

-----Original Message-----

From: [REDACTED]  
Sent: Monday, July 12, 2010 9:02 PM  
To: [REDACTED]  
Subject: Fwd: RE: July 23 meeting regarding NFSS concerns from LOOW RAB radiological and chemical committees

[REDACTED]:

Forwarded attached is some additional info from [REDACTED]/LOOW RAB Radiological Committee for discussion on the 23rd. I am dealing with surgery for my daughter on Friday, but after that I will send you some additional info from my work.

----- Original Message -----

Subject: RE: July 23 meeting regarding NFSS concerns from LOOW RAB radiological and chemical committees  
Date: Sun, 11 Jul 2010 21:16:41 -0400  
From: [REDACTED]  
To: [REDACTED]  
<mailto:[REDACTED]>

I have attached two items  
one is to send as a modification of the work plans for the radon emission predictions the other is requests for additional information regarding the water levels inside the IWCS. It may be added to the agenda for the face to face meeting.

Please send them to USACE.

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From: [REDACTED]  
Sent: Friday, July 09, 2010 9:30 AM  
To: [REDACTED]  
Cc: [REDACTED];  
[REDACTED]  
Subject: Re: July 23 meeting regarding NFSS concerns from LOOW RAB radiological and chemical committees

Dear [REDACTED]

Given the recent work from [REDACTED] identifying data related to concerns about leaking at the NFSS, it seems prudent to add that report to the agenda and request that she be conferenced in to explain her concerns.

I propose that we set aside a specific time for that in the meeting, perhaps after the first hour, but request that [REDACTED] be added to the meeting via conference call. Is that feasible at the District office?

Thanks

[REDACTED]

[REDACTED] wrote:

> Dear [REDACTED]:

>

> I would be thrilled to get the discussion going now, so yes for me. I  
> don't want to wait until September. I would like this discussion fast  
> tracked and concluded (with a facilitator identified) by the end of  
> the summer.

>

> [REDACTED]

>

> On 7/2/2010 3:56 PM, [REDACTED] LRB wrote:

>> Hello,

>> If it is okay with all of you, we would like to suggest adding a  
>> discussion about hiring a technical facilitator to this agenda.

>> Please let us know if this is okay and what additional items you

>> would like on the agenda for this meeting. Thank you and have a nice 4th of  
July!

>> Sincerely,

>>

>> [REDACTED]

>> [REDACTED]

>> US Army Corps of Engineers, Buffalo District

>> 1776 Niagara Street

>> Buffalo, NY 14207

>>

>> Phone: [REDACTED]

>>

>> -----Original Message-----

>> From: [REDACTED]

>> Sent: Friday, June 11, 2010 3:07 PM

>> To: [REDACTED]

>>

>> Subject: July 23 meeting regarding NFSS concerns from LOOW RAB  
>> radiological and chemical committees

>>

>> Hello,

>> Our meeting is confirmed for July 23 at 9 a.m. in Conference Room A  
>> here at the Buffalo District. I have scheduled an hour and a half for the  
meeting.

>>

>>

>>

>>

>>

[REDACTED] ill be participating from the Corps.

>>

>> Please identify and provide us with your top ten comments on the NFSS  
>> Remedial Investigation Report for discussion or any additional items  
>> you wish to discuss. Additionally, please provide any data analyses  
>> supporting your conclusions/concerns/comments regarding the Interim  
>> Waste Containment Structure.

>>

>> We look forward to meeting with all of you.

>> Sincerely,

>>

>> [REDACTED]

>> US Army Corps of Engineers, Buffalo District

>> 1776 Niagara Street

>> Buffalo, NY 14207

>>

>> [REDACTED]

>> [REDACTED]

>>

>>

>>

>>

>> -----Original Message-----

>> From: [REDACTED]

>> Sent: Thursday, June 10, 2010 2:19 PM

>> To: [REDACTED]

>> [REDACTED]

>> Subject: Re: availability for meeting with USACE regarding NFSS

>> concerns from LOOW RAB radiological and chemical committees

>>

>> [REDACTED]

>> We would like to confirm the July 23rd 9am meeting slot.

>> Thank you.

>> Please send info to all four of us; [REDACTED], [REDACTED] and myself.

>>

>> [REDACTED]

[REDACTED] wrote:

>>

>>> I have a doctor's appointment on the afternoon of the 27th. I could

>>> make a

>>>

>> meeting at 9 AM on the 23rd.

>>

>>> [REDACTED]

>>>

>>> On Jun 10, 2010, at 7:53 AM Jun 10, 2010, [REDACTED] wrote:

>>>

>>>

>>>

>>>> Dear RAB members:

>>>>

>>>> [REDACTED] has offered dates below for a followup meeting regarding our

>>>> concerns and data analysis on the potential leakage at the NFSS.

