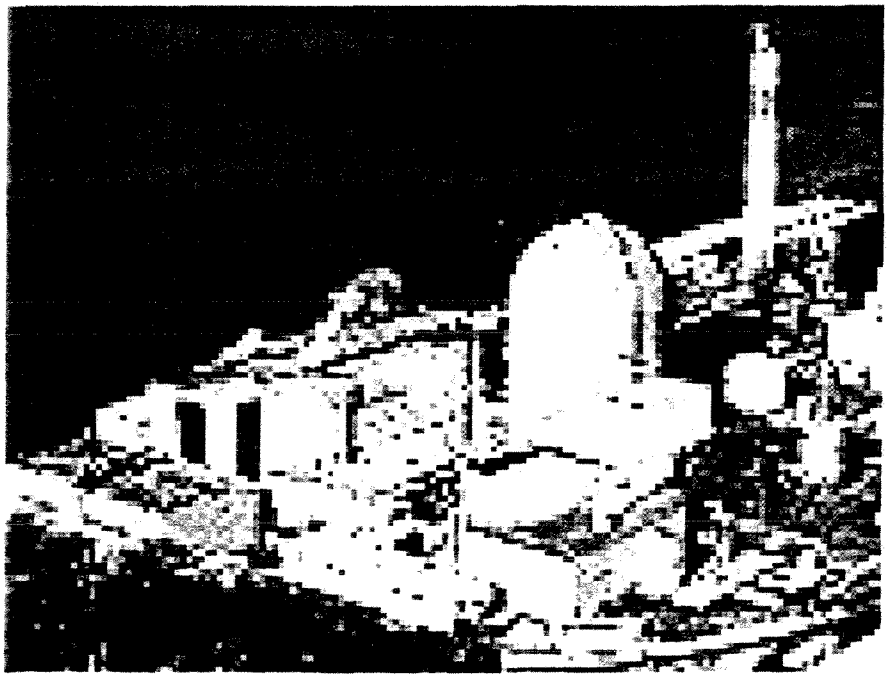
Entergy

Indian Point 3

IP3-RPT-STR-03517, Revision 0

IP3
ASME Section XI, IWL
Concrete Containment
Inspection



Entergy

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IP3-RPT-STR-03517, Revision 0

IP3
ASME Section XI, IWL
Concrete Containment
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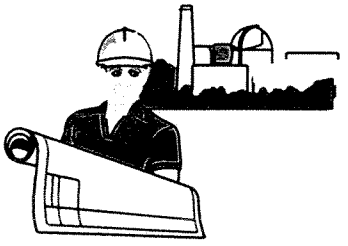
Preparer / Date 9/5/01

Reviewer / Date 9-5-01

ISI Engineer Reviewer / Date 9/10/2001

Approver / Date 9/6/01

IP3 Engineering



ANII Concurrence / Date 9/24/01

Nuclear Engineering
CALCULATION CONTROL SHEET

COMPONENTS

MAJOR EQUIPMENT	PIPE NO.	VALVE NO.	SUPT. NO.	INST. NO.	PENE. NO.
VC BLDG					

RELATED DOCUMENTS

See Sections 5.1 THRU 5.4

RELATED DRAWINGS

SEE DRAWINGS Section 5.5

SECURITY: (Y/N) N

COMPUTER PRINTOUT: (Y/N) N

CALCULATION SHEET

TABLE OF CONTENTS

1.0 PURPOSE

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). 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. This report covers the IWL inspections that were performed during the first period of the first inspection interval.

This report was developed in accordance with the requirements of the ASME Boiler and Pressure Code, 1998 Edition, Section XI, Division 1, Subsections IWL as required and modified by NRC, Code of Federal Regulation, Title 10, Part 50, Section 55a, "Codes and Standards" (10CFR50.55a - 1999). This inspection satisfies the requirements of the above code, as outlined in IP3-RPT-VC-03071, CONTAINMENT INSERVICE INSPECTION FIRST TEN YEAR CLASS MC AND CC PROGRAM 09/10/98 – 09/09/08, Reference 5.4.13.

2.0 INTRODUCTION

The Indian Point Unit 3 Nuclear Power Plant, located in Buchanan, New York is operated by Entergy Nuclear Northeast, formerly by the New York Power Authority. The Indian Point Unit 3 Nuclear Power Plant is a 1025-Megawatt electric, Westinghouse design, four-loop pressurized water reactor that was placed into commercial operation on August 30, 1976. The reactor is enclosed in a steel lined reinforced concrete building. The IWE metal liner and metal pressure retaining components were inspected and documented in report IP3-RPT-STR-03398, Reference 5.4.14.

2.1 BACKGROUND

The Indian Point Unit 3 Nuclear Power Plant Reactor Containment Building was designed and fabricated before the examination requirements of ASME boiler and Pressure Vessel Code Section XI were formalized and published. The Containment building was previously inspected as part of the Tech Spec requirements under surveillance tests 3PT-A2 (now called 3PT-Y6) references 5.4.8 and 5.4.9. The structure has been included in the Maintenance Rule inspection, reference 5.4.7, but this inspection is the first in-depth ISI inspection of the concrete portion of the Containment Building.

2.2 ACCESSIBLE / INACCESSIBLE AREAS

The inspections were performed directly inside buildings, which were adjacent to the

Containment Building and from the exterior using remote visual inspections. The location of the observation points is listed and shown in Figure 1. The equipment used enabled the inspectors to see the entire containment building with the exception of a small portion at the top of the dome. The entire top of the Containment building dome was visible from the top of the IP1 stack, with the exception of a small wedge shape section on the SE side behind the Plant Vent. The sides and slope of the dome were visible from the lower ground locations. The only portions that were inaccessible are the small wedge on top of the dome, attachment points between buildings, buried sections, and the sections behind the plant vent. The results of the inspections did not find anything that would warrant exploration of the inaccessible areas. The inaccessible areas are identified on the ISI drawing ISI-IWL-002.

3.0 DISCUSSION

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 IP3 and a New York State Registered Professional Engineer in accordance with IWL Procedure. The Responsible Engineer has knowledge of the Design and Construction Codes as well as other criterion used in IP3's Containment.

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.

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.

Degreed engineers from the IP3 Civil Structural group performed the inspections under the direction of the RE. These engineers are knowledgeable and trained in the design, evaluation and performance requirements of structures and qualified to perform visual examination either directly or remotely, with adequate illumination, to detect evidence of degradation. All inspectors met the above requirements and their resumes and inspection

qualifications are attached in section 6.3. Each of the engineers received an eye examination to demonstrate that their vision met the requirements of VT-1 inspections, attached in Section 6.4. The walkdown team noted the conditions of structures. Areas of specific interest were photographed.

3.2 QUALIFICATION OF EQUIPMENT

During the containment inspection movable tripod spotting scopes, binoculars were used in bright daylight and shade. Indoors existing building lighting was augmented with hand held 500,000 to 2,000,000 foot candle portable spotlights focused on the required area under examination. The portable lights were rotated to ensure that they did not operate longer than four hours each. The acuity achieved met and exceeded the requirements of Section XI Table IWA-2210-1 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.

The equipment consisted of:

1) Nikon 7 X 15 X 35 binoculars,
2) Nikon 45x Spotting scope,
3) Tasco 12 X 60 X 70mm binoculars.
4) Cabela's Zoom lens spotting scope 16x to 50x60x

Item 2 and 3 above were field tested on July 16th at a distance of 214 ft using a neutral gray card in natural light. This test was witnessed by Mara Lakis, Richard Drake, and Leon Epstein and achieved the acuity listed in IWA table 2210-1 VT-3. Item 4 above was benchmarked on July 19th at 250' distance in both sun and shade using the neutral gray card. Mara Lakis, Zarif Rafla, and Allan Shiaffino (ANII) witnessed this test.

3.3 Acceptance Standards

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

3.4 Evaluation of Results

The Responsible Engineer reviewed the inspection checklists/notes and assessed

the current condition of the structures. 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 5.3.2, 5.3.3, 5.3.5, 5.3.6, and 5.4.7 were used to evaluate any flaws, indications, or degradation. In addition to the review of inspection notes the RE took part in most of the inspections.

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 is 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.

4.0 INSPECTION 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 condition and aging. The inspection performed was a general visual examination. No further examinations were required. The summary of the field notes for the inspections are documented in Attachment 6.2. The inspection was performed using optical equipment with Zoom capability from 7x up to 60x. The pictures shown in section 6.5 were taken with a digital camera which had zoom capability of up to 16x and therefore does not show the same detail at which the examinations were performed.

The Vapor Containment (VC) building has typical concrete conditions throughout the structure. The top portion of the VC, i.e. the dome, has signs of leaching at the construction joints. This was more noticeable at the top down to the spring line, transition between shell and cylinder, and then reduces downward on the sides. This was from water washing through the construction joints and seams but, no signs of degradation or rust staining was observed.

The only rust staining observed was from the lightning rods, handrail around the plant Vent at the zenith of the dome, the plant vent attachments, and miscellaneous localized embedded pieces of

metal. The construction joints at the top of the dome and at some locations on the cylinder are rough with some patched form holes popping out. No observed staining from these discontinuities were observed. Many cracks were observed in the construction seams and also vertical cracks between the horizontal construction joints. These cracks are all tight and non-active without any signs of rust staining coming from them.

Several anomalies were found:

- The reinforced collar around the 95 ft elevation equipment hatch has some exposed rebar ties on the top. Pid 01600 was written to coat the bars and grout the concrete to seal the rebar. No structural concerns, only light rusting. Pictures 40-42.
- At approx. elevation 50' on the exterior VC wall located behind the Aux. Feedwater Building (AFWB) near the Appendix R generator an exposed scaffolding embedded plate was found. Rust is visible due to exposure to the enviroment because the patched concrete cover has fallen off. This was a previously identified and addressed finding by both the Maintenance and Tech Spec Surveillance inspections. PID 01596 has been written to clean, paint, and re-patch the area to prevent further rusting and eliminate a repeat finding. Picture 39.
- Approx. seven feet above the Electrical Tunnel roof and ten feet in front of the ladder to the Fan Room roof, a small piece of embedded wood was found under a small rusted form tie connected to the VC Wall. This was leftover from construction. The piece of wood and tie were only located on the surface and the wood was chipped and removed. It was found to be 3"deep without any further remnants. The remaining hole was 3/4"H x 3" L x 3" D. The "Before" and "After" pictures are shown in pictures 33 and 34. PID 01806 was issued to re-grout the hole left from the removed wood.
- Several minor embedded pieces of metal were found on the surface of the VC building which do not impact the durability or integrity of the structure. One of these consisted of a metal strap above the Electrical tunnel roof at elevation ~108' on the SW side of the containment building. Shown in pictures 58 through 60. It was a metal strap approx. 12" long at the surface of the concrete in the construction joint. It was probably left there from scaffolding and does not attach to the reinforcing steel. Another item found was a piece of round scaffold pole sticking out ~2" from a scaffolding attachment point on the east side of the VC just below the Fuel Storage Building (FSB) roof line. See pictures 12 and 13. This is a non structural attachment and does not have an affect on the structure. Smaller pipe scaffolding attachments under the 95' equipment hatch construction joint were also visible and shown on pictures 45 and 46.
- The only visible rust stains observed were from small localized attachments of metal previously discussed and some larger streaking at the top of the dome from the lightning rod bases, hand rail around the plant vent, and the plant vent attachments. This is visible in pictures 1 through 9. The rust is clearly from the external metal attachments and not from the concrete cracks. Therefore the staining is not an IWL concern and does not indicate any structural degradation.
- Some concrete was observed chipped out in the pipe penetration areas in the PAB building. This was chipped out to allow installation of the weld channel tubing. No reinforcing is exposed and the concrete does not need to be repaired since access to these locations may be

needed in the future. This is visible in pictures 76 through 78.

- Pictures 69 to 72 show the "Before" and "After" removal view of a small flaking patch at the 82' elevation of the VC located in the AFWB. A 5" round bulge was observed with rain stains streaking down from it. The bulge was removed and it was found that a round scaffold pole location was poorly patched with a 1/8" to 1/4" thick flake of concrete and coating. No reinforcing steel was exposed and the staining was the result of a past roof leak collecting in the bulged area. The staining was from either the scaffold plate or staining carried from the roof. Since the location is now in a sealed building and the roof leak repaired this location will not be re-patched due to the difficulty in accessing the area.

4.1 CONCLUSIONS:

The Containment Structure remains fully capable of performing its design functions. **The Concrete Containment is Acceptable** 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.

DER 01-2999 was issued to track and trend the observations, embedded plates, and chipped concrete. PIDs 1596, 1600, and 1806 were issued to perform cosmetic repairs.

5.0 REFERENCE MATERIAL

5.1 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.

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-68 (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-68 (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-68 (see Figure A.1.1g).

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-68 (see Figures A.2.7, A.2.7.1, A.2.7.2, and A.2.7.3).

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-68 (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-68 (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-68 (see Figure A.2.16).

5.2 REFERENCES

5.2.1 **Commitment Documents**

5.2.2 Code of Federal Regulations; Title 10, Energy; Part 50, Domestic Licensing of Production and Utilization Facilities; Section 50.55a, Codes and Standards

5.2.3 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

5.2.4 Regulatory Guide 1.147, Revision 12, Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1

5.2.5 USNRC NUREG-1522, Assessment of Inservice Conditions of Safety-Related Nuclear Plant Structures

5.2.6 USNRC Inspection Manual, Inspection Procedure 62003, Inspection of Steel and Concrete Containment Structures at Nuclear Power Plants

5.2.7 USNRC IN 97-11, Cement Erosion From Containment Sub-foundations at Nuclear Power Plants

5.2.8 USNRC IN 97-29, Containment Inspection Rule

5.3 **Development Documents**

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

5.3.2 ACI 201.1R-92, Guide for Making a Condition Survey of Concrete In-Service.

5.3.3 ACI 349.3R-96, Evaluation of Nuclear Safety-Related Concrete Structures.

5.3.4 IP3-RPT-VC-03071, "Containment Inservice Inspection, First Ten Years, Class MC and CC program".

5.3.5 IP3-CALC-VC-03244, "Acceptable limits for VC concrete Inspection per ASME Section XI, IWL.

5.3.6 Report on Consolidated Edison's IP3, Containment Vessel Structural Integrity for Wedco Corp., dated February 21, 1975 (NYPA file # 45-C-0347).

5.3.7 Final Containment Design Report by Westinghouse Corp., dated September 1970 (NYPA file # 41-E-0541).

5.3.8 IP3-DED-AS-031, Rev 0. "ASME Section XI, IWL Containment Inspection Procedure.", dated 7/25/01.

5.4 **Interface Documents**

5.4.1 DER 01-2999

5.4.2 PIDs 1596, 1600, and 1806

5.4.3 (Blank)

5.4.4 IP3-RPT-VC-1901 "Basis Document for Containment Integrity"

5.4.5 AP-39 "IP3 ASME Code Section XI Repair/Replacement Program"

5.4.6 IP-C-01 "Installation Procedure for Concrete Repairs"

5.4.7 SED-AD-22, " Condition Monitoring of Maintenance Rule, Structures".

5.4.8 3PT-Y6, "Containment Structural Inspection". (Since R11)

5.4.9 3PT-A2, "Containment Structural Inspection".(prior to R11).

