The Honorable Jerry Weller
Representative, US House of Representatives
108 Cannon House Office Building
Washington, DC 20515-1311

Dear Congressman,

Thank you for your letter of February 15, 2006 concerning the tritium contamination that has been recently identified at the Braidwood and Dresden facilities. The NRC also shares your concerns regarding these issues, both at the facilities in Illinois and in other areas of the country. Currently, our assessment does not indicate any hazard to the public or the environment; however, we are concerned that radioactive material was released in a manner that was not intended. Ensuring public health and safety has been and will continue to be the primary mission of the Commission.

The NRC has responded aggressively to these issues, in accordance with our inspection program and policies and the safety significance of the issues. The Region III office responded promptly when we became aware of the elevated tritium contamination in the groundwater near the site boundary at Braidwood and the onsite pipe leaks at the Dresden plant. Our focus has been and will continue to be to ensure that the contamination is adequately characterized and that corrective actions are taken to prevent future recurrence. The staff will evaluate the outcomes of our inspection activities and develop appropriate enforcement actions, as applicable, that are consistent with our Enforcement Policy and the Reactor Oversight Program.

We are confident that our current response to these issues has been effective. Nonetheless, as a means of continual improvement, the Agency has established a formal Agency Lessons Learned Task Force to evaluate our actions, inspections programs, and regulations regarding these types of contamination events. As part of our inspection activities, the Region III office is also assessing the sequence of events at the Braidwood and Dresden facilities, specifically, concerning the tritium contamination, as provided in Attachments 1 and 2 to this letter. At the conclusion of these activities, we will implement any changes to our program that are warranted. As an interim measure, the Agency is initiating a revision to our public radiation safety inspection program to include an increased focus on spills and leaks from nuclear power facilities.

The NRC has ongoing actions to ensure the safety of U.S. nuclear power facilities. For example, the NRC provides day-to-day observations of licensee performance through our resident inspector inspection program, which includes assigned NRC inspectors at each of the U.S. nuclear reactor facilities. The Reactor Oversight Program also includes routine baseline inspection of effluent and environmental monitoring programs at all nuclear power reactors. In terms of the Illinois nuclear power facilities, the Region III office has also begun an assessment of licensee onsite monitoring and contamination controls and of any existing onsite contamination. Based on the results of that review, we will take appropriate actions to ensure any needed corrective actions are implemented by our licensees. In addition, the Region III office has commenced an independent sampling and analysis program with the nuclear power

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facilities in Illinois to provide a level of independent measurement of environmental ground water sampling and to verify the adequacy of the licensees' ground water analysis. I am confident that these efforts and any additional inspection activities will continue to provide assurances of the safe operations of these facilities.

As I stated earlier, I share your concern over these recently identified issues. In particular, I am concerned that the actions of some of the licensees may not have been aggressive in initially responding to and preventing these incidents. However, based on currently available information, we are confident that any impacts from these contamination issues at Braidwood and Dresden do not pose any threat to the public or the environment. Additionally, I assure you that the NRC is and will continue to be a strong regulatory authority and will take the necessary actions to ensure that corrective actions for these issues are effective.

Sincerely,

Nils J. Diaz
Chairman

Attachment 1
Braidwood Groundwater Contamination

Summary

At Braidwood, the NRC became aware of the potential migration of tritium to offsite locations on November 30, 2005. Since that time, we have opened dialogue with various external stakeholders including the media, public, local and state government officials, and federal congressional and senate staffs. As information has become available, we have shared that information.

The Braidwood staff's ongoing evaluation and review has indicated that approximately 17 leaks have been documented in plant record systems concerning blowdown system vacuum breakers. Based on this data, the largest of those leaks occurred in 1996, 1998, and 2000. Prior to 1996, the plant's records become much less reliable for this system.

The NRC's review has identified that we were aware of aspects of historical leakage from the Braidwood blowdown line. In May 2005, the Braidwood staff identified contaminated water in one of the valve vaults, which was reported to the NRC resident inspectors and regional inspectors. In 2003, the NRC resident inspectors were notified that valve leakage was detected during an ongoing modification, but that no detectable contamination was present. Regarding the 2000 leak, the licensee reported the occurrence of that leak to NRC inspectors (resident inspectors and region-based radiation specialists) and in the annual environmental monitoring report, which was submitted to the NRC. Past NRC inspections (NRC Inspection Report 50-456/01-04(DRS); 50-457/01-04(DRS)) included a review of the licensee's root cause analysis associated with the event. That root cause also identified that similar, significant leakage occurred in 1998 from another valve leak. However, it appears that the NRC was unaware of the potential radiological nature and/or occurrence of leaks prior to 2000, as such no specific follow-up was conducted. The NRC continues to evaluate its historical response to the 2000 leak and our understanding of the potential for groundwater contamination from the spill.

