Attachment 7.2 of ENN-EP-S-003, Rev. 0
CONTAINMENT INSERVICE INSPECTION
RECORD OF VT-3 / GENERAL VISUAL EXAMINATION

IPEC Unit: 3 **Interval Period:** 1st/2nd Inspection **Inspection Report No.:** IP3-05-IWL-001

Component No.: VCC - 48 **Zone No:** 006 **Drawing No.:** _____

Description: Dome **Work Order No:** IP3-03-22881

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

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

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

Examined By: D. Nuta D. Nuta Date: 7/11/05 **Examined By:** P. Bowe P B Date: 7/11/05
Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:

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

Comments: _____

RE Signature Richard Drake Richard Drake Date: 7/15/05
Print/Signature/Level

Site Level III Review: _____ Date: _____
Print/Signature/Level

ANII Review: Not Applicable Date: _____
Print/Signature

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

STATION/UNIT: IPEC / Indian Point No. 3 COMPONENT NO. : VCC - 48

ZONE No: 006

No.	Comment	Initials
1	Minor pattern cracking due to shrinkage; bugholes; leaching; scaling and spalling; all non-active, minor. See photo U3-066091	PMB
2	Vertical cracking occurs roughly 5' long and 5' o/c throughout entire component. See photo U3-066091	PMB
3	Exposed aggregate, approximately 15' long, along joint from spalling.	PMB
4	Exposed aggregate, approximately 10' long, along joint from spalling.	PMB


03-03-2005
U3-066091
IWL-DOME-006

Attachment 7.2 of ENN-EP-S-003, Rev. 0
CONTAINMENT INSERVICE INSPECTION
RECORD OF VT-3 / GENERAL VISUAL EXAMINATION

IPEC Unit: 3 **Interval Period:** 1st/2nd Inspection **Inspection Report No.:** IP3-O5-IWL-001

Component No.: VCC - 49 **Zone No:** 007 **Drawing No.:** _____

Description: Dome **Work Order No:** IP3-03-22881

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

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

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

Examined By: G. Bhalla Gop Singh Bhalla Date: 6/2/05 **Examined By:** P. Bowe Date: 7/11/05
Print/Signature/Level Print/Signature/Level

Responsible Engineer Review:

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

Comments: _____

RE Signature Richard Drake Date: 7/15/05
Print/Signature/Level

Site Level III Review: _____ Date: _____
Print/Signature/Level

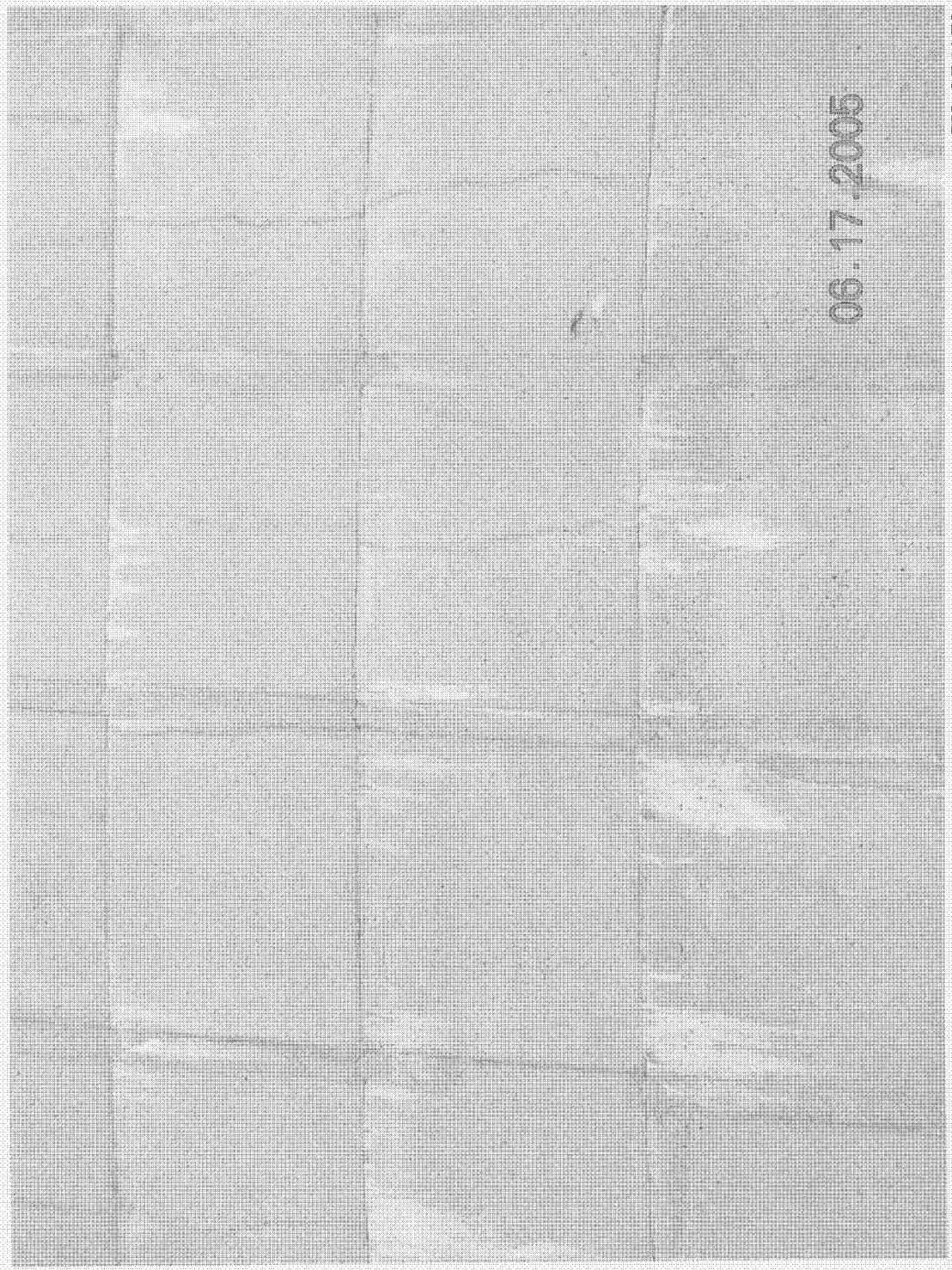
ANII Review: Not Applicable Date: _____
Print/Signature

