

September 14, 2009

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)
)
Entergy Nuclear Operations, Inc.) Docket Nos. 50-247-LR/286-LR
)
(Indian Point Nuclear Generating)
Units 2 and 3))

NRC STAFF'S ANSWER TO APPLICANT'S MOTION
FOR SUMMARY DISPOSITION OF NEW YORK CONTENTION 8

INTRODUCTION

Pursuant to 10 C.F.R. § 2.1205 and the Board's oral ruling of August 24, 2009,¹ the NRC Staff ("Staff") hereby files its answer to the "Applicant's Motion for Summary Disposition of New York State Contention 8 (Electrical Transformers)" ("Motion"), filed by Entergy Nuclear Operations, Inc. ("Applicant" or "Entergy") on August 14, 2009.² For the reasons set forth below and in the attached "Affidavit of Kimberly J. Green and Roy K. Mathew" ("Joint Affidavit"),³ the

¹ See Prehearing Conference Transcript (Aug. 24, 2009), at Tr. 782 (granting the Staff until Sunday, September 13, 2009, to file its response to the Applicant's Motion).

² In support of its Motion, Entergy also served (1) a "Statement of Material Facts," (2) the Declaration of Steven E. Dobbs, dated August 12, 2009 ("Dobbs Decl."); (3) the Declaration of Roger B. Rucker, dated August 12, 2009 ("Rucker Decl."); (4) the Declaration of John W. Craig, dated August 12, 2009 ("Craig Decl."); and (5) four exhibits (Exhibits 1 – 4). These are: Exhibit 1 (Final Rule, Nuclear Power Plant License Renewal; Revisions, 60 Fed. Reg. 22,461 (May 8, 1995)); Exhibit 2 (Excerpts from Chapter 2 of the Indian Point [LRA]); Exhibit 3 (Excerpt from Appendix B ("Typical Structure, Component and Commodity Groupings and Active/Passive Determinations for the Integrated Plant Assessment") to NEI 95-10, Industry Guideline for Implementing the Requirements of 10 CFR Part 54 - The License Renewal Rule, Revision 6 (June 2005)); and Exhibit 4 (Letter from Christopher Grimes, Director, License Renewal Project Directorate, NRC, to Douglas J. Walters, NEI, Determination of Aging Management Review for Electrical Components (Sept. 19, 1997)).

Staff has determined that it agrees with each of the material fact statements contained in the Statement of Material Facts submitted in support of Entergy's Motion, and that the views expressed by Entergy are consistent with the Staff's established regulatory positions regarding the treatment of electrical transformers under 10 C.F.R. § 54.21(a)(1). Accordingly, the Staff submits that the Motion demonstrates there is no genuine dispute of material fact with respect to New York Contention 8 ("NYS-8"), and the Motion should be granted as a matter of law.

BACKGROUND

New York State Contention 8 (Electrical Transformers) ("NYS-8") was filed by the State of New York ("State" or "New York") on November 30, 2007.⁴ As filed by the State, NYS Contention 8 asserts:

The LRA For IP2 And IP3 Violates 10 C.F.R. §§ 54.21(a) And 54.29 Because It Fails To Include An Aging Management Plan For Each Electrical Transformer Whose Proper Function Is Important For Plant Safety.

NYS Petition at 103. The Applicant and the Staff opposed the admission of NYS-8, on the grounds, *inter alia*, that electrical transformers are "active" components that are not subject to aging management review ("AMR") under 10 C.F.R. § 54.21(a)(1)(i).⁵

(. . .continued)

³ As set forth in the attached Affidavit, Mr. Mathew is a Team Leader in the Electrical Engineering Branch, Division of Engineering, Office of Nuclear Reactor Regulation ("NRR"), and has been responsible for the Staff's review of Indian Point license renewal issues pertaining to electrical components, including transformers, Ms. Green is an NRC Staff Project Manager in Projects Branch 2, Division of License Renewal, NRR, and is the Staff's Project Manager for the Indian Point license renewal application for safety issues (Joint Affidavit at 1).

⁴ New York State Notice of Intention to Participate and Petition to Intervene, filed November 11, 2007 ("NYS Petition") at 103-05.

⁵ Answer Of Entergy Nuclear Operations, Inc. Opposing New York State Notice of Intention to Participate And Petition to Intervene ("Applicant's Answer"), filed January 22, 2008, at 69-73; NRC Staff's Response to Petitions For Leave to Intervene Filed By (1) Connecticut Attorney General Richard Blumenthal, (2) Connecticut Residents Opposed To Relicensing Of Indian Point, And Nancy Burton, (continued. . .)

