls	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1, 2, 3, 4, 7
Cracks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4, 5, 8
Exposed reinforcing steel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / [Signature] Date: 10/5/15 Examined By: R. Latorue / [Signature] Date: 09/29/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:

Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / [Signature] Date: 12/21/15
 Print/Signature/Level

Site Level Review: John Kroells / [Signature] Date: 9/29/15
 Print/Signature/Level

ANII Review: Allan Schiaffino / [Signature] Date: 12/15/15
 Print/Signature

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

STATION/UNIT: IPEC / Indian Point No. 2 COMPONENT NO. : VCC – 19

ZONE No: 002

No.	Comment	Initials
1	Exposed cadweld (approx. 9" long) with corrosion apparently due to inadequate cover. The concrete directly above was noted as ready to fall in the previous inspection but there is no change in condition since the 2005 inspection. See photos Z2-031, Z2-031A and Z2-031B.	JK
2	A small spot of corrosion appears on the concrete surface, it is not apparent whether this is reinforcing steel, a cadweld, or miscellaneous steel. No notable change since previous inspection. See photos Z2-031, Z2-031A and Z2-032.	JK
3	A small spot of corrosion appears on the concrete surface, it is not apparent whether this is reinforcing steel, a cadweld, or miscellaneous steel. Additional degradation in the immediate vicinity includes some abrasion, leaching, honeycomb and 8 popouts (2 roughly 1" dia, and 6 smaller). There has been no change since the previous inspection. (Note: This area is on the border of zones 1 and 2.) See photos Z2-033 and Z2-033A.	JK
4	Minor rust and joint cracking appears along El. 117'. This was noted in the previous inspection.	JK
5	The concrete directly above the area in (comment 4) has pattern cracking and bugholes. This was noted in the previous inspection.	JK
6	Leaching is evident approximately 18" long extending downward from the construction joint. This remains unchanged from the previous inspection. (Note: This area is on the border of zones 1 and 2.) See photos Z2-033A and Z2-034.	JK
7	Spalling occurred along the joint at El. 122' near the left side of the zone. Rusting is visible at patch above the scaffold pad and along the joint at what could be embedded steel. This was noted in the previous inspection. See photo Z2-035.	JK
8	Minor cracking at form marks above the two northern silencers at El. 123'.	JK



2015 Photo

IWL-108-002

Photo Z2-031



2010 Photo

IWL-108-002

Photo Z2-031A



2005 Photo

IWL-108-002

Photo Z2-031B



2010 Photo

IWL-108-002

Photo Z2-032



2015 Photo

IWL-108-002

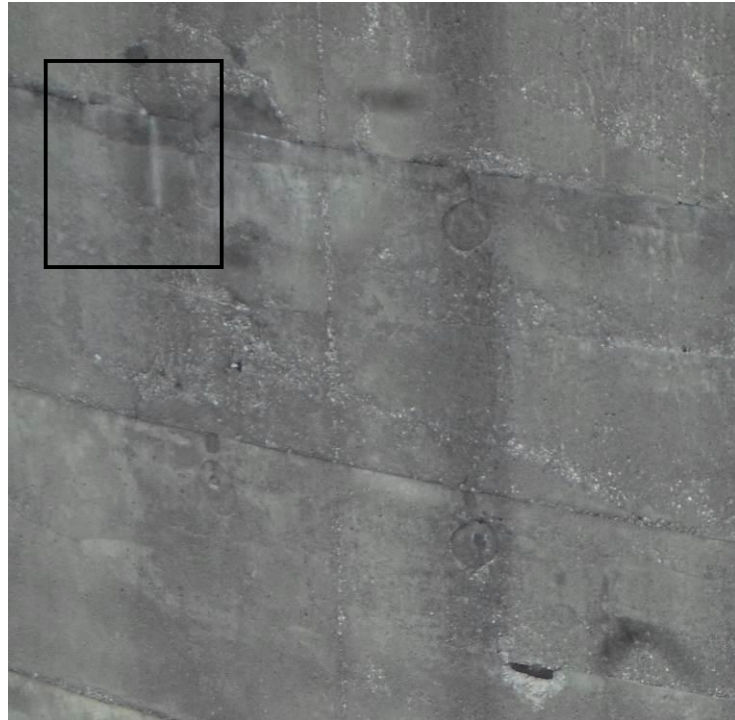
Photo Z2-033



2010 Photo

IWL-108-002

Photo Z2-33A



2015 Photo

IWL-108-002


Photo Z2-034



2015 Photo

IWL-108-002

Photo Z2-035

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001

Component No: VCC-20 Zone No: 003 Drawing No.: 320792

Description: EL. 108' – EL. 128' Work Order No: 52488501

Equipment Used: Celestron Giant 20x80 Binoculars Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Abrasion or erosion degradation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Pop outs and voids	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12
Scaling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Spalls	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1-7, 9-11, 13, 14
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1-7, 9-12
Cracks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8
Exposed reinforcing steel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1-11, 13, 14
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)


Examined By: J. Ruch / [Signature] Date: 10/5/15 Examined By: R. Latorue / [Signature] Date: 09/29/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:

Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / [Signature] Date: 12/21/15
 Print/Signature/Level
 Site Level Review: John Kroells / [Signature] Date: 9/29/15
 Print/Signature/Level
 ANII Review: Allan Schiaffino / [Signature] Date: 12/15/15
 Print/Signature

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

STATION/UNIT: IPEC / Indian Point No. 2 COMPONENT NO. : VCC – 20

ZONE No: 003

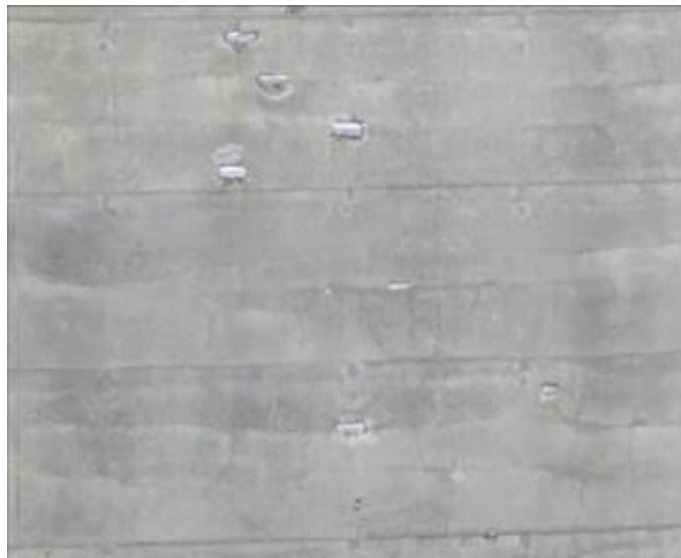
No.	Comment	Initials
1	Exposed cadweld (10" x 3") with additional spalled concrete at El. 109'. Steel was coated in 2009. No notable change in condition since last inspection. See photos Z3-016, Z3-017 and Z3-017A.	JK
2	Exposed miscellaneous steel (1" diameter) at El. 113'. Steel was coated in 2009. No notable change in condition since last inspection. See photos Z3-018 and Z3-019.	JK
3	Exposed miscellaneous steel (1" long) at El. 114'. Steel was coated in 2009. Minor spalling appears to have continued since previous inspection. See photos Z3-018 and Z3-020.	JK
4	Exposed cadweld (8" x 3") at El. 115'. Cadweld is not coated and is newly exposed since the last inspection. See photos Z3-016 and Z3-018.	JK
5	Exposed cadweld (10" x 3") with additional spalled concrete at El. 116'. Steel was coated in 2009. No notable change in condition since last inspection. See photos Z3-016, Z3-016A and Z3-021.	JK
6	Exposed cadweld (5" x 2") at El. 117'. Steel was coated in 2009. No notable change in condition since last inspection. See photos Z3-016, Z3-016A and Z3-022.	JK
7	Exposed rebar (7" x 1-1/2") at El. 120'. Steel was coated in 2009. Additional horizontal cracking has occurred at this location approx. 2-3' long. See photos Z3-016, Z3-016A, Z3-023 and Z3-023A.	JK
8	4 bugholes along a minor horizontal crack ~ 20 mils wide. The condition has not further degraded since the 2009 inspection. The exposed miscellaneous steel (1" long) at El. 120' was coated in 2009. Just left of rebar in comment #7. See photos Z3-023, Z3-023A, Z3-024 and Z3-024A.	JK
9	Two exposed cadwelds (9" x 3") with additional spalled concrete at El. 124'. Steel was coated in 2009. No notable change in condition since last inspection. See photos Z3-016, Z3-016A, Z3-025 and Z3-025A.	JK
10	Exposed cadweld (10" x 3") with additional spalled concrete at El. 125'. Steel was coated in 2009. No notable change in condition since last inspection. See photos Z3-016, Z3-016A and Z3-026.	JK
11	Exposed cadweld (10" x 3") with additional spalled concrete at El. 127'. Steel was coated in 2009. No notable change in condition since last inspection. See photos Z3-016, Z3-016A and Z3-027.	JK
12	Corrosion staining from 1 1/2" void hole. The corrosion staining and the void have remained the same since 2005. The void was coated in 2009.	JK
13	Exposed vertical rebar at El. 109' near the right side of the zone. See photo Z3-028.	JK
14	Exposed cadweld at El. 127' on the far right side of the zone. The steel is coated.	JK



2015 Photo

IWL-108-003

Photo Z3-016



2009 Photo

IWL-108-003

Photo Z3-016A



2015 Photo

IWL-108-003

Photo Z3-017



2009 Photo

IWL-108-003

Photo Z3-017A



2015 Photo

IWL-108-003

Photo Z3-018



2009 Photo

IWL-108-003

Photo Z3-019



2009 Photo

IWL-108-003

Photo Z3-020



2009 Photo

IWL-108-003

Photo Z3-021



2009 Photo

IWL-108-003

Photo Z3-022



2015 Photo

IWL-108-003

Photo Z3-023



2009 Photo

IWL-108-003

Photo Z3-023A



2009 Photo

IWL-108-003

Photo Z3-024



2005 Photo

IWL-108-003

Photo Z3-024A



2009 Photo

IWL-108-003

Photo Z3-025



2009 Photo

IWL-108-003

Photo Z3-025A



2009 Photo

IWL-108-003

Photo Z3-026



2009 Photo

IWL-108-003

Photo Z3-027



2015 Photo

IWL-108-003

Photo Z3-028



IPEC

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REV. 0

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

Plant: IPEC - Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001

Component No: VCC-21 Zone No: 004 Drawing No.: 320792

Description: EL. 108' - EL. 128' Work Order No: 52488501

Equipment Used: Celestron Giant 20x80 Binoculars Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Abrasion or erosion degradation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Pop outs and voids	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3
Scaling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Spalls	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1, 2
Cracks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
Exposed reinforcing steel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other (bugholes)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / [Signature] Date: 12/15/15 Examined By: R. Latortue / [Signature] Date: 12/15/15

Responsible Engineer Review:



Acceptable: Yes [checked] No [] (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / [Signature] Date: 12/15/15

Site Level Review: Victor Dittrich / [Signature] Date: 12/15/15

ANII Review: Allan Schiaffino / [Signature] Date: 12/15/15

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

STATION/UNIT: IPEC / Indian Point No. 2 COMPONENT NO. : VCC – 21

ZONE No: 004

No.	Comment	Initials
1	<p>Refer to photos Z4-020, Z4-020A and Z4-020B for general area / arrangement</p> <ul style="list-style-type: none"> - Exposed miscellaneous steel (1" long) at El. 109'. Previously identified as located at El. 104' in lower section. Steel was coated in 2009. See photo Z4-021. - Exposed cadweld (10" x 2") at Elevation 109'. Steel was coated in 2009. See photos Z4-022 and Z4-022A. - Exposed cadweld (9" x 3") at Elevation 110' with additional spalled concrete above and below and a tight crack vertically down from bottom approx. 20". Steel was coated in 2009. See photos Z4-023 and Z4-023A. - Exposed cadweld (10" x 3") at Elevation 111' with some cracking and 1" dia. exposed misc. steel just to the right. Cadweld was coated in 2009. See photos Z4-024 and Z4-024A. - Exposed cadweld (9" x 2") with additional spalled concrete at Elevation 113'. Steel was coated in 2009. See photos Z4-025 and Z4-025A. - Exposed cadweld (4" x 2") at Elevation 114'. Steel was coated in 2009. Right side continues to crack and push out slightly. See photos Z4-026 and Z4-026A. - Exposed cadweld (5" x 2") with additional spalled concrete at Elevation 115'. Steel was coated in 2009. See photos Z4-027 and Z4-027A. - Exposed miscellaneous steel (2" long) at Elevation 117'. Steel was coated in 2009. See photo Z4-028. - Exposed cadweld (10" x 3") with additional spalled concrete at Elevation 117'. Steel was coated in 2009. See photos Z4-029 and Z4-029A. - Exposed cadweld (2" x 1-1/2" & 1-1/2" x 1-1/2") at Elevation 119'. Steel was coated in 2009. See photos Z4-030 and Z4-030A. - Exposed cadweld previously identified as rebar (1-1/2" x 1-1/2") at Elevation 120'. Steel was coated in 2009. Left side appears to continue to crack and push out. See photos Z4-031 and Z4-031A. - Area beginning to spall at El. 117' near right side of zone below lightning arrestor. Based on size and shape appears to be cadweld. See photo Z4-032. - Exposed miscellaneous steel (1/2" diameter) at Elevation 126'. Steel was coated in 2009. See photo Z4-033. - Exposed cadweld (9" x 3") with additional spalled concrete at Elevation 127'. Steel was coated in 2009. See photo Z4-034. 	<p><i>AWD 9-28-15</i></p>
2	General bugholes appear over area (some with rust).	<p><i>AWD 9-28-15</i></p>
3	Void, 1" diameter, at form tie just above corner of Fan House roof (El. 112'). There is no visible rust staining and no exposed steel. See photo Z4-035.	<p><i>AWD 9-28-15</i></p>



