

State Nuclear Safety Inspector Office
Maine CDC – DHHS

February 2013 Monthly Report to the Legislature

Executive Summary

As part of the State’s long standing oversight of Maine Yankee’s nuclear activities, legislation was enacted in the second regular session of the 123rd and signed by Governor John Baldacci requiring that the State Nuclear Safety Inspector prepare a monthly report on the oversight activities performed at the Maine Yankee Independent Spent Fuel Storage Installation (ISFSI) facility located in Wiscasset, Maine.

The report covers activities at the storage facility, including the State’s on-going environmental radiation surveillance and the national debate over the licensing and construction of a geologic repository for the disposal of spent nuclear fuel. The report’s highlights assist readers to focus on the significant activities that took place during the month, both locally and nationally.

LOCAL:

- Maine Yankee along with Connecticut Yankee and Yankee Atomic issued a news release indicating that, after 14 years of litigation, the federal government has transferred from the U.S. Treasury to the three Yankee companies’ trust funds \$159.7 million dollars for failing to remove the spent nuclear fuel from their respective sites. The U.S. Court of Appeals awarded Maine Yankee \$81.7 million for costs incurred for the storage of the used nuclear fuel and Greater Than Class C wastes through 2002, Connecticut Yankee \$39.7 million through 2001, and Yankee Atomic through 2001. The three Yankee Companies expect to file with the Federal Energy Regulatory Commission on how the funds will be credited to the ratepayers. The three companies have filed a second lawsuit seeking \$247 million in additional damages incurred through 2008 with Connecticut Yankee requesting \$135.3 million, Yankee Atomic \$76.6 million, and Maine Yankee \$35 million. The case has gone to Court and a decision was anticipated shortly. Nevertheless, the three Yankee companies were expected to file a third round of damages by the end of 2013.
- Maine Yankee notified the Nuclear Regulatory Commission (NRC) of changes it made to its ISFSI Emergency Plan. The changes included the definition of the extent of the Owner Controlled Area around the ISFSI, the types of available commercial telephone systems such as land, cell and satellite, and an administrative change on room terminology. The State had no comment on the changes.

The national highlights primarily focused on national stakeholders and the federal courts.

National:

- The National Association of Regulatory Utility Commissioners (NARUC) adopted a resolution “regarding guiding principles for management and disposal of high-level nuclear waste”. The principles would guide NARUC’s representation with the Administration and Congress. The five guiding principles were:
 - a) America needs a permanent solution to nuclear waste disposal.
 - b) The Nuclear Waste Fund must be managed responsibly and used only for its intended purposes.
 - c) Some consolidated interim storage is needed although the amount, basis of need and duration should be determined.

- d) The management of federal responsibilities for integrated used fuel management could be more successful if assigned to a new organization with a new approach to siting and assured access to financing.
 - e) NARUC must be an active stakeholder on nuclear waste management and disposal.
- The National Transportation Stakeholders Forum held a webinar with a national ad hoc working group that is working with the Department of Energy (DOE) to resurrect recommendations from a 2005 working group on a national funding plan to train state and local public officials in emergency response training to a used nuclear fuel shipment originating or traversing their borders. The purpose was to come to some resolution on recommendations to past key topics before the Yucca Mountain Project was terminated. The topics included definition of terms, state inspection fees, funding distribution method, and allowable activities under the funding grants. All four topics were discussed with comparisons made with the operating deep geological disposal repository, the Waste Isolation Pilot Plant, in Carlsbad, New Mexico. The thrust of most state participants was to maintain the original recommendations of the 2005 working group and await DOE's staff and General Counsel response.
 - The U.S. Court of Appeals reviewed NARUC's motion to reopen the Nuclear Waste Fund fee assessment performed by DOE. The Court ordered its own motion recalled, granted NARUC's motion to reopen the case, and established a relatively expedited briefing schedule commencing in March and concluding in July. NARUC contended that the DOE fee adequacy report did not justify the \$750 million fee collection, especially in light of the Nuclear Waste Fund's current balance of \$28.8 billion and for a waste program that no longer exists.