Following oral argument on the admissibility of contentions, the Board admitted NYS-8. *Entergy Nuclear Operations, Inc.* (Indian Point, Units 2 and 3), LBP-08-13, 68 NRC 43, 86-89 (2008). In its decision, the Board considered the views expressed by Entergy and by the Staff regarding the nature of electrical transformers, but determined that an insufficient justification had been shown to preclude the admission of the contention:

Neither Entergy nor the NRC Staff has provided any legally binding justification to exclude transformers from AMR beyond an apparent similarity to other components that have been excluded by 10 C.F.R. § 54.21(a)(1)(i), nor, as mentioned, has either party provided any explanation on how a transformer changes its configuration or properties in performing its function.

Id. at 89. The Board then defined the scope of the contention, as admitted, and provided guidance to the parties regarding the type of showing that would be required to resolve the contention:

. . . [T]he Board . . . *admits* NYS-8 to the extent that it questions the need for an AMP for safety related electrical transformers that are required for compliance with 10 C.F.R. §§ 50.48 and 50.63. We note that 10 C.F.R. § 54.21(a)(1)(i) lists components that require AMPs and also excludes other components that do not require AMPs. In addressing this contention, the Board will require, *inter alia*, representations from the parties to help us determine whether transformers are more similar to the included, or to the excluded, component examples. While the Petitioner also contends that the transformer support structures are within the scope of license renewal proceedings, it

(. . .continued)

(3) Hudson River Sloop Clearwater, Inc., (4) The State Of New York, (5) Riverkeeper, Inc., (6) The Town Of Cortlandt, And (7) Westchester County ("Staff's Answer"), filed January 22, 2008, at 44-46

does not recognize, as pointed out by Entergy, that these passive structures are managed by the Structures Monitoring Program. The Board *rejects* this aspect of NYS-8.

Id. at 89 (italics in original; emphasis added; footnotes omitted).⁶

Summary of Entergy's Motion

In its motion for summary disposition of Contention NYS-8, Entergy presents an extensive discussion showing that transformers perform their intended function through a change in state, are active, and therefore not subject to a AMR and do not require an Aging Management Program (“AMP”). Motion at 20. In this regard, Entergy presents a detailed Statement of Material Facts, containing 35 factual statements which it contends are not in dispute, thereby entitling Entergy to summary disposition of this contention. In particular, Entergy describes transformer operation and transformer properties (Material Facts 1-8); the ongoing monitoring and maintenance of electrical transformers (Material Facts 9-11); the scoping and screening requirements of 10 C.F.R. Part 54 (Material Facts 12-19); the “scoping” process applied to transformers at Indian Point Units 2 and 3 (“IP2” and “IP3”) (Material Facts 20-22); the “screening” process applied to IP2 and IP3 transformers (Material Facts 23-28); and a summary of the NRC Staff’s established regulatory position, from September 1997 to the present, as to whether transformers are subject to an AMR (Material Facts 29-35).

In its Motion, Entergy states that a transformer is an “active” component because the voltage, current, and heat signature of a transformer change as the transformer performs its intended functions. *Id.* at 21. Further, a transformer cannot perform its function without

⁶ In support of this contention, New York had relied, in part, on a draft request for additional information (“RAI”) issued by the Staff, claiming that the draft RAI had identified transformers for which an AMP was required. NYS Petition at 105. As the Staff has previously indicated, New York misunderstood the draft RAI, which sought information regarding the scoping of electrical equipment, including transformers, in the Indian Point LRA (see 10 C.F.R. § 54.4); the draft RAI did not indicate that transformers require an AMR or AMP under 10 C.F.R. § 54.21(a)(1). See Staff Response at 45-46.

changes in voltage and current. *Id.* Entergy states that under the Commission's definition, active functions are those that can be directly measured or observed, and that the voltage and current in a transformer, which can be measured, show that the transformer performs an active function and is therefore excluded from an AMR. *Id.* at 21-22. Entergy further discusses a transformer's intended functions: to raise or lower voltage (*i.e.*, to step up or step down voltage) or to isolate a load. *Id.* at 6. Entergy explains that transformers are most similar to the components listed as "excluded" items in 10 C.F.R. § 54.21(a)(1)(i), because transformers work by actively changing state. *Id.* at 21-24.

Entergy next discusses the scoping and screening process required under 10 C.F.R. § 54.4, and how passive components are subject to an AMR under § 54.21(a)(1). Entergy explains that all on-site transformers, and switchyard transformers associated with restoration of off-site power, are in scope but are not passive. *Id.* Entergy states that in preparing its LRA and determining that transformers were active and thus not subject to an AMR, it relied on the criteria in 10 C.F.R. 54.21(a)(1)(i), and on NEI 95-10, "Industry Guideline for Implementing the Requirements of 10 C.F.R. Part 54 - The License Renewal Rule," Rev. 6 (June 2005), as endorsed by NRC Regulatory Guide ("RG") 1.188, "Standard Format And Content For Applications To Renew Nuclear Power Plant Operating Licenses" Rev. 1 (Sept. 2005). Further, Entergy indicates that its determination that transformers were active, and thus not subject to an AMR, was consistent with NEI-95-10, and with NUREG-1800, "Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants," Rev. 1 (Sept. 2005) ("SRP-LR"). *Id.* at 12-13. Further, Entergy observes that the Staff has concluded its safety evaluation of the Indian Point LRA, as set forth in the Staff's Safety Evaluation Report Related to the License Renewal of Indian Point Nuclear Generating Unit Nos. 2 and 3 (Aug. 12, 2009). Entergy observes, correctly, that the Staff's SER did not find that any IP2 or IP3 transformers are subject to an AMR, or that any transformers required an AMP. *Id.* at 14. Finally, Entergy

