DRAFT Subject to Approval (prepared for approval at May 24, 2018 meeting)

Nuclear Decommissioning Citizens Advisory Panel (NDCAP)

Thursday, November 16, 2017

Brattleboro Area Middle School – Multipurpose Room- 109 Sunny Acres, Brattleboro, VT

Meeting Minutes

NDCAP Members Present:

- Mike McKenney, Technical Coordinator, Entergy Nuclear Vermont Yankee (VY)
- Jack Boyle, Decommissioning Director, Entergy Nuclear Vermont Yankee (VY)
- Stephen Skibniowsky, representing the Town of Vernon, VT
- Chuck Schwer, VT Department of Environmental Conservation Director, attending lieu of Peter Walke, Deputy Secretary, Agency of Natural Resources
- Lissa Weinmann (Brattleboro), Citizen appointee of VT State President Pro Tempore Tim Ashe
- Kate O'Connor (Brattleboro), Chair, citizen appointee of (former) Governor Peter Shumlin
- Martin Langeveld (Vernon), Vice-Chair, citizen appointee of Governor Phil Scott
- Riley Allen, Public Service Department Deputy Commissioner, attending lieu of June Tierney, Commissioner of Public Service Department
- Derrick Jordan (Putney), citizen appointee of VT Speaker of the House Mitzi Johnson
- Jim Matteau (Westminster), citizen appointee of (former) Senate President Pro Tempore John Campbell
- David Andrews, International Brotherhood of Electric Workers (IBEW); representing present & former employees of Vermont Yankee
- VT Representative Laura Sibilia, member of the House Committee on Energy and Technology, appointed by Speaker of the House Mitzi Johnson (joined meeting late)
- David Deen, (Westminster), VT State Representative, citizen appointee of (former) Speaker of the House Shap Smith

The following NDCAP members were connected to the meeting via teleconference:

- Robert Gustafson, Assistant Planning Chief, Radiological Emergency Preparedness, New Hampshire Emergency Management and Homeland Security (NH HSEM), representing the Towns of Chesterfield, Hinsdale, Richmond, Swanzey, and Winchester, NH, interim appointee of the NH Governor's Office
- Dr. William Irwin, designee for the Secretary of the Agency of Human Services
- Katie Buckley, Commissioner, Department of Housing and Community Affairs (representing the Agency of Commerce and Community Development)

The following NDCAP members were absent from the meeting:

- Chris Campany, Executive Director of the Windham Regional Commission (WRC)
- VT State Senator Mark MacDonald, member of the Senate Committee on Natural Resources and Energy

- Massachusetts State Representative Paul W. Mark (Peru, MA), representing the Towns of Bernardston, Colrain, Gill, Greenfield, Leyden, Northfield, and Warwick, Massachusetts, appointee of (former) MA Governor Deval Patrick

Meeting called to order at 6:02 pm. A video recording of the meeting is available online at http://publicservice.vermont.gov/electric/ndcap and at https://www.brattleborotv.org/vt-nuclear-decommissioning-citizens-advisory-panel/vt-ndcap-111617-mtg.

INTRODUCTION OF THE PANELISTS AND OVERVIEW OF THE AGENDA:
The Panel introduced themselves and the Chair gave an overview of the agenda. *The Chair's introduction begins at 00 hours, 00 minutes & 01 seconds, 00:00:01, into the meeting recording. Individual Panelist introductions begin at 00:00:29 into the meeting recording. Overview of the meeting agenda begins at 00:01:45 on the meeting recording. Introductions of Panelists joining the meeting via teleconference begins at 00:02:03 on the meeting recording.*

Approval of Meeting Minutes: Approval of October 26, 2017 minutes.
October's minutes were not available for approval, but they will be available at the next Panel meeting.

Entergy Update on Decommissioning Activities at VY: Joe Lynch, Government Affairs Manager, Entergy Vermont Yankee, gave an update on recent activities. The presentation slides for this update are available online at http://publicservice.vermont.gov/electric/ndcap and http://vydecommissioning.com/ndcap/. *This presentation begins at 00:03:30 on the meeting recording.*

Currently, VY has successfully loaded 18 casks since beginning the campaign in 2017. This means that all together, there are 31 casks of the 58 total loaded. VY hopes to complete loading by the end of 2018. We are currently in a pre-planned 3-week hiatus to do normal equipment preventative maintenance after loading the 18th cask. We will resume loading casks after Thanksgiving and will have a progress update at the next meeting. We are awaiting on an Exemption for the Holtec Cask Certificate of Compliance to move forward (at the NRC). The issue under discussion is the amount of cooling required for the fuel before it can be moved to dry casks.
With regards to the reduction of the site's Protected Area to be only around the two fuel pads; all 6 permits have been approved to go forward with the project. Construction started today, November 16th, 2017 with a target completion by the end of 2018. We will need changes approved to the Site Security Plan by the NRC before implementation of the Protected Area change, but there is plenty of time for this.

