

November 30, 2007

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

DOCKETED
USNRC

Before the Atomic Safety and Licensing Board

December 3, 2007 (8:47am)

OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

In the Matter of)	
)	
Entergy Nuclear Generation Company and)	Docket No. 50-293-LR
Entergy Nuclear Operations, Inc.)	ASLBP No. 06-848-02-LR
)	
(Pilgrim Nuclear Power Station))	

ENTERGY'S SEVENTH SUPPLEMENTAL DISCLOSURE

Pursuant to 10 C.F.R. § 2.336 and the December 20, 2006 and October 17, 2007 Orders of the Atomic Safety and Licensing Board ("Licensing Board" or "Board"),¹ Entergy Nuclear Generation Company and Entergy Nuclear Operations, Inc. ("Entergy") hereby supplements its disclosures as follows.

IDENTIFICATION OF WITNESSES

Entergy hereby identifies the following prospective witnesses for the hearing on Pilgrim

Watch Contention 1:

<u>Alan B. Cox</u>	Technical Manager, License Renewal Entergy Nuclear
	1448 State Road 333 Russellville, AR 72801 479-858-3173

Mr. Cox is an expert in license renewal aging management programs and was involved in preparing the license renewal application and developing the aging management programs ("AMPs") for the Pilgrim Nuclear Power Station ("PNPS"). Mr. Cox is expected to testify on the function and purpose of License Renewal AMPs, the buried piping and tanks at PNPS that potentially contain radioactive liquids which are within the scope of the PNPS license renewal

¹ Order (Establishing Schedule for Proceeding and Addressing Related Matters) at 7 (Dec. 20, 2006); Order (Extending Deadline for Filing Witness Lists Regarding Contention 1) (Oct. 17, 2007).

program, and the adequacy of the PNPS AMPs to assure the performance of the intended functions of in-scope buried piping and tanks through the license renewal period. His testimony is expected to encompass the conformance of those AMPs with NUREG 1801, Generic Aging Lessons Learned ("Gall") Report, Rev. 1 (Sept. 2005) and discussion of applicable operating experience supporting the adequacy of those programs.

Mr. Cox in conjunction with other witnesses identified below is expected to testify to the facts and opinions set forth in his declaration of June 5, 2007 ("Cox Declaration") previously provided to the Board and the parties as part of Entergy's Motion for Summary Disposition of Pilgrim Watch Contention I. The authorities on which Mr. Cox's opinions are based will include the GALL report; the Pilgrim License Renewal Application; NUREG-1891, Safety Evaluation Report Related to the License Renewal of Pilgrim Nuclear Power Station (Nov. 2007); the PNPS Updated Safety Analysis Report; the Liquid Radioactive Release Lessons Learned Task Force Final Report (Sept. 1, 2006); and the Entergy Nuclear Management Manual, Procedure EN-DC-343, Buried Piping and Tanks Inspection and Monitoring Program (Nov. 19, 2007) and references therein.

Brian Sullivan Engineering Director, PNPS
600 Rocky Hill Road
Plymouth, MA 02360
508-830-8627

Mr. Sullivan is Engineering Director for PNPS. Mr. Sullivan is expected to testify to (1) the intended license renewal functions and the design and operation of the condensate storage system ("CSS") buried piping, including the reactor core isolation cooling ("RCIC") and high pressure coolant injection ("HPCI") and fire protection functions; (2) the intended license renewal functions and the design and operation of the salt service water ("SSW") system; (3) the high unlikelihood that the SSW may contain potentially radioactive liquids; (4) the intended license renewal functions and design and operation of the standby gas system; and (5) differentiation of the off-gas system.

Mr. Sullivan's testimony is expected to encompass facts and opinions set forth in paragraphs 11-16 and 33-34 of the Cox Declaration. In addition, Mr. Sullivan's testimony is expected to describe (1) periodic surveillance tests and regularly documented observations to ensure that the CSS and SSW are capable of performing their intended functions (including discussion of tests and observations ensuring HPCI, RCIC and fire protection functions) and (2) the capability of these systems to perform their intended functions even if some leakage occurs.