5.4.10 Entergy Memo IP-DEM-01-005, From Richard Drake, To: ANII, dated April 6, 2001,"IWE/IWL Remote Visual Equipment Qualification."

5.4.11 Entergy Report IP3-RPT-VC-03071, Containment Inservice Inspection first ten year MC & CC program, 09/10/98-09/09/08. Rev 1 dated Jan 11, 2001.

5.4.12 NYPA memo IP-DEM-95-139, from S. Guarnaccia to J. Janicki, resolution of PIDs 18440 through 18445.

5.4.13 Entergy Report IP3-RPT-VC-03071, Revision 2,CONTAINMENT INSERVICE INSPECTION FIRST TEN YEAR CLASS MC AND CC PROGRAM 09/10/98 – 09/09/08.

5.4.14 Entergy Report IP3-RPT-STR-03398, Revision 0, ASME Section XI, IWE MC and Metallic Liners of Class CC components inspection, approved 7/31/01.

5.5 CONTAINMENT ISI DRAWINGS

DRAWING NUMBER	TITLE
ISI-IWL-001	Containment Concrete Roll-Out Dwg. Up to Elev. 191'-0"
ISI-IWL-002	Containment Concrete Dome Dwg. Above Elev. 191'-0"
ISI-IWL-003	Containment General Arrangement Drawing

6.0 ATTACHMENTS

6.1 Figures and Drawings
- **Figure 1 -location of Observation points.**
- **ISI IWL Drawings**

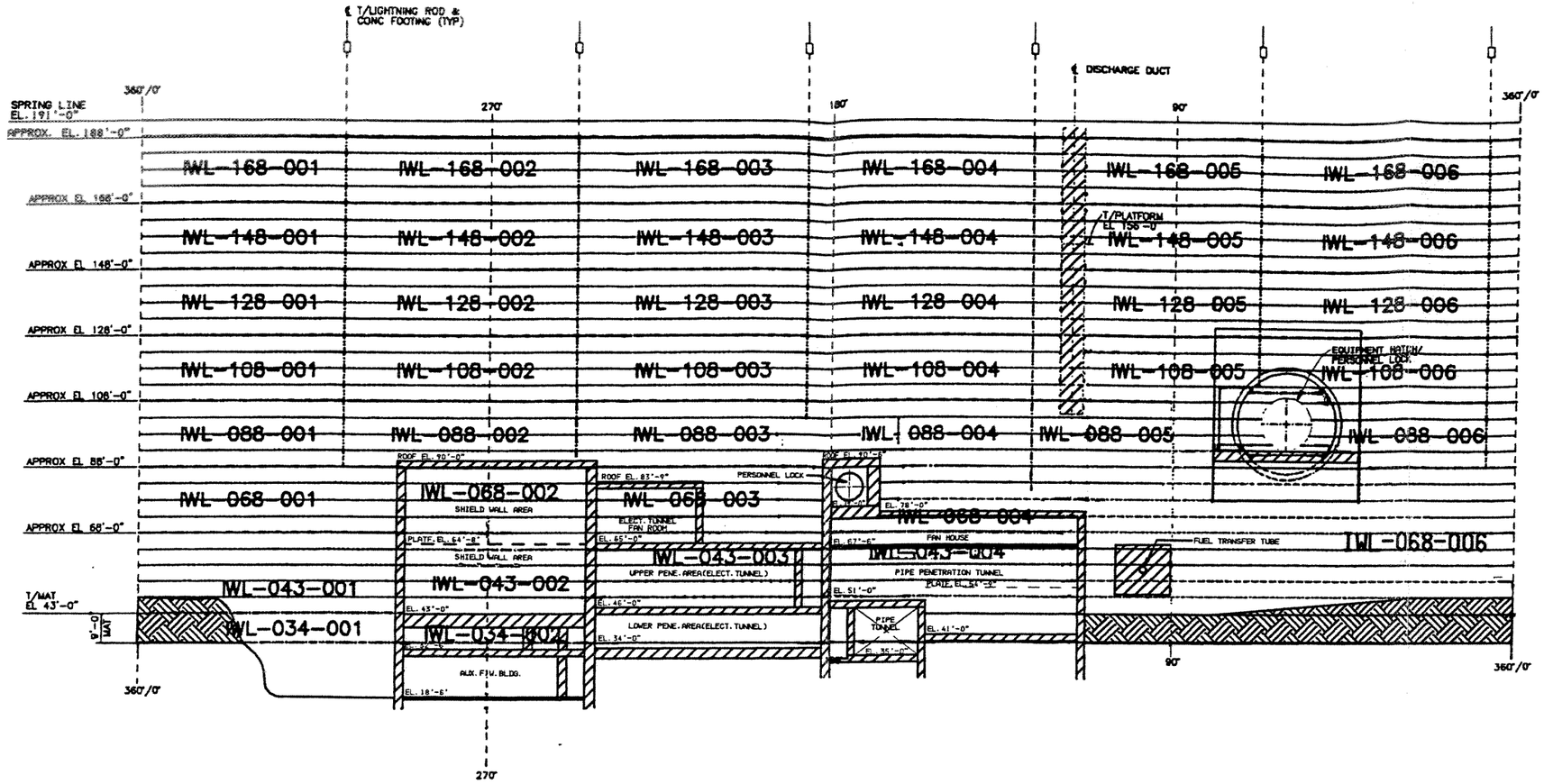
6.2 Inspection Reports

6.3 Resumes

6.4 Qualification Certificates

6.5 Pictures

6.6 Misc. information
- **DERs and PIDs**

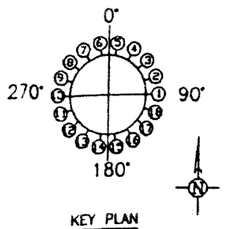


CONCRETE ROLLOUT
(EXTERIOR DEVELOPED VIEW, LOOKING FROM OUTSIDE)

REFERENCE DWGS:
9321-F-10331
9321-F-11578
9321-F-12113
9321-F-12123
9321-F-12133
9321-F-12143
9321-F-12153
9321-F-12163
9321-F-12083
9321-F-12103
9321-F-14213
9321-F-14223
9321-F-14233
9321-F-14703
9321-F-14713
9321-F-11983

NOTES:
1. ZONE BOUNDARIES ARE ESTABLISHED AT LOCATIONS OF CONCRETE POUR CONSTRUCTION JOINTS WHICH ARE SPACED AT APPORXIMATELY 5'-0".

LEGEND:
- ZONE BOUNDARY
- PENETRATION
- CONSTRUCTION JOINT
- EXPOSED CONCRETE FILL AREA
- IWL-XXX-YYY INSPECTION ZONE NUMBER
- CONCRETE SURFACE OF V.C. INACCESSIBLE (EARTH BACKFILL, ROCK, OR BELOW GRADE)
- CONCRETE SURFACE OF V.C. INACCESSIBLE (WALLS, FLOOR SLABS, OR EQUIPMENT)



KEY PLAN

REV NO	DATE	DESCRIPTION	DWN/CHK'D				
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1	12/19/00	ORIGINAL ISSUE FOR DCR-100159488	ELG/RM	WEL	AYE	-	AYE

REVISIONS

DWN / CHK'D	
DES SUPV	
DISCIPLINE ENG	
DISCIPLINE DIR	
PROJ APPROVAL	
DATE	

INDIAN POINT NO. 3 NUCLEAR POWER PLANT

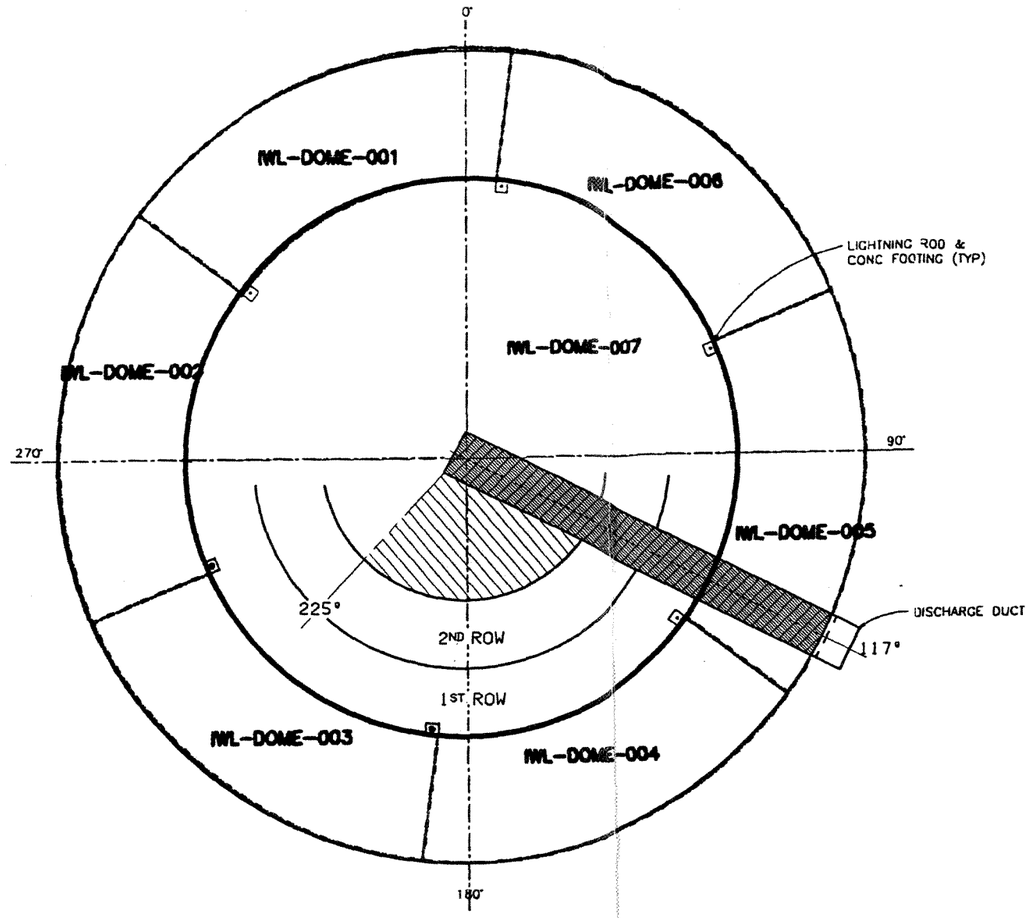
CONTAINMENT CONCRETE ROLL-OUT DRAWING ELEV. 34'-0" TO 191'-0"

Entergy Nuclear Northeast

SCALE: NONE

DWG NO ISI-IWL-001 SHEET

REV 2



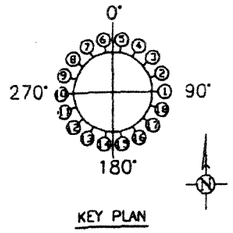
TOP PLAN

CONCRETE DOME
(EXTERIOR PROJECTED VIEW, LOOKING FROM TOP)

NOTES:
1. REFERENCE DESIGN DRAWING NUMBERS 9321-F-11303, 9321-F-12813 & 9321-F-13193

LEGEND:

- CONCRETE SURFACE INACCESSIBLE
- ZONE BOUNDARY
- IWL-XXX-YYY INSPECTION ZONE NUMBER
- CONCRETE SURFACE OF V.C. DOME INACCESSIBLE FROM AN EXISTING VANTAGE LOCATION



KEY PLAN

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1	12/19/00	ORIGINAL ISSUE FOR DCR-100159489	CLG RH	WEL	AYE	–	AYE
			DWN CHK	DS	RE	VFY	APP

REVISIONS

DWN / CHK'D	
DES SUPV	
DISCIPLINE ENG	
DISCIPLINE DIR	
PROJ APPROVAL	
DATE	

INDIAN POINT NO. 3 NUCLEAR POWER PLANT

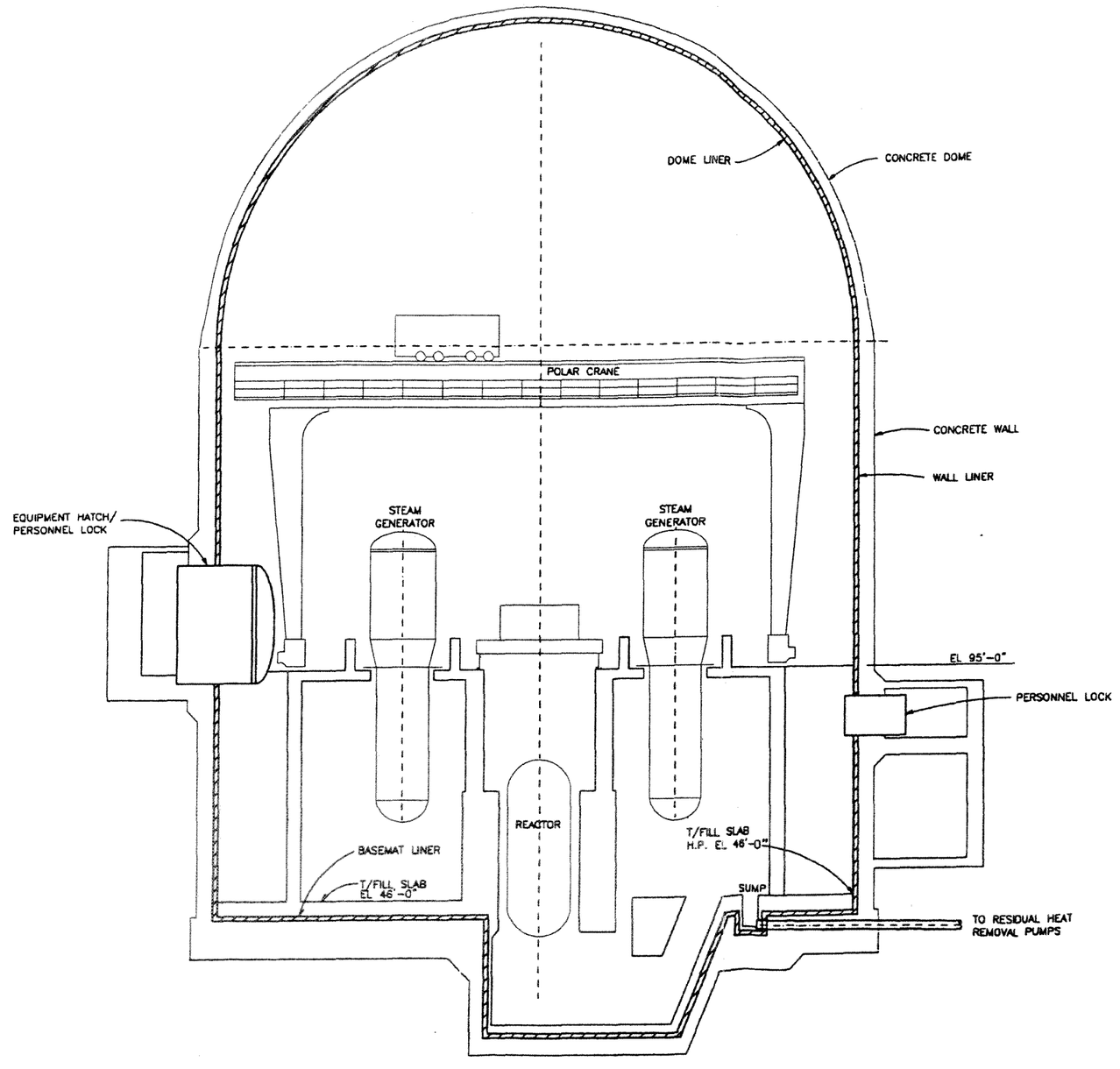
CONTAINMENT CONCRETE DOME PLAN, ABOVE ELEV. 191'-0"

NewYorkPower Authority

SCALE: NONE

DWG NO ISI-IWL-002 SHEET

REV 2



CONTAINMENT ISI GENERAL ARRANGEMENT

NOTE:
1. ORIENTATION OF EQUIPMENT HATCH AND PERSONNEL LOCKS ARE NOT SHOWN TO TRUE AZIMUTH.