>>>>

>>>> I suggest that a meeting with [REDACTED] myself, [REDACTED] and

>>>> [REDACTED] be arranged as we discussed at our last RAB meeting.

>>>>

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>>>> Would [REDACTED] let me know of your
>>>> availability in July on the 23rd or 27th at the times listed by
>>>> [REDACTED] below?
>>>>
>>>> [REDACTED]
>>>>
>>>>
>>
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## Questions for Army Corps

- A) Will the USACE locate and then release the following documents related to performance monitoring?

1 Letter, L. F. Campbell, U.S. Department of Energy, Oak Ridge Operations Office, to J. F. Nemec, Bechtel National, Inc. "Waste Containment Performance Monitoring System," CCN 25104, January **22**, 1985.

2. Letter, G. D. Coxon, Bechtel National, Inc., to L. F. Campbell, U.S. Department of Energy, Oak Ridge Operations Office. "NFSS Waste Containment Performance Monitoring System," CCN 25410, February 7, 1985.

5. Letter, G. D. Coxon, Bechtel National, Inc., to E. L. Keller, U.S. Department of Energy, Oak Ridge Operations Office. "Waste Containment Performance Monitoring Device," CCN 28159, June 12, 1985.

- B) There are changes in the sensor location plans between the documents item three and Item four in these notes. What is the explanation?
- C) Will the health and safety as well as drilling logs for the 14 borings into the IWCS be found and released? These documents should also be included in the "Radon Assessment Technical Memorandum" now in preparation. This is real data to validate any "potential radon" predictions.
- D) Will the USACE find and release the subsequent reports? The July 87 document states there will be a data set, at a minimum from "FY 87 -91"?
- E) Will Corps employees walk the site to the coordinates listed for the pneumatic pressure transducers (PPT) and locate the tubes for these sensors? Will the Corps perform a shallow soil excavation to uncover the wire leads from the vibrating wire pressure transducer (VWPT), sensors and test the functionality of both sets of sensors? We suggest that you do not try to locate them by mechanically excavating for them because they could get severed. These buried wires can be located with electronic metal detectors. Then they can be hand excavated safely. When they are uncovered and their location is verified. Then you mechanically excavate to do necessary tests.
- F) Sensor location 13 is near the locations where radon detection above the non detect level have been reported. Is there any indication the Sensor 13 is a source of radon venting?

REPORT ON THE PERFORMANCE MONITORING SYSTEM FOR THE INTERIM WASTE  
CONTAINMENT AT THE NIAGARA FALLS STORAGE SITE  
OCTOBER 1985

#### 4.2 SUBSURFACE MONITORING

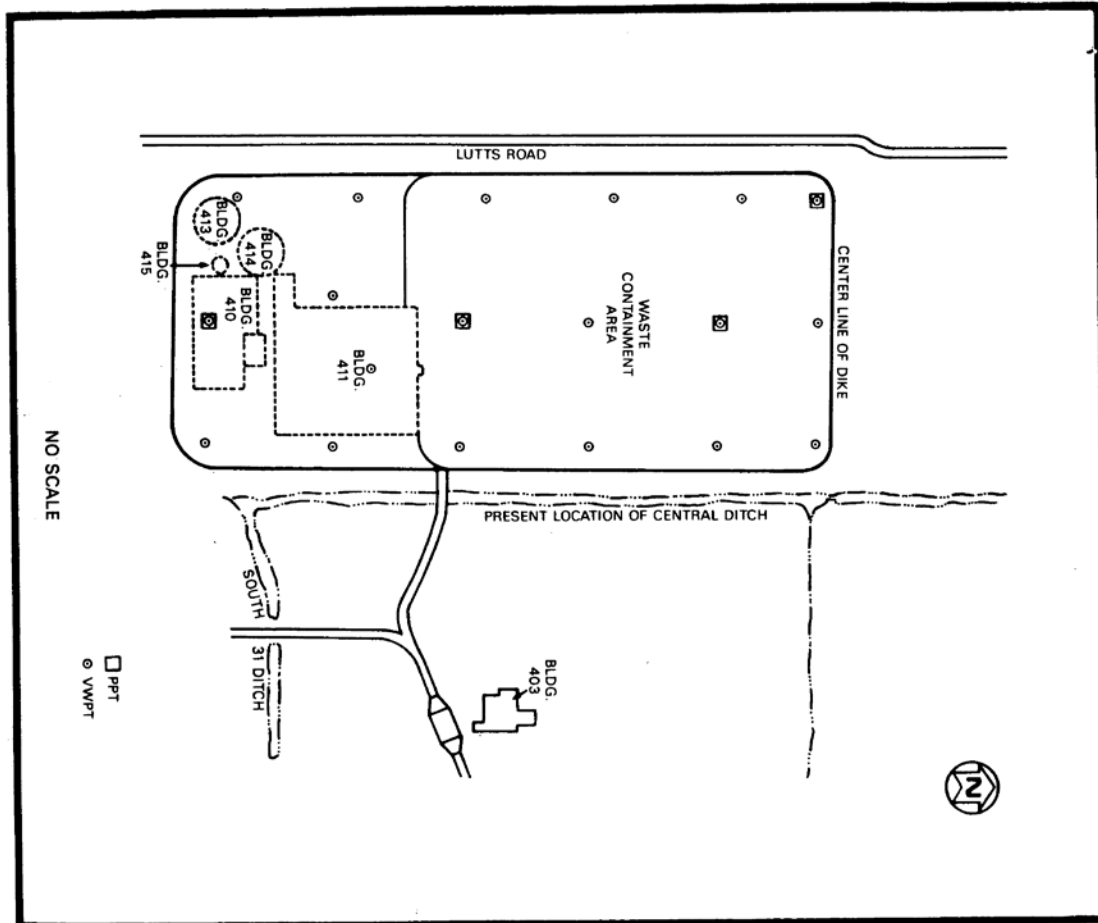
Because no penetrations through the clay cover are permitted, direct measurement methods could not be considered for detecting water accumulation inside the containment facility, measuring waste settlement, and assessing shrinkage of the clay cover. Several indirect subsurface monitoring techniques were therefore evaluated.