The authorities on which Mr. Sullivan's opinions are based include the Pilgrim License Renewal Application, NUREG-1891, Safety Evaluation Report Related to the License Renewal of Pilgrim Nuclear Power Station (Nov. 2007); the PNPS Updated Safety Analysis Report; and applicable procedures, inspections, tests and observations.

William H. Spataro Senior Staff Engineer
Entergy Nuclear Northeast
440 Hamilton Avenue
White Plains NY 10601
914 272-3527

Mr. Spataro is a Senior Staff Engineer for Entergy Nuclear Northeast. Mr. Spataro is an expert in metallurgy and is expected to testify to the sufficiency of the PNPS Buried Piping and Tanks Inspection and Monitoring Program, the effectiveness of external coatings and wrappings for buried piping, the adequacy of the proposed inspections, and the relevancy of operating experience at Pilgrim and other plants. The authorities upon which Mr. Spataro's opinion are based include the GALL report; the Pilgrim License Renewal Application; NUREG-1891, Safety Evaluation Report Related to the License Renewal of Pilgrim Nuclear Power Station (Nov. 2007); the PNPS Updated Safety Analysis Report; the Liquid Radioactive Release Lessons Learned Task Force Final Report (Sept. 1, 2006); and the Entergy Nuclear Management Manual. Procedure EN-DC-343, Buried Piping and Tanks Inspection and Monitoring Program (Nov. 19, 2007) and references therein.

Steven P. Woods Manager, Engineering Programs & Components, PNPS
600 Rocky Hill Road
Plymouth, MA 02360
508-830-7878

Mr. Woods is Manager, Engineering Programs and Components for PNPS. Mr. Woods is expected to testify to (1) the specifications for the wrapping of buried piping and tanks used at PNPS to protect against external degradation, (2) the installation of buried piping in accordance with these specifications, (3) the operating experience at PNPS concerning the use buried coated piping, (4) the Salt Service Water Integrity Program, and the demonstrated capability of that Program to identify SSW degradation prior to the loss of its intended function, and (5) the replacement and upgrading of the buried piping for the SSW.

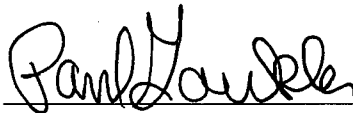
Mr. Wood's testimony is expected to encompass facts and opinions set forth in paragraphs 19-22, 26, and 33-34 of the Cox Declaration. The authorities on which Mr. Wood's opinions are based include the Pilgrim License Renewal Application, NUREG-1891, Safety Evaluation Report Related to the License Renewal of Pilgrim Nuclear Power Station (Nov. 2007); the PNPS Updated Safety Analysis Report; the Entergy Nuclear Management Manual. Procedure EN-DC-343, Buried Piping and Tanks Inspection and Monitoring Program (Nov. 19, 2007) and references therein; and applicable procedures, inspections, tests and observations.

DISCLOSURE AND PRODUCTION OF DOCUMENTS

Pursuant to 10 C.F.R. § 2.336(d), Entergy is hereby supplementing its document disclosures as follows.

1. Entergy is providing by separate cover letter to counsel for Pilgrim Watch and the NRC Staff a compact disk that contains certain documents that were developed, obtained or identified subsequent to Entergy's previous disclosures as being relevant to Pilgrim Watch Contention 1.
2. Entergy is enclosing in hardcopy with this filing the resumes of Mr. Spataro, Mr. Woods and Mr. Sullivan. Mr. Cox's resume has been already been provided as an exhibit to his declaration in support of Entergy's Motion for Summary Disposition of Pilgrim Watch Contention 1.
3. Entergy is providing a supplementary log of proprietary documents which is attached hereto. Documents listed on this log can be made available to Pilgrim Watch, should Pilgrim Watch sign an appropriate Non-Disclosure Agreement.

