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From: Rick Ennis *NRR*
To: Allen Howe; Chris Miller; Cliff Anderson; Cornelius Holden; David Pelton; Donald Florek; Donna Skay; Eliot Brenner; James Lyons; Jeffrey Jacobson; John Stang; Kathryn Winsberg; Robert Bores; Robert Jasinski; Rosetta Virgilio; Scott Burnell; Tad Marsh; Tae (TJ) Kim; Thomas Madden; Wayne Lanning; William Ruland
Date: 8/31/04 2:45PM
Subject: Fwd: Request for Hearing regarding Vermont Yankee

Attached is a request for hearing on the Vermont Yankee EPU from the New England Coalition.

D-87

From: HearingDocket
To: Neil Sheehan; Rick Ennis
Date: 8/31/04 1:53PM
Subject: Fwd: Request for Hearing regarding Vermont Yankee

This is to notify you that the Office of the Secretary received the attached Request for Hearing filed by the New England Coalition of Brattleboro, Vermont regarding the Vermont Yankee Nuclear Power Station. Upon his return to the office on 09/01/04, Emile Julian will prepare a referral memo to the Atomic Safety and Licensing Board for the Office of the General Counsel to review.

Adria Byrdsong

CC: Annette Vietti-Cook; Emile Julian; Trip Rothschild

From: Raymond Shadis <shadis@prexar.com>
To: <HEARINGDOCKET@NRC.GOV>, <OGCMailCenter@NRC.GOV>
Date: 8/31/04 12:30PM
Subject: Re: NRC Docket No. 50-271

FYI

Attached in MsWord is the meat of what New England Coalition filed in NRC Docket 50-271, mailed yesterday 8/30/04 to the NRC. Hardcopy was posted to Entergy, Shaw-Pittman, Mr. Roisman, and the DPS at the same time. I have included in the attachments just two of seven representative members "standing" declarations (as samples). I have also included a declaration from our clerk as we sought to represent the organization(NEC) interest apart from the interest of our membership. For some reason the file for yesterday's cover letter to NRC would not open in this e-mail program. It is copied and pasted below.

Thanks,

Ray

AUGUST 30, 2004

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
BEFORE THE SECRETARY

Docket No. 50-271

In the Matter of

ENTERGY NUCLEAR VERMONT YANKEE L.L.C.
and ENTERGY NUCLEAR OPERATIONS, INC.

(Vermont Yankee Nuclear Power Station)

-

Secretary
United States Nuclear Regulatory Commission
Washington, DC 20555-0001
ATT: Rulemakings and Adjudications Staff

Dear Rulemakings and Adjudications Staff:

Enclosed for filing in the above captioned matter please find the original and two copies of

**NEW ENGLAND COALITION'S REQUEST FOR HEARING, DEMONSTRATION OF
STANDING, DISCUSSION OF SCOPE OF PROCEEDING AND CONTENTIONS.**

Exhibits A through E, and D-A, and E-A, Appointment of Pro Se Representative, Notice of Appearance, and a Certificate of Service.

Thank you for your consideration,

Sincerely,

Raymond Shadis
Pro Se Representative
New England Coalition
Post Office Box 98
Edgecomb, Maine 04556
207-882-7801
shadis@prexar.com
Op

Raymond Shadis
Staff Technical Advisor
New England Coalition
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AUGUST 30, 2004

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
BEFORE THE SECRETARY

In the Matter of

ENTERGY NUCLEAR VERMONT YANKEE L.L.C.
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(Vermont Yankee Nuclear Power Station)

Docket No. 50-271

NEW ENGLAND COALITION'S
REQUEST FOR HEARING, DEMONSTRATION OF STANDING, DISCUSSION OF
SCOPE OF PROCEEDING AND CONTENTIONS

By this filing, pursuant to 10 C.F.R. §2.309, New England Coalition of Brattleboro, Vermont, by and through its Staff Technical Advisor and Member-in-Good-Standing, Raymond Shadis, representing the organization *pro se*, requests a hearing in the above captioned matter.

New England Coalition's Appointment of Mr. Shadis as *pro se* representative is attached as Exhibit A.

In support of its qualification to make this request, herein below New England Coalition demonstrates standing and discusses the scope of the hearing.

New England Coalition Has Standing To Obtain a Hearing Under 10 C.F.R. §2.309(d)

1. New England Coalition (formerly New England Coalition on Nuclear Pollution) has, on any occasions been accorded standing in NRC proceedings involving New England nuclear power stations, including Yankee Rowe, Seabrook, and Vermont Yankee.

New England Coalition is a non-profit, membership organization headquartered at 67 Main Street, Brattleboro, Vermont and incorporated in the State of Vermont.

2. The nature of the requestor's/petitioner's right under the Act to be made a party to the proceeding, nature and extent of the requestor's/petitioner's property, financial or other interest in the proceeding, and the possible effect of any decision or order that may be issued in the proceeding on the requestor's/petitioner's interest.

New England Coalition is an environmental organization dedicated to informing the public about the public and occupational safety and health risks inherent in nuclear pollution and advocating for sustainable energy sources. New England Coalition is a 501(c)(3) tax-exempt organization.

New England Coalition counts several hundred members in Vermont and additional members throughout the eastern United States.

New England Coalition claims standing in two ways: First New England Coalition claims harm and/or injury in fact for the entity of the organization through the declaration of its Clerk of the Corporation, Pamela Long [Exhibit B]; Second, New England Coalition claims standing through its representative members, Diana Sidebotham, Sarah Kotkov, Charles Butterfield, Paul Sather, Richard Schmid, Mary King, and William Murray, all of whom live within the vicinity of Vermont Yankee Nuclear Power Station and whose declarations are attached as Exhibit C.

New England Coalition's declaration and New England Coalition's representative members declarations claim harm and/or injury in fact traceable to NRC's action, or inaction, as well as substantial likelihood that the requested relief will provide a remedy. The requested relief in this instance is that NRC grants New England Coalition a hearing in the above captioned matter.

New England Coalition's Request for a Hearing and the claims of its representative members are supported by the declarations of nuclear power plant experts, Arnold Gundersen and Paul M. Blanch. The Declarations of Mr. Gundersen and Mr. Blanch are attached hereto respectively as Exhibits D and E.

The "injury in fact" that is "concrete" and "actual or imminent" in this case is predicated

on declarants, New England Coalition and representative members, seeking their right as affected persons, to participate in an NRC adjudicatory hearing on the recently "noticed" license amendment application filed by Entergy. The license amendment would increase thermal power at Vermont Yankee Nuclear Power Station by 20%.

New England Coalition representative members reside within one to fifteen miles of Vermont Yankee and have legitimate concerns over the quality of engineering, analysis, review, and oversight going into an extraordinary power boost for a reactor that has been in commercial operation longer than any other in New England.¹

The members concerns for health, safety, and property are heightened by member's awareness that Extended Power Upgrades are a new process and one that has been deployed at only a handful of reactors. They are aware that half of the plants with extended power upgrades have had unexpected power component failures.

In the first half of 2004, Vermont Yankee has lost nuclear fuel, found cracks in the reactor's steam dryer, and had a transformer fire following a massive electric short and flawed reactor scram.

Members are aware that no reactor in New England has operated to the end of its licensed lifetime; that of the four that are permanent closed, all were highly rated by NRC until circumstances triggered extraordinary inspections that revealed financially untenable design and age-related, safety-related defects. Very few say they believe Vermont Yankee is an exception.

