UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	:	Docket Nos. 50-336-LR,
DOMINION NUCLEAR	:	50-423-LR
CONNECTICUT, INC.	:	
(Millstone Nuclear Power	:	
Station, Units 2 and 3)	:	NOVEMBER 25, 2005

MOTION TO REOPEN

The Connecticut Coalition Against Millstone ("Coalition") moves to reopen these proceedings on the application of Dominion Nuclear Connecticut, Inc."Dominion") to extend the operating licenses of Millstone Units 2 and 3. Further, the Coalition seeks leave to submit an amended petition to intervene.

This motion is premised upon newly discovered evidence of fraud, deceit and cover-up by the staff of the U.S. Nuclear Regulatory Commission ("NRC").

In support of this motion, the Coalition respectfully represents as follows:

1. In the course of the NRC's proceedings on Dominion's application to extend the operating licenses of Millstone Units 2 and 3, the Coalition submitted various filings to the NRC, dated March 2, 2005 (Exhibit A hereto) and March 16, 2005 (Exhibit B hereto).

2. In Exhibits A and B, and attachments thereto, the Coalition identified *inter alia* evidence that the Millstone Nuclear Power Station releases levels of strontium-90 to the environment which are in excess of its federal license.

3. Such evidence is contained in Dominion's own reports to the NRC and the Connecticut Department of Environmental Protection ("DEP") of levels of strontium-90 concentrations found in goat milk sampled 5.5 miles north-northeast of Millstone.

4. In comparison with average concentrations of strontium-90 found in commercially sold cow's milk at various locations in the United States by the U.S. Environmental Protection Agency in 2003, the levels of strontium-90 reported in goat milk sampled at 120 Dayton Road in Waterford, Connecticut, are dangerously high. See Declaration of Ernest J. Sternglass, Ph.D., annexed hereto as Exhibit C.

5. According to documents filed by Dominion and its predecessor, Northeast Nuclear Energy Company, environmental monitoring of station stack releases of strontium-90 were permitted by the NRC to be discontinued on or before 1997; since such date, Millstone has relied principally upon environmental monitoring of goat milk samples to ascertain the levels of strontium-90 released into the air and the surrounding environment by Millstone's routine operations.

6. The NRC staff reviewed the Coalition's submissions identified hereinabove and other related public comments, according to its "Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Supplement 22 Regarding Millstone Power Station, Units 2 and 3" issued in July 2005. See Appendix A-102 - A-106.

7. The NRC's response, as set forth in Supplement 22,[1] attempts to justify a conclusion that

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[1]The entire text of the N RC's response is as follows:

NRC's Office of Public Affairs has published a background paper entitled "Radiation

Protection and the Tooth Fairy Issue," which contains the following information about Strontium-90 (Sr-90). Approximately 16.8 million Curies of Sr-90 were dispersed globally by atmospheric testing of nuclear weapons before 1980, and Sr-90 has a half-life of 28 years. Therefore, millions of Curies of that Sr-90 is still in the environment and accounts for about 0.3% of the average annual dose of roughly 300 millirem a person in the United States receives from natural background radiation. An additional 216,000 Curies of Sr-90 were released into the atmosphere as a result of the Chernobyl accident. Altogether, the 103 nuclear power plants in the United States release a total of about 1/1000th of a Curie of Sr-90 each year.

Dominion's annual radiological effluent reports to the NRC indicate that Millstone releases an average of 2 microCuries (2 X 10(6) Curies) of Sr-90 in liquid and gaseous effluents each year. A total of 1 microCurie of Sr-90 was released in gaseous effluents in 2002, and no detectable amount of Sr-90 was released in gaseous effluents in 2001, 2003 and 2004. Millstone also releases a small amount of Sr-89, which has a half-life of about 50 days. Because of the short half-life, any Sr-89 in the environment around Millstone could not be from Chernobyl or atmospheric testing and would likely be from Millstone effluents. If Sr-90 is found in the environment without Sr-89 near an operating nuclear power plant, then it is highly likely that the Sr-90 is from Chernobyl or atmospheric testing. No Sr-89 was detected in the gaseous effluents for 2001, 2002 and 2003. In 2001, 2002, 2003 and 2004, 20 microCuries, 200 microC uries, 2w20 microCuries and 90 microCuries of Sr-89 were released in liquid effluents, respectively.

As part of its radiological environmental monitoring program, Dominion obtains milk samples from goats at farms near Millstone and performs radio-chemical analysis to determine the concentrations of Sr-89 and Sr-90 in that milk. Dominion's annual radiological environmental reports to the NRC typically indicate concentrations ranging from below the lower limit of detectability to 15 picoCuries (15 X 10(-12)) of Sr-90 per liter of milk, and the concentrations of Sr-89 are below the lower limit of detectability. Dominion has concluded that the Sr-90 is from atmospheric testing of nuclear weapons or the Chernobyl accident because the plant would have to release Curies of Sr-90 (not microCuries) to result in the concentrations measured in the milk.

Sometimes higher concentrations of Sr-90 are found; Dominion reported a concentration of 55.5 picoCuries (55.5 X 10(-12)) of Sr-90 per liter in goat milk that was composited from July, August and September of 2001 at a farm approximately 5 miles from the plant. Dominion believes that the goats sometimes begin to nibble the roots of the pasture grass. Along with the grass roots, the goats may also ingest some soil that contains Sr-90 left in the environment from atmospheric nuclear testing. Analyses of the same goat milk indicated that the concentration of Sr-89 was below the lower limit of detectability, another indication that the Sr-90 is not from Millstone.

The Connecticut Department of Environmental Protection (CTDEP) also analyses

of 120 Dayton Road in Waterford, clipping pasture grass, Exhibit D herein. Katie the Goat is available for observation during grazing activities by the NRC.

15. Goats are simply not root-feeders.

16. Goats' jaw structures are such that they cut grass "scissor-like" with opposing motion of the upper and lower jaw; while cows, sheep and horses are known to chomp grass so that it may be yanked up by the roots, goats are far more fastidious. For this reason, they are favored as pasture livestock around the world.

17. Dominion did not support its novel scientific theorizing - "that the goats sometimes begin to nibble the roots of the pasture grass" - with any studies or scientific papers, let alone photographs of the 120 Dayton Road pasture or the goats during their grazing.

18. Dominion's second statement is even more revealing:

> Along with the grass roots, the goats may also ingest some soil that contains Sr-90 left in the environment from atmospheric nuclear testing.

19. This statement is scientifically unsound because fallout from atmospheric nuclear testing has decayed to levels far below those measured in the goat milk, nor did Dominion identify any other location in the state in which similarly high levels of strontium-90 attributable to atmospheric weapons testing have been measured.

20. Rather than dismiss Dominion's unsound scientific theorizing as the bogus concoction that it is, the NRC staff "came to the same conclusion" as Dominion and discredited Millstone as a source of the environmental poisoning.

21. In discrediting Millstone as the source of the excessive strontium-90 levels in the goat milk sampled at 120 Dayton Road, Dominion and the NRC have engaged in fraud, deceit and cover-up for the purpose of justifying license extension.

22. The Coalition believes that Millstone is the source of the excessively high levels of strontium-90 found in the goat milk at 120 Dayton Road and that such evidence strongly suggests that Millstone is violating its NRC license during routine operations.

23. Strontium-90 is a deadly carcinogen which is readily ingested by the human body; it causes bone cancer and leukemia, attacks the immune

system and is responsible for a host of other life-threatening diseases. Bone cancer and leukemia have become endemic in the community surrounding Millstone since Millstone commenced operation in 1970.

24. The Coalition believes that Dominion and the NRC staff's duplicitous and fraudulent conduct regarding Dominion's samplings of strontium-90 in goat milk requires a full reopening the these proceedings.

25. Recently, it has been revealed that Dominion and the NRC staff have otherwise engaged in fraud, deceit and cover-up, for example, when they repeatedly misled the public about dangerous emissions of radionuclides during the Class II emergency declared at Millstone Unit 3 in March 2005.

26. Recent disclosures regarding the presence of tin whiskers in circuit boards at Millstone Unit 3, welding defects,[2] issues regarding equipment

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[2]See article in The New London Day, "Dominion Repairs Metal Connectors During Refueling Outage at Unit 3" (October 22, 2005)
Featured in Region

Dominion Repairs Metal Connectors During Refueling Outage At Unit 3

By PATRICIA DADDONA
Day Staff Writer, Waterford
Published on 10/22/2005

Waterford — Dominion Nuclear Connecticut is repairing welds that connect pipes and a nozzle in equipment used to maintain pressure in the Unit 3 reactor at Millstone Power Station.

The reactor is closed for refueling.

On Tuesday, Dominion workers reported the discovery of dents in the metal welds to the Nuclear Regulatory Commission and set about repairing them, Dominion spokesman Pete Hyde said.

The problem was found during routine inspections during the outage and presents no safety hazard or performance problem for the reactor, according to Hyde and NRC spokesman Neil Sheehan.

The NRC required the company to ask permission to make the repairs because the corrosion-resistant material being used differs from the original metal, known as "Alloy 600," and is located in a key mechanical system, Sheehan and Hyde said.

integrity as identified by the Advisory Committee on Reactor Safeguards

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On Friday, the NRC approved that request and is having an independent consultant review the repair plan, Sheehan said.

In pressurized nuclear reactors, the dominant type now in use in the United States, steam that turns turbines to generate electricity courses through a generator outside the reactor core. A piece of equipment known as a pressurizer keeps highly pressurized water flowing through the reactor to prevent it from boiling, Sheehan said.

Water enters the pressurizer through two spray heads in a nozzle, he said.

The dents in the three-quarter-inch-thick welds are two-tenths of an inch deep and do not penetrate the metal, but need to be repaired to prevent further damage, Hyde said.

Hyde said the defect may have resulted from the way the pipes and nozzle were first fused together — sometime between 1977, when the nozzle was made, and 1986, when the plant began operating. The problem is a common one in the industry that reactor owners were advised last year to be on the lookout for, Sheehan said.

The company's recent decision to replace the entire reactor vessel head at Unit 2 was based on similar flaws in other types of equipment, Hyde said.

During an outage, Dominion inspects all welds connecting key pieces of equipment in the reactors using ultrasound and radiography, Hyde said.

The flaws are not a result of metal fatigue, Hyde and Sheehan said, and should not affect the company's plans to renew the licenses of both Unit 2 and Unit 3. will be good through the life of the proposed new license for Unit 3, which would extend to 2045, they said.

NRC experts have recommended re-licensing, which could be authorized in the summer.

the excessively high levels of strontium-90 found in the goat milk at 120 Dayton Road in Waterford are not traceable to Millstone.

8. Supplement 22 contains this statement:

> Dominion believes that the goats sometimes begin to nibble the roots of the pasture grass. Along with the grass roots, the goats may also ingest some soil that contains Sr-90 left in the environment from atmospheric nuclear testing.

9. This statement is not supported by any independent evidence by Dominion of the conditions of the goat pasture at 120 Dayton Road nor the customs of goats feeding at such location.

10. The statement "Dominion believes that the goats sometimes begin to nibble the roots of the pasture grass" is particularly telling.

11. Such statement evidences a complete lack of knowledge about the grazing practices of goats generally and the grazing habits of the goats at 120 Dayton Road.

12. The 20-acre goat habitat at 120 Dayton Road is lush with pasture vegetation and forested area; observations made by the Coalition during the Fall of 2005 confirmed that the pasture grass was lush and was not eaten to the roots.

13. The Coalition was informed by the goats' owner, Allen T. Moran, that such a statement of his goats' eating habits was ludicrous and that his goats did not graze pasture grass down to the roots.

14. Indeed, in common with other goats, the 120 Dayton Road goats clipped the top parts of pasture grasses and moved on to other pasture grasses, tree bark and leaves. See photograph of Katie the Goat, formerly

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goat milk from the same locations as Dominion and has obtained similar analysis results. CTDEP has not identified any evidence of the Sr-90 in the goat's milk as being from Millstone. The NRC inspected the monitoring programs at Millstone and reviewed Dominion's annual reports and came to the same conclusion.

> Based on the sources of Sr-90, measurements in the environment, and health effects studies (see Section 4.7 of the SEIS), the [NRC] staff concludes that the comments [of the Connecticut Coalition Against Millstone and Dr. Sternglass] provided no new and significant information on Sr-90 releases from Millstone and their impact on human health; therefore, the comments were not evaluated further. There was no revision to the text of the SEIS [Supplemental Environmental Impact Statement]..

and left uncorrected, concealment of planned refurbishments and power upgrading during the relicensing proceedings and the reliance upon falsification of environmental impacts - including the virtual extinction of the Niantic winter flounder stock - require that this motion be granted so that these and other issues which have arisen since the NRC dismissed the Coalition's intervention may be appropriated addressed.