REV NO	DATE	DESCRIPTION	DWN/CHK	DS	RE	VFY	APP
2	3/1/00	REVISED PER DCR-100161940	DLG/RH	JM	WL	-	JM
1	12/19/00	ORIGINAL ISSUE FOR DCR-100159490	DLG/RH	WEL	AYE	-	AYE

REVISIONS

DWN / CHK'D	
DES SUPV	
DISCIPLINE ENG	
DISCIPLINE DIR	
PROJ APPROVAL	
DATE	

INDIAN POINT NO. 3 NUCLEAR POWER PLANT

CONTAINMENT ISI
GENERAL ARRANGEMENT

NewYorkPower Authority

SCALE: NONE

DWG NO ISI-IWL-003

REV 2

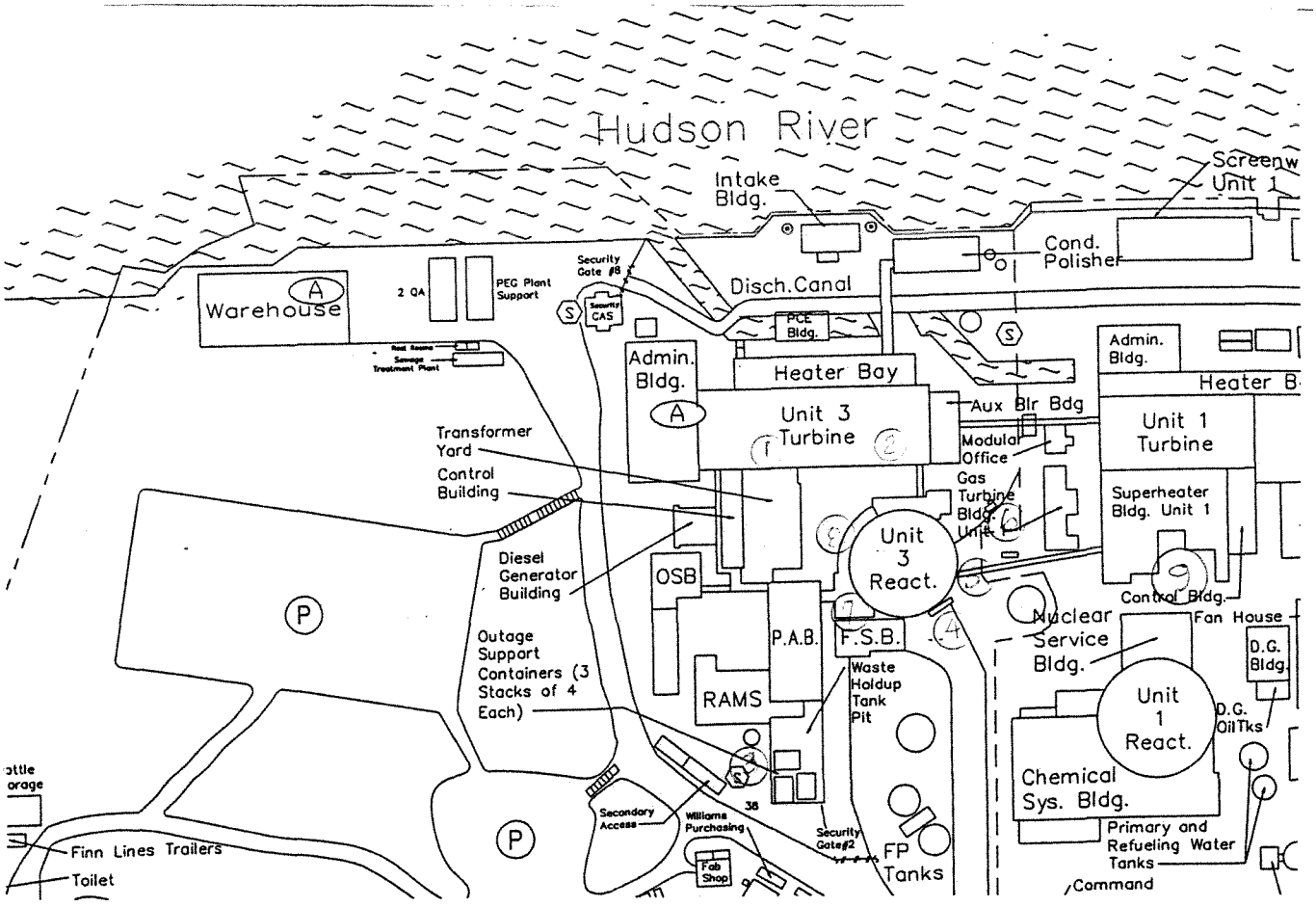
SHEET

Indian Point 3
Nuclear Power Plant

Attachment 6.1

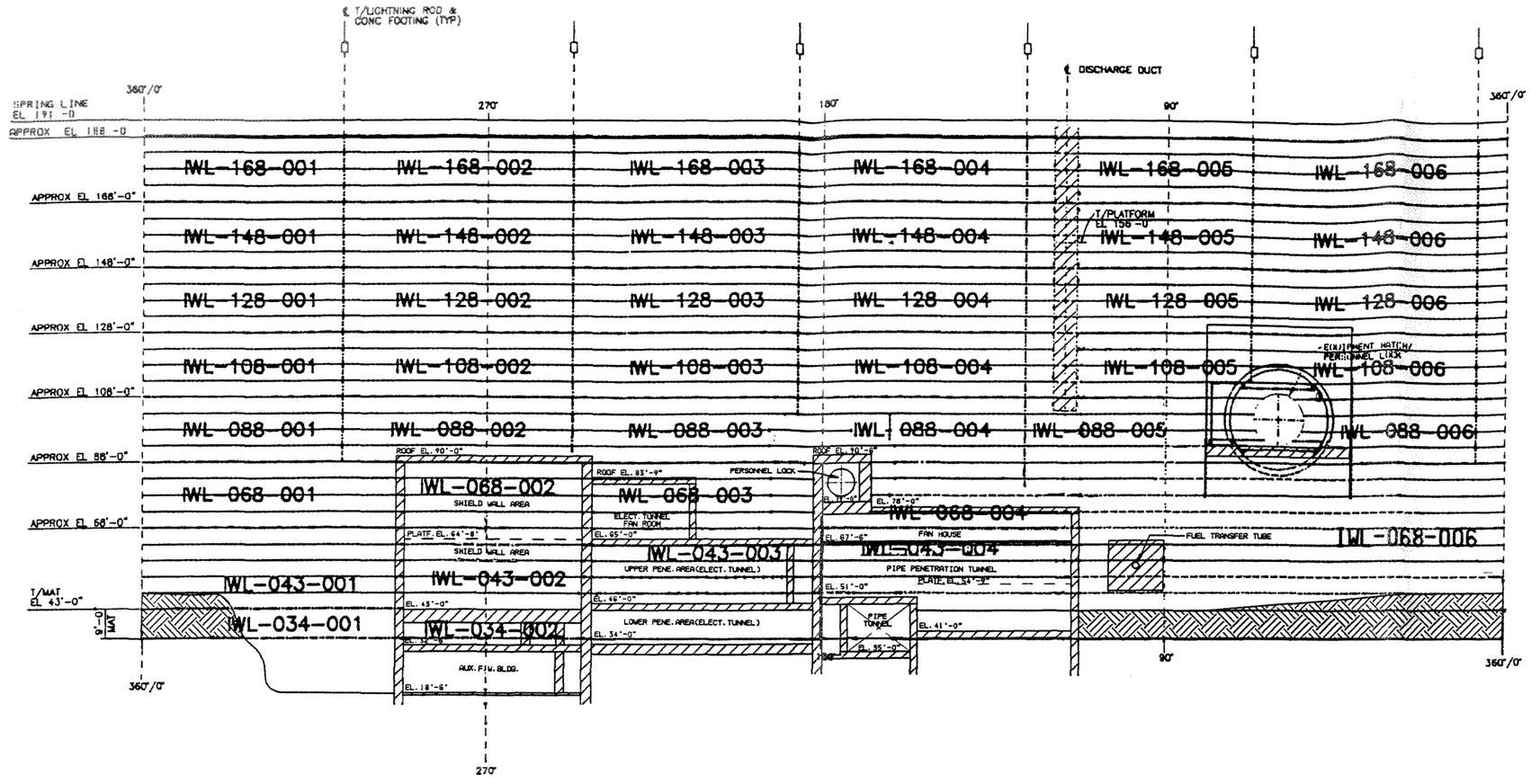
Figures and ISI Drawings

IP3 ASME Section XI, IWL Concrete Containment Inspection	No: IP3-RPT-STR-03517, Rev: 0 Figure 1



Location of Observation Points

1) Roof of Turbine Building.
2) Roof of Turbine Building.
3) Near PWST
4) Driveway near 95' Equipment Hatch.
5) Substation "C" and Pigeon Pit area
6) Appendix R Diesel Generator Area
7) Plant Vent ladder and two upper platforms
8) Roof of Electrical Tunnels
9) Indian Point Unit 1 stack (top)



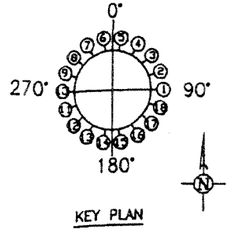
CONCRETE ROLLOUT
(EXTERIOR DEVELOPED VIEW, LOOKING FROM OUTSIDE)

REFERENCE DWGS:
9321-F-10331
9321-F-11573
9321-F-12113
9321-F-12123
9321-F-12133
9321-F-12143
9321-F-12153
9321-F-12163
9321-F-12083
9321-F-12103
9321-F-14213
9321-F-14223
9321-F-14233
9321-F-14703
9321-F-14713
9321-F-11983

For information only
ML

NOTES:
1. ZONE BOUNDARIES ARE ESTABLISHED AT LOCATIONS OF CONCRETE POUR CONSTRUCTION JOINTS WHICH ARE SPACED AT APPROXIMATELY 5'-0".

LEGEND:
- ZONE BOUNDARY
- PENETRATION
- CONSTRUCTION JOINT
- EXPOSED CONCRETE FILL AREA
- IWL-XXX-YYY INSPECTION ZONE NUMBER
- CONCRETE SURFACE OF V.C. INACCESSIBLE (EARTH BACKFILL, ROCK, OR BELOW GRADE)
- CONCRETE SURFACE OF V.C. INACCESSIBLE (WALLS, FLOOR SLABS, OR EQUIPMENT)



KEY PLAN

REV NO	DATE	DESCRIPTION	CLG/CHK				
2		REVISED AS PER FIELD WALK-DOWN	CLG/RH				
1	12/17/02	ORIGINAL ISSUE FOR DCR-100159488	CLG/RH	WEL	AYE	–	AYE
			DWN/CHK	DS	RE	VFY	APP

REVISIONS

DWN / CHK'D	
DES SUPV	
DISCIPLINE ENG	
DISCIPLINE DIR	
PROJ APPROVAL	
DATE	

INDIAN POINT NO 3 NUCLEAR POWER PLANT

CONTAINMENT CONCRETE ROLL-OUT DRAWING ELEV 34'-0" TO 191'-0"

Entergy Nuclear Northeast

SCALE: NONE

DWG NO ISI-IWL-001 REV 2

SHEET

Indian Point 3
Nuclear Power Plant

Attachment 6.2

Inspection Reports

Inspection # IP3-IWL	Wall # Loc.	Wall # Elev.	Acceptable	Acceptable With Degr.	Unacceptable	Remarks
1	Top of Equip Hatch	108		x		PID # 01600 - exposed rebar.
2	Equip Hatch	108		x		PID # 01600 - exposed rebar.
3	Equip Hatch	108	x			
4	Above Equip Hatch	128	x			
5	Above Equip Hatch	128	x			
6	0 - 70	148	x			
7	70 - 145	148	x			
8	0 - 145	168	x			
9	First 2 rows of dome	Above 191	x			
10	Right of Equip Hatch	68-168	x			
11	See data sheet	43-168	x			
12	145 - 190	148 to above 191	x			
13	310 - 360	34 -168		x		PID # 01596 - exposed scaffold plate.
14	At airlock & above	68 - 168	x			
15	Above Electr. Tunnel	43 - 191	x			PID # 1806 - to repair hole left from removed wood.
16	Above MS Relief Vlvs	68 to above 191	x			PID # 01598 - for Non-IWL concern.
17	All elevs of –001 & above shld wall	34 – above 191	x			
18	Upper and lower	34 – 43	x			

	Electr Tunnel					
19	Dome	Above 191	X			
20	Mech penetr wall	55 outside VC		X		Repair not required in case tubing needs to be replaced. (Concrete removed to allow access to tubing)
21	PAB side see data sheet	55 – 68	X			
22	PAB side near EBR-9-FH	72	X			
23	Mini-Cont Room	35	X			
24	AFWB	77.33		X		No exposed rebar; repair not required – scaffolding difficult to build
25	AFWB	64.8	X			
26	AFWB	43	X			
27	AFWB	33	X			
28	AFWB	15	X			

INDIAN POINT 3
ASME SECTION XI, IWL INSPECTION
CONTAINMENT BUILDING

Inspection # IP3-IWL- 1

☐ **Containment wall #** IWL-108-005/-006 **Location:** top of Equip. Hatch **Elevation:** 108'

Drawing # ISI-IWL-001

Inspection notes: chipped concrete; minor crack @ constr. joint; bug holes from form work; minor surface cracks; exposed tip of rebar - rebar coating in tact; no signs of rust or further degradation

Deficiencies: _____

☐ **Acceptable**
☒ **Acceptable with Degradation**
☐ **Unacceptable (Further evaluation is required)**

Inspected by: Z. Rafla **Date:** 7/18/2001

Inspected by: M. Lakis **Date:** 7/18/2001

PID # 01600

Inspected from 95' Equip. Hatch driveway

Final Resolution: _____

Approved: P.S. Drake **Date:** 7/26/01

INDIAN POINT 3
ASME SECTION XI, IWL INSPECTION
CONTAINMENT BUILDING

Inspection # IP3-IWL- 2

☐ **Containment wall #** IWL-108-006 **Location:** @ Equip Hatch **Elevation:** 108'

Drawing # 151-IWL-001

Inspection notes: spalled; pop-out area w/exposed re-bar (on top of Hatch collar); exposed piece of metal stuck in concrete below constr. joint; patched form work - light rust