Members are conscious of the difficulties of emergency response planning in the rural tri-

¹ The NRC has also recognized a presumptive standing for persons living near nuclear facilities who raise safety concerns. *Northeast Nuclear Energy Company* (Millstone Nuclear Power Station, Unit 3), LBP-98-20, 48 NRC 87, 93-94 (1998); *Vermont Yankee Nuclear Power Corp.* (Vermont Yankee Nuclear Power Station), LBP-87-7, 25 NRC 116, 118(1987); *Consumers Power Company* (Palisades Nuclear Plant), LBP-79-20, 10 NRC 108, 115 (1979) (standing presumed where organization raises safety issues on behalf of member residing near a nuclear facility).

state region covered by Vermont Yankee's Emergency Planning Zone. They are all homeowners and a few own businesses in the area.

As the only large-scale industrial facility in the area; and one unique in its potential accident consequences, Vermont Yankee casts a long shadow into the lives of New England Coalition members. Consideration of the potential for a nuclear accident interferes with the quiet use and enjoyment of their respective homes and properties.

Consideration of the risk of an accidental radiological release from Vermont Yankee is not remote or speculative, but a day-to-day concern in the surrounding communities where the licensee annually distributes emergency response instructions. This is the kind of harm New England Coalition and its members should be able to raise in a full and fair public hearing on the proposed extended power uprate under the Atomic Energy Act 189a, 42 U.S.C. §2239.

The Declarations of Arnold Gundersen and Paul Blanch present both an assessment of the uncertain nature of risk assessments and of the areas of diminished margins of safety and assurance that will result from EPU at Vermont Yankee Nuclear Power Station under present conditions and under the present application.

The evident need for modification or denial of the EPU license amendment application, which could be achieved through an NRC formal public hearing, coupled with harms and concerns raised in the declarations of New England Coalition and its representative members, more meet the standing requirements of the NRC.

There is nothing speculative, remote, or theoretical about the causal link between the "injuries in fact" described above and the NRC action proposed in the license amendment application.

On October 17, 2001, less than three years ago, the NRC Advisory Committee on Reactor Safeguards wrote to the Commission of the first application for a 20 percent, extended power uprate:

Many technical issues must be addressed in an application for power uprate. Of these, we consider five to be especially significant:

1. Susceptibility of the plant to ATWS (Anticipated Transients Without Scram)
2. ATWS recovery
3. Reduction in some of the times available for operator actions because of higher decay heat
4. Material degradation due to irradiation-assisted stress corrosion cracking (IASCC) of reactor internals and flow-assisted corrosion and fatigue of feedwater piping.
5. Containment response to accident events involving higher decay heat levels.

Our examinations of the staff's SER and Requests for Additional Information submitted by the staff to the applicant persuaded us that the staff had raised numerous, pertinent issues concerning the conformance of the power uprate to approved methodologies. Though we persuaded ourselves eventually that the DAEC power uprate could be accomplished safely, we found it difficult to obtain information on the technical resolution of the issues either in the staff's SER or in our meetings with the staff.

New England Coalition and its representative members seek remedies through the NRC's hearing process for the imminent harm from increased risk of a release of radiological contaminants from Vermont Yankee Nuclear Power Station.

It is within NRC's authority to provide such relief, upon hearing and considering evidence, to provide relief in the form of denial or modification of the proposed license amendment.

New England Coalition and its representative members want an opportunity to obtain

discovery from Entergy concerning the subjects of New England Coalition's contentions, the declarations of its expert witnesses, and the underlying documents of the license amendment application generally. They want to be able present witnesses Gundersen and Blanch and other witnesses to provide testimony in this case. They also want to cross-examine witnesses for Entergy and others who may appear at hearing.

Given the gravity of the harms confronting them, the basic elements of due process at hearing should be available to them in seeking agency remedies. *Duke Power Co. v. Carolina Environmental Study Group*, 438 U.S. 59, 74 (1978) (recognizing that the "emission of non-natural radiation into . . . environment would also seem a direct and present injury" for purposes of standing).

The Atomic Energy Act was intended to protect the health and safety of persons such as New England Coalition and its members from the dangers of radiation produced by the NRC's licensees. *Rockford League of Women Voters v. NRC*, 679 F. 2d 1218, 1222 (7th Cir. 1982) (NRC regulations intended to protect public from dangers of nuclear accidents); *see generally* Atomic Energy Act, 42 U.S.C. §2011 et seq. (2003), as amended by ERA, 42 U.S.C. §5801 et seq. (2003). Congress provided for full, fair, public hearing process for interested persons who may be affected by the NRC's licensing of nuclear facilities. §189 of the Atomic Energy Act, 42 U.S.C. §2239.

New England Coalition and its representative members are entitled to seek a hearing on such matters before the NRC under §189a of the Atomic Energy Act, 42 U.S.C. §2239, and may appeal adverse decisions in such public hearings or rule making proceedings under 42 U.S.C. §2239(b). Thus, the harms at issue in this case are within the zone of interest, protections and remedies available under the Atomic Energy Act.

New England Coalition satisfies the requisites of standing through its affected interests and through its representative members, who have authorized the organization to represent their interests in the proceeding, as they all have standing to bring this case in their own rights.

New England Coalition's purposes are germane to the representation of its representative members who live in communities near Vermont Yankee, and want to learn about and participate in decisions that are a result of continued reliance on the nuclear fuel chain to produce electricity.

Neither the adjudication of New England Coalition's representative member's claims nor the relief they request requires their participation at hearing. They have authorized New England Coalition to represent them in this matter.

For the reasons set forth above, New England Coalition has organizational standing in this proceeding.

SCOPE OF THE PROCEEDING

New England Coalition contends that the proper subject matter of the hearing in this case is a full adjudicatory test of the license amendment application. The constant pressure extended power uprate that is proposed is by no means a routine or even a tried and true procedure. NRC is scrambling to reassess its review process after multiple EPU-related failures of steam dryers, instrumentation probes, and small bore piping. The fact that these failures were in no way predicted begs the question of what other failures, including failures of safety-related components may be lurking. New England Coalition experts are as concerned about missing information as they are about negative indicators. New England Coalition experts have shown in their declarations that past plant activities have destroyed or destabilized any sort of reasonable technical and/or regulatory base from which to launch an uprate; in this case, the equivalent of a new 100 Mwt reactor within the shell of an aging reactor of antiquated design and uncertain

design criterion conformance. The issues raised by the application for a license amendment are highly, technical, legally complex, and soundly disputed (see Declarations of Gundersen and Blanch generally). There is also an issue of credibility. Since buying Vermont Yankee, Entergy has become the subject of widespread distrust in Vermont. During proceedings of the Vermont Public Service Board, the Board said in an order regarding the production of documents of Entergy, "Not only is it disingenuous in its reading of the rule since this tribunal imposed a filing deadline, but, more important, Entergy's selective quotation suggests a willingness to be less than forthright with this Board."² In an Order on July 8, 2003, the Board found that, "ostensible "organization" that Entergy has provided for its discovery responses would be of little use to a reviewing party."