Water Management Update: VY continues to be successful in reducing the groundwater entering and confined to the Turbine Building. Currently, we are down to around 200 and 250 gallons of water entering per day. We have decreased dramatically from 2015 when we were averaging 3,000 gallons per day. We continue to ship water Energy Solutions' disposal facilities

in Tennessee. To date, we have shipped 623,000 galloons. We will continue to assure that none of this water goes into the Connecticut River.

At the October meeting, Peter Walke of (the Agency of) Natural Resources asked how much money was spent for the disposal of water and how that compares to the original decommissioning cost estimate. To date, VY has spent $3.2million total on shipping water. The actual cost of shipping is about $2.5million with another $600,000 in handling costs. The estimate was just under $10million for water processing for the entire project. We did not anticipate needing water management (a subcategory of water processing) so the money to cover this is coming from contingency funding without impacting the overall (decommissioning project) budget. The overall project is under budget, which has allowed us to continue to ship water and not impact the overall budget.

The third and final round of Discovery Questions on the Petitioners were sent on October 30th. Our (Entergy & NorthStar's) responses to the Department of Public Service and the Agency of Natural Resources are due tomorrow, though we will likely submit them today. We owe responses to New England Coalition by November 28th, the Non-Petitioners Surrebuttal Testimony is due on December 1st and the 2nd PUC hearing is scheduled for January 4th in Vernon. Technical hearings are set for the weeks of Jan 22nd and 29th. Regarding the License Transfer Application, there have been Inquiries from NRC. We owe them responses back by Dec 4th. We haven't heard back from the NRC regarding their decision on the request for hearing by the State of VT or New England coalition.

Nuclear Decommissioning Trust Update: At the end of September, we had a balance of $575.6 Million. At the end of October, the balance was $577.9 Million. To date we have withdrawn $29.6 Million. There have been just under $49 Million in market gains and about $3 Million in fund expenses. The Site Restoration Trust balance at the end of October was $25.3 Million and the final payment of $25 Million will be made at the end of this year.

Question from David Deen for Joe Lynch: You mention collecting additional information. What will this be? Joe Lynch: As the NRC looks at the detailed review often there are questions asked through the submittal. That way all information is on the docket. This is routine. David Deen: Are any of those questions of interest to the Panel? Joe Lynch: I think they're primarily monetary in nature, but I will look into it. The additional information requests can be found on the website http://vydecommissioning.com

STATE OF VERMONT UPDATE ON DECOMMISSIONING ACTIVITIES AT VY: Kyle Landis-Marinello, VT Assistant Attorney General and Steph Hoffman, Special Counsel in the VT Public Service Department, provided a verbal update on recent State of Vermont activities related to Vermont Yankee's Decommissioning. *This presentation begins at 00:14:53 on the meeting recording.*

Kyle Landis-Marinello presented:

The State has requested a hearing on several financial matters related to VY's proposed sale to NorthStar. Several of the NRC's questions on the VY License Transfer Request parallel the matters for which we've requested a hearing. We (State of Vermont) are requesting an NRC hearing on the following several topics:
1 - Entergy received NRC permission to use the Decommissioning Trust Fund for spent fuel management expenses. NRC Staff is asking whether NorthStar would be able to use that same exemption should they purchase VY.
2 - Can NorthStar count on future recoveries from the US Department of Energy for spent fuel expenses?
3 - Are the calculations used to determine $125 Million (financial assurance for the VY decommissioning project) estimate adequate?
4 - Does (and should) the proposed $125Million have an escalation factor to account for inflation?
5 - Whether this Support Agreement is the right form of financial assurance or should it be more like a parental (company) guarantee?
We would also have several questions about the experience and responsibilities of the senior managers who will be taking on (supervising) this project.

Question from Kate O'Connor for Kyle Landis-Marinello: Do you know when NRC will respond to the request for hearing? Kyle Landis-Marinello: It's uncertain.