Deficiencies: _____

☐ **Acceptable**
☒ **Acceptable with Degradation**
☐ **Unacceptable (Further evaluation is required)**

Inspected by: Z. Rafla **Date:** 7/18/2001

Inspected by: M Lakis **Date:** 7/18/2001

PID # 01600

Inspected from 95' Equip. Hatch driveway

Final Resolution: _____

Approved: P.S. Drake **Date:** 7/26/01

INDIAN POINT 3
ASME SECTION XI, IWL INSPECTION
CONTAINMENT BUILDING

Inspection # IP3-IWL- 3

☐ **Containment wall #** IWL-108-005 **Location:** @ Equip. Hatch **Elevation:** 108'

Drawing # 151-IWL-001

Inspection notes: bug holes throughout - form work; minor cracking due to shrinkage

Deficiencies:

☒ **Acceptable**
☐ **Acceptable with Degradation**
☐ **Unacceptable (Further evaluation is required)**

Inspected by: Z. Rafla **Date:** 7/18/2001

Inspected by: M. Lakis **Date:** 7/18/2001

Inspected from 95' Equip. Hatch driveway

PID #

Final Resolution:

Approved: P.S. Drake **Date:** 7/26/01

INDIAN POINT 3
ASME SECTION XI, IWL INSPECTION
CONTAINMENT BUILDING

Inspection # IP3-IWL- 4

☐ **Containment wall #** IWL-128-005 **Location:** above Equip. Hatch **Elevation:** 128'

Drawing # 151-IWL-001

Inspection notes: bug holes throughout; minor cracking due to shrinkage; leaching; scaling and spalling; pop-outs - all minor

Deficiencies:

☒ **Acceptable**
☐ **Acceptable with Degradation**
☐ **Unacceptable (Further evaluation is required)**

Inspected by: Z. Rafla Z. Rafla **Date:** 7/18/2001

Inspected by: M. Lakis M Lakis **Date:** 7/18/2001

Inspected from 95' Equip. Hatch driveway

PID #

Final Resolution:

Approved: R.S. Drake **Date:** 7/26/01

INDIAN POINT 3
ASME SECTION XI, IWL INSPECTION
CONTAINMENT BUILDING

Inspection # IP3-IWL- 5

☐ **Containment wall #** IWL-128-006 **Location:** above Equip. Hatch **Elevation:** 128'

Drawing # 151-IWL-001

Inspection notes: bug holes throughout; minor cracking due to shrinkage; leaching; scaling & spalling; pop-outs - all minor

Deficiencies:

☒ **Acceptable**
☐ **Acceptable with Degradation**
☐ **Unacceptable (Further evaluation is required)**

Inspected by: Z. Raffa Z. Raffa **Date:** 7/18/2001

Inspected by: M. Lakis M Lakis **Date:** 7/18/2001

Inspected from 95' Hatch driveway

PID #

Final Resolution:

Approved: P.S. Drake **Date:** 7/20/01

INDIAN POINT 3
ASME SECTION XI, IWL INSPECTION
CONTAINMENT BUILDING

Inspection # IP3-IWL- 6

☐ Containment wall # IWL-148-006 Location: Between ~ 0° & 70° Elevation: 148'

Drawing # 151-IWL-001

Inspection notes: bug holes throughout; minor cracking due to shrinkage; leaching; scaling & spalling; pop-outs - all minor

Deficiencies:

☒ Acceptable
☐ Acceptable with Degradation
☐ Unacceptable (Further evaluation is required)

Inspected by: Z. Raffa Date: 7/18/2001

Inspected by: M. Lakis M Lakis Date: 7/18/2001

PID #

Inspected from 95' Equip. Hatch driveway

Final Resolution:

Approved: P.S. Drake Date: 7/26/01

INDIAN POINT 3
ASME SECTION XI, IWL INSPECTION
CONTAINMENT BUILDING

Inspection # IP3-IWL- 7

☐ Containment wall # IWL-148-W5 Location: Between ~ 70°-145° Elevation: 148'

Drawing # 151-IWL-01

Inspection notes: bug holes throughout; minor cracking due to shrinkage; leaching; scaling & spalling; pop-outs - all minor

Deficiencies:

☒ Acceptable
☐ Acceptable with Degradation
☐ Unacceptable (Further evaluation is required)

Inspected by: Z. Rafla Date: 7/18/2001

Inspected by: M. Lakis M Lakis Date: 7/18/2001

Inspected from 95' Hatch Driveway

PID #

Final Resolution:

Approved: P.S. Drake Date: 7/26/01

INDIAN POINT 3
ASME SECTION XI, IWL INSPECTION
CONTAINMENT BUILDING

Inspection # IP3-IWL- 8

☐ **Containment wall #** IWL-168-W5/-W6 **Location:** Between ~ 0° - 145° **Elevation:** 168'

Drawing # 151-IWL-001

Inspection notes: not a smooth surface - pebbles exposed due to orig. vibr. issues; non-active leaching

Deficiencies:

☒ **Acceptable**
☐ **Acceptable with Degradation**
☐ **Unacceptable (Further evaluation is required)**

Inspected by: Z. Rafla **Date:** 7/18/2001

Inspected by: M. Lakis **Date:** 7/18/2001

PID #

Inspected from 75' Equip. Hatch driveway

Final Resolution:

Approved: R.S. Drake **Date:** 7/26/01

INDIAN POINT 3
ASME SECTION XI, IWL INSPECTION
CONTAINMENT BUILDING

Inspection # IP3-IWL- 9

☐ **Containment wall #** IWL-Dome-005/006 **Location:** First 2+ rows of dome **Elevation:** above 191'

Drawing # 151-IWL-002

Inspection notes: minor cracking due to shrinkage; leaching; scalling & spalling; all non-active, minor

Deficiencies:

☒ **Acceptable**
☐ **Acceptable with Degradation**
☐ **Unacceptable (Further evaluation is required)**

Inspected by: E. Raffa **Date:** 7/18/2001

Inspected by: M. Lakis **Date:** 7/18/2001

PID #

Inspected from 95' Equip. Hatch driveway

Final Resolution:

Approved: R.S. Drake **Date:** 9/26/01

INDIAN POINT 3
ASME SECTION XI, IWL INSPECTION
CONTAINMENT BUILDING

Inspection # IP3-IWL- 10

☐ **Containment wall #** IWL-168-006 to IWL-088-054-006 **Location:** to the right of Equip. Hatch **Elevation:** 68' to 168'

Drawing # 1-GI-IWL-001

Inspection notes: exposed embedded pipes - rust stains running vertically down; exposed constr. tubes/pipes - same as above; form nails exposed - no rust evident minor cracks; leaching; scalling & spalling - all minor

Deficiencies: _____

☒ **Acceptable**
☐ **Acceptable with Degradation**
☐ **Unacceptable (Further evaluation is required)**

Inspected by: Z. Raffa **Date:** 7/18/2001

Inspected by: M. Lakis **Date:** 7/18/2001

PID # _____

Inspected from 20' away from staircase & in "pidgeon hole" area for area below hatch

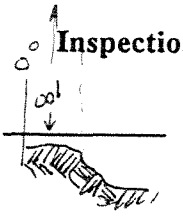
Final Resolution: _____

Approved: Richard Drake **Date:** 7/26/01

INDIAN POINT 3
ASME SECTION XI, IWL INSPECTION
CONTAINMENT BUILDING

Inspection # IP3-IWL- 11

☐ Containment wall # IWL-168-001 Location: IWL-043-001 to 001 Elevation: 43' to 168'



Drawing # 151-IWL-001

Inspection notes: minor cracks; leaching; scaling & spalling - all minor

Deficiencies:

☒ Acceptable
☐ Acceptable with Degradation
☐ Unacceptable (Further evaluation is required)

Inspected by: Z. Rafla Date: 7/18/2001

Inspected by: M. Lakis Date: 7/18/2001

PID #

Inspected from end of existing scaffolding "pidgeon hole" area

Final Resolution:

Approved: P.S. Drake Date: 7/26/01

INDIAN POINT 3
ASME SECTION XI, IWL INSPECTION
CONTAINMENT BUILDING

IWL-148-C04
IWL-168-C04 &

Inspection # IP3-IWL- 12

☐ **Containment wall #** (+ two rows of dome) **Location:** 145° ~ 190° **Elevation:** 148' - to above 191'

Drawing # 191-IWL-C01 & -C02

Inspection notes: minor cracks due to shrinkage; leaching; scalling & spalling — all minor; stains from rods unto concrete down the dome; rust/stains from duct supports; leaching - localized; minor shrinkage cracks; vert. cracks - tight

Deficiencies: _____

☒ **Acceptable**
☐ **Acceptable with Degradation**
☐ **Unacceptable (Further evaluation is required)**

Inspected by: I. Raffa **Date:** 7/18/2001

Inspected by: M. Lakis **Date:** 7/18/2001

PID # _____ Inspected from bottom of PWST

Final Resolution: _____

Approved: P.S. Drake **Date:** 7/26/01

INDIAN POINT 3
ASME SECTION XI, IWL INSPECTION
CONTAINMENT BUILDING

Inspection # IP3-IWL- 13

☐ **Containment wall #** IWL-034-001 to IWL-168-011 **Location:** 310° - 360° **Elevation:** 34' - 168'

Drawing # 151-IWL-001

Inspection notes: minor cracks due to shrinkage; scaling & spalling - all minor; leaching increases as elev. incr. - nonactive; location where a scaffolding plate popped-out needs a closer look

Deficiencies: _____

☐ **Acceptable**
☒ **Acceptable with Degradation**
☐ **Unacceptable (Further evaluation is required)**

Inspected by: Z. Rafla Z. Rafla **Date:** 7/18/2001

Inspected by: M. Lakis M Lakis **Date:** 7/18/2001

PID # 01596

Inspected from App. R Diesel Gen. area

Final Resolution: PID written to coat and repair scaffold plate area.

Approved: R.S. Drake **Date:** 7/26/01

INDIAN POINT 3
ASME SECTION XI, IWL INSPECTION
CONTAINMENT BUILDING

Inspection # IP3-IWL- 14

☐ Containment wall # IWL-088-004 to IWL-168-004 Location: @ air lock & above Elevation: 68' - 168'

Drawing # 151-IWL-001

Inspection notes: minor cracks due to shrinkage; scaling & spalling - all minor; leaching; scaffolding attachment below roof of FSB & another scaffolding popout @ ~ 108' elev. - acceptable

Deficiencies: _____

☒ Acceptable
☐ Acceptable with Degradation
☐ Unacceptable (Further evaluation is required)

Inspected by: Z. Raffa Date: 7/18/2001

Inspected by: M. Lakis Date: 7/18/2001

PID # _____

Inspected from door @ air lock & climbing up "vent" ladder

Final Resolution: _____

Approved: Richard Decker Date: 7/24/01

INDIAN POINT 3
ASME SECTION XI, IWL INSPECTION
CONTAINMENT BUILDING

Inspection # IP3-IWL- 15

☐ **Containment wall #** IWL-068-003 to spring line **Location:** above elect. tnl **Elevation:** 43' ~ 191'

Drawing # 151-IWL-001

Inspection notes: minor cracks due to shrinkage; scalling & spalling-all minor; leaching; piece of concrete popped-out @ 128' elev. - acceptable

Deficiencies: piece of wood and exposed metal tie 7' above Roof near bottom of Roof ladder. (*)

☒ **Acceptable**
☐ **Acceptable with Degradation**
☐ **Unacceptable (Further evaluation is required)**

Inspected by: I. Raffa **Date:** 7/18/2001

Inspected by: M. Lakis **Date:** 7/18/2001

PID # 18006 Inspected from roof of electr. tunnel & roof of elect. tnl. fan room

Final Resolution: (*) Removed wood which went in 3" at embeded lightly rusted form tie. PID issue to re-grout hole

Approved: R.S. Drake **Date:** 7/26/01

INDIAN POINT 3
ASME SECTION XI, IWL INSPECTION
CONTAINMENT BUILDING

Inspection # IP3-IWL- 16

☐ Containment wall # IWL-068-W03 & -W04 & IWL-dome-W04 & -W03 dome @ rod elev. Location: _____ Elevation: _____

Drawing # 151-IWL-W01 & -W02

Inspection notes: minor cracks; scaling & spalling, leaching - all minor; edge of embedded plate exposed (108' elev) - stains/rust evident on concrete below; around MS relief valves, frame supporting exhaust pipes is rusting; not a IWL concern

Deficiencies: _____

☒ Acceptable
☐ Acceptable with Degradation
☐ Unacceptable (Further evaluation is required)

Inspected by: Z. Raffa Z Raffa Date: 7/19/2001

Inspected by: M. Lakis M Lakis Date: 7/19/2001

PID # 01598 Inspected from Turbine Bldg. roof

Final Resolution: PID 01598 is Not on IWL Concern. But was written for Support Steel on the AFW Building.

Approved: R.S. Drake Richard S Drake Date: 7/26/01

INDIAN POINT 3
ASME SECTION XI, IWL INSPECTION
CONTAINMENT BUILDING

(rt. side of) IWL-034-W01 to -168-W01 & IWL-088-W02 to dome & IWL-dome-W02 & -C03 **Inspection # IP3-IWL-** 17

☐ **Containment wall #** _____ **Location:** all elev's of -W01 & above shield wall **Elevation:** 34' ~ above 19'

Drawing # 151-IWL-W01 & -W02

Inspection notes: minor cracks due to shrinkage; scaling, spalling & leaching - all minor; stains @ horiz. joints abv MS relief valve exhaust

Deficiencies: _____

☒ **Acceptable**
☐ **Acceptable with Degradation**
☐ **Unacceptable (Further evaluation is required)**

Inspected by: E. Rufka E. Rufka **Date:** 7/19/2001

Inspected by: M. Lakis M Lakis **Date:** 7/19/2001

PID # _____ Inspected from Turbine Bldg roof

Final Resolution: _____

Approved: P.S. Drake Richard S. Drake **Date:** 7/26/01

INDIAN POINT 3
ASME SECTION XI, IWL INSPECTION
CONTAINMENT BUILDING

Inspection # IP3-IWL- 18

☐ **Containment wall #** IWL-043-003 & below **Location:** Upper & lower elect. Inl. **Elevation:** 34' & 43'

Drawing # 151-IWL-001

Inspection notes: stains on wall from roof - non active

Deficiencies:

☒ **Acceptable**
☐ **Acceptable with Degradation**
☐ **Unacceptable (Further evaluation is required)**

Inspected by: Z. Raffa **Date:** 7/19/2001

Inspected by: M. Lakis **Date:** 7/19/2001

PID #

Final Resolution:

Approved: P.S. Drake **Date:** 7/26/01

ASME SECTION XI, IWL CONTAINMENT INSPECTION PROCEDURE	No: IP3-DED-AD-031, Rev: 0

INDIAN POINT 3
ASME SECTION XI, IWL INSPECTION
CONTAINMENT BUILDING

Inspection # IP3-IWL- 19

☒ **Containment wall #** Dome **Location:** _____ **Elevation:** _____

Drawing # _____

Inspection notes: light Radial cracks at top conc. pour and cracks at circumferential Construction Joints. Construction Joints sloppy & rough with several pop outs of patched Concrete (coffer/d Locations).

