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From: [REDACTED]

Sent: Tuesday, October 26, 2010 10:54 AM

To: [REDACTED]

Cc: [REDACTED]

Subject: Response to USACE Aug 30 letter re IWCS containment failure

[REDACTED]

I am attaching a response to [REDACTED] August 30, 2010 letter, concerning IWCS containment failure. I hope this will clarify my ongoing concerns and aid further discussion. I will be in the Niagara region from November 1 through November 3, which may be a good opportunity for a face to face meeting if USACE staff are available.

I would also like to request USACE release the 2009 NFSS Environmental Surveillance Memorandum, scheduled for release in November 2010, in advance of the next public meeting on November 3, 2010. It would be useful for the public to be able to review this information before the meeting.

Many Thanks,

[REDACTED].



October 26, 2010

U.S. Army Corps of Engineers, Buffalo District
Special Projects Branch,
Attn. [REDACTED]
1776 Niagara Street
Buffalo, NY 14207

**RE: Evidence of Containment Failure of the Interim Waste Containment Structure (IWCS)
at the Niagara Falls Storage Site, New York**

Dear [REDACTED],

Thank you for your letter of August 30, 2010. I would welcome an opportunity to further discuss ongoing concerns regarding IWCS failure. These concerns center on the immediate hazards to the off-site public, posed by both IWCS leakage into the disused water lines (UWBZ) and IWCS leakage into the groundwater under the IWCS (LWBZ). It would be helpful if you and the rest of the USACE team, would review the following points in advance of our further discussion.

IWCS leakage into NFSS water lines

Water line concerns relate to contamination entering the lines after the pressure is removed. The 2007 Remedial Investigation Report (RIR) identified the disused potable water main as a preferential pathway for radioactive contamination to migrate away from the southern side of the IWCS. The potable water lines are cast iron with a history of joint corrosion. After 70 years, the water pipes would be expected to be open to in-filtration and ex-filtration by the surrounding groundwater. The disused water lines represent potential pathways for IWCS leakage to leave the NFSS and migrate onto adjoining properties. A single groundwater monitoring well positioned close to where some of the water lines leave the NFSS is not assurance of contamination containment with respect to the water lines. The lack of investigation of the water lines is a major concern.

Performance monitoring and measurement of the water levels inside the IWCS

Review of the 1986 through 1991 IWCS performance monitoring reports, recently posted on the USACE public web site shows that groundwater seasonally intrudes the residues. This is not just my opinion, but a finding of the National Research Council (NRC), which reviewed IWCS performance monitoring in 1995. The realization that groundwater is flowing in and out of the IWCS makes comprehensive groundwater monitoring around the IWCS essential. There has been no comprehensive groundwater monitoring around the IWCS for the last seventeen years – ample time for IWCS leakage to travel considerable distances from the IWCS.

No monitoring of significant changes in the lower groundwater below the IWCS

In 1995 the NRC reported pumping activities at the Modern Landfill had altered the flow pattern of the groundwater and recommended that present and future interactions of the neighboring waste disposal sites with the NFSS should be addressed. To my knowledge, no such assessment has been carried out. Review of subsequent NFSS environmental surveillance reports shows pumping operations at Modern completely reversed the direction of the ground water flow in the lower water bearing zone (LWBZ) for several years. Numerous NFSS monitoring wells were found to be dry during this period. Modern wells were down gradient of the IWCS for several years and must, therefore, be regarded as potentially impacted by the IWCS. Given the magnitude of changes to groundwater flow caused by Modern operations during the 1990's, the Department of Energy (DOE) decision to discontinue monitoring of the LWBZ and reduce monitoring of the UWBZ ground water seems totally inappropriate. Equally inappropriate is USACE use of potentially impacted groundwater wells on Modern to establish background for the NFSS RI.

Gross beta contamination in the LWBZ and potential IWCS impact on Modern

The high detections of gross-beta contamination in "background" wells on Modern may be evidence of past leakage of nuclear reprocessing waste contaminants, from the IWCS into the LWBZ. (The ability of the gray clay to inhibit nuclear reprocessing waste contaminants is unknown). Gross-beta-activity has been used since the 1950's to detect releases from nuclear facilities and weapons tests and it is known that nuclear reprocessing wastes from the Knolls Atomic Power Laboratory (KAPL) were placed in the IWCS, along with uranium ore residues. Gross-beta contamination is present in both LWBZ wells around the IWCS and LWBZ wells on Modern (down gradient of the IWCS for several years.)

Radium, thorium, uranium and potassium-40 have all been eliminated as the cause of the gross-beta contamination in the LWBZ groundwater, indicating that the gross-beta contamination is not due to natural causes. Ground water from LWBZ wells exhibiting gross-beta contamination, including those incorrectly designated as background, has yet to be analyzed for beta emitting contaminants, such as strontium-90 and technetium-99, which could be expected to be found in the KAPL nuclear reprocessing wastes.

Uranium contamination in groundwater south of the IWCS

Uranium contamination south of the IWCS is characteristic of leakage not pre-existing contamination outside the IWCS because:

- i) The levels of uranium contamination being seen south of the IWCS are far higher than those previously observed for pre-existing NFSS contamination. USACE has referred to uranium groundwater contamination of this magnitude being detected elsewhere on the NFSS, but review of the soil sampling results from this area do not indicate either surface or subsurface uranium contamination. Has USACE considered that the cause of uranium groundwater contamination in this area may be another example of groundwater contamination from the disused water lines?
- ii) The extent of uranium contamination away from the IWCS is too great to be associated with limited pre-existing contamination. RI data indicates the 10 inch water line has contaminated adjacent sewer lines and groundwater in down gradient well OW-11B. The levels of uranium in well OW-11B are now in excess of 250 pCi/L and still increasing.

Uranium contamination east of the IWCS

The uranium contamination first identified in well OW-11B during the NFSS Remedial Investigation (RI) has continued to increase, which is consistent with a breach in the south side of the IWCS. The trend is not a “slightly increasing trend” as USACE suggests but a marked, steady increase. The environmental surveillance results for Fall 2009 confirms this with an increase of almost 100 pCi/L in one year. This is not typical of pre-existing contamination outside the IWCS. The USACE response of August 30, 2010 ignores a disused water line acting as a preferential pathway for IWCS leakage (from the southern side of the IWCS) to reach well OW-11B. The RI determined a 10 inch potable water line is likely acting as a preferential pathway for contamination to migrate away from the south side of the IWCS. The water line has also been linked to uranium contamination in the adjacent sanitary sewer, which may play a role in the contamination of well OW-11B.

Given the evidence of groundwater seasonally intruding the IWCS and the detection of radiological contaminants in groundwater immediately outside the IWCS (uranium in the UWBZ groundwater and gross-beta in the LWBZ), I would again respectfully ask that USACE revise its position with respect to the integrity of the IWCS.

Enhancement of the current environmental monitoring program is a step forward, but it will not address existing IWCS leakage already present in the water lines and off site groundwater. The RI provided valuable information on preferential pathways around the IWCS. These preferential pathways are currently being ignored.

Sincerely,



cc: LOOW RAB
Niagara County Dept. of Health
New York State Dept. of Health
New York State Dept. of Environmental Conservation
U.S. Environmental Protection Agency