Steph Hoffman presented:
I have been asked to review what has happened and what will happen between the last meeting in October through this coming January regarding the docket at the PUC (Vermont Public Utilities Commission). Since the last NDCAP meeting, the Commission announced, by letter, on October 30th that they will continue to have their own advisory consultant throughout the remainder of the proceeding. Parties were asked to review and respond to this as they have people there with financial expertise but not necessarily nuclear decommissioning financial expertise. Today the department, NEC (New England Coalition) and CLF (Conservation Law Foundation) filed responses to Entergy and NorthStar's request regarding the function and availability of this expert advisory consultant in this proceeding. We do not know when to expect a counter response to these filings but they were due today.
Tomorrow, November 17th, the petitioners are responding to a third set of discovery requests by all parties except NEC which is on a slightly delayed timeline. After the responses have been received, all non-petitioners including NEC have until December 1st to file our surrebuttal testimony. There will be discovery on that throughout December in which all state agencies and intervening parties will be asked questions concluding with the public hearing. In the beginning of January there may be another deposition period. A status conference on January 19th with the commission will give an idea of how the hearing will unfold.

QUESTIONS AND COMMENTS FROM THE PANEL on Entergy & State Decommissioning Updates: *Panelist questions begin at 00:24:02 on the meeting recording.*

Question from Laura Sibilia for Joe Lynch: You mentioned not anticipating the amount of ground water. Why and what's to learn from that? Joe Lynch: We knew that the buildings went below the water level, however, the buildings already have some systems in place to capture water during operation. We did not have an idea of the intrusion rates until we shut down. The good news is money is available to address.

Question from Lissa Weinmann for Joe Lynch: Is the water coming into the building all fresh water? Joe Lynch: Yes. Lissa Weinmann: Can the water be saved before it gets the chance to reach the turbine building? Joe Lynch: We could use this water and we have looked at many options for this, however it would make a more difficult situation because of the new pathways that would be created in the process. It is better to seal it up right now. We have enough water to replace the water being removed. Question from Lissa Weinmann for Jack Boyle: When a company uses that much water, are there additional costs? I'm concerned about the level of water being lost, as fresh water is a precious commodity in general. Jack Boyle: We considered diversion wells and other options, but considering cost and feasibility, what we are doing right now remains the best option, the best balance. We have over 800,000 gallons of water stored at the plant (in the Torus) so we don't need to make use of the intrusion water. Steve Skibniowsky added: Unlike water from other (area) aquifers, this water will head south to the Connecticut River and then to Long Island Sound. I know this sounds like a large amount of water, but realize that the Connecticut River and Vernon Dam pass millions of gallons of water daily. Putting the water in the river will have no impact on Vernon because it is a relatively small amount and it is all down hill from any water usage in the town. Chuck Schwer added: There is a Groundwater Protection Rule and Strategy passed a number of years ago making it a public trust issue law mainly for bottled water companies. For our case it is a relatively small amount. Lissa Weinmann: Thank you for putting my question to rest. Also, thank you to Entergy for expediting moving spent fuel from the (spent fuel) pool to dry casks.

Question from Laura Sibilia for Joe Lynch: When will you stop having contaminated ground water to remove? Joe Lynch: That's uncertain. The goal is to have no intrusion water. We continue to look at options for reducing the water intrusion rates. Laura Sibilia: You have the ground water confined to the turbine building. Is all of that building being removed or is part of the building staying under the rubblization plan? Joe Lynch: A representative of NorthStar could answer that best, but my understanding is that the building will be removed to a minimum of four feet below grade and the space filled with recycled or brought in material. Laura Sibilia: At that point does the water stop being contaminated? Joe Lynch: The clean-up will result in contamination levels below those required by NRC and proposed NorthStar for this project.

Question from Kate O'Connor for Joe Lynch: How much money was allocated for the water seepage? Joe Lynch: The Water Processing Budget, which was not designed just for intrusion water, but is designed for what would be left in the Torus is about $9.7 million with a 15% contingency. Kate O'Connor: Will you reach the $9.7million? Joe Lynch: We do not know. We are not using the contingency now. We suspect that we may not use the full $9.7 million

because we do have a favorable rate for removing what's will be left of the Torus water from site.

Question from Reilly Allen for Joe Lynch: With regards to the 200-300 gallons per day, it is a significant reduction from the past, can we expect that to continue to come down or is this a temporary low due to unpredictable factors? Joe Lynch: Seasonal fluctuations will influence the numbers, however we will try to keep it in a range. The current 200 to 300 gallons a day is fairly consistent for the last 3 readings and sealing up additional leaks will hopefully lower the number. But to say that it will be this way going forward would be optimistic.

DISCUSSION ON REGION SPECIFIC DECOMMISSIONING ISSUES: with Representatives from Commonwealth of Massachusetts and State of New Hampshire: *Bob Gustafson NH Dept. of Homeland Security & Emergency Management (NH DEMHS). This discussion begins at 00:38:18 on the meeting recording.*

Kate O'Connor noted that this segment was intended to address concerns that our neighbors in New Hampshire and Massachusetts may have in relation to the VY plant decommissioning. However, the Panel was unable to get a representative from Massachusetts here tonight. The Panel will have someone here from Massachusetts in the future. For today, we will address New Hampshire.