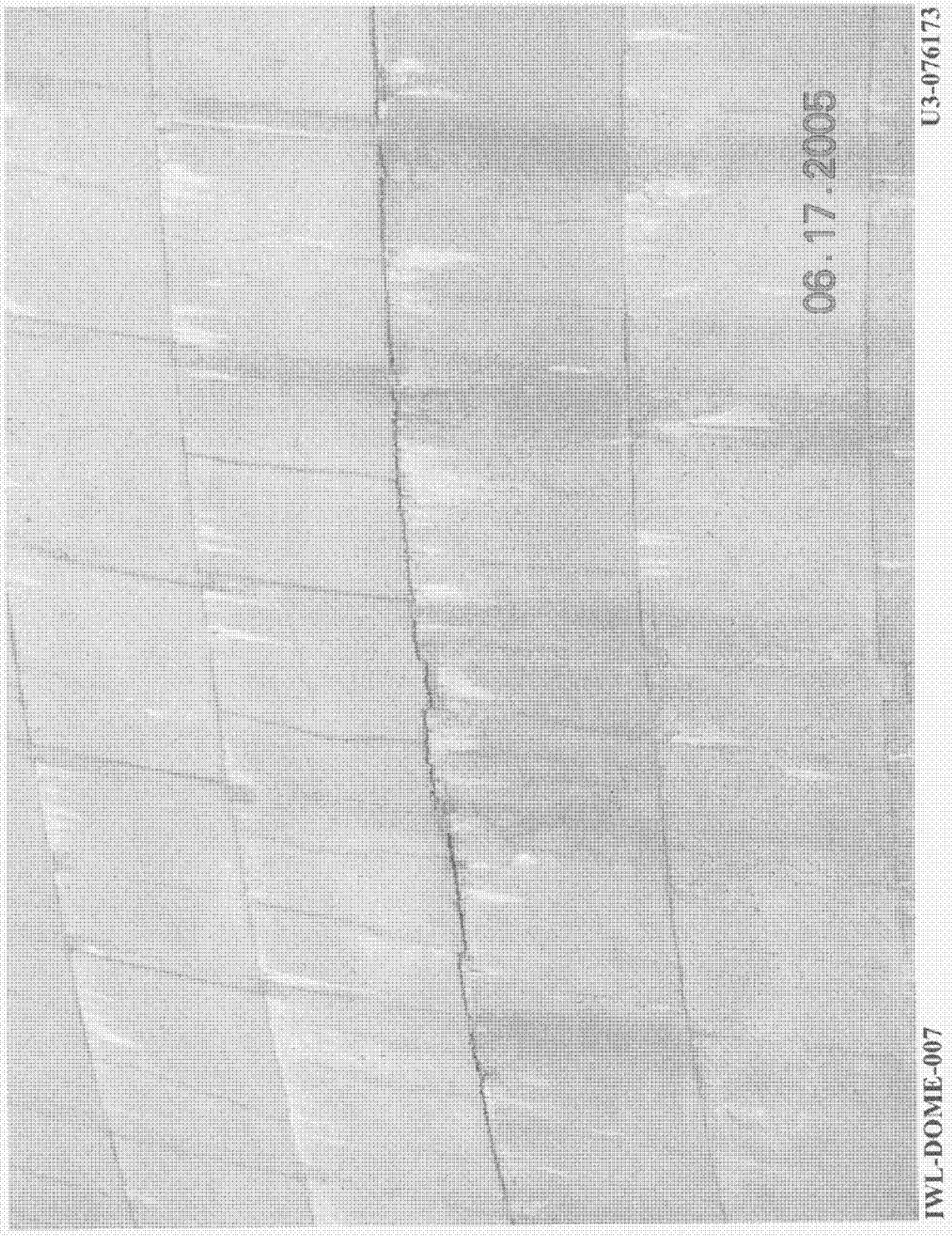
FORM VT – 3C
CONTAINMENT INSERVICE INSPECTION
RECORD OF VT – 3 /GENERAL VISUAL EXAMINATION