Respectfully Submitted,



David R. Lewis
Paul A. Gaukler
PILLSBURY WINTHROP SHAW PITTMAN LLP
2300 N Street, N.W.
Washington, DC 20037-1128
Tel. (202) 663-8474

Dated: November 30, 2007

Counsel for Entergy

November 30, 2007

**UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION**

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Entergy Nuclear Generation Company and)	Docket No. 50-293-LR
Entergy Nuclear Operations, Inc.)	ASLBP No. 06-848-02-LR
)	
(Pilgrim Nuclear Power Station))	

CERTIFICATE OF SERVICE

I hereby certify that copies of "Entergy's Seventh Supplemental Disclosure" dated November 30, 2007, and Certification of Supplemental Disclosure Affidavit of Fred Mogolesko executed November 28, 2007, were served on the persons listed below by deposit in the U.S. Mail, first class, postage prepaid, and where indicated by an asterisk by electronic mail, this 30th day of November, 2007.

*Administrative Judge
Ann Marshall Young, Esq., Chair
Atomic Safety and Licensing Board
Mail Stop T-3 F23
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001
amy@nrc.gov

*Administrative Judge
Paul B. Abramson
Atomic Safety and Licensing Board
Mail Stop T-3 F23
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001
pba@nrc.gov

*Administrative Judge
Dr. Richard F. Cole
Atomic Safety and Licensing Board
Mail Stop T-3 F23
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001
rfl@nrc.gov

*Secretary
Att'n: Rulemakings and Adjudications Staff
Mail Stop O-16 C1
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001
secy@nrc.gov, hearingdocket@nrc.gov

Office of Commission Appellate
Adjudication
Mail Stop O-16 C1
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

*Susan L. Uttal, Esq.
*Kimberly Sexton, Esq.
Office of the General Counsel
Mail Stop O-15 D21
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001
slu@nrc.gov; kas2@nrc.gov

*Ms. Mary Lampert
148 Washington Street
Duxbury, MA 02332
mary.lampert@comcast.net

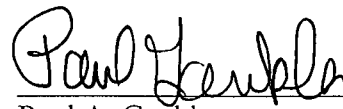
*Sheila Slocum Hollis, Esq.
Duane Morris LLP
1667 K Street, N.W.
Suite 700
Washington, D.C. 20006
sshollis@duanemorris.com

Atomic Safety and Licensing Board
Mail Stop T-3 F23
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

*Mr. Mark D. Sylvia
Town Manager
Town of Plymouth
11 Lincoln St.
Plymouth MA, 02360
msylvia@townhall.plymouth.ma.us

*Chief Kevin M. Nord
Fire Chief and Director, Duxbury Emergency
Management Agency
688 Tremont Street
P.O. Box 2824
Duxbury, MA 02331
nord@town.duxbury.ma.us

*Richard R. MacDonald
Town Manager
878 Tremont Street
Duxbury, MA 02332
macdonald@town.duxbury.ma.us



Paul A. Gaukler

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**Certification of Supplemental Disclosure
Affidavit of Fred Mogolesko**

County of Plymouth)
)
State of Massachusetts)

I, Fred Mogolesko, being duly sworn, state:

I am the License Renewal Project Manager for the Pilgrim Nuclear Power Station. My business address is Pilgrim Nuclear Station, 600 Rocky Hill Road, Plymouth, MA 02360. I am authorized to provide this certification, pursuant to 10 C.F.R. § 2.336(c), on behalf of Entergy Nuclear Generation Company and Entergy Nuclear Operations, Inc. ("Entergy").

To the best of my knowledge, information and belief, Entergy's seventh supplemental disclosure in the above captioned proceeding discloses all materials required to be disclosed by 10 C.F.R. § 2.336(a) that were developed, obtained or identified subsequent to the previous disclosures as being relevant to the admitted contentions.

Further, to the best of my knowledge, information and belief, and based on representations of personnel who were instructed to perform a diligent search, these disclosures are accurate and complete as of this date.