2015 Photo

IWL-108-004

Photo Z4-020



2010 Photo

IWL-108-004

Photo Z4-020A



2015 Photos

IWL-108-004

Photo Z4-020B



2009 Photo

IWL-108-004

Photo Z4-021



2009 Photo

IWL-108-004

Photo Z4-022



2015 Photo

IWL-108-004

Photo Z4-022A



2009 Photo

IWL-108-004

Photo Z4-023



2015 Photo

IWL-108-004

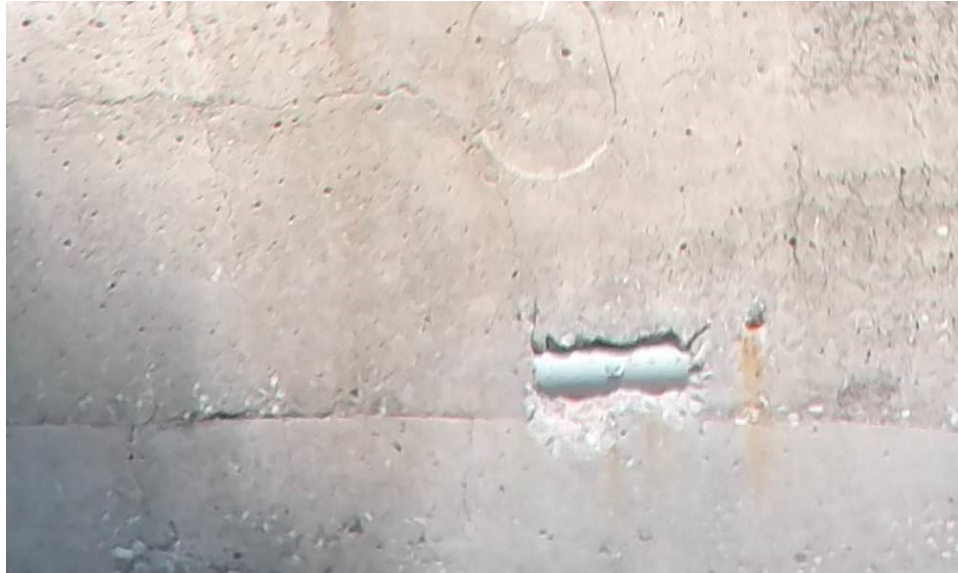
Photo Z4-023A



2009 Photo

IWL-108-004

Photo Z4-024



2015 Photo

IWL-108-004

Photo Z4-024A



2009 Photo

IWL-108-004

Photo Z4-025



2015 Photo

IWL-108-004

Photo Z4-025A



2009 Photo

IWL-108-004

Photo Z4-026



2015 Photo

IWL-108-004

Photo Z4-026A



2009 Photo

IWL-108-004

Photo Z4-027



2015 Photo

IWL-108-004

Photo Z4-027A



2009 Photo

IWL-108-004

Photo Z4-028



2009 Photo

IWL-108-004

Photo Z4-029



2015 Photo

IWL-108-004

Photo Z4-029A



2009 Photo

IWL-108-004

Photo Z4-030



2015 Photo

IWL-108-004

Photo Z4-030A



2009 Photo

IWL-108-004

Photo Z4-031



2015 Photo

IWL-108-004

Photo Z4-031A



2015 Photo

IWL-108-004

Photo Z4-032



2009 Photo

IWL-108-004

Photo Z4-033



2009 Photo

IWL-108-004



Photo Z4-034



2015 Photo

IWL-108-004

Photo Z4-035

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001

Component No: VCC-22 Zone No: 005 Drawing No.: 320792

Description: EL. 108' – EL. 128' Work Order No: 52488501

Equipment Used: Celestron Giant 20x80 Binoculars Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Abrasion or erosion degradation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Pop outs and voids	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Scaling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Spalls	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Cracks	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Exposed reinforcing steel	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / JR / NA Date: 10/5/15 Examined By: R. Latortue / R. Latortue / NA Date: 9/29/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:

Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / Robert Drake / NA Date: 12/15/15
 Print/Signature/Level

Site Level Review: Victor Dittrich / Victor W. Dittrich / LVII Date: 9-28-15
 Print/Signature/Level

ANII Review: Allan Schiaffino / Allan Schiaffino / NA Date: 12/15/15
 Print/Signature

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001
 Component No: VCC-23 Zone No: 006 Drawing No.: 320792
 Description: EL. 108' – EL. 128' Work Order No: 52488501
 Equipment Used: Celestron Giant 20x80 Binoculars Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5
Abrasion or erosion degradation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Pop outs and voids	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Scaling	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
Spalls	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
Cracks	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5
Exposed reinforcing steel	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other (discoloration)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / [Signature] Date: 10/5/15 Examined By: R. Latortue / [Signature] Date: 9/29/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:

Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / [Signature] Date: 12/18/15
 Print/Signature/Level

Site Level Review: Victor Dittrich / [Signature] LVII Date: 9-28-15
 Print/Signature/Level

ANII Review: Allan Schiaffino / [Signature] Date: 12/15/15
 Print/Signature



2015 Photo

IWL-108-006

Photo Z6-004



2010 Photo

IWL-108-006

Photo Z6-004A



2015 Photo

IWL-108-006

Photo Z6-005



2015 Photo

IWL-108-006

Photo Z6-006



2015 Photo

IWL-108-006


Photo Z6-007



2015 Photo

IWL-108-006

Photo Z6-007A

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001

Component No: VCC-24 Zone No: 001 Drawing No.: 320792

Description: EL. 128' – EL. 148' Work Order No: 52488501

Equipment Used: Celestron Giant 20x80 Binoculars Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6, 7
Abrasion or erosion degradation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Pop outs and voids	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Scaling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Spalls	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1, 2, 3, 4
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1, 2, 3, 4
Cracks	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Exposed reinforcing steel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1, 2, 3, 4
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / *JR* Date: 4/5/15 Examined By: R. Latortue / *R. Latortue* Date: 09/29/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:


Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / *Robert Drake* Date: 12/21/15
 Print/Signature/Level

Site Level Review: John Kroells / *John Kroells* Date: 9/29/15
 Print/Signature/Level

ANII Review: Allan Schiaffino / *Allan Schiaffino* Date: 12/15/15
 Print/Signature

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

STATION/UNIT: IPEC / Indian Point No. 2 COMPONENT NO. : VCC – 24

ZONE No: 001

No.	Comment	Initials
1	Exposed cadweld (9" x 3") with additional spalled concrete at El. 144'. Coating that was applied in 2009 is beginning to crack and degrade. See photos Z1-015 and Z1-016.	JK
2	Exposed cadweld (9" x 3") at El. 136'. Coating that was applied in 2009 is beginning to crack and degrade. See photos Z1-015 and Z1-017.	JK
3	Exposed cadweld (9" x 3") with additional spalled concrete at El. 134'. Coating that was applied in 2009 is beginning to crack and degrade. See photos Z1-015 and Z1-018.	JK
4	Exposed cadweld (9" x 3") with additional spalled concrete at El. 132'. Coating that was applied in 2009 is beginning to crack and degrade. See photos Z1-015 and Z1-019.	JK
5	Exposed miscellaneous steel at El. 142'. Coating that was applied in 2009 is beginning to crack and degrade. See photos Z1-015 and Z1-020.	JK
6	Minor leaching stains from construction joints. The leaching was previously identified and shows no signs of further degradation indicating that the leaching is currently inactive.	JK
7	Minor leaching near scaffold pads on the first row of the section.	JK



2015 Photo

IWL-128-001

Photo Z1-015



2009 Photo

IWL-128-001

Photo Z1-016



2009 Photo

IWL-128-001

Photo Z1-017



2009 Photo

IWL-128-001

Photo Z1-018



2009 Photo

IWL-128-001

Photo Z1-019



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2009 Photo

IWL-128-001

Photo Z1-020

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001
 Component No: VCC-25 Zone No: 002 Drawing No.: 320792
 Description: EL. 128' – EL. 148' Work Order No: 52488501
 Equipment Used: Celestron Giant 20x80 Binoculars Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Abrasion or erosion degradation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Pop outs and voids	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Scaling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Spalls	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1 - 8
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1-4, 6-8
Cracks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	13, 14
Exposed reinforcing steel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1-4, 6-8
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other (bugholes)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / *JR* Date: 10/5/15 Examined By: R. Latortue / *R. Latortue* Date: 09/29/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:


Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / *Richard Drake* Date: 12/21/15
 Print/Signature/Level

Site Level Review: John Kroells / *John Kroells* Date: 9/29/15
 Print/Signature/Level

ANII Review: Allan Schiaffino / *Allan Schiaffino* Date: 12/15/15
 Print/Signature

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IP2 ASME Section XI, IWL Concrete Containment Inspection for 2015			

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

STATION/UNIT: IPEC / Indian Point No. 2 COMPONENT NO. : VCC – 25

ZONE No: 002

No.	Comment	Initials
1	Exposed cadweld (4" x 3") with additional spalled concrete at El. 129'. No change in condition since the previous inspection. See photos Z2-036 and Z2-036A.	JK
2	Exposed cadweld (9" x 3") with additional spalled concrete at El. 144'. No significant change in condition since the previous inspection. See photos Z2-037 and Z2-037A.	JK
3	Exposed cadweld (4" x 2") with additional spalled concrete at El. 145'. No significant change in condition since the previous inspection. See photos Z2-037 and Z2-037A.	JK
4	Exposed cadweld at El. 146'. The right end remains 1" diameter and the left end is increased to 2" diameter with some additional spalling below. It is expected to continue to spall to expose the entire cadweld. See photos Z2-037 and Z2-037A.	JK
5	New spall forming just above and right of #4, at El. 147'. Based on the size and shape, it appears to be another cadweld. It is somewhat visible in the 2010 photo but is now clearly spalling. See photos Z2-037 and Z2-037A.	JK
6	Exposed cadweld (9" x 3") with additional spalled concrete at El. 132'. No change in condition since the previous inspection. See photo Z2-038.	JK
7	Exposed cadweld (9" x 2") with additional spalled concrete at El. 141'. Appears to have gotten slightly wider vertically exposing more of the cadweld since the previous inspection. See photo Z2-039.	JK
8	Exposed cadweld (9" x 2") with additional spalled concrete at El. 140'. Appears to have gotten slightly wider vertically exposing more of the cadweld since the previous inspection. See photo Z2-039.	JK
9	Exposed miscellaneous steel at El. 140' and El. 141'. No change in condition since previous inspection.	JK
10	Joint cracking identified in previous inspection along El. 128' is possibly a poor seam along the concrete pour lines.	JK
11	Bugholes appear throughout the entire section.	JK
12	Joint spalls and cracks noted in the previous inspection along El. 133' may just be rough edges of pour lines	JK
13	In the top left corner of the block containing the exposed cadwelds in items 7 and 8 there is some exposed aggregate, some cracking, and a piece of embedded steel.	JK
14	The bottom two rows of the section have pattern cracking on the right side of the section.	JK



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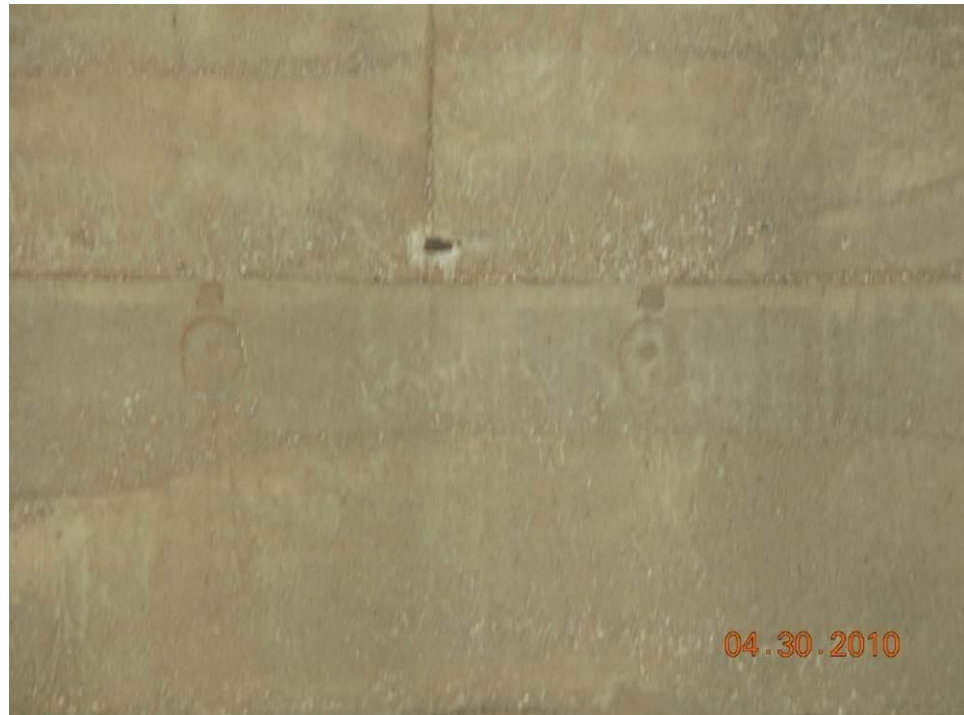
IP2 ASME Section XI, IWL Concrete Containment Inspection for 2015