Introduction

As part of the Department of Health and Human Services' responsibility under Title 22, Maine Revised Statutes Annotated (MRSA) §666 (2), as enacted under Public Law, Chapter 539 in the second regular session of the 123rd Legislature, the foregoing is the monthly report from the State Nuclear Safety Inspector.

The State Inspector's individual activities for the past month are highlighted under certain broad categories, as illustrated below. Since some activities are periodic and on-going, there may be some months when very little will be reported under that category. It is recommended for reviewers to examine previous reports to ensure connectivity with the information presented as it would be cumbersome to continuously repeat prior information in every report. Past reports are available from the Radiation Control Program's web site at the following link: www.maineradiationcontrol.org and by clicking on the nuclear safety link in the left hand margin.

Commencing with the January 2010 report the glossary and the historical perspective addendum are no longer included in the report. Instead, this information is available at the Radiation Control Program's website noted above. In some situations the footnotes may include some basic information and may redirect the reviewer to the website. In October 2011 the format of the report was changed to include an executive summary which replaced the official memorandum to the legislative leadership transmitting the report. To further streamline efforts, beginning in August of 2012, the report featured hyperlinks to documents that would normally be attached as copies to the report. The hyperlinks should facilitate the reports review with some readers focusing on the report while others who wish to explore the cited documentation can do so.

Independent Spent Fuel Storage Installation (ISFSI)

During February the general status of the ISFSI was normal, with no instances of spurious alarms due to environmental conditions.

There were no fire-related or security-related impairments for the month. There were six security events logged and all were related to transitory environmental conditions.

There were seventeen condition reports¹ (CR) for the month and they are described below.

- 1st CR: Addressed a door not fully latching when the heating fan was on. The door closer was adjusted the same shift.
- 2nd CR: Documented the failure of an uninterruptible power supply. The power from a wall outlet is being used in the interim while waiting for a replacement unit.
- 3rd CR: Was written to document a phone circuit not working. On the same day the problem was traced to a phone, that was replaced.
- 4th CR: Was written to document the termination of an old procedure before all of its contents were transferred to other active procedures.
- 5th CR: Documented the damage of a pad ground wire clamp during snow removal. The clamp was Replaced.
- 6th CR: Documented the disconnection of power cables to the Central Maine Power contractor trailers without first instituting electrical safety measures to lock and tag out before opening the feeder breaker.
- 7th CR: Documented finding an old thermoluminescent dosimeter (TLD) canister frozen into the snow.
- 8th CR: Documented the flying over of a plane that was later found to be of a news reporter and photographer covering the three Yankee companies' press release over the Department of Energy's payment of damages for not taking the spent fuel.
- 9th CR: Documented computer server problems and the planned, upcoming server outage.
- 10th CR: Was written to document deficiencies identified from the latest quality assurance audit.
- 11th CR: Was written to document a radiation sign found on the ground that had been attached to the ISFSI fence. The sign was reattached the same day.
- 12th CR: Documented a missing review signature on a surveillance form.
- 13th CR: Documented receiving a suspicious phone call. The Nuclear Regulatory Commission's Operations Center was notified.
- 14th CR: Was written to document water leaking into the diesel room during heavy rains.
- 15th CR: Was written to track open items on the movement of security files.
- 16th CR: Documented a procedure being issued with two pages showing the previous revision number.
- 17th CR: Was written to track open items from a training self-assessment.