On October 7, 2003, in an Order the Board found Entergy's handling of discovery information to be "...an example of the kind of corrosive and bullying attitude that threatens an otherwise fair and open process." The Board then went on to award Sanctions in the form of requiring Entergy to reimburse \$51,000 in costs incurred through discovery to New England Coalition. It might be said that Entergy, being relatively new to New England, was having trouble adjusting, but Vermont Yankee has its own, pre-Entergy, history of problems with being forthcoming. On September 18, 2000, the NRC Office of Investigation issued a Notice of Violation for deliberately failing to comply with procedural requirements. The Notice makes it clear that the offending VY manager was untruthful with investigators as he was cited for being untruthful with a maintenance contractor. The Associated Press (9/20/200) simply reported that Vermont Yankee violated its license when a plant manager "deliberately" gave false information to a contractor during a 1998 refueling outage. Hubert J. Miller, NRC Region I administrator, the

² Vermont Public Service Board, Docket 6812, Order Re: Motion to Compel, June 13, 2003.

article said, rejected Yankee's claim that it wasn't deliberate.

New England Coalition contends that the subject of the license amendment request is too serious and too complex for an Atomic Safety And Licensing Board took take any chance with the quality of information brought forward and therefore, New England Coalition strongly urges the NRC to provide a full sub-part G hearing, where discovery can be made to root out historic documentation only hinted at in the filing and where under cross examination the licensees witnesses can be encouraged to fill in the blanks regarding compliance with regulations and design criteria. New England Coalition so urges because it does not believe that, given the stakes, the public interest can be served without the full panoply of adjudicatory tests of truth.

New England Coalition sets forth the following contentions premised upon the need of YAEC to obtain approval of the LTP on the basis described above.

CONTENTIONS

Pursuant to NRC regulations under 10 CFR Part 2, Part 50, Part 54, part 71, and 10 CFR Appendix A, New England Coalition., sets forth the following contentions concerning approval of the License Termination Plan for Yankee Rowe

CONTENTION PREMISED ON AN ENTERGY DOCUMENT SHOWING INADEQUATE QUALITY ASSURANCE/QUALITY CONTROL PROGRAM.

CONTENTION 1 and Basis for Contention 1

New England Coalition contends that an Extended Power Uprate license amendment approval should not be considered until the potential effect of a reduced QA/Qc program is investigated and analyzed. 10CFR 50.54 details the requirement for maintaining a quality assurance program. Any changes requiring a reduction in the program must be submitted to

NRC.

It is New England Coalition's understanding that Entergy has undertaken a fleet effort to transition quality assurance and quality control from freestanding programs into the various departments such as, engineering, maintenance, in-service inspection, and so forth. This is troubling in that a manager responsible for cost cutting may then also be responsible for quality control. However, it appears that Entergy is taking these changes through appropriate channels, except for Vermont Yankee. New England Coalition finds no historic record of an application to NRC for this purpose.

Yet, an internal Entergy memorandum dated April 15, 2004 [Exhibit F] shows on page two, that at Vermont Yankee, "There is no QC inspection group to transition." Whereas the extended power uprate launches from the assumption that the base plant has a minimum number of defects, there is no assurance of that without stand alone, or at least NRC approved and integrated, QA/QC programs.

CONTENTIONS ON PREMISED ON THE DECLARATIONS OF EXPERTS

New England Coalition's experts provided support for the following contentions in their Declarations [Exhibits D & E]

CONTENTION 2

The license amendment should not be approved at this time because Entergy has failed to address the root cause of Main Steam Line Isolation Valve ("MSIV") Leakage but instead proposes to shift the problem downstream to catch a higher allowable leakage in the condenser. Entergy's fails to pursue the root cause of a negative component performance trend that could ultimately yield failure of the MSIV safety function. MSIVs are a critical line of defense during a reactor accident.

Basis for Contention 2

New England Coalition relies upon the Declaration of Arnold Gundersen under **Main Steam Line Isolation Valves [EXHIBIT D]** and further testimony to be provided at hearing based upon his professional judgments and further study and review of the license amendment documents and related materials.

CONTENTION 3

The license amendment should not be approved at this time or until it is agreed by all parties that Large Transient Testing will be a prerequisite to Extended Power Uprate per the staff position on Duane Arnold Energy Center.

Without adequate characterization, there can be no assurance that the license amendment will adequately safeguard public health by demonstrating compliance with 10 C.F.R. Part 20 standards.

Basis for Contention 3

New England Coalition relies upon the Declaration of Arnold Gundersen under **Exception to Large Transient Testing [EXHIBIT D]** and further testimony to be provided at hearing based upon his professional judgments and study and review of the EPU License Amendment documents and related materials.

CONTENTION 4:

The license amendment should not be approved. Entergy cannot assure seismic and structural integrity of the cooling towers under uprate conditions, in particular the Alternate Cooling System cell. At present the minimum appropriate structural analyses have apparently not been done.

Basis for Contention 4:

New England Coalition relies upon the Declaration of Arnold Gundersen under **Ultimate Heat Sink [EXHIBIT D]** and further testimony to be provided at hearing based upon his professional judgments and study and review of the amendment application documents and related materials.

CONTENTION 5:

The license amendment should not be approved at this time because Entergy has failed to maintain documentation and records, as required under 10 CFR 54 and elsewhere, and adequate to determine plant condition and design basis conformance as a foundation on which to build uprate analysis.

Basis for Contention 5:

New England Coalition also relies upon the Declaration of Arnold Gundersen under **Documentation and Record Retention Problems [EXHIBIT D]** and further testimony to be provided at hearing based upon his professional judgments and study and review of the LTP documents and related materials.

CONTENTION 6:

The proposed license amendment fails to preserve defense-in-depth. By placing dependence on maintaining containment pressure to secure Residual Heat Removal and Core Spray Pump suction under accident conditions, Entergy ignores single failure criteria and violates basic tenets of reactor safety. This must not be permitted as it deprives the public of protections afforded by defense-in-depth,

Basis for Contention 6:

New England Coalition relies upon the Declaration of Paul M. Blanch, under **Failure to Preserve Defense in Depth [EXHIBIT E]** and further testimony to be provided at hearing based

upon his professional judgments and study and review of the LTP documents and related materials.

CONTENTION 7:

Entergy has failed to comply with the requirements of 10 CFR 50.71 (E) , Maintenance of Records and Making of Reports. Observance of the rule is essential to provide reviewers with accurate information about plant status.

Records provide a measure upon which future activity can be predicated while maintaining safety. Without accurate and complete records, no meaningful review of the proposed uprate in its entirety can take place.

Therefore, NRC should deny this amendment until Entergy can demonstrate that it has its documentation and records in order.

CONCLUSION

New England Coalition requests, having herein above met the requirements of 10 C.F.R. Part 2 for obtaining a hearing under §189a of the Atomic Energy Act, that the Commission and/or Atomic Safety and Licensing Board grant New England Coalition a hearing in this matter.

Respectfully submitted this 30th day of August, 2004:

Raymond Shadis
New England Coalition
Post Office Box 98
Express Delivery- Shadis Road
Edgecomb, Maine 04556
207-882-7801
shadis@prexar.com

cc: Service List

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE SECRETARY

—
In the Matter of

ENTERGY NUCLEAR VERMONT YANKEE L.L.C.
and ENTERGY NUCLEAR OPERATIONS, INC.