Further the affiant sayeth not.

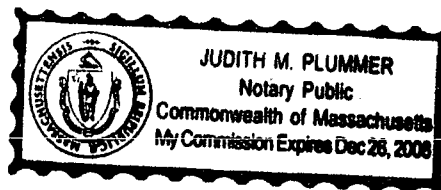
Fred Mogglesko
Fred Mogglesko

Subscribed and sworn to before me this 28th day of November, 2007

Judith M. Plummer
Notary Public

My commission expires:

December 26, 2008



Brian R. Sullivan
Pilgrim Nuclear Power Station
600 Rocky Hill Road
Plymouth, MA 02360

EDUCATION

1980 – BSME – Massachusetts Maritime Academy
Senior Operator License Number 11780
Operator Docket Number 55-62007
2nd Assistant Engineers License – USCG

EXPERIENCE

1988 – Present

Various positions of increased responsibility at Pilgrim Nuclear Power Station

- Senior Engineer
- Control Room Supervisor
- Shift Manager
- AOM Shift
- Outage Manager
- AOM Support
- Programs and Components Manager
- Systems Engineering Manager
- Engineering Director

2 Burning Brush Court
Pomona, N.Y. 10970-2015
Phone (845) 304-6482
Fax (845) 362-4946

Email whspataro@optonline.net

WILLIAM H. SPATARO, P.E.
CONSULTING SPECIALIST
METALLURGY WELDING CORROSION

Professional Engineer – CT, NY
NBR Certified Coatings Engineer
AWS Certified Welding Inspector
AWS Certified Welding Educator

FORENSIC ANALYSIS CONSULTANT

Forty-five years of practical welding experience, thirty-nine years of professional engineering experience in welding, corrosion and metallurgical engineering. Expertise in welding and repair welding specification development, nondestructive examination, corrosion and materials evaluation, root cause determination, forensic failure analysis and supervision of on-site fabrication, installation and repair methods and techniques. Applications performed for nuclear, fossil fuel and hydroelectric power plants, electric transmission systems, steam, water and gas transmission pipelines, wastewater treatment and industrial manufacturing facilities, especially during outages.

Of special note, during steam generator installation, determined the cause of nozzle mock-up weld lack of fusion, developed solution and presentation to plant personnel and NRC; vessels installed without incident of weld defects. Received EPRI Innovators Award for reduction of nondestructive examination requirements for socket welds resulting in \$995,000 estimated savings.

Currently hold or have held certifications in shielded metal arc (SMAW), gas tungsten arc (GTAW), gas metal arc (GMAW), flux-cored arc (FCAW) and oxy-acetylene welding, brazing, soldering, plasma and flame spray overlay processes.

COURSE DESIGN AND DELIVERY

Thirty-six years of experience as guest lecturer, course author and presenter at utilities, architect-engineering firms, manufacturing facilities, professional seminars, conferences and symposia.

Entergy Nuclear Northeast (New York Power Authority,) White Plains, NY

Developed and delivered five-day Welding Metallurgy Course, three-day Forensic Metallurgical Failure Root Cause Evaluation Course and two-day Material Science Course. Each course delivered twice yearly. Each presentation saves an estimated \$10,000-50,000/presentation over outsourcing. (1980 - Present)

Garlock Sealing Technologies, Palmyra, NY

Guest Lecturer, Regional and on-site Nuclear Applications Seminars. (2004 - Present)

Electric Power Research Institute, Charlotte, NC

Guest Lecturer, Visual Examination and Advance Welding Technology Courses. (1988 - 1991)

American Association of Performance Engineers

New York State Convention - Keynote Speaker, Topic "The Role of Metallurgy in Failure Analysis." (1987.)

ASM, NACE and AWS

Guest lecturer at local chapter meetings (1984-1987.) Guest Lecturer - "Interaction Between Welding and Corrosion Control," NACE Northeast Region Conference September 1988.