CONNECTICUT COALITION
AGAINST MILLSTONE

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Exhibit A

CONNECTICUT COALITION AGAINST MILLSTONE

www.mothballmillstone.org

March 2, 2005

Chief
Rules and Directives Branch
Division of Administrative Services
Office of Administration
Mailstop T-6D59
U.S. Nuclear Regulatory Commission
Washington DC 20555-0001

Re: Millstone Nuclear Power Station/Draft Environmental Impact Statement

Dear Sirs:

The Connecticut Coalition Against Millstone submits herewith preliminary comments concerning the draft Environmental Impact Statement (EIS) which the NRC staff has prepared in support of relicensing

of Millstone nuclear reactors Units 2 and 3 to extend their terms to the years 2035 and 2045 respectively. These comments will be supplemented with a separate filing with attachments.

The Coalition strongly opposes Millstone relicensing.

The data available to the U.S. Nuclear Regulatory Commission in its environmental review establishes a clear link between Millstone's radiological and chemical discharges to the environment and **major health effects** in the surrounding community.

The data reviewed by the NRC is alarming.

The data strongly suggests – and indeed does so almost to a certainty – that Dominion Nuclear Connecticut, Inc. is operating and will continue to operate the Millstone Nuclear Power Station in violation of NRC regulations requiring limiting doses to the public of 15 millirems per year to any organ.

Put another way, the data strongly suggests that Dominion's Millstone daily operations exceed the permissible dose of radiation to the public and will continue to do so during the proposed relicensing period.

Based on Dominion's own reporting of radiation sampling in the environment, the Coalition believes the available data reviewed by the NRC for the years 2001, 2002 and 2003 prove that routine operations of Millstone are in violation of federal health standards and are illegal.

By its own admission, the NRC confined its review of Millstone radiological releases, for Environmental Impact Statement purposes, to the years 2001, 2002 and 2003. ("Radioactive Waste Management Systems and Effluent Control Systems 2.1.4," DEIS at 2-9) (No explanation is provided in the DEIS as to why the years 1970-2000 and the year 2004 – with the most current data – were excluded from review.)

The Annual Radiological Environmental Operating Report submitted by Dominion Nuclear Connecticut, Inc. to the NRC for the year 2001 – one of the few reports the NRC specifically identified that it had reviewed in its EIS procedure - contains the following information:

> On September 19, 2001, a concentration of strontium-90 of 55.5 picoCuries per liter (pCi/l) was measured in a sample of goat milk taken from a location 5.5 miles north-northeast of the Millstone Nuclear Power Station. The uncertainty factor reported was plus or minus 5.3 pCi/L.

A concentration of 55.5 picoCuries per liter is an “extremely large concentration, close to twice the highest concentration measured in Connecticut pooled milk at the height of nuclear weapons testing in 1963 of 23 pCi/L,” according to a report dated March 1, 2005 by Dr. Ernest J. Sternglass, Professor Emeritus of Radiological Physics at the University of Pittsburgh School of Medicine and an acknowledged pioneer in the field of the effects of low-level ionizing radiation on living cells. The report appears annexed hereto as Exhibit A.

Moreover, according to Dr. Sternglass, since the measured value is ten times as large as the measurement uncertainty, “this is an extremely significant result, with an astronomically small chance that it is a statistical fluctuation.”

Put into perspective, an individual drinking two eight-ounce glasses of the strontium-90-contaminated goat milk on a daily basis would receive a maximum permissible dose of radiation – under NRC guidelines – within 30 days.

This assumes no other radiological contamination of the milk. However, strontium-90 never appears alone in the environment. When the radiological effects of identified concentrations of radionuclides also reported in the same goat milk sample - cesium-134, cesium-137, iodine-131, barium-140 and others – are considered, the effect is even more damaging and far less milk would need to be consumed over fewer days before the maximum permissible radiation doses established by federal law would be exceeded, according to Dr. Sternglass.

“The dose to bone or the bone marrow when other fission products are present is some 5 to 6 times greater than from strontium-90 alone, and the Dominion reports for goat milk show significant concentrations of other fission products, such as cesium-137, in significant concentrations,” Dr. Sternglass states in his report, Exhibit A.

"Using the NRC NUREG 1.109 dose factor of 0.0172 mrem/pCi/l [millirem] from Table A-5, a mere 2.4 pCi/l daily intake results in the maximum permissible dose to any organ of 15 mrem per year set by NRC guidelines, 23 times the amount measured in a single liter," according to the Sternglass report.

Attached to Dr. Sternglass' report are measurements, reported to the NRC by Dominion, of strontium-90 in goat milk sampled at locations within 5 miles of Millstone during the years 2001, 2002 and 2003.

The reported samples of measurements show concentrations of 13 to 14 pCi/l on other days during the three-year period. According to Dr. Sternglass, these are also significantly high readings since strontium-90, concentrating in milk due to atmospheric nuclear weapons testing which ended in 1980, has declined to less than 1 pCi/l in areas far removed from any nuclear reactors.

Since the samples are collected by Dominion only twice a month, it is unknown whether actual concentrations on other days exceeded the levels reported.

In 1997, Millstone's previous owner, Northeast Utilities, persuaded the NRC to permit it to discontinue sampling for strontium-90 in its air filter monitoring program. As the 1997 Annual Radiological Environmental Operating report states:

> Section 4.5 Air Particulate Strontium (Table 5)
> Table 5 in past years was used to report the measurement of Sr-89 and Sr-90 in quarterly composited air particulate filters. These measurements are not required by the Radiological Effluent Monitoring Manual (REMM) and have been discontinued. Previous data has shown the lack of detectable station activity in this media. This fact, and the fact that milk samples are a much more sensitive indicator of fission product existence in the environment, prompted the decision for discontinuation. In the event of widespread plant related contamination or special events such as the Chernobyl incident, these measurements may be made.

Strontium-90 is among the most deadly byproducts of nuclear fission. Once ingested, its highly-energetic electrons damage and cause mutations

in nearby cells. Exposure to low levels of strontium-90 and other bone-seeking radioactive chemicals routinely released by nuclear power plants does not merely increase the risk of bone cancer or leukemia, but it weakens the immune defenses provided by the white cells of the blood that originate in the bone marrow. See Declaration of Ernest J. Sternglass (August 8, 2004) submitted to the NRC in In the Matter of Dominion Nuclear Connecticut, Inc., Docket No. 50-336-LR, 50-423-LR, ASLBP No. 04-824-01-LR, annexed hereto as Exhibit B.

"As recently shown in the 2003 report by the European Committee on Radiation Risk, numerous epidemiological and laboratory studies have shown that the risk of cancer and other diseases produced by local internal doses to critical organs from fission products that are inhaled or ingested have been underestimated by extrapolation from high external doses by factors of hundreds to thousand of times," according to the Sternglass report, Exhibit A.

"This explains why it now appears that releases from nuclear plants, often acting synergistically with other environmental pollutants, are a major neglected reason for the recent rise of illness and deaths both among newborns and the elderly observed in the U.S. in the last two decades, as also discussed in the ECRR report," according to Dr. Sternglass. Id.

"For these reasons, it is my professional opinion that the Millstone Nuclear Plant should not be relicensed," Dr. Sternglass stated. In his report, Exhibit A.

The Coalition has previously submitted, in these and the related Atomic Safety and Licensing Board proceedings, documentation from Joseph Mangano and Michael Steinberg which links the Millstone radiological effluent releases – including strontium-90 - to significant negative health consequences in the community. These documents are incorporated by reference herein.

CONNECTICUT COALITION AGAINST MILLSTONE

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Exhibit B

CONNECTICUT COALITION AGAINST MILLSTONE

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March 16, 2005

Chief
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U.S. Nuclear Regulatory Commission
Washington DC 20555-0001

Re: Millstone Nuclear Power Station/Draft Environmental Impact Statement/Supplemental Comments

Dear Sirs:

The NRC is committed to protecting the public health and safety.
- Statement of NRC's Organizational Values

The Connecticut Coalition Against Millstone submits herewith its supplemental comments concerning the draft Environmental Impact Statement (SEIS) which the NRC staff has prepared in support of relicensing of Millstone nuclear reactors Units 2 and 3 to extend their terms to the years 2035 and 2045 respectively. These comments were preceded by preliminary comments submitted on March 2, 2005.

Unfortunately, our review of the SEIS and our interaction with NRC's SEIS staff concerning its evaluation of the operational history of the Millstone Nuclear Power Station lead us to conclude that **in this instance the NRC has entirely departed from its self-defined organizational values (see above).**

Indeed, we are driven to conclude that, in this instance, the NRC staff is not even *remotely* concerned about the effects of Millstone releases of radiation to the public health and safety and to the environment.

Nor has the NRC staff adhered to the "Principles of Good Regulation" heralded on the NRC's website.[3]

The standard defining evaluation criteria for the NRC staff's environmental review is defined in 10 CFR 51.95(c)(4) as follows:

> . . . whether or not the adverse environmental impacts of license renewal are so great that preserving the option of license renewal for energy planning decisionmakers would be unreasonable.

The NRC staff has preliminarily concluded in its draft Environmental Impact Statement that the adverse environmental impacts of license renewal are not so great that preserving the option of license renewal for energy planning decisionmakers would be unreasonable.

This conclusion is clearly erroneous and based on incorrect and incomplete information, industry bias and flawed analysis. **It also manifests a profound disregard for the health and welfare of the community.**

This conclusion ignores substantial available evidence that Millstone operations have had and will continue to have devastating health impacts on a wide scale and will continue to cause irreversible environmental damage on a wide scale.

[3] See NRC's "Principles of Good Regulation," attached.

Our detailed comments follow. Following the Introduction, our comments appear in sequence conforming to the appearance of topics in the draft Environmental Impact Statement (SEIS). Our comments today address the SEIS up to 5.0 ("Environmental Impacts of Postulated Accidents"). Additional comments addressed to Section 5.0 *et seq*. will be provided subsequently hereto.

Introduction

The U.S. Nuclear Regulatory Commission ("NRC") is considering relicensing of the Millsone Nuclear Power Station, Units 2 and 3 for additional 20-year terms. Without relicensing, Unit 2's operating license would expire in the year 2015 and Unit 3's operating license would expire in the year 2025.

Together with Unit 1, these reactors have had an operational history since 1970 which is among the ugliest in the annals of the nuclear industry.[4] Millstone's radioactive releases have been among the highest of all nuclear reactors in the United States.[5] Millstone's routine radiation releases were linked early-on with cancers and other diseases.[6] Millstone's treatment of its workforce by way of exposing it to unnecessary radiation levels[7] and its treatment of nuclear whistleblowers by ostracism and retaliatory firings have made it notorious within the nuclear industry.[8] While full-time inspectors from the NRC were onsite, Millstone lost two highly radioactive spent fuel rods. These irradiated rods contain plutonium and other fission elements which may be diverted to create dirty bombs. While Millstone's environmental monitoring program was being monitored by the NRC and Connecticut's Department of Environmental Protection ("DEP"),

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[4] For this reason, each of the environmental issues required for consideration in the Environmental Impact Statement process should be considered to be a Category 2 issue, subject to site-specific consideration.

[5] See Millstone & Me: Sex, Lies and Radiation in Southeastern Connecticut by Michael Steinberg (Black Rain Press 1998),

[6] See Testimony of Ernest J. Sternglass, Ph.D., presented to a Congressional Committee investigating nuclear power issues.

[7] See, e.g., www.mothballmillstone.org, experience of Charles D. Douton, Jr.

[8] See, James Plumb v. Northeast Nuclear Energy Company (Superior Court, Judicial District of New London); Clarence O. Reynolds v. Department of Public Utility Control (Superior Court, Judicial District of New Britain); John DelCore v. Northeast Nuclear Energy Co., U.S. District Court, District of Connecticut.

Millstone's personnel brazenly falsified environmental monitoring reports to the NRC and DEP and sabotaged the sample-taking activities.[9]

Connecticut's regulatory apparatus has failed to safeguard the public. Millstone's five-year National Pollution Discharge Elimination System ("NPDES") permit expired on December 14, 1997 – eight years ago - and it has not been renewed. Nevertheless, DEP has permitted Millstone to operate under the 1992 permit in brazen violation of the letter and spirit of the federal Clean Water Act. Former DEP Commissioner Arthur J. Rocque, Jr., routinely authorized "emergency authorizations" ("EAs") while recognizing his lack of legal authority to do so.[10] These EAs – of indefinite duration permitting releases of toxic and carcinogenic substances without enforceable limits – permit Millstone's owners and operators to do, *inter alia*, what Northeast Utilities pleaded guilty to doing wilfully and illegally when it pleaded guilty in the U.S. District Court in September 1999 to committing environmental felonies at Millstone and paying a $10 million fine. Clearly, the Clean Water Act prohibits major waivers of NPDES permit conditions without notice to the public and a meaningful opportunity for public input. Commissioner Rocque issued sequential EAs without notice to the public and he did not provide an opportunity for public comment. To our knowledge, Rocque's successor, DEP Commissioner Gina McCarthy, has done nothing to bring the Millstone operations into compliance with the law. She has permitted the *status quo* to reign. Connecticut Attorney General Richard S. Blumenthal is complicit in the illegal Millstone activities. Mr. Blumenthal successfully suppressed the truth of Millstone's illegal operations in litigation brought to require Millstone operations to comply with existing laws.