As of November 23, 2005, the licensee suspended all liquid radioactive releases, while corrective actions are being developed. Additionally, the licensee is developing potential remediation plans for the groundwater tritium contamination.

Date	Description of Events
11/1996 - 07/1997	Based on a Braidwood work order (WO), the licensee repaired a 1-inch pipe break associated with Vacuum Breaker No. 1 (VB-1) along the circulating water blowdown line. The pipe break resulted in an onsite release of an estimated 250,000 gallons of contaminated water from the blowdown line. The Braidwood staff did not sample the leakage for radioactive contamination.
01/1998	Braidwood WO indicated that the licensee repaired a small leak on VB-2, which is located onsite. No documentation could be found concerning the size of the leak or if the leak was sampled for radioactive contamination.
12/1998	Braidwood WO indicated that the licensee repaired a significant leak on VB-3, which resulted in an estimated release of 3,000,000 gallons of water to areas onsite and into a drainage ditch along Smiley Road. The Braidwood staff

did not sample the leakage for radioactive contamination; however, onsite soil contamination was detected in April of 2001.

11/2000 The Illinois Environmental Protection Agency received a call from a local resident concerning water that was pooling on Braidwood property and in a ditch along the south side of Smiley Road, which borders the site. The Illinois Environmental Protection Agency notified the Braidwood facility of the report.

Braidwood staff identified that the float in valve VB-2 had been damaged, resulting in an 8-inch opening in the valve. The Braidwood staff estimated that the opening in the valve resulted in a release of approximately 3,000,000 gallons of contaminated water from the blowdown line onto the ground. The Braidwood staff and the Illinois Department of Nuclear Safety measured tritium at levels of approximately 20,000 - 35,000 picocuries per liter in the drainage ditch on the south side of Smiley Road. The Braidwood staff also identified radioactively contaminated soil onsite.

On November 9, 2000, the Braidwood staff notified the NRC Region III Office and Illinois Department of Nuclear Safety of the contamination found in the Smiley Road ditch.

On November 10, 2000, the Braidwood staff began pumping the contaminated, standing water back to the blowdown line to the Kankakee River.

11/2000 Braidwood WO indicated that a small leak was repaired on the valve seat of VB-6. No documentation could be found concerning the size of the leak or if the leak was sampled for radioactive contamination.

11/2000 Braidwood WO indicated that a leak was repaired on VB-1. No documentation could be found concerning the size of the leak or if the leak was sampled for radioactive contamination.

01/2001 The NRC Region III staff performed an onsite inspection of the Braidwood Radiological Environmental Monitoring Program, which was documented in NRC Inspection Report No. 50-456/01-04(DRS); 50-457/01-04(DRS). During that inspection, the NRC reviewed the Braidwood evaluation concerning the November 2000 leak from VB-2. As part of that evaluation, the NRC also learned of the December 1998 leakage from VB-3. No violations or findings were identified concerning the leakage.

04/2001 The Braidwood staff issued the 2000 Radioactive Effluent Release Report that documented the November leakage from VB-2 as an abnormal release.

06/2001 Braidwood WO indicated that the licensee repaired a leak on VB-3, which was located onsite. No documentation could be found concerning the size of the leak or if the leak was sampled for radioactive contamination.

O6/2001 Braidwood corrective action document indicated that non-contaminated

water was found in the valve vault for VB-9. No documentation could be found concerning the size of the leak.

O6/2001 Braidwood corrective action document indicated that non-contaminated water was found in the valve vault for VB-10. No documentation could be found concerning the size of the leak.

06/2001 Braidwood corrective action document indicated that water was found in the valve vault for VB-11. No documentation could be found concerning the size of the leak or if the leak was sampled for radioactive contamination.

05/2002 Braidwood WO indicated that a leaking air release valve was replaced on VB-3. No documentation could be found concerning the size of the leak or if the leak was sampled for radioactive contamination.

08/2003 Braidwood WO indicated that leakage was identified on VB-4 during modification testing. No particulate radioactivity was detected. No documentation could be found concerning the size of the leak.

Braidwood staff notified the NRC resident inspector of the leakage and that no contamination was detected.

09/2003 Braidwood WO indicated that small leak was identified on VB-4 at low system operating flow. No documentation could be found concerning the size of the leak or if the leak was sampled for radioactive contamination.

11/2004 Braidwood WO indicated that a leak was identified on VB-8 (within the valve vault). The valve was subsequently replaced. No documentation could be found concerning the size of the leak or if the leak was sampled for radioactive contamination.

03/2005 The Illinois Environmental Protection Agency notified the Braidwood site of an investigation into potential tritium contamination in wells near the Braidwood site.

03/2005 - 11/2004 Beginning in March 2005, the Braidwood staff expanded the onsite groundwater monitoring program. During that expansion, the Braidwood site identified elevated levels in tritium in onsite groundwater monitoring wells.