Burns & Roe, Incorporated, Paramus and Oradell, NJ

Developed and delivered five-day Practical Metallurgy For Engineers Course at Burns & Roe Corporate Office and at "Washington Public Power Supply System, Hanford, WA"; "Northeast Utilities, Millstone, Waterford, CT"; "General Public Utilities, Toms River, NJ" and "William F. Wyman Fossil Plant, Falmouth, ME." Savings - \$20,000/presentation. (1973 -1980)

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METALLURGY WELDING CORROSION

Professional Engineer – CT, NY
NBR Certified Coatings Engineer
AWS Certified Welding Inspector
AWS Certified Welding Educator

PROFESSIONAL EXPERIENCE

ENTERGY NUCLEAR NORTHEAST (NEW YORK POWER AUTHORITY)
Director Materials Engineering - Consulting Metallurgist (1980 - Present)

Manage metallurgical and chemical engineers supporting the operation of the company's nuclear, fossil fueled, pumped storage and hydroelectric power projects and its transmission lines and under-water cables. Develop and present engineering support personnel training courses in Material Science, Welding Metallurgy, and Root Cause Forensic Metallurgical Failure Evaluation. Received Employee of the Quarter Award twice, Excellence In Engineering Performance Award twice, and EPRI Innovators Award.

BURNS & ROE, INCORPORATED, ORADELL, NJ
Senior Metallurgist (1973 - 1980)

EBASCO SERVICES, INCORPORATED, NEW YORK, NY
Welding Engineer (1968 - 1973)

EDUCATION AND DEVELOPMENT

B.E. Metallurgy - New York University
Supervisory Development Program - Rutgers University
Maintenance Coatings in Class I Areas of Nuclear Plants – National Bureau of Registration
ASME Section IX Welding Qualifications Course
ASME Section XI Inservice Inspection Course

PROFESSIONAL AFFILIATIONS AND MEMBERSHIPS

Registered Professional Engineer, Connecticut and New York
AWS: Certified Welding Inspector, Certified Welding Educator
NBR: Certified Nuclear Safety Related Coating Engineer
American Welding Society, Life Member
American Society for Metals International, 41-year member
National Association of Corrosion Engineers, 28-year member
Welding Research Council - Subcommittees on High Nickel Alloys,
Corrosion and Weldability of Stainless Steel
Toastmasters International - Able Toastmaster Bronze Award
Union County Vocational Institute, Scotch Plains, NJ - Advisory Board Member and Guest
Lecturer - 1970-1975
Rockland County Board of Cooperative Extension Services, Bardonia, NY - Advisory Board
Member and Guest Lecturer - 1969-1976

PUBLICATIONS

Analysis and Monitoring of Heat Transfer Tube Fouling, N.Zelver, J.R.Flandreau, W.H.Spataro, et. al. Presented at ASME Joint Power Generation Conference, Denver, CO, October 1982.

Avoiding SCC Failures in Steam Turbine Blades, W.H.Spataro. Welding Design & Fabrication. October 1989.

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NBR Certified Coatings Engineer
AWS Certified Welding Inspector
AWS Certified Welding Educator

MAJOR ACCOMPLISHMENTS

Nuclear Power Plants

Pressure Vessel Shell Weld Failures and Repair Techniques

Analyzed 3-1/2" thick pressure vessel shell weld failures. Determined the cause of failure to be improper post weld heat treatment of original fabrication weld repairs on quench & tempered material. Excessive residual stresses, acting on high hardened weld heat-affected zones, pitted By brackish water contamination, resulted in over 200 individual corrosion assisted fatigue cracks in each of four vessels. Developed repair techniques. Used the lessons learned to develop the specifications used to purchase new, competitively bid steam generators for \$30,000,000, a savings of \$10,000,000. During steam generator installation, determined the cause of nozzle mock-up weld lack of fusion, developed solution and presentation to plant personnel and NRC.