Regardless of whether Millstone has been technically out of compliance with the law during much or all of its 35-year operational life, its operations have systematically endangered the public health and safety.

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[9] See "Owner of Connecticut Nuclear Plant Accepts a Record Fine" (The New York Times September 28, 1999), attached.

[10] The Coalition attaches hereto the "Emergency Authorization" issued on October 13, 2000 which "legalizes" violations of the expired NPDES permit and which ex-Commissioner Rocque "transferred" to Dominion when it was a paper company without assets. Prior to issuing EAs for Millstone operations, Commissioner Rocque admitted in writing he lacked authority to issue emergency authorizations on an emergency basis for unlimited durations. The EA attached hereto has been in effect on an emergency basis since 2000 premised on a "finding" that it was required to avert "an imminent threat to health or safety."The SEIS makes no reference to this EA.

Millstone operations are a clear and present danger to the public health, safety and welfare.

Although Millstone's reactors have been operating since 1970, and thus have generated a 35-year history of operations and record of environmental impact, the NRC selected only a *three-year period* (2001, 2002 and 2003) to review to assess Millstone radiological emissions for purposes of its SEIS evaluation. Necessarily, the NRC staff's superficial and selective review deprived it of the opportunity to engage in a meaningful assessment of the environmental impacts of Millstone's complete operating history to inform the evaluation necessary to evaluate the full scope of future effects during a potential period of license extension.

At the same time, the NRC staff virtually ignored the information available to it even in the limited area it selected for review: the years 2001-2003.[11]

The most glaring example we may provide you of this appears as the preliminary comment we provided to you on, together with the declaration of Ernest J. Sternglass, Ph.D.[12] Dr. Sternglass evaluated Dominion Nuclear Connecticut, Inc.'s reports of strontium-90 levels sampled in goat milk five miles from Millstone during 2001, 2002 and 2003. Although one sample measurement reported by Northeast Utilities in 2001 was at a level nearly twice the highest level of measured strntium-90 concentration in Connecticut milk during the height of the atmospheric nuclear weapons testing in the 1960s, this fact is not reported in the SEIS nor is it analyzed, nor are the other high strontium-90 measurements in goat milk sampled five miles downwind from Millstone analyzed.[13]

We perceive a determined lack of dedication by the NRC staff to genuinely understand the full scope of environmental - including human health - impacts of continued operations of Millstone. Documents which we

[11] Webster's Dictionary defines misfeasance as "the performance of a lawful action in an illegal or improper manner."
[12] Refer to the Coalition's March 2, 2005 submission and attachments thereto.
[13] Webster's Dictionary defines malfeasance as "wrongful conduct, especially by a public official."

provided to the NRC have apparently been destroyed.[14] Comments made in relicensing proceedings attended by the SEIS staff and documents submitted in such proceedings were ignored or disregarded by the SEIS staff.[15]

We continue to be troubled by the fact that documents produced by the SEIS staff in response to our queries about the SEIS submitted to the SEIS staff on January 23, 2005 were withheld by the NRC's own Freedom of Information staff and have yet to be released.[16]

Similarly, we are astonished that the NRC staff most involved with the SEIS declined our invitation to attend the press conference we gave on the Niantic Bay shoreline 1.5 miles from Millstone on March 10, 2005. At our press conference, we introduced Zachary M. Hartley, a 7-year-old boy born with a rare cancer in his jawbone.[17] During critical months of her pregnancy, Zachary's mother swam regularly and unknowingly in the nuclear "mixing zone"[18] which is known locally as the Hole-in-the-Wall Beach. We invited the entire NRC to attend the press conference and address questions to our expert, Dr. Helen Caldicott, world-renowned pediatrician, co-founder of Physicians for Social Responsibility and a leading authority on the health effects of low-level ionizing radiation such as is routinely emitted by Millstone. Zachary's medical records were available for NRC review. Not a single representative of the NRC appeared, not even one of the resident inspectors assigned to Millstone. Dr. Caldicott linked young Zachary's rare jawbone cancer to Millstone's radiological and toxic chemical emissions as being the likely causative agent. Dr. Caldicott acknowledged that, while there cannot be a 100-per-cent certainty that Millstone caused Zachary's medical condition, cesium-137 which Northeast Utilities found in a fish in the same nuclear "mixing zone" in 1997 – the year of Zachary's mother's pregnancy – and which contamination it admitted was discharged by Millstone, is known to be

[14] See Response of Richard L. Emch, Jr. to the Coalition's February 5, 2005 queries, Paragraph 7 (attached); Documents responsive to this request were presented to the NRC by the Coalition as attachments to the Affidavit of Cynthia M. Besade dated August 5, 2005.
[15] See Transcript of January 11, 2005 public informational meeting sponsored by the NRC's SEIS staff at the Waterford CT Town Hall.
[16] The Coalition will address this issue in a subsequent filing.
[17] Press clippings from the Hartford Courant, Norwich Bulletin and The New London Day are attached.
[18] See SEIS at 4.1.3.

associated with cancer, including cancer of the bone. We are transcribing Dr. Caldicott's comments and will provide the NRC with a copy as soon as the transcription is available.

In light of the facts which have come light regarding Zachary M. Hartley, the Coalition has requested that the Connecticut General Assembly's Public Health and Environment Committees convene a special public hearing to consider our request to close the Niantic shoreline beaches.[19] We understand that the legislature may find it necessary, in order to adequately protect the public health and safety, to enact legislation to close Millstone forthwith. Governor M. Jodi Rell has referred our request to the Commissioner of Public Health; we are asking him to exercise his authority to close the Niantic beaches as a health hazard. We further anticipate that the Connecticut DEP will order that Millstone convert from its once-through cooling system to a closed cooling system, thereby virtually eliminating the discharge of radioactive and toxic chemical contaminants to the Niantic and Waterford shorelines. The SEIS does not address the prospect that Millstone will undergo a major refurbishment in the conversion from the once-through to a closed cooling system. This is a major omission in the SEIS.

We recognize that the events in question in Zachary's life arose in 1997, prior to Dominion's takeover of Millstone in 2001. However, Zachary's sickness is a factor which must be considered in the operational history of Millstone. Under Dominion ownership, Millstone has continued to release the same radioactive and toxic chemical waste byproducts as NU before.

Indeed, Dominion is currently seeking permission from CTDEP to add **new chemicals** to the "mixing zone" and continue the routine discharge of others. Nowhere in the SEIS is it stated that the NRC staff reviewed Dominion's application for renewal of the NPDES permit. Nowhere are these facts assessed in the SEIS.

The SEIS fails to meaningfully consider the routine environmental impacts of Millstone's radiological releases, relying on the "conclusion" in the NRC's Generic Environmental Impact Statement that all the nation's nuclear power plants release radiation within levels permitted under the NRC's regulations and therefore may be expected to continue to do so in

[19] See Coalition letter to Connecticut General Assembly Public Health and Environment Committees dated March 4, 2005, attached.

the future. These conclusions do not apply to Millstone. See discussion at infra.

Even NRC's Generic Environmental Impact Statement ("GEIS") states that **cesium-137 – for one – may be expected to bioaccumulate such that its buildup in the environment will increase by 35 per cent during the postulated renewal period at each of the nation's nuclear power plants undergoing relicensing**.[20]

GEIS section 4.6.1.1 states in part as follows:

> To determine whether the added period of operation following license renewal would, by virtue of buildup, result in significant (double) added dose, the ratios of buildup factors for midlives of 30 to midlives of 20 years were evaluated. **These ratios amount to a 35 per cent increase for Cesium-137 and a 6 per cent increase for cobalt-60.**
>
> **In certain cases, the bioaccumulation factors may require reexamination. These principally involve fish (in the human food chain) that are bottom feeders. Bottom feeders may ingest worms and other biota that may remobilize radioactive materials accumulated in the sediments.**
>
> **Accumulation of radioactive materials in the environment is of concern not only to license renewal but also to operation under present licenses.**

(Emphasis added.)

This reference is entirely omitted from consideration in the SEIS. The SEIS omits any analysis of the predicted buildup of cesium-137 or cobalt-60 or any other radionuclides in the environment surrounding Millstone. To the extent that cesium-137 released to the environment will have enhanced effects, the NRC's staff's failure to assess the impact to the health and safety of the community – including Niantic Bay beachgoers who may be pregnant - borders on reckless endangerment.

[20] GEIS 4.6.1.1.

It is known that cobalt-60 released by Millstone bioaccumulates in the sediment of Jordan Cove and is therefore subject to being ingested by worms and thereby enter the food chain.[21] Yet, the SEIS fails to "re-examine" this phenomenon – and the potential for bioaccumulation of other radionuclides in the environment surrounding Millstone - consistent with GEIS section 4.6.1.1.

Nor does the SEIS examine the quality of environmental stewardship exercised by Dominion in its other corporate activities.

We suggest you review the October 2003 report by Public Citizen, "Dominion Resources, Inc.; A Public Citizen Corporate Profile." [22] Public Citizen reports that "[I]n April 2003, Dominion's VEPCO agreed to a $1.2 **billion** enforcement settlement with the US Department of Justice and the US Environmental Protection Agency for violations of the Clean Air Act." (Emphasis added.)

The report further states that Dominion's VEPCO failed to install pollution control equipment at its coal-fired Mount Storm Power Plant in West Virginia after it made significant modifications that increased power-generating capacity. This was a violation of the Clean Air Act and, "according to the EPA, resulted in the release of 'massive amounts' of sulfur dioxide, nitrogen oxide, and particulate matter."

Dominion's Dominion Energy, owner of the Brayton Point Power Station in Massachusetts, releases 240 pounds of toxic mercury annually from that facility – enough to poison 120 million pounds of fish part of the Dominion network of companies, according to the Providence (RI) Journal of March 11, 2005.[23] Eating mercury in fish and shellfish presents a danger to children and pregnant mothers by harming developing nervous systems. Dominion Energy has been served with a notice of intent to sue by the Conservation Law Foundation, according to the newspaper report.

According to the SEIS, four states and all or parts of 15 counties fall within the 50-mile radius of Millstone (eight in Connecticut, four in Rhode Island, two in Massachusetts and one in New York). An estimated

[21] See [citation to follow]
[22] A copy of the report is attached.
[23] See "Conservation Group Sues Brayton Point" (Providence Journal, March 11, 2005), attached.

2,868,207 people live within this area. This equates to a population density of 219 persons/square kilometer or 567 persons per square mile. In the GEIS matrix of rank of sparseness (Category 4) and proximity (Category 4) result in the conclusion that Millstone is located in a high-population area. Moreover, the population within a 10-mile radius of Millstone increases seasonally as a result of an influx of approximately 10,500 summer residents. The SEIS contains no figures of the seasonal influx of visitors to the eastern end of Long Island although it is within the 50-mile radius of Millstone.

In conclusion, it is clear that the adverse environmental impacts of license renewal are so great that preserving the option of license renewal for energy planning decisionmakers would be beyond "unreasonable" – license renewal for Millstone is a license to kill.

This conclusion is unassailable when the full scope of available information about Millstone's environmental impacts is properly considered.

Detailed Comments

GEIS Is Inapplicable to the Millstone EIS

The Millstone Draft Environmental Impact Statement analysis largely avoids the **primary issue** presented by the prospect of relicensing Millstone Units 2 and 3 for additional 20-year terms: the effects of routine releases of radiological and toxic chemical releases to human health and the environment surrounding the nuclear facility.

The troubled nuclear industry knew that if the truth about the radiological impacts of nuclear power plant operations could be addressed in relicensing proceedings, no community in American would accept the prospect to hosting a nuclear power plant beyond its initial 40-year licensing term. The GEIS is a fiction contrived by the nuclear industry and adopted by the NRC to deny the public an opportunity to challenge relicensing of nuclear power plants based on radiological impacts to human health and the environment.

The NRC's Generic Environmental Impact Statement ("GEIS") was published in the year 1996, or nine (9) years prior to the NRC's invitation

for public comment on the SEIS, at a time when Unit 2 had operated for 26 years, Unit 1 for 21 and Unit 3 for 10 years. Necessarily, when the GEIS refers to “current levels” of radiation, it is referring to radiation levels which were “current” in 1996 or earlier. The GEIS is not itself current, but is outdated and fails to account for the past nine (9) years of operations within the U.S. nuclear industry.

The GEIS itself is obsolete. Although the NRC staff states in the SEIS it was not required to consider site-specific aspects of Millstone’s routine radiological emissions because Millstone site-specific routine radiological emissions were considered in the GEIS at Appendix E, GEIS Appendix E is limited to “routine” radiological emissions during the years 1985-1987. No explanation is given why a report published by the NRC in 1996 relies on 10-year-old data, when its purpose is to project radiation levels five decades into the future. At best, GEIS’s radiological analysis of “routine” Millstone radiological emissions is incomplete and superficial.

