

New England Coalition

on Nuclear Pollution

VT . NH . ME . MA . RI . CT . NY
POST OFFICE BOX 545, BRATTLEBORO, VERMONT 05302

March 15, 2007

Chief, Rules and Directives Branch
U.S. Nuclear Regulatory Commission
Mail Stop T6-D59
Washington, DC 20555-0001

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Re: NUREG 1437, Supplement 30 Comments

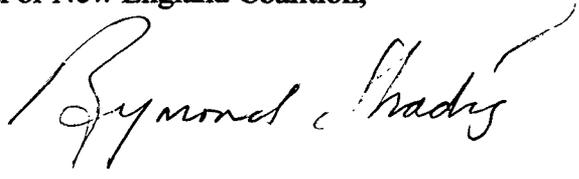
Greetings,

New England Coalition attempted to provide written comment on NUREG 1437, Supplement 30 (Vermont Yankee License Renewal) via E-Mail in a timely manner on March 7, 2007, but, as a review of the attached "mail return" notices will show, the transmission was unsuccessful. It is uncertain whether the electronic transmission failure occurred at the point of receipt (NRC) or elsewhere in route.

New England Coalition is therefore now providing hardcopy of our comments and respectfully requests their inclusion for consideration and response as timely filed comments.

New England Coalition is a non-profit advocacy and educational organization incorporated in the State of Vermont and engaged in nuclear energy matters since 1971.

Thank you for your kind attention,
For New England Coalition,



Raymond Shadis
Consultant to New England Coalition

50 USF Review Complete

Template = ADM-013

ERFDS = ADM-03
Cald = R. Emsh (RLE)

To: VERMONTYANKEEIS@NRC.GOV
Subject: COMMENTS ON VERMONT YANKEE DRAFT SEIS
Bcc: Arnie_Gundersen, Crea Lintilhac, Evan_Mulholland, Evan_Mulholland ESq,
GaryfromVermont, James Moore-VPIRG, Jim_Matteau, jjwaffles-juno.com, Judy_Davidson,
Karen_Tyler, Kate_Casa, Lawrence_Auclair, Mary_Lampert, Montague_Reporter, NEC,
Richard_Foley, Ron_Shems, Sanford_Lewis, Sarah Edwards, Sarah Kotkov, Senator Mark
MacDonald, Stephanie_Kraft, Susan_Keese, Susan_Smallheer, Tom_Bodett, Tricia_Keenan
X-Attachments: C:\Documents and Settings\Ray\My Documents\ENVY RELICENSINGNEC
SEIS COMMENTS March 7 2007 .doc;

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US Nuclear Regulatory Commission
Mail Stop T6-D-59
Washington DC 20555-0001

March 7, 2007

By E-Mail -Vermont YankeeEIS@nrc.gov

Greetings,

Attached in MSWord please find New England Coalition's Comments on NUREG-1437, Supplement 30, the Vermont Yankee Draft SEIS. Although we can find no provision in the regulation for a response, we would greatly appreciate a direct response from NRC Staff to the concerns that we have raised. New England Coalition is a non-profit membership organization incorporated in the State of Vermont and advocating for safe, sustainable, and secure energy since 1971.

Thank you for your kind attention,
On Behalf of New England Coalition,
Raymond Shadis
Post Office Box 98
Edgecomb, Maine 04556
207-882-7801
shadis@prexar.com

From: MAILER-DAEMON@prexar.com (Mail Delivery System)
 Subject: Undelivered Mail Returned to Sender
 To: shadis@prexar.com

This is the Postfix program at host chimaera.prexar.com.

I'm sorry to have to inform you that your message could not be delivered to one or more recipients. It's attached below.

For further assistance, please send mail to <postmaster>

If you do so, please include this problem report. You can delete your own text from the attached returned message.

