



2017 Report to the Legislature-
on the
State Nuclear Safety Inspector's Oversight Activities
of the
Independent Spent Fuel Storage Installation (ISFSI)
at the
Maine Yankee Site in Wiscasset, Maine

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Energy, Utilities, and Technology**
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Executive Summary

The storage of the high level waste in Wiscasset is an important issue to the State. It creates an undue burden to the local community and State by not being able to reuse or redevelop prime, coastal real estate. Moreover, it sets up a potential terrorist target that could result in future unintended consequences. Furthermore, the Obama Administration's decision to withdraw the Department of Energy's (DOE) license application before the Nuclear Regulatory Commission (NRC) effectively terminated the Yucca Mountain repository, potentially imposing on our citizens a de facto high-level nuclear waste dump site in Maine.

The following report details the State Nuclear Safety Inspector's (SNSI) oversight activities for the calendar year 2017 performed at Maine Yankee's Independent Spent Fuel Storage Installation (ISFSI) in Wiscasset. Section 2 of the report describes the activities undertaken. The report also includes highlights of national and global developments.

Locally, Maine Yankee had some notable activities for the year. First, after the Federal Appeals Court awarded Maine Yankee \$24.6 million as part of its third successful litigation of the federal government's breach of contract for not taking title and possession of the spent nuclear fuel stranded in Wiscasset in 2016, Maine Yankee filed their fourth lawsuit to retrieve \$24.6 million for operating expenses for the years 2013 through 2016. Since Maine Yankee has already in place deed restrictions and an Environment Covenant with the Department of Environmental Protection (DEP) to restrict groundwater usage, Maine Yankee proposed that additional sampling of its seven remaining groundwater wells was unwarranted as the naturally high concentrations of Iron, Manganese, and Arsenic would essentially remain high for at least the next 100 years. As part of a DOE grant, the Colorado School of Mines selected Maine Yankee as one of several prospective storage sites for testing spent fuel canister specimens to assess the effect of normal dry storage conditions on canister materials.

There was very little movement on the national scene this year to move the spent nuclear fuel stored at Maine Yankee, or other reactor sites throughout the country. Congress was still deadlocked over the management of spent fuel with the House supporting the resumption of the Yucca Mountain Project and the Senate focused on developing consolidated interim storage facilities. However, there were four interesting congressional initiatives on the House side. The first involved amendments to the Nuclear Waste Policy Act of 2017 that would move the Yucca Mountain licensing process forward and allow the Secretary of Energy to move stranded fuel at decommissioned sites to a consolidated storage facility should a final decision on Yucca Mountain appear imminent. The second proposed legislation, the "Interim Consolidated Storage Act of 2017," authorized the Energy Secretary to enter into contracts with private storage facilities to store used nuclear fuel. The third initiative, the Nuclear Waste Informed Consent Act, was a proposal from Nevada's congressional delegation to hamper Yucca Mountain supporters by requiring DOE to obtain consent from affected state, local, and tribal governments before making any expenditures from the Nuclear Waste Fund for a nuclear waste repository. Finally, there was the proposed Sensible Nuclear Waste Disposition Act that would restrain DOE from constructing their own defense waste repository.

The past year had more activity than previous years. For example, Texas' Attorney General filed suit in the 5th Circuit Court of Appeals to force NRC to render a decision on the Yucca Mountain licensing proceedings and to prevent the DOE from using any funds from the Nuclear Waste Fund for consent-based siting. The suit was followed quickly by two counter proposals, one from the Nuclear Energy Institute and one from the State of Nevada to dismiss the Texas motion. Next, as part of the previous Administration's nuclear waste management strategy, DOE submitted their Consent-Based Siting Report, which was shelved due to the present Administration's directive to resume the Yucca Mountain licensing process. However, after three years, DOE re-opened the only operating geologic repository in the world for nuclear wastes, the Waste Isolation Pilot Project

in New Mexico. The WIPP facility specializes in disposing of weapons era plutonium wastes. Finally, DOE published their de-inventory report that evaluated the most likely transportation modes for shipping all the spent fuel from Maine Yankee to a hypothetical disposal facility at the geographical center of the United States.

There were other notable activities that involved consolidated interim storage facilities. NRC notified Waste Control Specialists (WCS) that they had accepted WCS' license application for formal review of their proposed facility in west Texas. Shortly thereafter, Holtec International submitted their license application to construct an interim storage facility in nearby New Mexico. Subsequently, WCS requested the NRC to suspend their licensing review of their application due to some financial hardships pending their merger with another low-level radioactive waste broker. The merger was immediately contested by the Justice Department on antitrust grounds. The federal courts later ruled in favor of the Justice Department blocking the merger and placing the WCS future licensing process in jeopardy.

1.0 Introduction

1.1 Historical Perspective

The State had one nuclear power plant, called the Maine Yankee Atomic Power plant (Maine Yankee), and it was located in Wiscasset, Maine. It operated from the fall of 1972 to December 1996. Maine Yankee was initially rated at about 825 megawatts electric or 2440 megawatts thermal and by the end of its life the Maine Yankee plant was producing slightly over 900 megawatts of electricity.

At the time of its final shutdown in December 1996, the plant owners were facing some major issues, principally cable separation and other problems relating to the Nuclear Regulatory Commission's (NRC) Independent Safety Assessment Team (ISAT) findings pertaining to plant safety systems, such as the failure to adequately test safety related components, the undiscovered deficient conditions of the service water and auxiliary feed water systems, post-trip reviews that lacked rigor and completeness, and ineffective corrective actions leading to repetitive problems to name a few. Although the NRC considered the overall performance adequate for operation, the weaknesses stemmed from economic pressures to contain costs and poor problem identification. The State was also a participant in the ISAT process and a member of the NRC's Independent Safety Assessment Team. The State's Team was comprised of the State's Nuclear Safety Advisor and Inspector, and a contracted Maine Mechanical Engineer. In addition, the State also hired a former NRC Commissioner as an advisor to the State on the NRC's ISAT process.

In 1997, the plant owners decided that the likelihood of operating at a profit was non-existent considering Maine's electric restructuring act passed that same year. With the availability of cheaper power from Canada, the plant was no longer considered economically viable. In May 1997, Maine Yankee's owners announced that it would either sell or close the plant if there were no buyers. Despite a serious assessment performed by Philadelphia Electric Company to purchase Maine Yankee, in July 1997, both parties could not come to an agreement and in August 1997, the Maine Yankee Board of Directors voted to shut down the plant permanently and commence the immediate dismantlement of the nuclear facility. The planning process for the site's decommissioning began shortly after the official closure and the decommissioning lasted nearly eight years from 1997 to 2005.

When the Nuclear Waste Policy Act (NWPA) was enacted in 1982, Congress assumed that a national repository would be available by 1998 for the disposal of the spent fuel. The NWPA mandated the Department of Energy (DOE) to take title and possession of the nation's spent nuclear fuel in 1998. Since the high-level waste repository at Yucca Mountain in Nevada had experienced significant licensing and construction delays, DOE was unable to take title and possession of the nation's spent fuel and consequently breached its legal contracts with all the nation's nuclear power utilities.

Because the DOE was unable to fulfill its contractual obligations to accept the spent nuclear fuel by January 1998, Maine Yankee was compelled to construct an ISFSI in Wiscasset to store the high-level waste in casks until a consolidated interim facility is constructed to store the waste, or a national repository becomes available to dispose of the used nuclear fuel. The ISFSI stores the 1434 spent fuel assemblies that were previously housed in the spent fuel pool in the plant, into 60 storage casks on-site. Another four casks contain some of the more radioactive components of the reactor internals that were cut up during decommissioning, because their radioactive concentrations were too high to dispose of at a low level radioactive waste disposal facility. These are expected to be shipped along with the spent fuel to a deep geologic repository when one becomes available sometime in the future.

Consequently, Maine Yankee filed a lawsuit against the federal government to recoup its ISFSI costs. However, Court precedent dictated that damage awards can only cover costs that have been incurred. Maine Yankee was therefore required to submit periodic filings to recover their costs for the construction and operation of the ISFSI. The initial lawsuit covered the period from 1998 through 2002 and after 14 years of litigation the Courts' awarded Maine Yankee \$81.7 million. The second lawsuit covered the years through 2008. Again, the Court decided in 2013 in Maine Yankee's favor and awarded it \$35.7 million. Maine Yankee filed a third lawsuit in 2013 for the years 2009 through 2012 and was finally awarded \$24.6 million in 2016. Maine Yankee has stated that it will continue its periodic filings until the spent nuclear fuel is removed from the Wiscasset site.

Although President Bush recommended to Congress and Congress approved the Yucca facility as the nation's federal repository for spent nuclear fuel in 2002, the DOE did not submit a license application until June of 2008, which was accepted for review by the NRC in September of 2008. Since then, the Obama Administration and Energy Secretary Chu had advocated for the termination of the Yucca Mountain site as they no longer considered it a viable option. Thus, in March 2010, without any technical or safety merits, the DOE submitted a motion to the NRC's Atomic Safety and Licensing Board to withdraw its Yucca Mountain license application. Energy Secretary Chu then assembled a Blue-Ribbon Commission of experts to review alternative strategies for managing the nation's nuclear waste. The Commission issued a report in January 2012 that provided a blueprint on how the nation should manage its spent nuclear fuel. The Report contained eight essential key elements and proposed six legislative changes to affect its recommendations. Of the eight recommendations two would be critical in moving the used nuclear fuel from the Wiscasset facility. The first is the construction of one or more consolidated interim storage facilities. The second is the provision that decommissioned sites would receive first priority in the movement of their stranded spent fuel.

In January 2013, the DOE issued its strategy for the management and disposal of spent nuclear fuel and high-level radioactive waste. Their document incorporated some of the Blue-Ribbon Commission's key principles such as a consent-based process and a storage and disposal framework that would include a pilot interim storage facility, a larger full-scale storage facility and a geologic disposal repository with priority given to shut-down reactor sites. However, congressional legislation would be required to enact portions of the Administration's integrated strategy. This has proven difficult as Congress is at an impasse with the House fixated on the Nuclear Waste Policy Act and the Yucca Mountain Project, while the Senate is more focused on moving beyond Yucca Mountain and enacting new legislation that would embody some of the Blue-Ribbon Commission's key recommendations. Even with this stalemate there are some willing communities seeking to host spent nuclear fuel facilities, such as near Carlsbad, New Mexico and Andrews County in west Texas. Despite State opposition, Nye County in Nevada has reaffirmed their commitment to host the Yucca Mountain repository, if it is deemed safe by the NRC. Eight other counties in Nevada have also affirmed their commitment to the Yucca Mountain Project.

It became apparent that the Courts would have to weigh in and decide on the merits of lawsuits brought against the federal government. In August 2013, the U.S. Court of Appeals for the District of Columbia Circuit issued its long-awaited decision and ruled in favor of the writ of mandamus ordering the Nuclear Regulatory Commission to resume the terminated Yucca Mountain Licensing Process. In November 2013, the Appeals Court followed suit and issued an Order for the Energy Department to cease collecting the Nuclear Waste Fund fee from nuclear utilities until such time Yucca Mountain is revived or Congress authorizes an alternative waste management plan. The DOE officially ceased collecting fees in May 2014.

There was some movement on the national front to store the nation's nuclear stockpile by moving spent nuclear fuel from storage facilities at former and current nuclear power facilities to interim storage sites.

Waste Control Specialists (WCS), which operates a low-level radioactive waste facility, filed a licensed application in April of 2016 with the NRC to construct a consolidated interim storage facility in Andrews County, Texas. Holtec International, a manufacturer of spent fuel casks, also joined WCS by filing with the NRC in March 2017 their intent to construct and operate a consolidated spent fuel storage facility. In both cases the NRC's timetable indicated that both facilities could be licensed by 2020. After experiencing financial challenges with the license application process, WCS was poised to sell its company to Energy Solutions, the largest operator of low-level radioactive wastes in the United States. However, the Department of Justice intervened on the merger on antitrust grounds, which delayed the sale pending the Court's ruling. With this uncertainty, in April of 2017 WCS requested the NRC suspend their safety and environmental licensing reviews of WCS's license application until further notice. In June WCS learned that the Court ruled in favor of the federal government and blocked the WCS merger. During this interlude the Congressional stalemate continued with no changes in posture by either the House or the Senate.

1.2 Law

The spent fuel at Maine Yankee is likely to be stored in Wiscasset for decades to come. In March of 2008, in the second regular session of the 123rd Legislature, the Legislature enacted and the Governor signed into law the establishment of the State Nuclear Safety Inspector Office within the Department of Health and Human Services to provide independent oversight of the Maine Yankee ISFSI. The law also mandated that an Oversight Group, comprised of various state agencies, Maine Yankee and an independent expert in radiological and nuclear engineering, meet on a quarterly basis to discuss the protection of public health and safety at the ISFSI site and be involved in national activities that would hasten the timely removal of the spent nuclear fuel from the site. The law went into effect June 29, 2008. After much discussion, the Oversight Group chose not to hire an independent expert since the Group collectively possessed the necessary expertise and reported this decision in its 2009 annual report to the Legislature.

2.0 State Nuclear Safety Inspector Activities

The State Nuclear Safety Inspector's (SNSI) oversight role includes the following tasks:

- Reviews daily the operational and security reports from the on-site security staff;
- Attends site supervisor and security shift turnovers at least monthly;
- Performs environmental surveillance of the Maine Yankee environs to include field measurements of the local radiation levels;
- Evaluates transit and storage radiation exposure impacts on environmental radiation dosimeters employed in the State's environmental surveillance program;
- Observes and participates, as appropriate, in the biennial Nuclear Regulatory Commission inspection of the facility;
- Observes Maine Yankee's annual Fire and Medical drill;
- Participates in the ISFSI's annual emergency plan training and exercise;
- Reports activities monthly and annually to the Legislature;
- Provides an annual accounting to the Legislature of the funds received and disbursed out of the Interim Spent Fuel Storage Facility Oversight Fund;
- Interfaces with various state agencies also performing oversight functions at the ISFSI;
- Reviews and comments, if appropriate, on Maine Yankee submittals to the Nuclear Regulatory Commission;
- Reviews Department of Energy reports on Maine Yankee;

- Provides an annual State update to Maine Yankee's Community Advisory Panel on Spent Nuclear Fuel Storage and Removal;
- Participates in regional and national organizations and three national Ad Hoc Working Groups involved in the Yucca Mountain project in Nevada and the development of a national transportation network for moving used nuclear fuel to consolidated interim storage sites; and
- Investigates and monitors websites to keep abreast of national developments on spent nuclear waste management and research.

The following sections contain the SNSI'S activities for the 2017 calendar year under certain broad categories covering the ISFSI, environmental surveillance around the Maine Yankee site, regional and national activities, and noteworthy items on the national repository situation.

2.1 Independent Spent Fuel Storage Installation (ISFSI)

2.1.1 Annual Inspection

Since the NRC performs biennial inspections of ISFSIs and the last inspection was conducted in April of 2016, there were no NRC inspections of the Wiscasset facility in 2017. The next scheduled inspection is for April of 2018.

2.1.2 Annual Drills and Exercises

On an annual basis Maine Yankee is required to perform an emergency plan drill, a radiological drill, a medical drill and a fire drill.

In May, Maine Yankee held its annual fire and medical drill. The Wiscasset and Westport Island fire and ambulance services were called to the scene to tend to a fire in the body of a man-lift and an injured person who fell from the man-lift trying to escape when it caught on fire. There was excellent participation from both organizations including a post-drill brief that identified some improvement opportunities.

Early in October, Maine Yankee conducted its annual emergency plan training with state officials representing the Maine Emergency Management Agency, the State Radiation Control Program, the Maine National Guard Civil Support Team, and the Lincoln County Emergency Management Agency. Training included an overview of the expectations associated with the emergency action levels, who would be notified, and the expected radiation levels near the concrete casks.

Later in October, Maine Yankee conducted an annual emergency plan drill. The scenario involved a severe weather storm closing in on the mid-coast area. While the staff was securing equipment due to rain and high winds a lightning strike was observed within the protected area. The staff immediately radioed the Central Alarm Station of the strike. The Central Alarm Station simultaneously received a report of a High Temperature Alarm on one of the vertical concrete casks temperature monitoring devices. A security officer was sent to the Temperature Monitoring System and found the temperature sensor had failed. A security force member was dispatched to visually inspect the cask. As security approached the cask the radiation levels went up and some small debris was observed on the pad from the lightning strike. The area was roped off and discussions ensued on how best to repair the concrete cask and lower the radiation levels.

2.1.3 Daily ISFSI Operations Pass-Ons

The on-shift Security Supervisor forwards the ISFSI Pass-On, three times daily, to the State Inspector. The Pass-On provides an overview per shift of the ISFSI status, the cask monitoring

status, procedures/surveillances/work in progress, equipment out of service, alarm issues and team information. It is from these daily reports that the information is collected for condition reports, fire or security related impairments, security incident reports, spurious alarms, and discussed with the ISFSI Manager prior to its disclosure in the State Inspector's annual report to the Legislature.

2.1.4 Maine Yankee Reports to the Nuclear Regulatory Commission (NRC)

In January, Maine Yankee provided advance notification to the NRC of significant changes to its ISFSI decommissioning schedule that included a new decommissioning cost estimate for the management of the spent nuclear fuel and Greater Than Class C waste from 2016 through 2036. The updated ISFSI decommissioning cost estimate now stands at \$28.1 million, based on 2016 dollars, with \$22.1 million for radiological removal and \$6 million for non-radioactive removal.

In February, Maine Yankee submitted to the NRC an updated version of its Post Shutdown Decommissioning Activities Report and its License Termination Plan to reflect its new Decommissioning Cost Estimate and schedule from 2016 through 2036.

In March, Maine Yankee submitted to the NRC its Decommissioning Funding Assurance Status Report and a Funding Status Report for Managing Irradiated (Spent Nuclear) Fuel. The Decommissioning Fund estimated the decommissioning of the storage facility in 2035 would cost about \$22.1 million in current dollars and that \$32.4 million was now available. According to the Funding Status Report, the Fund had accrued \$116.9 million to date and \$187.9 million would be required through 2036 to safeguard the spent fuel. The decommissioning funds are segregated from the larger funds used for the ongoing management of the spent nuclear fuel. Maine Yankee also has at its disposal three methods by which it could obtain additional funds should that be necessary. The first involved their investment return on their Decommissioning Trust Fund, which had an assumed rate of return of 4.5% after fees and taxes. Second, they could collect funds from their power contracts and amendatory agreements with other utilities that own Maine Yankee. Finally, they could receive contract damages from DOE for the federal government's failure to take title and possession of the spent fuel in Wiscasset.

In April, Maine Yankee submitted three annual reports to the NRC, its 2016 individual monitoring report, its radioactive effluent release report, and its radiological environmental operating report. The individual monitoring report noted that no individual received a dose equal to or greater than 100 mrem¹. Consequently, no reports had to be sent to individuals in accordance with NRC regulations. Since the storage casks are virtually leak tight, there were no planned or unplanned gaseous or liquid releases to report for the year. Since there were no effluent releases from the casks, Maine Yankee was only required to monitor the direct radiation exposure from the facility, which it does with passive devices, called thermoluminescent dosimeters (TLDs)². The environmental monitoring report explained that Maine Yankee has nine TLD stations near the ISFSI and one control station at the Wiscasset Fire Station. All nine stations were comparable to or in some cases slightly higher than the control station. However, there was one station that was noticeably higher than the other eight ISFSI stations. This

¹ A mrem or millirem is a conventional unit that is based on how much of the radiation energy is absorbed by the human body multiplied by a quality factor that is a measure of the relative hazard for the different types of particles or rays.

² Thermoluminescent Dosimeters (TLD) are very small, plastic-like phosphors or crystals that are placed in a small plastic cage and mounted on trees, telephone poles, etc. to absorb any radiation that impinges on the material. Special readers are then used to heat the plastic to release the energy that was stored when the radiation was absorbed by the plastic. The energy released is in the form of invisible light that is counted by the TLD reader. The intensity of the light emitted from the crystals is directly proportional to the amount of radiation that the TLD phosphor was exposed to.

location has been consistently high since March 2005. Due to its distance from the bermed area, the higher values were assumed to be due to its line of sight and proximity to the ISFSI. Maine Yankee calculated an annual dose of 1.28 mrem at its highest TLD location, which was much lower than the Environmental Protection Agency's annual public limit of 25 mrem.

In August, Maine Yankee submitted to the NRC a revision to its Irradiated Fuel Management Plan. The changes were essentially editorial and were not considered significant. The Plan provides a general status update of spent fuel activities at the storage facility, references a schedule from its Post-Shutdown Decommissioning Activities Report on the time period for storing the spent fuel and projected a date of 2034 for transferring the used fuel to DOE, and affirmed that it provides an annual report to the NRC on the funding associated with managing the irradiated fuel.

In September, Maine Yankee submitted its annual Special Nuclear Material (SNM) Report to DOE and the NRC. The report represents the material accountability for fissionable material, such as Uranium-233, Uranium-235, Plutonium-238, and Plutonium-239 on U.S. Government owned or non-U.S. owned nuclear fuel between beginning and ending inventories, radioactive decay differences, if any, and receipts of or removals of SNM. The report also includes source material such as natural Uranium and Thorium, and whether the Uranium is normal, depleted, or enriched.

2.1.5 Security Plan

There were no changes to the Security Plan in 2017 that warranted a submittal to NRC.