(Vermont Yankee Nuclear Power Station)

Docket No. 50-271

DECLARATION OF PAMELA LONG
CLERK OF THE CORPORATION
NEW ENGLAND COALITION

I, Pamela Long, declare as follows:

1. My name is Pamela Long. I am New England Coalition's Clerk of the Corporation.
2. New England Coalition is headquartered at 67 Main Street, Brattleboro, Vermont. The mailing address is Post Office Box 2418, Brattleboro, Vermont 05303. New England Coalition offices are located within 10 miles of Vermont Yankee Nuclear Power Station.
3. New England Coalition is a membership non-profit organization, incorporated in the State of Vermont. New England Coalition (formerly New England Coalition on Nuclear Pollution) has opposed nuclear hazards and advocated for sustainable energy alternatives to nuclear power since 1971.
3. As an officer of the New England Coalition, I have authorized the New England Coalition, through its pro se representative, to represent the organization as an affected entity (interested party) in this proceeding, separate and apart from representative and individual members, who will also be represented through New England Coalition.
4. New England Coalition offices are located within the Emergency Planning Zone of Vermont Yankee Nuclear Power Station. New England Coalition offices house Coalition records and material archives dating back 32 years. They also house an extensive technical book collection and New England Coalition furnishings and equipment. New England Coalition offices also provide an operations center for the organization.
5. New England Coalition is concerned that the proposed increase of reactor power at Vermont Yankee Nuclear Station, subject of the above captioned matter, could increase both the risk and the harmful consequences of an offsite radiological release. Further,

Declaration of Pamela Long – Clerk of the Corporation - New England Coalition - - 2

New England Coalition is concerned that radiological contamination resulting from such a release would impact the value of its property, and interfere with the organization's rightful ability to conduct operations in an uninterrupted and undisturbed manner.

6. For instance, New England Coalition is concerned that Entergy Nuclear Vermont Yankee ("ENVY") proposes to increase reactor thermal power by twenty percent; burning more fuel and thus increasing the amount of radioactive material available to be released to the environment in an accident as well as providing more heat and steam to propel increased amounts of released materials into the environment. A heavy deposition of radioactive contaminants in the vicinity of New England Coalition's offices in downtown Brattleboro would force New England Coalition to abandon its tangible assets in the form of records, archival materials, library, furnishings and equipment and to suspend operations, which are heavily dependent on those assets.

7. If the Nuclear Regulatory Commission grants New England Coalition a hearing in the above captioned matter, New England Coalition will have the opportunity to advocate before an Atomic Safety and Licensing Board that the proposed license amendment should be rejected or modified to address safety concerns. This would serve to protect New England Coalition's property and operations from the risks involved in the proposed extended power uprate at Vermont Yankee.

I declare under penalty of perjury that the foregoing is true and correct. Executed on August ___, 2004.

Pamela Long

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
BEFORE THE SECRETARY

In the Matter of

ENTERGY NUCLEAR VERMONT YANKEE L.L.C.
and ENTERGY NUCLEAR OPERATIONS, INC.

(Vermont Yankee Nuclear Power Station)

Docket No. 50-271

DECLARATION OF MARY KING

I, Mary King, declare as follows:

1. My name is Mary King. I live at 62 Hinsdale Road, Northfield, Massachusetts. My home is approximately four miles from Vermont Yankee Nuclear Power Station.
2. My partner, Shirley Keech, and I own and share our home and land. We especially value it for its natural setting with an open view across the meadows to the Connecticut River. Our acreage is intensely cultivated, with our gardens providing all of our food and our woodlot providing all of our home heating. We have invested heavily in plantings of fruit and nut crop trees, fruit-bearing vines, bushes, herbaceous plants, and perennials. We rely on local water drinking water supplies. Our lives are intimately, profoundly, deeply tied to this land.
3. I am a member of the New England Coalition and I have authorized New England Coalition to represent me in this license amendment proceeding.
4. I am concerned about the effects of the proposed increase of reactor power at Vermont Yankee Nuclear Station, subject of the above captioned matter, on my health and safety, and on the value of my property. In particular, I am concerned that the proposed extended power uprate of the reactor at Vermont Yankee Nuclear Power Station could increase both the potential for an accident and the harmful consequences of an offsite radiological release from the plant.
5. For instance, I am concerned that, according to ENVY public statements, ENVY proposes to increase steam flow by twenty percent without substantial modifications to the plant's equipment. It is my understanding that similar increases at other extended power uprate plants have resulted in equipment failures that could have had safety consequences, and that ENVY proposes to proceed before the roots causes of those failures are thoroughly understood.
6. I am also concerned that Entergy Nuclear Vermont Yankee ("ENVY") proposes to increase reactor thermal power by twenty percent, by burning more fuel. This would

Declaration of Mary King - 2

increase the amount of radioactive material available to be released to the environment in an accident and provide more heat and steam to propel released materials into the environment. I am concerned that such accident releases will cause an increased health risk to me and to my partner. I am further concerned that such a radiological release may cause contamination that will devalue our property and may cause contamination of our water supply as well as local food supplies.

7. In addition, according to local news accounts of Nuclear Regulatory Commission (NRC) inspection reports, ENVY has failed to provide adequate emergency response communications during annual emergency response exercises in 2002 and 2003. And, during a recent transformer fire, ENVY failed to communicate a timely alert to a significant segment of the Emergency Planning Zone. Therefore I am concerned that decreased safety margins will be permitted at Vermont Yankee Nuclear Power Station without adequate assurance that ENVY can and will give timely public notice of an emergency.

8. Further, I am concerned because Vermont Yankee has been in longer commercial operation than any other New England nuclear power plant and will be subjected to wear and stresses as a result of the proposed uprate that were never contemplated in the plant's original design. Millstone I, Yankee Rowe, Maine Yankee, and Haddam Neck (Connecticut Yankee) Nuclear Power Plants were all permanently closed before the end of their license and all were closed after extraordinary NRC conducted examinations revealed safety-related design flaws, improper modifications, and age-related defects. However, Vermont Yankee will receive no examination comparable in scope or depth prior to uprate. Thus we have no assurance that Vermont Yankee is not also riddled with safety-related defects that will initiate an accident or otherwise manifest themselves under uprate conditions.

9. Finally, I am concerned that ENVY is apparently unable to demonstrate coherent, readily accessible documentation of Vermont Yankee's compliance with all applicable design and operational safety criteria. Based on news reports of a well-publicized dispute between ENVY and New England Coalition, I believe that the risks inherent in the proposed uprate cannot be quantified until the Vermont Yankee's applicable safety criteria are listed and compliance with those criteria is properly documented.

10. If the Nuclear Regulatory Commission grants New England Coalition a hearing in the above captioned matter, New England Coalition will have the opportunity to advocate before an Atomic Safety and Licensing Board that the proposed license amendment should be rejected or modified to address safety concerns. This would serve to protect my partner and me, and our property from the risks involved in the proposed extended power uprate at Vermont Yankee.

I declare under penalty of perjury that the foregoing is true and correct. Executed on August __, 2004.

Declaration of Mary King - 2

Mary King

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
BEFORE THE SECRETARY

In the Matter of

ENTERGY NUCLEAR VERMONT YANKEE L.L.C.
and ENTERGY NUCLEAR OPERATIONS, INC.