discusses the NRC Staff's established position, as clearly expressed from 1997 to the present, that electrical transformers do not require an AMR or AMP under 10 C.F.R. Part 54. *Id.* at 24-25 and 28.

In sum, Entergy's Motion demonstrates that transformers are active components and do not require an AMR or AMP under 10 C.F.R. § 54.21(a)(1). Entergy concludes that there is no genuine issue of material fact and that it is entitled to summary disposition of this contention as a matter of law. *Id.* at 30.

DISCUSSION

A. Legal Standards Governing Motions for Summary Disposition

Pursuant to 10 C.F.R. § 2.1205(a), unless otherwise directed, any party may submit a motion for summary disposition in a Subpart L adjudicatory proceeding for consideration by the presiding officer, no later than 45 days prior to the commencement of evidentiary hearings. In ruling on motions for summary disposition, the Board shall apply the standards for summary disposition set forth in 10 C.F.R. Part 2, Subpart G, even if proceeding under Subpart L.

10 C.F.R. § 2.1205(c). As described in Subpart G,

The presiding officer shall render the decision sought if the filings in the proceeding, . . . , together with the statements of the parties and the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to a decision as a matter of law.

10 C.F.R. § 2.710(d)(2); *Pacific Gas And Electric Co.* (Diablo Canyon Power Plant Independent Spent Fuel Storage Installation), LBP-08-7, 67 NRC. 361, 371 (2008). Under the NRC's rules, all material facts set forth in the motion for summary disposition "will be considered to be admitted unless controverted by the statement required to be served by the opposing party.

10 C.F.R. § 2.710(d)(2). The moving party bears the initial burden of informing the tribunal of the basis for its motion and identifying those portions of the record that demonstrate the absence of a genuine issue of material fact. *Diablo Canyon*, 67 NRC at 371, *citing Celotex*

Corp. v. Catrett, 477 U.S. 317, 323 (1986). Any party opposing the motion cannot rest on “the mere allegations or denials” in its pleading, but must set forth specific facts showing that there is a genuine issue of fact for trial. 10 C.F.R. § 2.710(b); *Diablo Canyon*, 67 NRC at 372 and cases cited therein. The Board must examine the evidence in the light most favorable to the nonmoving party. *Id.*, citing *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 255 (1986).

B. No Genuine Issue of Material Fact Remains Concerning Contention NYS-8.

As set forth in the attached Affidavit of Kimberly J. Green and Roy K. Mathew, the Staff has reviewed the Statement of Material Facts attached to Entergy’s Motion, and has determined that it agrees with each of the material fact statements contained therein. See Joint Affidavit at 4. Accordingly, the Staff believes that no genuine dispute of material fact exists with respect to Contention NYS-8, and that Entergy’s motion for summary disposition of this contention should be granted as a matter of law.

As summarized above, Entergy’s Statement of Material Facts, submitted in support of its Motion, presents a detailed description of transformer operation and transformer properties (Material Facts 1-8); the ongoing monitoring and maintenance of electrical transformers (Material Facts 9-11); the scoping and screening requirements of 10 C.F.R. Part 54 (Material Facts 12-19); the “scoping” process applied to transformers at Indian Point Units 2 and 3 (“IP2” and “IP3”) (Material Facts 20-22); the “screening” process applied to IP2 and IP3 transformers (Material Facts 23-28); and a summary of the NRC Staff’s established regulatory position, from September 1997 to the present, as to whether transformers are subject to an AMR (Material Facts 29-35).

The Staff, through its electrical component expert, Roy K. Mathew, reviewed Entergy’s Statement of Material Facts regarding transformer operation and transformer properties (Material Facts 1-8); the ongoing monitoring and maintenance of electrical transformers

(Material Facts 9-11); the scoping process applied to IP2/IP3 transformers (Material Facts 20-22); the screening process applied to IP2/IP3 transformers (Material Facts 23-28); and the Staff's established regulatory position that transformers are not subject to an AMR (Material Facts 29-35)., and found them to be correct. Joint Affidavit at 4, ¶ 7.