Other ISFSI Related Activities

1. On February 6th Maine Yankee informed the NRC in a biennial update that there were no changes made to its License Termination Plan over the last two calendar years and that Revision 5 was still the revision of record.
2. On February 6th an airplane was observed flying over the ISFSI storage facility. Later, it was discovered through an article written in the Portland Press Herald that a news reporter and a photographer were covering the press release issued by the three Yankee companies on receiving monies from the U.S. Treasury. The Federal Appeals Court for the D.C. Circuit awarded the funds after it was demonstrated that the federal government breached their contracts with the nuclear utilities to take and ship the used nuclear fuel to Yucca Mountain in Nevada.
3. On February 6th Maine Yankee provided an update to its Community Advisory Panel. The topics included the recent payment from the federal government to the three Yankee Companies, ISFSI

¹ A condition report is a report that promptly alerts management to potential conditions that may be adverse to quality or safety. For more information, refer to the glossary on the Radiation Program's website.

operational events, the renewal of the transportation Certificate of Compliance for the spent fuel canisters, the exemption request from the NRC's revised Emergency Planning Rule and the status of the NRC's proposed Security Rule, the status of the NRC's Environmental Impact Statement scoping process to support a revised Waste Confidence Decision for storage and disposal of used nuclear fuel, the DOE's recently released Strategy Report on spent nuclear fuel management, the DOE work on near-term transportation planning for decommissioned reactor sites, the resignation of Dr. Chu as Energy Secretary, the Private Fuel Storage's request to the NRC to terminate its interim storage license on the Goshute reservation in Utah, and Carlsbad, New Mexico's interest in hosting the nation's first consolidated interim storage facility.

4. On February 12th Maine Yankee submitted an annual status on Foreign Ownership, Control, or Influence. The annual notification is part of an NRC requirement. Maine Yankee outlined the mergers and foreign interests that have taken place since NRC's letter dated March of 2012, namely the merger between Northeast Utilities and NSTAR, the merger of Central Vermont Public Service Corporation and Gaz Metro from Canada, and the merger between Central Vermont Public Service Corporation and Green Mountain Power from Vermont, both of which are wholly-owned subsidiaries of Gaz Metro.
5. On February 19th the facility received a suspicious phone call. Maine Yankee immediately alerted the NRC's Operational Center of the suspicious call.
6. On February 27th Maine Yankee notified the NRC of changes it made to its ISFSI Emergency Plan. The changes included the definition of the extent of the Owner Controlled Area around the ISFSI, the types of available commercial telephone systems such as land, cell and satellite, and an administrative change on room terminology. The State had no comments on the changes.

Environmental

The State received the 2012 fourth quarter results in February from the field replacement of its thermoluminescent dosimeters² around the ISFSI and the Maine Yankee industrial site. The results from the quarterly TLD change out continued to illustrate a change from three distinct exposure groups: elevated, slightly elevated, and normal. The high stations identified were G, K and Q with an average of 34.2 milliRoentgens³ (mR). Station Q, which has been historically in the moderately elevated grouping increased to the elevated group.

The slightly elevated group maintained the number of stations at eight (C, E, I, J, L, M, N, and O) and averaged 31.3 mR. The stations continue to trade places due to background variations. Four remained (J, L, N, and O) and four others traded places from the previous quarter. For example, stations C, E, I, and M were in the normal group last quarter and rose to the slightly elevated group this quarter. These deviations will be tracked over the next several quarters to see if a pattern develops. There were five remaining stations (A, B, D, H, and P) as opposed to the more normal eight and they averaged 26.6 mR.

The Maine Yankee industrial site TLDs averaged 29 mR, which is comparable to the normally expected background radiation levels of 15 to 30 mR for the coast of Maine. Some of the background levels are highly dependent upon tidal effects, and local geology. However, virtually all the stations exhibit seasonal fluctuations that are affected by the out gassing of the naturally radioactive gas, Radon. There was an unexpected twist to the fourth quarter results. The TLD results were above the previous three quarters. This is unusual as frost and freezing conditions usually impede the out gassing of the Radon. Yet, last fall was unusually mild, which

² Thermoluminescent Dosimeters (TLD) are very small, passive radiation monitors requiring laboratory analysis. For a further explanation, refer to the glossary on the Radiation Program's website.

³ A milliRoentgen (mR) is a measurement of radiation exposure. For a further explanation, refer to the glossary on the Radiation Program's website.

delayed and minimized the normal freezing conditions encountered. That would explain some of the increase but not necessarily all of it.