Bob Gustafson: The recurring discussion that NH DEMHS hears about VY centers on the impacts of the local infrastructure such as materials that are coming out or coming into the plant site, the roads that these materials travel and the traffic etc. We addressed these questions to our field service organization and with a representative from every field service office in our state. Of them, I have asked our people in Cheshire county (the closest NH county to VY) if they have heard anything from their clients about concerns they might have (about VY). Though no one has responded, I told them to continue asking these questions as the (decommissioning) process moves along and there is more activity (onsite) and interest in these issues resurges.

Question from Steve Skibniowsky for Bob Gustafson: Is the discussion about New Hampshire roads or those for the whole region? Bob Gustafson: This will impact the whole region but the specific questions are for the New Hampshire roads. The issue is regionally based and will create wear and tear on roads based on which routes are used (i.e. through New Hampshire, Massachusetts or Vermont).

Question from Lissa Weinmann for Bob Gustafson: In regards to a conversation I had with Arnie Gunderson, who has not addressed this Panel but is a nuclear engineer who has been employed by Vermont to address past issues. We were discussing potential groundwater contamination around the site. He said if there was such contamination, he would look at wells in Hinsdale. Has anyone done that? Bob Gustafson: I am not aware if they have. I will consult with other NH Agencies and get back to you.

Bob Gustafson: If people have further questions they would like to ask me, you can reach the agency I work for through the Homeland Security Emergency Management Contact Phone numbers: 603-271-2231 or 1-800-852-3792.

Question from Jim Matteau: Why is there no one from Massachusetts here tonight? Kate O'Connor: We're focusing on New Hampshire for now and Massachusetts at another time.

DEFINITION OF INDUSTRIAL VS. RESIDENTIAL CLEAN UP STANDARDS: *David Andrews (representing current and former VY workers).* *A description of this agenda item begins at 00:46:25 on the meeting recording. The presentation begins at 00:48:00.*
The slides for this presentation are available online at http://publicservice.vermont.gov/electric/ndcap

RADIOLOGICAL STANDARDS
The following eight definitions were clarified based on their 10 CFR Section 20.1003 descriptions: Unrestricted Area, Residual Radioactivity, Background Radiation, Total Effective Dose Equivalent (TEDE), Critical Group, ALARA (an acronym for "as low as is reasonably achievable"), Decommission, and Distinguishable from Background.

Using these new definitions, David provided a quick review of the radiological criteria for site release for unrestricted use and the State of Vermont radiological limits (found at healthvermont.gov/environment/radiological), which tend to be very similar to federal definitions.

NON-RADIOLOGICAL STANDARDS
With regard to non-radiological standards, the Investigation and Remediation of Contaminated Properties Rule (IROC) promulgated by State of Vermont Agency of Natural Resources, Department of Environmental Conservation Waste Management and Prevention Division is in place. The final adopted rule in the State of Vermont is effective July 27, 2017.
The IROC Rule focuses on 3 areas for enforcement: Soil screening values which include residential and industrial analysis; vapor intrusion values; and sediment values.

With regards to confusing passages (statements) from past meetings:
Non-restrictive is considered residential standards while unrestricted is an NRC term (radiological); and residential is an EPA/VT ANR (non-radiological) term.
The NRC does not define restricted use. 10 CFR 20.1403 sets various criteria for license termination under restricted conditions.
For the IROC Rule, it has been stated that there are standards for industrial, commercial, and residential. There are no commercial standards identified in IROC.

NCRP 160 was issued in 2009, using study results completed through 2006, and looks at aggregate dose rates across the US. This was an update from NCRP 89 from about 10 or 15 years before. NRCP 89 reported that about 325 mrem per year is what the average American receives from background radiation. NCRP 160 (using in 2006 data) puts the figure at 625

mrem per year. The number goes up or down depending where you are in the country. For example, in Vermont, the number is elevated because of radon in the area.

Kate O'Connor: This discussion came about because we were talking about the site restoration standards that the Public Utility Commission is going to approve or work out with NorthStar. The PUC is only dealing with non-radiological site restoration standards.