More significantly, the GEIS fails to account for any of the following facts and circumstances – routine and extraordinary – which have occurred at Millstone since 1996, including the following:

1. The NRC placed the entire Millstone Nuclear Power Station on its “Watch List” and ordered an unprecedented three-reactor two-year shutdown in 1996 because of national media exposure of wilful, systemic disregard for safety standards and licensing requirements; Unit 1 never restarted, Unit 3 restarted in 1996 and Unit 3 restarted in 1999;
2. In 1996, after workers in the site maintenance department at Millstone were diagnosed with brain cancers and Northeast Utilities dismissed the entire department – after securing releases the workers would not sue Northeast Utilities if the company paid them double severence pay – and hired transient contract workers to perform hot and dirty tasks within the plant, two of the workers died untimely deaths due to their brain cancers.
3. On December 16, 1997, Zachary M. Hartley was born with a rare jawbone cancer which required major life-threatening surgery. His mother swam regularly in the nuclear/chemical “mixing zone” otherwise known as the Hole-in-the-Wall Beach on the Niantic Bay shoreline during critical months of her pregnancy with Zachary.

4. In 1997, Northeast Utilities caught a fish contaminated with cesium-137, a deadly carcinogen, it admitted releasing into Niantic Bay, in the nuclear/chemical "mixing zone" which stretches from the Millstone discharge point to the Niantic Bay shoreline, a popular summer destination for families with young children.
5. On or before 1997, Millstone dispensed with its measurement of strontium-90 in quarterly composited air particulate filters, relying instead on infrequent sampling of goat milk in the community to determine whether its strontium-90 emissions reached harmful levels after-the-fact.
6. In September 1999, Northeast Utilities, predecessor to Dominion, pleaded guilty to committing environmental felonies including falsifying environmental monitoring records and releasing hydrazine, a carcinogen, illegally into the Long Island Sound.[24]
7. A Connecticut Superior Court judge enjoined the restart of Millstone Unit 2 in 1999 because he was persuaded that the health and stability of the indigenous Niantic winter flounder stocks were endangered by operations of the Millstone intake structures through entrainment and impingement. Fish Unlimited v. Northeast Utilities.
8. In 2000, two commercial fishermen sued Northeast Utilities for tortiously causing the collapse of the formerly commercially viable Niantic winter flounder fishing stocks; their suit remains pending.
9. In 2000, Northeast Utilities acknowledged that – even under daily supervision by onsite inspectors of the NRC – it had lost two highly radioactive spent fuel rods from the Unit 1 spent fuel pool.
10. In 2000, the Connecticut Department of Public Utility Control ("DPUC") oversaw a "public auction" by Northeast Utilities to sell the Millstone Nuclear Power Station; the public was excluded from the "public auction"; virtually all key "public auction" documents were redacted and ordered sealed by the DPUC; over public protest, and despite the Coalition's disclosure that Dominion had the worst safety record in the nuclear industry including the deaths of seven nuclear workers at its nuclear facilities in Virginia, the DPUC approved the sale of Millstone to Dominion Nuclear Connecticut, Inc., ("DNC") at the time a paper entity with no assets with only a post office box in Niantic, Connecticut; when the Connecticut Coalition Against Millstone obtained a Superior Court hearing date for a judge to consider its challenge to the rigged sale and the prospective transfer

[24] See "Owner of Connecticut Nuclear Plant Accepts a Record Fine" (New York Times September 28, 1999), attached.

of expired environmental permits to DNC, lawyers for Northeast Utilities and DNC met *ex parte* with Superior Court Chief Administrative Judge John J. Langenbach and obtained an order suspending the hearing so the sale could proceed without court review; when the matter was brought to the Connecticut Supreme Court, Justice Christine Vertefeuille, beneficiary of a Northeast Utilities 401K plan, recused herself; Connecticut Attorney General Richard S. Blumenthal, although entitled to automatic party status in the DPUC proceedings, declined participation. So occurred the "public auction" of Connecticut's worst polluter.

11. In April 2001, Connecticut's Commissioner of Environmental Protection, Arthur J. Rocque, Jr., "transferred""an expired NPDES (National Pollution Discharge Elimination System) permit (it had expired four years earlier) and "emergency authorizations" (which he admitted in writing he lacked legal authority to issue) to "Dominion Nuclear Connecticut, Inc.," at that time a paper company with a post office box in Niantic but no assets. Dominion has been operating under the authority of the expired permit for four years and DEP has not renewed the permit in the intervening time.
12. In 2001, Dominion reported concentration levels of strontium-90 contamination in goat milk sampled within five (5) miles downwind of the Millstone Nuclear Power Station nearly twice as high as the highest recording measurement of strontium-90 concentrations in Connecticut milk during the height of the 1960s atmospheric nuclear weapons testing.
13. In 2001, terrorists who had targeted nuclear power plants hijacked a passenger jet and flew over the Indian Point Nuclear Power Plant 29 miles of New York City before slamming into the World Trade Center. The U.S. Department of Homeland Security, subsequently created, designated the Millstone Nuclear Power Plant a terrorist's target of choice.
14. In 2004, Connecticut State Senator Melodie Peters, Chairman of the powerful Energy and Technology Committee, took a paying job with Dominion in public relations to advocate for Millstone relicensing, without giving up her legislative commitments.
11. On August 16, 2003, Joseph H. Besade became the seventh known pipefitter to die prematurely from workplace exposures at Millstone.
15. On August 5, 2004, Cynthia M. Besade reported to the NRC in an affidavit her personal knowledge of some 67 cancers in persons known directly or indirectly to her, all living within or close to the five-

mile radius surrounding Millstone, including childhood cancers and the case of a 17-year-old Waterford high school student diagnosed with ovarian cancer; from one street alone – Seabreeze Drive, north-northeast and less than two miles downwind of Millstone – seven (7) cases of cancer were reported.

16. On August 5, 2004, Richard Heaton drove seven (7) hours from the University of Pennsylvania Medical Center to New London to participate in a press conference and proceeding before the NRC to share the facts of his daughter's rare thyroid cancer which developed following her exposure to Millstone effluents at age 10.
17. In 2004, Dominion rejected the U.S. Department of Homeland Security's offer of a free security enhancement to protect the three Millstone intake structures from terrorist attack.[25]
18. In February 2005, the Coalition discovered that Zachary M. Hartley's rare jawbone cancer, believed caused by his mother's *in utero* exposure to Millstone radiological and chemical effluents in the nuclear/chemical "mixing zone" in 1997, was knowingly excluded from listing in the State of Connecticut's Tumor Registry because part of the orange-size cancerous tumor removed from Zachary's mouth in life-saving surgery was determined to be benign.
19. On March 10, 2005, Dr. Helen Caldicott, world-renowned pediatrician, authority on the health effects of low-level ionizing radiation and co-founder of Physicians for Social Responsibility, declared the likelihood that 7-year-old Zachary M. Hartley's rare jawbone cancer was caused by his mother's exposure to Millstone's radiological and chemical effluents.

Moreover, Millstone is unique in the annals of the U.S. nuclear industry: Millstone has released the highest levels of radionuclides of any nuclear power station in the country at various times over the past 35 years of its operational history.

From 1970 to 1987, Millstone had released a total reported release of 32 curies of radioactive iodine and particulates into the air, which included the highly carcinogenic strontium-90 and iodine-131, together with 6.7 million curies of total fission and activation gases such as xenon and krypton. During the same period, Millstone released 581 curies or 581 trillion picoCuries of radiation in the highest liquid volume of such releases

[25] See "Millstone Owner Turned Down Free Homeland Security Device" (The New London Day, March 9, 2005)

of mixed fission and activation products of any nuclear plant in the United States.[26]

In a single year, 1975, Millstone released a record reported high of 9.99 curies of iodine and particulates into the air and 199 curies of liquid mixed fission and activation products into the Long Island Sound, also a record for all U.S. reactors.[27] Id.

While the strontium-90 concentration in milk declined for the United States as a whole between 1970 and 1975, from 8 pCi/l to 3 pCi/l, it rose from 9.8 in 1970 to a high of 15.8 in 1973 and 14.8 in 1974 near Millstone, remaining at 10.7 by 1975. This is far in excess of the U.S. average of 3 pCi/l, ruling out any significant contribution to the local milk from bomb test fallout by France and China that continued until 1980.[28]

The calculated yearly radiation dose to bone of a child due to excess strontium-90 within 10 to 15 miles of Millstone, in excess of the yearly dose for the United States, rose from 33 millirem per year in the first full year of operation to 204 millirem per year by 1974, nearly three times the normal background level of 70 millirems per year in Connecticut.[29]

These doses of strontium-90 alone may be compared with the 15 millirem per year to any organ permitted under current NRC regulations, the 2 millirem produced to bone marrow in a typical X-ray of a child, and the 80 millirem per year to a developing fetus found to produce a doubling of the rate of childhood leukemia in the studies of the renowned Dr. Alice Stewart.[30]

Given all these facts and circumstances, the application of a “Generic Environmental Impact Statement” to Millstone, thereby precluding site-specific analysis in the Environmental Impact Statement, is so deeply flawed as to be fraudulent.

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[26] See Declaration of Ernest J. Sternglass, Ph.D., In the Matter of Dominion Nuclear Connecticut, Inc., Docket No. 50-336-LR, 50-423-LR, ASLBP No. 04-824-01-LR (August 8, 2004)

[27] Id.
[28] Id.
[29] Id.
[30] Id.

The Coalition and others have provided “new and significant” information which compels the NRC to conduct a site-specific analysis of the environmental impacts of relicensing Millstone Units 2 and 3. See discussion at pages 32 *et seq. infra*.

At the very least, the NRC should be required to evaluate the environmental impact of Millstone’s radiological and chemical effluents – singly, in synergy and cumulatively - under site-specific analysis to qualify under the standards of the National Environmental Policy Act.

2.1.4.2 Gaseous Waste Processing Systems and Effluent Controls

In this section, the SEIS describes the liquid, gaseous and solid waste management systems presently in place to collect and treat the radioactive materials which are produced as a by-product of the nuclear plant operations.

The SEIS states as follows:

> Radioactive material produced from fission of uranium-235 and neutron activation of metals in the reactor coolant system is the primary source of liquid, gaseous and solid waste. The radioactive fission products build up within the fuel. Most of these fission products are contained in the fuel pellets and sealed fuel rods, but small quantities escape from the fuel rods into the reactor coolant. Neutron activation of trace concentrations of metals entrained in reactor coolant such as zirconium, iron and cobalt creates radioactive isotopes of these metals. Both fission and activation products in liquid and gaseous forms are continuously removed from reactor coolant and captured on several different types of filter media. Units 2 and 3 operate separate liquid and gaseous processing systems. Gaseous discharges for each unit are monitored separately before they are discharged to the stack or to other designated release points for each unit. All liquid discharges are directed to a canal which terminates in the old quarry and the quarry discharges to Long Island Sound.

Despite these comments, it is clear that station monitoring of radioactive effluents is presently inadequate and incomplete and that some

radionuclides are released into the environment without measurement or documentation.

For example, In 1997, Northeast Utilities reported in its Annual Radiological Environmental Operating Report as follows:

> Section 4.5 Air Particulate Strontium (Table 5)
> Table 5 in past years was used to report the measurement of Sr-89 and Sr-90 in quarterly composited air particulate filters. **These measurements are not required by the Radiological Effluent Monitoring Manual (REMM) and have been discontinued.** Previous data has shown the lack of detectable station activity in this media. This fact, and the fact that milk samples are a much more sensitive indicator of fission product existence in the environment, prompted the decision for discontinuation. In the event of widespread plant related contamination or special events such as the Chernobyl incident, these measurements may be made."

As Dr. Sternglass has pointed out,[31] in 2001, Dominion recorded concentrations of strontium-90 in goat milk sampled five miles from Millstone at a level nearly twice that of the highest recorded concentration of strontium-90 in milk in Connecticut during the peak of atmospheric atomic bomb testing in the 1960s.

In 1997 alone, there were numerous reported incidences of station radiation monitors being inoperable:

> Unit 1 Liquid Radwaste Effluent Monitor (inoperable 6/7/96 – 3/25/97 – 83 days in 1997, 291 days total)
>
> Unit 1 Service Water Effluent Monitor (inoperable 6/9/96 – 7/18/97 – 198 days in 1997, 404 days total)
>
> Unit 2 Steam Generator Blowdown Monitor (inoperable 2/22/96 – 8/26/97 – 237 days in 1997, 551 days total)(NU claims no discharges were made during this period)

[31] See Coalition's March 2, 2005 filing to the NRC.

Unit 2 Clean Waste Monitor Tank Radiation Monitor (inoperable 5/25/97 – 7/1/97 – 37 days)(NU claims no discharges were made during this period)

Even the GEIS acknowledges that some airborne radioactive effluent releases are not monitored, recorded or documented.