The control TLDs that are stored at the State's Health and Environmental Testing Laboratory (HETL) in Augusta averaged about 7.9 mR. Although the storing of the control TLDs at HETL's pre-World War II steel vault lowers the natural background values, the 7.9 mR value for this quarter is much lower when compared to last quarter's control results of 13.9 mR. The 7.9 value is more representative of what the control badges should read in the shielded environment. Even though seasonal fluctuations are expected, a 46% decrease in the background from one quarter to the next in a shielded environment was very unusual. It was also noted that the steel shield background had been increasing over the last year with the 13.9 representing a doubling of the previous background. The State conferred with its TLD vendor on its findings. Nevertheless, the previous data seemed to point to the steel vault losing its shielding effectiveness. However, the current low numbers do not exhibit a shielding effectiveness issue. The controls were initially part of a program to better quantify the individual impacts of storage and transit exposures on the thermoluminescent dosimeters (TLDs). However, as indicated above, they also have been instrumental in pointing out changes that would normally have not been captured if it were not for the program.

As a further application of this TLD control assessment, on December 18th three of the seven control TLDs received for the fourth quarter of 2012 were returned to the State's TLD vendor, Global Dosimetry in California, for an analysis of the transportation exposures. The initial set of results from the control TLD badges returned indicated an average of 8.6 mR for the total exposure picked up between leaving the vendor, arriving at the State and then immediately being shipped back and received by the vendor. The 8.6 mR represented a fairly large decrease when compared to last quarter's 15.2 transit badges. The sudden decrease is presently unexplained just as the sudden increase in the previous quarter was also unexplainable. Besides seasonal and daily fluctuations in the background, small increases or decreases could be attributed to an extra few days of or a few days less transit. However, large variations as we have experienced are unsettling until we can get enough data to explain the variations. Discussions with the vendor continue.

The field control TLDs at Ferry Landing on Westport Island, the Edgecomb Fire Station and the roof of the State's Health and Environmental Testing Laboratory read 30.0, 31.7, and 26.7 mR, respectively.