2015 Photo

IWL-128-002

Photo Z2-036



2010 Photo

IWL-128-002

Photo Z2-036A



IPEC

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IP2 ASME Section XI, IWL Concrete Containment Inspection for 2015



2015 Photo

IWL-128-002

Photo Z2-037



2010 Photo

IWL-128-002

Photo Z2-037A



IPEC

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REV. 0

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2015 Photo

IWL-128-002

Photo Z2-038



2015 Photo

IWL-128-002

Photo Z2-039

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001

Component No: VCC-26 Zone No: 003 Drawing No.: 320792

Description: EL. 128' – EL. 148' Work Order No: 52488501

Equipment Used: Celestron Giant 20x80 Binoculars Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Abrasion or erosion degradation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Pop outs and voids	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Scaling	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
Spalls	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1 (RI), 3 (NRI)
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Cracks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2, 3, 4
Exposed reinforcing steel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other (bugholes, possible rebar ribs)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3, 5

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / *JR* Date: 12/5/15 Examined By: R. Latortue / *R. Latortue* Date: 09/29/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:


Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / *R. Drake* Date: 12/21/15
 Print/Signature/Level

Site Level Review: John Kroells / *John Kroells* Date: 9/29/15
 Print/Signature/Level

ANII Review: Allan Schiaffino / *AS* Date: 12/15/15
 Print/Signature

	IPEC	IP-RPT-15-00029	REV. 0
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FORM VT – 3C
CONTAINMENT INSERVICE INSPECTION
RECORD OF VT – 3 /GENERAL VISUAL EXAMINATION

STATION/UNIT: IPEC / Indian Point No. 2 COMPONENT NO. : VCC – 26

ZONE No: 003

No.	Comment	Initials
1	Refer to photos Z3-029 and Z3-029A for general photos of the following: <ul style="list-style-type: none"> - Exposed cadweld (9" x 3") with additional spalled concrete at El. 129'. Steel was coated in 2009. See photo Z3-032. - Exposed cadweld (4" x 2") with additional spalled concrete at El. 130'. Steel was coated in 2009. There is slightly more cracking since the last inspection. See photos Z3-030 and Z3-033. - Exposed misc. steel (1" dia.) El. 131'. Steel was coated in 2009. Surrounding concrete is degraded and beginning to crack and spall similar to the shape of the cadwelds. See photos Z3-030 and Z3-034. - Exposed cadweld (10" x 2") with additional spalled concrete at El. 132'. Steel was coated in 2009. See photos Z3-030, Z3-031 and Z3-035. - Exposed cadweld (9" x 3") with additional spalled concrete below the joint at El. 133'. Steel was coated in 2009. See photos Z3-030, Z3-031 and Z3-036. - Area beginning to crack and push out at El. 134' that will likely expose a cadweld based on size and shape. See photos Z3-030 and Z3-031. - Exposed cadweld (5" x 3") with additional spalled concrete at El. 135'. Steel was coated in 2009. Concrete is bulging out like it will soon expose the rest of the cadweld. See photos Z3-030, Z3-031 and Z3-037. - Exposed cadweld (10" x 3") with additional spalled concrete at El. 139'. Steel was coated in 2009. See photo Z3-038. - Exposed cadweld (5" x 3") with additional spalled concrete at El. 140'. Steel was coated in 2009. See photo Z3-039. - Exposed cadweld (9" x 3") with additional spalled concrete at El. 141'. Steel was coated in 2009. See photo Z3-040. - Exposed cadweld (5" x 3") with additional spalled concrete at El. 143'. Steel was coated in 2009. See photos Z3-041 and Z3-041A. - Exposed misc. steel (1" long) at El. 144'. Steel was coated in 2009. See photo Z3-042. - Exposed cadweld (9" x 3") with additional spalled concrete at El. 147'. Steel was coated in 2009. See photo Z3-043. - Exposed cadweld (9" x 2") with additional spalled concrete at El. 132' on the far right side. Steel was coated in 2009. See photo Z3-044. - Exposed cadweld (3" x 2") with exposed aggregate at El. 141' on the far right side. Steel was coated in 2009. See photo Z3-045. 	JK
2	General joint cracking, local scaling, and pattern cracking between El. 128' and El. 133'. Especially near right side at El. 130'.	JK
3	General joint cracking, local incipient spalls, and bugholes between El. 133' and El. 138'.	JK
4	General joint cracking and pattern cracking between El. 143' and El. 148'.	JK
5	At El. 134' there are rust spots that resemble ribs on rebar. See photo Z3-031.	JK



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2015 Photo

IWL-128-003

Photo Z3-029



2015 Photo

IWL-128-003

Photo Z3-029A



2015 Photo

IWL-128-003

Photo Z3-030



2015 Photo

IWL-128-003

Photo Z3-031



2009 Photo

IWL-128-003

Photo Z3-032



2009 Photo

IWL-128-003

Photo Z3-033



2009 Photo

IWL-128-003

Photo Z3-034



2009 Photo

IWL-128-003

Photo Z3-035



2009 Photo

IWL-128-003

Photo Z3-036



2009 Photo

IWL-128-003

Photo Z3-037



2009 Photo

IWL-128-003

Photo Z3-038



2009 Photo

IWL-128-003

Photo Z3-039



2009 Photo

IWL-128-003

Photo Z3-040



2009 Photo

IWL-128-003

Photo Z3-041



2005 Photo

IWL-128-003

Photo Z3-041A



2009 Photo

IWL-128-003

Photo Z3-042



2009 Photo

IWL-128-003

Photo Z3-043



2009 Photo

IWL-128-003

Photo Z3-044



2009 Photo

IWL-128-003

Photo Z3-045

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001

Component No: VCC-27 Zone No: 004 Drawing No.: 320792

Description: EL. 128' – EL. 148' Work Order No: 52488501

Equipment Used: Celestron Giant 20x80 Binoculars Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Abrasion or erosion degradation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Pop outs and voids	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Scaling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Spalls	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1, 3
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Cracks	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Exposed reinforcing steel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1, 3
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other (Loss of mortar)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / JAR Date: 12/5/15 Examined By: R. Latortue / R. Latortue Date: 09/29/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:

Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / R. Drake Date: 12/21/15
 Print/Signature/Level

Site Level Review: Victor Dittrich / Victor W. Dittrich Date: 9-28-15
 Print/Signature/Level

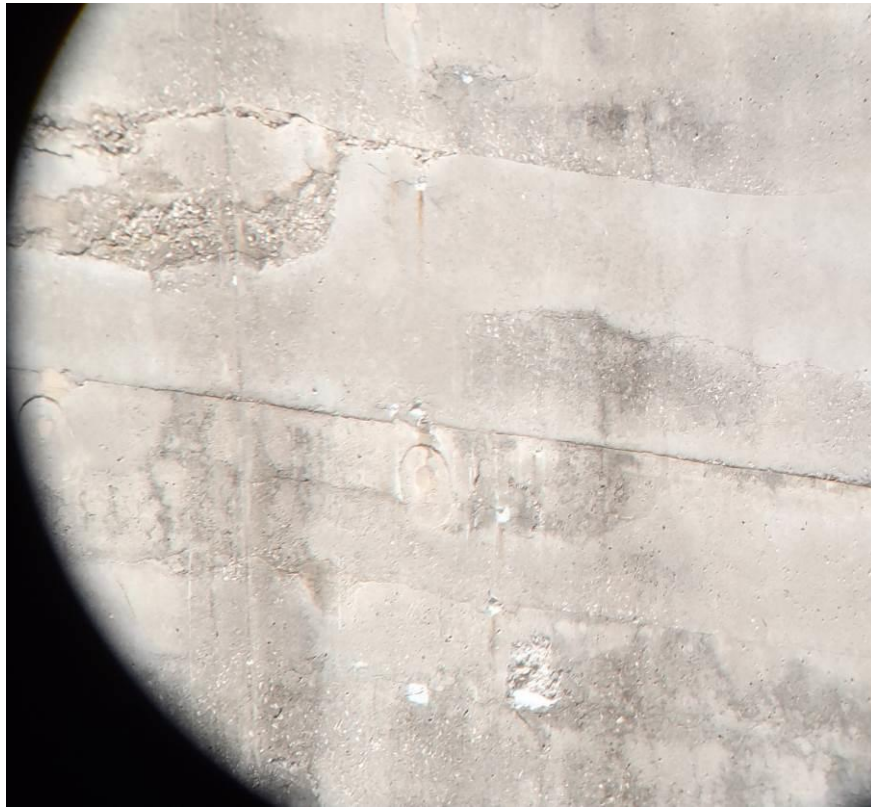
ANII Review: Allan Schiaffino / AS Date: 12/15/15
 Print/Signature

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

STATION/UNIT: IPEC / Indian Point No. 2 COMPONENT NO. : VCC – 27

ZONE No: 004

No.	Comment	Initials
1	<p>See photos Z4-036, Z4-036A and Z4-036B for general area photos of these identified indications</p> <ul style="list-style-type: none"> - Exposed cadweld (6" x 3") with additional spalled concrete at Elevation 130'. Steel was coated in 2009. See photos Z4-037 and Z4-037A. - Exposed miscellaneous wire (2-1/2" long) at Elevation 130'. Steel was coated in 2009. See photo Z4-038. - Exposed miscellaneous steel (1" diameter) at Elevation 131'. Steel was coated in 2009. See photo Z4-039. - Exposed miscellaneous steel (1/2" diameter) at Elevation 132'. Steel was coated in 2009. Beginning to spall in the shape of a cadweld, especially on the right side. See photo Z4-040. - Exposed miscellaneous steel (1/2" diameter) at Elevation 133'. Steel was coated in 2009. See photo Z4-041. - Exposed cadweld (1/2" & 1-1/2" x 1-1/2") at Elevation 133'. Steel was coated in 2009. See photo See photos Z4-042 and Z4-042A. - Exposed miscellaneous steel (1/2" diameter) at Elevation 135'. Steel was coated in 2009. See photo Z4-043. - Exposed miscellaneous wire (1" long) at Elevation 137'. Steel was coated in 2009. See photo Z4-044. - Exposed cadweld (5" x 2") at Elevation 138'. Steel was coated in 2009. Delamination beginning to separate to right of steel. See photos Z4-045 and Z4-045A. - Exposed miscellaneous steel (1/2" diameter) at Elevation 140'. Steel was coated in 2009. See photo Z4-046. - Exposed cadweld (6" x 2") at Elevation 142'. Steel was coated in 2009. See photo Z4-047. 	<i>AWD 9-28-15</i>
2	<p>Loss of mortar 1/4" deep over an area 2'x6'. This area has remained unchanged since previous inspection. See photos Z4-036, Z4-036A, Z4-036B and Z4-048.</p>	<i>AWD 9-28-15</i>
3	<p>Group located at far right side of zone</p> <ul style="list-style-type: none"> - Signs of delamination and future spalling at El. 142'. Size and shape suggest it is a cadweld. See photo Z4-049. - Exposed cadweld (3" x 2") at Elevation 144'. See photos Z4-049, Z4-050 and Z4-051. - Exposed cadweld (4" x 2") with a 12" x 6" delamination ready to spall at Elevation 145'. See photos Z4-050 and Z4-051. - Exposed cadweld (4" x 2") at Elevation 147'. See photos Z4-050 and Z4-051. 	<i>AWD 9-28-15</i>