They were assessed on the basis of their potential contribution to early detection of containment distress or failure, expected system reliability and lifetime, difficulty of installation and maintenance, cost per instrument, ease of data interpretation, and frequency of use. These techniques included vibrating wire pressure transducers for detecting rising potentiometric (saturated) levels inside the containment structure; multiple position extensometers to measure waste settlement; and horizontal strain meter arrays to detect horizontal movement (shrinkage) of the clay cover. It was determined that the vibrating wire pressure transducers (VWPTs), in combination with surface monitoring techniques, would satisfactorily monitor the parameters of concern (Ref. 5). A secondary system of pneumatic pressure transducers (PPTs) will provide a means of checking the operation of the VWPTs. The service life of both the VWPTs and the PPTs is estimated to be 25 years. This estimate is based on actual and continuous field operation of these instruments in dam and tunnel construction activities. A detailed description of these instruments is provided in Appendix A.

The VWPTs and PPTs will be installed in a pattern over the waste containment area as shown in Figure 4-2 so that no section of the site is more than approximately 100 ft from an instrument. A pressure increase measured by these instruments can be translated into an increase in the depth of saturation above the instrument. The rate at which the pressure changes will be indicative of the method of entry of the water causing the saturation. For example, the instruments should all stabilize within a year after closure of the containment. Pressure increases that occur rapidly within the first year after closure will be indicative of an opening or more permeable condition nearby, whereas a slow increase in pressure at one or more stations with steady decrease in pressure at another will indicate equalization of the water contained within the structure at closure. The differences in pressure between the instruments across the site 4 to 5 years after containment closure will permit production of equipotential contours and sections. Each pressure measurement taken will be accompanied by a temperature measurement, taken by the temperature-sensing device incorporated into the VWPTs, which will serve to monitor potential changes in the form of the wastes.

The PPTs will be installed adjacent to four of the VWPTs. They will not be installed at all VWPT locations because the operation and reading of the PPTs require attendance by a technician while the VWPT equipment can be arranged to operate automatically with readout limited only by communication equipment availability.

FIGURE 4-2 LOCATIONS OF VWPTS AND PPTS AT THE NFSS



#### Item 4

Bechtel National, Inc. Performance Monitoring Report for the Niagara Falls Storage Site Waste Containment Structure for Calendar Year 1986, DOE/OR/20722-159, Oak Ridge, TN, July 1987.

#### PERFORMANCE MONITORING REPORT FOR THE NIAGARA FALLS STORAGE SITE WASTE CONTAINMENT STRUCTURE

CALENDAR YEAR 1987 AND [REDACTED] ARY - JUNE OF 1988

[REDACTED] Bechtel National,

This report includes a [REDACTED] ary of performance monitoring results for 1987 and 6 months of 1988, with data for surface, subsurface, and environmental monitoring; conclusions based on walkover surveys; comparisons with previous data; and actions required. The vibrating wire pressure transducer (VWPT) pore water pressure readings have been expressed as hydraulic head and are plotted in Appendix A for 1987 and for the first half of 1988. Due to technical difficulties (noted in Subsection 3-21, data for entire period could not be collected. The pneumatic

pressure transducer (PPT) pore water pressure readings have been converted to hydraulic head and are presented in Appendix B. Appendix B compares the PPT data to the VWPT data. The comparison shows how failure of the VWPTs was detected.