Similarly, the Staff's Indian Point LRA project manager for safety issues, Kimberly J. Green, reviewed Entergy's Statement of Material Facts regarding the scoping and screening requirements of 10 C.F.R. Part 54 (Material Facts 12-19); the SER's conclusion that Indian Point electrical components, including transformers, had been treated appropriately in the LRA, and that no AMR or AMP was identified as required for any Indian Point transformer (Material Fact 28); and the Staff's established regulatory position that transformers are not subject to an AMR (Material Facts 29-35), and found them to be correct. Joint Affidavit at 4, ¶ 8.⁷

In sum, the Staff has determined that the Applicant's Statement of Material Facts is correct, and that there is no genuine dispute of material fact with respect to Contention NYS-8. The Applicant has correctly explained that electrical transformers are active components and are not subject to an AMR or AMP under 10 C.F.R. § 54.21(1)(a), under the Commission's regulations and long-standing regulatory guidance. Summary disposition of this contention is

⁷ In its Motion, Entergy correctly observes that a similar transformer contention was filed in the Prairie Island license renewal proceeding. Motion at 24, n.140. The Staff had opposed the admission of that contention on grounds similar to those stated by the Applicant here, *i.e.*, that transformers are active components and are not subject to an AMR or AMP, as indicated in the Staff's long-established regulatory position. See NRC Staff's Answer To The Prairie Island Indian Community's Petition For Leave To Intervene (Sept. 12, 2008), at 46-50 (ADAMS Accession No. ML082560858). The Staff's brief cited the Statement of Consideration for Nuclear Power Plant License Renewal; Revisions, 60 Fed. Reg. 22,461, 22,477 (May 8, 1995), Regulatory Guide 1.188, "Standard Format and Content for Applications to Renew Nuclear Power Plant Operating Licenses" (July 2001), and Nuclear Energy Institute (NEI) NEI 95-10, "Industry Guideline for Implementing the Requirements of 10 CFR Part 54 - The License Renewal Rule," Rev. 3 (March 2001), in explaining how the NRC distinguishes between active and passive components and how the NRC concluded that transformers are active components. PI Staff Answer at 46-50. The Petitioner in Prairie Island subsequently withdrew its contention, and the Prairie Island Board therefore did not rule on the issue. See *Northern States Power Co. (formerly Nuclear Management Co., LLC)* (Prairie Island Nuclear Generating Plant, Units 1 and 2), LBP-08-26, 68 NRC 905, 946 (2008).

therefore appropriate.

CONCLUSION

For the reasons discussed above and in the attached Affidavit of Roy K. Mathew and Kimberly J. Green, the Staff has concluded that there is no genuine dispute of material fact regarding the issues raised in Contention NYS-8. Accordingly, the Staff respectfully submits that the Applicant is entitled to summary decision in its favor, as a matter of law.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'D. Roth', is written over a horizontal line.

David E. Roth
Sherwin E. Turk
Counsel for NRC Staff

Dated at Rockville, Maryland
this 14th day of September 2009

September 14, 2009

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)
)
Entergy Nuclear Operations, Inc.) Docket Nos. 50-247/286-LR
)
)
(Indian Point Nuclear Generating Units 2 and 3))

AFFIDAVIT OF KIMBERLY J. GREEN AND ROY K. MATHEW

Kimberly J. Green ("KG") and Roy K. Mathew ("RM") do hereby state as follows:

1. (RM) I am employed as a Team Leader in the Electrical Engineering Branch, Division of Engineering, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, in Rockville, MD. A statement of my professional qualifications is attached.
2. (KG) I am employed as a Project Manager in Projects Branch 2, Division of License Renewal, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Rockville, MD. A statement of my professional qualifications is attached.
3. (KG, RM) This Affidavit is prepared in response to the "Applicant's Motion for Summary Disposition of New York Contention 8 (NYS-8) Concerning Electrical Transformers," filed on August 14, 2009, by Entergy Nuclear Operations, Inc. ("Applicant").
4. (RM, KG) As part of our official responsibilities, we reviewed New York State ("NYS") Contention 8 ("NYS-8"), and Entergy's License Renewal Application (LRA) Sections 2.1, 2.5, and 3.6, dated April 23, 2007, including supplements dated May 3 and June 21, 2007. We also reviewed the "Applicant's Motion for Summary Disposition of New York Contention 8 (NYS-8) Concerning Electrical Transformers," ("Motion"), "Declaration of Steven E. Dobbs In Support of Entergy's Motion for Summary Disposition of New York State Contention 8" ("Dobbs Decl."), "Declaration of Roger B. Rucker In Support of Entergy's Motion for Summary Disposition of New

York State Contention 8" ("Rucker Decl."), "Declaration of John W. Craig In Support of Entergy's Motion for Summary Disposition of New York State Contention 8" ("Craig Decl."), and the "Statement of Material Facts" submitted in support of Entergy's Motion.