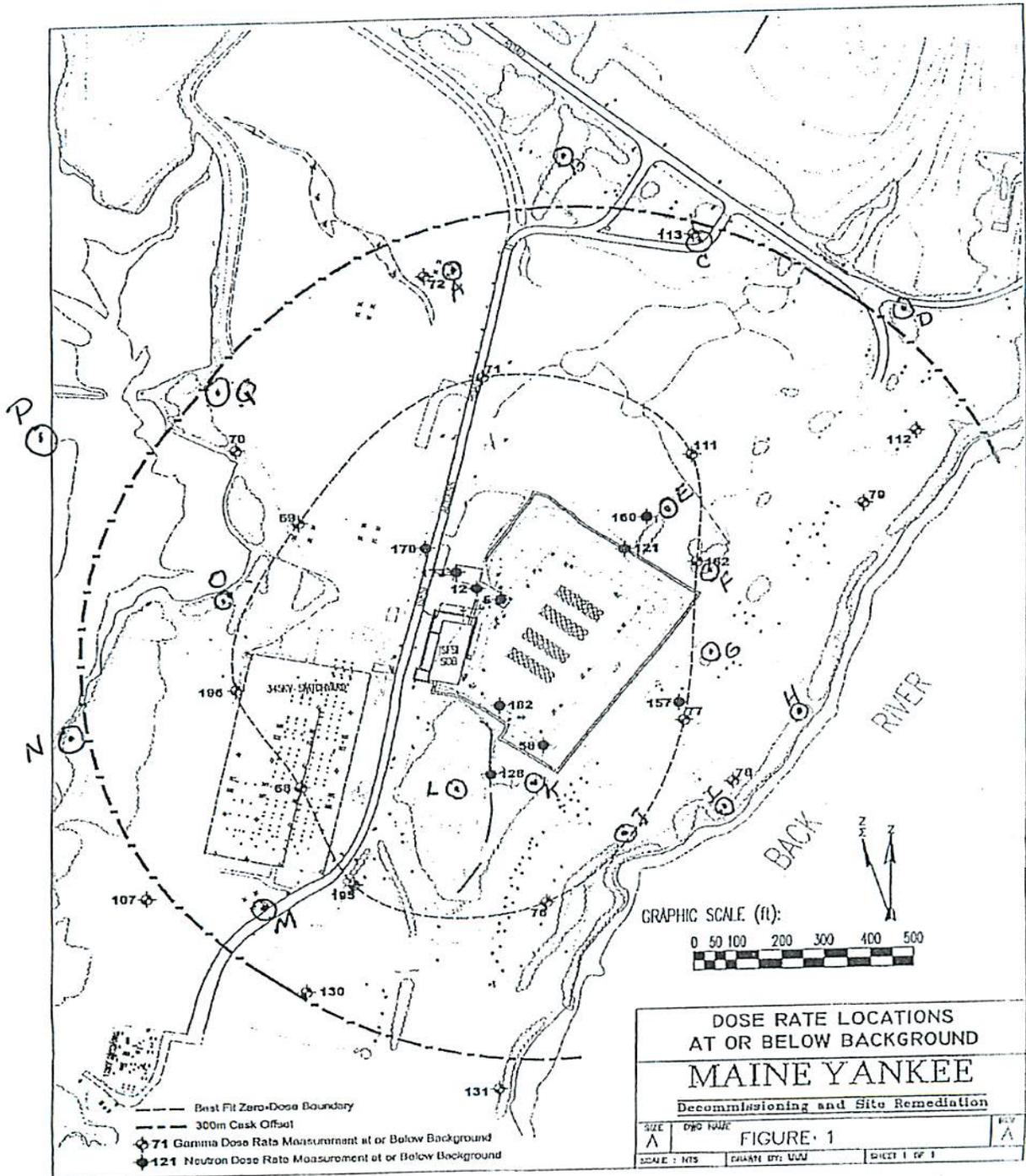
As noted in earlier reports the State's maintains an environmental air sampler on the roof of HETL for local or national events. The air sampler was extremely instrumental during Fukushima event in Japan two years ago as in quantifying the levels of radioactivity that was coming from the crippled reactors. This year's third quarter results did not identify any unusual radioactive elements and were within historical ranges for both gross beta⁴ and Beryllium-7, a naturally radioactive cosmogenic element that is produced from cosmic rays interacting with the nitrogen and oxygen atoms in the atmosphere. The gross beta results ranged from 24.3 to 47.8 femto-curies per cubic meter (fCi/m³)⁵. A composite of the five bi-weekly air filter samples was used to measure the Beryllium-7's concentration of 71.1 fCi/m³.

For informational purposes Figure 1 on page 6 illustrates the locations of the State's 17 TLD locations in the vicinity of the ISFSI. The State's locations are identified by letters with the highest location being station G.

⁴ 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. Refer to the glossary on the website for further information.

⁵ A fCi/m³ is an acronym for a femto-curie per cubic meter, which is a concentration unit that defines how much radioactivity is present in a particular air volume, such as a cubic meter. A "femto" is a scientific prefix for an exponential term that is equivalent to one quadrillionth (1/1,000,000,000,000,000).

Figure 1



Other Newsworthy Items

1. On February 6th Maine Yankee along with Connecticut Yankee and Yankee Atomic issued a news release indicating that, after 14 years of litigation, the federal government has transferred from the U.S. Treasury to the three Yankee companies' trust funds \$159.7 million dollars for failing to remove the spent nuclear fuel from their respective sites. The U.S. Court of Appeals awarded Maine Yankee \$81.7 million for costs incurred for the storage of the used nuclear fuel and Greater Than Class C wastes

through 2002, Connecticut Yankee \$39.7 million through 2001, and Yankee Atomic through 2001. The three Yankee Companies expect to file later this year with the Federal Energy Regulatory Commission on how the funds will be credited to the ratepayers. The three companies have filed a second lawsuit seeking \$247 million in additional damages incurred through 2008 with Connecticut Yankee requesting \$135.3 million, Yankee Atomic \$76.6 million, and Maine Yankee \$35 million. The case has gone to Court and a decision was pending. Nevertheless, the three Yankees were expected to file a third round of damages at the end of 2013. The web link for the [press release](#) can be accessed by positioning the cursor over the underlined text and following the directions.