The Postfix program

<VERMONTYANKEEIS@NRC.GOV>: connect to mail2.NRC.GOV[148.184.176.43]:
 Connection timed out

Reporting-MTA: dns; chimaera.prexar.com
 X-Postfix-Queue-ID: DD1AF1E481
 X-Postfix-Sender: rfc822; shadis@prexar.com
 Arrival-Date: Wed, 7 Mar 2007 18:46:28 -0500 (EST)

Final-Recipient: rfc822; VERMONTYANKEEIS@NRC.GOV
 Action: failed
 Status: 4.0.0
 Diagnostic-Code: X-Postfix; connect to mail2.NRC.GOV[148.184.176.43]:
 Connection timed out

Received: from Desktop.prexar.com (ip6599136178.link2usa.com [65.99.136.178])
 by chimaera.prexar.com (Postfix) with ESMTP id DD1AF1E481;
 Wed, 7 Mar 2007 18:46:28 -0500 (EST)

Message-Id: <6.2.3.4.2.20070307183758.03b19df8@pop3.prexar.com>
 X-Mailer: QUALCOMM Windows Eudora Version 6.2.3.4
 Date: Wed, 07 Mar 2007 16:45:27 -0500
 To: VERMONTYANKEEIS@NRC.GOV
 From: Raymond Shadis <shadis@prexar.com>
 Subject: COMMENTS ON VERMONT YANKEE DRAFT SEIS
 Mime-Version: 1.0
 Content-Type: multipart/mixed;
 boundary="===== _45860390== "

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NEC SEIS COMMENTS March 7 2007 1.doc

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March 7, 2007

By E-Mail –Vermont YankeeEIS@nrc.gov

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Here follows New England Coalition's Comments on NUREG-1437, Supplement 30, the Vermont Yankee Draft SEIS. Although we can find no provision in the regulation for a response, we would greatly appreciate a direct response from NRC Staff to the concerns that we have raised. New England Coalition is a non-profit membership organization incorporated in the State of Vermont and advocating for safe, sustainable, and secure energy since 1971.

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**COMMENTS REGARDING
NRC DRAFT ENVIRONMENT IMPACT STATEMENT FOR
ENERGY VERMONT YANKEE LICENSE RENEWAL**

Prepared for New England Coalition by Raymond Shadis

I. OVERVIEW

The Nuclear Regulatory Commission has bifurcated the environment review process for license renewal of aging nuclear power stations into a Generic Environmental Impact Statement (GEIS) and a Site Specific Environmental Impact Statement (SEIS). In 1996, NRC engaged in rulemaking and issued a GEIS, which stated, in sum, that 20 years of additional operation generally would not result in significantly increased environmental impacts. On all of the environmental issues raised and dismissed in the GEIS, NRC takes the position that the public had its chance to comment back in 1996. At the time Vermont Yankee was slated for decommissioning like its sister plants in the region: Yankee Rowe, Maine Yankee, Connecticut Yankee, and Millstone I. In that setting, it would not have dawned on the people of Vermont or the region to have scanned the Federal Register

looking for Notice of Rulemaking, or to have participated had they stumbled across the notice.

NRC now rules that any issue covered in the GEIS may not be raised in the site-specific process unless it is new and significant information though it is anybody's guess as to what might qualify. Objections or issues ostensibly covered in the GEIS may be raised only in a petition for rulemaking.

NRC Staff held a scoping meeting over six months ago and they have now incorporated responses to citizen comments in the SEIS. Many commenters were disappointed that their comments were not answered individually and directly. We observed that NRC Staff grouped excerpts from various comments in ways that obviated the meaning of that individual comment and then often responded in a dismissive or overly legalistic (gotcha) manner.

New England Coalition now offers the following comments on selected portions of the SEIS and concludes with overarching observations.

A. Verification of Data

1. On review of the draft environmental impact statement ("SEIS"), it appears that NRC staff limited outside verification of Entergy environmental impact data and conclusions to historical observations of such entities as the National Fisheries and Wildlife Service, National Marine Fisheries, The Vermont Department of Health, and Vermont Agency for Natural Resources.

- a. There is no record that NRC Staff independently confirmed the data and conclusions upon which it based its draft EIS? Nor did NRC Staff appear to develop any of its own data?
- b. No NRC staff independent measures, observations, or studies are included?
- c. In estimating health impacts, for example, NRC Staff consult and/or apply no locally focused epidemiological studies, disease registries, or other health statistical resources.

- d. In detailing radioactive off-gas releases to the atmosphere from Entergy Vermont Yankee's 300-foot tall release stack (Section 2.1.4.2), for example, NRC does not address the fact that neither NRC nor the State of Vermont maintains their own detection equipment on the stack to verify Entergy's reported measurements?
- e. Given that in NRC's historical experience nuclear plant owner-operators, including Vermont Yankee have on occasion provided the NRC with inadvertently or purposefully false or incomplete data, NRC Staff's uncritical wholesale acceptance of such data in licensing without independent is unwarranted.