(Vermont Yankee Nuclear Power Station)

Docket No. 50-271

DECLARATION OF PAUL SATHER

I, Paul Sather, declare as follows:

1. My name is Paul Sather I live at 111 West Road, Vernon, Vermont. My home is approximately one mile from Vermont Yankee Nuclear Power Station.
2. My wife and I share and own our home. We enjoy outdoor activities including gardening and otherwise tending our grounds. We enjoy a clean and healthy natural environment, and enjoy the peace of my surroundings and community. We rely on local water drinking water supplies and, to a substantial degree, on local suppliers for fresh fruits, vegetables, and other produce
3. I am a member of the New England Coalition and I have authorized New England Coalition to represent me in this license amendment proceeding.
4. I am concerned about the effects of the proposed increase of reactor power at Vermont Yankee Nuclear Station, subject of the above captioned matter, on my health and safety, and on the value of my property. In particular, I am concerned that the proposed extended power uprate of the reactor at Vermont Yankee Nuclear Power Station could increase both the potential for an accident and the harmful consequences of an offsite radiological release from the plant.
5. For instance, I am concerned that, according to ENVY public statements, ENVY proposes to increase steam flow by twenty percent without substantial modifications to the plant's equipment. It is my understanding that similar increases at other extended power uprate plants have resulted in equipment failures that could have had safety consequences, and that ENVY proposes to proceed before the roots causes of those failures are thoroughly understood.
6. I am also concerned that Entergy Nuclear Vermont Yankee ("ENVY") proposes to increase reactor thermal power by twenty percent, by burning more fuel. This would increase the amount of radioactive material available to be released to the environment in an accident and provide more heat and steam to propel released materials into the

environment. I am concerned that such accident releases will cause an increased health risk to me and to my family. I am further concerned that such an accident release will cause a contamination risk to my property that will devalue my property and a contamination risk to our water supply as well as local food supplies. . Forced evacuation resulting from a nuclear accident at Vermont Yankee would destroy our peace and our community and permanent evacuation would cost our home as well.

7. In addition, according to local news accounts of Nuclear Regulatory Commission (NRC) inspection reports, ENVY has failed to provide adequate emergency response communications during annual emergency response exercises in 2002 and 2003. And, during a recent transformer fire, ENVY failed to communicate a timely alert to a significant segment of the Emergency Planning Zone. Therefore I am concerned that decreased safety margins will be permitted at Vermont Yankee Nuclear Power Station without adequate assurance that ENVY can and will give timely public notice of an emergency.

9. Further, I am concerned because Vermont Yankee has been in longer commercial operation than any other New England nuclear power plant and will be subjected to wear and stresses as a result of the proposed uprate that were never contemplated in the plant's original design. Millstone I, Yankee Rowe, Maine Yankee, and Haddam Neck (Connecticut Yankee) Nuclear Power Plants were all permanently closed before the end of their license and all were closed after extraordinary NRC conducted examinations revealed safety-related design flaws, improper modifications, and age-related defects. However, Vermont Yankee will receive no examination comparable in scope or depth prior to uprate, thus we have no assurance that Vermont Yankee is not also riddled with safety-related defects that will initiate an accident or otherwise manifest themselves under uprate conditions.

10. Finally, I am concerned that Vermont Yankee may be not operating in compliance with federal safety regulations and more directly that ENVY is apparently unable to demonstrate coherent, readily accessible documentation of Vermont Yankee's compliance with all applicable design and operational safety criteria. Based on an extensive and notorious public dispute between ENVY and New England Coalition's experts, Mr. Paul M. Blanch and Mr. Arnold Gundersen, I believe that the risks inherent in the proposed uprate cannot be quantified until the Vermont Yankee's applicable safety criteria are listed and compliance with those criteria is properly documented.

11. If the NRC provides New England Coalition with a hearing in this case, they will be able to try to get the proposed license amendment rejected or modified to address safety concerns. This would serve to protect me, my family, and my property from the risks involved in the proposed extended power uprate at Vermont Yankee.

I declare under penalty of perjury that the foregoing is true and correct. Executed on August ___, 2004.

Paul Sather

August 30, 2004

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
BEFORE THE SECRETARY

In the Matter of

Docket No. 50-271

ENTERGY NUCLEAR VERMONT YANKEE
L.L.C. and ENTERGY NUCLEAR
OPERATIONS, INC.

(Vermont Yankee Nuclear Power Station)

DECLARATION OF PAUL M. BLANCH
IN SUPPORT OF PETITIONERS' CONTENTIONS

Under penalty of perjury, Paul M. Blanch declares as follows:

1. My name is Paul Blanch. I am an electrical engineer with more than 35 years of experience in the nuclear industry. I am an independent energy consultant. A copy of my curriculum vitae is attached as Exhibit E-A.

2. I am a qualified expert on matters relating to the safety of operation of nuclear power plants.

3. I am familiar with the license amendment application for an Extended Power Uprate that has been submitted by Entergy Nuclear Vermont Yankee, L.L.C. and Entergy Nuclear Operations, Inc. (hereinafter collectively referred to as "Entergy") for the Vermont Yankee Nuclear Power Station. ("Vermont Yankee"). I am also familiar with Entergy's correspondence with the NRC regarding the application, and with Entergy and NRC Staff correspondence and reports that are relevant to the uprate application. Entergy proposes to increase the maximum authorized power level for operation of the Vermont Yankee nuclear power plant from 1593 megawatts thermal ("MWt") to 1912 MWt, an increase of approximately 20 percent. I believe that, under present conditions, proposed uprate unacceptably increases the potential for and consequences of an accident at the Vermont Yankee nuclear power plant, in several respects and, in particular, as follows:

4. Failure to Preserve Defense-in-Depth

It is contended that all proposed changes should be evaluated for conformance to the plant's design basis including the draft General Design Criteria. Further, I dispute the licensee's assertion as contained in letters Entergy filed with NRC as Supplements to its Application on October 1, 2003 and January 31, 2004, that it is in compliance with all applicable design criteria.

EXHIBIT E

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For example, Draft General Design Criterion states under CRITERION 21 - SINGLE FAILURE DEFINITION, Multiple failures resulting from a single event shall be treated as a single failure.

Attachment 4 Vermont Yankee Nuclear Power Station, Proposed Technical Specification Change No. 263 –Supplement No. 8 Extended Power Uprate Response to Request for Additional Information, Submitted under Docket No. 50-271 Letter BVS 04-058 Dated July 2, 2004, contains a proposed change supported by VYC-808 Revision 6, which addresses some of the changes with respect to the Single Failure Criterion #21.

The proposed change assumes that containment pressure will be maintained up to 7 PSIG above atmospheric pressure for as long as 200,000 seconds. Many single failures of ECCS components (pumps, Diesel Generators, valves, motors, etc.) have been addressed within this calculation and VY demonstrates that the ECCS will maintain its ability to cool the core after a large break LOCA.

However, and here I take objection and dispute the licensee's claims, the calculation fails to address any single active or passive failures of the containment or the torus including failures of valves and penetrations which may impact the operability of redundant Emergency Core Cooling Systems. It fails to provide the impact not only on the ability to cool the reactor core but also fails to analyze the consequences of the additional dose to the control room and the site boundary should a single failure occur while attempting to maintain this elevated pressure. Recent failures, both isolated and common mode¹ failures of BWR containment valves have not been considered.

The calculation also fails to discuss the requirement for defense in depth Regulatory Guide 1.174 (2.2.1.1 Defense in Depth) and the independence of barriers designed to prevent the release of radioactive materials to the environment.