2.1.6 Interface with Other State Agencies

2.1.6.1 Interim Spent Fuel Storage Facility Oversight Group

As part of the legislation's mandate, on a quarterly basis, the State Inspector and the Manager of the Radiation Control Program, met with State Police, the Public Advocate, the Department of Environmental Protection (DEP) and Maine Yankee to discuss oversight activities at the ISFSI. The quarterly meeting dates were January 10, April 11, July 11, and October 10. The Manager of the Radiation Control Program distributed the Group's 2016 Annual Report to the Legislature. At the meetings Maine Yankee provided a status of their activities followed by the State Inspector's update of his past, current and planned near term activities such as his participation in three national groups, with one focused on developing recommendations from states to the Department of Energy on emergency preparedness for local communities on spent fuel shipments traversing their jurisdictions, one ad hoc working group on communications, and a rail/routing group in preparation of a national transportation plan and shipment program. Discussions also centered on the Group's annual and financial reports to the Legislature, including the Inspector's initiative to further streamline his monthly reports, national and congressional efforts on spent fuel waste management, especially centralized interim storage at some away facility outside of New England such as Texas and New Mexico who are leading efforts in establishing consolidated interim storage facilities, the status of litigation efforts in the Federal Energy Regulatory Commission rate case settlement cases pending before the federal Appeals Court, the State's environmental radiation monitoring data and its storage exposure assessment of the control TLDs at the State's Health and Environmental Testing Laboratory (HETL). Other topics included Maine Yankee's periodic chemical sampling of wells on-site for the extent of contaminants as part of DEP's Resource Conservation and Recovery Act mandates. Maine Yankee proposed and DEP acknowledged Maine Yankee's proposed well changes and concurred on 14 of the 21

wells proposed for abandonment and capping. Since Maine Yankee has already in place deed restrictions and an Environment Covenant with DEP to restrict groundwater usage, Maine Yankee also proposed that further sampling of the seven remaining wells was unwarranted as the naturally high concentrations of Iron, Manganese, and Arsenic would conceivably remain high for at least the next 100 years. The State Police reported that there were no intelligence issues affecting Maine Yankee and that they were concentrating on infrastructure issues.

2.1.6.2 Department of Environmental Protection

In March, Maine Yankee submitted to the Maine Department of Environmental Protection (DEP) its records for the abandonment of 14 monitoring wells in 2016 that were part of its chemical monitoring of the site in accordance with a 30-year Agreement with DEP. Five additional legacy wells were also abandoned. All 19 wells met DEP's guidance for well abandonment. The next scheduled groundwater sampling of the seven remaining wells will take place in 2018.

In July, Maine Yankee submitted to DEP their comments on DEP's Resource Conservation and Recovery Act (RCRA) 2020 list and its impact on the future monitoring and closure of the Maine Yankee site. Maine Yankee offered supporting comments from Robert Gerber, a hydrogeologist who has been familiar with the Maine Yankee site since the 1960s. Mr. Gerber commented on how the RCRA Corrective Action process could be simplified such as quicker reviews, face-to-face meetings to resolve technical issues, and ways to minimize post-closure monitoring.

In October, Maine Yankee proposed to DEP some monitoring changes to their chemical groundwater sampling program. The present program started in 2005 and required three samplings every fifth year until 2035. Currently, there are seven remaining sampling wells on-site. After careful review and analysis Maine Yankee determined that further sampling was unwarranted as an Environmental Covenant exists between the DEP and Maine Yankee that places activity and restrictions on the use of the property that is recorded in the Lincoln County Registry of Deeds and the Bailey Point peninsula is controlled under tight security until the spent nuclear fuel is moved to a centralized storage facility or geologic disposal repository, which may take a decade or more before any movement takes place.

2.1.6.3 State Radiation Control Program

In October Maine Yankee responded to the State's Low-Level Waste Questionnaire for 2016. The company reported that, in 2016, it had shipped 0.29 cubic feet of waste, weighing less than 0.5 pounds with a radioactivity level of 15.4 micro-curies. The radioactivity was associated with very small radioactive sources that were used to make sure that their on-site radiation detection instruments were functioning properly and responding to radiation.

2.1.7 ISFSI Topics

2.1.7.1 ISFSI Status

The status of the ISFSI was normal for the whole year.

2.1.7.2 Security Related Incident Reports/Events/Impairments/

Although there were no spurious alarms due to environmental conditions, there were twenty-six security-related impairments for the year. There were 58 security incident

reports (SIR) and 18 Compensatory Measurements Implementation (CMI) logged in 2017 as compared to 56 SIRs in 2016. This compares to 72 SIRs logged in 2015 as compared to 44 security events logged (SEL) and 16 SIRs in 2014, 70 SELs in 2013, 145 SELs in 2012 and 142 SELs in 2011. It should be noted that prior to October 2014 Maine Yankee employed a SEL tracking system. Except for the name change, there were no fundamental changes or differences in thresholds between the present and previous tracking systems. However, in November of 2017 Maine Yankee again restructured its reporting system for security-related issues into two categories. SIRs would be devoted strictly to those events that were unplanned and of more serious security issues whereas the CMIs would be assigned to those planned events that require compensatory measures to ensure security means are in place for coverage of planned maintenance activities on security-related equipment.

Of the 18 CMIs logged, 13 were for planned maintenance activities, one was for loss of off-site power, and five were for security system degradation. The five activities related to the system degradation employ security sensitive information that is not available for public disclosure.

Of the 58 SIRs, which included twenty-six impairments, 16 were related to planned maintenance activities, 12 were for security system degradations and not disclosed here for security reasons, 10 involved snow removal, five were due to loss of off-site power, five involved camera issues, three were alarm related, one was an intermittent issue, one related to a problem with logging on a computer, one included an environmental condition affecting security-related equipment, one involved a discrepancy with offsite vendor communications, one was due to a temporary loss of some of the protected area lighting during a lightning storm, one involved a degraded security system that was found during periodic performance testing, and one had to do with a repair of a digital video recorder.

There were two instances in 2017 that prompted follow-up action. A car came onto Maine Yankee property and parked on the grass to watch deer in the little field. When the same car returned the following evening and parked in the same location to look for deer, Maine Yankee contacted the local Game Warden and the Wiscasset Police Department who tracked down the vehicle's owner and issued a trespass warning. Historically, there were no instances in 2016 as compared to five instances in 2015, four in 2014, three in 2013 to 15 in 2012, six in 2011 versus 15 in 2010 and only two in 2009.

2.1.7.3 Fire Related Events/Impairments

There were four fire-related impairments reported in 2017 as compared to one in 2016, five in 2015, eight in 2014, ten in 2013, six in 2012, and eleven in 2011. The first impairment occurred in June and involved a repair of an alarm on the Fire Protection System. The next two impairments occurred in October and both were related to alarm issues with the first involving a trouble alarm and the second random alarms. The last impairment occurred in December and involved a roving fire watch setup on a core bore through a fire rated wall that was properly sealed after the work was done.

2.1.7.4 Condition Reports

There were 230 condition reports (CR) written in 2017 as compared to 182 in 2016, 223 in 2015, 177 in 2014, 163 in 2013, 184 in 2012, and 80 in 2011. A CR promptly alerts management to potential conditions that may be adverse to quality or safety. Any ISFSI

facility worker can initiate a CR. The CR prompts management to activate a process to identify causal factors and document corrective and preventative measures. The majority of the CRs are administrative in nature. CRs are wide ranging. Examples include a plastic drain pipe cap damaged during snow removal, a missing signature on a training document, a staff member taking their radiation dosimetry home, company truck with dash lights blinking on and off, an alarm on a security system, snow removal equipment inadvertently contacting a handrail on the aluminum access stairs on a pad, a broken gutter down spout fitting at the Maintenance Building, three loose grounding wires found on the concrete pad, found a sink hole at the south end of the property, a momentary loss of off-site power, floor tiles in the entrance lifting/separating from the concrete, a minor rain water leak on the east wall of the Security and Operations Building, guidance in one procedure did not match guidance from two other procedures, the adhesive chest pads in the AED defibrillator were expired, a problem was identified with an industrial camera, a small hydraulic leak to pavement, a ballast failure of an overhead light in a closet, a trouble alarm in the Fire Alarm Panel, discrepancies between controlled drawings and field conditions, the latch on a door was sticking, etc.

A complete list of CR's can be found in Appendix A. It should be noted that in May of 2012, Maine Yankee consolidated several programs into the CR System as an all-purpose tracking and documentation system. This change explains the sudden increase in CRs and the prevalence of multiple CRs for an issue.

2.1.7.5 Other ISFSI Related Activities

In January, Maine Yankee provided advance notification to the NRC of significant changes to its ISFSI decommissioning schedule that included a new decommissioning cost estimate for the management of the spent nuclear fuel and Greater Than Class C waste from 2016 through 2036. The updated ISFSI decommissioning cost estimate now stands at \$28.1 million, based on 2016 dollars, with \$22.1 million for radiological removal and \$6 million for non-radioactive removal. The previous cost estimate covered the period from 2016 through 2033.

In February, Maine Yankee submitted to the NRC an updated version of its Post Shutdown Decommissioning Activities Report and its License Termination Plan to reflect its new Decommissioning Cost Estimate and schedule from 2016 through 2036.

In March, Maine Yankee submitted to the Maine Department of Environmental Protection (DEP) its records for the abandonment of 14 monitoring wells in 2016 that were part of its chemical monitoring of the site in accordance with a 30-year Agreement with DEP. Five additional legacy wells were also abandoned. All 19 wells met DEP's guidance for well abandonment. The next scheduled groundwater sampling of the seven remaining wells will take place in 2018.

Also in March, Maine Yankee submitted to the NRC its Decommissioning Funding Assurance Status Report and a Funding Status Report for Managing Irradiated (Spent Nuclear) Fuel. The Decommissioning Fund estimated the decommissioning of the storage facility in 2035 would cost about \$22.1 million in current dollars and that \$32.4 million was now available. According to the Funding Status Report, the Fund had accrued \$116.9 million to date and \$187.9 million would be required through 2036 to safeguard the spent fuel. The decommissioning funds are segregated from the larger funds used for the ongoing management of the spent nuclear fuel. Maine Yankee also

has at its disposal several methods by which it could obtain additional funds should that be necessary.

In April, Maine Yankee notified the NRC of a change in its Board's membership. An Eversource Energy member resigned and another was appointed. Eversource Energy is a New England company formed by the 2015 merger of Northeast Utilities and its operating companies and NSTAR. Eversource has a 24% ownership in Maine Yankee.

Also in April, Maine Yankee submitted three annual reports to the NRC, its 2016 individual monitoring report, its radioactive effluent release report, and its radiological environmental operating report. The individual monitoring report noted that no individual received a dose equal to or greater than 100 mrem³. Since the storage casks are virtually leak tight, there were no gaseous or liquid releases to report for the year. The environmental report summarized the results of the direct radiation measurements for nine locations on-site and two control stations off-site. One location has been consistently high since March of 2005. The higher values over time have been assumed to be due to the station's line of sight and proximity to the ISFSI. Maine Yankee calculated an annual dose of 1.28 mrem at its highest location, which was much lower than the Environmental Protection Agency's annual public limit of 25 mrem.

What's more in April, the Department of Energy (DOE) published an initial report and then held a webinar on its analysis of how it would ship all the spent nuclear fuel from the Maine Yankee site. The Department initially evaluated six heavy haul truck scenarios, five direct rail situations, and five barging options. Since there were no storage or disposal locations, DOE used a fictitious location at the geographical center of the continental U.S. (GCUS). In its latest screening, DOE assessed six potential shipping routes: a heavy haul truck from Maine Yankee to Portland and then by rail to the GCUS, rail from Maine Yankee by Barber's Junction in Massachusetts to GCUS, a barge from Maine Yankee to Portland and then by rail to the GCUS, rail from Maine Yankee to near Boston to the GCUS, rail from the Maine Yankee site to New York City to the GCUS, and finally, a barge from Maine Yankee to Norfolk, Virginia and then by rail to the GCUS. Sixteen weighting factors such as costs, risks, population and worker doses, infrastructure, and security were employed to evaluate each route. Of the six scenarios, the most likely shipping route would be by direct rail from Maine Yankee through Barber's Junction in Massachusetts to GCUS. DOE calculated a likely turnaround of six weeks from loading the spent fuel canisters into shipping casks to the GCUS and return of the empty shipping casks to the Maine Yankee site. DOE assumed that it would take 13 shipping campaigns and take approximately 20 months to remove all the spent nuclear fuel and Greater Than Class C wastes from the site at an estimated cost of about \$24 million.

In May, the Colorado School of Mines received funding from DOE and retained Maine Yankee as one of several prospective host sites for testing canister samples to assess the effect of normal dry storage conditions on canister materials. The test results should benefit the industry's relicensing and aging management programs.

³ A mrem or millirem is a conventional unit that is based on how much of the radiation energy is absorbed by the human body multiplied by a quality factor that is a measure of the relative hazard for the different types of particles or rays.

In June, the Chief Nuclear Officer of Maine Yankee, as the Chairman of the Decommissioning Plant Coalition representing eleven shutdown plants across the country, sent a letter to the Chair and Ranking Member of the House Subcommittee on Environment expressing his support and appreciation on the Subcommittee's efforts to break the congressional stalemate on nuclear waste policy and advance legislation on managing the nation's spent nuclear fuel and high-level radioactive waste. He welcomed the provisions of the proposed legislation that would move the Yucca Mountain licensing process forward and allow the Secretary of Energy to contract with commercial organizations to store the nation's waste. He expressed his concerns over the legislation's proposed linkage on storage to an "up or down" vote by the NRC on the Yucca Mountain license application. Finally, he strongly urged the Subcommittee to move forward on a pilot project to consolidate and store the spent nuclear fuel and high-level waste from decommissioned sites, such as Maine Yankee.

In July, at the quarterly briefing of the Yankee Atomic, Maine Yankee, and Connecticut Yankee Federal Energy Regulatory Commission's Rate Case Settlement Parties, the General Counsel reported that the three utilities had filed their Phase IV spent fuel lawsuit against DOE to address damages incurred from 2013 through 2016 for DOE's failure to take their spent fuel. The Government was expected to file a motion to force the three Yankees to prove their case with a trial date projected for next year.

Also in July, Maine Yankee submitted to DEP their comments on DEP's Resource Conservation and Recovery Act (RCRA) 2020 list and its impact on the future monitoring and closure of the Maine Yankee site. Maine Yankee offered supporting comments from Robert Gerber, a hydrogeologist who has been familiar with the Maine Yankee site since the 1960s. Mr. Gerber commented on how the RCRA Corrective Action process could be simplified such as quicker reviews, face-to-face meetings to resolve technical issues, and ways to minimize post-closure monitoring.

In August, Maine Yankee submitted to the NRC a revision to its Irradiated Fuel Management Plan. The changes are essentially editorial and are not considered significant. The Plan provides a general status update of spent fuel activities at the storage facility, references a schedule from its Post-Shutdown Decommissioning Activities Report on the time period for storing the spent fuel and projected a date transferring the used fuel to DOE, and affirmed that it provided an annual report to the NRC on the funding associated with managing the irradiated fuel.

In October, the SNSI provided a yearly update to Maine Yankee's Community Advisory Panel (CAP) on Spent Nuclear Fuel Storage and Removal of his activities as part of his oversight function of the Maine Yankee storage facility in Wiscasset. The highlights of the overview included the status of the monthly and annual reports to the Legislature, participation in the Council of State Governments' Northeast Radioactive Waste Transportation Task Force and the DOE's National Transportation Stakeholders Forum (NTSF), participation in three national Ad-Hoc Working Groups for DOE's NTSF, assessment of the radiation dosimeter controls for Maine Yankee, reviewed and presented the DOE's assessed six shipping routes from Maine Yankee and the amounts of funds received and disbursed from the Maine Yankee Oversight Fund, and the status of the on-going assessment of the background exposure for control radiation dosimeters held at the State's Health and Environmental Testing Laboratory.

Also in October, the Maine Yankee's CAP forwarded a letter to Maine's Congressional delegation expressing encouragement at the Trump Administration's budget request to restart the Yucca Mountain licensing proceedings for a geologic repository. The CAP Chair stressed how a pilot consolidated interim storage program would benefit not only Maine residents but also help the federal government in meeting its obligations to remove the stranded nuclear fuel. He also highlighted the need for rail transportation casks and emergency preparedness training for local responders. Although hopeful that Congress will respond to resolve the nation's growing stockpile this fiscal year, he was disheartened at the lack of movement so far.

Moreover, Maine Yankee proposed to DEP in October some monitoring changes to their chemical groundwater sampling program. The present program started in 2005 and required three samplings every fifth year until 2035. Currently, there are seven remaining sampling wells on-site. After careful review and analysis Maine Yankee determined that further sampling was unwarranted as an Environmental Covenant exists between DEP and Maine Yankee that places activity and restrictions on the use of the property that is recorded in the Lincoln County Registry of Deeds and the Bailey Point peninsula is controlled under tight security until the spent nuclear fuel is moved to a centralized storage facility or geologic disposal repository, which may take a decade or more before any movement takes place.

2.2 Environmental

2.2.1 Radiological Environmental Monitoring Program (REMP) Description and Historical Perspective

Since 1970, the State has maintained an independent, radiological environmental monitoring program of the environs around Maine Yankee. An extensive quarterly sampling and analysis program was maintained over the years that included such media as salt and fresh water, milk, crabs, lobsters, fish, fruits, vegetables, and air. Since the decommissioning, the State's program was reduced twice to accommodate decreased funds for sample analyses at the State's Health and Environmental Testing Laboratory and the decreased likelihood of any contaminating event from the Maine Yankee site.

In late December 2009, after 39 years, the State ceased its air sampling station at the Maine Yankee site. In reviewing the historical air data and considering the leak tightness of the spent fuel casks, it was determined that there was no technical basis to continue the air monitoring location at the old Bailey Farm House. Although the air sampling station at Maine Yankee was discontinued, the State still maintains an active air sampling station on the roof of the Health and Environmental Testing Laboratory that acts as a control for comparative purposes during Maine Yankee's operating and decommissioning years. The State's air sampler at HETL is also available for radioactive fallout situations from national or global events. That proved to be instrumental in the quantifying of the impact from the Fukushima reactor accidents in March and April of 2011.

In June of 2010, the State performed another review of its Radiological Environmental Monitoring Program at the Maine Yankee site. The review determined that the quarterly surveillance sampling of freshwater at Ward's Brook in Wiscasset, and the seawater and seaweed sampling at the Ferry Landing on Westport Island would be discontinued permanently after 40 years. Both sampling stations were originally set up to monitor gaseous and liquid releases from Maine Yankee. Because the ISFSI does not release gaseous or liquid radioactivity and adequate

time had elapsed since the power plant was decommissioned in 2005 for statistical comparisons, there was no further technical justification for the continued sampling of the media at these stations.

In addition to the media sampling, over the years the State has maintained a robust TLD program to measure the radiation environment. The TLDs were initially placed within a 10 to 20-mile radius of the plant to measure the background radiation levels. Later, when the plant was operating, the initial results could be used as a baseline to compare with the TLD values recorded during the plant's operating years. Over time the number of TLDs more than doubled to over 90 to address public concerns over the clam flats in Bailey Cove after the steam generator sleeving outage in 1995-1996 and later, the construction of the ISFSI.

Although most of the REMP changes took place in prior years, in 2010 the State also implemented further reductions in the TLDs not only in the vicinity of the former nuclear power plant, but also in Bailey Cove. Of the nine remaining TLDs beyond the site's boundary, six were permanently discontinued after the second quarter's field replacement. The remaining three TLDs consisted of three controls, (one locally at the Edgecomb Fire Station, one near the site at the Ferry Landing on Westport Island, and one farther away on the roof of the State's Health and Environmental Testing Laboratory). At the time, this left 27 TLDs for the ISFSI and Bailey Cove. However, in late December of 2010, a final assessment was performed to consolidate the number of TLDs monitoring the ambient radiation levels near the ISFSI. Eight of the fourteen TLD locations from Bailey Cove were removed from the monitoring program. Of the remaining six Bailey Cove TLDs, four were reassigned as ISFSI TLDs to ensure coverage for the sixteen points of the compass. The four new stations were identified as N, O, P, and Q. The last two Bailey Cove stations were co-located with the State's solar powered environmental radiation monitors on the Maine Yankee site. The TLD changes went into effect in the first quarter field replacement in January 2011.

2.2.2 Thermoluminescent Dosimeters (TLDs)

As outlined in the historical context and as part of its independent oversight, the State maintains a TLD program to measure the quarterly ambient radiation levels at Maine Yankee, both in proximity of the ISFSI and at various locations within a five-mile radius. At the beginning of the year, the State's TLD program was focused on two areas - the ISFSI and its controls. The exceptions are the two co-located TLDs with the solar powered units. A future assessment on maintaining the solar powered units may be considered.

2.2.2.1 ISFSI TLDs

In October of 2000, in preparation for the spent nuclear fuel to be moved from the fuel pool and stored in concrete casks at the ISFSI, the SNSI, as part of his independent oversight, established 13 TLD locations to monitor the local radiation levels from the ISFSI. Since the spent fuel was projected to be moved in the fall of 2001, it was necessary to perform monthly TLD field replacements as opposed to quarterly to gather enough field data to establish a pre-operational baseline. The monthly regimen was converted to a quarterly frequency in the fall of 2004 after all the spent nuclear fuel was transferred from the pool to the ISFSI in February of 2004.

Initially, some of the state TLD locations were co-located with some of Maine Yankee's TLDs for future comparative purposes. In 2008, Maine Yankee reconfigured its TLD locations leaving 2 stations co-located. Since then, Maine Yankee performed some additional repositioning that resulted in only station M being co-located. To acquire

statistical weighting for each location, two TLDs were placed at each location. Each TLD has three plastic-like phosphors that capture radiation.

As noted in the historical perspective earlier, the current seventeen locations are identified by the letters A through Q in Figure 1, (courtesy of Maine Yankee), on page 15. Table 1 on page 16 lists the State's ISFSI results for the year. The average represents the mean of the six element phosphors and the range depicts the low and high values for the six crystals.

In the past the ISFSI TLDs demonstrated three separate groupings when it came to dose: elevated, slightly elevated and normal. However, it was observed this year that, besides stations G and K continuing to be high due to their proximity to the ISFSI, other stations appeared in the elevated grouping. Station F was in the elevated grouping all four quarters whereas G was in the slightly elevated grouping in one quarter. Station F's higher dose is most likely due to its location just north of the ISFSI's bermed area near the old East Access Road and influenced by skyshine. (Skyshine is when some gamma rays from the spent nuclear fuel bounce off the atmosphere and are scattered or redirected downward and add to the exposure that a location may receive, but would not normally receive because of an obstruction such as the berm in this case.) Stations L and Q were also elevated with L elevated for one quarter whereas Q was elevated for two of the four quarters. Station L is located on top of a concrete block on top of the knoll south of the ISFSI with visible bedrock showing. Station Q has historically been in the slightly elevated grouping with occasional periods in the elevated grouping. The location of Station Q is on top of a man-made ridge of rocks abutting the east side of Bailey Cove. The composition of the rocks natural radioactivity may explain the higher readings in comparison to other stations. As observed in Figure 2 on page 17 over time the difference between the normal and elevated stations is diminishing which may explain why more stations appear elevated, or the elevated stations are decreasing in dose due to the natural radioactive decay of the elements within the spent fuel and the stations' values are trending more to their natural background levels.