2015 Photo

IWL-128-004

Photo Z4-036



2015 Photo

IWL-128-004

Photo Z4-036A



2009 Photo

IWL-128-004

Photo Z4-036B



2009 Photo

IWL-128-004

Photo Z4-037



2015 Photo

IWL-128-004

Photo Z4-037A



2009 Photo

IWL-128-004

Photo Z4-038



2009 Photo

IWL-128-004

Photo Z4-039



2009 Photo

IWL-128-004

Photo Z4-040



2009 Photo

IWL-128-004

Photo Z4-041



2009 Photo

IWL-128-004

Photo Z4-042



2015 Photo

IWL-128-004

Photo Z4-042A



2009 Photo

IWL-128-004

Photo Z4-043



2009 Photo

IWL-128-004

Photo Z4-044



2009 Photo

IWL-128-004

Photo Z4-045



2015 Photo

IWL-128-004

Photo Z4-045A



2009 Photo

IWL-128-004

Photo Z4-046



2009 Photo

IWL-128-004

Photo Z4-047



2005 Photo

IWL-128-004

Photo Z4-048



2015 Photo

IWL-128-004

Photo Z4-049



2015 Photo

IWL-128-004

Photo Z4-050



2010Photo

IWL-128-004

Photo Z4-051

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001

Component No: VCC-28 Zone No: 005 Drawing No.: 320792

Description: EL. 128' – EL. 148' Work Order No: 52488501

Equipment Used: Celestron Giant 20x80 Binoculars Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Abrasion or erosion degradation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Pop outs and voids	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Scaling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Spalls	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3
Cracks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
Exposed reinforcing steel	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other (exposed wire, non-uniformity of color, bugholes)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1, 2, 3

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / *JR* / Print/Signature/Level Date: 10/5/15 Examined By: R. Latortue / *R. Latortue* / Print/Signature/Level Date: 9/29/15

Responsible Engineer Review:

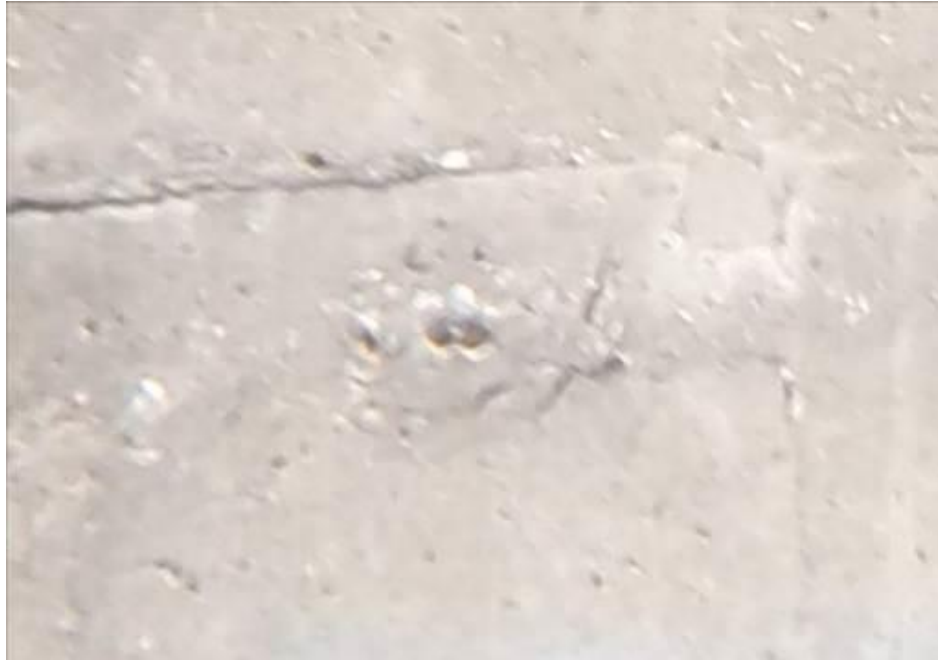
Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / *R. Drake* / Print/Signature/Level Date: 12/15/15

Site Level Review: Victor Dittrich / *V. Dittrich* / Print/Signature/Level Date: 9-28-15

ANII Review: Allan Schiaffino / *AS* / Print/Signature Date: 12/15/15



2015 Photo

IWL-128-005

Photo Z5-003



2015 Photo

IWL-128-005

Photo Z5-004



2009 Photo

IWL-128-005

Photo Z5-004A



2015 Photo

IWL-128-005

Photo Z5-005

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001
 Component No: VCC-29 Zone No: 006 Drawing No.: 320792
 Description: EL. 128' – EL. 148' Work Order No: 52488501
 Equipment Used: Celestron Giant 20x80 Binoculars Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3 (NRI), 4 (RI)
Abrasion or erosion degradation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3
Pop outs and voids	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Scaling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Spalls	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Cracks	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
Exposed reinforcing steel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other (missing fill in tie holes)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / JHR Date: 10/5/15 Examined By: R. Latortue / R. Latortue Date: 9/29/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:

Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / R. Drake Date: 12/21/15
 Print/Signature/Level

Site Level Review: Victor Dittrich / Victor M. Dittrich Lv II Date: 9-28-15
 Print/Signature/Level

ANII Review: Allan Schiaffino / AS Date: 12/15/15
 Print/Signature



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2015 Photo

IWL-128-006

Photo Z6-008



2009 Photo

IWL-128-006

Photo Z6-008A



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IP2 ASME Section XI, IWL Concrete Containment Inspection for 2015



2015 Photo

IWL-128-006

Photo Z6-009

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001

Component No: VCC-30 Zone No: 001 Drawing No.: 320792

Description: EL. 148 – EL. 168' Work Order No: 52488501

Equipment Used: Celestron Giant 20x80 Binoculars Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Abrasion or erosion degradation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Pop outs and voids	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Scaling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Spalls	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1-9
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Cracks	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Exposed reinforcing steel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1-9
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other (Exposed aggregate, Discoloration)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / *JR* Date: 10/5/15 Examined By: R. Latortue / *R. Latortue* Date: 09/29/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:

Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / *R. Drake* Date: 12/21/15
 Print/Signature/Level

Site Level Review: John Kroells / *John Kroells* Date: 9/29/15
 Print/Signature/Level

ANII Review: Allan Schiaffino / *Allan Schiaffino* Date: 12/15/15
 Print/Signature



2015 Photo

IWL-148-001

Photo Z1-021



2009 Photo

IWL-148-001

Photo Z1-022



2009 Photo

IWL-148-001

Photo Z1-023



2009 Photo

IWL-148-001

Photo Z1-024



2009 Photo

IWL-148-001

Photo Z1-025



2009 Photo

IWL-148-001

Photo Z1-026



2009 Photo

IWL-148-001

Photo Z1-027



2009 Photo

IWL-148-001

Photo Z1-028



2009 Photo

IWL-148-001

Photo Z1-029



IPEC

IP-RPT-15-00029

REV. 0

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2009 Photo

IWL-148-001

Photo Z1-030

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001

Component No: VCC-31 Zone No: 002 Drawing No.: 320792

Description: EL. 148' – EL. 168' Work Order No: 52488501

Equipment Used: Celestron Giant 20x80 Binoculars Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Abrasion or erosion degradation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Pop outs and voids	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10 (NRI), 11 (RI)
Scaling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Spalls	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1-7 (RI), 10 (NRI)
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Cracks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10, 11, 13
Exposed reinforcing steel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1-7
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other (pitting, exposed miscellaneous steel)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8, 9, 12, 13, 14

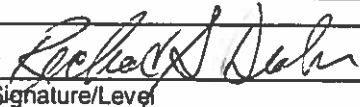
(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

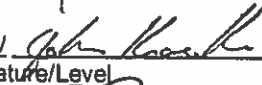
Examined By: J. Ruch /  Date: 10/5/15 Examined By: R. Latortue /  Date: 09/29/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:


Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake /  Date: 12/15/15
 Print/Signature/Level

Site Level Review: John Kroells /  Date: 9/29/15
 Print/Signature/Level

ANII Review: Allan Schiaffino /  Date: 12/15/15
 Print/Signature

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

STATION/UNIT: IPEC / Indian Point No. 2 COMPONENT NO. : VCC – 31

ZONE No: 002

No.	Comment	Initials
1	Exposed cadweld (8" x 3") at El. 149'. No change in condition since the previous inspection. See photos Z2-040, Z2-040A and Z2-040B.	JK
2	Exposed cadweld (6" x 3") at El. 151'. Condition has expanded from 4" long as noted in the previous inspection. See photos Z2-040, Z2-040A and Z2-040B.	JK
3	Exposed steel appears to be a cadweld (6" x 1") at El. 152'. Visible in photo from previous inspection but not specifically noted. See photos Z2-040, Z2-040A and Z2-040B.	JK
4	Exposed cadweld (4" x 3") with additional spalled concrete at El. 154'. No change in condition since the previous inspection. See photos Z2-040, Z2-040A, Z2-040B, Z2-041 and Z2-041A.	JK
5	Exposed cadweld (4" x 3") with additional spalled concrete at El. 157'. No change in condition since the previous inspection. See photos Z2-040, Z2-041 and Z2-041A.	JK
6	Exposed cadweld (3" x 3") at El. 163'. No change in condition since the previous inspection. See photos Z2-040, Z2-042 and Z2-042A.	JK
7	Exposed cadweld (two spots 1-1/2" x 1-1/2" each) at El. 152'. The spots have increased just enough to be noticeable since previous inspection. See photos Z2-043, Z2-044, Z2-044A and Z2-044B.	JK
8	A piece of steel is exposed at the concrete surface on a diagonal line approximately 6' long. Previously noted as 3' long however there is no photo of the area to fully compare. See photos Z2-043, Z2-044, Z2-044A and Z2-044B.	JK
9	A small spot of steel (2" long) is exposed with minimal corrosion. It does not appear to be reinforcing steel and there has been no change in condition since previous inspection. See photos Z2-043, Z2-045 and Z2-045A.	JK
10	A joint spall, cracking, and small popouts appear at El. 148' in the center of the zone. This was noted in the previous inspection.	JK
11	A crack with popout (4" x 1" x 1/2" deep) at El. 157'. This was noted in the previous inspection.	JK
12	Pitting in a small area at El. 154'. This was noted in the previous inspection.	JK
13	Joint cracks in the concrete as well as pitting along El. 158'. This was noted in the previous inspection	JK
14	Miscellaneous steel with some rust in the top left corner of the block to the right of the items shown in photos Z2-039A and Z2-039B. (Approximately El. 153'.) See photo Z2-040.	JK
		-



2015 Photo

IWL-148-002

Photo Z2-040

General view of comments 1-6



IPEC

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REV. 0

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IP2 ASME Section XI, IWL Concrete Containment Inspection for 2015



2015 Photo

IWL-148-002

Photo Z2-040A



2010 Photo

IWL-148-002

Photo Z2-040B



2015 Photo

IWL-148-002

Photo Z2-041



2010 Photo

IWL-148-002

Photo Z2-041A



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2015 Photo

IWL-148-002

Photo Z2-042



2010 Photo

IWL-148-002

Photo Z2-042A



2015 Photo

IWL-148-002

Photo Z2-043



2015 Photo

IWL-148-002

Photo Z2-044



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2010 Photo

IWL-148-002

Photo Z2-044A



2005 Photo

IWL-148-002

Photo Z2-044B



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2015 Photo

IWL-148-002

Photo Z2-045



2010 Photo

IWL-148-002

Photo Z2-045A

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001

Component No: VCC-32 Zone No: 003 Drawing No.: 320792

Description: EL. 148' – EL. 168' Work Order No: 52488501

Equipment Used: Celestron Giant 20x80 Binoculars Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7
Abrasion or erosion degradation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Pop outs and voids	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8
Scaling	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6
Spalls	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3, 4, 5, 8
Cracks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1, 2, 6, 7
Exposed reinforcing steel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4, 5
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other (bugholes & discoloration)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1, 2

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / *JR* Date: 12/5/15 Examined By: R. Latortue / *RLatortue* Date: 09/29/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:

Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / *R Drake* Date: 12/21/15
 Print/Signature/Level

Site Level Review: John Kroells / *John Kroells* Date: 9/29/15
 Print/Signature/Level

ANII Review: Allan Schiaffino / *AS* Date: 12/15/15
 Print/Signature

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

STATION/UNIT: IPEC / Indian Point No. 2 COMPONENT NO. : VCC – 32

ZONE No: 003

No.	Comment	Initials
1	General pattern cracking and discoloration between El. 148' and El. 153'.	JK
2	General pattern cracking and bugholes between El. 153' and El. 158'.	JK
3	Small patch of small spalls with visible rust apparent at El. 155'.	JK
4	A small spot of steel is exposed and corroded at El. 162'. It is not immediately apparent whether it is reinforcing steel but it is similar in appearance to cadwelds exposed in other areas. This area was coated before the previous inspection however the coating appears to be degrading slightly. See photo Z3-046.	JK
5	Two small spots of steel are exposed and corroded at El. 159'. It is not immediately apparent whether they are reinforcing steel but it is similar in appearance to cadwelds exposed in other areas. This area was coated before the previous inspection. See photos Z3-047 and Z3-047A.	JK
6	A 6" long crack exists at the bottom of scaling area at El. 158', approximately 15' from right boundary.	JK
7	Located between El. 163' and El. 168', centered in zone, minute leaching is visible from grouted hole with surrounding pattern cracking and bugholes.	JK
8	1" diameter void with minor rust staining (3" long) at El. 152'. At the boundary and may actually be in zone 4. See photo Z3-048.	JK