Deficiencies: RUST STAINS FROM LIGHTNING RODS, RING Hand rail supports, and Vent supports - stains not from Cracks. at east location 3 rusty dowel small surface metal laying on conc. surface (appears to be concrete Rebar chair or spacer) no effect on structure.

☒ **Acceptable**
☐ **Acceptable with Degradation**
☐ **Unacceptable (Further evaluation is required)**

Inspected by: RICHARD DRAKE **Date:** 7/20/01

Inspected by: Mihalis M Lazis (only pictures) **Date:** 7/20/2001

PID # — Inspected from top of stack @ IP2

Final Resolution: Concrete is sound with no evidence of any staining from cracks indicating degradation of Reinforcing Steel.

Approved: Richard W Drake, PE. **Date:** 7/20/01

INDIAN POINT 3
ASME SECTION XI, IWL INSPECTION
CONTAINMENT BUILDING

Inspection # IP3-IWL- 20

☐ **Containment wall #** IWL-043-004 **Location:** mech. penetr. wall **Elevation:** ~ 55'

Drawing # 151-IWL-001

Inspection notes: Pop-outs near Lc & J penetr's; wall painted; these were made to allow installation of tubing - no exposed bars visible

Deficiencies:

☐ **Acceptable**
☒ **Acceptable with Degradation**
☐ **Unacceptable (Further evaluation is required)**

Inspected by: Z. Rafa **Date:** 7/20/2001

Inspected by: M. Lakis **Date:** 7/20/2001

PID #

Inspected from Pine Pen walkway & direct visual

Final Resolution: Chipped Concrete Man-made for access of tubing from Weld Channel. NO-bars exposed. No repair required in case tubing needs to be replaced

Approved: Richard L Drake (RICHARD Drake) **Date:** 7/26/01

INDIAN POINT 3
ASME SECTION XI, IWL INSPECTION
CONTAINMENT BUILDING

Inspection # IP3-IWL- 21

☐ Containment wall # IWL-043-004 / -068-004 Location: PAB side Elevation: above 55' to 68'

Drawing # 151-IWL-001

Inspection notes: wall is painted; non-active leaching

Deficiencies:

☒ Acceptable
☐ Acceptable with Degradation
☐ Unacceptable (Further evaluation is required)

Inspected by: E. Rafla Date: 7/20/2001

Inspected by: M. Lakis M Lakis Date: 7/20/2001

PID # Direct visual

Final Resolution:

Approved: Richard J. Drake RICHARD DRAKE Date: 7/26/01

INDIAN POINT 3
ASME SECTION XI, IWL INSPECTION
CONTAINMENT BUILDING

Inspection # IP3-IWL- 22

☐ **Containment wall #** IWL-068-004 **Location:** near EBR-9-FH **Elevation:** 72'

Drawing # 151-IWL-001

Inspection notes: wall is painted; minor cracks @ pours

Deficiencies:

☒ **Acceptable**
☐ **Acceptable with Degradation**
☐ **Unacceptable (Further evaluation is required)**

Inspected by: Z. Raffa **Date:** 7/20/2001

Inspected by: M. Lakis **Date:** 7/20/2001

PID #

Direct visual of wall

Final Resolution:

Approved: Richard W Drake (Richard Drake) **Date:** 7/26/01

INDIAN POINT 3
ASME SECTION XI, IWL INSPECTION
CONTAINMENT BUILDING

Inspection # IP3-IWL- 23

☐ **Containment wall #** _____ **Location:** Mini-cont rm **Elevation:** 35'

Drawing # _____

Inspection notes: painted walls; foundation has chip - acceptable

Deficiencies: _____

☒ **Acceptable**
☐ **Acceptable with Degradation**
☐ **Unacceptable (Further evaluation is required)**

Inspected by: Z. Raffa **Date:** 7/20/2001

Inspected by: M. Lakis **Date:** 7/20/2001

PID # _____

Final Resolution: _____

Approved: Richard J Drake (RICHARD DRAKE) **Date:** 7/26/01

INDIAN POINT 3
ASME SECTION XI, IWL INSPECTION
CONTAINMENT BUILDING

Inspection # IP3-IWL- 24

☐ **Containment wall #** IWL-068-002 **Location:** ~~Aux.~~ F.W. Bldg. **Elevation:** 77'-4"

Drawing # 151-IWL-001

Inspection notes: painted wall; minor cracks; near col. 19.5 metal plate from constr. - rusting is evident, stain on wall; this needs to be exposed and repaired as directed by engineering.

Deficiencies: _____

☐ **Acceptable**
☒ **Acceptable with Degradation**
☐ **Unacceptable (Further evaluation is required)**

Inspected by: Z. Rafla **Date:** 7/20/2001

Inspected by: M. Lakis **Date:** 7/20/2001

PID # ~~[illegible]~~ RSD 7/26/01

Final Resolution: Knocked (Removed) surface flaking concrete and exposed poorly patched area. Appears to be patched scaffold attachment location. No exposed rebar. Location would require scaffolding to repair which is not warranted since indoors. OK as-is.

Approved: Richard L. Drake **Date:** 7/26/01

INDIAN POINT 3
ASME SECTION XI, IWL INSPECTION
CONTAINMENT BUILDING

Inspection # IP3-IWL- 25

☐ **Containment wall #** IWL-068-C02 **Location:** Aux. F.W. Bldg. **Elevation:** 64.8'

Drawing # 151-IWL-C01

Inspection notes: painted wall; minor cracks

Deficiencies:

☒ **Acceptable**
☐ **Acceptable with Degradation**
☐ **Unacceptable (Further evaluation is required)**

Inspected by: L. Raffa **Date:** 7/20/2001

Inspected by: M. Lakis **Date:** 7/20/2001

PID #

Final Resolution:

Approved: Richard L Drake (RICHARD DRAKE) **Date:** 7/26/01

INDIAN POINT 3
ASME SECTION XI, IWL INSPECTION
CONTAINMENT BUILDING

Inspection # IP3-IWL- 26

☐ **Containment wall #** IWL-043-W2 **Location:** Aux. F.W. Bldg. **Elevation:** 43'

Drawing # IS1-IWL-C01

Inspection notes: painted wall; mat is visible

Deficiencies:

☒ **Acceptable**
☐ **Acceptable with Degradation**
☐ **Unacceptable (Further evaluation is required)**

Inspected by: Z. Raffa **Date:** 7/20/2001

Inspected by: M. Lakis **Date:** 7/20/2001

PID #

Final Resolution:

Approved: Richard Drake (RICHARD DRAKE) **Date:** 7/26/01

INDIAN POINT 3
ASME SECTION XI, IWL INSPECTION
CONTAINMENT BUILDING

Inspection # IP3-IWL- 27

☐ **Containment wall #** IWL-034-002 **Location:** Aux. F.W. Bldg. **Elevation:** 33'

Drawing # 131-IWL-001

Inspection notes: painted wall; mat is visible as is the foundation

Deficiencies:

☒ **Acceptable**
☐ **Acceptable with Degradation**
☐ **Unacceptable (Further evaluation is required)**

Inspected by: Z. Rafla **Date:** 7/20/2001

Inspected by: M. Lakis **Date:** 7/20/2001

PID #

Final Resolution:

Approved: Richard Drake (RICHARD DRAKE) **Date:** 7/26/01

INDIAN POINT 3
ASME SECTION XI, IWL INSPECTION
CONTAINMENT BUILDING

Inspection # IP3-IWL- 28

☐ **Containment wall #** IWL-034-002 **Location:** Aux. F.W. Bldg. **Elevation:** 15'

Drawing # 151-IWL-001

Inspection notes: painted wall; only foundation visible

Deficiencies:

☒ **Acceptable**
☐ **Acceptable with Degradation**
☐ **Unacceptable (Further evaluation is required)**

Inspected by: Z. Rafla **Date:** 7/20/2001

Inspected by: M. Lakis **Date:** 7/20/2001

PID #

Final Resolution:

Approved: Richard Drake (RICHARD DRAKE) **Date:** 7/26/01

Indian Point 3
Nuclear Power Plant

Attachment 6.3

Resumes

RICHARD S. DRAKE **CIVIL/STRUCTURAL 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
Chi Epsilon (Civil Engineering Honor Society)
Tau Beta Pi (Engineering Honor)

EXPERIENCE: New York Power Authority 1986 - Present
Civil/Structual Engineering Supervisor at IP3 Feb 1995 - Present
Acting Manager Civil/Structural Engineering Group June 1994 - Feb 1995
Senior Civil/Structural Engineer 1986 - June 1994
Performed 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.

MARA LAKIS **SENIOR CIVIL/STRUCTURAL ENGINEER**

EDUCATION: **Bachelor of Science Degree** in Aeronautical Engineering
University of Minnesota, 1961
Graduate Level courses in Finite Element Analysis,
Earthquake Engineering, Reactor Physics
Columbia University, 1985 and 1986

EXPERIENCE: **New York Power Authority** **1983 - Present**
Sr. Civil/Structural Engineer
Performed extensive design and analysis of piping systems and supports in accordance with requirements of ANSI, AISC and regulatory codes. Work performed at Authority's both nuclear and fossil plants.

SQUG certified as a Seismic Capability Engineer
Responsible for walk-downs and seismic qualification of safety related equipment for the USI A-46 and IPEEE programs at IP3 and JAF Nuclear Power Plants.

Represented the Authority at technical meetings with vendors (Westinghouse, General Electric, and Brown Boveri), reviewing and checking their engineering calculations.

Computer programs used: NUPIPE, ANSYS, ADLPIPE, RELAP4/MOD5 and STARDYNE

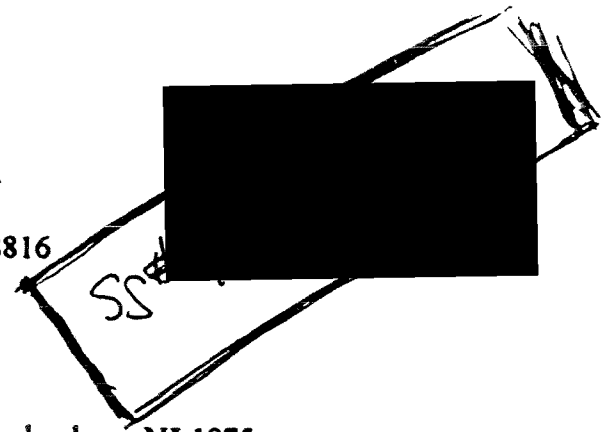
Member: ERPI Pressure Integrity Subcommittee

Gibbs and Hill, Inc., New York, N.Y. **1979-1983**
Applied Mechanics Engineer
Performed steamhammer and waterhammer analysis on the Comanche Peak Project, and piping stress analysis due to these events, including support review in accordance with requirements of Section III of the ASME and B & PV Code.

Co-authored: "Hydrodynamic and Structural Effects Due to the Feedwater Line Blowdown with Check Valve Slam", ASME Conference, pp. 115 PVP, Volume - 84, July 1982.

Boeing Company, Seattle, Washington **1961-1966**
Research Engineer
Performed missile flight performance analysis, probability analysis, weapon system integration, flight test performance prediction for various defense systems. and wind tunnel testing of optimum configurations.

ZARIF H. RAFLA
19 Melanie Manor
East Brunswick, NJ 08816
(908)238-3163



EDUCATION

M.S. (Structural) New Jersey Institute of Technology, NJ-1975
B.S. (Structural)-1968

PROFESSIONAL AFFILIATION

Professional Engineering Licenses:
State of New York #053382
State of Illinois #62-40314

TECHNICAL EXPERIENCE

MAY 1995 – PRESENT NYPA
SENIOR CIVIL/STRUCTURAL ENG.

NPS Inc., 30 Vreeland Rd., Florham Park, NJ 07932
May 1989 to ~~present~~ MAY 1995
Position: Project Manager
Responsibilities: Assigned to New York Power Authority (NYPA), White Plains office, working with the Civil/Structural group as consultant engineer.

Work includes, but is not limited to :

1- Design of concrete and steel structures and supporting safety and non-safety equipment's in two nuclear power plants in accordance with AISC, ACI, and ASME codes.
2- Analyzing piping systems using NUPIPE and ADLPIPE computer programs.
3- Preparation of modification packages including safety evaluations, design documents and project specifications .
4- Technical bid evaluations
5- Engineering evaluation for compliance with codes / standards .
6- Operability review for design / installation deficiencies.
7- FSAR and Licensing evaluations.

Ambitech Design Services, 800 Roosevelt Rd., Glen Ellyn, IL 60137
April 1988 to May 1989
Position: Senior Structural Engineer
Responsibilities: Design of various types of concrete and steel buildings in chemical plants and refineries. Design includes, but is not limited to, stacks and stack foundations, warehouses and special structures.

NPS Inc. (Same as above)
June 1979 to January 1988
Position: Project Engineer
Projects: Byron Station Units 1 and 2 (IL)
Braidwood Station Unit 2 (IL)
Engineer: Sargant & Lundy
Responsibilities: To achieve the following objectives:

1. Supervise two engineering groups:
   1.1 Structural Analysis Group
   1.2 Piping and Pipe Supports Group
2. Design and analysis of structure supports for mechanical components (in accordance with AISC and ASME codes).
3. Maintain engineering effort and costs within an approved budget and schedule.
4. Develop "key" personnel for future positions.
5. Furnish the proper leadership for all engineering activities so that the execution of work proceeds efficiently as well as accurately.
6. Staff the engineering project and make assignments in accordance with skill and capabilities.
7. Assure that engineering liaison is maintained with client's engineering representative.
8. Make technical (engineering) decisions required for the successful completion of the project.
9. Assure that project procedures and design manuals are generated in a manner that will result in proper and efficient design activities.
10. Assure that all project engineering documents are properly maintained.

*Total number of engineers and designers under my supervision at the peak time (Byron Site) was approximately 155 and 40 (Braidwood Site).

Position: Project Engineer (main office)
Projects: Laguna Verde, Mexico Units 1 and 2
Engineer: EBASCO
Responsibilities: Similar to the Byron project
*Total number of engineers and designers under my supervision at the peak time was approximately 95.

Position: Structural Group Leader
Projects: Comanche Peak Units 1 and 2, South Texas Project
Maanshan Nuclear Power Stations Units 1 and 2, Taiwan
Engineer: Gibbs & Hill, Inc.

Bechtel
Brown & Root, Inc.

Burns & Row, Inc., 700 Kinderkamack Rd., Oradell, NJ
Feb. 1977 to June 1979
Position: Cognizant Engineer
Project: Clinch River Breeder Reactor, Oak Ridge, TN
Responsibilities: Design and analysis of all auxiliary steel farming in Containment building. Liaison between various groups for design problems, design analysis of cable tray using in-house programs.

Bechtel Power Corporation, P.O. Box 607, 15740 Shady Grove Rd., Gaithersburg, MD 20760 (Construction Division)
Nov. 1975 to Feb. 1977
Position: Structural Engineer
Project: Davis Besse Nuclear Power Station Port Clinton, OH
Responsibilities: Design and analysis of special steel frames in the field.