Within the entire body of radioactive airborne effluents released by Millstone over the course of its 35-year operational life, the SEIS only specifically considers those reported by Dominion in 2002 as follows:

Unit 2: Total fission and activation gas activity released 128 Curies
Iodine-131 4.90 X 10 –3 Curies
Particulates 1.22 X 10 –5 Curies
Tritium 31.2 Curies

Unit 3: Total; fission and activation gas activity released 2.45 Curies
Iodine-131 1.52 X 10 –6 Curies
Particulates 6.08 X 10 –5 Curies
Tritium 47.3 Curies

These figures do not break down the radioisotopes released, other than for Iodine-131 and Tritium, and do not identify nor quantify which radioactive gases are emitted, such as xenon-137 (with a half-life of 3.9 minutes decaying to cesium-137 with a half-life of 30 years); xenon-135 (with a half-life of 9.17 hours decaying to cesium-135 with a half-life of 3,000,000 years); nor krypton-89 (with a half-life of 3.2 minutes decaying to strontium-89 with a half-life of 52 days). These radioactive materials are long-lived and have cumulative impacts. The SEIS does not analyze these environmental impacts.

The SEIS states: “These releases from both units are typical of annual releases from Millstone and are not expected to increase during the renewal period.”

Since the SEIS analysis was self-limited to the years 2001, 2002 and 2003, and annual releases for the 32 other years Millstone has been operating were not considered, the statement that “These releases from

both units are typical of annual releases from Millstone" is not substantiated.

Moreover, the SEIS statement, that [these releases] are not expected to increase during the renewal period" is incorrect. First, releases of tritium, a known cancer-causing radioactive toxic with a half-life of 12.3 years. are trending upward.[32] Second, as Units 2 and 3 operate for longer periods at full capacity, airborne radioactive emissions will increase. Similarly, if during the renewal period Millstone Units 2 or 3 receive approval for power upgrades, airborne radioactive emissions will increase. The consequences of these reasonably foreseeable circumstances were not analyzed in the SEIS.

Moreover, the SEIS does not identify nor quantify strontium-90 releases, nor note the absence of strontium-90 monitoring from the station stack, while strontium-90 concentrations are regularly found to be inordinately high in goat milk taken from samples five miles from Millstone.

2.2.7 Radiological Impacts

In section 2.2.7, Radiological Impacts, on page 2-43, the section concludes, "The applicant does not anticipate any significant changes to the radioactive effluent releases or exposures from Millstone operations during the renewal period and, therefore, the impacts to the environment are not expected to change."

However, in Dominion Nuclear Connecticut Millstone Station Annual Radiological Operating Report 2003, in section 4.14, Seawater, on page 4-9, it is stated, "since the restart of Unit 3 in 1998 and Unit 2 in 1999, tritium releases in liquid effluents have risen to levels at ***or above*** [emphasis added] those observed during pre-shutdown period."

Dominion records indicate that Millstone released 1854 curies of liquid radiation in 2000, an all time high. Such reported releases totaled 1273 curies in 2001, 1537 in 2002 and 1278 in 2003. NRC records for Millstone's liquid tritium releases totaled from 1970-1994 totaled 11,550 curies. The total from 1995-2003 was 8551 curies.

[32] See discussion at page 20 infra.

This trend of increasing amounts of tritium releases is dangerous because tritium has carcinogenic, mutagenic, teratogenic and transmutational properties whose effect upon the environment which have not been considered in the SEIS.[33]

The coastline around Millstone is lined with beaches and shoreline communities, with many summer residents as well. Human activities in the area include swimming, boating, fishing, clamming, scalloping. Thus there are ample opportunities for liquid tritium contamination of people and shore and marine life.

It is undeniable that the more the pressurized water reactors of Units 2 and 3 operate, the more tritium by-products they will create and release into the environment.

The current stated policy of both Dominion and the nuclear power industry in general is to operate power reactors as close to maximum capacity as possible. In 2003 Millstone 3 operated at almost 100% capacity. Millstone 2 operated at 80% capacity, but only because it shut down for refueling.

The increasing amounts of tritium discharged into Long Island Sound means that Dominion's claim that it "does not anticipate any significant changes to radioactive releases or exposures from Millstone operations during the renewal period" is false. Therefore the NRC's conclusion that "impacts to the environment are not expected to change" is also false.

Given this history, the NRC should mandate the immediate installation of filters to mitigate liquid tritium discharges from Millstone units 2 and 3. In addition, the NRC should mandate the testing of drinking water, well water and groundwater and in marine life in areas affected by Millstone for the presence of tritium. At present only sea water is tested for tritium.

Until these measures have been put into place and monitoring results have been made public until Millstone's current operating licenses expire, or units 2 and 3 permanently shut down, the NRC should not consider granting license extensions for Millstone units 2 and 3, in consideration of the health and safety of the public.

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[33] See "The Carcinogen, Mutagenic, Teratogenic and Transmutational Effects of Tritium," Citizens Awareness Network, April 1994.

4.1 Cooling System

The GEIS identifies the issue of scouring caused by discharged cooling water as a Category 1 issue. As a “Category 1” issue, the NRC staff will not review it on a Millstone site-specific basis in the absence of “new and significant information.”

The SEIS states the NRC staff “has not identified any significant new information during its independent review of the Dominion ER, the staff’s site visit, the scoping process, its review of monitoring programs, or its evaluation of other available information.”

Yet, scouring caused by discharged cooling water was identified by a technician in the Millstone Environmental Laboratory as an irreversible environmental impact during a recent public presentation on Dominion’s environmental impacts presented at the Three Rivers Community College.

Accordingly, the NRC staff should request Dominion to release details to it of this “new and significant information.”

4.1.1 Entrainment of Fish and Shellfish in Early Life Stages

Entrainment of winter flounder larvae at the Millstone intakes is a major issue and it is one which has been the subject of much litigation in the Connecticut courts. Lawsuits have been brought by local fishermen complaining that Millstone intake structures have driven the indigenous Niantic winter flounder population to near-extinction. The fishermen have successfully resisted dilatory and repetitive motions on the part of Dominion and Northeast Utilities to dismiss their claims.

The SEIS states:

“The staff independently reviewed the Millstone Units 2 and 3 ER [Environmental Report], visited the site, and reviewed the applicant’s NPDES permit. The staff also reviewed relevant scientific articles and agency documents (CTDEP) and NOAA (National Oceanic and Atmospheric Administration) Fisheries (also known as National Marine

Fisheries Service [NMFS], interviewed agency staff, and interviewed a faculty member at the University of Connecticut who has conducted research on entrainment at Millstone." [Crivello 2003]

Astonishingly, the NRC staff does not report any attempt to consult with the **fishermen** who are targeted in the SEIS for the demise of the Niantic winter flounder population. Had the NRC staff attempted to locate commercial fishermen who fish for Niantic winter flounder near Millstone, it would have learned that the resource has vanished and, with it, the fishermen and a way of life.

Nor, apparently, did the NRC staff make any effort to consult with the experts who have testified in court proceedings to the overwhelming evidence that the suction action of the Millstone intake structures is the predominant cause of the collapse of the Niantic winter flounder population and has been since 1986, when Millstone Unit 3 went online.

Northeast Utilities obtained operating licenses for Millstone in the 1970s based on projections – possibly knowingly bogus – that the Millstone intake structures would have a far less devastating effect on the Niantic winter flounder larvae than has in fact occurred.

Although NRC staff spoke with Prof. Crivello of the University of Connecticut, who has studied Millstone entrainment, the staff does not explicitly identify Prof. Crivello as a paid consultant to Millstone's owners and operators each time his name appears in the SEIS.

Why did the NRC staff not meet with DEP's Victor Crecco, author of reports debunking Dominion's theorizing about the Millstone impacts on the Niantic winter flounder collapse?

The SEIS analysis of the collapse of the indigenous fishing stocks does not mention the discovery of a fish caught in Niantic Bay in 1997 contaminated with cesium-137 – nor Northeast Utilities' acknowledgment that the cesium-137 originated in its nuclear operations.[34]

[34] See Northeast Utilities 1997 Annual Radiological Environmental Operating Report at Section 4.17.2 ("Cs-137 was detected in one sample from the Niantic Bay (location 35). Positive indications are seldom seen in this media outside of the immediate discharge vicinity.")

The SEIS analysis does not mention the build-up of cobalt-60 in Jordan Cove near the Millstone discharge point[35] nor does the SEIS analyze the contribution of cobalt-60 buildup in sediment as a contributing factor in the collapse of the population of the bottom-feeding Niantic winter flounder.

Attributing the collapse of the fishing stocks to elevated water temperatures, the SEIS fails to consider the contribution of Millstone's 24-hour-a-day, seven-day-a-week thermal discharges to the Long Island Sound.

While the SEIS reports that "[T]he CTDEP [Division of Marine Fisheries which has been analyzing this issue for nearly a decade] believes that Millstone is having a significant impact due to entrainment of winter flounder larvae," the SEIS relies on NOAA and NMFS reports – which contain no data of the unique conditions at Niantic Bay but are devoted to a broad, regional analysis of fishing stocks - to discredit CTDEP Division of Marine Fisheries, as follows:

> Regulatory agencies concerned with the management of winter flounder have concluded that the resource is overfished and overexploited (NOAA 1998; NMFS 2003) and have instituted measures to reduce fishing pressure throughout Long Island Sound and the southern New England-middle-Atlantic region. Thus, there is ample evidence to suggest that fishing pressure is directly contributing to the decline **both local and regional levels** at and may represent the major impact to this resource. The extent to which Dominion contributes to or exacerbates the problem in the Niantic River system is not elucidated by fish population studies reviewed in this SEIS." [Emphasis added.]

As stated, the SEIS does not identify either a NOAA or NFSS study specific to the Niantic River winter flounder nor the recent fishing habits of commercial fishermen in the area; thus, its failure to accord credit to the CTDEP for its insights appears to be result-driven, to obscure and downplay the fact that the Millstone Nuclear Power State has been the primary factor in driving indigenous fishing stocks to collapse. Or, as Rhode Island expert on Niantic winter flounder, Mark Gibson – a witness whose testimony aided Connecticut Superior Court Judge Robert Hale in issuing a

[35] See [citation to follow]

temporary restraining order keeping Millstone Unit 2 shut down during the 1999 spawning season to avoid harmful entrainment effects to the fish population – has stated, Millstone is the worst predator of fish in the Northeast.

The SEIS concludes:

> The staff's evaluation of past impacts of entrainment on Niantic River winter flounder is inconclusive because unresolved questions remain about population dynamics, life history, and unknown factors that may be impacting the population. The available data do not allow us to unequivocally link or decouple population declines with Millstone operations . . . Because the spawning adult population is very low, and in consideration of the 20-year license renewal period, the staff's conclusion is that the impacts would be moderate.

The Coalition has reference to Figure 2-6 ("Comparison of Winter Flounder Population Trends in Niantic River and Long Island Sound".[36] This figure illustrates clearly that while the winter flounder fishing stocks in the region are rebounding – perhaps due in part to fishing restrictions that apply throughout the region – the Niantic River winter flounder population continues its collapse.

The facts available to the NRC staff demonstrate that the sole factor which has prevented the Niantic River winter flounder population from enjoying a rebound as has the species elsewhere in the region due to tightened fishing restrictions is the most obvious one: the Millstone Nuclear Power Station.

It is submitted that if the SEIS staff had pondered the ramifications of Figure 2-6 in consultation with the Niantic fishermen who have gone out of business and the fishermen's expert witnesses and CTDEP's marine biologist Victor Crecco, in light of all the facts and circumstances, the NRC staff would have been compelled to categorize the impact to Niantic winter flounder from continued operations of Millstone in a license renewal period to be "major" and devastating and probably irreversible.

[36] Draft NUREG-1437, Supplement 22, 2-26 (December 2004)

The weight of credible evidence is that the operations of the Millstone Nuclear Power Station have driven the winter flounder to virtual extinction, a phenomenon not contemplated in the original Millstone environmental impact statement. Future entrainment during the license renewal period will definitely assure that the once-abundant, commercially important resource will never return.

4.1.2.1 Impingement Monitoring
4.1.2.2. Impingement Mortality

At the request of Northeast Utilities, CT DEP permitted routine impingement monitoring for Unit 2 to cease in December 1987. Unit 2 did not have a fish return and all impinged marine organisms were presumed lost. Routine impingement monitoring has never been conducted for Unit 3.

The most recent data for Unit 2 involves sampling collected biweekly from July 2000 to June 2001. It is questionable whether the Unit 2 fish return was in operation during such period.[37] Data for Unit 3 involve samplings collected biweekly from January to December 1993.

These samplings do not suffice in frequency to form a data base to support conclusions about impingement during the 35-year operations of Millstone, nor to provide an adequate basis for extrapolation to the future.

Thus, the SEIS statement:

> Based on the assessment to date, the staff expects that the measures in place at Millstone Units 2 and 3 (i.e., aquatic organism return systems) provide mitigation for impacts related to impingement, and no new mitigation measures are warranted.

is not supported by genuine evidence.

4.1.3 Heat Shock

The SEIS states:

[37] Report of a commercial lobsterman to the Coalition.

> Millstone has remained in compliance with the NPDES thermal and discharge volume limits at the quarry cut. [SEIS at page 4-28]

Yet, the SEIS report is absent any indicia of an independent basis from which to render such a conclusion.

The SEIS states:

> The [NRC] staff also independently reviewed monitoring reports for the cooling-water discharge mixing zone. . . .the boundary of the mixing zone cannot exceed a radius of 2438 m (8000 ft) from discharge outlet at the quarry cut.