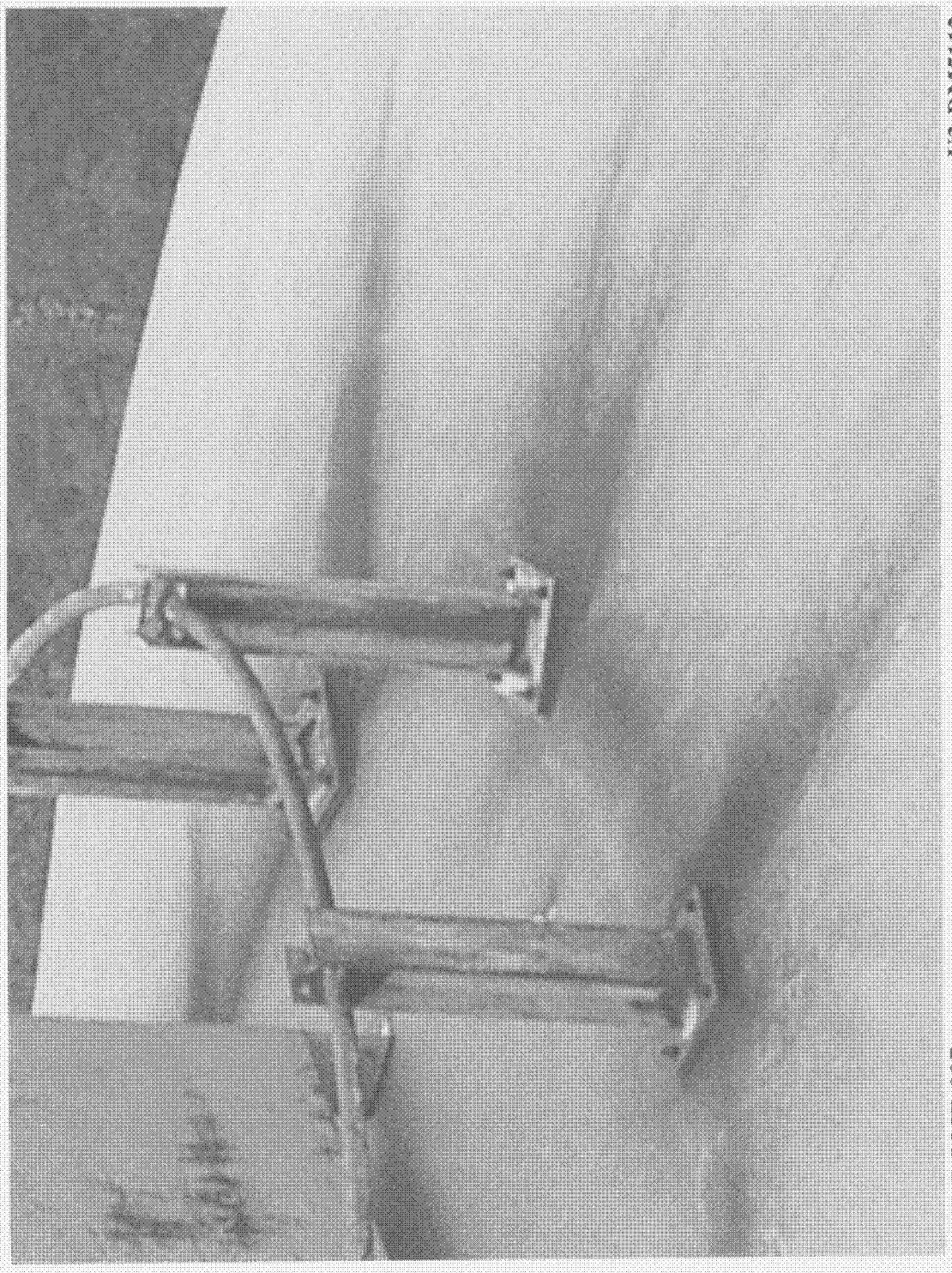
STATION/UNIT: IPEC / Indian Point No. 3 COMPONENT NO. : VCC - 49