The performance monitoring program is distinct from the environmental monitoring program conducted at the NFSS, and will continue for a shorter time. The performance monitoring program will continue for a minimum of 5 years (FY 1987-1991), but may be maintained for a longer period depending on the results observed.



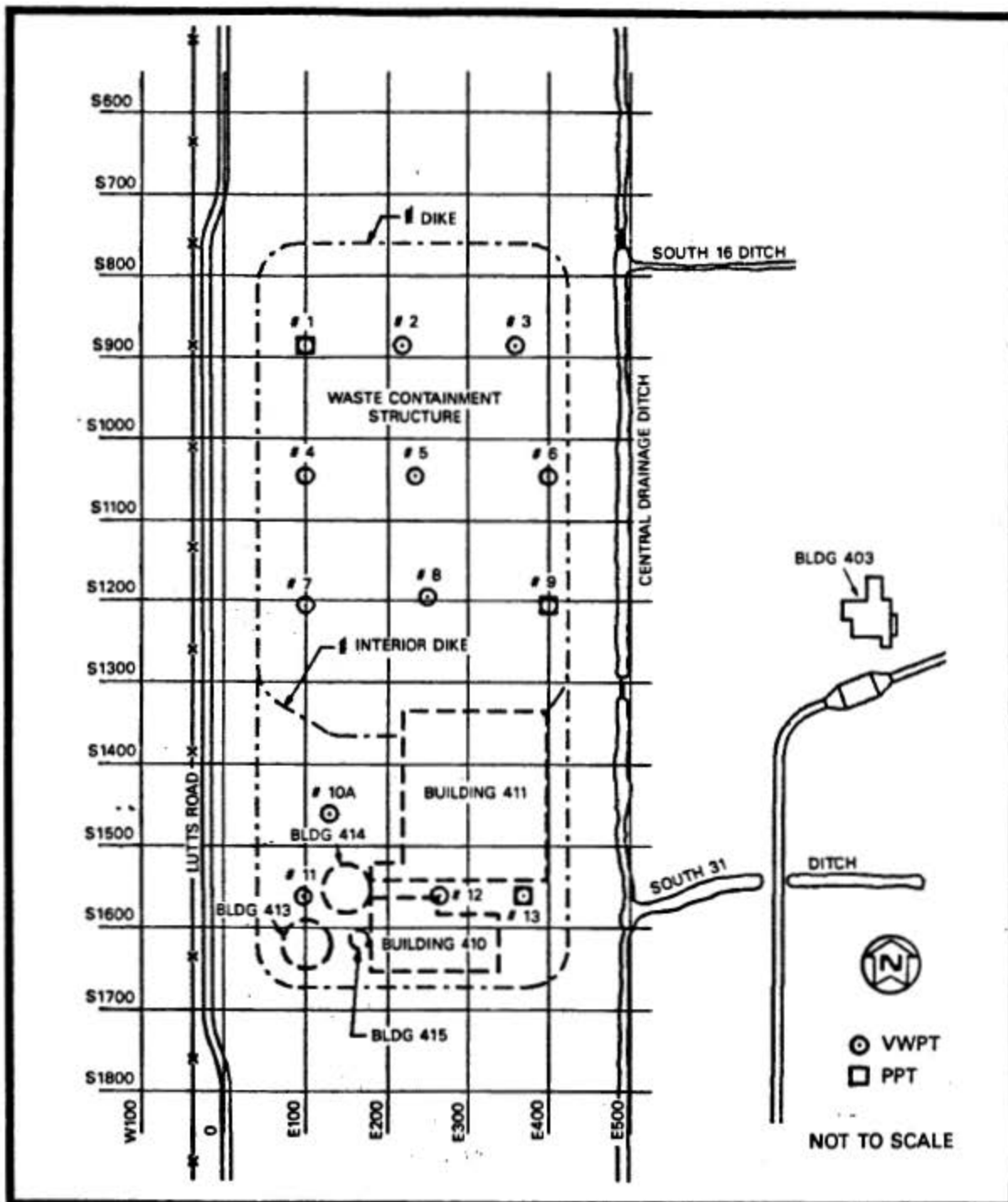


FIGURE 2-1 LOCATIONS OF VWPTs AND PPTs ON THE WASTE CONTAINMENT STRUCTURE

Subsurface monitoring instrumentation includes VWPTs to monitor pore water pressure and a secondary system of PPTs to provide a check on the operation of the VWPTs. The locations of these devices are shown in Figure 2-1. The PPTs were installed adjacent to three of the VWPTs. The PPTs had only one reading in 1986, which was the initial reading in November after installation. Monthly readings began in July 1987. The frequency of readings will be adjusted based on results of subsequent years' operation.