Low Pressure Turbine Blade Failure Evaluation and Manufacturing Modification

Analyzed blade failures in low-pressure turbines. Determined improper welding caused recurring corrosion failures. The welding technique resulted in a heat-affected zone of extremely high hardness in which stress corrosion cracking initiated. Modified manufacturing sequence to add peening and ultrasonic testing as a crack preventative measure. Spindles operated without further blade cracking. Estimated savings: \$850,000.

Condenser Tube/Tubesheet Weld Corrosion Failure Evaluation and Repair

Analyzed condenser tube/tubesheet weld corrosion. Over 1000 welds had experienced pitting corrosion. The attack covered 1/4 -1/3 of the weld circumference. The position of the corrosion around the circumference varied in different areas and suggested the phenomenon was related to the weld procedure. Analysis showed a rapid cooling at the weld start/stop location caused microstructural segregation that was susceptible to intragranular galvanic corrosion and cavitation/erosion degradation. Developed repair procedure to weld rather than plug the tubes. Designed a cathodic protection system to prevent further corrosion. Condenser operated without further corrosion. Deferred condenser replacement for an estimated \$10,500,000 savings.

Isophase Bus Installation Procedure Development

Evaluated aluminum isophase bus welds failures and determined that poor welding techniques caused brittle welds that cracked. Developed new installation welding and heat-treating procedures. The bus, installed in half the estimated time, has operated since 1983 without incident of cracking. Estimated savings two weeks outage time \$120,000.

Hydroelectric Power Plants

Discharge Tube Cracking Evaluation and Repair

Evaluated cavitation repair failures and determined cause of cracking. The repair welds were made with carbon steel filler metal diluted by a previous stainless steel repair weld deposit resulting in a brittle weld that cracked from residual stress. Developed a repair method for sealing the four-foot long, through-wall (3-1/2") cracks using the back-step, alternate bead placement technique. The remaining fifteen 60MW units were repaired without incident. Estimated savings \$210,000/unit.

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CONSULTING SPECIALIST
METALLURGY WELDING CORROSION

Professional Engineer – CT, NY
NBR Certified Coatings Engineer
AWS Certified Welding Inspector
AWS Certified Welding Educator

MAJOR ACCOMPLISHMENTS

Fossil Fueled Power Plants

Metallurgical Analysis of Cracked Low Pressure Turbine Blades

A prior turbine blade weld deposit, susceptible to fatigue failure, was removed and re-welded by the equipment supplier with a different material. The new welds failed. Determined fatigue failure of new welds caused by insufficient removal of prior precipitation hardened material that formed a metallurgical notch. Developed weld repair technique eliminating crack sensitive material. Spindles have operated since 1986 without blade cracking. Estimated savings: \$700,000.

Replacement Boiler Tube Process Development

Boiler tube failures were caused by caustic cracking of sensitized and decarburized 304H stainless steel. The tubes, cold worked during bending prior to installation and exposed to 1100°F operating condition developed a susceptibility to corrosion and failed within two years. Developed pre-installation, post-bend heat treatment. The tubes have been in service since 1982 without failure. Estimated savings \$150,000.

High Voltage Transmission Towers

Bolted Connection Failure Analysis and Repair

Performed root cause evaluation of bolted connections on 765kV and 345kV weathering alloy steel towers. Corrosion product build-up in the bolted connections exerted a force that deformed the structural members creating a danger of imminent failure. Designed a coating system to prevent intrusion of moisture into the joint and still maintain current transfer across the connection. The program enabled the towers to be repaired without interruption of service. There have been no further incidents of corrosion since 1984. Prevented a potential New York State blackout.

State of the Art Material Utilization

Service Water System Heat Exchanger Failure Analyses and Repair

Evaluated root cause of corrosion failures of copper-nickel material in brackish water after less than one year of service. Determined crevices in weld joint design and susceptible material caused the failures. The material was unsuitable for low flow rate (less than 2 fps) conditions. Anaerobic bacteria under silt deposits rapidly pitted the material. Designed new system utilizing crevice free joints of 904L/AL6X material that has operated successfully since 1981 without failure. Estimated savings of four replacements, one every five years at \$5,500,000 each.