ZONE No: 007

No.	Comment	Initials
1	Tight radial cracks at top of conc. pour and cracks at circumferential construction joints. Construction joints sloppy and rough with several popouts of patched construction scaffold locations. Deficiencies: Rust stains from lightning rods, ring hand rail supports, and vent supports – stains not from cracks. At east location 3 rings down, small surface metal laying on concrete surface (appears to be concrete rebar chair or spacer) no effect on structure.	
2	Numerous bugholes; pattern cracking and surface cracks with leaching – all minor.	
3	See following pictures for overview of dome.	

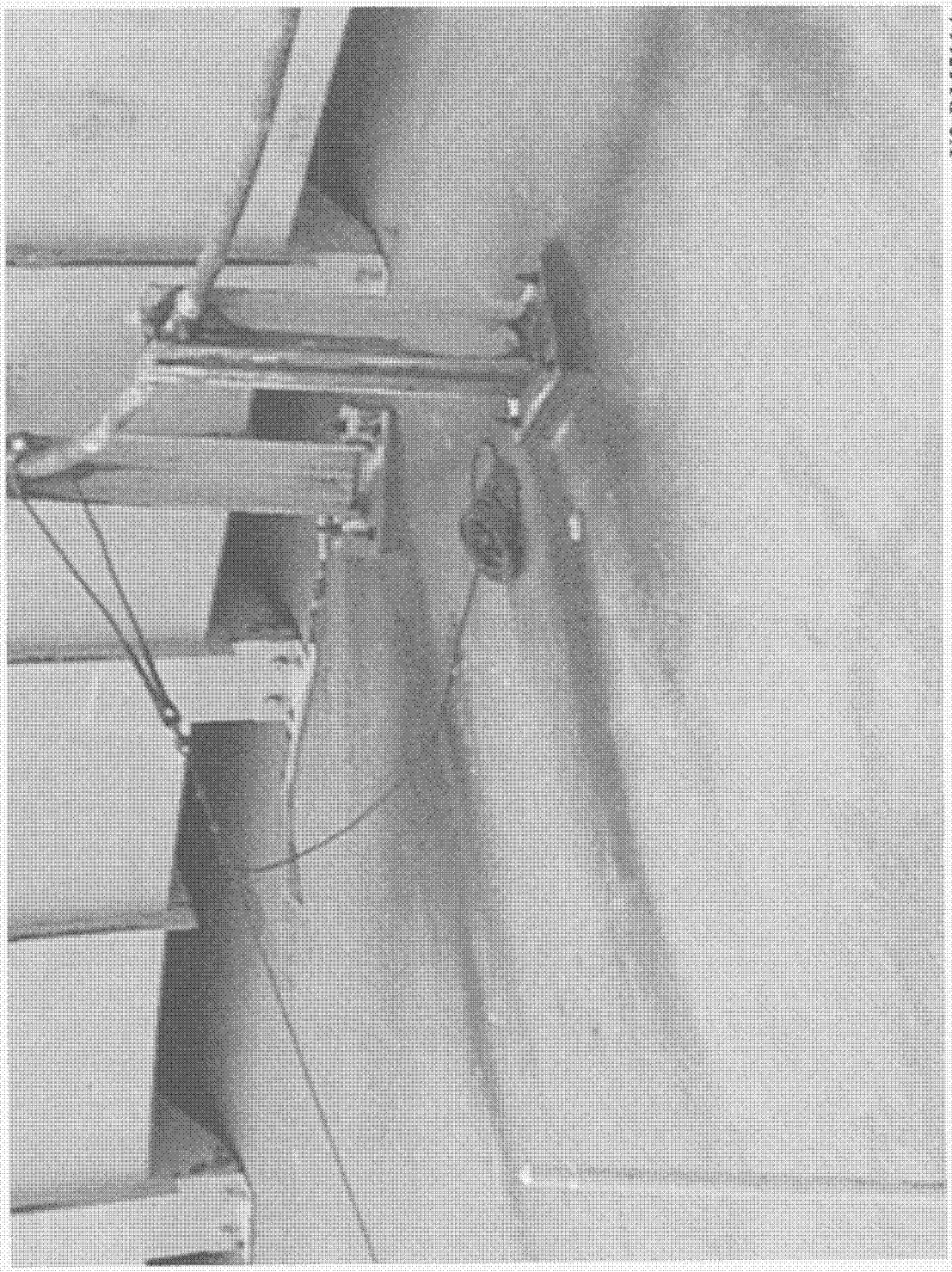

06.17.2005
U3-076173
IWL-DOME-007


06.17.2005
U3-076173
IWL-DOME-007



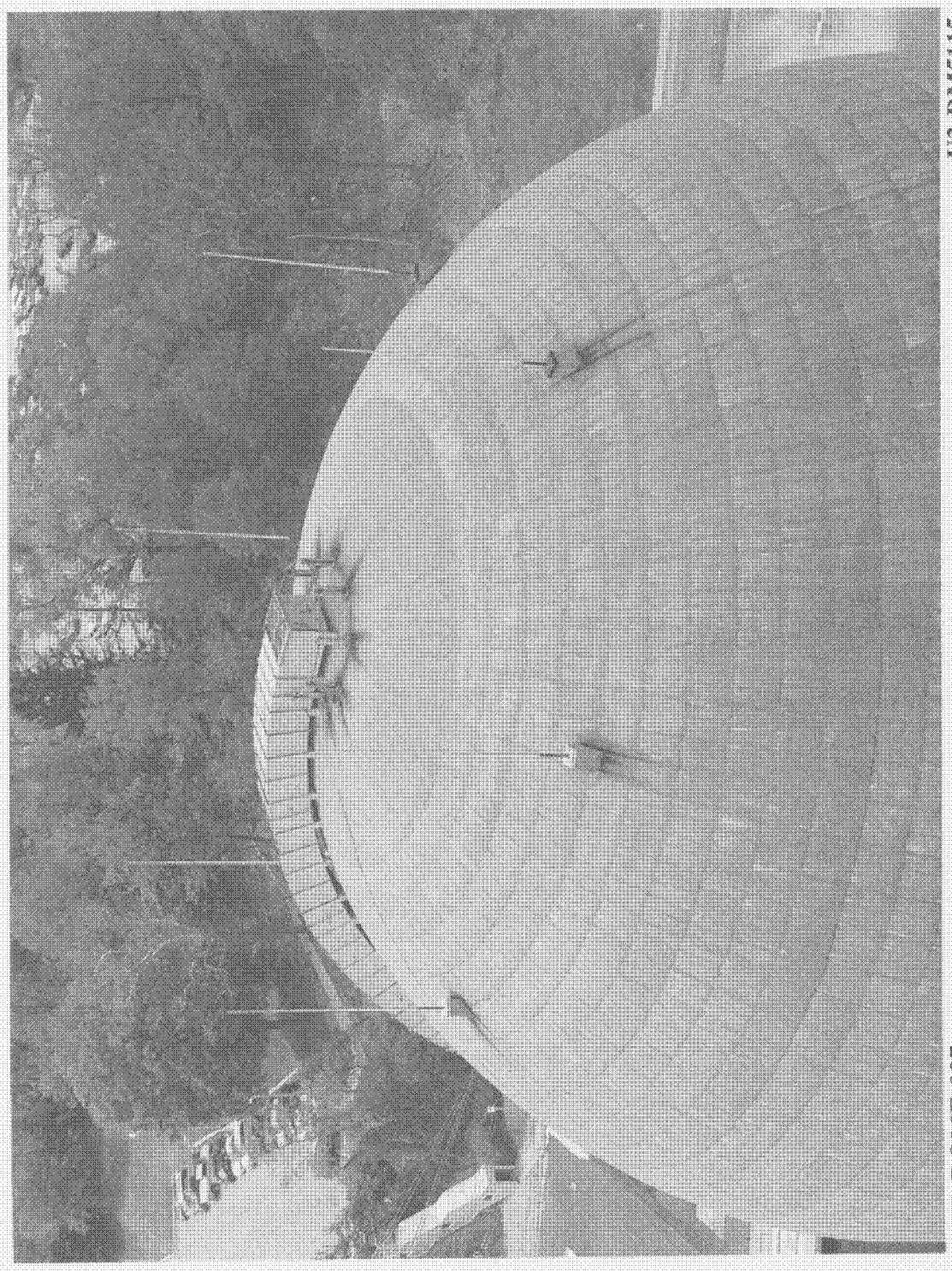
U3-DM5112

IWL-DOME-007



U3-DM5114

IWL-DOME-007

