

## Norman, Yolande

**From:** Mark Jancin [mjancin@chesterengineers.com]  
**Sent:** Tuesday, October 11, 2011 12:07 PM  
**To:** Meyer, Matthew; Norman, Yolande  
**Cc:** Guo, Lifeng; Arlt, Hans; Bush, Larry (GE Aviation, US); Blickwedel, Roy (GE, Corporate)  
**Subject:** revised UPL95 tables for review  
**Attachments:** revised UPL95 tables.pdf

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Attached are revised tables for UPL95 and background threshold values based on our last Church Rock conference call on September 15. We have added charts plotting the UPL95 concentrations versus k values to provide a "sensitivity" analysis for the key chemical parameters in each hydrostratigraphic unit.

**UNC would like to have a conference call with NRC to discuss these tables and the related issues. For the rest of October we are available to schedule the call on October 21 through 25, or on October 27. Please let me know the dates and times that will work for you.**

The key results of this recent work are summarized in Tables 7 through 9 of the attachment. Here is a brief summary of how we developed the six different sampling and compliance scenarios:

Six different k values were used to estimate the 95<sup>th</sup> percentile Upper Prediction Limit (UPL95) for each of the hydrostratigraphic units (HSUs). The k value represents the future observations to be collected and must be specified before calculating the UPL95.

The six "scenarios" represented by the six k values for each of the HSUs include two different groups of wells (from which compliance samples will be collected) over three different future sampling periods.

The groups of wells used for each HSU were (1) all of the POC wells **for the individual HSU** and (2) all of the POC wells **for the entire site**. The "individual HSU" POC well group was included because it had been used in previous calculations and had been the basis of previous discussions with NRC. The "entire site" POC well group was used because, conceptually, the site would be out of compliance if any POC well is out of compliance in any future sampling event, therefore the potential Type I error associated with the sampling at all the POC wells should be accounted for in the UPL95 calculation.

The three future sampling periods included in the analysis, which were applied across each of the two groups of wells for each HSU, were the following: (1) 4 quarters of sampling [representing a future four-quarter sampling period that would be used to demonstrate that the site may be transferred to DOE for long-term care, (2) 10 years of annual sampling [representing the anticipated period of annual DOE compliance monitoring after transfer) and (3) 6 years of quarterly monitoring (representing an estimate of the anticipated monitoring period until site transfer) plus the 10 years of annual DOE compliance monitoring after transfer.

The following table shows the k values evaluated for each HSU (yellow cells).

HSU	Well Groups	Total Wells	Number of Sampling Events		
			1 Year Quarterly Sampling Events	10 Years Annual Sampling	6 years Quarterly Sampling+ 10 Years Annual Sampling
			4	10	34
Southwest Alluvium	SWA POC Wells	7	28	70	238
Southwest Alluvium	Total Site POC Wells	16	64	160	544
Zone 1	Zone 1 POC Wells	5	20	50	170