B. Fill In The Blanks - The extent to which this EIS is site-specific is called into doubt by what appears to be a cookie-cutter approach, fill in the blanks review. To the extent that this canned EIS, it is non-conservative. If we were to look at the environmental assessment for another plant license renewal, for example Pilgrim Nuclear Power Station (Plymouth, MA) how much of the language would be the same? Vermont citizens at a the SEIS public meeting were surprised to find NRC Staff blithely reading from presentation view-graphs captioned, Pilgrim License Renewal EIS. If NRC is working from a template then care must be exercised to avoid the checklist, fill-in-the-boxes mentality. This is not good regulation. In order for the public to better understand the depth of NRC review, copy of that template should be provided at the beginning of the process and in advance of the scoping meeting so that the public can most efficiently and effectively provide comment (play the game).

C. Other Site-Specific Environmental Impact Statements

1. The SEIS should state for scale and comparison purposes, how many license renewals have been applied for, and how many have been completed.
2. The SEIS should state for scale and comparison purposes how many license renewal applications have been turned down and the reasons for which they were rejected.

3. The NRC Staff should have documented and explained to the public the cases where did NRC Staff find significant site-specific environment issues. Knowing what those issues were, if any, and how they were addressed would have, along with the review template, assisted the public in choosing what issues, if any, to explore in the NRC process at Vermont Yankee.

II. ENVIRONMENTAL IMPACTS

A. Radiological Impacts

1. NRC Staff should have included an environmentally oriented definition of low-level radioactive waste, that is, a physical, not a legal definition.
2. We believe that properly stated, contaminated soil low-level would have been included in that definition.
3. Entergy Vermont Yankee has obtained NRC permission to yard or pile in the open 150 cubic meters per year of radioactively contaminated soil per year. If VY has no discharge of radioactive solid effluents, as SEIS says, then the NRC Staff should explain how so much soil becomes radioactively contaminated to measurable levels or levels distinguishable from background. What radioactive elements or isotopes are in this soil? What is to prevent runoff to the river or migration as dust in the wind?
4. NRC has not independently confirmed through its own measurements and analysis the Entergy reported radiation levels and types of radioactive materials in this contaminated soil. Without independently confirmed data, NRC cannot credible state that there will be no significant environmental impact from this activity.
5. At page 2-13, the draft EIS explains that VY installed an incinerator to burn, "slightly radioactive waste oil for space heating purposes." NRC cannot credibly quantify environmental impact from this activity without answering the following questions: Is the oil radiologically or chemically analyzed before incineration? Does this oil heater ever experience *flame-outs* or back draft episodes? Is the heater's intake monitored for leaks and *blow-backs*? Does NRC directly confirm any of this? It does not appear so.

6. At page 2-14 the draft EIS shows that 31.7 curies per year of fission and activation gases are released from the release stack. These fission and activation gases are released because they can't be trapped in filters nor can they be economically removed through cryogenic distillation. NRC Staff should explain to the public the following: How much is a curie? How many curies of fission and activation gases would be released in a major accident if the reactor were opened to the atmosphere? Since the reactor is opened every 18 months for refueling, please explain why there is a difference, if there is one, in the amount released?
7. At page 2-14, the draft EIS shows that 8.55 curies of tritium per year are release from the stack. NRC Staff should answer in the SEIS the following: What is tritium? If it is in the form of hydrogen gas, why is it not recombined to form water before the scavenged reactor gases (page 2-13) go to the dryer? If it is in the form of tritiated water, how does it get past the dryer and where is it deposited after it leaves the release stack? Are the releases continuous and uniform or episodic? How much tritium does an individual have to ingest or inhale before there are risk implications?

B. Non-radiological impacts

1. On page 4-7, the draft EIS reports that NRC has generically found "Cold – shock [of fish] has been satisfactorily mitigated at nuclear plants with once-through cooling systems... [later] Therefore, the staff concludes that there are no impacts of cold shock during the renewal term beyond those discussed in the GEIS." The staff should define cold-shock, and explain, "once-through." The Monticello nuclear plant in Michigan had to shutdown recently when a valve bank broke loose and fell onto a main steamline. News accounts reported a large fish kill due to cold-shock. NRC Staff should consider amending its report in light of this information.

Staff has concluded that cooling tower drift (spray) is confined to the area immediately around the cooling towers. Is staff unaware that according to

discovery materials provided by Entergy in a proceeding before the Vermont Public Service Board (Docket 6812), in the normal course of operation, Vermont Yankee NPP cooling towers discharge “drift” or spray at the rate of 183 gallons per minute. **According to Entergy ground deposition of this drift has been measured at 1/10 of inch per year at a distance of 1000 meters,** and the amount of drift will increase as thermal power is increased at the plant.