5. (RM) As part of my official responsibilities, I provided input to, and participated in drafting, the NRC Staff's "Safety Evaluation Report Related to the License Renewal of Indian Point Nuclear Generating Unit Nos. 2 and 3" ("SER"), regarding electrical components. These areas include Section 2.5 "Scoping and Screening Results: Electrical and Instrumentation and Controls System," and Section 3.6, "Aging Management of Electrical and Instrumentation and Controls System." I also reviewed the SER's incorporation of my inputs, and I reviewed SER Section 2.1, "Scoping and Screening Methodology."

6. (KG) As part of my official responsibilities, I participated in the NRC Staff's audit and review of the Applicant's scoping and screening methodology, including the scoping and screening of electrical and instrumentation and control components, which includes electrical transformers. I also prepared the NRC Staff's "Safety Evaluation Report Related to the License Renewal of Indian Point Nuclear Generating Unit Nos. 2 and 3," issued on August 11, 2009, and the previous SER With Open Items, issued on January 15, 2009, both of which, *inter alia*, included the input prepared by Mr. Mathew.

7. (RM) On the basis of my review of the above documents I am satisfied that Entergy's "Statement of Material Facts" ¶¶ 1-11 and ¶¶ 20-35 are true and correct.

8. (KG) On the basis of my review of the above documents, I am satisfied that Entergy's "Statement of Material Facts" ¶¶ 12-19 and ¶¶ 28-35 are true and correct.¹

¹ Material fact ¶ 28 incorrectly states that the SER was published on August 12, 2009; in fact, the SER was published on August 11, 2009, and was transmitted to the Board and parties on August 12, 2009.

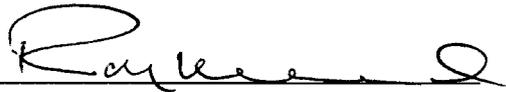
9. (KG) In accordance with 10 C.F.R. § 2.304(d), I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge, information, and belief.



Kimberly J. Green

Executed on September 14, 2009
in Rockville, MD.

9. (RM) In accordance with 10 C.F.R. § 2.304(d), I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge, information, and belief.



Roy K. Mathew

Executed on September 10, 2009
in Rockville, MD.

Statement of Professional Qualifications
Kimberly J. Green, Project Manager,
Projects Branch 2, Division Of License Renewal,
Office of Nuclear Reactor Regulation,
U.S, Nuclear Regulatory Commission

Summary

Ms. Green is currently the project manager for the Indian Point Nuclear Generating Unit Nos. 2 and 3 license renewal application. She is a nuclear engineer with over eighteen years of experience in safety analysis, design modifications, license renewal, and radiological controls. Her expertise includes regulatory analysis and the evaluation of licensing documentation, particularly in the area of license renewal. She also has experience in the private industry, where she performed safety analyses in support of steam generator replacements at commercial power plants.

Education: B.S. Engineering, University of Maryland, College Park, MD,
December 1989
Major: Nuclear Engineering
Minor: Mechanical Engineering

Experience:

2006 - Present Project Manager, USNRC Headquarters

Safety project manager for the Indian Point Nuclear Generating Unit Nos. 2 and 3 license renewal application. Responsible for the development and implementation of the project schedule and the safety evaluation report. Primary work products include the issuance of requests for additional information, the draft and final safety evaluation reports, and meeting and teleconference summaries. Participated as a member of the audit teams that evaluated the scoping and screening methodology, and the aging management reviews and aging management programs. In addition to Indian Point, was a member of the scoping and screening methodology audit team, in the area of mechanical engineering, for the Wolf Creek, Susquehanna and Shearon Harris license renewal applications. As an audit team member, evaluated the scoping and screening methodology used by the applicants to determine if the methodology meets the intent of 10 CFR Part 54.

2000 - 2006 Contract Engineer, Information Systems Laboratories, Inc.
(contracted to US NRC Headquarters)

Performed engineering evaluations of the main steam, feedwater, auxiliary feedwater, instrument air, emergency diesel generator, and fuel pooling cooling systems for the Peach Bottom, St. Lucie, Ginna, Millstone, and Pilgrim license renewal applications. Principal investigator for the Browns Ferry and Oyster Creek license renewal application safety reviews. Performed

engineering evaluation of the severe accident mitigation alternative analysis required for license renewal for the following plants: Turkey Point, North Anna, Surry, Peach Bottom, McGuire, Catawba, St. Lucie, Fort Calhoun, H.B. Robinson 2, Ginna, V.C. Summer plants, Dresden, Quad Cities, Farley, ANO-2, Browns Ferry, Millstone, Nine Mile Point, Brunswick, Monticello, Oyster Creek, Pilgrim, and Vermont Yankee. Participated in the onsite scoping and screening methodology audits at ANO-2 and Browns Ferry in support of license renewal. Participated in the aging management program/aging management review audit for Dresden and Quad Cities in support of license renewal. Performed cost and regulatory analyses, specifically in support of the resolution of Generic Issue 189, for a modification to 10 CFR 50.44 regarding combustible gas control for nuclear power reactors, and for a potential revision to 10 CFR 50.46, Appendix K, regarding emergency core cooling system evaluations. Other work included performing cost-benefit analyses for regulations, reviewing requests to extend the allowed outage time of the 125 Vdc and containment isolation valves, and providing input to the technical evaluation report.