05/2005 Braidwood WO indicated that a leak was identified on VB-1, which was repaired. No documentation could be found concerning the size of the leak or if the leak was sampled for radioactive contamination.

Onsite NRC resident inspectors and Region III radiation specialists were notified of the leakage and the repair. NRC raised questions to the Braidwood staff concerning the groundwater analysis techniques.

05/2005 The NRC Region III staff conducted a scheduled inspection of the Braidwood Environmental Monitoring Program. During that inspection, the Braidwood staff provided the inspector with an overview of the sampling that had

been conducted and the results of that sampling. The results of that inspection were documented in NRC Inspection Report No. 05000456/2005003; 05000457/2005003.

05/2005 Braidwood WO indicated that a leak was identified on VB-6 that resulted in about 1-foot of water in the valve vault. The valve was subsequently rebuilt by the Braidwood staff.

11/2005 On November 23, 2005, the Braidwood staff stopped all radioactive releases through the circulating water blowdown line.

On November 30, 2005, the NRC Region III office was notified by the Braidwood staff of an elevated tritium measurements in a Braidwood onsite groundwater well. The Region III office dispatched a senior radiation specialist to assist the NRC resident inspector in the review of the contamination

01/2006 Braidwood identified a leak on VB-7, which resulted in non-radioactive release of water to the environment.

Attachment 2
Dresden Groundwater Contamination

Summary

At Dresden, the NRC staff has been made aware of leakage from underground piping from the Dresden condensate storage tank, which contains radioactively contaminated liquid. The Dresden staff identified leakage in August of 2004, notified the NRC of the suspected leakage, isolated the leakage, and repaired the applicable underground line. The NRC Region III staff reviewed the actions taken by the Dresden staff and documented the results of that inspection in NRC Inspection Report No. 05000237/2004013; 05000249/2004013, which did not identify any violations of NRC requirements as a result of the leakage.

The Dresden staff recently identified another suspected leak of contaminated water from the underground piping associated with the condensate storage tank. As of March 8, 2006, the Dresden staff had isolated the piping and was in the process of replacing the appropriate sections of piping.

Date	Description of Events (2004 Leak)
08/26/2004	Dresden tritium groundwater sampling result indicated 6,130,000 picocures per liter near the condensate storage tank.
08/26/2004	Dresden staff began increased groundwater monitoring. At about that time, the licensee notified the NRC resident inspector and Region III radiation specialists of the elevated tritium levels. The NRC was updated daily on the status of sampling and the licensee's remediation plans.
09/2004	Beginning of September, the Dresden staff began excavating area to locate and repair leak. The licensee provided daily briefings of the NRC resident inspector of the progress of the repair activities.
10/14/2005	Dresden staff conducted testing of the piping and did not identify the leakage. Therefore, the Dresden staff decided to replace approximately 75 feet of the suspected, underground piping (high pressure core injection piping).
11/10/2004	A Region III senior radiation specialist completed a routine inspection at the Dresden facility, which reviewed the tritium contamination. The results of that inspection are documented in NRC Inspection Report No. 05000237/2004013; 05000249/2004013.
11/29/2004	Dresden staff realigned the repaired piping to the tank.
12/08/2004	Dresden apparent cause evaluation determined that the primary cause for the failure of the underground piping was due to the degradation of the

moisture barrier wrapping. Deficiencies with the cathodic protection system was also identified as a contributing factor.

Per the Dresden business plan, the remaining old piping (approximately 100 feet) was scheduled for replacement in June 2006.

Date	Description of Events (2006 Leak)
01/03/2006	Dresden staff identified some elevated levels of tritium in an onsite monitoring well of about 5000 picocuries per liter of tritium.
01/19/2006	Dresden staff re-sampled the groundwater monitoring well and observed an increase to 89,000 picocuries per liter. As a result, the Dresden staff increased groundwater sampling.
	Dresden staff kept the NRC apprised of the elevated sample results and the increased sampling plan.
01/31/2006	Dresden groundwater well samples were measured at 90,000 picocuries per liter.
02/10/2006	Dresden groundwater well samples indicated tritium levels of 476,000 and 486,000 picocuries per liter. As a result, the Dresden staff increased sampling to a daily basis for seven wells in the vicinity of the suspect piping plus an additional 5 to 9 wells.
	Dresden staff informed the NRC resident inspectors and regional radiation specialists of the elevated measurements. The NRC provided additional attention to the licensee's actions to ensure that the response was adequate.
02/16/2006	Dresden began excavating in the vicinity of the elevated groundwater well.
02/16/2006	NRC inspectors observed the Dresden staff's well sampling activity.
03/03/2006	Dresden staff completed shoring of the excavation site to further investigate the exact site of the leakage.
	Dresden management indicated to the NRC that the site planned to replace all the affected piping, regardless if the leak location was definitively identified by the testing.