The SEIS report does not identify a single monitoring report by date or otherwise; any conclusions regarding the cooling-water discharge mixing zone are utterly unsubstantiated.

4.3 Radiological Impacts of Normal Operations

The NRC SEIS staff review of Millstone data on the most critical issue of "radiological impacts of normal operations" was self-limited to the years 2001, 2002 and 2003.

The NRC GEIS staff review of Millstone data on the most critical issue of "radiological impacts of normal operations" was self-limited to the years 1985, 1986 and 1987.[38]

Thus, in its consideration of whether the Millstone Nuclear Power Station should be permitted to operate in the years 2015-2025 (Unit 2) and 2025-2045 (Unit 3), the NRC deliberately failed to consider the "radiological impacts of normal operations" for the years 1970-1984, 1988-2000 and 2004 to the present.

Put another way, the NRC considered Millstone's "radiological impacts of normal operations" for only 6 of the 35 years the Millstone nuclear reactors have been routinely releasing harmful radiation into the environment – just 17 per cent of Millstone's operational history. Twenty-

[38] See GEISS Appendix E.19

nine (29) years of Millstone's routine releases of harmful radiation releases to the environment are not evaluated in either the GEIS or the SEIS.

By limiting the pool of data considered in the GEIS and the SEIS to a period of time which encompasses only 17 per cent of Millstone's operational history of harmful radiation releases to the environment, the NRC failed to consider all available information. The NRC's evaluation of future impacts based on past impacts rests of an inadequate data base and its conclusions are accordingly unreliable, if not invalid. Certainly, the NRC staff's consideration of "cumulative" impacts (SEIS section 4.8.3) is scientifically unsound if not indeed scientifically fraudulent, since the NRC staff did not review, tabulate or assess the full scope of past impacts to be able to "accumulate" cumulate impacts..

On its website, www.nrc.gov/who-we-are/values.html, the NRC states that it "adheres" to "Principles of Good Regulation" which include the following:

> Independence: . . . Final decisions must be based on objective, unbiased assessments of all information, and must be documented with reasons explicitly stated."

The SEIS and GEIS systematically exclude all available information concerning Millstone's radiological effluents for the years 1970-1985, 1988-2000 and 2004 to the present. No reason for such exclusion is explicitly stated.

The GEIS addresses radiological impacts of "normal" operations of nuclear power plants during a projected renewal period as follows:

Radiation exposures to public (license renewal term):

> GEIS: "Radiation doses to the public will continue at current levels associated with normal operations." (GEIS 4.6.2)
>
> Occupational radiation exposures (license renewal term):
>
> GEIS: "Projected maximum occupational doses during the license renewal term are within the range of doses experienced during

> normal operations and normal maintenance outages, and would be well below regulatory limits.

The GEIS categorizes the issue of "radiological impacts of normal operations" as a Category 1 issue, meaning that the SEIS reviewing staff need not consider site-specific issues at all in the absence of "new and significant information."

The Coalition believes that "radiological impacts of normal operations" must be considered on a site-specific basis with regard to Millstone Units 2 and 3 as a Category 2 issue. See discussion at page 32 *et seq. infra*. Because the SEIS did not consider the issue as a Category 2 issue, the SEIS is deeply flawed and inadequate and falls far short of meeting the NRC's "Principles of Good Regulation."

Finally, as stated, the SEIS states that the NRC staff is not required to evaluate Millstone radiation releases on a site-specific basis because Millstone releases were subjected to site-specific analysis in the GEIS which found them to be "well within regulatory limits." This statement is most misleading in that it fails to acknowledge that the NRC GEIS staff limited itself to reviewing Millstone's reported radiological emissions for the years 1985, 1986 and 1987 only.[39] Millstone's largest reactor, the 1,220-megaWatt Unit 3 – was still under construction in 1985. By the year 1987, it had not established an operational record; it has since substantially increased output and, hence, "routine" radiological emissions.

GEIS Section 4.6 ("Radiological Impacts of Normal Operation") provides in pertinent part as follows:

> This section provides an evaluation of the radiological impacts on occupational personnel and members of the public during normal operation following license renewal. This evaluation extends to all 118 nuclear power reactors. Radiation exposures occurring after license renewal are projected based on present levels of exposures. Estimates of additional maintenance, testing and inspections as a result of a variety of age-related changes in operational procedures were made based on the anticipated changes to current operation and are detailed in Section 2.6 and Appendix B. Added maintenance,

[39] See GEIS, Table E19.

> testing, and inspection will be accompanied by increased exposure time to members of the work force but are not expected to significantly influence dose to members of the public.

As noted,[40] the GEIS was published in 1996. Hence the above statement, "Radiation exposures occurring after license renewal are projected based on present levels of exposures," must be read with regard to 1996-or-earlier levels of exposure, rather than actual "current" exposures. However, the NRC SEIS staff limited its review to 2001-2003 data, rather than actual "current" exposures. As also noted, the NRC GEIS staff only reviewed Millstone's 1985-1987 exposure data.

> With regard to the above statement:
>
> Estimates of additional maintenance, testing and inspections as a result of a variety of age-related changes in operational procedures were made based on the anticipated changes to current operation and are detailed in Section 2.6 and Appendix B.

the SEIS fails to identify or evaluate any "additional maintenance, testing and inspections as a result of a variety of age-related changes in operational procedures" at Millstone.

With regard to the above statement:

> Added maintenance, testing, and inspection will be accompanied by increased exposure time to members of the work force but are not expected to significantly influence dose to members of the public

the SEIS fails to identify or evaluate any "added maintenance, testing, and inspection "at Millstone and hence fails to evaluate increased exposure time to members of the work force and members of the public during the proposed renewal period.

The SEIS also fails to consider the environmental impact of Dominion's August 24, 2004 submittal to the NRC requesting approval of the "Nuclear Facility Quality Assurance Program Description." According to an Request for Additional Information ("RAI"), dated February 24, 2005, this program

[40] See discussion at page 10 supra.

deletes from the Millstone Quality Assurance program radiological protection responsibilities which include “maintaining records and reports on radioactive contamination levels.” If this application is approved, a safeguard to protect against excessive worker radiological contamination will be lost and there will be no basis for the NRC to conclude now that occupational radiation exposures during the license renewal term will be small and within regulatory limits.

The NRC SEIS staff accepted at face value Dominion’s self-assessment that it would not conduct “major” refurbishment in the future. Thus, the NRC SEIS staff considered neither “major” or “minor” refurbishments. The NRC SEIS staff’s conclusions about the radiological impacts during refurbishment are therefore necessarily flawed. Given the strong likelihood that major refurbishment in the form of a stationwide conversion from once-through cooling to closed cooling systems will be ordered by the Connecticut DEP – to avoid future exposure of pregnant women and others to harmful radioactive and toxic waste effluents in the “mixing zone” and to avoid irreversible impacts to the indigenous Niantic winter flounder – the radiological impacts from such refurbishment should have been fully explored and analyzed in the SEIS.

The NRC’s GEIS further states at section 4.6.1.1:

> To determine whether the added period of operation following license renewal would, by virtue of buildup, result in significant (double) added dose, the ratios of buildup factors for midlives of 30 to midlives of 20 years were evaluated. These ratios amount to a 35 per cent increase for Cesium-137 and a 6 per cent increase for cobalt-60. This added increase due to buildup will not significantly change the total dose to members of the public.
>
> In certain cases, the bioaccumulation factors may require reexamination. These principally involve fish (in the human food chain) that are bottom feeders. Bottom feeders may ingest worms and other biota that may remobilize radioactive materials accumulated in the sediments.
>
> Accumulation of radioactive materials in the environment is of concern not only to license renewal but also to operation under present licenses.

As stated,[41] the bioaccumulation of cobalt-60 in sediment in Jordan Cove near the Millstone discharge point has been established. The SEIS does not address this phenomenon, even though required by the GEIS.

Millstone's monitoring of the aquatic environment in the area of the discharge has also revealed the presence of the following plant-related radionuclides: cobalt-60, zinc-65, silver-110 and cesium-137.[42]

In 1997 and at other times, "[I]ndications of plant releases were observed" in aquatic flora, including detectable levels of cobalt-60, zinc-65 and silver-110. According to the 1997 Radiological Environmental report filed by Northeast Utilities,

> The detection of these [radio]nuclides throughout the year, as witnessed by positives detected in other aquatic media, correspond to radioactive liquid discharges from the three Millstone units. Sampling of this media provides useful information because it is very sensitive to plant discharges. However, since seaweed is not consumed, other media are utilized in the determination of dose consequences (e.g., see Shellfish and Fish results)

The presence of cesium-137 in a fish caught in the "mixing zone" within the Niantic Bay – as identified as a plant-related contamination in the 1997 Millstone effluent report – suggests widespread bioaccumulation of that carcinogenic radioisotope within the environment, requiring a "re-examination pursuant to GEIS standards.

The "radiological impacts of normal operations" should be analyzed as a site-specific Category 2 issue.

4.4 Socioeconomic Impacts of Plant Operations During the License Renewal Period

The SEIS considers the economic contribution to the community through payment of Dominion's workforce; however, the SEIS does not separate out the economic investment made in maintaining a workforce to monitor Unit 1, a nuclear power plant undergoing decommissioning, and its

[41] See discussion at page 8 supra.
[42] See 1997 Annual Radiological Environmental Monitoring Program Report.

repository of spent nuclear fuel. Nor does the SEIS consider the prospect of a continuing workforce required to maintain Units 2 and 3 in the event each or both units is/are decommissioned or prematurely shut down before or during the renewal period.

The SEIS does not consider the enormous health care costs associated with the community's long-term exposure to low-level ionizing radiation, nor worker illnesses related to their exposures. We are aware of a recent surgery, upon a patient whose cancer is fairly linked to Millstone radiological and toxic chemical emissions, which cost in excess of $2.5 million. This does not include follow-up or lifelong care.

The SEIS is incomplete and inaccurate in its assessment of socioeconomic impacts.

4.4.6 Environmental Justice

The SEIS does not address the environmental justice issues involved in the transportation and storage of nuclear waste generate by the Millstone Nuclear Power Station, either during its 35 years of operations or in the future. Transportation through poor urban areas and storage of Millstone's nuclear waste in poor rural communities both implicate environmental justice concerns; neither aspect was addressed in the SEIS.

4.7 Evaluation of Potential New and Significant Information on Impacts of Operations During the Renewal Term

The Connecticut Coalition Against Millstone and others have provided the SEIS staff with "new and significant information" which, once considered, dictates site-specific review as Category 2 issues or, in the alternative, rejection of the SEIS *in toto*.

The "new and significant" information may be summarized as follows:

Millstone causes cancer and Millstone is responsible

for an increased cancer incidence in the surrounding community.

The SEIS states that "commentators" have provided "no evidence to support a causal relationship between increased cancer incidence and Millstone operations."

The NRC's SEIS staff concluded that the information provided during the scoping process was not new and significant with respect to the findings of the GEIS on the health effects to the public from radiological effluent releases due to the Millstone operations."

To the contrary: the Coalition and others have presented overwhelming and unrebutted evidence of a causal relationship between increased cancer incidence and Millstone operations.

While these facts are "significant," they are not "new."

Since practically the onset of Millstone nuclear operations, Millstone's radiological emissions have been linked to heightened cancer incidences.[43]

This is hardly surprising.

Since the onset of its operations, Millstone's owners and operators have submitted reports to the NRC and the DEP detailing their radiological[44] **and chemical[45] effluent emissions to the air and water.**

Millstone routinely releases to the air and water the following radioactive materials:

Ag
Be-7
Ce-144

[43] See footnote 4 supra.
[44] See the list of radionuclides listed at pages 34-35.
[45] See the list of chemical effluent emissions listed at pages 36-40.

Co-57
Co-58
Co-60
Cr-51
Cs-134
Cs-137
Fe-55
Fe-59
I-131
I-133
Kr-85
Kr-88
La-140
Mn-54
Mo-99
Na-24
Nb-95
Nb-97
Ru-105
Sb-122
Sb-124
Sb-125
Sn-113
Sr-89
Sr-90
Sr-92
TC-99M
TC-101
TC-104
Tritium
Xe-133
Xe-135
Zn-69M
Zr-95
Zr-97[46]

This list is not exhaustive.

[46] Fission and Activation Products – Millstone Unit 2 Liquid Effluents – Batch Sampling – 1997 as reported in 1997 Radiological Environmental Monitoring Program.

All radionuclides released by Millstone cause cancer.[47]

According to the U.S. Environmental Protection Agency,

> **Radioactive materials that decay spontaneously produce ionizing radiation. Any living tissue in the human body can be damaged by ionizing radiation. Cancer is considered by most people the primary health effect from radiation exposure. Simply put, cancer is the uncontrolled growth of cells. Ordinarily, natural processes control the rate at which cells grow and replace themselves. They also control the body's processes for repairing and replacing damages tissue. Damage occurring at the cellular or molecular level can disrupt the control processes, permitting the uncontrolled growth of cells – cancer. This is why ionizing radiation's ability to break chemical bonds in atoms and molecules makes it such a potent carcinogen. . . . There is no firm basis for setting a "safe" level of exposure above background for stochastic effects [those resulting from long-term, low-level exposure to radiation]. . . . Other than cancer, the most prominent long-term health effects [from radiation exposure] are teratogenic [those that result from the exposure of fetuses or unborn children to radiation] and genetic [those that can be passed from parent to child] mutations.[48]**

According to the U.S. Nuclear Regulatory Commission, genetic effects and the development of cancer are the primary health concerns attributed to radiation exposure.[49]

Many chemicals discharged by Millstone are known carcinogens, such as hydrazine, hexavalent chromium, cadmium, lead and benzene and many others.