1996 - 2000

Engineer, Scientech, Inc.

Performed risk analyses for byproduct material systems, including dose calculations and diamond tree analysis. Reviewed and characterized methodologies and codes cited in licensees' Updated Final Safety Analysis Reports and licenses for incorporation in an NRC database. In support of litigation cases, reviewed D.C. Cook's containment sump design and performance after a Design Basis Accident, and she reviewed and characterized documents to support expert testimony on dose assessment and reconstruction. As a contractor to the U.S NRC, Ms. Green analyzed licensing commitments and regulatory requirements contained in the Millstone Unit 1 docket to develop an NRC database for the plant's Current Licensing Basis (CLB).

1994 - 1996

Digital Systems Research, Inc.

Provided support to Radiological Controls Program Advisor for Environmental Management at the U.S. DOE in the areas of radiological controls and health and safety. Reviewed and provided technical assessment of facilities' radiological protection programs for adequacy and compliance with appropriate regulations and orders.

1990-1994

Safety Analysis Engineer, Bechtel Power Corporation, Gaithersburg, Maryland

Performed as a safety analysis engineer on the Steam Generator Replacement Core Team. Originated 10 CFR 50.59 safety evaluations for mechanical and civil design modifications that

required interface with engineers from multiple disciplines as well as the client. Researched and developed position papers on the applicability of relevant regulatory issues such as long-term onsite storage of low-level waste, feedwater nozzle cracking/thermal stratification, leak-before-break, elimination of arbitrary intermediate breaks, and potential blockage of ECCS sump screens which required interface with industry organizations, legal firms, and the clients. Produced a technical study on various types of insulation used in containment at nuclear power plants. Performed and reviewed mechanical calculations and nuclear design basis calculations dealing with radiation shielding and dose. In support to the company's foreign clients, provided safety analysis support to nuclear power utilities in Brazil and Spain regarding mechanical design modifications and steam generator replacement.

Statement of Professional Qualifications
Roy K. Mathew, Team Leader,
Electrical Engineering Branch, Division of Engineering,
Office of Nuclear Reactor Regulation,
U.S. Nuclear Regulatory Commission

Summary

Mr. Mathew has acquired extensive knowledge and experience in several engineering disciplines particularly in electrical engineering including nuclear reactor theory, principles and practices; reactor design, construction, testing, startup and operations; regulation of the nuclear power plant industry; maintenance; inspection; and licensing through my educational experience, training, and 29 years of experience in the nuclear power industry. Mr. Mathews has a Bachelor's degree in electrical engineering and has more than 21 years experience with the NRC working both in Region 1, where he worked as a Qualified Reactor Engineer performing various inspections, and Headquarters where he worked as an Operations Engineer in the Special Inspections Branch and Inspection Program Branch (IIPB) conducting various engineering and design inspections, a Team leader, Senior. Reactor Systems Engineer, and Senior Electrical Engineer in the Division of Engineering (DE) and Division of License Renewal (DLR).

As a Team Leader in DE and DLR, he was responsible for various significant reviews and programs, including: developing Interim Staff Guidance for License Renewal programs; performing safety reviews for license renewal applications; leading NRC audit teams for conducting license renewal safety reviews several facilities; reviewing operating experience issues and issuing appropriate generic communications; supporting review of license amendments requests. He has an extensive knowledge in NRC regulations and guidance documents, and industry codes and standards.

Education: B.S. Electrical Engineering, University of Kerala, India

Experience:

2005-Present

Electrical Engineering Branch

Reviewed large power transformer failures in the industry for the last several years and issued an Information Notice 2009-010, "Transformer Failures - Recent Operating Experience," to inform the licensees to review the information for applicability to their facilities and consider actions, as appropriate, to avoid similar problems.

Conducted safety review audits consisting of nine technical reviewers including contractors for preparing the safety evaluation inputs for the license renewal applications submitted by the applicants for Oyster Creek, Fitzpatrick, Vogtle, and Harris power plants. Led audit teams to prepare the safety evaluation inputs for several license renewal applications. Conducted public exit briefing for staff's safety audits for Oyster Creek. Participated in the staff presentations at the ACRS sub-committee and full committee meetings on license renewal

applications. Developed interim staff guidance for certain aging management programs and prepared safety review audit guidance. Reviewed license amendment requests. Conducted reviews of operating experience reviews. Led team members.