This section requires:

Consistency with the defense-in-depth philosophy is maintained if:

- A reasonable balance is preserved among prevention of core damage, prevention of containment failure, and consequence mitigation.
- Over-reliance on programmatic activities to compensate for weaknesses in plant design is avoided.
- System redundancy, independence, and diversity are preserved

¹ April 23, 2004 Docket No.: 50-321 NL-04-0652 Edwin I. Hatch Nuclear Plant Licensee Event (LER 2004-02) Report "Air Actuator for Vacuum Breaker Failed LLRT due to Inadequate Design"

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commensurate with the expected frequency, consequences of challenges to the system, and uncertainties (e.g., no risk outliers).

- Defenses against potential common cause failures are preserved, and the potential for the introduction of new common cause failure mechanisms is assessed.
- **Independence of barriers is not degraded.** (Emphasis added)
- Defenses against human errors are preserved.
- **The intent of the General Design Criteria in Appendix A to 10 CFR Part 50 is maintained.** (Emphasis added)

It is clear from the proposed changes that this Defense in Depth is being severely degraded with this change.

VY clearly states that for some events, such as a Loss-Of-Coolant-Accident, the analysis meets the intent of Regulatory Guide 1.1. This Guide provides the NRC's regulatory position as to how to meet the intent of the revised GDC 41.

Page 17 of VYC 808 states:

3.3 The calculation also conservatively assumes that containment pressure is equal to 14.7 psia regardless of the temperature and the initial pressure. This assumption is in accordance with Regulatory Guide 1.1.

It is clear that VY is conforming to Regulatory Guides; invoking them when it has the ability to comply but remaining silent when the change violates design guidance and regulatory requirements.

5. Failure to comply with the requirements of 10 CFR 50.71(e) Maintenance of records, making of reports.

10 CFR § 50.71 (e) states:

(e) Each person licensed to operate a nuclear power reactor pursuant to the provisions of § 50.21 or § 50.22 of this part shall update periodically, as provided in paragraphs (e)7E(3) and (4) of this section, the final safety analysis report (FSAR) originally submitted as part of the application for the operating license, to assure that the information included in the FSAR contains the latest material developed. This submittal shall contain all the changes necessary to reflect information and analyses submitted to the Commission by the licensee or prepared by the licensee pursuant to Commission requirement since the submission of the original FSAR or, as appropriate, the last updated FSAR. The updated FSAR shall

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be revised to include the effects¹ of: all changes made in the facility or procedures as described in the FSAR; all safety evaluations performed by the licensee either in support of requested license amendments or in support of conclusions that changes did not involve an unreviewed safety question; and all analyses of new safety issues performed by or on behalf of the licensee at Commission request. The updated information shall be appropriately located within the FSAR.

In June 1999 the NRC issued Regulatory Guide 1.181. This Regulatory Guide was endorsed by the Commission.

This NRC Regulatory Guide states:

Revision 1 of NEI 98-03, "Guidelines for Updating Final Safety Analysis Reports,"² dated June 1999, provides methods that are acceptable to the NRC staff for complying with the provisions of 10 CFR 50.71(e).

Therefore, Regulatory Guide 1.181 endorses NEI 98-03 as an acceptable means of meeting the requirements of 10 CFR 50.71(e).

NEI 98-03 discusses "Historical Information" that may be contained within the UFSAR. NEI 98-03 states with respect to this historical information:

3.3 HISTORICAL INFORMATION

Historical information is that which was provided in the original FSAR to meet the requirements of 10 CFR 50.34(b) and meets one or more of the following criteria:

- information that was accurate at the time the plant was originally licensed, but is not
- intended or expected to be updated for the life of the plant
- information that is not affected by changes to the plant or its operation
- information that does not change with time.

Vermont Yankee in its proposed Revision 18 to the UFSAR is misapplying the intent of this historical information and in Appendix F of the UFSAR classifies compliance with the General Design Criteria as Historical Information and further states that compliance is addressed elsewhere in the UFSAR.

By classifying compliance to the General Design Criteria as "Historical" VY is proposing to remove all commitments to these basic regulatory requirements.

August 30, 2004

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
BEFORE THE SECRETARY

In the Matter of

Docket No. 50-271

ENTERGY NUCLEAR VERMONT
YANKEE L.L.C. and ENTERGY
NUCLEAR OPERATIONS, INC.

(Vermont Yankee Nuclear Power Station)

DECLARATION OF ARNOLD GUNDERSEN
IN SUPPORT OF PETITIONERS' CONTENTIONS

Under penalty of perjury, Arnold Gundersen declares as follows:

1. My name is Arnold Gundersen. I am a nuclear engineer and an independent consultant on nuclear safety and engineering issues. A copy of my curriculum vitae is attached as Exhibit D-A.
2. I am a qualified expert on matters relating to the safety of operation of nuclear power plants.
3. I am familiar with the license amendment application for a power uprate that has been submitted by Entergy Nuclear Vermont Yankee, L.L.C. and Entergy Nuclear Operations, Inc. (hereinafter collectively referred to as "Entergy") for the Vermont Yankee Nuclear Power Station. ("Vermont Yankee")

I am also familiar with Entergy's correspondence with the NRC regarding the application, and with Entergy and NRC Staff correspondence and reports that are relevant to the uprate application.

Entergy proposes to increase the maximum authorized power level for operation of the Vermont Yankee nuclear power plant from 1593 megawatts thermal ("MWt") to 1912 MWt, an increase of approximately 20 percent.

I believe the proposed uprate unacceptably increases the potential for and consequences of an accident at the Vermont Yankee nuclear power plant, in several respects.

EXHIBIT D

Main Steam Isolation Valves

The safety function of Main Steam Isolation Valves ("MSIV") is to close and maintain an essentially leak-tight barrier to the release of containment atmosphere.

In anticipation of Extended Power Uprate (EPU) and in response to Condition Report-VTY-2004-0918, MSIV As-Found LLRTs Show An Adverse Trend, Entergy proposes to increase the allowable, as Found, Local Leak Rate Test ("LLRT") Main Steam Isolation Valve leakage from 44scfh to 62scfh. Further, Entergy proposes to adopt a less conservative test methods than that which presently yields an adverse trend in MSIV LLRT failures. I believe this proposed change would result in a reduction in safety margin even at the present power level.

If the requested power uprate is approved, the change in allowable MSIV leakage during testing would mask the increased vulnerability of the MSIVs to leakage and/or loss of function due to warping and/or binding under a power uprate. According to Entergy, "Flow induced damage can include valve stem bending, valve stem disc separation and damage to the guide ribs." (*Id.* at 27) Therefore, it poses an unacceptable safety risk.

Since 1973, as shown in a 2004 Entergy report, the LLRT MSIVs have been tested 23 times. CR-VTY-2004-0917, "MSIV As-Found LLRTs Show an Adverse Trend" at page 17, (May 5, 2004) (hereinafter "MSIV Test Report"). A copy is attached as Exhibit B. Between 1973 and 2004, there have been 14 LLRT MSIV test failures. *Id.* at p.17 Of these failures, four occurred in the first 23 years from 1973-1996. During the last eight years, ten failures occurred. *Id.* at p.17.

Entergy attributes the increased failure rate after 1996 to more conservative test methods. According to Entergy, "[t]he low incidence of MSIV failures prior to 1996 is ... the result of non-conservative test method.... The validity of this method relies on a number of assumptions that could not be verified..." MSIV Test Report at page 11.