The VWPTs record readings automatically each day, and data are examined on a regular basis to detect any early indication of water accumulating inside the WCS. A summary of the data from the VWPTs is presented in Appendix A. There are no valid VWPT data from July 1987 to February 1988. Lightning damaged the power supply, and repairs had to be made to the read-out instrumentation. This problem is now corrected. The secondary system, the PPTs, showed that the VWPTs were providing erroneous readings. The comparison of PPT data to VWPT data is presented in Appendix B.

TABLE B-1  
COMPARISON OF VWPT DATA TO PPT DATA -  
JULY 1987 to JUNE 1988

Date	Instrument Location <sup>a</sup>					
	1		9		13	
	PPT	VWPT	PPT	VWPT	PPT	VWPT
3/19/87 <sup>b</sup>	1.84	1.26	0.92	5.96	0.81	2.27
7/16/87 <sup>c</sup>	2.54	93.18	1.38	108.46	1.61	99.05
8/3/87	2.54	1.14	1.38	13.54	1.61	7.24
9/3/87	2.54	0.39	1.15	12.89	1.61	6.49
10/5/87 <sup>d</sup>	2.31	d	1.38	d	1.61	d
11/3/87	2.31	d	1.15	d	1.85	d
12/8/87	2.31	d	1.15	d	1.85	d
1/5/88	2.31	d	1.15	d	1.85	d
2/10/88 <sup>e</sup>	2.31	2.38	1.15	7.63	1.61	4.25
3/2/88	2.31	1.64	1.15	5.83	1.61	3.63
4/4/88	2.31	2.01	1.15	6.09	1.61	3.88
5/3/88	2.31	1.51	1.15	5.44	1.61	3.63
6/2/88	2.31	1.14	1.15	5.95	1.61	3.26

<sup>a</sup>PPTs and VWPTs are placed at the same elevation. Instrument readings are converted to hydraulic head above the instrument.

<sup>b</sup>The PPTs were read in March 1987 to establish a correlation with the VWPT data.

<sup>c</sup>July 1987 readings of the VWPTs showed a large increase in the hydraulic head. Comparison with the PPT data shows that the increase was not valid.

<sup>d</sup>The damaged VWPT system was repaired during the period of October 1987 through December 1987. No readings of the VWPTs were taken during this time.

<sup>e</sup>February 1988 readings of the VWPTs showed a return to valid information. Although variation exists between the PPT and VWPT data (PPTs are not as sensitive and are more susceptible to outside influences) the differences are within a reasonable range.

INSTRUMENT (BOREHOLE) NUMBER	SITE GRID COORDINATES		RECORDER CHANNEL	ELEVATION-FT (MSL)		
	SOUTH	EAST		GROUND (CAP)	SURFACE	INSTRUMENT*
1	885	100	11	335.2		321.2
2	885	220	12	341.4		320.7
3	885	360	13	335.6		320.1
4	1045	100	14	335.4		321.4
5	1045	235	15	344.9		320.6
6	1045	400	16	332.9		320.6
7	1205	100	17	335.3		320.6
8	1195	250	18	343.6		319.6
9	1205	400	19	334.8		322.6
10A**	1460	130	10	338.9		327.6
11	1561	98	1	339.0		323.8
12	1560	265	2	341.4		329.4
13	1560	370	3	341.5		329.0

\*1987 instrument elevations are based on as-built conditions.

1986 instrument elevations are based on design conditions.

\*\*Instrument 10 was damaged during construction, Instrument 10A was installed as a replacement.

Recommendations from RAB requested scenarios for radon release

A) No action alternative.

1) Find and analyze the health and safety documents as well as drilling logs for the 14 Piezometer borings into the IWCS. These documents should also be included in the "Radon Assessment Technical Memorandum" now in preparation. This is real data to validate any "potential radon" predictions.

2) Radon release analysis of placement of new piezometers to measure seasonal variation of liquid levels inside the IWCS

B) K65 removal

Extraction of residues with subsequent on-site processing to extract Radium contaminated Barium Sulfates for separate packaging and transportation. The Uranium containing residues are shipped to a facility for uranium recovery.