Provided inputs and participated in International Atomic Energy Agency (IAEA) technical meetings on Electric Grid Reliability and Interface with Nuclear Power Plants on August 4-6, 2009, and Developing an IAEA Safety Guide for Electrical Power Systems Important to Safety on August 3-7, 2009, conducted at IAEA Headquarters, Vienna, Austria.

Reviewed and issued summary report for Generic Letter 2007-01, "Inaccessible or Underground Power Cable Failures That Disable Accident Mitigation Systems or Cause Plant Transients," and participated in public workshops and meetings to discuss the results of the cable performance and degradation issues and proposed NRC actions with the industry.

1993-2005

Operations Engineer, USNRC Headquarters

Developed and monitored implementation of Reactor Safety Strategic Performance Area inspection procedures such as Surveillance Testing, Maintenance Effectiveness, Inservice Testing, Heat Sink Operability, Equipment Alignment, Maintenance Risk Assessment and Risk Management, Temporary Modification, Evaluation of Changes, Tests, or Experiments, Permanent Plant Modifications and Safety System Design and Performance Capability.

Responsible for updating various Inspection Manual Chapters (IMC), and providing policy direction for regional staff. Performed annual assessment of inspection program and provided inspection program assessment inputs to the annual ROP Commission paper. Developed and issued Significance Determination Process (IMC 0609, Appendix K) and Technical basis document for assessing significance of performance issues associated with licensee's implementation of maintenance rule (10 CFR 50.65 (a)(4)). In addition, prepared and provided the required training for implementing the Significance Determination Process (SDP).

Developed policy and guidance for providing inspection credit for IAEA's Operational Safety Review Team (OSART) inspections. Provided several briefings to international agency representatives regarding the NRC inspection oversight and inspection practices.

Coordinated and provided responses to several IAEA's CNRA working group on inspection practices (WGIP) questionnaires and requests. Participated and represented NRC at the CNRA/ WGIP seminar at Veracruz, Mexico.

As a Project Manager, Responsible for the review, upkeep and maintenance of various technical guidance documents such as Part 9900

for 10 CFRs, Technical Specifications, Codes and Standards, and Regulatory Guides.

As a Technical Lead, interfaced with several NRR technical branches and issued Temporary Instructions (TIs) to verify implementation of NRC Orders, Bulletins, and Generic Letters. TIs issued included: Performance Indicator Data Collection, Follow-up of Generic Letter 89-13: Service Water System Problems Affecting Safety-Related Equipment, Reactor Pressure Vessel Head and Vessel Head Penetration Nozzles, Reactor Pressure Vessel Lower Head Penetration Nozzles, Reactor Containment Sump Blockage, Offsite Power System Operational Readiness, and Pressurizer Penetration Nozzles and Steam Space Piping Connections. Coordinated with NRR technical branches to resolve policy and program issues associated with Generic Safety Issues. Resolved several high priority Davis-Besse lessons learned action items pertaining to barrier integrity, boric acid corrosion, surveillance, RCS leakage monitoring, and inservice inspections. Developed a statistical tool to aid inspectors in independently determining whether an adverse trend exists with licensees' RCS unidentified leakage rate data obtained during steady state power operation and action level criteria to assess licensee actions in response to increasing levels of unidentified RCS leakage that could indicate RCPB degradation. Lead IIPB technical reviewer for 10 CFR 50.69 rule making effort and Risk Management Technical Specifications Activities.

As Reactor Oversight Program (ROP) Inspection Report Audit Team Leader: Established procedure for auditing inspection reports to ensure that inspection reports are written in accordance with NRR program documents. Conducted annual audits of inspection reports, and managed several audit team members to complete the audits in CY 2001, 2002, and 2003. The results of the audits were communicated to the regional management and also captured in the annual ROP self-assessment Commission paper.

As Region III Coordinator, resolved regional questions on program implementation, performed periodic site visits to monitor implementation of the ROP, and observed regional assessment and planning meetings and provided feedback to the Regional management. Solicited NRC staff and licensee management feedback on program effectiveness and incorporated those comments in ROP initial implementation program Commission paper and applicable ROP program documents. Resolved several ROP pilot and initial implementation issues.

As Technical Assistant, coordinated resolution of technical issues, prepared presentation materials for NRR Executive Team (ET), monitored Davis-Besse lessons learned action items, provided project management support, coordinated research activities, coordinated NRR action items with Executive Director of Operations (EDO's) office, and provided status to ET regarding the resolution of significant NRR action items. Developed

various report inputs such as monthly congressional report, plan of the week, EDO daily, two-week look ahead items, Research user-needs, and monthly OD/ET Significant Items. Provided responses to intra-government inquiries.