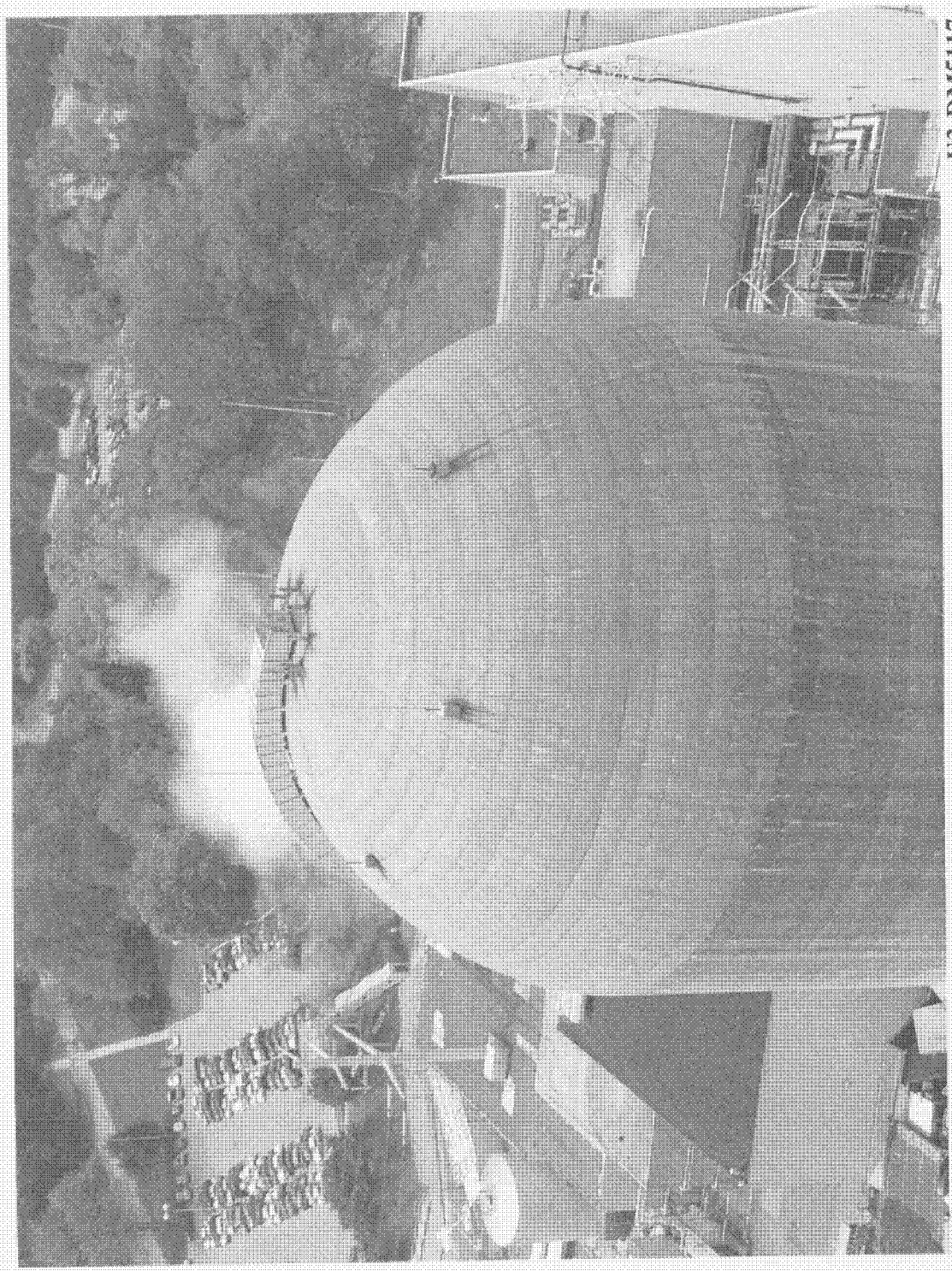


U3-DM5115

IWL-DOME-007

U3-DM5116

IWL-DOME-007



U3-DM5117

IWL-DOME-007

U3-DM5118

IWL-DOME-007

Indian Point 3
Nuclear Power Plant

ATTACHMENT 8.3

RESUMES

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:

Entergy Nuclear Northeast — Nov. 2000 - present
New York Power Authority — 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

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.