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[47] See selected bibliography prepared by Nuclear Information Resource Service, attached.

[48] U.S. Environmental Protection Agency website, "Understanding Radiation: Health Effects" (3/16/05)

[49] U.S. Nuclear Regulatory Commission website, "Fact Sheet: Biological Effects of Radiation." (3/26/05)

Millstone routinely discharges into the nuclear/chemical "mixing zone" which extends 8,000 feet toward the Niantic and Waterford shorelines, the following chemicals and others:[50]

Chemicals & Metals "Known or Suspected Present" in Discharge

Aluminum
Antimony
Ammonia
Ammonium Hydroxide
Arsenic
Barium
Beryllium
Boric Acid
Boron
Bromide
Bulab 6002
Cadmium
Carbohydrazide
Chlorine
Chromium
Cobalt
Conquor 3585 (methoxypropylamine and diethylhydroxylamine)
Copper
Cyanide
Dietylhydroxylamine
Epichlorohydrin
Ethanolomine
Fluoride
Freon
Hexavalent Chromium
Hydrazine
Hydrogen Peroxide
Iron
Methoxypropylamine
Molybdate

[50] Millstone 1997 Radiological Environmental Monitoring Program Report and documents filed with Connecticut DEP.

Molybdenum
Nalcolyte
Nickel
Nitrogen
Oil & Grease
Phosphorus
Selenium
Silver
Styrene
Sulfate
Sulfide
Sulfite
Surfactants
Thallium
Tin
Titanium
Tolyltriazole
Xylene
Zinc
Zirconium

<u>Volatiles</u>
Acrolein
Acrylonitrile
Benzene
Bromoform
Carbon Tetrachloride
Chlorobenzene
Chlorodibromomethane
Chloroethane
2-Chloroethylvinyl Ether
Chloroform
Dichlorobromomethane
1, 1-Dichloroethane
1, 2-Dichloroethane
1, 1-Dichloroethylene
1, 2-Dichloropropane
1, 3-Dichloropropylene
Ethylbenzene

Methylbromide
Methylchloride
Methylene Chloride
1, 1, 2, 2, -Tetrachloroethane
Tetrachloroethylene
Toluene
1, 2-Trans-Dichloroethylene
1, 1, 1-Trichloroethane
1, 1, 2-Trichloroethane
Trichloroethylene
Vinyl Chloride

GC/MS Fraction Acid Compounds
2-Chlorophenol
2, 4-Dichlorophenol
2, 4-Dimethylphenol
4, 6-Dinitro-O-Cresol
2, 4-Dinitrophenol
2-Nitrophenol
4-Nitrophenol
P-Chloro-M-Cresol
Pentachlorophenol
Phenol
2, 4, 6-Trichlorophenol

Base Neutral Compounds
Acenaothylene
Benzidine
Benzo(a)anthracene
Benzo(a)pyrene
Benzo(ghi)perylene
Benzo(k)fluoranthene
Bis(2-Chloroethyl) Ether
Bis(2-Ethylhexyl)phthalate
Chrysene
Dibenzo(ah)anthracene
1,2-Dichlorobenzene
1.3-Dichlorobenzene
1.4-Dichlorobenzene

3.3-Dichlorobenzidines
Diethyl phthalate
Dimethyl phthalate
Di-n-butyl phthalate
2,4-Dinitrotoulene
1,2-Diphenylhydrazine
Fluoranthene
Fluorene
Hexachlorobenzene
Hexachlorocyclopentadiene
Hexachloroethane
Indenol1,2,3-ed)pyrene
Isophorone
Nurobenzene
N-Nitrosodimethylamine
N-Nitrosodiphenylamine
Phenanthrene
Pyrene

<u>Pesticides</u>
Aldrin
Chlordane
DDT
DDE
Dieldrin
Endosulfan(alpha)
Endosulfan (beta)
Endosulfan Sulfae
Endrin
Endrin Aldehyde
Heptachlor
Heotachlor epoxide
Arochlor 1016(PCB)
Arochlor 1232(PCB)
Arochlor 1242(PCB)
Arochlor 1248 (PCB)
Arochlor 1254 (PCB)
Arochlor 1260 (PCB)
Toxaphene

Other Substances
Ammonia
Benzo(b)fluoranthene
Chlorine
Hexachlorocyclohexane (Alpha)
Hexachlorocyclohexane (Beta)
Hexachlorocyclohexane (Gamma)
2,3,7,8-TCDD

The interaction of radionuclides and chemicals has been established to create a synergy, multiplying the harmful effects of each.[51]

Millstone discharges these radionuclides and chemicals – and more – into the air and into the nuclear/chemical "mixing zone" known as Niantic Bay, Pleasure Beach and Jordan Cove, defined as an area within 8,000 feet of the Millstone discharge point.

Some of the radionuclides, such as cesium-137, have been found in fish swimming in Niantic Bay.[52]

Some of the radionuclides, such as cobalt-60, have been found in the sediment of Jordan Cove where they enter the food chain when they are ingested by worms.[53]

Some of the radionuclides and toxic chemicals very likely entered Zachary M. Hartley's mother while she was swimming in the nuclear/chemical"mixing zone" popularly known as Hole-in-the-Wall Beach during critical months of her pregnancy with Zachary, according to an expert on the health effects of low-level ionizing

[51] See Memorandum of Ernest J. Sternglass, Ph.D. dated March 8, 2005 ("Synergistic Interaction of radiation, Air Pollution and Chemicals") and references therein (copy attached). And see "Health Effects of selected Industrial Chemicals and Radionuclides" (STAND Technical Report 2003-2) at page 5 (copy attached).
[52] See 1997 Annual Radiological Environmental Operating Report at page 4-5.
[53] See [citation to follow]

radiation, Dr. Helen Caldicott.[54] Four pathways are possible: breathing, swallowing, skin contact and eating a radioactive fish. Zachary was born with a rare cancer in his jawbone requiring lifesaving surgery.

In SEIS section 4.7, beginning on page 4-53, the NRC states, "During scoping, some commentators suggested that operation of Millstone resulted in excess cancers in populations around the plant site," and "other support of these positions at the May 2004 public meeting or thereafter commentators suggested there is no relationship between cancer incidence and nuclear power plants."

Millstone's cumulative dose to the environment and humans, based on annual Millstone reports filed with the NRC since 1970, totals over 6.5 curies. As reported in the response to section 2.2.7, releases of tritium into Long Island Sound since Millstone's restart in 1998 are at all time highs in its operating history.

Current annual plant reports indicate that Millstone Units 2 and 3, as in the years since 1970, have been releasing radionuclides such as strontium- 90, cesium-137, iodine-131, -133 and -135, cobalt -58 and -60, krypton-85, xenon-131, -133 and -135, and other such radioactive chemicals, all known to be carcinogenic.

The NRC's denial of a causal relationship between Millstone's 35 years of radioactive releases and elevated cancer rates in nearby towns, and in New London County as a whole, does not hold up to scrutiny.

The most glaring example of the NRC's denial in the Millstone SEIS is its complete omission of consideration of the August 17, 2004 declaration of Dr. Ernest J. Sternglass. The Millstone SEIS lists, on page C-9, Dr. Sternglass' declaration as received on August 17, 2004. This is the only mention of it in the SEIS.

Consequently, the declaration was omitted from the NRC's evaluation of potential new and significant information in section 4.7.

[54] See footnote 14 supra.

In his declaration, Dr. Sternglass presents his credentials as an expert in the field of radiation and human health. He has written and published numerous studies in this field in peer reviewed scientific journals and testified to Congress and other government agencies on this subject.
The NRC knows full well who Dr. Sternglass is. He first brought up the problem of radioactive releases in relation to increasing cancer rates around nuclear plants, and in towns near Millstone in particular, to the public eye in the 1970s. He has conducted and published studies informing the public of this continuing problem ever since.

In his declaration, Dr. Sternglass methodically outlines the "causal relationship between abnormally high doses of strontium-90 in milk produced near Millstone and the pattern of cancer changes at various distances from the Millstone plant.

Dr. Sternglass also states in his declaration, "It is my professional opinion that the radioactive releases from the Millstone Nuclear Power Station since its startup have caused and *will continue to cause* [emphasis added] excess infant mortality, low birthweight, leukemia and cancer as well as increased rates of both chronic and infectious diseases in the towns around Millstone as well as in New London County and Connecticut as a whole."

For the NRC to exclude Dr. Sternglass' declaration from section 4.7 is a glaring major error in that in and of itself invalidates the NRC's conclusion that "information provided during the scoping process was not new and significant with respect to the findings of the GEIS on the health effects to the public from radiological effluent releases due to the Millstone operations."
This statement rather is indicative of the NRC's determination to support the nuclear industry's–and in this case Dominion's–rush to relicense old unsafe nuclear plants, to the detriment of the public's health and safety.
This bias is repeated in statements and omission throughout section 4.7, as the following will demonstrate.

For example, in dealing with the Connecticut Tumor Registry's report, "Cancer Incidence in Connecticut Counties 1995-99," the NRC

does report that New London County "had the highest incidence rate of all invasive tumors for females," but omits that this rate was second highest for males, as was reported at the May 2004 public meeting.

Furthermore, the NRC characterizes information in the report indicating that New London County had the highest rate for 12 specific kinds of cancers as "several forms," a choice of words that seeks to minimize a major health crisis.

The NRC also fails to mention information from the report, which was testified to at the May 2004 public meeting, that New London County had the second highest rate for six more kinds of cancer, third highest for five additional ones, and fourth highest for seven more, totally 30 out of 39 kinds of cancers in which New London County was counted separately.

All of the above reveals a deliberate and systematic attempt to exclude the most important "new and significant" information about Millstone radioactive releases and its effects on human health.

Similarly, in dealing with a 2003 study by Joseph Mangano et al, presented at the May 2004 public meeting, "Elevated Childhood Cancer Incidence Proximate to U.S. Nuclear Power Plants," the SEIS selectively focuses on information from the study that indicates there may not be a causal relationship between Millstone's radioactive releases and health problems. So the NRC states the study "reported no significant difference in childhood cancer mortality rates between counties surrounding the nuclear plants and the U.S. population."

This would be fine and fair if the agency did not also exclude the major finding of the study, which is that "cancer incidence for children less than 10 years of age, who live within 30 miles of each of 14 plants [one of which is Millstone] in the eastern U.S. (49 counties with a population of more than 16 million) exceeds the national average. The excess 12.4% suggests that 1 in 9 cancers among children who reside near nuclear reactors is linked to radioactive emissions."

Once again, this omission is deliberate and systematic, serving the nuclear industry's interests to the detriment of the public's health and safety.

The NRC also failed to mention numerous other studies listed in the bibliography of study that have linked radioactive releases from nuclear facilities to elevated cancers.

Another example of this exclusion of new and significant information is the NRC's treatment of the 1990 National Cancer Institute study of cancer in counties near nuclear power plants.

That study found that the risk for leukemia in children under 10 in New London County was over 3 times higher than for same aged children in "control counties" used for comparison. The NRC focused on NRC information that sought to downplay of that finding.

However, the NRC excluded other NCI information cited by Joseph Mangano in his report, also presented and testified to at the May 2004 public meeting, entitled "2500 Excess Cancer Cases in New London County Since 1970; Radioactive Emissions From Millstone May Be Cause." In that report Mangano stated, "in Millstone's first 14 years, leukemia cases for New London County children under 10 were *55% higher* than the state, and leukemia deaths *45% higher*. All scientists agree that children are most sensitive to low-level radiation's effects."

Once again, the NRC's failure to give equal weight to critical evidence invalidates its analysis and makes its conclusions false, as well as disqualifying itself as a just arbiter.

Another example is its treatment of another Connecticut Tumor Registry report, which examines cancer incidence in Connecticut towns 1995-99, rather than by county.

First of all, this report was not brought in by the public during the scoping process. The NRC decided to do so on its own as part of its response to information presented at the May 2004 public meeting and thereafter. Why? The NRC reported on the results of the study for only one town, Waterford, site of Millstone. The NRC reported "The

town of Waterford does not have the highest ratio of observed cancers to expected cancers for any form of cancer analyzed."

As the NRC well knows, there is no barrier to prevent Millstone radioactive emissions from traveling beyond the boundaries of the town of Waterford. A more comprehensive such analysis would have included other towns near Millstone. But the NRC didn't do that, once again excluding critical information.