Entergy also concluded that "[t]he As Found LLRT history for MSIVs shows an adverse trend over the past four refueling outages. In RFO-21, there were zero; in RFO -22 there was one; in RFO 23 there were two; in RFO-24 there were three." *Id.* at p 1. Entergy believes that the appropriate solution to the problem of the increased MSIV test failure rate is raise the leakage limits in accordance with Entergy's pending alternate source term license amendment." *Id.* at page 2.

I disagree with Entergy's diagnosis of the reason for the increased LLRT MSIV test failure rate. In my view, the MSIVs are failing at an increasing rate because they are aging and corroding.

Various statements in the MSIV Test Report support my view. At page 12, Entergy states that "... there is also a consensus that the Wye pattern globe valve¹ is less than

optimal from a design and application point of view..." At page 8, Entergy states that "...the seating force in the MSIVs is marginal." The proposed extended power uprate would result in an increase in steam flow of 20%, with steam circulating faster, and carrying more moisture. Thus components, the function of which is now, "marginal" become components, the function of which is now inadequate to maintain present safety margins.

In RFO -21 (1999), the identical test to that now considered by Entergy to be too conservative resulted in no deficiencies. In RFO- 22 (2001), there was only one deficiency. *Id.*p-17. Based on these test results, it is reasonable to conclude that the problem is not that the test is a poor one. The problem is that as the plant ages, the valve leakage is increasing.

The failure rate of the MSIVs can be charted on a classic bathtub curve, showing increasing deficiencies each outage, as the plant gets older. The bathtub curve is a graph that displays time on the horizontal axis and component failures on a vertical axis. In any engineered system, one can expect a relatively high number of failures soon after startup (a break-in period) a low frequency of failures during mid-life, and an increasing number of failures towards the end of life. The graphed curve described by this phenomenon rises steeply at either end and is rather low and flat in the mid-section, thus it resembles in outline, a "bathtub."

Based on the available information in the application, in several thousand pages of Entergy Vermont Yankee documents I have reviewed, on this condition report (obtained in August by New England Coalition through a Freedom of Information Act request), for the reasons stated above, and based on my professional judgment, I believe that if the power level of the Vermont Yankee plant is increased, the problem of MSIV failure will also increase.

Exception to Large Transient Testing

Entergy does not plan to perform Large Transient Testing of its systems (SCRAM from full power) at uprated condition. This cannot be justified as good engineering practice nor is it in accord with staff positions interpreting NRC regulation. I disagree with and dispute the assumptions and reasoning Entergy musters to promote this exception. It is my strongly held professional opinion that no such exception or exemption must be allowed.

On September 8, 2003, Entergy transmitted by letter to NRC, as part of its license amendment application, BVE 03-08/Attachment 7, Justification for Exception to Large Transient Testing, which states at page 1 under **Background**,

The basis for the Constant Pressure Power Uprate (CPPU) request was prepared following the guideline lines contained in the NRC approved General Electric (GE) Company Licensing Topical Report for Constant

¹ This pattern of valve features a stem that enters the pipe at an angle, typically about 45 degrees.

Pressure Power Uprate (CLTR) Safety Analysis: NEDC-3300-A Rev.4, July 2003. The NRC Staff did not accept GE's proposal for the generic elimination of large transient testing (i.e., Main Steam Isolation Valve (MSIV) closure and turbine load rejection) presented in NEDDC-33004P Rev.3. Therefore, on a plant specific basis, Vermont Yankee Nuclear Power Station, is taking exception to the large transient tests; MSIV closure and turbine generator load rejection."

Entergy then argues that, "although no plants have implemented an Extended Power Uprate (EPU) using the CLTR, thirteen plants have implemented EPUs without increasing reactor pressure."

Entergy proceeds to list the thirteen including, to flesh out the list and as if they were regulated by NRC, two in Europe.

Further, Entergy says, "Data collected from testing responses to unplanned transients for [two US plants and One Swiss plant] has shown that plant response has consistently been within expected parameters." It is unclear if these transients were indeed unplanned or if they were deliberate tests. It makes a difference when the discussion is about whether or not to do tests.

Entergy ignores the NRC staff's decision in the case of the Duane Arnold EPU application,

Section 10.4, of your submittal, NEDC-32980P, stated that DAEC does not intend to perform tests involving automatic scram from high power, because Duane Arnold's operating history, the transient analysis performed at uprated condition and comparable uprate test performed at other stations such as Hatch, all demonstrate the unit can withstand these test. You pointed out that high power test will subject the unit to unnecessary plant transients. You added that is Duane Arnold experiences a Main Steam Isolation Valve closure of Generator Load reject at the uprates RTP, you will analyze the data available and confirm that the unit responded as expected. You concluded that you have verified that the data to assess the plants response to the transient.

The NRC-approved ELTR-1 requires the MSIVC test to be performed if the power uprate is more than 10% above previously recorded MSIV closure transient data. The topical report also requires the GLR test to be performed if the uprate is more than 15% of previously recorded transient data. (Emphasis added)

Please provide further clarifications, information and answers to the following questions.

5) You cited uprated test performed at Hatch as an example of industry

experience that indicates Duane Arnold could also withstand isolation transients from high power. For the Hatch Unit 1 and 2 uprate test, compare the units actual response with the applicable transient analyses. Discuss how this industry experience demonstrates that Duane Arnold power uprate, the cycle-specific limiting transient analysis would provide equivalent protection compared to startup test.

10.04

Entergy's next argument, were it applied to the aircraft industry, would scare away airline passengers in droves: "If performed, these tests would not confirm any new or insignificant aspect of performance that is not routinely demonstrated by component level testing." To follow the analogy, if an aircraft were fitted with a more powerful engine, so long as the engine was tested on the ground, why bother to test it in flight; fastened to the airframe. Why not just put it on the morning run to Minneapolis?

Entergy argues that Vermont Yankee has experienced full power load rejections at 100% power in the past and no significant anomalies were seen. How this bears on performance at 120% power is something of a mystery. I believe that Entergy simply doesn't want to rapid cycle the plant for fear of immediate or cumulative consequences. In as much as Entergy has already announced that it will seek a twenty-year license extension with all of the thermal and pressure cycles in excess of its design life, such a timid approach to one full power test seems to me to be very much out of place.

It is my professional opinion that, in order to preserve the current levels of assurance of safety, Entergy should be required to test Vermont Yankee rapid shutdown capability at full uprated power not only to test its aging components, but also to test its operating crew under circumstances that are not a complete surprise.

Ultimate Heat Sink

It is my professional opinion based upon Entergy documents that Vermont Yankee is operating with safety class-I and II components, namely, an Alternate Cooling System (ACS) dedicated cooling tower cell and co-joined adjacent cooling tower cells, in an unanalyzed condition.

It is my understanding from a review of Entergy documents that it is Entergy's intention to alter, as a part of EPU activities, operational parameters, that is, flow and temperature in all cells and to change fan, motor, and gearbox size in all but the ACS cell. All of these cells have been modified overtime without adequate structural and seismic analysis. In addition, complete records are apparently no longer available from which to confirm original or modified design specifications and structural analysis.