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.

RICHARD S. DRAKE CIVIL/STRUCTURAL ENGINEERING SUPERVISOR

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.

Dragos A. (Dan) Nuta

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

Technical Expertise Areas

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

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

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

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

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

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

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

Summary of Representative Experience

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

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

Employment History

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

Education

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

Professional Registrations

Registered Professional Engineer in the

State of New York
State of Indiana

Professional Affiliations

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

Academic Affiliations

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

Publications/Technical Papers

A partial list of publications includes:

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

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

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

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

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

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

Attachment - Summary Discussion of Projects Experience

Nuclear Generating Stations and Related

Entergy Nuclear Northeast and Consolidated Edison of New York

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

Oyster Creek and TMI Nuclear Generating Stations

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

Millstone Station - Units 1, 2, and 3

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

Texas Utilities Electric Company

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

Houston Lighting & Power Company

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

Attachment - Summary Discussion of Projects Experience (Cont'd)

Nuclear Generating Stations and Related (Cont'd)

Louisiana Power & Light Company

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

Carolina Power & Light Company

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

Washington Public Power Supply System

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

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

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

EQE/U.S. Nuclear Regulatory Commission

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

Public Service Electric & Gas

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

Attachment - Summary Discussion of Projects Experience (Cont'd)

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

Westinghouse Hanford Company

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

United States Department of Energy

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

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

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

Westinghouse Hanford Company

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

Westinghouse Savannah River Company

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

Attachment - Summary Discussion of Projects Experience (Cont'd)

Petrochemical and Environmental Area

Stauffer Chemical Corporation

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

E. I. DuPont de Nemours

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

E. I. DuPont de Nemours

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

Humble Oil & Refining Company

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

ESSO

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

Attachment - Summary Discussion of Projects Experience (Cont'd)

Petrochemical and Environmental Area (Cont'd)

Department of the Army

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

Boston Edison Company

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

PAUL M. BOWE — ENGINEER I

EDUCATION:

Bachelor of Science Degree in Civil Engineering
Norwich University, Northfield, VT
Graduate December 2004

Associates of Civil Engineering Technology
Hudson Valley Community College, Troy, NY
Graduate August 2002

Manhattan College: Graduate Courses

Reactor Theory	Dec 2005 – Mar 2006
Radwaste	Dec 2005 – Mar 2006

Undergraduate Courses:

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

Applied Statics and Strength of Material – presented an analytical and practical approach to the principles and physical concepts of statics and strength of materials.

EXPERIENCE:

Entergy Nuclear Northeast — April 2005 – present
IPEC Engineer I
Performed Maintenance Rule inspections, assisted in the Unit 2 IWL inspection, and prepared reports for both. Also, completed ESP Orientation training, reviewed calculations, and edited design bases documents (owner of Containment DBD).

Holbrook Lumber Co. — 2001 – 2004
Estimator
Designed residential and commercial floor systems using engineered wood product. Analyzed both live and dead loads acting on the floor system and distributed loading throughout the building as required.

GOPAL BHALLA

SUMMARY

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

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

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

COMPUTER SKILLS

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

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

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

Proficient in AutoCAD for drawing preparation and management.

TRAINING

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

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

MEMBERSHIPS AND AWARDS

American Society of Mechanical Engineers and Instrument Society of America.

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

EDUCATION

1971 - 1975 Institution of Engineers, (India) Calcutta

B.S. in Mechanical Engineering

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

PROFESSIONAL EXPERIENCE

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

Sr. Lead Engineer:

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

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

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

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

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

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

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

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

Engineer

Performed various engineering functions for Water Treatment, Waste Water Treatment, and Captive Power Plants, in particular:

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

Review and approval of mechanical shop drawings and engineering calculations.

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

1976 - 1985 ENGINEERS INDIA LIMITED NEW DELHI (INDIA)

Engineer

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

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

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

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

Indian Point 3
Nuclear Power Plant

ATTACHMENT 8.4

QUALIFICATION CERITFICATE

Entergy

EYE EXAMINATION RECORD

NAME: Paul Bowe TEST METHOD: [X] Manual

SOCIAL SECURITY or ID # 134-70-7426 [ ] Machine

EMPLOYER: Entergy Department: Design Eng

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

Unaided Right 20/20 Left 20/20 Both 20/20

Present Rx Right N/A Left N/A Both N/A

NEAR DISTANCE ACUITY: (Jaeger chart, indicate "J1" or actual Snellen fraction 20/25 vision)

Unaided Right 20/20 Left 20/20 Both 20/20.