2009 Photo

IWL-148-003

Photo Z3-046



2015 Photo

IWL-148-003

Photo Z3-047



2009 Photo

IWL-148-003

Photo Z3-047A



2010 Photo

IWL-148-003

Photo Z3-048

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001

Component No: VCC-33 Zone No: 004 Drawing No.: 320792

Description: EL. 148' – EL. 168' Work Order No: 52488501

Equipment Used: Celestron Giant 20x80 Binoculars Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Abrasion or erosion degradation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Pop outs and voids	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3
Scaling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Spalls	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3
Cracks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2, 4
Exposed reinforcing steel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1, 3
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other (bugholes & discoloration)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2, 4

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / *JR* Date: 10/5/15 Examined By: R. Latorue / *R. Latorue* Date: 09/29/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:

Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / *R. Drake* Date: 12/21/15
 Print/Signature/Level

Site Level Review: Victor Dittrich / *Victor A. Dittrich* L₂ Date: 9-28-15
 Print/Signature/Level

ANII Review: Allan Schiaffino / *AS* Date: 12/15/15
 Print/Signature



2015 Photo

IWL-148-004

Photo Z4-052



2015 Photo

IWL-148-004

Photo Z4-053



2009 Photo

IWL-148-004

Photo Z4-054

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001

Component No: VCC-34 Zone No: 005 Drawing No.: 320792

Description: EL. 148' – EL. 168' Work Order No: 52488501

Equipment Used: Celestron Giant 20x80 Binoculars Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Abrasion or erosion degradation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
Pop outs and voids	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1, 3
Scaling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Spalls	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Cracks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
Exposed reinforcing steel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1, 3
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other (bugholes & pitting)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / *JR* Date: 10/5/15 Examined By: R. Latortue / *R. Latortue* Date: 9/29/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:

Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / *R. Drake* Date: 12/21/15
 Print/Signature/Level

Site Level Review: Victor Dittrich / *Victor W. Dittrich* Date: 9-28-15
 Print/Signature/Level

ANII Review: Allan Schiaffino / *AS* Date: 12/15/15
 Print/Signature



IPEC

IP-RPT-15-00029

REV. 0

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2015 Photo

IWL-148-005

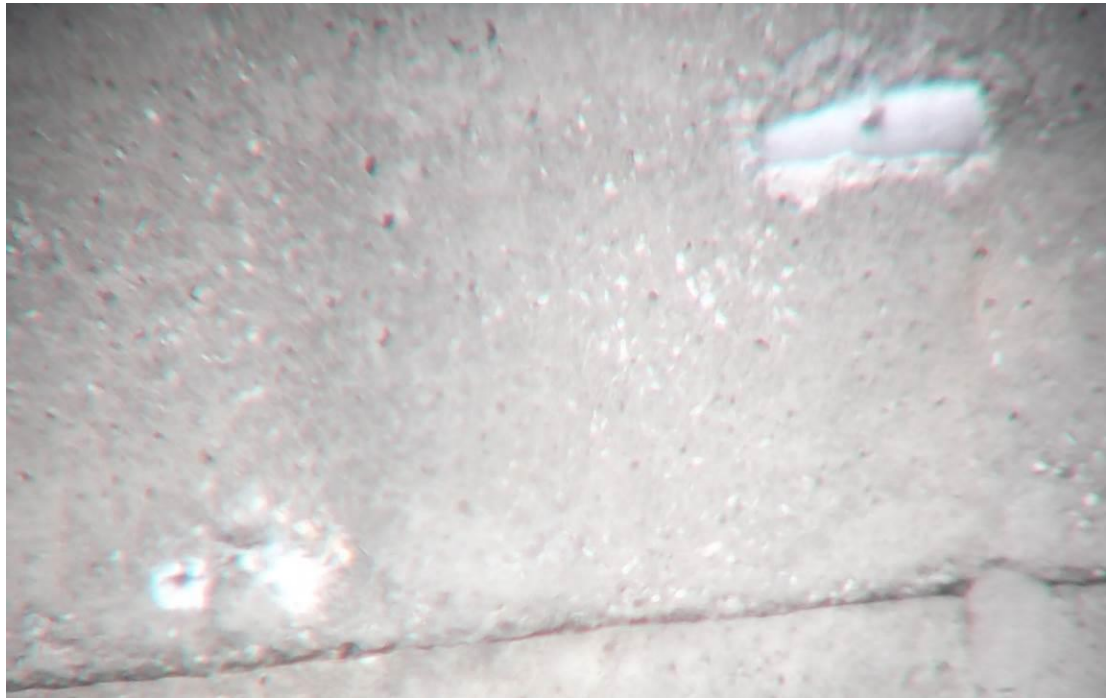
Photo Z5-006



2009 Photo

IWL-148-005

Photo Z5-006A



2015 Photo

IWL-148-005

Photo Z5-007



2009 Photo

IWL-148-005

Photo Z5-007A



2009 Photo

IWL-148-005

Photo Z5-007B



2009 Photo

IWL-148-005

Photo Z5-008



2015 Photo

IWL-148-005

Photo Z5-009



2009 Photo

IWL-148-005

Photo Z5-009A



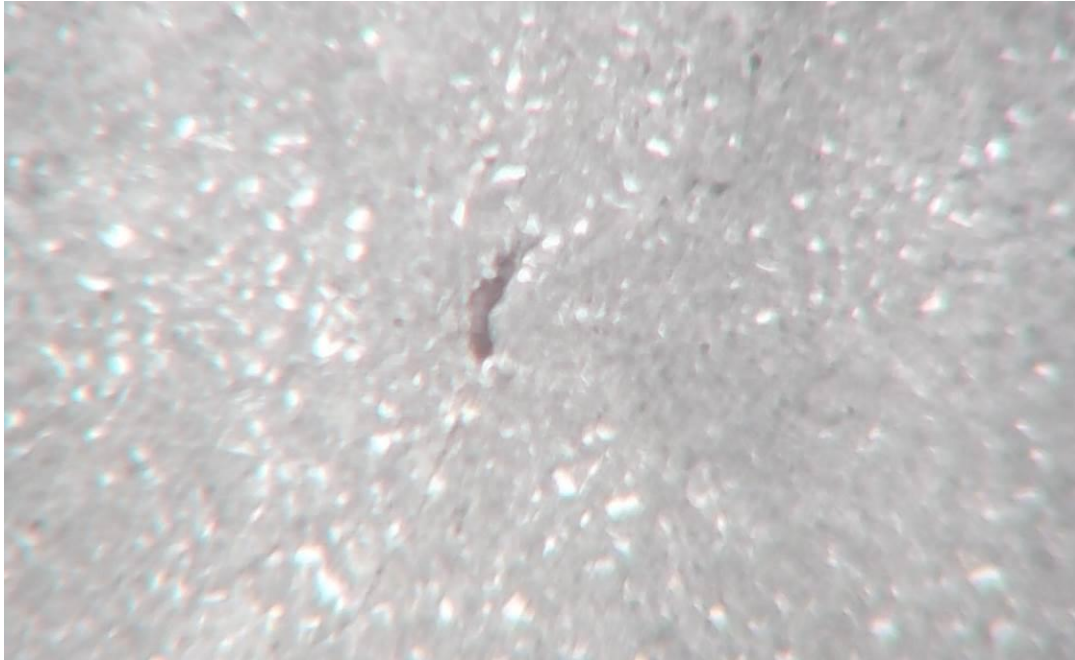
IPEC

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REV. 0

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2015 Photo

IWL-148-005

Photo Z5-010

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001
 Component No: VCC-35 Zone No: 006 Drawing No.: 320792
 Description: EL. 148' – EL. 168' Work Order No: 52488501
 Equipment Used: Celestron Giant 20x80 Binoculars Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3
Abrasion or erosion degradation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Pop outs and voids	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Scaling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Spalls	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Cracks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
Exposed reinforcing steel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other (filling for form ties)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / *JR* Date: 10/5/15 Examined By: R. Latortue / *R. Latortue* Date: 9/29/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:

Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / *R. Drake* Date: 12/21/15
 Print/Signature/Level

Site Level Review: Victor Dittrich / *V. Dittrich* Lv II Date: 9-28-15
 Print/Signature/Level

ANII Review: Allan Schiaffino / *AS* Date: 12/15/15
 Print/Signature

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	<p>See photo Z6-010 for 2009 general area photo for some of the identified indications.</p> <ul style="list-style-type: none"> - Exposed cadweld (5" x 2") at Elevation 148'. Steel was coated in 2009. See photos Z6-011 and Z6-012. - Exposed cadweld (9" x 3") at Elevation 151'. Steel was coated in 2009. See photos Z6-011 and Z6-013. - Exposed cadweld (9" x 2') with additional spalled concrete at Elevation 152'. Steel was coated in 2009. See photos Z6-011 and Z6-014. - Exposed cadweld (9" x 3") at Elevation 154'. Steel was coated in 2009. See photos Z6-015 and Z6-016. - Exposed cadweld (9" x 2") at Elevation 155'. Steel was coated in 2009. Concrete is separating more above and some rust bleeding appears to be coming from behind the separating concrete. See photos Z6-015 and Z6-017. - Exposed cadweld (9" x 3") at Elevation 156'. Steel was coated in 2009. Concrete beginning to separate below in the same shape as what is already missing. See photos Z6-015 and Z6-018. - Exposed cadweld (5" x 2") at Elevation 157'. Steel was coated in 2009. Concrete beginning to separate to the right to expose rest of cadweld in future. See photos Z6-019 and Z6-020. - Exposed miscellaneous steel wire (1" long) at Elevation 160'. Steel was coated in 2009. See photo Z6-021. - Exposed miscellaneous steel (3/4" diameter) at Elevation 162'. Steel was coated in 2009. See photos Z6-022 and Z6-023. - Exposed cadweld (9" x 3") with additional spalled concrete at Elevation 163'. Steel was coated in 2009. See photos Z6-023 and Z6-024. - Exposed cadweld (9" x 3') at Elevation 167'. Steel was coated in 2009. See photo Z6-025. <p>Coating beginning to degrade on all cadwelds. Minor cracking and rust bleeding through coating.</p>	<p align="right"><i>AND 9-28-15</i></p>
2	Form tie hole at El. 154'.	<p align="right"><i>AND 9-28-15</i></p>
3	White deposit from concrete cover patch over exposed cadweld at construction joint 6" long. Same as previous inspection. See photos Z6-023 and Z6-024.	<p align="right"><i>AND 9-28-15</i></p>
4	General pattern cracking.	<p align="right"><i>AND 9-28-15</i></p>



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2009 Photo

IWL-148-006

Photo Z6-010



2015 Photo

IWL-148-006

Photo Z6-011



2009 Photo

IWL-148-006

Photo Z6-012



2009 Photo

IWL-148-006

Photo Z6-013



2009 Photo

IWL-148-006

Photo Z6-014



2015 Photo

IWL-148-006

Photo Z6-015



2009 Photo

IWL-148-006

Photo Z6-016



2009 Photo

IWL-148-006

Photo Z6-017



2009 Photo

IWL-148-006

Photo Z6-018



2015 Photo

IWL-148-006

Photo Z6-019



2009 Photo

IWL-148-006

Photo Z6-020



2009 Photo

IWL-148-006

Photo Z6-021



2009 Photo

IWL-148-006

Photo Z6-022



2015 Photo

IWL-148-006

Photo Z6-023



2009 Photo

IWL-148-006


Photo Z6-024



2009 Photo

IWL-148-006

Photo Z6-025

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001
 Component No: VCC-36 Zone No: 001 Drawing No.: 320792
 Description: EL. 168' – EL. 188' Work Order No: 52488501
 Equipment Used: Celestron Giant 20x80 Binoculars Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2, 3
Abrasion or erosion degradation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Pop outs and voids	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Scaling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Spalls	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Cracks	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Exposed reinforcing steel	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other (exposed miscellaneous steel & non-uniformity)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1, 4

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / [Signature] Date: 10/5/15 Examined By: R. Latortue / [Signature] Date: 09/29/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:

Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / [Signature] Date: 12/18/15
 Print/Signature/Level
 Site Level Review: John Kroells / [Signature] Date: 9/29/15
 Print/Signature/Level
 ANII Review: Allan Schiaffino / [Signature] Date: 12/15/15
 Print/Signature



2009 Photo

IWL-168-001

Photo Z1-031

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001
 Component No: VCC-37 Zone No: 002 Drawing No.: 320792
 Description: EL. 168' – EL. 188' Work Order No: 52488501
 Equipment Used: Celestron Giant 20x80 Binoculars Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4, 7, 8
Abrasion or erosion degradation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6
Pop outs and voids	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3
Scaling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Spalls	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1, 2, 3, 5
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1, 2
Cracks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3, 7, 8, 9
Exposed reinforcing steel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1, 2
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other (pitting & bugholes)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5, 8

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / [Signature] Date: 10/5/15 Examined By: R. Latorue / [Signature] Date: 09/29/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:

Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / [Signature] Date: 12/21/15
 Print/Signature/Level
 Site Level Review: John Kroells / [Signature] Date: 9/29/15
 Print/Signature/Level
 ANII Review: Allan Schiaffino / [Signature] Date: 12/15/15
 Print/Signature