Bechtel Inc., Lexington Ave., New York, NY (Chemical and Refineries Division).
Nov. 1973 to Nov. 1975
Position: Structural Engineer
Projects: F.M.C. Soda Ash Plant, Green River, WY
Union Carbide Plant, Sarnia, Canada
Responsibilities: Design of various types of steel and concrete structures using rigid framing and/or bracing. Review and approve shop drawings, design of various types of foundations (includes piles, pile caps, strip foundations, and isolated footings in accordance with the applicable codes).

United Detailers Inc., 60 Prince St., Elizabeth, NJ 07208
June 1971 to November 1973
Position: Rebar detailer
Responsibilities: Detailing rebars for concrete slabs, beams and columns in power plants and commercial buildings in accordance with A.C.I., detailing practices. Work includes solving field problems during construction.

Toby Detailing Service Inc., (out of business)
December 1969 to June 1971
Position: Rebar detailer
Responsibilities: Same as above

Indian Point 3
Nuclear Power Plant

Attachment 6.4

Qualifications

NEW YORK POWER AUTHORITY / INDIAN POINT 3
EYE EXAMINATION RECORD

This record is useable for eye examination required for certification to ASME Boiler and Pressure Vessel code, Section III, Appendix IX, Section XI, SNT-TC-1A, and as applicable, ANSI N45.2.6

NAME: DRAKE, RICHARD TEST METHOD: OPTec 2500

SOCIAL SECURITY No: [redacted] QUALIFICATION LEVEL: UT

EMPLOYER: Entergy IP-3

FAR DISTANCE ACUITY: (Snellen Test, indicated 20/30 at twenty (20) feet or actual vision)

Unaided:	Right	N/A	Left	N/A	Both N/D
Present Rx:	Right	20/17	Left	20/13	Both 20/13

NEAR DISTANCE ACUITY: (Jaeger Chart, indicated J1 at a minimum of twelve (12) inches)

Unaided:	Right	N/A	Left	N/A	Both NP
Present Rx:	Right	20/15	Left	20/18	Both 20/13

COLOR CONTRAST TEST RESULTS:

[X] Examined using test plates in the Ishihara Practical Test For Color Blindness

[ ] Practical demonstration of capability to distinguish colors or differentiate contrast between colors normally encountered by individual in his/her assignments

[ ] color coded 8-conductor cable [ ] other: _____

Color perception is: [X] Normal [ ] Abnormal [ ] Acceptable by practical demonstration

I certify that the above individual has been administered the above Eye Examination and the results entered are correct.

Eye Examiner: [signature] Title: RN Date: 1-16-01

Initial or Maintenance of Existing Certifications Requiring Periodic Eye Examinations:

I certify that the above individual's certification(s) to perform Inspections/Examinations/Tests:

[X] are supported by results of this eye examination

[ ] are withdrawn because of unsatisfactory eye examination results

Name & Signature: Michael P. Faye Title: ANDE VT LVL III Date: 1/17/01

NEW YORK POWER AUTHORITY / INDIAN POINT 3
EYE EXAMINATION RECORD

This record is useable for eye examination required for certification to ASME Boiler and Pressure Vessel code, Section III, Appendix IX, Section XI, SNT-TC-1A, and as applicable, ANSI N45.2.6

NAME: RAFLA, ZARIF TEST METHOD: ORTec 2500

SOCIAL SECURITY No: [redacted] QUALIFICATION LEVEL: UT

EMPLOYER: Entergy IP-3

FAR DISTANCE ACUITY: (Snellen Test, indicated 20/30 at twenty (20) feet or actual vision) 1x #

Unaided:	Right N/A	Left N/A	Both ~~20/~~ N/A
Present Rx:	Right 20/18	Left 20/17	Both 20/17

NEAR DISTANCE ACUITY: (Jaeger Chart, indicated J1 at a minimum of twelve (12) inches)

Unaided:	Right N/A	Left N/A	Both N/A
Present Rx:	Right 20/20	Left 20/20	Both 20/22

COLOR CONTRAST TEST RESULTS:

[X] Examined using test plates in the Ishihara Practical Test For Color Blindness

[ ] Practical demonstration of capability to distinguish colors or differentiate contrast between colors normally encountered by individual in his/her assignments

[ ] color coded 8-conductor cable [ ] other: _____

Color perception is: [X] Normal [ ] Abnormal [ ] Acceptable by practical demonstration

I certify that the above individual has been administered the above Eye Examination and the results entered are correct.

Eye Examiner: Tim Fowler Title: RN Date: 1-16-01 1x RJ

Initial or Maintenance of Existing Certifications Requiring Periodic Eye Examinations:

I certify that the above individual's certification(s) to perform Inspections/Examinations/Tests:

[X] are supported by results of this eye examination

[ ] are withdrawn because of unsatisfactory eye examination results

Name & Signature: Michael S. Rowe Title: NDE VT Lvl III Date: 1/17/01

NEW YORK POWER AUTHORITY / INDIAN POINT 3
EYE EXAMINATION RECORD

This record is useable for eye examination required for certification to ASME Boiler and Pressure Vessel code, Section III, Appendix IX, Section XI, SNT-TC-1A, and as applicable, ANSI N45.2.6

NAME: LAKIS, MARA TEST METHOD: OPTec 2500

SOCIAL SECURITY No: [redacted] QUALIFICATION LEVEL: VT

EMPLOYER: Entergy - IP-3

FAR DISTANCE ACUITY: (Snellen Test, indicated 20/30 at twenty (20) feet or actual vision)

Unaided:	Right	N/A	Left	N/A	Both N/A
Present Rx:	Right	20/35	Left	20/20	Both 20/25

NEAR DISTANCE ACUITY: (Jaeger Chart, indicated J1 at a minimum of twelve (12) inches)

Unaided:	Right	N/A	Left	N/A	Both N/A
Present Rx:	Right	20/30	Left	20/18	Both 20/18

COLOR CONTRAST TEST RESULTS:

[X] Examined using test plates in the Ishihara Practical Test For Color Blindness

[ ] Practical demonstration of capability to distinguish colors or differentiate contrast between colors normally encountered by individual in his/her assignments

[ ] color coded 8-conductor cable [ ] other: _____

Color perception is: [X] Normal [ ] Abnormal [ ] Acceptable by practical demonstration

I certify that the above individual has been administered the above Eye Examination and the results entered are correct.

Eye Examiner: [signature] Title: RN Date: 1-16-01

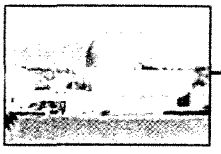
Initial or Maintenance of Existing Certifications Requiring Periodic Eye Examinations:

I certify that the above individual's certification(s) to perform Inspections/Examinations/Tests:

[X] are supported by results of this eye examination

[ ] are withdrawn because of unsatisfactory eye examination results

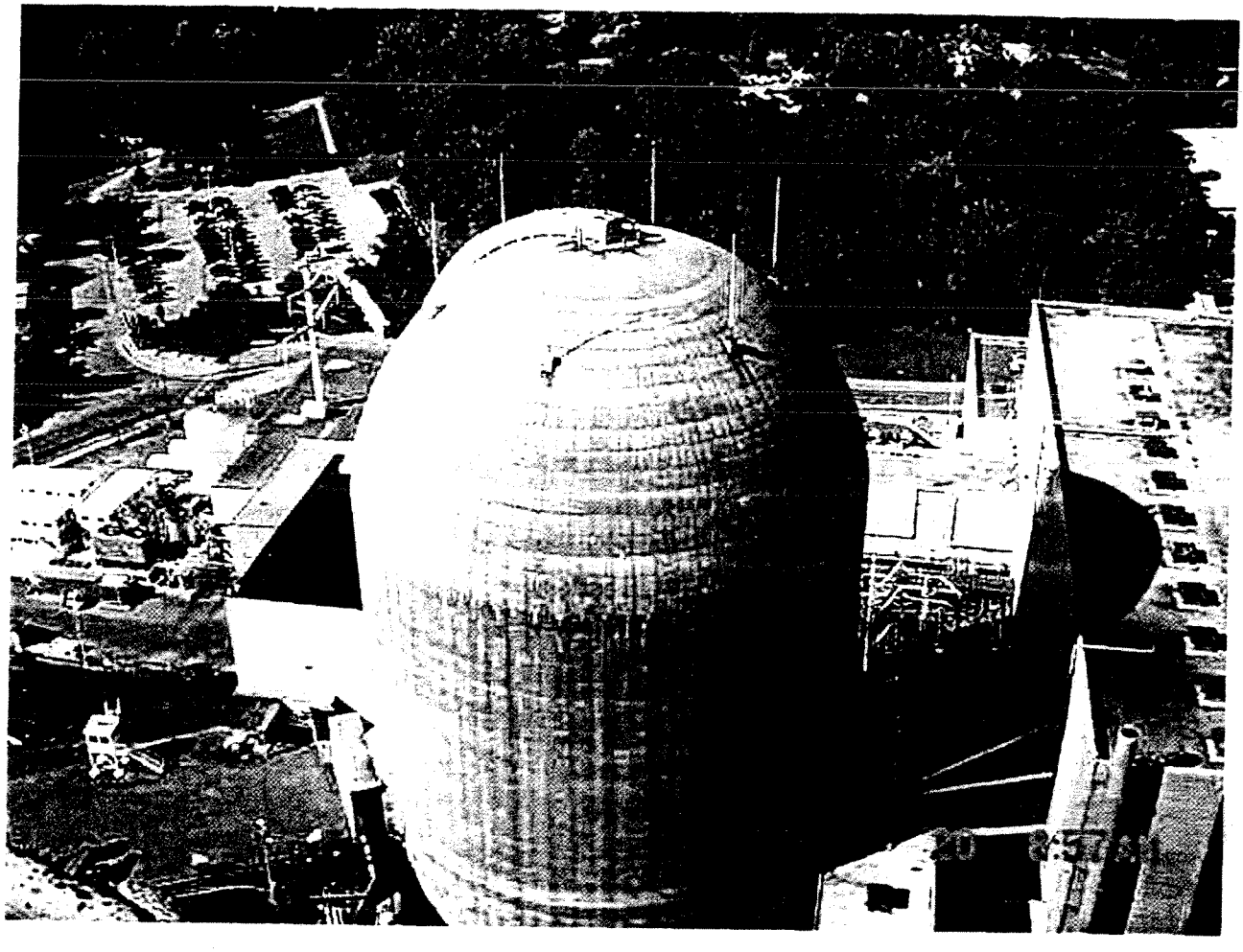
Name & Signature: Michael F Rowe Title: NDE Lvl VT III Date: 1/17/01



Indian Point 3
Nuclear Power Plant

Attachment 6.5

Exterior Pictures



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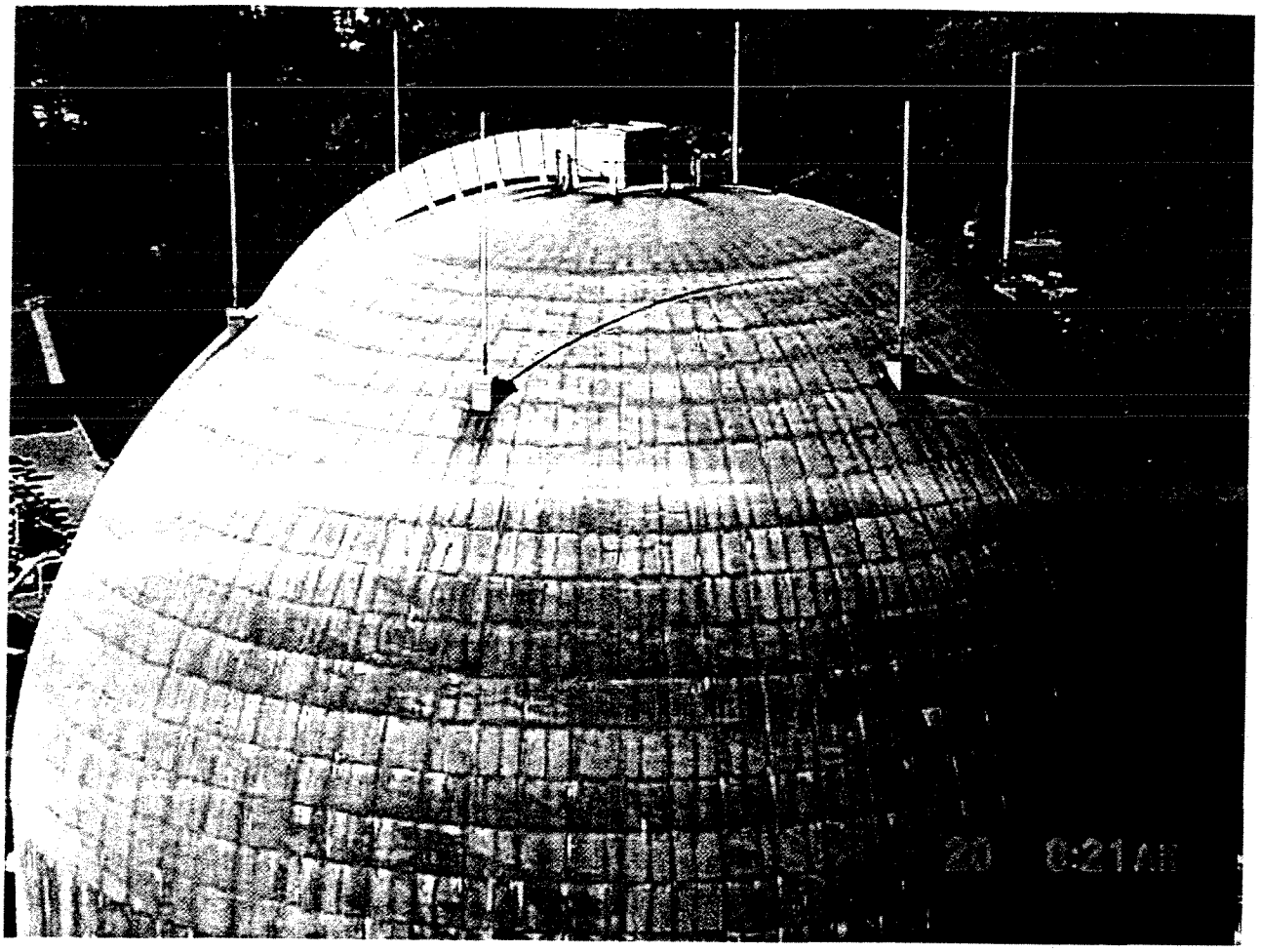
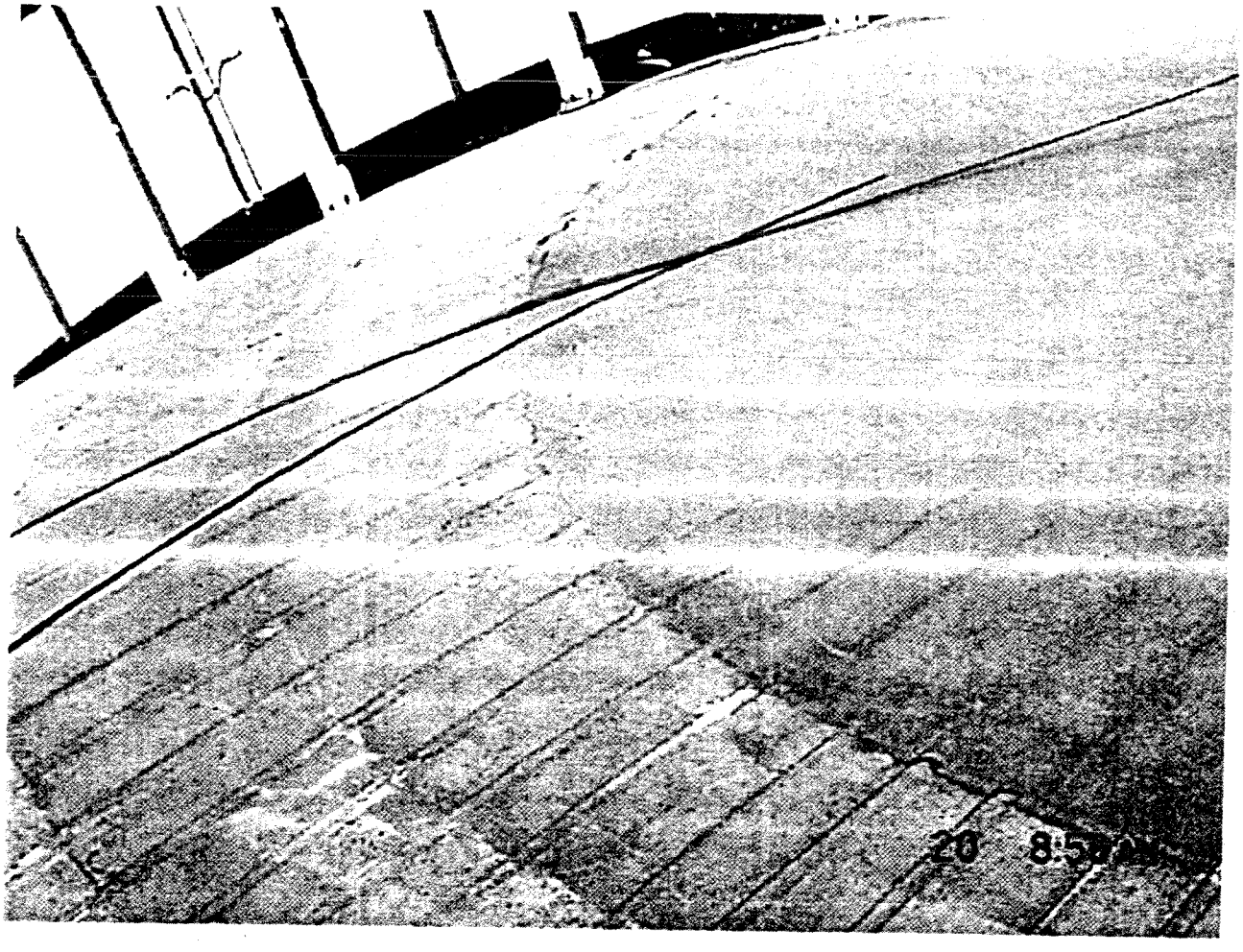