2. On February 6th the National Association of Regulatory Utility Commissioners (NARUC) adopted a resolution “regarding guiding principles for management and disposal of high-level nuclear waste”. The principles would guide NARUC’s representation with the Administration and Congress. The five guiding principles were:
 - America needs a permanent solution to nuclear waste disposal.
 - The Nuclear Waste Fund must be managed responsibly and used only for its intended purposes.
 - Some consolidated interim storage is needed although the amount, basis of need and duration should be determined.
 - The management of federal responsibilities for integrated used fuel management could be more successful if assigned to a new organization with a new approach to siting and assured access to financing.
 - NARUC must be an active stakeholder on nuclear waste management and disposal.

Each principle also expands on the principles by providing additional information. The web link for the [resolution](#) can be accessed by positioning the cursor over the underlined text and following the directions.

3. On February 6th the Council of State Governments Eastern Regional Conference’s Northeast High-Level Waste Transportation Task Force subcommittee held a pre-meeting to caucus on the National Transportation Stakeholders Forum’s (NTSF) ad hoc working group. The subcommittee is comprised of representatives from Maine, Pennsylvania, Connecticut and New York. The focus was on funding distribution method for emergency training and response grants to state governments and tribes on spent nuclear fuel shipments within their jurisdictions. Other topics included definition of terms, state fees, and allowable activities under the grants. The pre-meeting determined the preliminary positions and follow-up questions for the NTSF webinar the following week.
4. On February 12th the NTSF held a webinar to a national ad hoc working group that is working with DOE to resurrect recommendations from a 2005 working group on a national funding plan to train state and local public officials in emergency response training to a used nuclear fuel shipment originating or traversing their borders. The purpose was to come to some resolution on recommendations to past key topics before the Yucca Mountain Project was terminated. The topics included definition of terms, state inspection fees, funding distribution method, and allowable activities under the funding grants. Other topics existed, but the national group focused on these to achieve a consensus. All four topics were discussed with comparisons made with the on-going deep geological disposal repository, the Waste Isolation Pilot Plant in Carlsbad, New Mexico. Additional discussion focused on the extent of involvement of the NRC in this effort. The thrust of most state participants was to maintain the original recommendations of the 2005 working group and see what the DOE staff and General Counsel would offer in response. Maine is represented on the national ad hoc group by the State Nuclear Safety Inspector.

