-----Original Message-----
From: [redacted]
Sent: Thursday, September 16, 2010 10:13 AM
To: [redacted]
Subject: Fw: recommendations for RADON release projections

More from [redacted]...

----- Original Message -----
From: [redacted]>
To: [redacted]
Sent: Thu Sep 16 06:48:43 2010
Subject: RE: recommendations for RADON release projections

A follow up note to my suggestions regarding radon scenarios.

[redacted] correctly noted I included remediation options before the list has been announced. I think that a lack of a radon analysis will kill, in advance, any examination of certain partial removal options.
For the no action alternative, [redacted] reminds us there has been documented desiccation cracking of IWCS cap. I learned from the recent EPA conference that small grains of soil etc. dislodge from the walls and jam the crack open. The jammed cracks never fully close and provide a breach in the cap integrity for radon exhalation when the atmospheric pressure is decreasing, e.g., before a storm.
My suggestion regarding water extraction wells to create a groundwater gradient for flow into the remaining Northern cell has little to do with radon. The relative location of the well and any breaches in the cut-off wall will determine the effectiveness of extraction wells. My concern is with long half life elements such a U and Ra. My guess is that the short half life of radon would minimize any radon transport beyond the clay cut-off wall

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From: [redacted]
Sent: Tuesday, September 14, 2010 12:07 PM
To: [redacted]
Subject: recommendations for RADON release projections

This note is to review several recommendations I have made on various documents regarding the contract for evaluating radon release emission scenarios. Radon is a special interest of mine, since [redacted] and I once held the contract for collecting the on-site radon samples.

1) No action scenario. Evaluate radon releases taking into account the recently released information that many peizometer tubes are still in the IWCS cover(documentation providing tube locations is on USACE web site). Assume a worst case that the bentonite seals have dried out and shrunk and soil gases including radon can exhaust from the tubes.

2) All partial removal scenarios: In all these scenarios, install groundwater extraction wells in each IWCS quadrant north of Building 411 because that would not be excavated in these scenarios. These wells would be deep enough to extract groundwater in order to guarantee a negative groundwater gradient at the clay cut off walls to prevent any leakage.

Consider 2 sub-cases of Hydraulic mining of residues inside a negative pressure enclosure:

a) Immediate stabilization with concrete and shipment off site and,

b) Separation of radium contaminated sulfates which would then be sealed into containers. This separation would remove the source of new radon from the tailings which could be sent to an existing uranium mill for uranium extraction and placement of tailings in that facilities' tailing piles.