Question from Lissa Weinmann for David Andrews: Do we know of any nuclear power plant released for residential use? Is this site ever going to be used to for residential purposes? Entergy agreed with Governor Shumlin to try to adhere to a residential standard knowing the federal government does not compel them to do so. David Andrews: You used the term residential standards. Are you speaking of the non-radiological residuals on the site or the radioactive residuals on site? Lissa Weinmann: I am talking about the end use being residential, taking both definitions into account. David Andrews: When we talk about the term residential standards, we are speaking about non-radioactive contaminants. Lissa Weinmann: I am talking about unrestricted use. David Andrews: If there are no prohibitions on the property it would have to be released for unrestricted use and residential use. Those are two separate issues. They should not be used interchangeably. Lissa Weinmann: I do not understand why we are discussing this option if no one thinks it will happen. Kate O'Connor: This segment of the meeting was to make sure we are all on the same page as far as the terms are concerned. That particular area was used as farmland. Steve Skibniowsky: Most of the river-front property in Vernon has not been used for residential and I believe it would be most helpful to Vernon if it were turned into another type of useful project such as another power plant. I have confidence that that site will be restorable.

Question from Jim Matteau for David Andrews: If it is determined reasonable to go beyond the agreed 25mrem, even though not a stated goal, does this mean ALARA would take precedence? David Andrews: Yes. However, you are following ALARA principles at the very beginning of the decommissioning process in order to drive your end result and it must go at least to 25mrem to be considered within the levels of unrestricted use. Jack Boyle: ALARA is not as low as technologically capable, it is "reasonably achievable" and "reasonable" is in the eye of the assessor. Jim Matteau: As technology changes ALARA may change.

Lissa Weinmann: The agreement Entergy made was to restore to 25mrem or below. Jack Boyle: I do not know if it was agreed to with Governor Shumlin at that time but we agreed to achieve unrestricted use and that is less than or equal to 25 mrem a year. Lissa Weinmann: Do we expect that we'll reasonably reach that goal? That was just an agreement to the State. Jack Boyle: I do not know the background on that. Kate O'Connor: We can address this at another meeting when we are able to speak to these issues more readily. Lissa Weinmann: If this is something we do not expect to happen, why are we wasting time discussing it? Joe Lynch: It is very achievable to reach 25mrem or less and it is what NorthStar is committed to in their proposal and it is what we have committed to if we use a SAFSTOR scenario. Yankee Rowe (site release criteria) was 10 mrem, Connecticut Yankee was somewhere between 13 and 19 mrem and Maine Yankee was 14 mrem.

UPDATE ON SPENT FUEL TRANSPORTATION PLANS (rail infrastructures, timetables, etc.) *Tony Leshinskie, State of Vermont.* *This presentation begins at 01:11:15 on the meeting recording.* The slides for this presentation are available online at http://publicservice.vermont.gov/electric/ndcap

Anything regarding spent nuclear fuel goes back to the Nuclear Waste Policy Act of 1982 (NWPA), which includes moving spent nuclear fuel from any site in the country. Responsibiltiy for Spent Nuclear Fuel falls to the Department of Energy (DOE), which takes possession of spent fuel as soon as it leaves a site. The DOE is required to consult with both state and tribal governments on transportation planning.

Though there is no National Repository available right now, there has been some debate on the best path forward. The DOE through NWPA has the lead in planning. However other Department of Transportation agencies are involved, such as the Federal Railroad Administration and the Pipeline Hazardous Material Safety Administration, as well as the NRC - as regulator. This all comes together to form the National Transportation Stakeholders Forum (NTSF) where the consultation takes place between the federal agencies and the state and tribal governments.

NTSF brings these agencies together and although there is no facility available, the planning currently works to move spent fuel to the center of the country. If one can get fuel to center of country it can be set to move wherever the repository is established. Possible shipping methods are railroads, highways, barges or a combination of those. I typically represent the state (Vermont) at NTSF-related meetings.

For current planning efforts, we look at other radioactive material transportation that has been done in the past and try to apply it to spent fuel. This involves developing and updating inspection requirements and safety requirements in anticipation of what will be needed once transportation of fuel begins.

NTSF realized they needed to develop a planning tool called the Stakeholder Tool for Assessing Radioactive Transportation (START) to, among other things, locate the best routes for the fuel to travel. START is maintained by Idaho National Laboratory. START is available right now if you have an email ending in ".gov." If you have a connection to NTSF or if you are another state or tribal government official they may inquire as to your need to see it, but you are likely get access.

Most transportation is likely going to occur by rail. The rail companies have their own means for determining routes but they do not have to share this. START can look up and take into account things in the area such as fire departments, hospital beds, first responders trained in handling nuclear waste etc. START is very good at providing maps. In assessing START's quality, we think it has what it needs right now. Working group volunteers (including me) gathered recently and met railroad representatives to assess hypothetical transportation routes from

several nuclear power plants to destinations in the central US (typically in Kansas City or St. Louis). Evaluating the same hypothetical starting points and destinations, the railroads determined very similar routes using their software. Based on this, the START tool appears ready for use.