However, investigative journalist and author Michael Steinberg of Niantic, CT, did perform such an analysis, including the towns of Waterford, East Lyme, Old Lyme, New London and Groton together. Steinberg's analysis, included herein, found higher than expected incidence of cancer in these towns together for: all female cancers, lung cancer for females, colorectal cancers for females, prostate cancer for males, breast cancer for females, melanoma for both males and females, and cervical cancer for females.[55]

These findings are consistent with findings presented from the Connecticut Tumor Registry's study of Connecticut Counties 1995-99, as well as information presented in Mangano's 1998 study "2500 Excess Cancer Cases...", Sternglass' declaration, and a new study by Mangano presented at the January 11, 2005 meeting.

Finally, the NRC reports in section 4.7 that a 2000 study by the Connecticut Academy of Science and Engineering (CASE) found that "The town of Waterford was not in the highest ratio category for any cancer except thyroid cancer, and at least three other town had higher ratios for thyroid cancer. At least 30 town had higher ratios for pediatric leukemia (ages 0 to 14) than Waterford."

First of all, this analysis, as reported above, is defective by limiting it to Waterford. Secondly, the CASE study focused on the Connecticut Yankee Nuclear Plant, and Millstone is never mentioned in it. Therefore radioactive emissions from Millstone are not considered in its analysis. Furthermore, information for cancer is not reported statistically by town, other than in maps where towns are not

[55] See "Cancer Incidences in Connecticut Towns 1995-1999," as compiled by Michael Steinberg, attached.

identified specifically but are marked by varying shades of white to black.

Nevertheless, the maps do indicate elevated cancers in towns around Millstone for all the specific kinds of cancers studied: thyroid cancer is elevated not only in Waterford, but also in Groton, Old Lyme and Stonington. Multiple myeloma is elevated for Waterford. And acute adult leukemia is elevated for Groton and Ledyard, both downwind of Millstone.
However, while the CASE study uses information from the Connecticut Tumor Registry for 1976-95, i does not look for trends over those years (e.g. by comparing cancer rate increases or decreases over 5 year periods, as was done in studies by Sternglass and Mangano).

The CASE study was initiated in 1997. At that time, all three Millstone reactors had been shut down for two years because of gross mismanagement and harassment of whistleblowers. At that time Northeast Utilities owned and operated Millstone, and still owned the permanently shut down Connecticut Yankee Nuclear Plant. CASE reports that Northeast Utilities was one of its top financial supporters at that time, and its website still shows NU at the top of its list of financial supporters.[56]

Thus NU in effect was a major funder of the CASE study, which means CASE had a major conflict of interest, one that put pressure on it to come up with results that would please the hand that feeds it.

All the above points to the failure of the NRC to conduct a fair and unbiased analysis of the critical information given as public testimony at the May 2004 pubic meeting in Waterford, Connecticut, and in documents presented there and thereafter to the NRC.

As a result the NRC's conclusion that there is not new and significant information is fatally flawed. The agency excluded and downplayed the critical information that was presented, information

[56] We attach a study critical of the CASE report, entitled "Epidemiological Evaluation of the CASE Report Entitled 'Study of Radiation Exposure from the Connecticut Yankee Nuclear Power Plant'"(Suzanne Gutter and Edwin van Wijngarden)(February 21, 2001)

that establishes a strong and clear relationship between Millstone's 35 years of radioactive emissions and the concurrent rise of cancers and other diseases in towns around Millstone and in New London County, as well as across Connecticut and into Rhode Island.

While the Connecticut Tumor Registry is a source of much information about the heightened incidence of cancer and related diseases in the area surrounding Millstone, it is not a completely reliable source of information.

Zachary M. Hartley is not the only victim of Millstone's radiological and toxic chemical releases. In any individual cancer case, a 100 per cent positive correlation with a suspected causative agent cannot be made. That is why we rely on all available information obtained formally – such as the Connecticut Tumor Registry and epidemiological research – as well as informally, through reports of victims themselves or their family members to understand the scope of this public health emergency.

Although Zachary was born in Connecticut with a life-threatening cancer in his jaw and although a tumor the size of an orange was removed from his face when he was 14 months of age, the Connecticut Tumor Registry does not list Zachary's cancer. The Registry's explanation is that a portion of Zachary's tumor was benign and therefore it does not qualify for listing in the Connecticut Tumor Registry.

The NRC SEIS staff relies on a report of the National Cancer Institute (NCI 1990), which in turn relies on data of the Connecticut Tumor Registry. According to the Connecticut Tumor Registry website, it obtains its funding from the National Cancer Institute.[57] The NCI report is fifteen (15) years old. The NCI report was released four (4) years after Millstone Unit 3 commenced generating nuclear energy and long before many cancers associated with its dangerous emissions might be detected. It does not reflect the extremely high concentrations of strontium-90, a carcinogen, found in goat milk sampled within five miles of Millstone in 2001. It does not report the case of Zachary M. Hartley. It does not report the case of Rachel Heaton, who developed a rare form of thyroid cancer years after swimming in the Niantic shoreline "mixing zone" because she moved from the area. Nor does it report the brain tumor of Charles D. Douton, Jr., one of three

[57] See www.dph.state.ct.us/OPPE/hptumor.htm

former Millstone site maintenance workers who developed brain tumors and were dismissed from their jobs at Millstone by Northeast Utilities, as identified by Cynthia M. Besade in her August 5, 2004 affidavit. The NCI report does not include any of the seven (7) cancer cases recently identified to the NRC SEIS staff among residents or former residents of a single road - Seabreeze Drive - in Waterford two miles downwind from Millstone. The Connecticut Coalition Against Millstone is actively investigating to determine to what extent the Connecticut Tumor Registry fails to maintain records of other Millstone victims.

The Connecticut Coalition Against Millstone is also actively investigating information it has received of rare cancers – including a fatal skin cancer confined to the feet of a woman who frequently waded for long periods in the nuclear/chemical "mixing zone" to the east of the Millstone discharge point – in the community surrounding Millstone. The information under review includes dozens of cases of early childhood death and disease.

The Coalition attaches a selected Bibliography compiled by the Nuclear Information Resource Service ("NIRS") linking nuclear power plant radiological emissions with cancers in their communities. For example, NIRS reports a 400 per cent increase in leukemia incidence in the population living downwind from the Pilgrim (MA) Nuclear Power Plant during the first five years after nuclear fuel was known to have leaked excess radioactivity. A necessary review of Millstone records will reveal the occurrence of leaking fuel at Unit 2 after Dominion assumed ownership.

The Coalition notes that the European Committee on Radiation Risk ("ECRR") has reported that radiation dose models employed by the NRC and other governmental agencies are probably 100 to 1,000 times too high to be accurate.[58]

The NRC SEIS staff had to be reminded at the NRC's January 11, 2005 public meeting on the SEIS that the Coalition and others had previously submitted documentation to the NRC establishing a causative link between Millstone radiological and toxic effluent emissions and the heightened cancer rates in the area surrounding Millstone.

[58] See "ECRR Report Challenges Entrenches Radiation Assumptions" (MIRS, February 21, 2003)

The NRC SEIS staff did not adhere to the NRC's Principles of Good Regulation, which require in part:

> Independence: Nothing but the highest possible standards of ethical performance and professionalism should influence regulation. However, independence does not imply isolation. All available facts and opinions must be sought openly from licensees and other interested members of the public. The many and possibly conflicting public interests involved must be considered.

The SEIS states that the NRC staff

> and its contractors discussed Millstone's history of radiological effluent and environmental monitoring with officials from CTDEP's Division of Radiation. The reports cited above by CTDPH, CASE and the national Cancer Institute were also discussed. CTDEP conducts its own radiological environmental monitoring program around Millstone. STDEP had also reviewed the reports by CTDPH, CASE and the National Cancer Institute. CTDEP concluded that Millstone's radiological effluent and environmental monitoring data were accurate. CTDEP also concluded that the reports cited above by CTDPH, CASE and the National Cancer Institute reports showed no evidence of a causal link between public exposure to Millstone's radiological effluents and cancer in Connecticut towns."

The Connecticut Coalition Against Millstone has sent correspondence to Dr. Edward C. Wilds, Director of the DEP Radiation Bureau, to determine what conversations occurred with the SEIS staff, whether the DEP staff agrees with the characterizations of its conduct and input in the SEIS. Finally, the Coalition asked Dr. Wilds if he agreed with the SEIS statement that "CTDEP concluded that Millstone's radiological effluent and environmental monitoring data were accurate," and if so, to specify what radiological effluent and environmental monitoring data were referenced and, further, if so, how such statement could be reconciled with Northeast Utilities' plea of guilty in 1999 in the U.S. District Court to committing environmental felonies, including falsifying environmental monitoring records.

To date, Dr. Wilds has failed to respond to the Coalition's request.

3.7.3. **Cumulative Radiological Impacts**

The GEIS did not perform a meaningful analysis of cumulative radiological impacts because its data base was limited to Millstone effluent discharges from 1985-1987.

The GEIS further states:

> In addition, the radiological environmental monitoring program conducted by Dominion in the vicinity of Millstone measures radiation and radioactive material from all sources, including Millstone; therefore, the monitoring program measures cumulative radiological impacts.

The Health Physics Society defines cumulative dose as follows:

> The total dose resulting from repeated exposures of ionizing radiation to the same portion of the body, or to the whole body, over a period of time.

Correspondingly, the SEIS failed to conduct the analysis required by virtue of GEIS 4.6.1.1, which provides:

> To determine whether the added period of operation following license renewal would, by virtue of buildup, result in significant (double) added dose, the ratios of buildup factors for midlives of 30 to midlives of 20 years were evaluated. These ratios amount to a 35 per cent increase for Cesium-137 and a 6 per cent increase for cobalt-60. This added increase due to buildup will not significantly change the total dose to members of the public.
>
> In certain cases, the bioaccumulation factors may require reexamination. These principally involve fish (in the human food chain) that are bottom feeders. Bottom feeders may ingest worms and other biota that may remobilize radioactive materials accumulated in the sediments.
>
> Accumulation of radioactive materials in the environment is of concern not only to license renewal but also to operation under present licenses.

Accordingly, the SEIS is substantially flawed on the issue of cumulative radiological impacts.

Conclusion

It has been demonstrated herein that the adverse environmental impacts of Millstone license renewal are so great that preserving the option of license renewal for energy planning decisionmakers would be unreasonable. The NRC should reach such a conclusion in its final Environmental Impact Statement.

In the alternative, the NRC should recognize that its staff has failed to consider the full scope of the environmental impacts of present or future Millstone operations, and similarly, the licensee has failed to fully apprise the NRC of all pertinent facts and circumstances sufficient to enable the NRC to undertake meaningful review; in the absence of such complete evaluation the NRC must deny relicensing.

CONNECTICUT COALITION
AGAINST MILLSTONE

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Redding Ridge CT 06876
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Exhibit C

DECLARATION

I, Ernest J. Sternglass, Ph.D., do hereby declare as follows:

1. I am a professor emeritus in radiology with a specialty in radiation physics at the University of Pittsburgh School of Medicine.

2.I also serve as scientific director of the Radiation and Public Health Project.

3. I have reviewed data recently compiled by the U.S. Environmental Protection Agency regarding its measurements of levels of strontium-

90 in milk sold commercially at various locations in the United States.

4. The source of such data is “Environmental Radiation Data, quarterly report #115, July to September 2003, and it contains EPA measurements of strontium-90 concentrations in milk as follows, all in picoCuries per liter:

San Francisco CA July 8, 2003 0.73
Dover DE July 22, 2003 0.19
Atlanta GA July 30, 2003 0.59
Wichita KA July 15, 2003 0.42
Grand Rapids MI July 8, 2003 0.45
Syracuse NY July 10, 2003 0.53
San Antonio TX July 7, 2003 0.02
Spokane WA July 8, 2003 0.13

5. I have also reviewed data submitted to the Connecticut Department of Environmental Protection by Dominion Nuclear Connecticut, Inc. with regard to its samplings and analysis of the levels of strontium-90 found in goat milk sampled at 120 Dayton Road in Waterford, Connecticut, during the years 2001, 2002 and 2003. This data includes reported concentrations of 55.5 and `13 to 14 picoCuries of strontium-90.

6. Comparison of the EPA data with the Dominion data
reveals: The data reveals that for 8 other locations across the nation the
levels of radioactive strontium-90 in milk are 10 to 100 times smaller than
those measured near the Millstone Nuclear Power Plant , in particular the
55.5 picoCuries per liter measured in 2001 in the goat milk collected at 120
Dayton Road, 5 miles north-northeast of the plant. This is an extremely

large concentration, close to twice the concentration in Connecticut milk at
the height of nuclear weapons testing in 1963 of 23 picoCuries per liter.

7. It is my opinion that the evidence of strontium-90 levels in goat milk sampled from such location strongly suggests that the Millstone Nuclear Power Station releases excess levels of strontium-90 to the surrounding environment and that such emissions expose the community to a significant health risk which dictates closure of the Millstone Nuclear Power Plant as a matter of public health.

I hereby declare that the statements above are true and are submitted under penalty of perjury.

_____

Ernest J. Sternglass, Ph.D.

Dated: November 16, 2005
New York, New York

Exhibit D

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