The results in Table 1 also clearly demonstrate that station E shows signs of influence from the ISFSI as seen in Figure 1 due to its short distance from the ISFSI. It too could experience the skyshine effect. Other stations also found themselves in the slightly elevated grouping. These included stations A, L, M, and O. Stations A, M, and O are normally found in the normal grouping. The diminishing differences between elevated and normal may also be playing a role as past increases were transitory and usually occurred in one quarter not two or more quarters as we are seeing this year. This could be another reason why the blending is becoming more prominent. Except for the elevated and slightly elevated groups, the remaining stations usually exhibit normal background levels

of radiation. At times, some of the stations may be grouped into the higher groupings, but it is usually transitory, lasting in most cases for only one quarter. The radiation levels from the elevated and slightly elevated stations are still fairly low with their levels rarely exceeding 40% of the other remaining background stations.

Figure 1

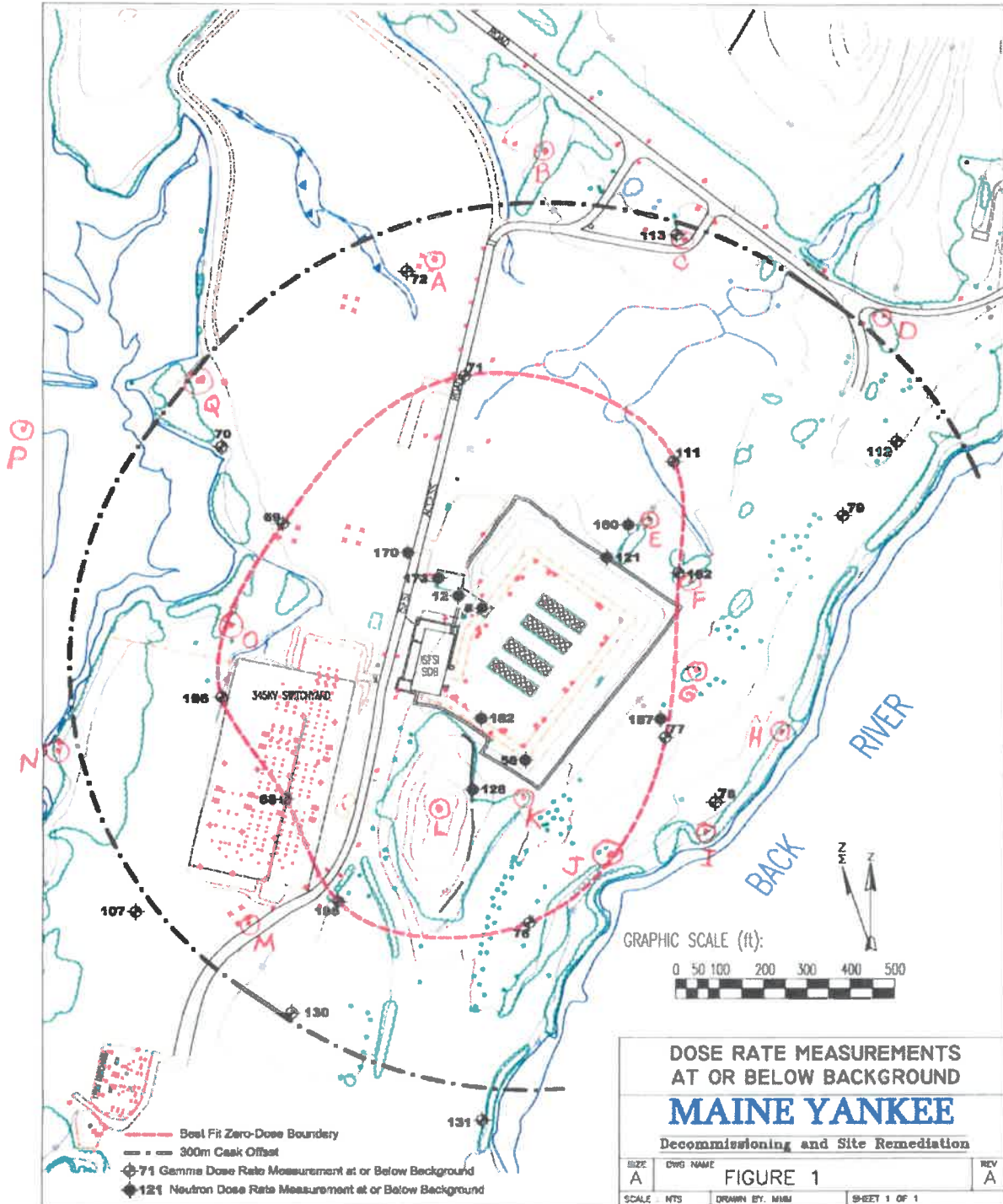


Table 1 – ISFSI TLD Results

TLD Stations	Quarterly Exposure Period							
	1 st Quarter (Winter)		2 nd Quarter (Spring)		3 rd Quarter (Summer)		4 th Quarter (Fall)	
	Average (Range) (mrem)		Average (Range) (mrem)		Average (Range) (mrem)		Average (Range) (mrem)	
A	19.5	(19-20)	21.7	(21-22)	23.8	(23-25)	23.5	(22-24)
B	18.5	(18-19)	20.2	(20-21)	22.8	(22-23)	21.5	(21-23)
C	18.8	(18-20)	20.2	(20-21)	22.2	(21-23)	21.5	(21-22)
D	19.0	(19-19)	21.3	(21-22)	22.8	(22-24)	22.7	(22-24)
E	20.0	(19-21)	22.0	(22-22)	22.3	(20-23)	23.8	(23-24)
F	21.8	(21-24)	23.0	(22-24)	25.2	(24-26)	25.3	(25-26)
G	21.8	(21-23)	22.7	(22-24)	25.0	(24-26)	25.2	(24-26)
H	19.2	(18-21)	19.8	(19-20)	20.9	(20-21)	21.7	(21-23)
I	18.3	(17-20)	20.5	(20-21)	20.3	(18-22)	22.2	(21-23)
J	19.5	(18-20)	21.8	(21-22)	22.5	(21-24)	22.3	(22-23)
K	21.5	(21-23)	23.3	(22-24)	25.7	(21-32)*	25.7	(25-26)
L	21.0	(19-23)	22.2	(21-24)	23.3	(22-24)	23.8	(23-25)
M	20.0	(19-21)	21.7	(21-22)	24.2	(23-27)	23.0	(22-24)
N	17.8	(17-19)	18.3	(17-19)	21.0	(20-22)	20.7	(20-21)
O	19.5	(19-20)	21.8	(21-22)	23.2	(22-25)	23.5	(23-24)
P	18.2	(17-19)	19.5	(19-20)	20.0	(19-21)	20.3	(19-21)
Q	20.2	(20-21)	23.3	(23-24)	23.2	(21-25)	26.0	(24-34)*

* Both stations K and Q had one data point that was considered an outlier by the vendor, but only station Q's data point could be rejected at the 99% confidence level. Station K's data point could not be rejected even at the 90% confidence level. The State will not consider rejecting any data unless the statistical test exceeds the 99% confidence level. Even though the State could have rejected one of the data points, it opted to retain the questionable data.

The data normally validates the seasonal variation with the fall and winter values generally decreasing when the ground is frozen and covered with snow as it impedes the out gassing of the Radon gas from the soils. The deeper the snow cover is the more pronounced the decrease in the natural radiation levels. This was a more normal year exhibiting the seasonal fluctuations as compared to last year's unusual peaks in off seasons, like spring and fall. Except for stations K and Q, the variability encountered was also less pronounced than last year. As noted in the footnote to Table 1, one data point for each station K and Q had an outlier. Both data points were not rejected as their impact on the stations' data was minimal.

It should also be noted that the values listed in Table 1 are the total readings from the vendor. Neither the vendor nor the State employed any corrections for exposures to the TLDs due to shipping from California to Maine and their return shipment to the vendor for evaluation, or for storage at the vendor and State offices prior to their use in the field.

Figure 2 on the next page illustrates the difference between the elevated Station G and a normal Station B. The Station G data, which is impacted by the ISFSI, portrays a slightly downward trend over time as would be expected from material that is experiencing radioactive decay, whereas Station B, which is not influenced by the ISFSI, depicts a more stable or flat response with time which is more indicative of a background station. The graph also demonstrates the narrowing of the difference between the two stations' results over time. Eventually, the only variability left between stations will be the natural composition of the soils and topography at each station's location.

2.2.2.2 Transit Controls

Since the values over-inflate the true ISFSI dose, the State embarked on a program to better quantify the transit and storage exposures that are not part of the true field exposure and therefore, the ISFSI's impact. The SNSI determined that a minimum of three years was necessary to gather enough quarterly data to develop the statistical power for assigning correction factors. Once these variables are quantified, then the State could employ the correction factors to its results.

The preliminary findings over the four-year assessment indicate that the 10-day transit exposures for the TLDs may range from about 5 to 8 mrem with an estimated average of 6.5 mrem, which is significant when compared to the total values reported in the TLD tables. The transit or shipping exposures alone represent upwards of 20 to 40% of the dose reported. The results indicate that virtually all the transit data for the last four years fell within the range of the 95% confidence level. Therefore, the State has a high degree of confidence on the transit exposure.

Figure 2 – TLD STATIONS

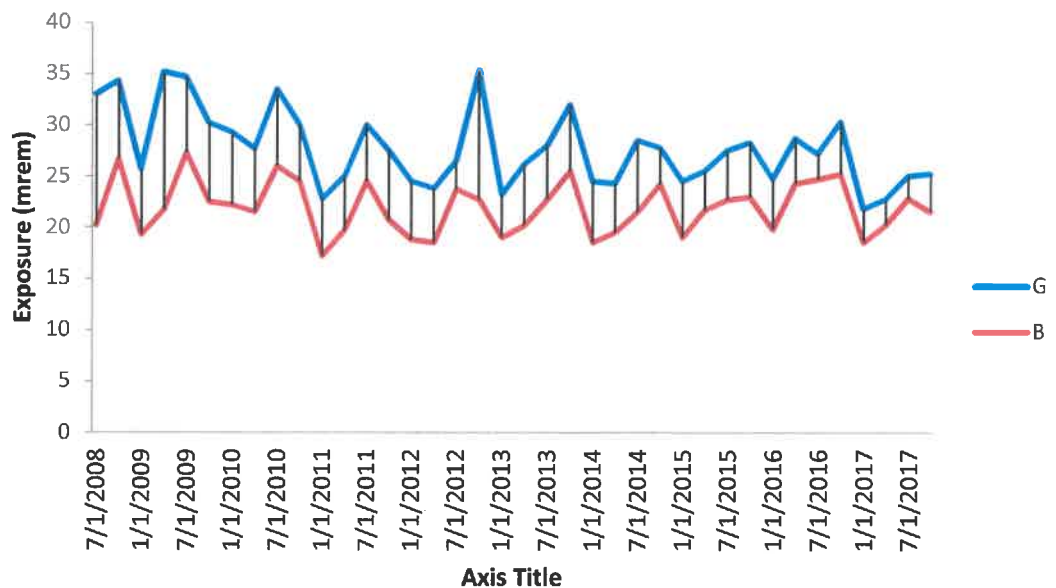


Table 2 below illustrates the transit control results over the four-year assessment period.

Year	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
2012	7.1	5.7	6.4	14.5 (15.3)
2013	8.5	4.8	5.5	11.9 (7.1)
2014	7.6	7.0	6.9	5.9
2015	5.8	6.3	6.2	7.1

Since starting on this program in 2012, the fourth quarter results were at least twice the average of the three previous quarters. There appeared to be an unusual but obvious effect occurring in the fourth quarter. When queried, the TLD vendor was unable to explain the increases. The vendor reviewed the individual data and examined the crystals and could not find a reason for the additional exposures.

The 2012 fourth quarter value was much higher than expected. Possible explanations could include a longer transit time, longer storage in an area with a higher than average radiation background, or exposure either in transit or storage to a nearby radioactive package. However, the 2013 fourth quarter exposure was attributed to the storage of the TLDs. Six of the seven controls were held for an extra 27 days at the TLD vendor processor in California. The difference between the six TLDs held longer and the one control that was processed later amounted to 4.8 mrem. That is why all the TLDs, except for this one control, had higher fourth quarter readings.

The fourth quarter results for the last two years of the study were not higher as was experienced in the first two years when adjustments were computed to demonstrate the resultant skewed seasonal variations. As compared to the previous two years, the fourth quarter transit badges were not returned immediately to the TLD vendor for their evaluation, but inadvertently kept in the storage vault at the State's Health and Environmental Testing Laboratory along with the other controls. Even though there was no apparent explanation for one of the higher values, there was also no obvious explanation why the fourth quarter results were back to normal. Consequently, no adjustments were necessary to illustrate the expected seasonal variations.

2.2.2.3 Storage Vault Controls

Because the State had a better understanding for the TLD transit exposure and what to expect for exposures, it shifted its attention to the final unknown, the storage exposure within the steel vault at the State's Health and Environmental Testing Laboratory. The exposure determination will take about two years to complete with exposure measurements taken every six months. Six sets of measurements have been collected to date. The data will be evaluated in conjunction with the vendor's technical consultant, a national expert on environmental TLDs, and the results published in next year's annual report.

2.2.2.4 Bailey Cove TLDs

The Bailey Cove surveillance is a remnant of the operating days when the public had raised questions over the radiation levels in the Cove and its impact on clam and worm diggers from the extended shutdown due to the steam generator sleeving project in 1995. The number of TLD locations was reduced in January of 2008 from the initial 40 that covered both sides of Bailey Cove down to 14 and eventually down to 2 at the beginning of 2011. The TLD results for Bailey Cove for 2017 are illustrated in Table 3 below.

TLD Stations	Quarterly Exposure Period							
	1 st Quarter (Winter) Average (Range) (mrem)		2 nd Quarter (Spring) Average (Range) (mrem)		3 rd Quarter (Summer) Average (Range) (mrem)		4 th Quarter (Fall) Average (Range) (mrem)	
1	17.5	(17-18)	20.0	(19-21)	21.2	(21-22)	20.7	(20-22)
2	18.7	(18-20)	20.7	(20-21)	22.3	(21-23)	22.0	(22-22)

As with the ISFSI, the Bailey Cove TLDs experienced the same usual variability with the peaks occurring in the summer for all the TLDs and lower values in the winter due to the natural expected seasonal fluctuations due to Radon excursions associated with weather conditions and seasonal effects, such as frozen ground and snow cover.

The Bailey Cove values are fairly comparable to the ISFSI results for the normal group. The background values remain typical for the coast of Maine, which can range from 13 to 25 mrem, with the lower values indicative of their proximity to the water’s edge. This effect is very evident at high tide with the water acting as a shield covering the natural radioactivity from the rocks and mud flats that are under water.

2.2.2.5 Field Control TLDs

There are three field controls utilized by the State for comparative purposes (Refer to Table 4). All three are located off-site and beyond Maine Yankee’s Controlled Area of about 290 meters (approximately 950 feet). The closest is Station 110, Ferry Landing on Westport Island, which is about 3 quarters of a mile from the ISFSI. The second control, Station 143, is located at the Edgecomb Fire Station, about three and a half miles away. The last control, Station 160, is the traditional one located on the roof of the State’s Health and Environmental Testing Laboratory in Augusta, more than 21 miles away.

As with the ISFSI and Bailey Cove TLDs, the field controls experienced the same seasonal fluctuations due to Radon excursions associated with weather conditions and seasonal effects, such as frozen ground and snow cover. However, as previously noted, the seasonal fluctuations this year were unusual and exhibited some variability with the peaks occurring in the spring and fall.

Table 4 – Field Control TLD Results

TLD Stations	Quarterly Exposure Period							
	1 st Quarter (Winter)		2 nd Quarter (Spring)		3 rd Quarter (Summer)		4 th Quarter (Fall)	
	Average (Range)		Average (Range)		Average (Range)		Average (Range)	
	(mrem)		(mrem)		(mrem)		(mrem)	
110	23.0	(20-28)	21.8	(21-22)	22.2	(20-24)	23.7	(23-24)
143	20.7	(20-22)	22.8	(22-24)	23.7	(23-24)	22.5	(22-23)
160	19.2	(19-20)	19.7	(19-20)	19.5	(18-20)	20.5	(20-21)

2.2.3 REMP Air Filter Results

2.2.3.1 State’s Health and Environmental Testing Laboratory Roof Sampler

Table 5 illustrates the quarterly air sampling results for the year.

Table 5 – HETL Air Filter Results

Positive Results	Quarterly Sampling Period			
	1 st Quarter (fCi/m ³) ⁴	2 nd Quarter** (fCi/m ³)	3 rd Quarter** (fCi/m ³)	4 th Quarter (fCi/m ³)
Gross Beta* (range)	(15.1 – 28.4)	(12.0 – 31.8)	(14.0 – 60.6*)	(10.6 – 19.2)
Quarterly Composite (Be-7)	69.4	70.7	77.7	35.6***

* Gross Beta is a simple screening technique that measures the total number of beta particles emanating from a potentially radioactive sample. High values would prompt further analyses to identify the radioactive species.
 ** Some of the results are suspect as the State experienced a timer malfunction over an extended period. Therefore, the actual volume of air measured is only estimated. That would explain the disparity in the range of values in the third quarter as two of the air samples were rejected in the quarter.
 ***The Beryllium-7 results reflect that two air samples were not available for November as one sample was missed. The other filter shifted during operation resulting in just air being drawn in and, therefore, discarded.

The State’s Health and Environmental Testing Laboratory analyzed the samples and employed various analytical methods to measure specific radioactive elements. All the positive results reported highlight naturally occurring background levels and ranges in units of femto-curies per cubic meter (fCi/m³)⁴.

⁴fCi/m³ is an acronym for a femto-curie per cubic meter. It describes a concentration of how much radioactivity is present in a particular volume of air such as a cubic meter. A “femto” is a scientific prefix that is equivalent to one quadrillionth (1/1,000,000,000,000,000).

The only detectable radioactive element was Beryllium-7 (Be-7)⁵, which is naturally occurring. It is a “cosmogenic” element, which means it is continuously being produced from the high-energy cosmic rays bombarding the oxygen, carbon and nitrogen molecules in the upper atmosphere.

2.3 Maine Yankee Decommissioning

2.3.1 Background

The Maine Yankee plant was decommissioned over an eight-year period which started in 1997 and was completed in the fall of 2005. At that time, the SNSI also commenced his final walk down survey of the site with a special emphasis on the transportation routes exiting the plant site, including both half-mile east and west access routes and the two thirds of a mile of the railroad track. In addition, nine specific areas, including the dirt road, were also examined as part of the final site walk down survey. With the discovery of three localized, elevated contaminated areas on the dirt road, further work was performed to bound the contamination. No new contamination was found and the State closed the issue in October of 2008. Even though some residual radioactivity remains, due to the localized nature of the contaminants and the restricted security access to the site, the contamination found did not present a public health threat.

With the closure of the Dirt Road, the only walk down survey remaining on-site was a roughly 600-foot section of the East Access Road adjacent to the ISFSI bermed area. The SNSI performed a final survey of the road in May of 2011. With the closure of the East Access Road survey, the State had officially ceased all its decommissioning survey activities pertaining to Maine Yankee.

In 2014, the State disposed over 1,000 decommissioning samples and moved over 150 boxes of archived documents that were in storage, pending the completion of the State’s Confirmatory Summary Report on its decommissioning findings. The forced disposition was brought on by the sale of the storage building and the new owner wanting the storage space.

2.3.2 Confirmatory Report

A final draft of the State’s verification measurements and findings from the decommissioning has been reviewed by management. Due to the extent of comments received, the Confirmatory Summary Report will be revised.

2.4 Reports to the Legislature

2.4.1 Monthly

As mandated by legislation passed in the spring of 2008, the SNSI is required to submit monthly reports to the Legislature on its oversight activities of Maine Yankee’s ISFSI located in Wiscasset. Since the law went into effect on June 29, 2008, the SNSI has provided monthly reports to a distribution that includes the President of the Senate, the Speaker of the House, the NRC at their headquarters in Rockville, Maryland and NRC’s Region I in King of Prussia, Pennsylvania, Maine Yankee, the Governor’s Office, the Department of Health and Human Services, the Department of Environmental Protection, the Public Advocate and the State

⁵ Radioactive elements are usually represented by their chemical symbols and corresponding mass numbers. The mass number represents the total number of protons and neutrons in the nucleus of an atom. For Beryllium-7 the chemical symbol is Be and the mass number is seven with four protons and three neutrons in the nucleus.

Police's Special Services Unit. The topics covered in the monthly reports are highlighted in sections 2.1.7, 2.2, 2.3, 2.5, and 2.6 of this report.

In 2012, the monthly report format and distribution method were changed. To minimize the size of the reports along with their attachments, the SNSI published the reports in electronic format which included internet hyperlinks for each of the attachments. This provided flexibility for reviewers and greatly reduced the volume of paper used for distributing the reports. Hard copies of the reports are maintained at the Commissioner's Office and the SNSI's Office.

The SNSI instituted another report format change in November of 2016 to expedite the review process. The format for the reports was changed to reflect only the local and national highlights. Previous information such as condition reports, ISFSI related activities, environmental surveillance results, and noteworthy items would be captured in the annual activities report due in July.

In 2017 the monthly reports were running a month behind schedule. This was due to an unexpected early retirement of the State's X-Ray and Mammography Inspector. Since only inspectors certified by the Food and Drug Administration (FDA) can perform mammography inspections in Maine and the SNSI is a qualified FDA mammography inspector, the SNSI was tasked full time with running the State's Mammography Inspection Program in addition to his SNSI duties. Although the State had hired a person in May to replace a previous vacancy within the State's X-Ray Program, the new hire could not attend the scheduled training for FDA inspectors until the following year when FDA will hold their certification training in April. However, additional delays are expected in 2018 due to the intense training and mentoring that is required to certify an individual for mammography inspections.