Worked as a Team Leader for several Architect Engineering (AE) inspections for BWR and PWR plants to review design and licensing bases issues. Supervised 6-8 contractor engineers and conducted several public exit meetings. Identified numerous complex design and licensing bases issues during these inspections.

Responsible for Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) review of Advanced Boiling Water Reactor (ABWR) and CE System 80+ electrical/ system design. Team leader for station blackout team inspections at Palo Verde Stations (Units 1,2, and 3) and Beaver Valley. Worked as a group lead for integrated design inspection (IDI), operational readiness assessment team inspection (ORAT) and led Engineering and Maintenance team inspections at numerous operating plants. Identified several design and licensing bases issues. Participated/developed IPAP inspections to review licensees' performance issues. Responsible for developing inspection procedures to implement inspection requirements for station black out (SBO), anticipated transient with out scram (ATWS), safety parameter display (SPDS) and R.G. 1.97 instruments. Responsible for publishing a final information notice to identify all significant electrical issues for Electrical Distribution Functional Inspections. Conducted Fundamentals of Inspections training course, provided presentations for the Atomic Energy Control Board of Canada regarding NRC Electrical Inspections, and participated as a panel member for the Regulatory Information Conference for AE inspections.

1988-1993:

Reactor Engineer, USNRC Region 1

Worked as a team leader for the Electrical Distribution System Functional Inspection (EDSFI) team inspections at various plants. Participated in many EDSFI and safety system functional inspection (SSFI) inspections. Responsible for writing the engineering/technical support areas for the Systematic Assessment of Licensee Performance (SALP) of several licensees. Performed several motor operated valve inspections for the implementation of NRC Inspection and Enforcement Bulletin 85-03 "Motor-Operated Valve Common Mode Failures During Plant Transients Due To Improper Switch Settings" that resulted in identifying many safety significant concerns. Responded to plant events to address concerns in electrical and plant systems including Augmented Inspection Teams (AITs) at Pilgrim, Susquehanna, and Salem. Conducted engineering inspections to assess the licensee performance in the engineering/technical support area for SALP data. Conducted a team inspection at Nine Mile Unit 1 to resolve RG 1.97 "Instrumentation For Light-Water-Cooled Nuclear Power Plants To Assess Plant And Environs

Conditions During And Following An Accident" restart issues. Participated in the special I&C inspection at Indian Point 3 to review the design basis, set points, logic control systems and maintenance of instruments. Assumed lead responsibility for engineering, fire protection and EQ inspections at sites including Calvert Cliffs and Main Yankee.

1987-1988

Field Engineer/Design Engineer, Bechtel Construction, Inc.
(Limerick Nuclear Generating Station)

Responsible for implementing design modifications to safety related equipment to ensure compliance with regulatory requirements and safety analysis commitments. Performed design changes to Nuclear Steam Supply System elementary, schematic and connection drawings and prepared design specifications for control room and remote shutdown panels for Limerick Unit 2. Coordinated with General Electric and the utility to resolve engineering design conflicts. Performed design reviews and implemented electrical separation commitments in accordance with IEEE and FSAR for all safety related equipment at Limerick 2.

1981-1987

Field Engineer/Design Engineer, Bechtel Construction, Inc.
(Palo Verde Nuclear Generating Station)

Responsible for the design changes, installation and inspection of cables, transformers, switchgears, and electrical terminations for nuclear steam supply systems, and safety related systems. Reviewed design drawings and specifications for instrumentation systems and provided technical support to resolve construction problems for instrument installations. Coordinated implementation of TMI Task Action items and human factor study modifications for the control room per NRC requirements. Performed design review and implementation of design changes and modifications for reactor coolant systems, safety injection systems and 4.16kV Class 1E power systems. Performed design review to verify electrical protection and coordination, load growth and electrical system stability analysis for Palo Verde 3.

As Start-up Group Supervisor, completed startup modifications on electrical and NSSS systems for Palo Verde Unit 3. Responsible for the installation and pre-operational testing of major electrical equipment at Palo Verde 3. Prepared several surveillance, maintenance and operating procedures for safety-related systems. Provided support for startup testing of 500kV switchyard protective equipment, transformers, and relays and also onsite major components like MCC, load centers, and 125Vdc Class 1E systems.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)
)
ENTERGY NUCLEAR OPERATIONS, INC.) Docket Nos. 50-247/286-LR
)
(Indian Point Nuclear Generating)
Units 2 and 3))

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing "NRC STAFF'S ANSWER TO APPLICANT'S MOTION FOR SUMMARY DISPOSITION OF NEW YORK CONTENTION 8" and "AFFIDAVIT OF KIMBERLY J. GREEN AND ROY K. MATHEW," dated September 14, 2009, have been served upon the following through deposit in the NRC's internal mail system, with copies by electronic mail, as indicated by an asterisk, or by deposit in the U.S. Postal Service, with copies by electronic mail as indicated by double asterisk, this 14th day of September, 2009:

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