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	Exposed cadweld (8" x 2") at El. 188'. See photos Z2-046, Z2-046A and Z2-046B.	JK
2	Two small areas of exposed steel with rust staining at El. 180', one of which is a cadweld that is continuing to spall and appears that another piece will fall off soon. See photos Z2-047 and Z2-047A.	JK
3	Patch of shallow popouts just below El. 188'. Including some cracking and bulging which by comparison to other similar areas is believed to be a cadweld. See photo Z2-048.	JK
4	Between El. 168' and 173' near the middle of the zone there is leaching 6" long. There is also a pour joint just below this location with some separation likely due to consistency during placement. See photo Z2-049.	JK
5	A joint spall and some pitting is visible at El. 173'.	JK
6	Area of light abrasion with a slightly red color approximately 4' long between El. 168' and 178'. See photo Z2-050.	JK
7	Minor crack with light efflorescence on the right side of the section at El. 178'. See photo Z2-051.	JK
8	General pattern cracking, bugholes, and leaching between El. 168' and 178'. No change in condition since previous inspection. See photos Z2-051 and Z2-052.	JK
9	General Pattern cracking throughout. See photo Z2-052.	JK



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2015 Photo

IWL-168-002

Photo Z2-046



2010 Photo

IWL-168-002

Photo Z2-046A



2005 Photo

IWL-168-002

Photo Z2-046B



2015 Photo

IWL-168-002

Photo Z2-047



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2009 Photo

IWL-168-002

Photo Z2-047A



2015 Photo

IWL-168-002

Photo Z2-048



2015 Photo

IWL-168-002

Photo Z2-049



2015 Photo

IWL-168-002

Photo Z2-050



2015 Photo

IWL-168-002

Photo Z2-051



2015 Photo

IWL-168-002

Photo Z2-052

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001

Component No: VCC-38 Zone No: 003 Drawing No.: 320792

Description: EL. 168' – EL. 188' Work Order No: 52488501

Equipment Used: Celestron Giant 20x80 Binoculars Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8
Abrasion or erosion degradation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Pop outs and voids	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Scaling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Spalls	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1-4
Corrosion staining on concrete surfaces	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1, 2, 5, 9
Cracks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6, 7, 8, 10
Exposed reinforcing steel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1-4, 9
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other (bugholes)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5, 6

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / [Signature] Date: 10/5/15 Examined By: R. Latortue / [Signature] Date: 09/29/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:


Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / [Signature] Date: 12/20/15
 Print/Signature/Level

Site Level Review: John Kroells / [Signature] Date: 9/29/15
 Print/Signature/Level

ANII Review: Allan Schiaffino / [Signature] Date: 12/15/15
 Print/Signature

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

STATION/UNIT: IPEC / Indian Point No. 2 COMPONENT NO. : VCC – 38

ZONE No: 003

See Photos Z3-049 and Z3-049A for general view of many of the indications listed

No.	Comment	Initials
1	Exposed cadweld (10" x 3") at El. 183'. Steel was coated in 2009. See photos Z3-049, Z3-049A and Z3-050.	JK
2	Above the exposed cadweld at El. 183', two exposed cadweld nuts with some concrete cracking and beginning to push out. See photos Z3-049 and Z3-049A.	JK
3	Exposed cadweld (5" x 2") at El. 184'. Steel was coated in 2009. No change since last inspection. See photos Z3-049, Z3-049A and Z3-051.	JK
4	Exposed cadweld (9" x 3") at El. 188'. Steel was coated in 2009. No change since last inspection. See photos Z3-049, Z3-049A and Z3-052.	JK
5	Bugholes with visible rust (2" long) at El. 174' in the middle of the zone.	JK
6	General joint cracking, bugholes, and spalls between El. 173' and El. 178'. This was noted in the previous inspection.	JK
7	General pattern cracking, minor joint cracking, and light spalling between El. 178' and El. 183'. This was noted in the previous inspection.	JK
8	General joint cracking, minor leaching, and pattern cracking between El. 168' and El. 173'. This was noted in the previous inspection.	JK
9	3 areas of localized bulging of the concrete likely due to cadwelds starting to be exposed between El. 180' and El. 183'. See photos Z3-049 and Z3-049A.	JK
10	Joint crack with spalling visible just below El. 188'. The crack is 5' long with 2' of popping out to the right of the crack. See photos Z3-049 and Z3-049A.	JK
11	Minor joint scabbing at El. 172' on the right side of the zone.	JK
12	Chipped concrete at El. 178'. Cadweld pushing section of concrete out above the chipped piece. See photos Z3-053 and Z3-053A.	JK



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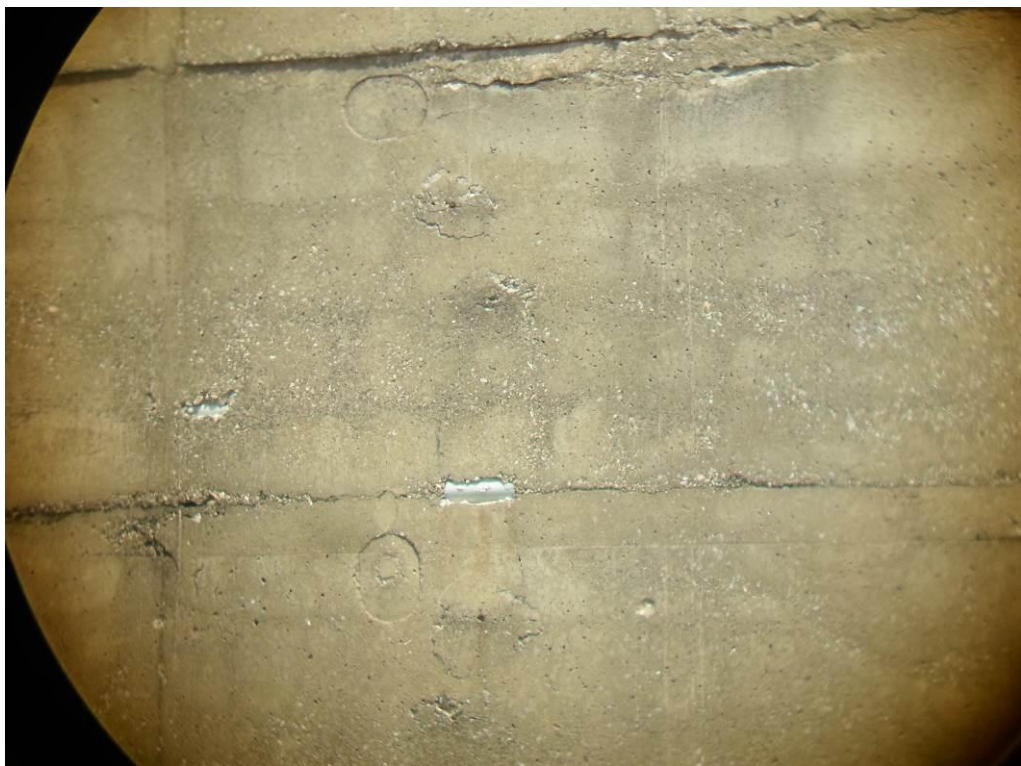
IP2 ASME Section XI, IWL Concrete Containment Inspection for 2015



2015 Photo

IWL-168-003

Photo Z3-049



2015 Photo

IWL-168-003

Photo Z3-049A



2009 Photo

IWL-168-003

Photo Z3-050



2009 Photo

IWL-168-003

Photo Z3-051



2009 Photo

IWL-168-003

Photo Z3-052



2015 Photo

IWL-168-003

Photo Z3-053



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2010 Photo

IWL-168-003

Photo Z3-053A

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001

Component No: VCC-39 Zone No: .004 Drawing No.: 320792

Description: EL. 168' – EL. 188' Work Order No: 52488501

Equipment Used: Celestron Giant 20x80 Binoculars Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Abrasion or erosion degradation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Pop outs and voids	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Scaling	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
Spalls	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Cracks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
Exposed reinforcing steel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other (bugholes)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / *JR* Date: 10/5/15 Examined By: R. Latortue / *R. Latortue* Date: 09/29/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:

Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / *Robert S. Drake* Date: 12/21/15
 Print/Signature/Level

Site Level Review: Victor Dittrich / *Victor W. Dittrich* Date: 9-28-15
 Print/Signature/Level

ANII Review: Allan Schiaffino / *AS* Date: 12/15/15
 Print/Signature



2015 Photo

IWL-168-004

Photo Z4-055



2009 Photo

IWL-168-004

Photo Z4-055A

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001

Component No: VCC-40 Zone No: 005 Drawing No.: 320792

Description: EL. 168' – EL. 188' Work Order No: 52488501

Equipment Used: Celestron Giant 20x80 Binoculars Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Abrasion or erosion degradation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
Pop outs and voids	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Scaling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Spalls	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Cracks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1, 2
Exposed reinforcing steel	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other (bugholes)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / *JR* Date: 10/5/15 Examined By: R. Latortue / *R. Latortue* Date: 9/24/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:

Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / *R. Drake* Date: 12/18/15
 Print/Signature/Level

Site Level Review: Victor Dittrich / *V. Dittrich* Date: 9-28-15
 Print/Signature/Level

ANII Review: Allan Schiaffino / *AS* Date: 12/15/15
 Print/Signature



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2009 Photo

IWL-168-006

Photo Z6-026



2015 Photo

IWL-168-006

Photo Z6-027



2009 Photo

IWL-168-006

Photo Z6-028



2009 Photo

IWL-168-006

Photo Z6-029



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2009 Photo

IWL-168-006

Photo Z6-030

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001

Component No: VCC-42 Zone No: 001 Drawing No.: 320792

Description: Dome Work Order No: 52488501

Equipment Used: Celestron Giant 20x80 Binoculars Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Abrasion or erosion degradation	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RI: 8, NRI: 9, 11
Pop outs and voids	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
Scaling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Spalls	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
Cracks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3, 4, 5, 7
Exposed reinforcing steel	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other (bugholes, pitting, embedded object)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2, 3, 4, 10

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / *JR* Date: 10/5/15 Examined By: R. Latortue / *R Latortue* Date: 09/29/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:

Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / *Richard Drake* Date: 12/15/15
 Print/Signature/Level

Site Level Review: John Kroells / *John Kroells* Date: 9/29/15
 Print/Signature/Level

ANII Review: Allan Schiaffino / *AS* Date: 12/15/15
 Print/Signature



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2015 Photo

IWL-DOME-001

Photo Z1-032

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001

Component No: VCC-43 Zone No: 002 Drawing No.: 320792

Description: Dome Work Order No: 52488501

Equipment Used: Celestron Giant 20x80 Binoculars Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Abrasion or erosion degradation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7
Pop outs and voids	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4, 9
Scaling	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3
Spalls	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1, 2, 3, 7, 10
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5
Cracks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1, 2, 3, 8
Exposed reinforcing steel	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other (pitting)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / *JR* Date: 12/5/15 Examined By: R. Latortue / *R.Latortue* Date: 09/29/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:


Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / *Rochard Drake* Date: 12/15/15
 Print/Signature/Level

Site Level Review: John Kroells / *JK* Date: 9/29/15
 Print/Signature/Level

ANII Review: Allan Schiaffino / *AS* Date: 12/15/15
 Print/Signature

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

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

ZONE No: 002

No.	Comment	Initials
1	A horizontal 5' long rough pour line with separation and possible minor spalling along the pour. See photo Z2-053.	JK
2	Another horizontal 5' long rough pour line with separation and possible minor spalling located two rows above the one noted in comment 1. See photo Z2-053.	JK
3	General light to medium scaling, numerous joint spalls, pattern cracking, and areas of pitting were found throughout the dome. Also noted which could be misidentified as spalling or scaling were rough edges to blocks with exposed aggregates (form scabbing).	JK
4	Small hole found in a joint.	JK
5	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 the lightning rod. This area has remained unchanged since 2005 inspection. Lightning rods were coated in 2009.	JK
6	Area identified in previous report as exposed metal 5" long x 1" wide with no rust or staining located 4 rows down and 6 columns across from left arrester appears to be a shadow due to concrete overlap	JK
7	Abraded/spalled area on joint (1" depth x 2' long) at left edge of zone, one row up from spring line. This area then spans diagonal across three panels (12' long x 1' wide with 1/4 inch maximum depth). Possibly extends in to zone 1. See photo Z2-054.	JK
8	Three tight cracks (~ 1/32" width) to the right of middle of the zone in the row above the spring line spanning vertically from top to bottom. See photo Z2-055.	JK
9	~5 rows up from upper dome joint, small hole in joint, hand prints.	JK
10	Repaired area of spalling 2 blocks wide located on the right side of the zone 3 rd row up from the second dome joint. See photo Z2-056.	JK