We do know from Vermont Yankee records that many structural supports have been determined to be marginal or sub-standard. Failure of the ACS cell or failure of adjacent cells impinging on the ACS cell and causing it to fail would obviate the ACS accident

mitigation function.

Background: In January of 2003, in proceedings before the Vermont Public Service Board, Entergy announced its intention to change cooling tower fans, presently 125 horsepower fans, to 200 horsepower fans in order to better remove extra heat anticipated as a result of the proposed extended power uprate

On June 15, 2003, Entergy announced that plans had changed. Entergy would now be installing more efficient 125 horsepower fan motors and fans.

On March 15, 2004, the Vermont Public Service Board, concerned with mitigating increased vapor plume visual effects, ordered Entergy to revert to the original plan to install 200 horsepower fans.

Entergy asked that an exception be made for one cooling tower cell, which it designated as an ultimate heat sink or Alternate Cooling System. As such this cell is a Class-I safety-related system which is to be seismically qualified and which is fed by the emergency diesel generators in the event of a loss of offsite power.

As Jay K. Thayer, Entergy Site Vice-President testified before the Vermont Public Service Board on July 8, 2004,

Of the 22 cells, one cell, referred to as cell "CT2-1," is unique because, in addition to its normal cooling function, it serves an important safety function as well. Cell CT2-1 was designed and built to allow safe shutdown of the VY Station following a loss of cooling water from the river intake structure. During that emergency condition, water stored in a deep basin beneath the west cooling tower is pumped through plant heat exchangers, where it is heated, and then returned to cell CT2-1. Once it returns to the cell, the water drains back into the deep basin while transferring heat to the air flowing through the cell.

VPSB Transcript 07-08-04 at p-1

Stone & Webster Consultant, Dan Yasi, elaborates on the purpose of the system:

During original licensing, there was a special consideration for the hypothetical loss of the Vernon dam. This led to the design and implementation of the Alternate Cooling System. The ACS is not an engineered safeguards system and is not relied upon for design accidents. In addition to a loss of the Vernon Dam, ACS is credited for two other special events (Appendix R Fire in the Intake Structure, and 100-year flood of the intake structure. So ACS is a special heat removal system used in these special events to achieve and maintain safe shutdown when the normal Service Water System (pumping from the CT River) is lost. ACS has a design inventory of 7 days." memo from Dan Yasi (Stone & Webster) to Brian Hobbs (Entergy Nuclear Vermont Yankee)

6/20/03 BATES 008240 Subject: VY WATER SYSTEMS

Documents I have recently received from Entergy in my role as an expert witness on behalf of the New England Coalition before the Vermont Public Service Board indicate that Vermont Yankee has knowingly operated with a safety system in an unanalyzed condition for the last 18 years. Specifically the safety related seismic cooling tower had its fill replaced in the mid 1980's but that modification was never properly analyzed to determine if it effected the seismic qualification of the tower. This is and has been known to VY. An undated Tower Performance, Inc. document produced in discovery states "there has not been any analysis of the class ii structure to account for the additional fill that was added in the mid 1980's"

Furthermore, in my review of VY records produced in the Vermont Public Service Board Hearings, I have discovered a disturbing trend in the area of records retention [see below] for safety related items. The newly provided ENVY material confirms that previously identified trend.

- A. The original seismic analysis of the safety related cooling tower was done by Fluor before the plant was built. An undated attachment to an email from Dan Yasi dated 12/6/02 states (Bates CT00205 and 206), "There is no documentation of the calculation of the loads used for the analysis or a comparison of the calculated loads to allowable loads."
- B. MR 83-2055 modified the Cooling towers in 1983. An attachment to an email from Dan Yasi dated 12/6/02 states (Bates CT00206), "I am not able to locate any analysis associated with these modifications to determine what force would cause the ties to break." The "ties" referred to here are steel rods connecting the tower cells. Without knowing the breaking strength of these rods, it cannot be said that the collapse of one or more cells would not propagate collapse throughout the entire set.
- C. MR 8-0635 and 0636 again modified the cooling towers in 1985. An attachment to an email from Dan Yasi dated 12/6/02 states (Bates CT 00206), "Again, I was not able to locate any analysis associated with these modifications."
- D. Through a FOIA request in August 2004 New England Coalition obtained an excerpt of a Stone and Webster report first transmitted internally (Entergy) on December 18, 2002 and copied to management and NRC on June 2, 2004. It confirms the conclusions cited above; with reviewers adding, "Essentially, the record of analysis for the Class I cells indicates that several members were slightly overstressed for the SSE seismic loads, however they were judged to be acceptable. There were more members that are at approximately 85% of the allowable load or more that would be suspect if the new equipment is installed.

A new analysis would have to be performed to qualify the towers for the additional loads.

Entergy has asked the Vermont Public Service Board for permission to delay changing out the cooling tower motors until the next refueling outage. This may be why we could not find a discussion of the safety-related uprate activity in the EPU license amendment application. I believe, however, that this issue should be addressed now and that, per 10 CFR 54 and 50.59, the licensee should not be permitted to operate with any safety-related equipment in an unanalyzed condition.

Documentation and Record Retention Problems

In testimony before the Vermont Public Service Board, I noted documentation and record retention problems associated with the 1986 Chicago Bridge & Iron report on the 40 year design life of the plant, portions of which are missing.

Since the end of Public Service Board hearings, of course there has been the well-publicized missing fuel rod documentation problem (1979 +) as well as 20 undocumented cracks in the steam dryer, which VY has stated may have been there since the plant was built.

In October 1996, the NRC sent VYNPC a letter requiring a response in accordance with 10 CFR 50.54(f) regarding the adequacy and availability of design basis information. One wonders how VY's licensee could have told NRC then that it had design basis information under control and now tell the Vermont Public Service Board and intervenors that some information is unavailable.

The common thread for all these documentation issues is that all of them occurred a long time ago. If the original design basis of the plant cannot be found, it is difficult to predict the future performance of the plant.

Vermont Yankee has had special NRC Architect and Engineering Inspections (1997) in the past. Entergy claims that in excess of \$20 million has been spent over the last several years to recapture Vermont Yankee's design basis. Yet Vermont Yankee's in house documents and NRC Vermont Yankee inspection reports are rife with design basis issues. Vermont Yankee claims to have its design basis and its documentation in good order; sufficient to form a base from which to build assumptions underpinning the EPU license amendment application.

I take issue with Entergy's claim. It is my professional opinion, based upon a review of hundreds of Vermont Yankee/Entergy documents, that its design basis and documentation cannot support adequate assurance that EPU calculations are rooted in as-found, plant-specific design basis or regulatory conformance.

As this is being written an NRC pilot program team inspection reviewing design basis and engineering is completing its field work at Vermont Yankee. If it is effective, it will have found, among other things, what is detailed in my declaration.

It is my firm opinion, that if this inspection fails to find what the very limited review of New England Coalition experts have already illuminated, then this inspection is not sufficiently intense or broad enough in scope to confirm adequate assurance of public safety for existing plant power levels; never mind EPU levels.

As I testified before the Vermont Public Service Board, the conditions (of maintaining control of design basis) at Vermont Yankee are less similar to the conditions that triggered the 1996 NRC Independent Safety Assessment at Maine Yankee Atomic Power Station than they are similar to the findings of the Maine Yankee Independent Safety Assessment.

I declare under penalty of perjury that the foregoing is true and correct. Executed on August____2004

Arnold Gundersen