HISTORY AND OPTIONS FOR SPENT FUEL STORAGE: *Tony Leshinskie, State of Vermont. This presentation begins at 01:24:18 on the meeting recording.*
The slides for this presentation are available online at http://publicservice.vermont.gov/electric/ndcap

Kate O'Connor noted that the purpose of today's discussion is to give a brief overview. It has been on the radar for quite some time but will be discussed in more depth at a later date.

Tony Leshinskie: The original (spent fuel disposal) model is different than it is today. Originally, nuclear power plants ran for about a year and then shut down to refuel. During the refuel most or all of the spent fuel would be removed, placed in the spent fuel pool for about five years, then an agency (first the Atomic Energy Commission and later the Department of Energy) would take the fuel. Originally there was to be some fuel reprocessing by separating out the additional fissile material that could be used later. This was to have allowed the US to minimize our spent nuclear fuel waste. However, pick-ups from the AEC or DOE never really happened large scale.

In the late 1970s, during the Carter administration, it was realized that reprocessing of fuel could potentially give someone with a commercial nuclear program the ability to build an atomic weapon. So, the idea of reprocessing fuel was taken off the table. That left the only options to be spent fuel disposal and storage. The 1982 Nuclear Waste Policy Act helped to organize the situation. Eventually it was decided to minimize the amount of spend fuel and make onsite storage as robust as possible. The result was longer time between refueling, for example, rather than a year, fuel cycles could go 18 to 24 months. The fuel assemblies are used 2 to 3 times, so that overall, we are using less fuel. Advanced spent fuel storage strategies were developed, eventually leading to dry cast storage facilities, because not everything could stay in fuel pools forever.

The Nuclear Waste Policy Act of 1982 (NWPA) called for founding of a National Nuclear Radioactive Waste Disposal Facility, which originally was to be selected from 10 candidate sites. From these, 3 finalist sites were to be chosen, with the President deciding the final repository site (from the 3). This did not happen. Ultimately, by end of 1980s, the only legal site to dispose of spent nuclear fuel was the Yucca Mountain site.

The [Yucca Mountain] repository was supposed to open in January 1998. This did not happen. The Department of Energy did file for an NRC license to construct and operate a Yucca Mountain facility in 2008. The license submittal application was withdrawn in March 2010 because the Obama administration decided that resistance from Nevada and other interveners made it unworkable. Eventually the NRC was ordered to proceed with completing some

licensing documentation for the facility. In January 2015 the Safety Evaluation Report was issued; in 2016 the Environmental Assessment was issued.

The Trump Administration has called for a restart of Yucca Mountain licensing efforts as well as for "Robust Consolidated Interim Storage." The US House is calling for Yucca Mountain licensing but no Consolidated Interim Storage. The US Senate called for funding Consolidated Interim Storage, but not Yucca Mountain. Right now, DOE is waiting for this impasse to get resolved. According to the NWPA, the DOE is responsible for taking and shipping spent fuel and until then it is the responsibility of each plant owner to safely store the spent fuel. The 1998 missed deadline allows the nuclear utilities to pursue damages through a settlement or litigation to cover spent fuel storage costs. Overall, $500 million is paid annually from the US Treasury Judgment Fund rather than Nuclear Waste Policy Act Funds. Currently the only option available is on-site spent nuclear fuel storage either in a spent fuel pool or dry cask storage. Typically spent fuel pool must be used for 4 to 5 years, but there are filings before the NRC to shorten that time. Dry cask storage has many vendors such as Holtec, NAC International and AREVA, and can be stored above or below ground. Depending on the site, it can either be stored above or below ground. VY went above ground due to the potential for groundwater contamination.

The Trump Administration proposed restarting Yucca Mountain licensing activity. Before construction begins, the licensing efforts would need to conclude, which should take about 3 to 5 years, assuming that no other license contention is filed. In 2013, [the DOE] Blue Ribbon Commission and the Obama Administration anticipated that Yucca Mountain would be available by 2048. Other DOE estimates suggest it will be available as early as 2028. Consent-Based Siting efforts have been suspended for now.
The NWPA does allow for Consolidated Interim Storage (CIS) until long-term storage is available. CIS consists of multiple pads and storage systems. If they become active, fuel from any shut down site could transfer their fuel there and the sites could fully decommission. The DOE indicates that earliest possible date for interim storage is still on target for 2025. There are currently 2 CIS proposals, one by Waste Control Specialists in Andrews County, Texas and the other by Holtec and the Eddy / Lea Alliance in New Mexico.