2.4.2 Annual

Under 22 MRSA §668, as enacted under Public Law, Chapter 539 the SNSI prepares an annual accounting report of all the funds received into and all disbursements out of the Interim Spent Fuel Storage Facility Oversight Fund. This report is due the first Monday of February. In addition, the SNSI must annually report his activities to the Department of Health and Human Services' Manager of the Radiation Control Program for inclusion in the Manager's Annual Report of Oversight Activities and Funding to the Legislature. In addition to the above annual reports, the SNSI also prepares an annual report of his oversight activities that is due by July first of the following year to the Legislature. However, because of the mammography training involved for of a new certified inspector in early 2018, Maine Yankee's Cask Lid Lift and Shield Plug removal project, movement of offices and delayed vacation time, the SNSI was unable to submit the 2017 report as originally planned. However, the report will be submitted in early 2019.

2.5 Other Activities

2.5.1 Northeast High-Level Radioactive Waste Transportation Task Force (NEHLRWTF)

As the State's representative the SNSI has participated in periodic conference calls on the status of Yucca Mountain and transportation issues that could impact Maine. The Task Force normally meets twice a year, depending on funding resources. One meeting coincides with the DOE's annual National Transportation Stakeholders Forum (NTSF) in the spring, and the other in the fall.

In early June, the DOE held its eighth annual NTSF meeting in Pittsburgh, Pennsylvania. The SNSI attended the DOE Forum, which highlighted DOE's status reports on environmental management, packaging, satellite tracking and communications of radioactive materials transportation, the nuclear fuels storage project; the United Kingdom's and international experience on the transport of radioactive materials, tribal perspectives on transportation, outlook for the nation's management of spent fuel and high-level radioactive waste, and the re-opening of the Waste Isolation Pilot Project in New Mexico. In addition, there were multiple sessions involving specialized topics of interest such as NRC transport security, instrumentation selection, set-up, calibration and maintenance for emergency response, risk communication and public perception, information sharing amongst state and tribes on expectations for spent nuclear fuel shipments, resource organizations for radiological expertise, the National Nuclear Safety Administration's source recovery program, the West Valley Melter Shipment, Greater Than Class C waste issues, and consent-based siting facilities and domestic private initiatives including Canada's perspective for a similar process.

The Forum also allowed the national Ad Hoc Working Groups on the Nuclear Waste Policy Act's Section 180 (c) on emergency preparedness for first responders, the information and communications group, the spent nuclear fuel rail routing group, and the four regional groups to meet and discuss their respective regional issues. The Northeast Regional Task Force focused on its state reports and participation in the national working groups. The SNSI provided a report to the Northeast Task Force on Maine's activities and his participation and involvement in three national working groups on the future state funding for spent fuel shipment emergency preparedness training, on information and communication activities, and spent fuel rail/routing efforts. The Task Force also heard several presentations on such topic areas as an update of three Yankees (Connecticut Yankee, Maine Yankee, and Yankee Rowe) and their successful litigation efforts against the federal government, a DOE regional training update, National Nuclear Safety Administration's status of its preparations for the foreign fuel shipments, and DOE's site visit to Vermont Yankee to gather information on the transportation infrastructure available for shipping spent nuclear fuel.

In November, the Task Force met in Portland, Maine. The Task Force Director provided an update of his coordination activities with the Co-Chair of the NTSF Ad Hoc Rail/Routing Working Group for rail shipments of high-level radioactive waste and spent nuclear fuel. The Federal Railroad Administration updated their efforts on their operation lifesaver program, safety compliance protocol, the State Rail Safety Participation Program, and their Safety Compliance Oversight Plan

Other topics included Maine Yankee's presentation on the national status on the Trump's administration budget request to reopen the Yucca Mountain licensing, the continued impasse between the House and the Senate on appropriations and proposed legislation on the spent nuclear fuel issue, the status of two independent license applications on consolidated interim storage facilities, the on-going impasse between the House and Senate on spent fuel management, and the most recent litigation filing against the federal government for about \$35 million in expenses incurred from 2013 through 2016. DOE updated the Task Force on its Section 180 (c) activities under the Nuclear Waste Policy Act, interim storage activities, its Atlas Railcar design, and other on-going research initiatives. The Oak Ridge National Laboratory presented its de-inventory studies on how it would remove and ship spent nuclear fuel from the Maine Yankee and Connecticut Yankee sites. The State of Pennsylvania explained their transition to a keyhole as a better approach to emergency response planning and the requirements for low-level radioactive waste minimization plans. The State of Connecticut provided an

overview of their experience with a cask loading incident that resulted in the release of Krypton gas to the environment.

The Task Force is an affiliate of the Eastern Regional Conference of the Council of State Governments. The purpose of the Task Force is to not only develop the safest and most efficient transportation route to ship spent nuclear fuel from the Northeast, but also to provide the States with direct involvement in formulating and establishing national policy in the design of a national transportation system and development of any proposed geologic repository or consolidated interim storage facility. The Northeast Task Force is comprised of representatives from the six New England states, New York, Pennsylvania, New Jersey, and Delaware.

2.5.2 Yankee Federal Energy Regulatory Commission (FERC) Rate Case Settlement

The State participated in quarterly conference call briefings relevant to Yankee Rowe, Connecticut Yankee and Maine Yankee. The briefings provide updates to both state and private officials affected by the FERC settlements on the federal lawsuits over DOE's breach of contract to take possession of the spent fuel at Maine Yankee as mandated by the Nuclear Waste Policy Act of 1982, as amended in 1987. Maine Yankee was awarded \$24.6 million in 2016 as compared to \$35.7 million in 2013, and \$81.7 million in 2012. In its latest lawsuit Maine Yankee has filed for \$35 million in damages to recoup its 2013 to 2016 operating expenses for the ISFSI.

In addition to the lawsuits, updates are also provided of other organizational activities, both on the regional and national levels, on spent fuel issues, whether they be the Yucca Mountain repository or focusing attention on local or centralized storage with Texas and New Mexico competing for storing the nation's nuclear stockpile, extended storage, legislation or appropriations, or efforts to implement President Obama's Blue-Ribbon Commission's recommendations. These organizations include the White House, the Energy Department, the Blue Ribbon Commission on America's Nuclear Future, the NRC, Congress, the National Conference of State Legislatures, the Nuclear Waste Strategy Coalition, the Decommissioning Plant Coalition, the National Association of Regulatory Utility Commissioners (NARUC), the Council of State Governments, the New England Governor's Conference, the New England Council, the Coalition of Northeastern Governors, and the New England Conference of Public Utility Commissioners.

2.5.3 Nuclear Waste Strategy Coalition (NWSC)

The State is a member of the NWSC and participated in their bi-weekly status briefings. The briefings provided updates on

- President Trump's perspective on spent nuclear fuel and integrated waste management including the Administration's strategy for the management of the back end of the nuclear fuel cycle and nominees for NRC Commissioners and DOE Secretary of Energy;
- Impacts of Committee leadership changes in Congress from the 2016 Presidential election;
- Segregating some defense-related nuclear wastes for disposal in a separate, deep borehole repository;
- DOE's consent-based siting initiative and draft report on the consent process;
- Congressional efforts on budgets, funding, proposed legislations, and hearings for the geologic repository at Yucca Mountain in Nevada;

- House initiatives on proposed legislation – Nuclear Waste Policy Act Amendments, Interim Consolidated Storage Act, Sensible Nuclear Waste Disposition Act, and the Nuclear Waste Informed Consent Act;
- Consolidated storage facilities for spent nuclear fuel, including the submission of two license applications for the construction and operation of private consolidated interim storage facilities in Andrews County, Texas and Lee County in New Mexico;
- Reopening of the Waste Isolation Pilot Project's in New Mexico;
- NRC monthly status updates to the House on resumption activities of the Yucca Mountain licensing proceedings;
- Texas Attorney General lawsuit to compel NRC to make a decision on Yucca Mountain repository project;
- NWSC's positions on consolidated interim storage, incentives for hosts, Yucca Mountain and permanent disposal, congressional linkage between storage and disposal facilities, transportation, funding and fee reforms, and governance;
- On-going research activities and reports;

Some stakeholders, such as the Bipartisan Policy Center, are trying to resolve the stalemate between the House and Senate. Others, like the utilities and the environmental groups, promote their viewpoints and positions to Congress.

The NWSC is an ad hoc organization representing the collective interests of state utility regulators, state attorneys general, state radiation control programs, consumer advocates, electric utilities, local governments, tribes, and associate members on nuclear waste policy matters. NWSC's primary focus is to protect ratepayer payments into the Nuclear Waste Fund and to support the removal and ultimate disposal of spent nuclear fuel and high-level radioactive waste currently stranded at some 125 commercial, defense, research, and decommissioned sites in 39 states.

Section 2.6 Summary of Significant National Activity Regarding Spent Nuclear Fuel and High-Level Waste

There was a major burst of activity on several fronts with a number of notable events occurring during the year. First, the Waste Isolation Pilot Project in New Mexico reopened after a three-year hiatus due to two incidents that closed the facility back in 2014. The WIPP facility, which accepts plutonium wastes from the nuclear weapons era, is the only operating geologic waste repository in the world. Second, DOE issued its long-awaited report on how to implement a national consent-based siting process as the preferred approach for a successful outcome for consolidated and disposal facilities for spent nuclear fuel. The report not only draws on a public solicitation from eight regional meetings but also on international experience.

Next, there was a flurry of activity on consolidated interim storage facilities (CSIF). NRC issued a letter to Waste Control Specialists (WCS) formally accepting their license application to construct and operate a CSIF in west Texas. That was followed by Holtec International's submittal of their CSIF license application. Then WCS, which was experiencing revenue shortfalls, requested the NRC suspend their license application reviews, which NRC accommodated, pending a successful merger with EnergySolutions, another major low-level radioactive waste broker. After that there was Texas Attorney General filing a lawsuit against DOE Secretary, the NRC Commissioners, the three judges on the NRC's Atomic Safety and Licensing Board, and the Department of Treasury. The lawsuit was to force the NRC to make a decision on the Yucca Mountain license application and to prevent the DOE from using any funds from the Nuclear Waste Fund for consent-based siting. Nevada immediately filed

their motion to dismiss the Texas lawsuit. The Nuclear Energy Institute also filed a brief in opposition to the Texas lawsuit. In other areas both houses of the Minnesota Legislature passed a resolution urging Congress to revive the Yucca Mountain proceedings. The National Association of Regulatory Utility Commissioners also enacted a resolution calling on Congress to re-establish a functioning nuclear waste program as dictated by the Nuclear Waste Policy Act. Nevada followed suit with their entire Legislature passing a forceful resolution expressing its strong opposition to attempts by Congress to create a repository at Yucca Mountain. The resolution also demanded that the President veto any legislation promoting Yucca Mountain and for the Energy Secretary to abandon Yucca Mountain.

The House was especially active in endorsing all kinds of legislation, mostly for reopening the Yucca Mountain, while the Nevada congressional delegation opted to oppose any legislation advancing the Yucca Mountain agenda. This was evident with the House version of the Nuclear Waste Policy Act Amendments of 2017 which promoted the Yucca agenda but turned a blind eye towards any pilot project promoting consolidated interim storage. This proposed legislation was voted out of the House Energy and Commerce Committee with an overwhelming 49-4 vote for the resumption of the Yucca Mountain licensing proceedings. The Senate, on the other hand, wished to protect Nevada's Republican Senator Heller's seat to maintain the Republican majority in the Senate and oppose any legislation supporting Yucca Mountain and instead promoting only consolidated interim storage facilities. Other proposed legislation included the Interim Consolidated Storage Act of 2017 which authorized the Energy Secretary to enter into storage contracts with private entities, take title of the spent nuclear fuel, and allow expenditures for consolidated wastes from the Nuclear Waste Fund. Additionally, the Sensible Nuclear Waste Disposition Act was proposed as a deterrent to stop DOE from pursuing constructing their own defense waste repository as promoted during the Obama Administration via deep borehole technology. In Nevada's situation, their delegation proposed the Nuclear Waste Informed Consent Act which required DOE to obtain consent from the affected state, local, and tribal governments before making any expenditures from the Nuclear Waste Fund for a nuclear waste repository.

Finally, after performing a site visit, DOE published a report on how it would ship all the spent fuel from Maine Yankee. In the end DOE evaluated six likely transportation modes that included rail, heavy haul truck, barging, and combination thereof. Of the six scenarios, the most likely shipping route would be by direct rail from Maine Yankee through Barber's Junction in Massachusetts out to an interim storage or geologic repository. With an assumed turnaround time of six weeks for shipping containers, DOE assumed that it would take 13 shipping campaigns and take approximately 20 months to remove all the spent nuclear fuel and Greater Than Class C wastes from the site at an estimated cost of about \$24 million.

The Appendices capture some of these prominent events and other noteworthy events as noted below.

2.6.1 Appendices

Appendix A is a chronological list of condition reports for the year at the Maine Yankee facility.

Appendix B introduces the Nevada's congressional delegation's legislation introduced in both Houses of Congress the "Nuclear Waste Informed Consent Act" that would require a written consent from any affected tribe, local government, contiguous local government, and Governor before a repository can be hosted within a state's borders. The consent would be binding on all parties including the federal government. The legislation was Nevada's response to stem the growing movement in the House to reopen the Yucca Mountain licensing proceedings.

Appendix C exemplifies the “Interim Consolidated Storage Act of 2017” introduced by Representatives from California and Texas as a means of resolving the nation’s growing spent nuclear fuel storage problem. The Act would authorize the Secretary of Energy to enter into contracts with private organizations that hold NRC consolidated storage licenses, modify existing contracts to take title to currently stored spent nuclear fuel, and give priority to stranded fuel at shutdown reactor sites to move and store their spent fuel first.

Appendix D illustrates the NRC’s notification letter to Waste Control Specialists (WCS) that their license application to construct and operate an interim consolidated storage facility for high-level radioactive waste and spent nuclear fuel at its existing low-level radioactive waste site in Andrews, Texas was accepted and docketed for review. The NRC informed WCS that they anticipated completing the safety and environmental reviews by the spring of 2019 provided they receive timely and comprehensive responses to their request for additional information. The license application specifically identified the spent fuel casks that are now stored at Maine Yankee, Connecticut Yankee, and Yankee Atomic in Massachusetts as part of the storage facility’s design.

Appendix E contains Holtec International announcement that it had submitted a regulatory application to the NRC to house 10,000 canisters of spent nuclear fuel at its HI-Store Consolidated Interim Storage Facility on a 1,000-acre site between Hobbs and Carlsbad, New Mexico. The facility will store below ground the spent nuclear fuel from any U.S. nuclear power plant. The NRC is expected to take three to four years to rule on issuing a construction license for the Holtec facility.

Appendix F displays Waste Control Specialists (WCS) letter to the NRC requesting a temporary suspension of all safety and environmental reviews commencing immediately pending the sale of WCS to Energy Solutions later that summer. WCS was experiencing financial challenges that its sale would alleviate. However, the U.S. Department of Justice filed a lawsuit against the sale on antitrust grounds. WCS was optimistic on winning the legal challenge and its eventual sale. After the sale, WCS was expected to petition the NRC to resume the licensing process.

Appendix G includes the Nevada Legislature resolution expressing its strong opposition to and protested any attempts by Congress to creating a repository for spent nuclear fuel and high-level radioactive waste at Yucca Mountain. The resolution was in direct response to President Trump’s Budget that earmarked \$120 million for the resumption of the licensing of the Yucca Mountain Project and called on the President to veto any legislation and for the Secretary of Energy to abandon Yucca Mountain.

Appendix H presents the NRC’s issuance of a memorandum and order on the Waste Control Specialists’ (WCS) license application to construct and operate a consolidated interim storage facility. The Commission granted WCS’s and the Commission staff’s request to suspend all review activities including the withdrawal of the public’s opportunity for a hearing request on WCS license application suspension request. Although three environmental groups did not oppose the suspension, they attempted to impose seven conditions on the resumption. The NRC declined five of the seven petition requests.

Appendix I provides a timeline of the other significant activities that transpired in 2017. For a more complete and comprehensive depiction of the highlights the reader is referred to the individual monthly reports that are available from the State Nuclear Safety Inspector’s Office.

Appendix A

Condition Reports

Date	CR #	Description
1/3/2017	17-001	Marked up revision pages for the Licensing Basis Document Change Request were missing from the records package
1/4/2017	17-002	Fire Protection procedure had an incorrect combustible reference
1/4/2017	17-003	Documented Diesel Generator Auto Transfer Switch Alarm
1/5/2017	17-004	PVC drain pipe cover damage during snow cleanup efforts
1/9/2017	17-005	Documented that Maine drivers' licenses are not in accordance with Federal "REAL ID" laws
1/9/2017	17-006	Evaluate Yankee Atomic-condition report for potential safety concerns at Maine Yankee)
1/11/2017	17-007	Documented errors in outgoing correspondence
1/11/2017	17-008	Missing signature on a training document
1/17/2017	17-009	Observed out-going Security Card Reader was loose
1/17/2017	17-010	Computer power cycled affecting recent log entries on laptop
1/18/2017	17-011	Personal vehicle slid on ice contacting gate at the Range
1/19/2017	17-012	Personal dosimetry unintentionally taken off site
1/19/2017	17-013	Security System Alarm
1/20/2017	17-014	Security System Alarm
1/25/2017	17-015	Incoming Safeguard Information not opened by the addressee
1/27/2017	17-016	Company truck dash lights and gauges briefly blinked and cycled on/off
2/1/2017	17-017	Documented two deficiencies during a quality assurance audit
2/1/2017	17-018	Documented six observations from quality assurance audit
2/8/2017	17-019	Incorrect abandonment form used but later found to be acceptable and sent to Maine DEP
2/8/2017	17-020	Minor damage to a cask inlet vent screen
2/9/2017	17-021	Security System Degradation
2/9/2017	17-022	Security System Degradation
2/12/2017	17-023	Security System Degradation
2/12/2017	17-024	Security System Degradation
2/13/17	17-025	Security System Degradation
2/13/2017	17-026	Security System Degradation
2/13/2017	17-027	Snow blocked two or more of the cask inlet vents
2/13/2017	17-028	Handrail broken by snow removal equipment
2/13/2017	17-029	Small Antifreeze spill to pavement northwest end of the Security Operations Building
2/14/2017	17-030	Damage to aluminum plate between concrete pads during snow removal
2/16/2017	17-031	Security System Degradation
2/16/2017	17-032	Momentary alarm on security system
2/17/2017	17-033	Security System Alarm
2/19/2017	17-034	Broken gutter down spout collar
2/22/2017	17-035	Incorrect dose survey readings identified during review process and corrected
2/27/2017	17-036	Security alarm system placed temporarily in test mode for maintenance
3/1/2017	17-037	Uninterrupted Power Supply alarm alerting 5-year battery life expectancy
3/3/2017	17-038	Alarm vendor activity sheet unavailable
3/7/2017	17-039	PVC drain pipe cover damaged by snow removal equipment
3/8/2017	17-040	Spilled about a tablespoon of oily substance on concrete, diesel refueling pad.

3/10/2017	17-041	Safety Issue-in north parking lot - protruding rods
3/11/2017	17-042	Security System Degradation
3/14/2017	17-043	Security System Degradation
3/20/2017	17-044	Minor damage to fabric/mesh part of fence
3/27/2017	17-045	Radio System received an Uninterrupted Power Supply alarm
3/27/2017	17-046	Spilled Substance to pavement in parking area west of Office Building
3/27/2017	17-047	Found three loose grounding wires on the concrete pads
3/29/2017	17-048	Found station 6 environmental radiation dosimeter on the ground
4/10/2017	17-049	Found sink hole across from Little Oak Island at the south end of the property
4/11/2017	17-050	Loss offsite power
4/11/2017	17-051	Momentary Loss of offsite power
4/14/2017	17-052	Found several conduit clips on the concrete pads
4/17/2017	17-053	Camera degraded
4/19/2017	17-054	Procedure non-compliance and human performance issues during testing
4/20/2017	17-055	Compensatory process needs improvement due to human performance
4/20/2017	17-056	Main entrance gate coil spring broke
4/20/2017	17-057	Front door vestibule flooring lifting and separating from the concrete
4/21/2017	17-058	Industrial camera found degraded
4/21/2017	17-059	Video recorder issue
4/24/2017	17-060	Video monitor power down issue
4/26/2017	17-061	Minor water leak on the east wall of the Office Building, second floor towards the north end
4/27/2017	17-062	Camera degraded due to environmental conditions.
4/29/2017	17-063	White flash noted on video monitor
4/30/2017	17-064	Spare fire extinguisher not in proper storage location
5/1/2017	17-065	Light bulb issue with Light Pole # 5
5/2/2017	17-066	Routine Action Item revision process could be improved
5/4/2017	17-067	Safety concern raised with weekly check of the diesel radiator coolant level
5/10/2017	17-068	Found lose bolt on weapon holster
5/10/2017	17-069	Safety issue - misfire event at the shooting range
5/10/2017	17-070	Fire protection procedure missing attachments F & G
5/15/2017	17-071	Alarm vendor performed unannounced maintenance
5/16/2017	17-072	Loss of contact between radiation monitoring sensors and computer
5/16/2017	17-073	Camera image degraded
5/17/2017	17-074	Recommendations from NRC audit in 2016 not captured
5/21/2017	17-075	Camera image quality issue
5/23/2017	17-076	AED chest pads found expired
5/24/2017	17-077	Portable fire extinguisher failed annual inspection
5/24/2017	17-078	Review lessons learned from Emergency Plan assessments from sister sites
5/25/2017	17-079	Alarm vendor website could not be accessed
5/27/2017	17-080	Guidance in security procedure did not match guidance from other procedures
6/5/2017	17-081	Revised Irradiated Fuel Management Plan and added it as a controlled Licensed Basis Document
6/6/2017	17-082	Late due date on routine action item for annual Emergency Plan assessment
6/6/2017	17-083	Vehicle Barrier System pressure switch not working properly
6/10/2017	17-084	Loss of contact with the east Rad Monitor
6/10/2017	17-085	Loose ground wires on concrete casks and pads
6/11/2017	17-086	Weather atmospheric monitor lost power
6/12/2017	17-087	Ballast failure on overhead lighting in utility closet
6/14/2017	17-088	Documented Independent Management Assessment report recommendations
6/15/2017	17-089	Discovered temperature monitoring system anomaly
6/17/2017	17-090	Trouble alarm in the fire alarm panel revealed failed sensor