Service Water System Piping and Component Failure Analyses and Repair

Utilized latest corrosion resistant materials: 347SS, 904L, Alloy 20, AL6XN, 254SMO and Titanium. Corrosion degradation eliminated in many systems handling brackish water or corrosive media. Evaluated these materials with emphasis on the effect of stagnant or low flow, crevice, galvanic, and microbiologically influenced corrosion mechanisms.

24 Winter Street
Hanover, MA 02339

Telephone: (781) 826-2076
e-mail: woodsie24@comcast.net

SUMMARY OF QUALIFICATIONS

EXPERIENCE Over twenty six years experience applying engineering methods and capabilities to various projects and engineering disciplines ... employing management and supervisory skills ... repairing and maintaining marine and nuclear facilities ... identifying technical discrepancies ... solving engineering problems ... designing and preparing modifications for new and existing systems ... implementing effective and efficient nuclear power plant procedures...designing and developing specifications for various equipment and systems ... analyzing mechanical components and piping systems to ASME, AWS, ANSI and AISC codes utilizing conventional methods and computer programs including MATHCAD, SUPERPIPE, GT Strudl and CDC Baseplate II, ... highly motivated and capable of working independently or as a member of an integrated team.

EMPLOYMENT HISTORY

- 7/07 To Present** ENERGY CORP. – PILGRIM NUCLEAR POWER STATION, Plymouth, Massachusetts
Manager, Engineering Programs & Components. Responsible for budgets, schedules, resource allocation for emergent activities as well as long term plans including outages and license renewal.
- 1/06 To 7/07** Supervisor Code Programs, Eng. Programs & Components. Responsible for code program activities such as budgets, schedules, resource allocation, long term plans, and license renewal. Acting EP&C manager.
- 5/00 To 1/06** Senior Engineer, Design Engineering – Mechanical / Civil / Structural group. Performing all facets of design engineering including nuclear changes and field support.
- 9/99 To 5/2000** ALTRAN CORPORATION, Boston, Massachusetts
Engineering Consultant, Indian Point Unit 2 and Pilgrim Nuclear Power Stations
Project Manager / Engineer to resolve design problems via generic modifications / component replacements to support IP2's outage. Staff augmentation to Mechanical / Structural Engineering Group at Entergy's PNPS for plant design changes.
- 3/96 To 9/99** PROTO-POWER CORPORATION, Groton, Connecticut
Senior Engineer, Structural / Applied Mechanics Group, Millstone Unit 2 Nuclear Power Station
Engineering Consultant assigned to lead the mechanical section of the Rapid Response Group in resolving "hot items" critical to plant operations. Performed analysis of structural and mechanical components initiated by Non-Conformance Reports, Condition Reports and Plant Design Changes. Provide Motor Operated Valve (MOV) engineering support to MOV Group.
- 8/93 To 2/96** ALTRAN CORPORATION, Boston, Massachusetts
Engineering Consultant, Millstone Units 1, 2, 3 & Connecticut Yankee Nuclear Power Stations and Fitzpatrick Nuclear Plant
Lead Project Engineer performing Weaklink structural analysis of components for MOV's in accordance with the NRC's GL89-10 program. Developing design modifications for overstressed MOV's to return valves to original design basis.
- 5/92 - 7/93** CYGNA ENERGY SERVICES, Boston, Massachusetts
Engineering Consultant, Boston Edison's Pilgrim Nuclear Power Station
Mechanical Project Engineer dedicated to the "Salt Service Water Pipe Replacement" project. Generated calculations to qualify design modifications during each phase of the project including excavation, underground concrete vault construction, titanium pipe fabrication and installation.
- 1/92 - 3/92** ALTRAN CORPORATION, Boston, Massachusetts
Engineering Consultant, Millstone Units 1, 2, 3 & Connecticut Yankee Nuclear Power Stations

Performed Erosion / Corrosion analysis for operability of piping systems enabling plant restart.