The WCS facility initially proposes storage for AREVA -NUHOMS and NAC International Dry Casks. This would open in 8 phases. Phase 1 would hold about 5,000 metric tons (about 7 times the VY site can hold) and be ready by 2025. The proposal has made it through NRC acceptance review; the NRC technical review commenced. However, WCS has some financial troubles so its review proceedings have been suspended. The Holtec proposal, which has the larger facility, would take HI-Storm stored fuel, such as that at VY. The first phase of this facility is planned to be available by 2025. Phase 1 could store 200 dry casks, but could expand to 4000 under the current proposal. This proposal is still in the acceptance review phase by the NRC, which has asked for more information. A more detailed technical review and the environmental assessment would still need to be done.

DISCUSSION OF TOPICS/ISSUES TO ADDRESS AT 2018 NDCAP MEETINGS: *Presented by the Panel.* *This discussion begins at 01:43:20 on the meeting recording.*

Comment from Laura Sibilia: I would like to hear from Vernon as a regular update at every meeting, as they will be the long-term holders of what is left.

David Andrews: I would like Holtec to come talk about their Interim Storage proposal and how it relates to VY. As this is a federal government issue, I would also like to invite representatives from our congressional delegations to come talk about Spent Nuclear Fuel disposal and the delays.

David Deen: As mentioned earlier, we need to have Massachusetts representatives here.

Steve Skibniowsky: We have had some input from the Vernon Planning Commission and I have responded as a Vernon representative which I will continue to do. We can certainly provide more information. Right now, Vernon is dealing with economic changes due to the current status of VY, but we are hopeful things will be moving forward. Thank you for stating that you would like to hear our opinion.

David Deen: I would like workforce updates. Have they landed on their feet and has Entergy helped them do that? If there are issues of concerns around this, let's address them.

Laura Sibilia: When there is a nuclear power plant closure, it is not treated the same a base closure. If we can have Federal Delegation come here directly, they can have a better understanding of how their efforts are going. Kate O'Connor: Haley Pero [Sanders], George Twigg [Welch] and Tom Berry [Leahy] have always been responsive. This is doable.

David Deen: I would like to stay up to date on TUC. Kate O'Connor: Steph Hoffman is here. Any idea when a decision will come through? Steph Hoffman: There will be a briefing period after technical hearing concludes. The joint petitioners originally requested an attempt at a late March deadline though the proceeding schedule has changed twice already. We will know better at the beginning of the summer. Kate O'Connor: Also, current events sometimes drive the agenda.

Lissa Weinmann: I would like the NRC to come as soon as possible and tell us how much of the perimeter they will require around the spent fuel storage and release for potential redevelopment. I want to know more about on-site storage and invite a representative from the Union of Concerned Scientists. There are over 300 groups nation wide that have talked about this as a viable option. This is especially prevalent because storage options are in question right now. We need to understand what other options are available regardless of if they are in the mainstream. I agree with Laura Sibilia that there is legislation pending that would allow for us to receive federal compensation for hosting the nuclear waste. We need to hear from the Mayor of Zion [Illinois], who has been a strong national proponent and has been working on the federal legislation. The Mayor of Zion is likely willing to traveling to meet with

communities in similar situations to get some buy in for the need for legislation that would potentially give Vernon and Windham County that type of compensation for the past and for the years that we will likely to continue holding this nuclear waste. I would also like some perspectives from what is happening overseas. Can we reach out for some European perspectives? Also, perhaps we should speak with Mike Meisner, the former head of Maine Yankee Atomic Power Corporation and the heads of other power plants, as well as Arnie Gunderson?

PUBLIC COMMENTS ON TOPICS/ISSUES TO ADDRESS AT 2018 NDCAP MEETINGS

This discussion begins at 01:57:20 on the meeting recording.

Schuyler Gould of the New England Coalition: It is considerably easier and cheaper to store the waste somewhere in the immediate neighborhood. There would be less impact both economically and environmentally and it would still be safe if well monitored and set back from the Connecticut River. As Representative Welch's bill suggests, the money saved could be put into local communities. For Tony Leshinskie, if the CIS plan proposed for Andrews County in Texas is not able to take the Holtec systems, would that leave VY high and dry? Tony Leshinskie: VY is using Holtec storage systems and right now the first phase of the Holtec Eddie/Lea proposal is with these same systems. I cannot speculate what WCS will do in the future.

Clay Turnbull, New England Coalition: I would like a discussion revolving around the end state of VY.

Kate O'Connor: This is not the only opportunity to make suggestions of future topics. More suggestions can be made at any time. We have a committee that gets together and sorts through the suggestions to come up with an agenda. Once this is done, we will update you on the 2018 plans.

2017 ANNUAL REPORT TO LEGISLATURE 2018 NDCAP MEETING SCHEDULE: *Presented by the Panel.* *This discussion begins at 02:02:13 on the meeting recording.*

Kate O'Connor: The set up of these reports tends to be sorted by meeting topics. This year we would like to get more issue specific for the sake of being concise.