6/21/17	17-091	Commitment made during teleconference with NRC Region I
6/22/2017	17-092	Small hydraulic oil drip size of a quarter to pavement
6/26/2017	17-093	Communication issue with a Maine State Police radio channel
6/28/2017	17-094	Safeguards Information Cover Sheet missing organization line
6/28/2017	17-095	Industrial camera degraded
6/28/2017	17-096	Evaluation of potential improvement areas from 2017 Fire and Medical Drill
6/29/2017	17-097	Discrepancies between field conditions and drawings
7/1/2017	17-098	Rifle magazine floorplate had a worn part
7/6/2017	17-099	Lack of closure documentation for a 2016 condition report
7/7/2017	17-100	Received e-mail from FBI with attachment incorrectly marked "Safeguards"
7/10/2017	17-101	Documented Rad Protection Assessment findings
7/10/2017	17-102	Loss of main Uninterruptible Power Supply during maintenance
7/10/2017	17-103	Cask heat removal system declared inoperable due to loss of instrumentation
7/10/2017	17-104	Industrial DVR and industrial cameras not functional
7/11/2017	17-105	Momentary loss of offsite power
7/11/2017	17-106	Did not enter both applicable Tech Specs for the concrete cask heat removal system inoperability determination
7/11/2017	17-107	Computer communications loss with the Gatehouse
7/12/2017	17-108	John Deere Mower deck lift linkage found disconnected
7/13/2017	17-109	Documented Emergency Plan assessment for areas of improvement
7/13/2017	17-110	Operations Pass-on form had an incorrect reference to an operations procedure
7/16/2017	17-111	Office vestibule door latching mechanism found sticking/catching
7/17/2017	17-112	Exterior door found without a push bar
7/19/2017	17-113	Attachment E to security procedure completed out of sequence
7/20/2017	17-114	Lack of retrievability of historical unit numbers used in Site Security Records
7/20/2017	17-115	Found partial inlet/outlet vent blockage on concrete cask from wasp nests
7/24/2017	17-116	Documented potential Fitness For Duty Issue
7/24/2017	17-117	Noted areas for improvement during Radiation Protection Program assessment
7/26/2017	17-118	Documented potential areas for improvement from the Training Program Assessment
7/31/2017	17-119	Documented Records Assessment
8/2/2017	17-120	Lost access badge
8/6/2017	17-121	Gatehouse Gate failed to close
8/8/2017	17-122	Loose flooring tiles at the front vestibule door
8/9/2017	17-123	Security procedure Attachment B used was not the current revision
8/11/2017	17-124	Central Alarm Station backup radio system found with interference noise
8/21/2017	17-125	Exterior light cycling off and on Light Pole #6
8/23/2017	17-126	Momentary video feed loss on monitor
8/24/2017	17-127	Incomplete documentation on an inventory log
8/25/2017	17-128	Malfunction of a hand-held flashlight
8/27/2017	17-129	Computer failed log-on process
8/28/2017	17-130	Feedback from a base radio on a back-up radio during periodic testing
8/28/2017	17-131	A few drops of hydraulic fluid leaked onto the pavement under the man-lift
8/28/2017	17-132	Document found containing potential human performance and personnel documentation issues
8/29/2017	17-133	Security radio with microphone cord damage
8/30/2017	17-134	Several Condition Reports contained personnel statements from investigations
8/31/2017	17-135	Unaccounted test badges used by Facilities Specialist for periodic maintenance and Testing of card readers
9/1/2017	17-136	Personnel TLD dosimetry taken off site
9/5/2017	17-137	Momentary loss of video feed
9/8/2017	17-138	Six (6) areas for improvement were noted during a Quality Assurance

		Surveillance.
9/11/2017	17-139	Vehicle gate not responsive to remote panel operation
9/13/2017	17-140	Loose connection resulted in degraded camera
9/13/2017	17-141	Extent of condition review of Connecticut Yankee's-Condition Report on damaged rifle rounds
9/13/2017	17-142	Temperature monitoring system (TMS) anomaly
9/13/2017	17-143	TMS computer not responding
9/15/2017	17-144	Temporary loss of lighting due to lightning storm
9/16/2017	17-145	Industrial camera monitor with poor picture quality
9/17/2017	17-146	Discrepancy with offsite vendor communication alarm vendor
9/18/2017	17-147	Video monitor issue
9/19/2017	17-148	Tamper alarm on a small electrical connection's box not functioning properly
9/20/2017	17-149	Trespassing incident – trespasser driving onto property to see wildlife
9/23/2017	17-150	Same trespasser came back to check out wildlife
9/23/2017	17-151	Certification conflict between American Red Cross and American Heart Association
9/24/2017	17-152	Duty holster with loose hardware
9/25/2017	17-153	Cask high temperature alarm received in Alarm Station due to sensor failure
9/28/2017	17-154	Missing signature on a return sign-in sheet for a safeguards document
9/29/2017	17-155	Temperature monitoring system anomaly
9/29/2017	17-156	Original FCC license missing from licensee books
10/1/2017	17-157	Problem noted on the picture quality of an industrial camera
10/4/2017	17-158	Diesel Generator failed to start
10/4/2017	17-159	An annunciator light on the diesel generator remote panel was not working
10/4/2017	17-160	Missing signature on preventative maintenance work authorization form
10/5/2017	17-161	Light on CMP Pole not working properly
10/5/2017	17-162	Reviewing extent of conditions of a sister site having a regulator reviewer not qualified
10/7/2017	17-163	Trouble alarm on the fire monitoring system on the Fire Warden Panel
10/7/2017	17-164	Overhead light out on the second floor of the Security Operations Building
10/9/2017	17-165	Missing button on the base radio in the alarm station
10/10/2017	17-166	Fire protection procedures require notification to insurance company that Maine Yankee no longer uses
10/10/2017	17-167	Unable to perform certain aspects of the Fitness for Duty for the three Yankee ISFSI sites)
10/11/2017	17-168	Weapon holster retention screw is missing
10/12/2017	17-169	On-shift security personnel did not carry Contingency Weapon as required.
10/13/2017	17-170	Weapons control training and maintenance program wording could be improved
10/17/2017	17-171	Noted a deficiency with Maine Yankee Fitness for Duty Policy
10/17/2017	17-172	Loose pin found on rifle stock
10/18/2017	17-173	A connector caused a digital video recorder feed anomaly
10/18/2017	17-174	Damage on housing clips to two industrial cameras
10/18/2017	17-175	Documented a good questioning attitude on a software update to the back-up computer
10/18/2017	17-176	Back up portable radio will not transmit
10/19/2017	17-177	Identified potential conflict with Maine Statute
10/24/2017	17-178	Degradation identified during performance testing
10/24/2017	17-179	A Tamper Switch was not alarming correctly
10/25/2017	17-180	Documented improvement areas from the 2017 E-Plan Drill evaluation and observation critique items
10/26/2017	17-181	Areas for improvement on cold weather operations associated with fire hydrant

		maintenance
10/27/2017	17-182	ISFSI Atmospheric Monitor was not working
10/29/2017	17-183	Minor service damage to an inlet screens of a vertical concrete cask
10/30/2017	17-184	An exterior light was cycling on and off during a harsh weather storm
10/30/2017	17-185	Loss of off-site power due to harsh storm Power Loss/Storm Event
10/30/2017	17-186	Degraded picture quality on an industrial camera
11/1/2017	17-187	Trouble alarm on the Uninterruptible Power Supply
11/3/2017	17-188	Identified a possible trip/ fall hazard
11/3/2017	17-189	A primary portable radio with poor transmission quality
11/5/2017	17-190	Momentary loss of video
11/5/2017	17-191	Found a small hydraulic fluid leak inside the maintenance garage by the snow blower
11/10/2017	17-192	Loss of site power due to high winds
11/13/2017	17-193	Momentary loss of video feed on an industrial camera
11/15/2017	17-194	Security CR on Russian virus protection
11/16/2017	17-195	Independent Management Assessment identifies some improvement areas
11/21/2017	17-196	Aerial lift distress light on the operator controls
11/22/2017	17-197	On-coming security force member entered the Dayroom prior to receiving a shift turnover brief
11/23/2017	17-198	An intermittent brief power cycling of Light Pole # 8
11/25/2017	17-199	An intermittent brief power cycling of Light Pole # 2
11/26/2017	17-200	An intermittent brief power cycling of Light Pole # 6
11/28/2017	17-201	Documented recommendations from the Beyond the Security Mission Team/ Active Shooter Training sessions
11/30/2017	17-202	Maine Yankee's Health and Safety Manual references must be evaluated and compared with OSHA changes to regulation sections
12/2/2017	17-203	The ballast in the light in the lunchroom malfunctioned
12/2/2017	17-204	An intermittent power cycling of Light Pole # 1
12/3/2017	17-205	An intermittent power cycling of Light Pole # 9
12/4/2017	17-206	Model 3 frisker was operating erratically
12/4/2017	17-207	Procedure Revision Process could be improved
12/6/2017	17-208	Shift Turnover was not conducted according to security procedure
12/7/2017	17-209	Evaluating lessons learned from an industry operating experience at the Millstone Power Station on a Confirmatory Order regarding Security Related Violations
12/9/2017	17-210	Pre-planned maintenance due to environmental conditions
12/10/2017	17-211	Lost TLD
10/11/2017	17-212	Momentary loss of industrial cameras due to a brief power outage on Old Ferry Road
12/11/2017	17-213	Documented five failures during the annual testing of the Emergency and Exit lights
12/12/2017	17-214	Consider adding strobe lights to the roof tops of plow trucks
12/17/2017	17-215	A small fluid leak was found coming from the Gator utility vehicle in the Protected Area.
12/19/2017	17-216	Minor damage to a fence during snow removal
12/19/2017	17-217	"Odd" Email received by ISFSI Manager
12/23/2017	17-218	Shift turnover brief not completed for a Security Force Member by the on-shift shift supervisor
12/23/2017	17-219	Camera system degraded due to environmental conditions
12/24/2017	17-220	Found a small leak under the John Deere tractor in the maintenance building
12/24/2017	17-221	Minor damage to the rear bumper of the site's Chevy utility truck
12/25/2017	17-222	Security system degradation due to environmental conditions
12/26/2017	17-223	Hardware issue with a security duty holster

12/27/2017	17-224	Lost TLD
12/27/2017	17-225	On-shift security personnel did not carry contingency weapon as required.
12/28/2017	17-226	Circuit breaker on the Emergency Diesel Panel tripped open upon completion of a Diesel Generator test run
12/29/2017	17-227	Diesel Generator room temperature was less than 50°F
12/29/2017	17-228	A remote temperature sensing device on one of the casks failed
12/30/2017	17-229	A small substance leak from a utility vehicle was found in the Protected Area
12/31/2017	17-230	A small substance leak in the maintenance building was found coming from the John Deere tractor



115TH CONGRESS
1ST SESSION

H. R. 456

To require the Secretary of Energy to obtain the consent of affected State and local governments before making an expenditure from the Nuclear Waste Fund for a nuclear waste repository.

IN THE HOUSE OF REPRESENTATIVES

JANUARY 11, 2017

Ms. TITUS (for herself, Mr. KIHUEN, and Ms. ROSEN) introduced the following bill; which was referred to the Committee on Energy and Commerce

A BILL

To require the Secretary of Energy to obtain the consent of affected State and local governments before making an expenditure from the Nuclear Waste Fund for a nuclear waste repository.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “Nuclear Waste In-

5 formed Consent Act”.

6 **SEC. 2. DEFINITIONS.**

7 In this Act, the terms “affected Indian tribe”, “af-

8 fected unit of local government”, “Commission”, “high-

1 level radioactive waste”, “repository”, “spent nuclear
2 fuel”, and “unit of general local government” have the
3 meanings given the terms in section 2 of the Nuclear
4 Waste Policy Act of 1982 (42 U.S.C. 10101).

5 **SEC. 3. CONSENT BASED APPROVAL.**

6 (a) IN GENERAL.—The Secretary may not make an
7 expenditure from the Nuclear Waste Fund for the costs
8 of the activities described in paragraphs (4) and (5) of
9 section 302(d) of the Nuclear Waste Policy Act of 1982
10 (42 U.S.C. 10222(d)) unless the Secretary has entered
11 into an agreement to host a repository with—

12 (1) the Governor of the State in which the re-
13 pository is proposed to be located;

14 (2) each affected unit of local government;

15 (3) any unit of general local government contig-
16 uous to the affected unit of local government if
17 spent nuclear fuel or high-level radioactive waste will
18 be transported through that unit of general local
19 government for disposal at the repository; and

20 (4) each affected Indian tribe.

21 (b) CONDITIONS ON AGREEMENT.—Any agreement
22 to host a repository under this Act—

23 (1) shall be in writing and signed by all parties;

24 (2) shall be binding on the parties; and

1 (3) shall not be amended or revoked except by
2 mutual agreement of the parties.

○

Appendix C – House Proposal – Interim Consolidated Storage Act of 2017



I

115TH CONGRESS
1ST SESSION

H. R. 474

To amend the Nuclear Waste Policy Act of 1982 to authorize the Secretary of Energy to enter into contracts for the storage of certain high-level radioactive waste and spent nuclear fuel, take title to certain high-level radioactive waste and spent nuclear fuel, and make certain expenditures from the Nuclear Waste Fund.

IN THE HOUSE OF REPRESENTATIVES

JANUARY 12, 2017

Mr. ISSA (for himself, Mr. CONAWAY, Mr. CALVERT, Mr. CULBERSON, Mr. YOUNG of Alaska, Ms. PINGREE, Mr. SAM JOHNSON of Texas, Mr. CARTER of Texas, Ms. BORDALLO, Mr. PETERS, Mr. WELCH, Ms. MATSUI, Mr. GENE GREEN of Texas, Mr. HUNTER, Mr. BERA, Mr. NEAL, Mr. COURTNEY, and Mr. LEWIS of Minnesota) introduced the following bill; which was referred to the Committee on Energy and Commerce

A BILL

To amend the Nuclear Waste Policy Act of 1982 to authorize the Secretary of Energy to enter into contracts for the storage of certain high-level radioactive waste and spent nuclear fuel, take title to certain high-level radioactive waste and spent nuclear fuel, and make certain expenditures from the Nuclear Waste Fund.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

1 **SECTION 1. SHORT TITLE.**

2 This Act may be cited as the “Interim Consolidated
3 Storage Act of 2017”.

4 **SEC. 2. DEFINITION OF INTERIM CONSOLIDATED STORAGE**
5 **FACILITY.**

6 Section 2 of the Nuclear Waste Policy Act of 1982
7 (42 U.S.C. 10101) is amended by adding at the end the
8 following new paragraph:

9 “(35) The term ‘interim consolidated storage
10 facility’ means a facility that possesses a specific li-
11 cense issued by the Commission that authorizes stor-
12 age of high-level radioactive waste or spent nuclear
13 fuel received from the Secretary or from two or more
14 persons that generate or hold title to high-level ra-
15 dioactive waste or spent nuclear fuel generated at a
16 civilian nuclear power reactor.”.

17 **SEC. 3. INTERIM CONSOLIDATED STORAGE OF HIGH-LEVEL**
18 **RADIOACTIVE WASTE AND SPENT NUCLEAR**
19 **FUEL.**

20 (a) STORAGE OF SPENT NUCLEAR FUEL.—Section
21 135(h) of the Nuclear Waste Policy Act of 1982 (42
22 U.S.C. 10155(h)) is amended by striking “Notwith-
23 standing any other provisions of law” and inserting “Ex-
24 cept as provided in section 302, and subtitle I of title I”.

1 (b) INTERIM CONSOLIDATED STORAGE.—Title I of
 2 the Nuclear Waste Policy Act of 1982 (42 U.S.C. 10121
 3 et seq.) is amended by adding at the end the following:

4 **“Subtitle I—Interim Consolidated**
 5 **Storage**

6 **“SEC. 190. INTERIM CONSOLIDATED STORAGE.**

7 “(a) IN GENERAL.—The Secretary may enter into
 8 contracts for the storage of high-level radioactive waste
 9 or spent nuclear fuel with any person that holds a license
 10 for an interim consolidated storage facility.

11 “(b) DEFINITION OF HIGH-LEVEL RADIOACTIVE
 12 WASTE.—For purposes of this subtitle and section 302,
 13 the term ‘high-level radioactive waste’ includes Greater
 14 than Class C waste as defined in section 72.3 of title 10,
 15 Code of Federal Regulations. Nothing in this section or
 16 section 191 shall be interpreted to affect existing judicial
 17 interpretation of the term high-level radioactive waste or
 18 to require the disposal of Greater than Class C waste in
 19 a repository.

20 **“SEC. 191. CONTRACTS.**

21 “(a) IN GENERAL.—The Secretary may enter into
 22 new contracts or modify existing contracts with any person
 23 who generates or holds title to high-level radioactive waste
 24 or spent nuclear fuel of domestic origin for the acceptance
 25 of title and subsequent storage of such waste or fuel at

1 an interim consolidated storage facility, with priority for
2 storage given to high-level radioactive waste and spent nu-
3 clear fuel located on sites without an operating nuclear
4 reactor.

5 “(b) CONTRACT TERMS.—A contract entered into or
6 modified under this section shall provide that acceptance
7 by the Secretary, and transfer of title under subsection
8 (d), of any high-level radioactive waste or spent nuclear
9 fuel for an interim consolidated storage facility satisfies
10 the Secretary’s responsibility under a contract entered
11 into under section 302(a) to accept title to such waste or
12 fuel for disposal, with respect to such accepted waste or
13 fuel.

14 “(c) LIMITATION.—The Secretary shall not require a
15 person to settle claims against the United States for the
16 breach of a contract entered into under section 302(a) for
17 the disposal of high-level radioactive waste or spent nu-
18 clear fuel as a condition precedent of entering into or
19 modifying a contract under this section.

20 “(d) TITLE TO MATERIAL.—Delivery, and acceptance
21 by the Secretary, of any high-level radioactive waste or
22 spent nuclear fuel for an interim consolidated storage fa-
23 cility shall constitute a transfer to the Secretary of title
24 to such waste or fuel.”.

1 (c) NUCLEAR WASTE FUND.—Section 302(d) of the
2 Nuclear Waste Policy Act of 1982 (42 U.S.C. 10222(d))
3 is amended—

4 (1) in paragraph (4), by striking “in a mon-
5 itored, retrievable storage site” and inserting “in an
6 interim consolidated storage facility or monitored re-
7 trievable storage site,”;

8 (2) in paragraph (5)—

9 (A) by striking “a monitored, retrievable
10 storage site” and inserting “an interim consoli-
11 dated storage facility site, a monitored retriev-
12 able storage site,”;

13 (B) by striking “such repository, mon-
14 itored, retrievable storage facility” and insert-
15 ing “such repository, interim consolidated stor-
16 age facility, monitored retrievable storage facil-
17 ity,”; and

18 (C) by striking “; and” and inserting a
19 semicolon;

20 (3) by redesignating paragraph (6) as para-
21 graph (7);

22 (4) by inserting after paragraph (5) the fol-
23 lowing:

24 “(6) the fees and costs in connection with the
25 storage of high-level radioactive waste or spent nu-

1 clear fuel in an interim consolidated storage facility;
2 and”; and

3 (5) by inserting “For purposes of the preceding
4 sentence, fees and costs described in paragraph (6)
5 shall not be considered amounts for the construction
6 or expansion of any facility.” after “this or subse-
7 quent legislation.”.

8 (d) APPROPRIATIONS FROM THE WASTE FUND.—
9 Section 302(e)(2) of the Nuclear Waste Policy Act of 1982
10 (42 U.S.C. 10222(e)(2)) is amended—

11 (1) by inserting “(A)” before “The Secretary
12 shall submit”; and

13 (2) by adding at the end the following:

14 “(B) Notwithstanding subparagraph (A), subject to
15 subparagraph (C), necessary amounts shall be available to
16 the Secretary from the Waste Fund without additional ap-
17 propriations to pay for the following:

18 “(i) Costs described in subsection (d)(4) in con-
19 nection with storage in an interim consolidated stor-
20 age facility.

21 “(ii) Costs described in subsection (d)(5) in
22 connection with an interim consolidated storage fa-
23 cility.

24 “(iii) Fees and costs described in subsection
25 (d)(6).

1 “(C) The Secretary shall not expend, on fees for dry
2 modes of storage of high-level radioactive waste or spent
3 nuclear fuel, amounts totaling more than the cumulative
4 amount of interest generated by the Waste Fund each fis-
5 cal year, beginning in fiscal year 2018.”.

○

Appendix D – NRC Acceptance Letter on Waste Control Specialists License Application for a Consolidated Interim Storage Facility



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

January 26, 2017

Mr. Michael Ford
Vice President of Licensing
and Corporate Compliance
Waste Control Specialists, LLC
5430 LBJ Freeway, Ste. 1700
Three Lincoln Centre
Dallas, TX 75240

SUBJECT: LICENSE APPLICATION TO CONSTRUCT AND OPERATE A CONSOLIDATED INTERIM STORAGE FACILITY FOR SPENT NUCLEAR FUEL IN ANDREWS COUNTY, TEXAS – ACCEPTED FOR REVIEW (CAC NO. L25175)

Dear Mr. Ford:

By letter dated April 28, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16133A070), as supplemented on July 20, August 19, August 31, September 27, October 7, November 16, December 16, and December 22, 2016 (ADAMS Accession Nos. ML16229A537, ML16235A467, ML16265A454, ML16280A300, ML16287A527, ML16330A116, ML16356A346 and ML17018A292 respectively), Waste Control Specialists, LLC (WCS) submitted an application for a specific license pursuant to Part 72 of Title 10 of the *Code of Federal Regulations* (10 CFR), "Licensing Requirements for the Independent Storage of Spent Nuclear Fuel, High-Level Radioactive Waste, and Reactor-Related Greater Than Class C Waste." In its letter, WCS requested authorization to store up to 5,000 metric tons of uranium for a period of 40 years in a consolidated interim storage facility (CISF).

In addition, by letter dated July 21, 2016, WCS requested that the U.S. Nuclear Regulatory Commission (NRC) initiated its environmental impact statement (EIS) process for the WCS CISF license application as soon as practicable (ML16229A340). By letter dated October 7, 2016, the NRC informed WCS of its decision to start the EIS process in advance of making a decision on docketing the application (ML16285A317). On November 14, 2016, the NRC published a notice in the *Federal Register* announcing its intent to prepare an EIS and to open the scoping period for the EIS (81 FR 79531).