Page Two

12/88 - 12/91 **ABB IMPELL CORPORATION**, Framingham, Massachusetts
 Lead Senior Engineer, Engineering Mechanics Division
 Mechanical Engineering Consultant for Nine Mile Units 1 & 2 and Pilgrim Nuclear Station. Performed pipe stress analysis and calculations. Mechanical Maintenance Project Engineer for Reactor Recirc Pumps Replacement and Modification controlling part replacements, rebuilding; identified and procured vendor specialty services; identified and designed special tools to facilitate field conditions. Resolved critical path engineering discrepancies in preparation for plant restart. Develop program and staff for material availability / substitution.

6/88 - 11/88 **IMPELL CORPORATION**, Fort Worth, Texas
 Senior Engineer Consultant, Structural Mechanics Division, Comanche Peak Nuclear Plant. Lead Engineer for the Post Construction Hardware Validation Program. Evaluated and controlled critical path items; verified support calculations for structural integrity.

1/88 - 5/88 **GILBERT/COMMONWEALTH**, Chattanooga, Tennessee
 Senior Engineer Consultant, Hixson Office.
 Verifier, Checker and Originator of calculations for analysis of pipe supports on Sequoyah Nuclear Plant Calculation Regeneration Program.

12/85 - 9/87 **IMPELL CORPORATION**, Knoxville, Tennessee
 Principal Engineer, Watts Bar Nuclear Plant.
 The Design Engineering Department interface for system modifications and special tasks per request by the client. Field verified and analyzed structural and mechanical components, including load generation and support qualification, utilizing conventional methods and computer programs. Performed constructability reviews.

12/81 - 10/85 **TELEDYNE ENGINEERING SERVICES**, Waltham, Massachusetts
 Project Engineer. Turkey Point Nuclear Plant, Nine Mile Point Nuclear Plant, Fitzpatrick Nuclear Plant, Pilgrim Nuclear Station and Watts Bar Nuclear Plant.
 Liaison engineer coordinating uninterrupted construction of all mechanical activities, making on-the-spot decisions for effective work flow. Performed structural and mechanical component analysis on new and existing systems.

1980 - 1981 **U.S. MERCHANT MARINES**
 Third Assistant Engineering Officer aboard cargo vessels.
 Engineering Officer-On-Watch. Responsible for power plant operations and maintenance including supervision of extensive repair / testing of power plant components such as turbines, gears, pumps, valves, heat exchangers, boilers, I&C systems and electric motors.

1977 - 1980 **MASSACHUSETTS MARITIME ACADEMY**
 Summer training cruises (3) aboard Academy vessels. Performed all engine room tasks.

CLEARANCES Unescorted access to all nuclear plant sites assigned to.

EDUCATION Bachelor of Science Degree, Marine/Mechanical Engineering,
 Massachusetts Maritime Academy, Buzzards Bay, Massachusetts, 1980
 U.S. Coast Guard Third Assistant Engineer of Steam and Motor Vessels for Unlimited Horsepower. License No. 513413.

DATE OF BIRTH December 18, 1957

CITIZENSHIP USA

REFERENCES

Available upon request.

Attachment 1
Supplemental Log of Documents Containing Proprietary Information

No.	Document Date	Entity Claiming Proprietary Status	Document Description
15	Not available	EPRI	EPRI Report 1011829, "Condition Assessment of Large-Diameter Buried Piping, Phase 2: Vehicle Design and Construction"
16	June 2006	INPO	INPO Engineering Program Guide, "Underground Piping Reliability Management"
17	April 2007	INPO	INPO Operating Experience Digest OED 2007-09, "External Degradation of Buried Piping"
18	October 2003	ASM	ASM Handbook, Volume 13A, "Corrosion: Fundamentals, Testing and Protection, ASM International"
19	November 2005	ASM	ASM Handbook, Volume 13A, "Corrosion: Fundamentals, Testing and Protection, ASM International"