Present Rx Right N/A Left N/A Both N/A

COLOR CONTRAST TEST RESULTS: (Check One)

[X] Examined using test plates in the Ishihara Test plates 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

Color perception is: [X] Normal [ ] Abnormal [ ] Accept by Practical demonstration

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

Eye Examiner: Kelly Reeves Title: FFD ADMIN Date: 5.17.05

REVIEW OF EYE EXAMINATION RESULTS:

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

[X] are supported by the results of this eye examination

[ ] are not supported by this eye examination due to unacceptable results

Name & Signature: P. Deeds Title: L-III Date: 6/27/05

Directions: 1. Medical to Fax completed report to R. Allen or P. Deeds for review & signature. 2. R. Allen or P. Deeds to review, check results, & sign. 3. Allen/Deeds to Email summary and Inter-Departmental Mail signed copy of Operations personnel's eye exams to C. Elwood of Operations Training, for retention. 4. Allen/Deeds to file all other NDE/QC inspection personnel eye exams. 5. It is the responsibility of Operations Training to address failed eye exams of Operations Personnel & P&CE to address failed eye examinations of NDE/QC personnel.

Rev. 4-8-04

FAXED 5.17.05

Entergy

EYE EXAMINATION RECORD

NAME: Dragos Nuta TEST METHOD: [X] Manual
SOCIAL SECURITY or ID # 304-56-6978 [ ] Machine
EMPLOYER: Entergy Department: Design Eng

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

Unaided	Right N/A	Left N/A	Both N/A
Present Rx	Right 20/40	Left 20/30	Both 20/25

NEAR DISTANCE ACUITY: (Jaeger chart, indicate "J1" or actual Snellen fraction 20/25 vision)

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

COLOR CONTRAST TEST RESULTS: (Check One)

[X] Examined using test plates in the Ishihara Test plates 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

Color perception is: [X] Normal [ ] Abnormal [ ] Accept by Practical demonstration

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

Eye Examiner: Kelly Patton Title: FFD ADMIN Date: 5.17.05

REVIEW OF EYE EXAMINATION RESULTS:

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

[X] are supported by the results of this eye examination

[ ] are not supported by this eye examination due to unacceptable results

Name & Signature: P. E Deeds Title: L-III Date: 6/29/06

Directions: 1. Medical to Fax completed report to R. Allen or P. Deeds for review & signature. 2. R. Allen or P. Deeds to review, check results, & sign. 3. Allen/Deeds to Email summary and Inter-Departmental Mail signed copy of Operations personnel's eye exams to C. Elwood of Operations Training, for retention. 4. Allen/Deeds to file all other NDE/QC inspection personnel eye exams. 5. It is the responsibility of Operations Training to address failed eye exams of Operations Personnel & P&CE to address failed eye examinations of NDE/QC personnel.

Rev. 4-8-04

faxed 5-17-05

Entergy

EYE EXAMINATION RECORD

NAME: Gopal Bhalla TEST METHOD: [X] Manual

SOCIAL SECURITY or ID # 080-70-9519 [ ] Machine

EMPLOYER: Entergy Department: Design Eng

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

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

NEAR DISTANCE ACUITY: (Jaeger chart, indicate "J1" or actual Snellen fraction 20/25 vision)

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

COLOR CONTRAST TEST RESULTS: (Check One)

[X] Examined using test plates in the Ishihara Test plates 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

Color perception is: [X] Normal [ ] Abnormal [ ] Accept by Practical demonstration

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

Eye Examiner: Kelly Deeds Title: FFD Admin Date: 5.17.05

REVIEW OF EYE EXAMINATION RESULTS:

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

[X] are supported by the results of this eye examination

[ ] are not supported by this eye examination due to unacceptable results

Name & Signature: P E Deeds Title: Lv III Date: 3/29/06

Directions: 1. Medical to Fax completed report to R. Allen or P. Deeds for review & signature. 2. R. Allen or P. Deeds to review, check results, & sign. 3. Allen/Deeds to Email summary and Inter-Departmental Mail signed copy of Operations personnel's eye exams to C. Elwood of Operations Training, for retention. 4. Allen/Deeds to file all other NDE/QC inspection personnel eye exams. 5. It is the responsibility of Operations Training to address failed eye exams of Operations Personnel & P&CE to address failed eye examinations of NDE/QC personnel.

Rev. 4-8-04

FAXed 5-17-05