The NRC staff reviewed your application and concluded it provides information in sufficient detail to enable the staff to conduct its detailed review. Accordingly, the NRC staff has established a schedule for this review which includes the issuance of requests for additional information (RAIs) pertaining to the environmental review in the third quarter Fiscal Year (FY) 2017. The schedule also provides that RAIs for the safety review would be issued in the fourth quarter FY 2017 and the second quarter FY 2018, if necessary. The NRC staff anticipates completing its safety and environmental reviews by the third quarter FY 2019.

This schedule assumes that WCS will provide timely and high quality RAI responses in the fourth quarter FY 2017 for the environmental review and in the fourth quarter FY 2017 and the second quarter FY 2018, if necessary, for the safety review. Per SFM-26, "Operational Strategies and Management Expectations" (ML16222A251), RAI responses which are not received within the agreed-upon time may result in the review being suspended. In addition, low quality RAI responses will be deemed non-responsive and will also be grounds for suspending the review. In general, additional changes to the application that are submitted, except for changes resulting from RAI responses, may cause a delay in the schedule outlined above. In addition, the NRC staff estimates that completing the review and making an independent assessment of the proposed application will cost approximately seven and a half million dollars.

The NRC staff will be in contact with you to schedule a public meeting in the near future to discuss additional details regarding the review process and communicate staff expectations on quality and timeliness of responses to RAIs. If you have any questions regarding these matters, please contact the Project Manager, John-Chau Nguyen, at (301) 415-0262. Also, please reference Docket No. 72-1050 and CAC No. L25175 in future correspondence related to this action.

Sincerely,

/RA/

Mark Lombard, Director
Division of Spent Fuel Management
Office of Nuclear Material Safety
and Safeguards

Docket No. 72-1050
CAC No. L25175



Holtec Highlights

HH 32.05 | March 30, 2017

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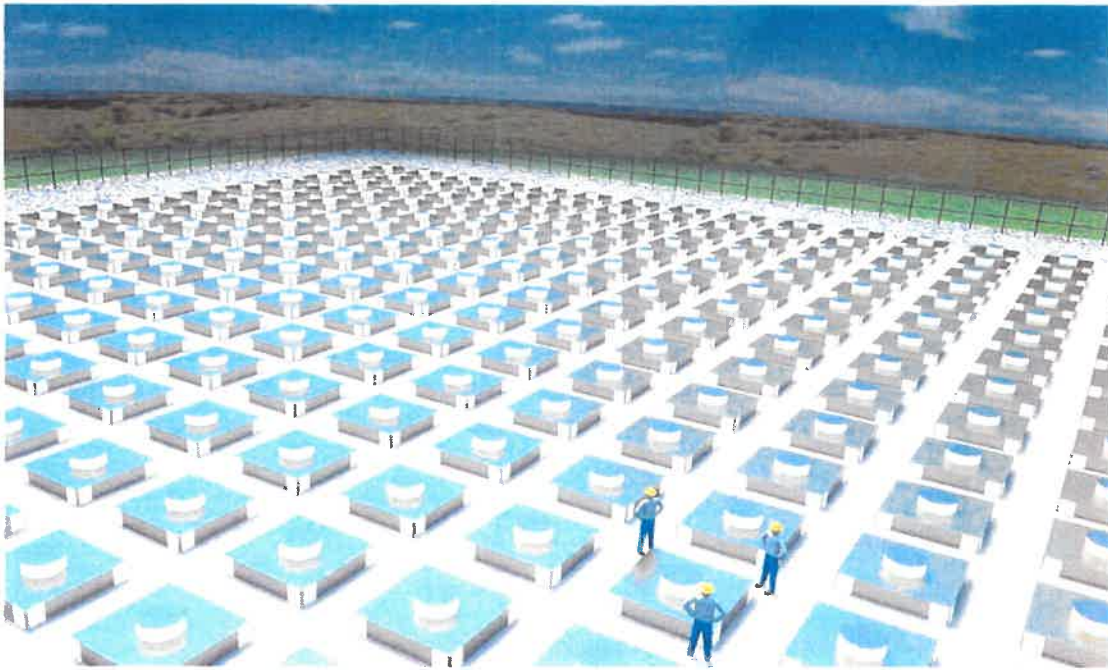
The HI-STORE Consolidated Interim Storage (CIS) Program Reaches a Major Milestone

On March 31, 2017, the NRC will receive Holtec’s application submittal on the HI-STORE CIS, marking a historic day for the nuclear power industry. The application comprises a complete package of documents, including the Safety Analysis Report and the Environmental report on the HI-STORE CIS. “This submittal speaks to the superb dedication, competence and commitment of our 33-specialist team, led by Program Manager, Dr. Fred Bidrawn, and Licensing Manager, Ms. Kim Manzione,” announced Program Director, Ed Mayer, a decorated naval warrior who took over the HI-STORE program in 2015 after retiring from the Navy. HI-STORE CIS is the name of Holtec’s self-funded consolidated interim storage facility, which is being hosted by a coalition of counties and cities incorporated as ELEA, LLC in southeastern New Mexico.

Holtec thanks the NRC for conducting a pre-submittal technical audit in late February at our Technology Campus in Camden, NJ, which helped fine tune the content of our licensing package to accord with the NRC’s expectations. Our HI-STORE licensing package is also informed by our successful work on the Private Fuel Storage (PFS), LLC, initiative over a decade ago along with Pillsbury, Shaw, Pittman law firm (PFS, LLC remains the only licensed CIS in the US to this day). The exceedingly stringent criteria that emerged from the PFS’s licensing process and ASLB hearings, such as the 10,000-year return earthquake, have been proactively incorporated in the HI-STORE Design Criteria, leading to a substantially more fortified construction and to facilitate expeditious licensing. The unique safety considerations germane to a CIS have also been successfully applied by Holtec in the design of the CIS for Ukraine’s national nuclear company, ENERGOATOM, which has paved the way for a smooth granting of license in that country.

The HI-STORE CIS facility will utilize the subterranean storage system, HI-STORM UMAX, certified in the NRC’s Docket No. 72-1040. HI-STORM UMAX, has emerged in the past decade as the breakthrough technology that provides an unprecedented level of safety, security and environmental protection to the user. The dose emitted from the HI-STORM UMAX ISFSI is virtually zero, making the accreted dose to the environment, even at the site’s full capacity (10,000 loaded canisters), negligible. HI-STORE CIS is a truly universal storage system in as much as it is designed to accept *every Canister currently loaded at every US nuclear plant*. Therefore, every nuclear plant in the country, shutdown or operating, including *even those that do not currently use Holtec’s storage systems*, will be able to ship their canisters to the HI-STORE site.

For more information, please contact: Erika Grandrimo | (856) 797-0900, ext. 3920 | e.grandrimo@holtec.com



The HI-STORE CIS Facility Uses Holtec's Below Grade HI-STORM UMAX Technology

We thank the State of New Mexico and especially the local communities in the vicinity of the proposed HI-STORE CIS site that have provided unwavering support for the program.

The support and encouragement provided by the Executive Branch of the State has been equally heartening by Ken McQueen, Secretary of Energy for New Mexico, Butch Tongate, Secretary of Environment for New Mexico, and their predecessors. Holtec, also, gratefully extends its appreciation to the steadfast support of the many legislators, especially those that represent Eddy and Lea Counties including Representative Cathrynn Brown, Senator Gay Kernan, Senator Carroll Leavell, Representative Jim Townsend, Representative Larry Scott and Representative David Gallegos. We also very much appreciate the leadership of Mayor Dale Janway of Carlsbad, Mayor Sam Cobb of Hobbs, Chairman Ron Black of the Lea County Commission, and Chairman Stella Davis of the Eddy County Commission. Speaking to the economic and national benefits of the away-from-reactor facility, Governor Susanna Martinez had written in a letter to the DOE Secretary of Energy, "I support the ELEA and its member cities and counties in their effort to establish a consolidated interim storage facility in southeastern New Mexico that will be regulated by the high safety and technical standards of the Nuclear Regulatory Commission."

The unequivocal support of the State Government and enthusiasm for the project, exhibited by the local community leaders, is best captured by Mr. John Heaton, a former legislator, respected community leader and

For more information, please contact: Erika Grandrimo | (856) 797-0900, ext. 3920 | e.grandrimo@holtec.com



Holtec Highlights

HH 32.05 | March 30, 2017

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Chairmen of the ELEA, LLC, who calls HI-STORE "a credentialed environment-friendly facility that will be a boon for the industrial health of the regional economy."

"We are encouraged by the supportive posture exhibited by Energy Secretary Perry in his recent confirmation hearing and the DOE's official affirmation of the private CIS initiatives by Deputy Assistant Secretary Andy Griffith at the Waste Management Symposium in Phoenix, AZ, on March 9," says Holtec's VP of Corporate Business Development, Ms. Joy Russell.

Press Conference Announcement

Holtec International is pleased to announce a press conference to discuss the submittal of Site-Specific License Submittal for Holtec International HI-STORE Consolidated Interim Storage (CIS) Facility to the U.S. Nuclear Regulatory Commission pursuant to 10CFR72 for the proposed CIS facility known as HI-STORE.

Press Conference Details:

Date: Wednesday, April 5, 2017

Time: 4:00 p.m.

Location: Room 2220, Rayburn House Office Building, Washington, DC

For more information, please contact: **Erika Grandrimo** | (856) 797-0900, ext. 3920 | e.grandrimo@holtec.com

Appendix F – Waste Control Specialists Letter Suspending Their License Application



AMERICA'S NUCLEAR SOLUTION

April 18, 2017

10 CFR Part 72
Docket No. 72-1050
CAC No. L25175

Document Control Desk
U.S. Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Rockville, MD 20852

Dear Sir or Madam,

Waste Control Specialists LLC (“WCS”) filed an application with the U.S. Nuclear Regulatory Commission (“NRC”) under 10 CFR Part 72 for a Consolidated Interim Storage Facility (“CISF”) license for its facility in Andrews County, TX, Docket No. 72-1050.

WCS has also entered into an agreement for the sale of WCS to the parent company of EnergySolutions. The United States has filed a lawsuit seeking to enjoin that sale on antitrust grounds, and the trial on that matter is set to commence on Monday, April 24, 2017. We expect it to conclude on or before May 5, 2017. WCS and EnergySolutions believe the proposed transaction should be allowed because it adds WCS’ disposal facility with EnergySolutions’ integrated nuclear services business and will result in substantial benefits to the safe and effective storage and disposal of LLRW in the United States. The companies believe they will be successful in their defense of this challenge and closing the transaction.

WCS respectfully requests that the NRC temporarily suspend all safety and environmental review activities as well as public participation activities associated with WCS’ license application for a period commencing on the date of this letter and continuing until the completion of the sale of WCS to EnergySolutions, which we currently believe to be by late summer 2017. WCS expects to go forward with this project at the earliest possible opportunity after completion of the sale. However, due to the substantially increased application review and related costs, WCS must focus its limited financial resources on those expenditures necessary to safely run and maintain its currently licensed facilities, proceed through the trial set for April 24, and complete the sale to EnergySolutions.

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Facility
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Andrews, TX 79714
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CISF Plans for Andrews County, Texas

As one of its initiatives intended to help WCS eventually become profitable and following on the recommendations of the 2012 Blue Ribbon Commission on America's Nuclear Future and the encouragement of the host city, county and State, WCS leaders began considering the possibility of siting a CISF at its Andrews County, TX facility – a much reviewed location, adjacent to URENCO's enrichment facility and in a location already found suitable for LLRW disposal. WCS' approach to this project has necessarily been fiscally conservative – primarily staffed with in-house effort, minimal cash outlays, and in-kind and cost-sharing contributions from its partners (TN Americas and NAC International).

Enormous Financial Challenges

WCS respects the NRC's process, understands that the NRC seeks to efficiently use its resources, and is fulfilling its statutory mandate to protect the public health and safety and the environment, as well as its requirements for public participation. But WCS also is faced with a magnitude of financial burdens that currently make pursuit of licensing unsupportable. This is so because following the recent docketing of the CISF application in January 2017, the cost profile for WCS' pursuit of the CISF application has increased dramatically.

The NRC recently provided WCS an estimate of the cost of the application review of \$7.5 million, which is significantly higher than we originally estimated. Also, the costs associated with the commencement of the public participation process and a potential adjudicatory hearing before the Atomic Safety and Licensing Board, are estimated to be considerable, especially in the very near term. The cost sharing arrangement WCS had in place with one of its partners for this project has been depleted, and WCS has been unable to reach an agreement to extend these arrangements. At the same time, WCS has faced significant operating losses in each of its operating years, and the cost of actively pursuing the project only serves to increase those losses.

Request

For the reasons discussed above, WCS respectfully requests that the NRC Staff temporarily suspend all safety and environmental review of the CISF application and that it seek to efficiently capture and preserve the work completed to date, as practicable. WCS requests that NRC approve an extension period commencing on the date of this letter until the completion of the sale of WCS to EnergySolutions, which we currently believe to be late summer 2017. WCS is optimistic about the near term resumption of its pursuit of the Part 72 license after completion of the sale.

Accordingly, WCS requests that the Commission, as the Presiding Officer, suspend without prejudice the deadlines and opportunities to submit hearing requests identified in the NRC's notice published in the *Federal Register* on January 30, 2017 (82 Fed. Reg. 8773), as amended by the Commission's Order, dated March 29, 2017 (ML17088A627), and that the NRC suspend the deadlines for environmental scoping comments identified in the NRC's notice also published in the *Federal Register* on January 30, 2017 (82 Fed. Reg. 8771).

WCS expects that, once it has requested resumption of review of the CISF application, NRC will issue notices imposing new deadlines for hearing requests and public scoping comments. This path is consistent with requests from multiple intervenor groups in the environmental scoping

meetings for additional time to prepare their challenges and imposes no unfairness to any prospective party who will be able to file contentions by the new deadlines. This path is also consistent with the steps the NRC, WCS, and stakeholders are taking to plan for the safe and effective consolidated interim storage of spent nuclear fuel.

WCS commits to keep the NRC Staff timely apprised of changes to its readiness to resume this important licensing action. We will provide as much advance notice as possible of a target date for a resumption request, and work within the NRC's resource allocation processes.

WCS appreciates the significant work and utmost professionalism on the part of the NRC Staff, as well as that on the parts of its employees and CISF partners. We appreciate the continued support of our State and local communities and look forward to resuming this important project and playing a significant role in America's safe nuclear future.

If you have questions, please contact me, or Michael Ford, Vice President, Licensing & Corporate Compliance, mford@valhi.net or 972.450.4284.

Sincerely,



Rod Baltzer

cc:

Chairman Svinicki
Commissioner Burns
Commissioner Baran
Secretary of the Commission
Marc Dapas, NRC, NMSS
Michael Layton, NRC, NMSS/SFM
Tony Hsai, NRC, NMSS/SFM
John McKirgan, NRC, NMSS/SFM/SFLB
John Nguyen, NRC, NMSS/SFM/SFLB
Jim Parks, NRC, NMSS/FCSS&ER/ERB

Appendix G – Nevada’s Joint Resolution Opposing Yucca Mountain Repository

Assembly Joint Resolution No. 10—Assemblymen Brooks, Frierson, Yeager, Watkins, Benitez-Thompson; Paul Anderson, Araujo, Bilbray-Axelrod, Bustamante Adams, Carlton, Carrillo, Cohen, Daly, Flores, Fumo, Jauregui, Joiner, McCurdy II, Miller, Monroe-Moreno, Neal, Ohrenschall, Spiegel and Thompson

Joint Sponsors: Senators Segerblom, Ford, Cancela, Spearman, Cannizzaro; Manendo, Ratti, Roberson and Woodhouse

FILE NUMBER.....

ASSEMBLY JOINT RESOLUTION—Expressing opposition to the development of a repository for spent nuclear fuel and high-level radioactive waste at Yucca Mountain in the State of Nevada.

WHEREAS, Since 1954, when the Atomic Energy Act was passed by Congress, the Federal Government has been responsible for the disposal of radioactive waste, yet few environmental challenges have proven more daunting than the problems posed by the disposal of spent nuclear fuel and high-level radioactive waste; and

WHEREAS, Pursuant to the Nuclear Waste Policy Act of 1982, 42 U.S.C. §§ 10101 et seq., as amended, the Department of Energy has been studying Yucca Mountain in southern Nevada as a possible site for a repository for spent nuclear fuel and high-level radioactive waste; and

WHEREAS, In 1987, Congress amended the Nuclear Waste Policy Act of 1982, 42 U.S.C. §§ 10101 et seq., specifying Yucca Mountain as the sole location for the placement of a national repository for spent nuclear fuel and high-level radioactive waste; and

WHEREAS, The State of Nevada has since opposed the placement of a repository for spent nuclear fuel and high-level radioactive waste in the State due to the extremely dangerous nature of such waste, the persistence of that danger for an extended period of time, the potential harm to the environment of the State and the serious and unacceptable hazard to the health and welfare of the people of Nevada that is posed by the placement of such a repository in the State; and

WHEREAS, The transportation of spent nuclear fuel and high-level radioactive waste to a repository at Yucca Mountain poses serious and unacceptable risks to the environment, economy and residents of Las Vegas, Nevada, the largest city in the State; and



79th Session (2017)

WHEREAS, In 2001, the Nevada Legislature enacted NRS 353.2655 creating the Nevada Protection Account which must be used to protect the State of Nevada and its residents through funding activities to prevent the location of a repository for spent nuclear fuel and high-level radioactive waste at Yucca Mountain; and

WHEREAS, In 2002, the United States Senate and House of Representatives approved the site at Yucca Mountain as a repository for spent nuclear fuel and high-level radioactive waste, thereby overriding the notice of disapproval submitted by the Governor of the State of Nevada; and

WHEREAS, On June 3, 2008, the Department of Energy submitted to the Nuclear Regulatory Commission a license application for construction authorization of a repository for spent nuclear fuel and high-level radioactive waste at Yucca Mountain; and

WHEREAS, On March 3, 2010, the Department of Energy filed a motion with the Atomic Safety and Licensing Board of the Nuclear Regulatory Commission whereby the Department moved to withdraw the pending license application that was filed in 2008 and asked the Board to dismiss its application with prejudice; and

WHEREAS, The Atomic Safety and Licensing Board denied the Department of Energy's motion on June 29, 2010; and

WHEREAS, In 2011, after stating that it found itself evenly divided on whether to take the affirmative action of overturning or upholding the June 29, 2010, decision by the Atomic Safety and Licensing Board, the Nuclear Regulatory Commission suspended the licensing adjudicatory proceeding that began with such decision; and

WHEREAS, For the Fiscal Year 2012, the United States Congress ended funding of the repository at Yucca Mountain and has not subsequently appropriated any new funds to the Department of Energy or the Nuclear Regulatory Commission for this purpose; and

WHEREAS, In 2012, the Blue Ribbon Commission on America's Nuclear Future, in fulfilling its purpose to conduct a comprehensive review of the policies for managing nuclear waste, reported that any future repository for spent nuclear fuel and high-level radioactive waste should be selected with the consent of the potentially affected state, tribal and local governments; and

WHEREAS, In 2013, the United States Court of Appeals for the District of Columbia Circuit in *In re Aiken County*, 725 F.3d 255, 259 (D.C. Cir. 2013), ruled that the Nuclear Regulatory Commission had an obligation to resume the licensing proceeding for the repository at Yucca Mountain that was suspended in 2011



using the remaining funds from previous appropriations, notwithstanding the objections by the Commission that the funds were insufficient to complete the licensing proceeding; and

WHEREAS, The Nuclear Regulatory Commission has insufficient funds to complete the licensing proceeding for the repository for spent nuclear fuel and high-level radioactive waste at Yucca Mountain, has expended the majority of its remaining funds for the licensing proceeding for such a repository and has not received any additional funds to continue the licensing proceeding for such a repository; and

WHEREAS, The United States Congress is considering various legislation concerning nuclear waste, including S.95, introduced by Senator Dean Heller, and H.R.456, introduced by Representative Dina Titus, both of which are entitled the Nuclear Waste Informed Consent Act and which would extend the right of consent to the State of Nevada before the repository at Yucca Mountain could be authorized for development; now, therefore, be it

RESOLVED BY THE ASSEMBLY AND SENATE OF THE STATE OF NEVADA, JOINTLY, That the Nevada Legislature protests, in the strongest possible terms, any attempt by the United States Congress to resurrect the dangerous and ill-conceived repository for spent nuclear fuel and high-level radioactive waste at Yucca Mountain; and be it further

RESOLVED, That the Nevada Legislature calls on President Donald J. Trump to veto any legislation that would attempt to locate any temporary, interim or permanent repository or storage facility for spent nuclear fuel and high-level radioactive waste in the State of Nevada; and be it further

RESOLVED, That the Nevada Legislature calls on Rick Perry, the Secretary of Energy, to find the proposed repository for spent nuclear fuel and high-level radioactive waste at Yucca Mountain unsuitable, to abandon consideration of Yucca Mountain as a repository site, and to initiate a process whereby the nation can again engage in innovative and ultimately successful strategies for dealing with the problems of spent nuclear fuel and high-level radioactive waste; and be it further

RESOLVED, That the Nevada Legislature formally restates its strong and unyielding opposition to the development of Yucca Mountain as a repository for spent nuclear fuel and high-level radioactive waste and to the storage or disposal of spent nuclear fuel and high-level radioactive waste in the State of Nevada; and be it further



RESOLVED, That the Chief Clerk of the Assembly prepare and transmit a copy of this resolution to the President of the United States, the Vice President of the United States as the presiding officer of the Senate, the Speaker of the House of Representatives, the Secretary of Energy and each member of the Nevada Congressional Delegation; and be it further

RESOLVED, That this resolution becomes effective upon passage and constitutes the official position of the Nevada Legislature.



Appendix H – NRC Order Suspending Waste Control Specialists’ License Application

UNITED STATES OF AMERICA NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Kristine L. Svinicki, Chairman
Jeff Baran
Stephen G. Burns

_____)	
In the Matter of)	
)	
WASTE CONTROL SPECIALISTS LLC)	Docket No. 72-1050
(Consolidated Interim Storage Facility))	
_____)	

CLI-17-10

MEMORANDUM AND ORDER

Earlier this year, the NRC provided notice in the *Federal Register* of the license application of Waste Control Specialists LLC (WCS) to construct and operate a consolidated interim waste storage facility.¹ The notice set a deadline of March 31, 2017, for members of the public to file requests for a hearing and petitions for leave to intervene on WCS’s application. In late March, after receiving an unopposed joint motion from WCS and the Sierra Club, the Secretary extended that deadline to May 31, 2017.² The NRC has received no hearing requests to date.