David Andrews: This annual report is usually 15 to 16 pages given to someone who is already very busy. Perhaps it would suffice to have a 3 to 4 page document including the major highlights and decisions made, issues to address the following year and an appendix with links to the state website. There is no reason to be redundant if there's already access to the originals. Also, this would be easier to put together and could be finished early in case legislative action needs to be taken before the deadline.

David Deen: We should focus on figuring out what they want from us more than giving a generic update. What can we fix? How can we help to create the ultimate success for the decommissioning the VY campus to the highest standard?

Jim Matteau: In the past we have tried to tackle recommendations on controversial issues, but the way we're formed, some of us can continue to veto (those recommendations) and go nowhere. We can recognize that respectfully and still identify these issues for the Legislature on both sides without choosing for them.

Kate O'Connor: The goal is to circulate something to look at with ample time before the January meeting.

2018 NDCAP MEETING SCHEDULE

This discussion begins at 02:08:57 on the meeting recording.

Kate O'Connor: Typically, we meet the 4th Thursday of the month. The January 25th date is already set; however, we check in about each meeting time as we get closer to the dates.

Joe Lynch: Entergy will have trouble with January, and others will miss out, including myself.

The proposed dates were accepted without objections. (No formal vote was taken.)

PUBLIC COMMENT: *Public.* *This discussion begins at 02:10:36 on the meeting recording.*

Question from Schuyler Gould of the New England Coalition for Joe Lynch: Why is there contamination in the turbine building in particular? Where exactly is it within the building? What foundation or vessel is the ground water contacting this contamination? Has it been determined that there is no exchange outward from this contamination into the ground water that is not being collected? How deep is this incursion taking place? How is this going to be removed? Is it clear that NorthStar can remove it or will it be filled up and left there? Joe Lynch: These are good questions. It is best to wait until I have done some more research and preparation. Let's address this in the future but not at the January meeting.

Question from Schuyler Gould of the New England Coalition for David Andrews: When talking about residential or farmers standards aimed at 25mrem per year, residential farmers standards was never really addressed. That exposure is for an 8-hour day but the standard for a farmer that works more than an 8-hour day would be higher. In the context of ALARA could there be unanticipated contamination, which would increase the cost for the NRC or the state that would deem it allowable to significantly raise the proposed 25mrem? David Andrews: Residential standards are non-radiological standards. Radiological dose indicates the radiation one gets from radiological sources, the residential standard does not apply. The use of the property determines what the critical group is and the critical group determines how much time is spent there. ALARA can be a very subjective phrase. It asks if the efforts are worth the dosage we want to receive. We could work out what this means, but this is in the eye of the

beholder. Once above 25mrem it is no longer considered unrestricted which creates specific costs. This is a very strong incentive to stay below 25mrem.

Bill Irwin: Schuyler Gould was asking about the Resident Farmer scenario, not the Residential scenario. The Resident Farmer scenario is part of the MARSSIM [Multi-Agency Radiation Safety and Site Investigation Manual] decommissioning process that is an established standard. It has been proposed both Entergy's and NorthStar's PSDARs. It would take more than I am prepared to discuss right now, but briefly the Resident Farmer scenario applies to resident who lives on property and consumes everything right from the ground. Regarding ALARA approach to radiation protection only applies one way. The NRC, state, EPA and others have limits. Going ALARA means one must abide by the limits but we will try to go lower, keeping in mind cost to society and other factors.

Schuyler Gould: When the plant is being decommissioned is there some kind of formula or protocol in the decommissioning plan which might account for money saved to be redirected back into our system and lower the contamination levels further? Bill Irwin: Agencies from the State and NorthStar, and previously Entergy, have worked to try to come to agreements that are best for the public and environment in final end state. Whenever there are negotiations there is a give and take and we are still in those negotiation steps which would be signified in the PUC's final adjudication of the docket that we are watching now.

David Andrews: We should discuss MARSSIM modeling for 2018. Bill Irwin: I could make a presentation on that in the future.

UPDATES, WRAP UP AND ADJOURN:

This discussion begins at 02:25:30 on the meeting recording.

Next meeting: January 25, 2018
2018 meeting dates will be available on the state website.

Thank you to Jack Boyle as this is his last NDCAP meeting. He will be retiring from Entergy at the end of the year. Corey Daniels will take his place on the Panel effective January 1, 2018.

MEETING ADJOURNED AT 8:29pm

NOTE: Video of meeting will be available at brattleborotv.org. Slides of all presentations are available at http://publicservice.vermont.gov/electric/ndcap .