5. On February 14th the Nuclear Waste Strategy Coalition (NWSC) held its bi-weekly conference to update its membership on current DOE and NRC activities, pending status of federal lawsuits, and upcoming preparations for NARUC's winter meeting and the NWSC's annual meeting in early March. The major DOE topics of interests were the fee adequacy report, how the assessed fee did not correlate with what was appropriated versus what was received, and aligning revenue with appropriations. Further discussions centered on the DOE's recently released strategy document introducing the notion of DOE wastes being comingled with civilian wastes to the first pilot interim storage facility.
6. On February 19th the NTSF held a second webinar to focus on the recently released DOE's "Strategy for Managing Used Nuclear Fuel and High-Level Radioactive Waste". The document was the DOE's response to the Blue Ribbon Commission recommendations on managing the back end of the nuclear fuel cycle. Presentations were made by the DOE's Nuclear Fuels Storage and Transportation Planning Project and the Office of Packaging and Transportation. The DOE outlined a ten year program that would site, design, license, construct, and operate a pilot interim storage facility by 2021. The ten year program would also advance the siting and licensing of a larger interim storage facility by 2025 and progress towards the siting and characterization of a geologic repository site. The ultimate goals for a geologic repository would be to site a facility by 2026 using a consent-based approach, to design and license the facility by 2042 and then have a fully operational repository by 2048. In all three cases the NRC would be responsible for licensing the storage and disposal facilities. The remaining activities would define the consent-based process and choose the new organization for the management and disposal of the used nuclear fuel and the Department of Defense high-level waste. Developing the transportation infrastructure will play a significant role in implementing the ten year proposal.
7. On February 19th the law firm of Dickstein Shapiro LLP issued a report to the Savannah River Site Community Reuse Organization entitled, "Comprehensive Fuel Cycle Research Study". The purpose of the report was to provide the five-county region, comprised of three counties in South Carolina and two in Georgia, on what resources the region has or needs to offer a national solution to the nation's nuclear waste stockpile and what new fuel cycle facilities it may need. The report explored the availability of existing Research, Development, and Demonstration (RD&D) facilities, workforce and infrastructure, a phased approach to spent fuel storage needs to accommodate the RD&D efforts, existing reprocessing capabilities and adapting to new ways to reprocess the spent fuel, involvement in monitoring and oversight, community and state government support. The report provided eight recommendations to capitalize on the substantial benefits to the region for siting, constructing, and operating fuel cycle facilities. The web link for the [executive summary](#) can be accessed by positioning the cursor over the underlined text and following the directions.
8. On February 20th the NRC held a teleconference call to update interested parties and stakeholders on the status of its Waste Confidence Generic Environmental Impact Statement (EIS) and Rulemaking. The discussion centered on the status of the scoping summary report, what it would contain, how the comments would be consolidated, and their responses to those comments. NRC reported that they expected to release the draft EIS this fall. Commenters raised concerns over the intended scope of the draft EIS and how bounding analyses will be performed to produce a generic EIS. The generic EIS will also include spent fuel pool fires and leaks. The web link for the [agenda](#) can be accessed by positioning the cursor over the underlined text and following the directions.
9. On February 27th the U.S. Court of Appeals reviewed NARUC's motion to reopen the Nuclear Waste Fund fee assessment performed by the DOE and ordered the Court's own motion be recalled, ordered the motion to reopen be granted, and established a relatively expedited briefing schedule commencing in March and concluding in July on the reopened case between NARUC and the DOE. The web link for the [Court's Order](#) can be accessed by positioning the cursor over the underlined text and following the directions.

10. On February 28th the NWSC held its second bi-weekly conference to update its membership on a potential replacement for Energy Secretary Chu, the DOE's NTSF, the NRC's teleconference on the status of its Waste Confidence Environmental Impact Statement and its integration of spent fuel storage and transportation regulations going forward, and the D.C. Circuit Court's reopening of the NARUC's litigation against the Energy Department's recent fee assessment. NARUC argued that the new fee assessment exhibited the same fundamental flaw, which was the lack of correlation between appropriated revenue and the revenue from the fee assessment. The State is a member of the NWSC, which is an ad hoc organization of state utility regulators, state attorneys general, consumer advocates, electric utilities, local governments, tribes, and associate members. Its 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 numerous sites across the nation.

Other Related Topics of Interest:

1. On January 15th twenty-five environmental organizations submitted to the NRC a rebuttal to the Nuclear Energy Institute's (NEI) comments to the NRC's Waste Confidence Environmental Impact Statement. The groups maintained that
 - NEI's position was inconsistent with the Atomic Energy Act and the National Environmental Policy Act (NEPA),
 - NEI's comments are contradicted by the NRC's own documents and factual record by ignoring the NRC staff's estimate on how long it will take to evaluate the impacts of long term storage,
 - DOE's Yucca Mountain Environmental Impact Statement did not provide a bounding analysis as purported by NEI,
 - NRC's data and analyses of spent fuel pool fire risks are inadequate to fulfill NEPA, and
 - NRC must perform more studies on spent fuel pool leakage risks.

The web link for the [comments](#) can be accessed by positioning the cursor over the underlined text and following the directions.