¹ Waste Control Specialists LLC’s Consolidated Interim Spent Fuel Storage Facility Project, 82 Fed. Reg. 8773 (Jan. 30, 2017).

² Order (Mar. 29, 2017) (ADAMS accession no. ML17088A627) (unpublished); see *Waste Control Specialists LLC’s and Sierra Club’s Joint Motion for Revised Schedule Related to Hearing Requests* (Mar. 13, 2017) (ML17072A498).

On April 18, 2017, WCS requested that the NRC temporarily suspend all review activities associated with its application. The next day, WCS and the NRC Staff jointly requested that the hearing notice be withdrawn, explaining that a new *Federal Register* notice to provide a fresh opportunity for interested persons to request a hearing would be issued if review of the application resumes.³ Beyond Nuclear, the Sierra Club, and the Sustainable Energy and Economic Development (SEED) Coalition filed a joint response, explaining that they did not object to WCS and the Staff's joint request.⁴ The response also sought seven additional measures.

We grant WCS's and the Staff's request. We further direct that the Staff publish a *Federal Register* notice withdrawing the opportunity to request a hearing on this license application and direct the Staff to publish a new notice of opportunity to request a hearing in the *Federal Register* if WCS requests that the Staff resume its review of WCS's application.

As for the additional measures that Petitioners seek, we briefly describe and address each in turn. First, Petitioners request that we direct WCS to submit a new application containing all revisions that it has made since it filed its original application, rather than submitting a version that only includes "change-pages," when it requests that the Staff restart its review of the application. We decline this request to specify the format of revisions to the application. An applicant may revise its application several times over the course of the agency's review, and the Staff has broad discretion to request that revisions be provided in a way that facilitates the Staff's review and the public's understanding of the application.

³ *Joint Request to Withdraw the Federal Register Notice Providing an Opportunity to Submit Hearing Requests* (Apr. 19, 2017) (ML17109A480) (attaching Letter to NRC Document Control Desk from Rod Baltzer, WCS (Apr. 18, 2017)).

⁴ *Response by Beyond Nuclear, SEED Coalition, and Sierra Club to Joint Request to Withdraw the Federal Register Notice Providing an Opportunity to Submit Hearing Requests* (Apr. 28, 2017) (ML17118A268) (Response). The three groups refer to themselves collectively as "Petitioners," and we likewise use that reference.

Petitioners will have the opportunity to challenge the adequacy of the application in full, regardless of its form.

Second, Petitioners request that we require WCS to notify Petitioners' counsel when WCS requests the restart of the Staff's review of the application. Because of Petitioners' demonstrated interest in this proceeding, we direct the Staff to notify Petitioners' counsel within three business days of any WCS request to have the NRC resume its review of WCS's application.⁵

Third, Petitioners request that the NRC not publish a new notice of opportunity to request a hearing on WCS's license application until after we have provided a separate opportunity for, and have ruled on, motions to dismiss the application for lack of jurisdiction. This request relates to Petitioners' argument that WCS's application is inconsistent with the licensing scheme set forth by the Nuclear Waste Policy Act (NWPA).⁶ We decline to delay re-noticing the hearing opportunity to add an extra process that is not contemplated under our procedural regulations. This argument may be raised in an intervention petition after the hearing opportunity is re-noticed; 10 C.F.R. § 2.309(f)(1) specifically permits petitioners to present contentions that raise issues of law.

Fourth, Petitioners request that the new notice of opportunity for hearing provide 120 days for submitting hearing requests. Under 10 C.F.R. § 2.309(b), a petitioner typically has 60 days from the *Federal Register* notice to file hearing petitions. Although it is true that the

⁵ It is incumbent upon Petitioners' counsel to ensure that the Staff has up-to-date contact information.

⁶ Response at 2 (citing Letter to Victor M. McCree, Executive Director for Operations, NRC, from Diane Curran *et al.* (Oct. 27, 2016) (ML16321A372) (requesting that the NRC dismiss the WCS application and stop the environmental review associated with the application because the WCS plan of operations does not comport with the NWPA); Letter to Diane Curran, Harmon Curran Spielberg & Eisenberg, L.L.P. from Marc L. Dapas, Director, Office of Nuclear Material Safety and Safeguards, NRC (Dec. 8, 2016) (ML16337A024) (noting that the issue raised was beyond the scope of the then-ongoing acceptance review)).

Secretary extended the deadline for intervention petitions under the original hearing notice, Petitioners have not adequately explained why an additional 60 days will be necessary in the event the hearing opportunity is re-noticed. We decline to direct that a particular time period, beyond what is already established by our regulations, be established for a hearing opportunity that may be re-noticed at some point in the future.⁷

Fifth, Petitioners request that any new notice of opportunity for hearing provide a procedure for requesting access to Sensitive Unclassified Non-Safeguards Information (SUNSI) and Safeguards Information. In the original hearing notice, the access order was inadvertently omitted. We expect that—consistent with our established procedures⁸—the Staff will include in any reissued hearing notice the access procedures for obtaining SUNSI and Safeguards Information. Petitioners further request that the time to allow for requests for access should be doubled from the typical 10-day period to 20 days. We decline to extend the standard 10-day period at this time.⁹

Sixth, Petitioners request that we direct the Staff to publish a *Federal Register* notice clarifying that the NRC's environmental review of WCS's application is suspended and that—contrary to the previously published scoping notices¹⁰—the NRC will not accept public scoping

⁷ This denial does not preclude Petitioners (or, indeed, any interested person) from seeking an extension of time once the Staff reissues the hearing notice. See 10 C.F.R. § 2.307(a) (allowing for extension of time limits by the Commission or presiding officer for good cause).

⁸ See Delegated Authority to Order Use of Procedures for Access to Certain Sensitive Unclassified Information, 73 Fed. Reg. 10,978 (Feb. 29, 2008); see also Procedures to Allow Potential Intervenors to Gain Access to Relevant Records that Contain Sensitive Unclassified Non-Safeguards Information or Safeguards Information (Feb. 29, 2008) (ML080380626).

⁹ This denial does not preclude Petitioners (or, indeed, any interested person) from seeking an extension of time for obtaining access to SUNSI or Safeguards Information once the Staff reissues the hearing notice.

¹⁰ The scoping period began November 14, 2016. See Waste Control Specialists LLC's Consolidated Interim Spent Fuel Storage Facility Project, 81 Fed. Reg. 79,531 (Nov. 14, 2016). The scoping period closed on March 13, 2017, but the Staff reopened the scoping period until

comments on the proposed environmental impact statement for the WCS facility pending further notice. We direct that when the Staff publishes its notice withdrawing the opportunity to request a hearing on this license application, the Staff also clarify that its environmental review and scoping work is likewise suspended.

Seventh, and relatedly, Petitioners request that we direct the Staff to reopen the time period for submitting scoping comments for the environmental impact statement when the Staff resumes its review of WCS's application. Petitioners further request that any reopening should be noticed in the *Federal Register*, and they seek 120 days after publication to submit any scoping comments. We agree that if WCS requests that the review of its application resume, the Staff should reopen the scoping comment period, and should provide notice of that reopening in the *Federal Register*. We decline, however, to direct the Staff to provide a 120-day comment period at this time.¹¹

IT IS SO ORDERED.

For the Commission

NRC Seal

/RA/

Annette L. Vietti-Cook
Secretary of the Commission

Dated at Rockville, Maryland,
this 22nd day of June, 2017.

April 28, 2017. See Waste Control Specialists LLC's Consolidated Interim Spent Fuel Storage Facility Project, 82 Fed. Reg. 14,039 (Mar. 16, 2017).

¹¹ Again, this does not bar any potential extension requests that Petitioners may seek to obtain from the Staff after the comment period is re-opened.

Appendix I – Newsworthy Items

National and International Highlights

January

- The Department of Energy’s (DOE) Waste Isolation Pilot Plant (WIPP), commissioned in 1999 to dispose of the legacy wastes from the Cold War era, resumed emplacement of transuramic wastes (elements heavier than uranium) after nearly three years that was caused by two incidents in February 2014. The first was due to a fire in an underground vehicle and the second involved a waste drum rupture that contaminated portions of the underground disposal area. The WIPP facility is still the only operating geologic repository in the world.
- California Representative Darrell Issa and Texas Representative Mike Conaway introduced H.R. 474, the “Interim Consolidated Storage Act of 2017” to resolve the nation’s growing spent nuclear fuel storage problem. The Act would authorize the Secretary of Energy to enter into contracts with private organizations that hold Nuclear Regulatory Commission (NRC) consolidated storage licenses, modify existing contracts to take title to currently stored spent nuclear fuel, and give priority to stranded fuel at shutdown reactor sites.
- Representative Joe Wilson of South Carolina introduced legislation that would prohibit the Secretary of Energy from moving forward on a government repository for defense-related nuclear waste until such time the NRC renders a final decision on the Yucca Mountain license application. The bill was entitled the “Sensible Nuclear Waste Disposition Act.”
- Nevada’s congressional delegation introduced in both Houses of Congress the “Nuclear Waste Informed Consent Act” that would require a written consent from any affected tribe, local government, contiguous local government, and Governor before a repository can be hosted within a state’s borders. The consent would be binding on all parties including the federal government.
- The Energy Department released its long-awaited report, “Draft Consent-Based Siting Process for Consolidated Storage and Disposal Facilities for Spent Nuclear Fuel and High-Level Radioactive Waste.” The report listed the eleven general design principles from its initial public engagement meetings that would guide the siting process. They included prioritization of safety, environmental responsibility, regulatory requirements, trust relationships with Indian tribes, environmental justice, informed participation, equal treatment and full consideration of impacts, community well-being, voluntariness and right to withdraw, transparency, and stepwise and collaborative decision-making that is objective and science-based. The report went on to specify the five phases that would encompass the steps in the siting process from the invitation to hosting to the post closure monitoring.
- The NRC notified Waste Control Specialists (WCS) that their license application to construct and operate an interim consolidated storage facility for high-level radioactive waste and spent nuclear fuel at its existing low-level radioactive waste site in Andrews, Texas was accepted and docketed for review. The NRC informed WCS that they anticipated completing the safety and environmental reviews by the spring of 2019 provided they receive timely and comprehensive responses to their request for additional information. The license application specifically identified the spent fuel casks that are now stored at Maine Yankee, Connecticut Yankee, and Yankee Atomic in Massachusetts as part of the facility’s design.
- The Nevada Commission on Nuclear Projects issued a report for the Governor and Legislature that described current Yucca Mountain developments from DOE and NRC activities, developments in Congress from pending legislation, lessons learned from past Yucca Mountain experience that support Nevada’s contentions. The recommendations primarily focused on preparations for the possible resumption of the Yucca Mountain licensing proceedings, how to oppose those efforts, how to

effectively communicate Nevada's objections, and how to legally defend its 218 contentions before the NRC's Atomic Safety and Licensing Board.

- The Government Accountability Office (GAO) released a report, entitled, "Nuclear Waste – Benefits and Costs Should Be Better Understood Before DOE Commits to a Separate Repository for Defense Waste." The GAO report was critical of the information DOE provided to the President in 2015, which resulted in the President reversing a 1985 presidential finding that both commercial and defense-related nuclear waste should be commingle and determined that a separate geologic repository for defense waste was warranted. The report stated that DOE's information "did not quantify cited benefits, when possible, show how these benefits could be achieved, or show the risks if certain benefits could not be realized as planned," especially given its past repository siting experience.
- An old Swedish Fort built between 375 and 550 AD may provide a solution on how best to immobilize 56 million gallons of liquid radioactive waste from the Hanford facility in Washington into glass. The old fort was built during Sweden's Iron Age, long before the age of the Vikings, by using glass to fuse rocks together. Despite harsh winters and frost heaving, the glass rocks remained intact for the last 1,500 years. Studying the ancient glass might help scientists understand what it has been through and why it has lasted so long.

February

- A U.S. District Court Judge ruled that the U.S. Department of Energy (DOE) did not "act arbitrarily or capriciously or made an error in judgment" when it decided that the shipping of highly-enriched uranium targets from Chalk River, Ontario, Canada to its Savannah River reprocessing facility in Aiken, South Carolina met DOE's past environmental impact statements. The 1,100-mile shipping campaign was part of a "U.S. effort to repatriate its nuclear material." The shipments were expected to last four years and involve up to 150 truckloads with each truck carrying a single cask containing up to four stainless-steel containers with each container holding 15 gallons of the highly-enriched uranium liquid. The highly-enriched uranium targets were employed in the production of a key radioactive substance (Technetium-99m) used in the medical diagnosis and treatment of cancer.
- The Nuclear Waste Technical Review Board issued an informational paper on "Chloride-Induced Stress Corrosion Cracking (CISCC) Potential in Dry-Storage Canisters for Spent Nuclear Fuel." The paper indicated that spent nuclear fuel steel canisters with welded lids in open-air environments are susceptible to atmospheric CISCC. Ninety percent of all the spent fuel in dry storage in the U.S. is housed in steel canisters with welded lids. The paper noted that three conditions that must exist for CISCC to develop on the outside surface of the canister – stainless steel that is susceptible, residual stresses near welds, and the presence of chloride salts with favorable environmental conditions such as temperatures less than 176 degrees F and relative humidity above 30%.

March

- Texas' Attorney General filed a lawsuit in the U.S. Court of Appeals for the 5th circuit against the U.S. Department of Energy (DOE) and its Secretary, the NRC and its Chairman, the NRC's Atomic Safety and Licensing Board and its three Judges on the Board, and the Department of the Treasury. The lawsuit would force the NRC to have an up or down vote on the licensing of the Yucca Mountain Project and to stop the DOE from spending any more funds on consent-based siting.
- President Trump's Administration submitted its Fiscal Year 2018 Budget. The President's Budget requested \$120 million to restart the Yucca Mountain licensing activities and to start a strong interim storage program.
- Nevada's two Senators forwarded a letter to DOE's Secretary and the Director of the Office of Management and Budget expressing their intense opposition to the White House's proposed 2018 Budget funneling \$120 million to restart the Yucca Mountain licensing proceedings. They noted the Nevada Governor's staunch opposition and the potential cost of over \$1.6 billion to the federal government to force this project on Nevada.

- The Director of Nevada Agency for Nuclear Projects informed the Legislative Subcommittee on Energy of the State's plan to legally and fully settle its allowed 218 contentions on the Yucca Mountain Project and propose to submit up to 50 new contentions based on new information since the 2009 licensing proceedings and NRC's supplemental Environmental Impact Statement. Nevada's contentions challenge site suitability, disposal concept, hot repository concept, groundwater impacts, Native American cultural impacts, and transportation assumptions and accidents.
- The NRC informed the public that it was providing additional opportunities to comment on Waste Control Specialists' (WCS) license application for an interim spent fuel storage facility in west Texas by extending the comment period to nearly the end of April on the NRC's scope of their Environmental Impact statement for the proposed storage facility.
- The Chair of the House's Energy and Commerce Committee and the Chair of the House's Subcommittee on Environment sent a letter to the newly confirmed Secretary of Energy, Rick Perry, the former Governor of Texas, proposing several recommendations on managing the nation's nuclear waste. They suggested that the Secretary re-establish the Office of Civilian Radioactive Waste Management as mandated by the Nuclear Waste Policy Act, reassess the decision to create a defense-waste only repository, provide funding to assist the State of Nevada and the Nye County Commission, and support Congressional efforts to allow interim storage facilities.
- Nevada Governor Sandoval vowed to defeat the Yucca Mountain restart. The Governor was quoted as saying "Nevada will oppose any federal government effort to dump nuclear waste here.... We will leave no stone unturned as we pursue all viable options to defeat this ill-conceived project, including litigation." The Governor reiterated his opposition following a surprise visit with the newly confirmed Secretary of Energy.
- Holtec International announced that it had submitted a regulatory application to the NRC to house 10,000 canisters of spent nuclear fuel at its HI-Store Consolidated Interim Storage facility on a 1,000-acre site between Hobbs and Carlsbad, New Mexico. The facility will store the spent nuclear fuel from any U.S. nuclear power plant below ground. The NRC is expected to take three to four years to rule on issuing a construction license for the Holtec facility.
- Even though resolutions do not hold legal weight, San Antonio's City Council and the Bexar County Commissioner's both adopted resolutions opposing spent nuclear fuel shipments through their communities.
- The NRC released its final report on a "Compendium of Spent Fuel Transportation Package Response Analyses to Severe Fire Accident Scenarios." The report summarized accident studies on transportation fires involving trucks and railcars. The report analyzed four real-world accident scenarios, three of which were truck related accidents. They were the Baltimore tunnel fire, the Caldecott Tunnel Fire, the MacArthur Maze accident, and the Newhall Pass accident. Even though there were no documented cases of accidents involving spent nuclear fuel, it was found that the main factor driving a potential radioactive release was not the fire itself, but the hindrance of getting the internal decay heat out of the package during the fire and post-fire cooldown. According to the analyses performed, the cask packages would not lose their shielding characteristics and "be extremely robust in their response to severe, real-world accident scenarios."
- The United Kingdom placed its first dry storage cask inside a Building at its Sizewell's nuclear power plant in Suffolk County, England, about 100 miles northeast of London. The cask employs several enhanced features such as a designed 100-year life, a double walled canister for better confinement, as compared to the single wall design used globally, its own impact limiters in case of a crane failure, an exterior shell of the canister that is eddy current tested as a benchmark for future aging management surveillances, and an extra amount of shielding in the cask which reduces the radiation escaping to only a small fraction of the cosmic radiation around us. The cask is manufactured here in the U.S. at Holtec's Pittsburgh plant.

April

- Both the Nuclear Energy Institute (NEI) and seven nuclear utilities and the State of Nevada filed motions to intervene with the fifth Circuit Court of Appeals on Texas' lawsuit to force the federal government to rule on the licensing of the Yucca Mountain Project. NEI's and the nuclear utilities' petition was limited to Texas' request for seeking restitution from and the release of the Nuclear Waste Fund (NWF), which they say would deplete the NWF, undermine the utilities' contractual position with the federal government, and potentially increase future fees. Nevada's motion was to defend its sovereign interests and to protect the health, safety, and welfare of its citizens.
- Waste Control Specialists (WCS) of Texas, one of two private firms seeking a license to operate a consolidated interim storage facility for commercial spent nuclear fuel, sent a letter to the NRC requesting a temporary suspension of all safety and environmental reviews commencing immediately and until such time WCS is sold to Energy Solutions later this summer. After the sale, WCS is expected to petition the NRC to resume the licensing process.
- The House Subcommittee on Environment held a hearing on the newly draft legislation, "the Nuclear Waste Policy Amendments Act of 2017." The discussion issues centered on the provisions in the proposed legislation, the licensing requirements pertinent to a permanent disposal facility, authorization of monitored retrievable storage (MRS) and DOE's contractual methods to carry out such a program, potential partnerships for states and communities that host a MRS or a repository, and efforts to speed-up the clean-up at DOE sites. The most contentious provisions of the proposed Act would deprive states of their regulatory rights over land, air, and water.
- Dallas County Commissioners added their voice to a growing number of counties in Texas by passing a resolution opposing any spent nuclear fuel shipments through their regions. Since the shipping routes are approved by the federal government, the resolutions are not binding.
- Both the Minnesota House and Senate issued resolutions urging Congress to revive the Yucca Mountain licensing proceedings. Likewise, the State of Georgia also passed similar resolutions encouraging their congressional delegation to immediately enact legislation to reestablish a national Nuclear Waste Program according to the Nuclear Waste Policy Act.
- The Massachusetts Land Court recently ruled that the zoning permit that the town of Pilgrim issued for the spent fuel dry cask storage facility at the Pilgrim Nuclear Power Station was valid. The lawsuit from four local residents challenged the town's permit for the storage facility claiming that the storage facility violated zoning laws and required a special permit and a public hearing.
- Holtec International announced that they were launching a licensing campaign to include the spent nuclear fuel stored in all canister types currently in-use at all the nuclear plant sites in the country. This would include both vertically as well as horizontally stored canisters.
- The Quay County Commission in New Mexico adopted in October 2016 a resolution supporting a federal contract to perform an experimental test to drill a borehole three-miles deep into the earth's crust. Since then residents have banded together to oppose the federal government's deep borehole project, which resulted in the Quay County Commission adopting a new resolution withdrawing their support "because of overwhelming public opposition." A similar resolution was proposed in Otero County, New Mexico to withdraw its earlier neutral position and officially oppose the proposed borehole project within their borders.
- AREVA Financial Services (AFS), holder of the DOE contract for the Yucca Mountain Project, announced to its workforce that it was anticipating that the DOE will officially announce the restart of the Yucca Mountain license proceedings in the next few weeks. AFS' action was in response to President Trump's budget allocation of \$120 million to revive the Yucca Mountain licensing process.
- The Department of Energy (DOE) published an initial report and then held a webinar on its analysis of how it would ship all the spent nuclear fuel from the Maine Yankee site. The Department initially evaluated six heavy haul truck scenarios, five direct rail situations, and five barging options. Since there were no storage or disposal locations, DOE used a fictitious location at the geographical center of the

continental U.S. (GCUS). In its latest screening, DOE assessed six potential shipping routes: a heavy haul truck from Maine Yankee to Portland and then by rail to the GCUS, rail from Maine Yankee by Barber's Junction in Massachusetts to GCUS, a barge from Maine Yankee to Portland and then by rail to the GCUS, rail from Maine Yankee to near Boston to the GCUS, rail from the Maine Yankee site to New York City to the GCUS, and finally, a barge from Maine Yankee to Norfolk, Virginia and then by rail to the GCUS. Sixteen weighting factors such as costs, risks, population and worker doses, infrastructure, and security were employed to evaluate each route. Of the six scenarios, the most likely shipping route would be by direct rail from Maine Yankee through Barber's Junction in Massachusetts to GCUS. DOE calculated a likely turnaround of six weeks from loading the spent fuel canisters into shipping casks to the GCUS and return of the empty shipping casks to the Maine Yankee site. DOE assumed that it would take 13 shipping campaigns and take approximately 20 months to remove all the spent nuclear fuel and Greater Than Class C wastes from the site at an estimated cost of about \$24 million.