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2015 Photo

IWL-DOME-002

Photo Z2-053



2015 Photo

IWL-DOME-002

Photo Z2-054



IPEC

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REV. 0

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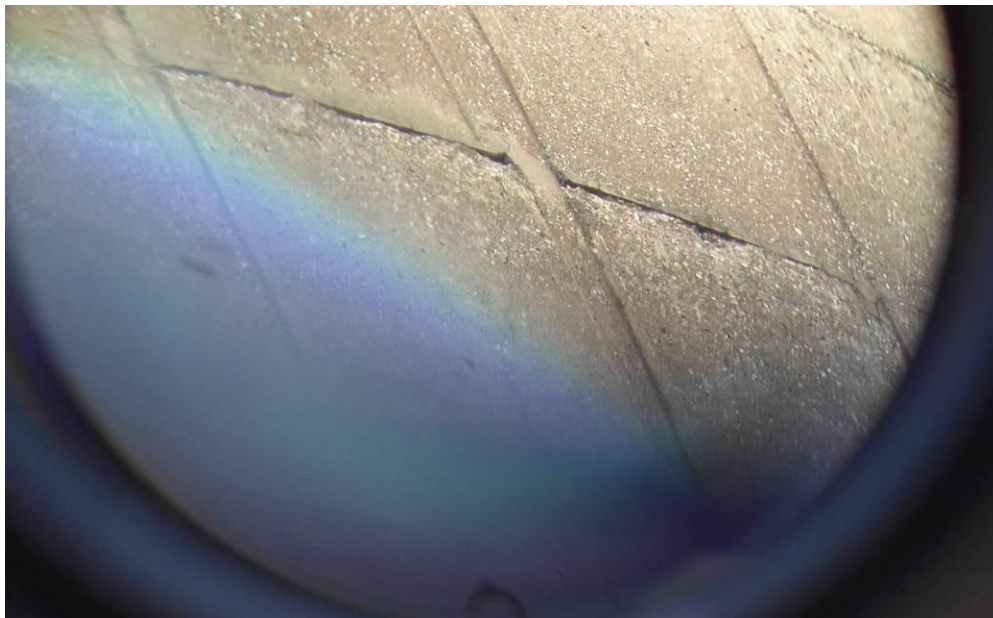
IP2 ASME Section XI, IWL Concrete Containment Inspection for 2015



2015 Photo

IWL-DOME-002

Photo Z2-055



2015 Photo

IWL-DOME-002

Photo Z2-056

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001

Component No: VCC-44 Zone No: 003 Drawing No.: 320792

Description: Dome Work Order No: 52488501

Equipment Used: Celestron Giant 20x80 Binoculars Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Abrasion or erosion degradation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Pop outs and voids	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
Scaling	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7, 13
Spalls	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1, 5, 7, 9, 10
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2, 12
Cracks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1, 4, 6, 7
Exposed reinforcing steel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3, 5, 9
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other (bugholes, honeycombing, discoloration)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2, 3, 7, 8, 11

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / [Signature] Date: 12/5/15 Examined By: R. Latortue / [Signature] Date: 09/29/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:


Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / [Signature] Date: 12/15/15
 Print/Signature/Level

Site Level Review: John Kroells / [Signature] Date: 9/29/15
 Print/Signature/Level

ANII Review: Allan Schiaffino / [Signature] Date: 12/15/15
 Print/Signature

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

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

ZONE No: 003

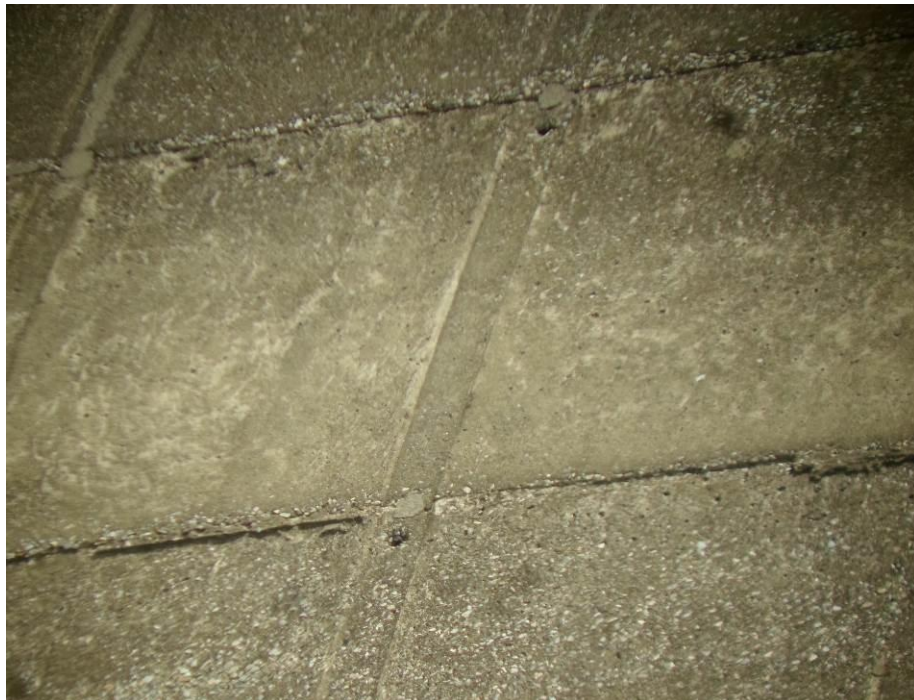
No.	Comment	Initials
1	Over 10' span on the upper right corner of dome, previously identified popouts, joint spalling, and cracking is visible. Mostly appear to be just rough form edges seen from an angle. See photo Z3-054.	JK
2	Two bugholes with visible rust at approx. El. 210' and 15' from right boundary.	JK
3	Two bugholes with possible exposed steel vertically lined between El. 228' and El. 233'. See photo Z3-055.	JK
4	Large amounts of pattern cracking exist between El. 188' and El. 203'.	JK
5	Exposed cadweld due to a 2" spall or popout at El. 197'. See photos Z3-056, Z3-056A and Z3-057.	JK
6	A horizontal joint crack exists greater than a 1/4" wide and approx. 3' long identified in previous inspection. Possibly an old repair that is separating near the left side of the zone at approx. El. 228'.	JK
7	General pattern cracking, light scaling, localized spall areas (2"-4"), numerous bugholes, and joint cracks exist on dome.	JK
8	A visible honeycomb appears at El. 228' to the right of the middle of the zone.	JK
9	Exposed cadweld (9" x 2") at Elevation 189'. Steel was coated in 2009. See photos Z3-056, Z3-056A and Z3-058.	JK
10	Approximately 4 blocks from the right edge of the zone at El. 190', there is a small 2" x 4" spall with tight horizontal cracks.	JK
11	Discoloration due to concrete leakage through formwork that has chipped off revealing lighter concrete below. Located at El. 233' near the middle of the zone, two blocks wide. See photo Z3-059.	JK
12	Rust staining from the lightning arresters.	JK
13	At the top of the zone at the left side there are 4 small, shallow areas of scaling. See photo Z3-060.	JK



2015 Photo

IWL-DOME-003

Photo Z3-054



2015 Photo

IWL-DOME-003

Photo Z3-055



IPEC

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2015 Photo

IWL-DOME-003

Photo Z3-056



2010 Photo

IWL-DOME-003

Photo Z3-056A



2015 Photo

IWL-DOME-003

Photo Z3-057



2009 Photo

IWL-DOME-003

Photo Z3-058



2015 Photo

IWL-DOME-003

Photo Z3-059



2015 Photo

IWL-DOME-003

Photo Z3-060

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001

Component No: VCC-45 Zone No: 004 Drawing No.: 320792

Description: Dome Work Order No: 52488501

Equipment Used: Celestron Giant 20x80 Binoculars Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Abrasion or erosion degradation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Pop outs and voids	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3, 8
Scaling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Spalls	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1, 3, 4, 7
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5
Cracks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2, 6
Exposed reinforcing steel	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other (bugholes, delamination)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2, 7

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / *JR* Date: 10/5/15 Examined By: R. Latortue / *R. Latortue* Date: 09/29/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:

Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / *Richard Drake* Date: 12/15/15
 Print/Signature/Level

Site Level Review: Victor Dittrich / *Victor W. Dittrich* Sr II Date: 9-28-15
 Print/Signature/Level

ANII Review: Allan Schiaffino / *AS* Date: 12/15/15
 Print/Signature

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

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

ZONE No: 004

No.	Comment	Initials
1	3" long spall at El. 193', approximately 5' from right boundary identified in previous inspection. Does not appear to be a spall.	<i>AMD 9-28-15</i>
2	General bugholes and pattern cracking between El. 188' and El. 208'.	<i>AMD 9-28-15</i>
3	Numerous joint spalls and popouts above El. 208' identified in previous inspections. Very minor, mostly appear to be rough form edges.	<i>AMD 9-28-15</i>
4	General light spalling over dome area identified in previous inspections. Very minor, mostly appear to be rough form edges.	<i>AMD 9-28-15</i>
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 clearly from the lightning rod. This area has remained unchanged since 2005 inspection. The lightning rods were coated in 2009.	<i>AMD 9-28-15</i>
6	Tight pattern cracking between El. 188' and El 198'.	<i>AMD 9-28-15</i>
7	Beginning 1 row below the lightning arrestors and continuing upwards there is minor spalling of form edges and shallow delamination of concrete cover. See photos Z4-056 and Z4-056A.	<i>AMD 9-28-15</i>
8	Small (1"-2" dia.) voids or possible abandoned drilled holes in multiple locations behind the vent duct See photo Z4-057.	<i>AMD 9-28-15</i>



IPEC

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2015 Photo

IWL-DOME-004

Photo Z4-056



2015 Photo

IWL-DOME-004

Photo Z4-056A



IPEC

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2015 Photo

IWL-DOME-004

Photo Z4-057

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001

Component No: VCC-46 Zone No: 005 Drawing No.: 320792

Description: Dome Work Order No: 52488501

Equipment Used: Celestron Giant 20x80 Binoculars Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Abrasion or erosion degradation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Pop outs and voids	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6, 8, 9
Scaling	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
Spalls	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1, 2, 3, 4
Corrosion staining on concrete surfaces	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5, 9
Cracks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4, 7
Exposed reinforcing steel	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / [Signature] Date: 10/5/15 Examined By: R. Latortue / [Signature] Date: 9/29/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:

Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / [Signature] Date: 12/16/15
 Print/Signature/Level

Site Level Review: Victor Dittrich / [Signature] Date: 9-28-15
 Print/Signature/Level

ANII Review: Allan Schiaffino / [Signature] Date: 12/15/15
 Print/Signature

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

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

ZONE No: 005

No.	Comment	Initials
1	General scaling, peeling, and spalling above the arresters.	<i>AWD 9-28-15</i>
2	Incipient spall near right rod.	<i>AWD 9-28-15</i>
3	Area of pitting with a joint spall approximately 15' right of the duct at El. 191'.	<i>AWD 9-28-15</i>
4	General minor spalls and tight pattern cracking on the concrete surface of the dome.	<i>AWD 9-28-15</i>
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. 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.	<i>AWD 9-28-15</i>
6	3" diameter void (shallow hole) under the duct edge at El. 208' (4 rows up from spring line). This area has remained unchanged since 2005 inspection.	<i>AWD 9-28-15</i>
7	Horizontal crack and about 20 to 30 mils in width, 2 feet above the dome spring line. In the previous inspection this area was identified as 4' long and unchanged since 2005 inspection. It currently appears to be about 4 blocks long.	<i>AWD 9-28-15</i>
8	Areas of small popouts between El. 188' and El. 196'.	<i>AWD 9-28-15</i>
9	1" void with 3" rust staining located 4 rows up from the spring line and 2 columns from the duct.	<i>AWD 9-28-15</i>

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001
 Component No: VCC-47 Zone No: 006 Drawing No.: 320792
 Description: Dome Work Order No: 52488501
 Equipment Used: Celestron Giant 20x80 Binoculars Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
Abrasion or erosion degradation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
Pop outs and voids	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3
Scaling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Spalls	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4, 5
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1, 4
Cracks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
Exposed reinforcing steel	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)

Examined By: J. Ruch / [Signature] Date: 12/15/15 Examined By: R. Latortue / [Signature] Date: 9/29/15
 Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:



Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

RE Signature: R. Drake / [Signature] Date: 12/16/15
 Print/Signature/Level

Site Level Review: Victor Dittrich / [Signature] Lv II Date: 9-28-15
 Print/Signature/Level

ANII Review: Allan Schiaffino / [Signature] Date: 12/15/15
 Print/Signature

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

Plant: IPEC – Unit 2 Interval/Period: 2nd/1st Inspection Inspection Report No.: IP2-15-IWL-001

Component No: VCC-48 Zone No: 007 Drawing No.: 320792

Description: Dome Work Order No: 52488501

Equipment Used: Celestron Giant 20x80 Binoculars Limitations: Accessible areas only

Recording Condition	RI	NRI	NI	N/A	Comments
Leaching or chemical attack	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
Abrasion or erosion degradation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Pop outs and voids	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3
Scaling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Spalls	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Corrosion staining on concrete surfaces	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
Cracks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2, 4
Exposed reinforcing steel	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Deteriorating of concrete coating, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Excessive corrosion of the exposed embedded metal surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Detached embedment or loose bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Other (bugholes)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4

(Note: Sketches or pictures may be attached to clarify inspection areas and locations.)