IP3 ASME Section XI, IWL Concrete Containment Inspection	No: IP3-RPT-STR-03517, Rev: 0
	Picture 2



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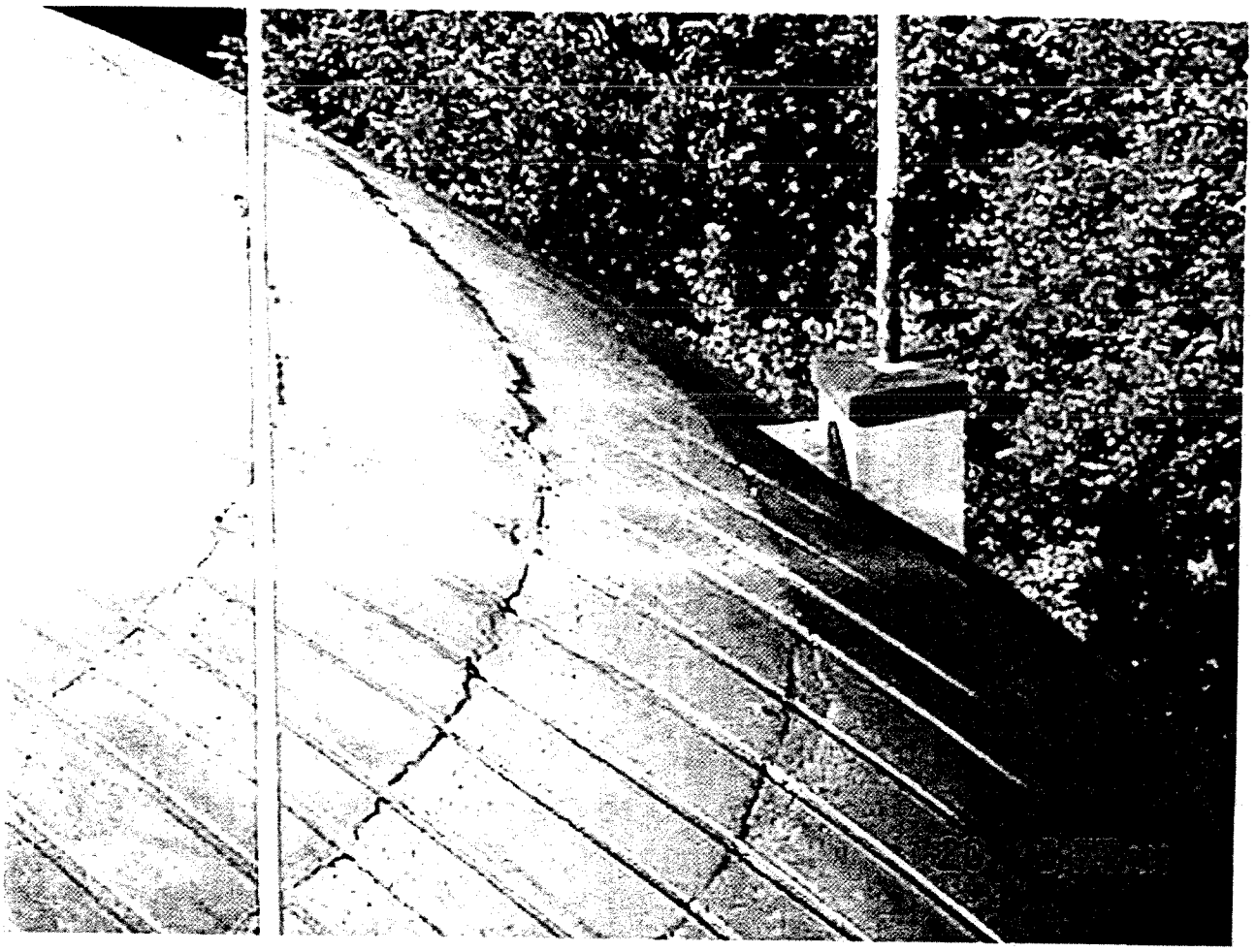
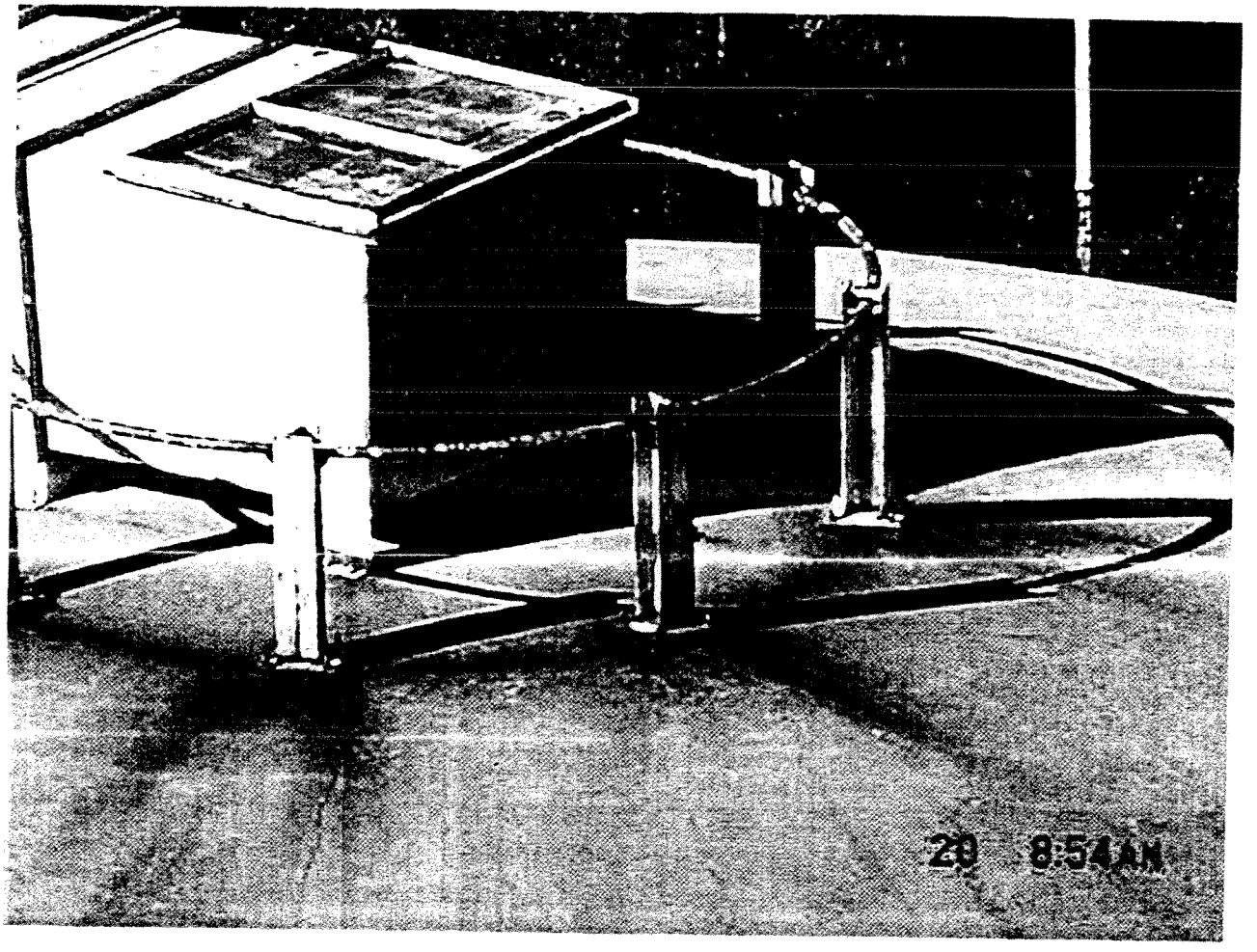
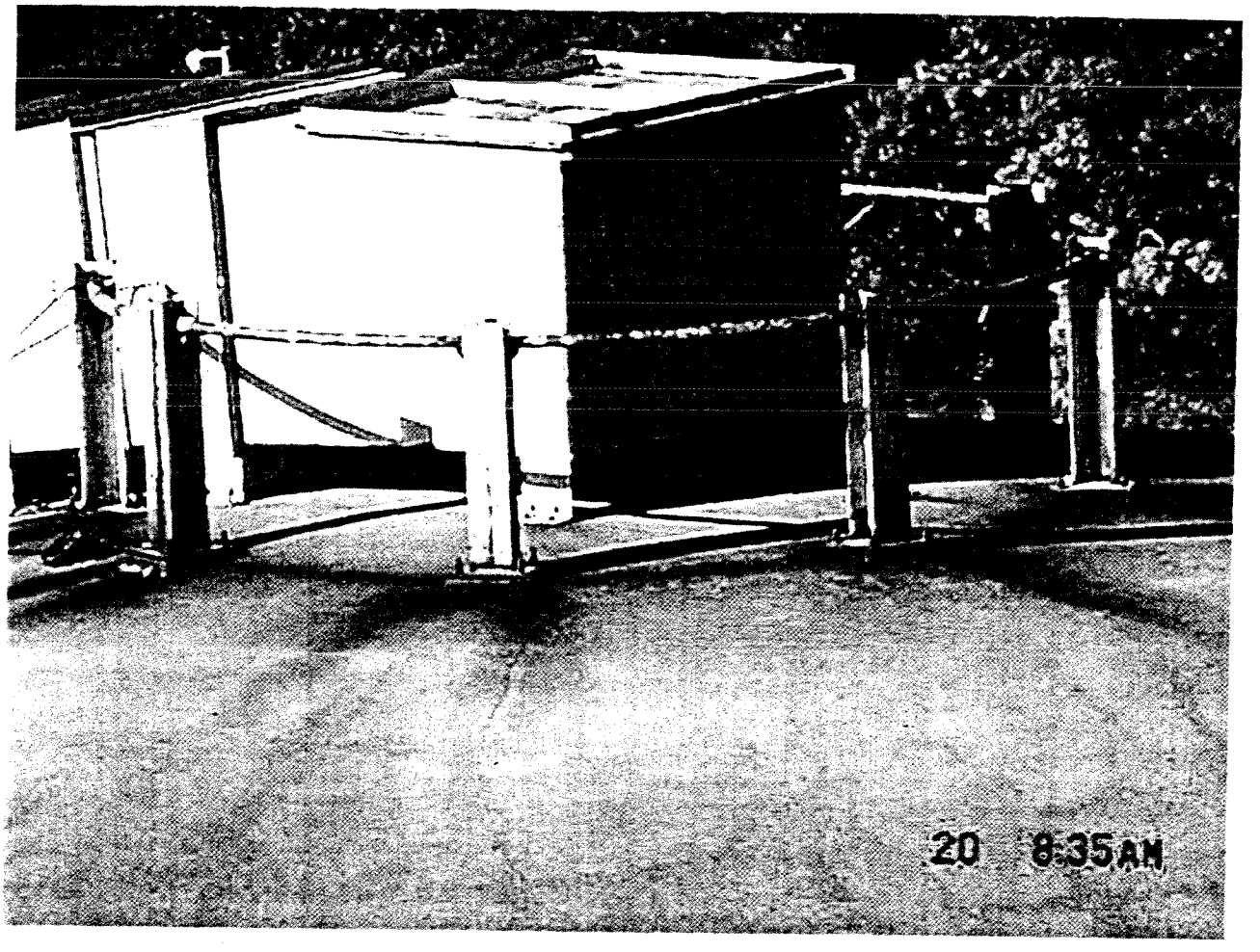
	Picture 3



IP3 ASME Section XI, IWL Concrete Containment Inspection	No: IP3-RPT-STR-03517, Rev: 0
	Picture 4



IP3 ASME Section XI, IWL Concrete Containment Inspection	No: IP3-RPT-STR-03517, Rev: 0
	Picture 5