May

- In a filing with the U.S. Securities and Exchange Commission, Vahli Inc., the parent company of Waste Control Specialists (WCS), stated that they would write-off WCS's "interim storage license application costs" as they believed that "it was no longer probable we would receive such license" from the Nuclear Regulatory Commission (NRC), increasing further doubts that they or WCS would resume the suspended license application before the NRC. WCS had filed for a consolidated interim storage license application with the NRC in April of 2016. In April of this year WCS requested the Commission to suspend their safety and environmental licensing reviews pending a favorable federal court ruling on the sale and merger of WCS with Energy Solutions.
- The Nevada Legislature passed a resolution expressing its strong opposition to and protested any attempts by Congress to creating a repository for spent nuclear fuel and high-level radioactive waste at Yucca Mountain. The resolution was in direct response to the President's Budget that earmarked \$120 million for the resumption of the licensing of the Yucca Mountain Project and called on the President to veto any legislation and for the Secretary of Energy to abandon Yucca Mountain.
- In anticipation of the resumption of the Yucca Mountain licensing project, the Nevada Senate approved \$1.3 million for the Agency for Nuclear Projects and \$3.4 million for the Attorney General's Office to spend fighting the expected restart of the Yucca Mountain licensing proceedings.
- Thirty-four members of the Minnesota House of Representatives signed and forwarded a bipartisan letter to the Energy Secretary expressing their support for the resumption of the Yucca Mountain licensing proceedings. They also expressed their frustration that Minnesota ratepayers have paid nearly \$1 billion into the Nuclear Waste Fund and "have received nothing in return."
- The DOE announced that, due to changes in budget priorities, it will no longer support its Deep Borehole Field Test and was taking steps to end the project immediately. The Deep Borehole Field Test was the first step in DOE's research to test the feasibility of using deep boreholes to dispose of certain types of defense-related high-level radioactive wastes.
- NRC requested approval from the Office of Management and Budget to seek public input to its resumption of licensing activities at Yucca Mountain. If approved, the formal request would focus on responses from the State of Nevada, local governments and affected Indian Tribes.
- NRC submitted their justification for their FY 2018 Budget, which included for the first time in several years a request for \$30 million to support activities related to the proposed deep geologic repository at Yucca Mountain in Nevada. Since the work associated with the repository is not fee recoverable, the NRC was requesting funding from the Nuclear Waste Fund.
- DOE submitted their proposed budget request, based on the Administration's \$120 million allotment for FY 2018. They requested \$110 million for Yucca Mountain and \$10 million for interim storage. If \$120 million is appropriated, according to Sections 116 (c) and 118 (b) of the Nuclear Waste Policy Act, financial assistance would be disbursed with Nevada receiving \$2.089 million, affected units of local

government getting \$3.493 million, the Timbisha Shoshone Tribe collecting \$194,000, Nye County receiving \$3.598 million and Clark County obtaining \$61,000.

- The Government Accountability Office (GAO) issued a report on “Commercial Nuclear WASTE – Resuming Licensing of the Yucca Mountain Repository Would Require Rebuilding Capacity at DOE and NRC, Among Other Key Steps.” GAO identified four key steps for resuming the process. In addition, there are two pressing legal issues that need to be resolved before a construction license can be approved, which could seriously impact the timeline to completing the licensing process. DOE may have to acquire the land and water rights from Nevada.
- The Colorado School of Mines received funding from the Department of Energy (DOE) and retained Maine Yankee as one of several prospective host sites for testing canister samples to assess the effect of normal dry storage conditions on canister materials. The test results should benefit industry relicensing and aging management programs.

June

- The State of Nevada filed with the U.S. Court of Appeals for the Fifth Circuit a motion to dismiss Texas’ lawsuit against the federal government. The Texas lawsuit sought to force the NRC to speed-up its Yucca Mountain licensing process and end the Department of Energy’s (DOE) consent-based siting initiative. Nevada argued that Texas’ lawsuit had no likelihood of success and Texas’ demands to release all necessary Nuclear Waste Fund money as usurping congressional powers and forcing judicial review over policy choices that the Courts are excluded from.
- The NRC issued a memorandum and order on the Waste Control Specialists’ (WCS) license application to construct and operate a consolidated interim storage facility. The Commission granted WCS and the Commission’s staff request to withdraw the public’s opportunity for a hearing request on WCS license application suspension request.
- The U.S. District Court for the District of Delaware ruled in favor of the Justice Department’s civil antitrust lawsuit to block the merger of WCS of Texas and Energy Solutions of Utah. The two firms operate the only two commercially available low-level waste disposal facilities in the U.S. In April of this year WCS requested the NRC to suspend their safety and environmental licensing reviews pending a favorable federal court ruling on the sale and merger of WCS with Energy Solutions. With the merger blocked, the resumption of WCS’s license application for a Consolidated Interim Storage Facility is in jeopardy. WCS was considering whether it should appeal.
- The Nuclear Waste Strategy Coalition (NWSC) sent a letter to the Chair and Ranking Member of the House Committee on Energy and Commerce thanking them for their consideration of the proposed Nuclear Waste Policy Amendments Act of 2017. The letter noted that the proposed legislation addressed many of the Coalition’s priorities, including completion of the Yucca Mountain Repository license application review, implementation of pilot consolidated interim storage for stranded reactor fuel, funding and governance reforms, and preparations for transportation.
- The House Committee on Energy and Commerce overwhelmingly voted 49-4 to advance the Nuclear Waste Policy Amendments Act of 2017 as a positive step in moving forward the stalled Yucca Mountain repository in Nevada.

July

- The Nuclear Energy Institute (NEI) filed a brief with the U.S. Court of Appeals for the Fifth Circuit opposing Texas’ lawsuit against the federal government that sought restitution and disgorgement from the Nuclear Waste Fund (NWF) to pay for the spent nuclear fuel stored in Texas. NEI maintained that the restitution and disgorgement remedy was not possible under the Nuclear Waste Policy Act (NWPA) without a total breach of the Standard Contract between the government and the nuclear utilities. The NWPA prohibits a total breach as it would revoke the federal government’s obligation to dispose of the spent nuclear fuel. NEI argued for dismissal of Texas’ petition on the grounds that it was untimely, Texas lacked standing to seek restitution and disgorgement, the petition should have been brought to the

U.S. Court of Federal Claims, Texas had not exhausted its administrative remedies, and Texas failed to state a claim for mandamus relief.

- The National Association of Regulatory Utility Commissioners issued a resolution urging Congress to immediately enact legislation that would re-establish “a functioning Nuclear Waste Program per the original Nuclear Waste Policy Act.”
- After a vote of 2 to 1 the Nuclear Regulatory Commission (NRC) authorized \$110,000 from existing NWF monies for information gathering activities to re-establish the infrastructure to support the restart of the Yucca Mountain licensing proceedings. The activities involved conducting one Licensing Support Network Advisory Panel virtual meeting to provide information and gather input from Panel members and the public on the newly formed NRC’s Licensing Support Network. The activities also included surveying potential Nevada hearing sites and possible procurement for space, besides evaluating the use of virtual courtroom technology and existing facilities at NRC headquarters in Rockville, Maryland.
- Canada has been testing their newly designed spent fuel container for future disposal in a deep geologic repository. Rigorous testing of the Canadian engineered-barrier system, comprised of a copper-coated container encapsulated in bentonite clay in the host rock, demonstrated that “it will take several million years for the container to lose even a hair’s width of its copper cladding to corrosion.” Current calculations show that it could take as long as 105 million years for groundwater corrosion to puncture the container wall.
- Japan’s Ministry of Economy, Trade, and Industry published a “scientific characteristic map” of the country that indicates areas with suitable geological conditions for the disposal of high-level radioactive waste based on low volcanic or earthquake/fault activity, strength of the underground rock, soil temperature, groundwater acidity, and potential drilling sites for reserves of coal, oil, natural gas, metals or minerals. Up to 70% of Japan was found to be suitable with coastal areas being preferred in terms of transportation.
- Canada has expanded its testing facility in Oakville, Ontario to conduct experiments on full-sized components. Besides working on optimizing the electrodeposition of copper on the steel container, the facility is also performing engineering work on improving the manufacturing technology for the bentonite clay buffer box that will house the spent fuel container. The facility plans by the end of 2017 to “install a bentonite shaping cell that uses robotics to precisely shape the 4,000-kilogram (~8819 pounds) bentonite blocks into the correct dimensions for a deep geological repository.” Currently, engineers are constructing “a full-scale mock-up of an emplacement room that will be used to demonstrate the emplacement technology in the repository environment.”

August

- Southern California Edison (SCE) and Citizens Oversight, a San Diego based civic group, announced that an out-of-court settlement was reached between the parties after Citizens Oversight sued the California Coastal Commission’s approval of a twenty-year permit for SCE to expand a dry cask storage system on its beach front property at the San Onofre Nuclear Generating Station. The dry cask storage facility is located between the Pacific Ocean and the California Freeway, I-5. Under the settlement filed in Superior Court for San Diego County, SCE agreed on how best to relocate its dry cask storage location to an offsite storage facility with the owners of the Palo Verde Nuclear Power Station in Arizona to develop an expanded storage facility at the Palo Verde Station to store San Onofre’s spent fuel. SCE is a 15.8% owner of the Palo Verde Station.
- The Nuclear Waste Technical Review Board (NWTRB) forwarded their observations of the fact finding they did at two meetings on DOE’s research activities related to corrosion and long-term performance of borosilicate high-level radioactive waste glass in a repository environment. The Board was interested in the three stages of glass corrosion mechanisms and rates, and the environmental factors that control these mechanisms and rates. Although there was substantial progress, they noted that significant uncertainties remained when it came to what triggers the third stage and its resumption of a potentially

higher corrosion rate. The Board also commented on enhancing databases by incorporating data from all sources, on the importance of long-term experiments on stage III initiation, on factoring in uncertainties in new models, maintaining bounding estimates of glass durability in standard test procedures, and the use of natural analogs from archeological and natural glass samples to validate models for high-level radioactive waste glass corrosion.

- The NWTRB forwarded their review of the DOE's High Burnup Dry Cask Storage Research and Development Program test plan. The Board applauded the simplified, phased approach since it improved transparency and flexibility for this unique opportunity for destructive classification of high-burnup spent fuel rods. They recommended establishing goals for testing the rods at 750 degrees F, identifying models and the test data that the models will use to allow the results to extend to other types of high-burnup fuel, clarifying what was meant by testing six-inch defueled segments and at least one grid spacer, and providing "logic for the time sequence of executing the planned tests." The Board also recommended preserving the documentation related to the sister rods and storing the sister rods so that their characteristics are not changed during storage.

September

- The House Subcommittee on the Interior, Energy, and Environment held a hearing on "Examining's America's Nuclear Waste Management and Storage." The purpose of the hearing was to examine the management of the nation's nuclear waste and to highlight the challenges communities face when dealing with nuclear waste. In their testimony, the National Association of Regulatory Utility Commissioners (NARUC) accentuated the federal government's failure to act and aptly noted that municipalities have the federal's government waste and the federal government has their money. The Energy Communities Alliance (ECA) highlighted the challenges their localities face with the hundred to millions of gallons of underground storage tanks of liquid high-level radioactive waste at Hanford, Washington, Idaho National Laboratory, and the Savannah River Site in North Carolina. The ECA recommended that Congress redefine nuclear waste based on its radioactive properties as opposed to where it comes from. The reclassification would allow 2,300 waste canisters from the Savannah River Site to be disposed of immediately instead of waiting decades for a repository to open. The Chair of the San Onofre Community Panel emphasized the importance of moving the spent fuel out of local communities at decommissioned sites. All three supported the resumption of the Yucca Mountain licensing process and for interim consolidated storage. The Union of Concern Scientists promoted storage at reactor sites in dry casks and for Congress to support scientific research to establish a technical basis for safe and secure geologic repository. The Heritage Foundation advocated for the responsibility of nuclear waste management be shifted from the government to nuclear power operators and cited Finland as an example of a successful disposal program. Senator Heller from Nevada highlighted his state's efforts to strongly oppose any attempts to restart the Yucca Mountain licensing proceedings.
- The North America's Building Trades Unions (NABTU) sent a letter to all the members of the House of Representatives urging their support for the Illinois Representative Shimkus' bill, H.R. 3053, the "Nuclear Waste Policy Amendments Act of 2017." The President of the Trades Unions stated that the bipartisan legislation would address many of the failures of the nation's nuclear waste policy and put its affiliated unions and members back to work.
- The Department of Energy (DOE) revised its fifth "Preliminary Evaluation of Removing Used Nuclear Fuel from Shutdown Sites." The report included revised spent nuclear fuel data and discharge estimates from DOE's database, updating Google Earth imagery, revisions to transportation Certificates of Compliance and added the Fort Calhoun shutdown reactor site in Nebraska to the 13-other shutdown nuclear sites across the country. Time sequences of activities and durations for removing used nuclear fuel were developed for Maine Yankee and eight other sites. The Maine Yankee information included the types of spent fuel assemblies stored, their discharge history based on calendar years, the number of assemblies by their burn-up or power output, the types of transportation infrastructure available at the

site such as heavy-haul trucks, railcars, and by barges. The principal unknown for the Maine Yankee site is whether the Central Maine and Quebec Railway could accept and move the spent nuclear fuel railcars. The Federal Railroad Administration's safety engineers and Central Maine and Quebec Railway's maintenance crew would have to assess the rail conditions. If not, then barging would most likely be the other option. However, a marine assessment would be necessary to ensure the condition of the channel, the restoration of navigation aids, and any dredging that may be required.

- The Energy Communities Alliance (ECA) published a report, entitled "Waste Disposition: A New Approach to DOE's Waste Management Must Be Pursued." The report provided a roadmap for Congress and the DOE on how to move forward on defense-related wastes. The report listed five recommendations on near term actions that could help the DOE's Environmental Program reduce the number, size and duration of storage facilities needed before a High-Level Radioactive Waste (HLW) repository is available; hasten tank retrievals and closures; and realize \$40 billion in savings from the current life-cycle cost of \$257 billion. The ECA is the only non-profit, membership organization of local governments adjacent to or impacted by DOE activities.
- Japan and Russia recently signed a memorandum on the exchange of information on the changing of certain radioactive elements (actinides) heavier than Uranium found in radioactive waste into shorter-lived radioactive elements. The transmutation or changing of the chemical forms of such long-lived radioactive elements as Americium, Curium, and Neptunium would be accomplished either through burning these elements in the reactor core of fast reactors or by bombarding them with sub atomic particles such as neutrons in accelerators. The change would enable a significant reduction in the volume and radioactive toxicity of the nuclear waste, effectively reducing the design of a geologic repository from a million years down to a few hundred years.

October

- At the request of the House Committee on Energy and Commerce, the Congressional Budget Office (CBO) issued a cost estimate on the House Bill, "Nuclear Waste Policy Amendments Act of 2017." The CBO expects that enacting the House Bill would not significantly change the overall magnitude of the long-term costs the federal government would incur under the initial Nuclear Waste Policy Act of 1982 (tens of billions of dollars over multiple decades). However, relative to CBO's ten-year baseline projections, we estimate that enacting the bill would increase direct spending over the next 10 years. The bill would reduce projected receipts from certain fees (which are treated as reductions in direct spending) that utilities might otherwise pay by about \$1.5 billion and would increase direct spending for payments to state, local, and tribal governments by \$260 million over the next ten years." The 2017 proposed legislation was reported out of Committee with an amendment and ordered to be printed in preparation to move the bill to the House floor for final action.
- Six organizations co-signed and sent letters to the Speaker of the House, the Senate Majority Leader, and all U.S. Senators and Representatives urging their assistance in ensuring that the Department of Energy honors its legal commitments to remove and dispose of spent nuclear fuel stored at shutdown and operating sites. They urged Congress to fund the nation's nuclear waste program with the following funding priorities to enable the federal government to honor its commitments and address its escalating liability through the:
 - a) Completion of the Yucca Mountain Licensing Review
 - b) Implementation of the Pilot Consolidated Interim Storage Facility with Priority for Stranded Nuclear Fuel
 - c) Preparation for the Transportation of Spent Nuclear Fuel and Defense High-Level Radioactive Waste

The six organizations were the American Nuclear Society, the Decommissioning Plant Coalition, the National Association of Regulatory Utility Commissioners, the Nuclear Energy Institute, the U.S. Nuclear Infrastructure Council, and the Nuclear Waste Strategy Coalition.

- The National Association of Regulatory Utility Commissioners (NARUC) proposed a revision to its 2013 resolution at its annual meeting regarding the management and disposal of high-level nuclear waste and put forth five guiding principles:
 1. “America needs a permanent Solution to nuclear waste disposal.
 2. The Nuclear Waste Fund must be managed responsibly and used only for its intended purposes.
 3. Some consolidated Interim Storage is needed; the amount, basis of need and duration should be determined.
 4. The management of federal responsibilities for used fuel management would be more successful if assigned to a new organization with a new approach to siting and better access to financing.
 5. NARUC must be an active stakeholder on nuclear waste management and disposal.”
- The Geoscientific Review Group for Canada’s Nuclear Waste Management Organization visited Ignace, Ontario, site of the first deep borehole for a potential geologic repository for disposing Canada’s spent nuclear fuel. The Group of international recognized experts from Canada, Sweden, Switzerland, and Australia were on hand to get a first-hand look at the rock samples and the suitability of the rock formation for a deep geologic repository.

November

- The Public Service Commission of Alabama sent letters to their two representatives on the House Appropriations Committee alerting them of the urgency of protecting the electric consumer payments into the Nuclear Waste Fund as written in the proposed Nuclear Waste Policy Amendments Act of 2017. The Commissioners noted that the proposed legislation provides certain amounts from the Fund for key program expenses to correct some of the funding problems that have plagued the nation’s nuclear waste management program for decades.
- The House Committee on Energy and Commerce put out a fact sheet on its proposed Nuclear Waste Policy Amendments Act of 2017 that was approved by its subcommittee by a vote of 49-4. The Committee is awaiting approval from the House Appropriations Committee before submitting the proposed legislation for a floor vote from the full House.
- Holtec International announced that its HI-STORM UMAX independent spent fuel storage installation is built and ready to receive spent fuel canisters at the San Onofre Nuclear Generating Station in California. The in-ground storage modules can withstand an earthquake with a peak acceleration of 1.5g in all three directions. In addition, the spent fuel canisters have been laser peened to reduce the susceptibility of the stainless-steel canisters to chloride-induced stress corrosion cracking. (Laser Shock Peening is a process that induces residual stresses in materials to increase their resistance to stress corrosion cracking, fatigue, and fretting fatigue.)
- The Chair of the Nuclear Waste Technical Review Board sent a letter to the DOE’s Acting Assistant Secretary for Nuclear Energy commenting on the Board’s review of the latest draft of the high-burnup fuel sister rod test plan for spent nuclear fuel. The Board recommended that the draft report clarify which of the three test plans for destructive examinations would take precedence, elaborate how the internal atmosphere will be controlled when the fuel rods are punctured, how the test results will be used to support modeling efforts and how the 25 fuel rods will be stored for future testing so that characteristics will not change.
- As mandated by the Energy Policy Act of 2005, the DOE released its report to Congress on the alternatives for the disposal of Greater Than Class C (GTCC) low-level radioactive waste and Greater Than Class C-like waste. (Maine Yankee has four canisters of GTCC at its storage facility in Wiscasset.) The GTCC waste includes activated metals from decommissioning nuclear power plants, sealed sources used for diagnosing and treatment of cancer, radioactivity used in support of space exploration and wastes from environmental cleanup at DOE sites such as West Valley in New York. The five alternatives evaluated involve the use of land disposal at six federally owned sites and at four

commercial sites in the country. The disposal alternatives considered intermediate-depth boreholes, enhanced near-surface trenches, above grade vault facilities, and the Waste Isolation Pilot Project repository in New Mexico. The preferred alternative recommended was for commercial land disposal facilities, which would require congressional legislation to implement its disposal.

- At a recent Geoscience Seminar, two geochemists from Canada's NWMO presented their findings on ancient sedimentary rocks in Bruce County, Ontario, Canada. They demonstrated from their research that despite geologic events and water movement closer to the surface, the fluid in rock deep below the surface has been there for the last 435 million years. The sedimentary rock has remained virtually impermeable all these years despite unstable geologic events such as seismic activity, glaciation, mountain-building events, and movements in the earth's crust.

December

- The Nuclear Regulatory Commission (NRC) published in the Federal Register its intent to hold a two-day meeting of the Licensing Support Network Advisory Review Panel in late January. The purpose of the meeting will be to discuss the possible options for reconstituting or replacing the Licensing Support Network (LSN), which holds nearly 3.7 million documents on Yucca Mountain, in preparation for resuming the Yucca Mountain Licensing proceedings. The LSN was decommissioned when the Yucca Mountain licensing proceedings were suspended in 2011.
- Even though most of the spent fuel generated in the U.S. is east of the Mississippi River, the western states fully expect that a spent nuclear fuel disposal facility will be in the West. Consequently, there is an expectation that there will be disproportionate impacts from transporting spent fuel through western and corridor states. The High-Level Radioactive Waste Committee of the Western Interstate Energy Board has developed and agreed to five major policy positions on spent nuclear fuel transport. First, the DOE should develop a rail transportation safety program equivalent to the radioactive waste truck shipment program to the Waste Isolation Project in New Mexico. Second, that all DOE spent fuel shipments have NRC's physical security requirements. Next, the DOE should adopt a policy of shipping the oldest fuel first. Then, the U.S. Department of Transportation Federal Railroad Administration Rail Safety Program and revised Safety Compliance Oversight Plan should be fully implemented to ensure the safe transport of spent nuclear fuel. Finally, trains transporting spent nuclear fuel should be inspected by fully qualified inspectors employing the Commercial Vehicle Safety Alliance Level VI inspection protocol.
- The U.S. Nuclear Waste Technical Review Board sent its "Management and Disposal of U.S. Department of Energy Spent Nuclear Fuel" to Congress and the Secretary of Energy. The Board's report represents a three-year effort to evaluate those management practices to ensure the integrity of the spent fuel when and where disposal becomes available. The report highlighted three areas that DOE should focus future research on, such as a better understanding of aging management, packaging, and storage issues.
- Scientists at Queen's University in Kingston, Ontario have developed state-of-the-art computer models from borehole samples for modeling how rock strengths and weaknesses behave over different distances and time periods. A rock's behavior is important to understand to ensure that the natural barriers behave as assumed to maximize repository safety.