Examined By: J. Ruch /  Date: 10/5/15 Examined By: R. Latortue /  Date: 09/29/15
 Print/Signature/Level Print/Signature/Level


Responsible Engineer Review:

Acceptable: Yes No (Detailed VT-1 Examination Required Attachment 7.3)

Comments:

Due to access limitations, the top of the dome was not inspected directly. Based on previous inspection findings and current condition, direct access was deemed not necessary at this time. Portions of the dome were inspected from each zone as possible and indications were included in the respective forms.

RE Signature: R. Drake /  Date: 12/16/15
 Print/Signature/Level

Site Level Review: Victor Dittrich /  Date: 9-28-15
 Print/Signature/Level

ANII Review: Allan Schiaffino /  Date: 12/13/15
 Print/Signature



2009 Photo

IWL-DOME-007


Photo Z7-01



2009 Photo

IWL-DOME-007

Photo Z7-02

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Indian Point 2 Nuclear Power Plant



Attachment 8.4

Inspector Resumes and Qualifications

Joseph Ruch**ENGINEER III****EDUCATION:**

Bachelor of Science Degree in Engineering
Roger Williams University
Graduated May 2008

Undergraduate Courses:

Steel Design – designed and analyzed steel structures, such as retaining walls, walls, floors, footings, and columns, and gained a basic understanding of statics and the strength and behavior of steel and reinforced concrete members.

Mechanics of Material and Material Science – gained basic understanding of the principles, physical concepts and strength of materials.

EXPERIENCE:

Entergy Nuclear Northeast October 2008 – present
Indian Point Energy Center
Engineer III

Relevant work activities:

Performed Maintenance Rule inspections and prepared reports as the primary program owner for the site as well as edited the governing procedure.

Prepared and reviewed calculations to evaluate reinforced concrete sections.

RICHARD P. LATORTUE, P.E.**CIVIL/STRUCTURAL ENGINEER**

EDUCATION: Bachelor of Science Degree in Civil Engineering
University of Illinois, College of Engineering, 1976
Master of Science Degree in Civil/Structural Engineering
University of Illinois, College of Engineering, 1978

LICENSE: Professional Engineer (PE): Pennsylvania

EXPERIENCE: Westinghouse Electric Company, Cranberry, PA 2/13 – 9/14

Structural Engineer

Reviewed calculations, change notices and drawings associated with the installation of embedment plates in the Auxiliary Building walls and slabs for the AP1000 series of power plants. Certified drawings and design documents as required.

URS, Crystal River, FL

10/11 – 1/13

Structural Engineer

Designed Foreign Material Exclusion (FME) wall, to prevent rubble, from hydro demolition of containment wall, from falling into spent fuel pool. Analysis was performed using GT-Strudl, in accordance to AISC-ASD criteria. Evaluated Intermediate Building roof, for additional loads from construction equipment loads, including loads from platforms, lifts and hydro demolition equipment. Analyzed temporary structures, in accordance to AISC-ASD criteria, using hand calculations as well as GT-Strudl, in support of containment restoration project.

Bechtel Corporation, Florida City, FL

1/11 – 8/11

Structural Engineer

Evaluated containment dome rails for installation of mobile crane on the containment building dome at the Turkey Point Nuclear Power Plant. Evaluated roads for hauling of transformers (720,000 lbs.) and other pieces of equipment. Prepared calculations for platforms and spread footings using hand calculations, GT-Strudl and Mathcad in accordance to AISC, ASCE and ACI Codes.

Southern Nuclear, Baxley, GA

1/10 – 12/10

Rigging Engineer

Analyzed monorails, spreader beams, gantries, using GT-Strudl, according to AISC-ASD, used for rigging and transporting motors, pumps, and other pieces of equipment. Evaluated existing girders and slabs used as attachments for temporary anchors.

Dominion Generation, Surry, VA

6/09 – 11/09

Structural Engineer

Designed concrete foundations, for new dryers and compressors, according to ACI 318 and ASCE 7. Evaluated new monorails, using GT Strudl, according to AISC-ASD. Designed structural components to facilitate rigging of caissons at cooling water cooling intake channel.

KBR, Houston, TX

1/09 – 03/9

Structural Engineer

Designed concrete foundations and steel frames for cat cracker structure, for Shell Martinez Refinery, using Staad and hand calculations, in accordance to AISC, ASCE, IBC and ACI codes.

The Kuljian Corporation, Philadelphia, PA

3/08 – 11/08

Structural Engineer

Designed concrete foundations and superstructure for diesel generator building using Staad 2007, in accordance to BS-5950, BS-8110 and BS-6399 parts 1, 2 and 3.

I-T'AN YU and ASSOCIATES, Inc., Philadelphia, PA

6/01 – 3/08

Lead Engineer

Responsible for design and analysis of structures and foundations using manual calculations and Staad-Pro, in accordance to ASCE-7, AISC, ACI, IBC 2003 and IBC 2006 codes.

Responsible for preparation of plans, specifications and reports, as well as coordination of other disciplines. Responsible for reviewing shop drawings and providing technical support during construction.

Walker Parking Consultants, Conshohoken, PA

10/96 – 6/01

Project Engineer

Designed new components for garages including foundations, footings, piers, reinforced concrete retaining walls & slabs, post-tensioned decks and structural steel using manual calculations and Sap 2000 in accordance to AISC and ACI codes. Prepared drawings and specifications for new garages. Reviewed and approved structural shop drawings, test reports and vendor samples. Provided technical support during construction and conducted periodic quality control site visits.

Prepared assessment reports on existing deteriorated garages. Specified and interpreted testing to determine causes and to evaluate extent of deterioration. Prepared procedures for restoration of garages. Monitored and provided technical support during construction.

Day & Zimmerman, Inc., New Castle, DE

7/96 – 9/96

Structural Engineer

Designed miscellaneous steel and concrete structures for E.I. Dupont De Nemours chemical plants in accordance to AISC and ACI codes.

Omni Tech Group Inc., Camden, NJ

1/95 – 2/96

Lead Engineer

Responsible for structural engineering activities including inspections and design & analysis of structures and foundations in accordance to UBC, IBC, AISC and ACI codes. Responsible for preparation of plans, specifications and reports, as well as supervision of engineers and technicians. Interfaced with vendors and subcontractors and coordinated activities relating to transition of design to construction.

Lockheed Missile and Space Company, Iuka, MS

8/93 – 10/93

Consulting Engineer

Interfaced with program directors, scientists and technical specialists to define requirements for, and develop project scope for Mix Cast exit tunnel. Worked with electrical and mechanical engineers and estimators to prepare conceptual designs and determine project costs. Interfaced with security, safety and other departments to verify that all NASA criteria were met.

Westinghouse Electric Company, Safat, Kuwait

3/94 – 10/94

Chief Civil Engineer

Responsible for engineering activities associated with the reconstruction of three electrical substation in Safat, Kuwait. Reviewed and confirmed damage survey reports prepared by consultants. Reviewed and approved repair/reconstruction proposals, drawings and calculations, Interfaced with ministry of water and electricity officials as required to inform them of project status and clarify technical, schedule and cost concerns.

Carolina Power and Light Company, Southport, NC

4/92 – 07/93

Structural Engineer

Inspected service water intake building for Brunswick Nuclear Plant and identified structures corroded from exposure to brackish water. Specified repair procedures and designed replacement structures for thermal and seismic loads, using manual calculations and GT-Strudl, in accordance to AISC and ACI codes. Provided technical supports during construction. Performed technical and safety reviews for plant modification packages and engineering evaluation reports.

Proctor and Gamble Company, Mehoopany, PA

5/90 – 02/92

Structural Engineer

Interfaced with unit managers to establish requirements for miscellaneous plant projects and develop conceptual designs. Analyzed steel and concrete facilities in accordance to AISC and ACI codes. Monitored plant wide program to determine causes for deterioration of concrete structures on plant site, evaluate extent of deterioration and prepare repair procedures.

Stone & Webster Corporation, Cherry Hill, NJ

5/86 – 10/89

Structural Engineer

Analyzed steel and concrete structures, using manual calculations and GT-Strudl in accordance to ASME and AISC codes for the Comanche Peak Nuclear Plant. Provided technical support during construction.

Westinghouse Electric Company, Pittsburgh, PA

10/81 – 5/86

Senior Engineer

Prepared and certified stress report for nuclear plant NSSS equipment supports including supports for reactors, steam generators, pressurizers and reactor coolant pumps for the Wolf Creek and Callaway Nuclear Power Plants. Analyzed NSSS equipment supports using Nastran and manual calculations, in accordance to ASME code.

Analyzed steel and concrete structures using manual calculations and computer analysis for the following nuclear plants; Byron, Braidwood, Browns Ferry, Diablo Canyon, D.C. Cook, Sharon Harris, San Onofre and Vogtle. Provided technical support during construction.

RICHARD S. DRAKE**CIVIL/STRUCTURAL ENGINEERING SUPERVISOR**

EDUCATION: Bachelor of Science Degree in Civil Engineering
Rutgers University, College of Engineering
Graduated May '81 Cum Laude
Masters of Science Degree 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: **INDIAN POINT ENERGY CENTER (IPEC)**

<u>Entergy Nuclear Northeast</u>	Nov. 2000 - present
<u>New York Power Authority</u>	1986 – Nov. 2000

IPEC Civil/Structural Engineering Supervisor Oct 2005 – present
In charge of the Indian Point (IPEC) Civil/Structural Design Engineering Group. Group responsible for the dual operating PWR units design Basis and modification. The group also was involved in work at the Mothballed Unit 1 decommissioning work. Resumed the role as the Responsible Engineer for all inspections of structures on site. This included all Structural Maintenance Rule and ASME Section XI IWE/IWL inspections. In additional Fleet duties included the Entergy Corporation Fleet Seismic Response for Fukushima.

IPEC Mechanical Engineering Supervisor May 2003 – Oct 2005
In charge of the Indian Point Energy Center (Combined Units 1,2, & 3) Mechanical Engineering group and Designers. In charge of Modifications and Design Basis Control of Mechanical Systems in the plants. During this time I continued acting as the Civil/Structural Engineering Supervisor as well as the Acting Design Engineering Manager.

Civil/Structural Engineering Supervisor at IP3 Feb 1995 – May 2003
In charge of the Indian Point (IP3) Civil/Structural Group. Responsible for supervising the site Civil/Structural Engineers maintaining the Design Basis and performing modifications to the plant structures and components. Group also performed pipe stress analyses, seismic qualifications, security, and erosion/corrosion evaluations. Was also the Responsible engineer for Structural Maintenance Rule inspections of all structures on site and ASME Section XI IWE/IWL inspections.

RICHARD S. DRAKE**CIVIL/STRUCTURAL ENGINEERING SUPERVISOR**

Acting Manager Civil/Structural Engineering Group June 1994 - Feb 1995
In charge of the Corporate Civil/Structural Group supporting both the Indian Point (IP3) and Fitzpatrick (JAF) Nuclear plants.

Senior Civil/Structural Engineer 1986 - June 1994
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

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.



Entergy

NDE Examiner Certification Review
Entergy Nuclear Northeast

NDE EXAMINER

John M. Kroells

51263

URS

Name

Badge

Company

WRITTEN PRACTICE

This individual is certified in accordance with NDE 1 Procedure for Qualification and Certification of NDE Personnel, which follows the guidelines of ASNT Recommended Practice SNT-TC-1A, CP-189, and ASME Section XI as applicable. A current eye test must accompany this certification.

NDE-1 Revision 21 Procedure for Training, Examination and Certification of Nondestructive Examination Personnel

NDE CERTIFICATIONS

Eye Exam Due Date 4/21/2016

METHOD	LEVEL	CERTIFICATION EXPIRATION DATE
LT		
ET		
MT	II(N)	4/17/2018
PT	II(N)	4/17/2018
RT		
UT	II-L	4/21/2018
VT	II	4/17/2018
VT-1	II(N)	4/17/2018
VT-2		
VT-3	II(N)	4/17/2018

Limitations/Restrictions: UT: Straight Beam Examinations; VT-3: Alternative Qualification Table 5 (ASME Appendix 6).

Test Techniques: MT: Yoke - Dry Powder; PT: Visible Dye- Solvent Removable; UT: CONTACT: Straight Beam; VT: Direct and Remote; Welding Inspection only; VT-1: Direct and Remote; VT-3: Direct and Remote.

ADDITIONAL QUALIFICATIONS/CERTIFICATIONS

METHOD	LEVEL	EXP DATE	DESCRIPTION
VT	II	4/21/2018	Visual Weld Inspection - ANSI N45.2.6
VT-1			IWE/IWL Training 8-13-10
VT-3			IWE/IWL Training 8-13-10

ANNUAL REVIEWS

First N/A

Third N/A

Second A

Fourth A


REVIEWS

John M. Kroells
 NDE Level III,

4/23/15
 Date

Elizabeth K. H.B. p.s.
 ANII

4-23-2015
 Date

 NDE Examiner Certification Review Entergy Nuclear Northeast																																			
NDE EXAMINER																																			
Victor W. Dittrich	29242	URS																																	
Name	Badge	Company																																	
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