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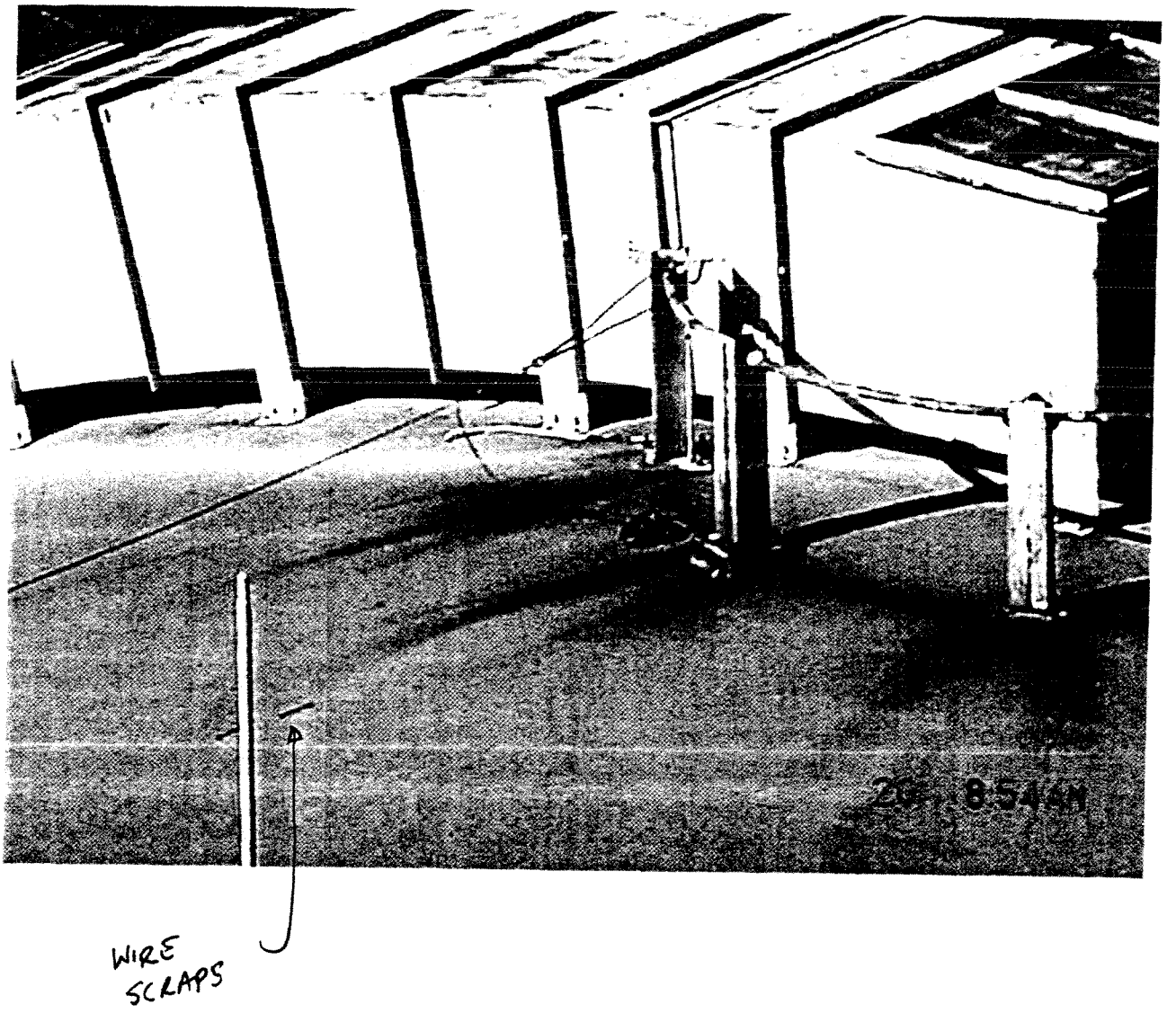
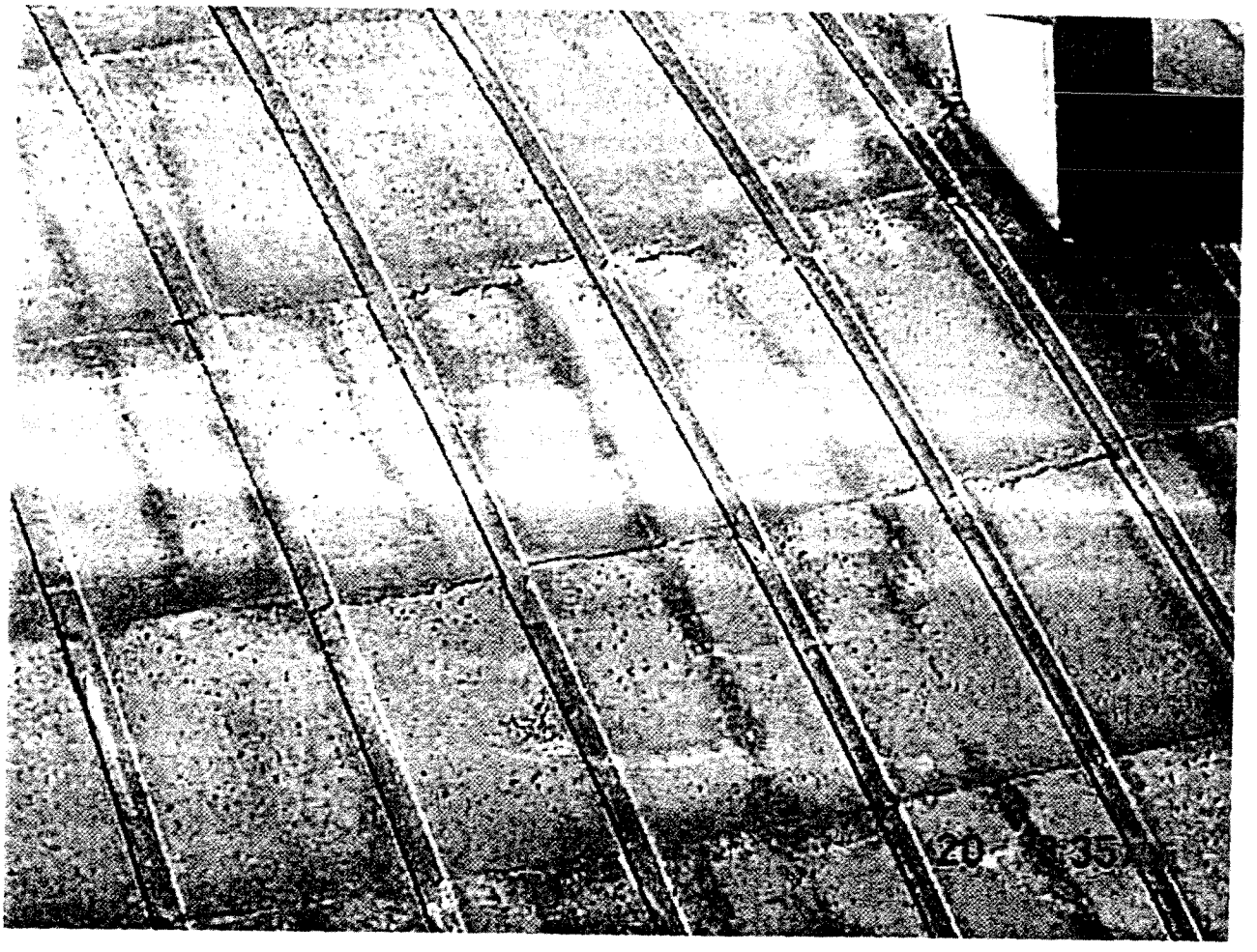
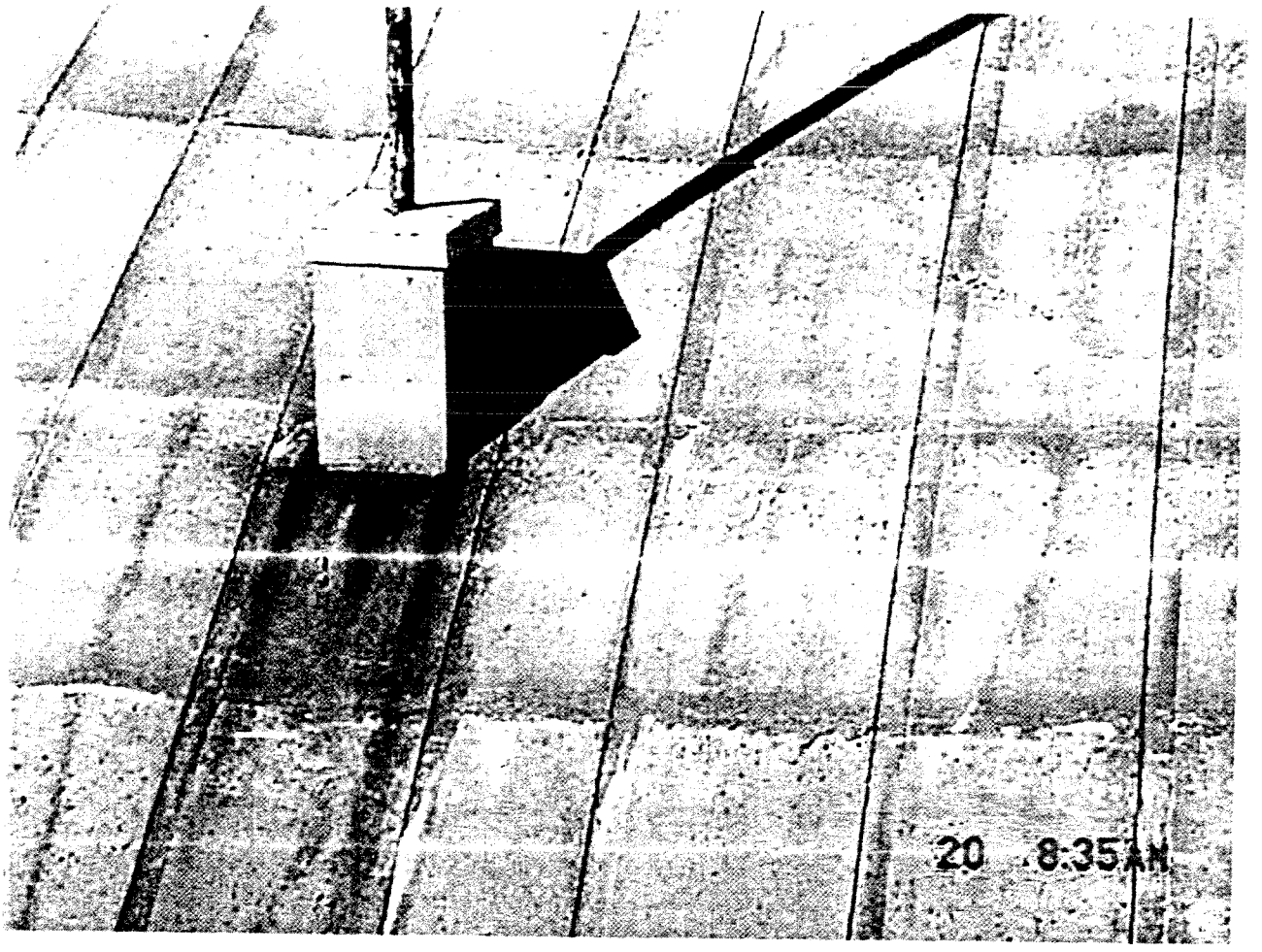
	Picture 6



IP3 ASME Section XI, IWL Concrete Containment Inspection	No: IP3-RPT-STR-03517, Rev: 0
	Picture 7



IP3 ASME Section XI, IWL Concrete Containment Inspection	No: IP3-RPT-STR-03517, Rev: 0
	Picture 8



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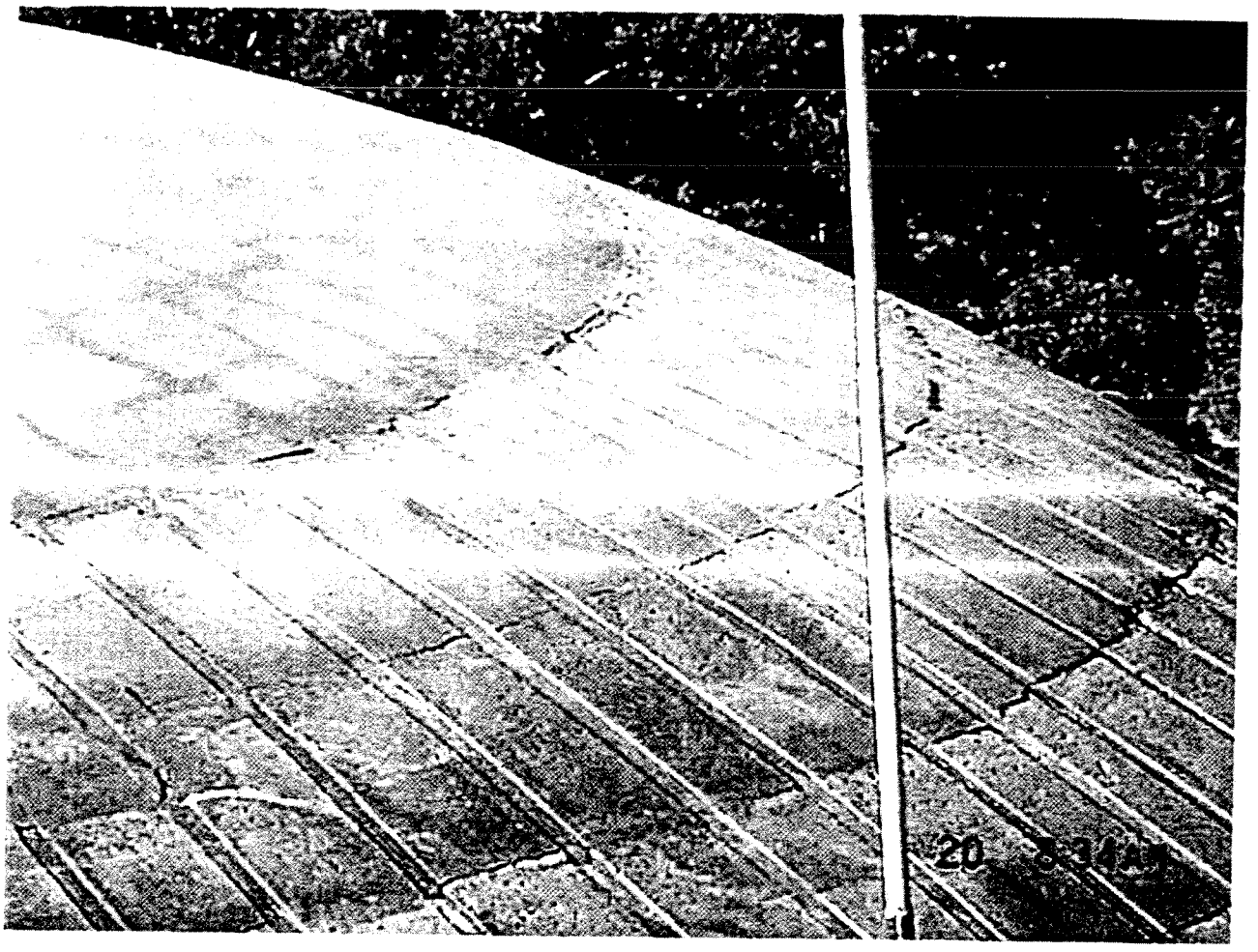
	Picture 9



IP3 ASME Section XI, IWL Concrete Containment Inspection	No: IP3-RPT-STR-03517, Rev: 0
	Picture 10