Within the droplets of spray (drift) emanating from the towers are several, or all of the following substances in unknown formulas (mixes and chemical combinations), unmeasured point of discharge concentrations, and **unmeasured point of deposition concentrations:**

1. **Bulab 8006:** penetrant/biodispersant to remove fouling in Service Water System (SWS).
2. **Bulab 7034 or Depositol BL5303:** corrosion inhibitor for use in SWS and circulating water (CW).
3. **Bulab 9027 or Inhibitor AZ8103:** Copper corrosion inhibitor (CW).
4. **Dianodic DN2301;** a dispersant (SWS and CW)
5. **Spectrus NX-1104:** biocide, as an alternative or in addition to bromine/chlorine. (SWS)
6. **Cortrol 0S7700:** oxygen scavenger and pH control agent w/ hydroquinone (Boiler).
7. **Ferroquest FQ7101:** to correct biological/corrosion fouling (SWS).
8. **Ferroquest FQ7102:** a pH control agent (SWS)
9. **Oxidizing Biocides (Chlorine, Bromine) (SWS)**

These materials permitted for discharge (liquid) direct to the Connecticut River under Vermont Agency for Natural Resources Discharge Permit No. 3-1199. There is no permit that we could find regulating the discharge of chemicals from the cooling towers and there appears to be **no regulatory standard for topical application or ingestion (as droplets) for these chemicals and biocides.**

In addition, the cooling towers are constructed of pressure treated wood. We presume from their appearance that this is chromated copper arsenate (CCA) treated wood. Under increased thermal power conditions the cooling tower water will

undergo, according to Entergy, an overall temperature rise of approximately 4 °f potentially, in combination with the additive chemicals, increasing the leach-rate of the CCA of VY cooling tower drift studies that were provided in the Vermont Public Service Board uprate case showing cooling tower spray deposition at distances of up to a mile. Arsenate control regulations have changed since the cooling towers were constructed and a credible environmental impact statement should take that into consideration. Also, the question remains why NRC staff characterized cooling tower droplets containing biocides and other toxins as air pollutants when they were in fact spray droplets applied topically and ingested by area biota.

2. NRC Staff provides extensive discussion of Entergy's filed, granted, and appealed once-through water discharge permits, but is NRC Staff unaware of the recent US (2nd District) Court of Appeals decision that requires regulators to consider best available technology for power plant cooling? Further there is no discussion of cooling alternatives. Why is the draft EIS silent, for example, on dry cooling technologies?
3. PCB, heavy metal, and hazardous chemical runoff from coated surfaces has been an issue at other nuclear plants of Vermont Yankee's vintage when undertaking environmental review for decommissioning. The draft EIS is negligently silent about the potential for additional accelerated coatings breakdown and PCB, lead, arsenate, and mercury leaching during the extended 20 years of exposure under re-licensing?

C. Mixed –The Draft EIS states at page 7-3 decommissioning at the end of a 20-year renewal period would generate no more solid wastes than at the end of the current license term. NRC staff has apparently failed to considered the obvious fact that the VY steam dryer is in poor condition and, while it may last until 2012, is not likely to last until 2032; thus joining the waste stream. NRC review has not projected the service life of other components in the steam system as well and has not considered the phenomena of increased failure rates as these components approach the end of design life. NRC considered the increased stresses on reactor internals and increased replacement rates due to uprate and extended service.

III. ALTERNATIVE ENERGY SOURCES

A. Regional Perspective - NRC does not consider the impact of replacement power sources from a regional perspective. Inasmuch as Entergy Vermont Yankee is no longer owned by Vermont's regulated utilities, it may during the duration of license renewal sell its power on the open market rather than through contract to Vermont utilities. Thus it is a regional "asset" and not a Vermont "asset" solely.

- 1. When the draft EIS considers available resources for alternative electrical generation such as wood fired generation, it confines itself to an assay of Vermont's capacity and not regional (New England) capacity and invokes the burden of replacing 650 Megawatts (e); not Vermont's contracted share of half that amount. Why is that?**
- 2. The draft EIS does not contemplate in perspective Entergy Vermont Yankee's contribution to New England ISO electrical generation capacity. At 650 Megawatts (e) to the ISO capacity of 35,000 Megawatts(e), Vermont Yankee's capacity is less than 1.8 percent of what is available in New England. While we are at one hand talking about replacing more than 30 percent of Vermont's power supply, we are silent that this means replacing only 1.8 percent of New England's power supply. Why is that?**
- 3. When discussing the availability of alternative power options (for Vermont), the draft EIS ignores initiatives in other New England states and initiatives in near-by Canadian provinces. For example, the State of Maine is currently exploring the potential benefits to regular and economical power supply of leaving New England ISO and interconnecting with New Brunswick province. For example, dual cycle gas plants built over the last decade and scattered across New England may have the capacity to uprate or add new units. None of this is explored. Why?**

B. Power to Vermont

1. NRC Staff does not discuss the simply alternative of seeking new long-term competitive power contracts for Vermont utilities from existing or expanding regional generators. Why?
2. NRC Staff discusses the hypothetical installation of a dual-cycle natural gas fuel generator on the Vermont Yankee site but does not refer to the data produced by two gas generation developers that explored just that possibility just before Entergy bought the plant. Why?
3. NRC Staff rates the environmental impact, including socio-economics, of taking no action and letting VY close in 2012 as "SMALL." [Page 8-3]. A single "LARGE" impact is assigned under the topic of taxes. NRC Staff should define or quantify the impact categories used in the draft EIS: SMALL, MODERATE. LARGE. NRC Staff included no comparisons of taxes paid, revenue to local business, or work force size and wages paid during the 7-15 year period of decommissioning at other New England power stations. Why? There's plenty of data there, about taxes, employment, cost of replacement power, economic growth, and employment. Wouldn't it be fair to assess for comparison purposes how reactor closure and decommissioning affected other New England areas?

IV. LARGE RELEASE CONSIDERATIONS

- A. While license extension of itself may not add to accident source term considerations, license extension in combination with extended power uprate adds to both likelihood and consequences of a major release. NRC Staff is well aware that studies performed for the Swiss Liebstadt reactor indicated that for a 14.7 percent uprate, available fission products increased by more than 30 percent. NRC Staff, in a classic example of cherry picking, quotes Liebstadt in the case of exemption from large transient testing, but does not refer to it in the case of greatly increased

source term. The Liebstadt experience is new information with site specific implications for Vermont Yankee and should have been considered in the SEIS.

- B. **Spent fuel pool accident and/or sabotage risk.** NUREG-1738 was generated in 2000. Many of its conclusions were not available when Vermont Yankee was originally licensed and have not been included in Vermont Yankee's Updated Final Safety Analysis Report or other Licensing documents. In particular, the report includes up to date spent fuel pool accident consequences modeled on Millstone I, a sister plant and quite similar to Vermont Yankee. Consideration of the radiological impact of mid-term releases shows that even with a presumed 95% evacuation, up to 20,000 fatalities might be expected out to distances of 500 miles. The report also shows that Mark I containments, such as Vermont Yankee, present no substantial barrier to aircraft penetration and, further, that the bottom of Vermont Yankee's spent fuel pool could "drop out" in the event of an extreme seismic event.

According to a NATO Draft Report, NATO Parliamentary Assembly Report AV 118 STC/MT (02) 3, (April 25, 2002),

A Brookhaven National Laboratory study showed that a spent pool fire could cause contamination for 188 square miles, approximately 30,000 cancer fatalities and \$ 59 billion in damage. An even greater threat to civilian nuclear facilities may come from ground assault or sabotage, with or without the help of insiders.

The Report states further, that,

Experts from Stanford University's CISAC indicated that, given the increase in truck bomb attacks over the last decade, terrorist attacks with conventional explosives against nuclear power plants, spent fuel pools or spent fuel in transport are major sources of concern

- C. **Given that NRC Staff is well aware of the information above, it remains disturbing that the NRC obdurately refuses to newly consider the vulnerability of elevated spent fuel pools to malevolent acts and the**

potential consequences of those acts, even in defiance of the intent of the recent 9th Circuit Federal Appeals Court decision.

V. IN SUM

NRC has not produced a Site-Specific Environmental Impact Statement that is credible to the people of Vermont and those living in the vicinity of Vermont Yankee. The SEIS is neither comprehensive nor put forth in appropriate detail. It is instead in almost every way perfunctory, lacking in rigor. We have cited but a few examples of where the SEIS was errant, but they are indicative of the poor quality of the entire document and NRC process which remains a disservice to the citizenry and their natural environment.
