

From: "Gerry Van Noordennen" <vannogp@connyankee.com>
To: <jed1@nrc.gov>
Date: Wed, Oct 10, 2001 6:18 PM
Subject: FW: GW Well data.xls

Joe,
Attached is the latest information we have on CR 01-0406, Detectable Levels of SR-90 in Mat Sump. I will fax you the CR also.
Gerry

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

From: Richard McGrath [mailto:mcgrarn@connyankee.com]
Sent: Wednesday, October 10, 2001 4:49 PM
To: Heider Ken
Cc: Van Noordennen Gerry; Fetherston Noah
Subject: GW Well data.xls

Ken, The attachments show the gross beta and nuclide specific analysis results you asked for. We only performed analysis for Gross Beta for the samples taken in March and April of 1999. As you can see, there appears to be a strong correlation between Gross Beta values greater than 50 pCi/li and the presence of Sr-90 in the groundwater. Also on Table 1, I have bolded the gross activity results for which nuclide specific analysis should be performed. With the above in mind, the following steps as a minimum are planned:

1. Well 105S will be resampled tomorrow and a split of the sample sent to two labs.
2. Sample analysis for the next round of samples (Scheduled to be taken by the end of the month) will be expanded. There are two columns in Table 1 that define the special analyses planned. The philosophy of these additional analyses is as follows:
 - a. Analyze wells for which HTDNs have been found to allow tracking. Gross beta analysis will allow additional trending for these and other wells.
 - b. Investigate via nuclide specific analysis, any wells that have shown elevated gross activity analysis results.
 - c. Analyze all wells down gradient from the plume for HTDNs to insure that only tritium is reaching the river.
 - d. Analyze other wells in the RCA in the plume region for Beta HTDNs to allow enveloping of the plume and to provide info for determining plume travel paths for HTDNs.

3. Additional work yet to be discussed:
 - a. Effect on the Groundwater Monitoring Work Plan (Gerry Van is the lead)
 - b. Additional soil characterization work. This would appear to be Bechtel scope of work.

Let me know if you need anything else.

Rich

Table 1
Groundwater Sample Results and Future Sample Plan

Well ID #		Gross Alpha		Results	Plan for Next	Gross Beta		Results of	Plan for Next
A. Wells for which Nuclide Specific Analysis Performed		Mar-99	Apr-99	of Alpha	Round Alpha	Mar-99	Apr-99	HTDN	Round Alpha
		pCi/li	pCi/li	Spec.	Analysis	pCi/li	pCi/li	Analysis	Analysis
103D	Near RWST	<6.3	9.2	No Alpha	Gross Only	13	5.3	Tc-99 @ MDC	Gross/HTDN
103S	Near RWST	9.4	11.7	No Alpha	Gross Only	89.8	60.3	Sr-90/2.55pCi/li	Gross/HTDN
105S	7 o'clock to Cnmt.	<6.3	6.4	No Alpha	Gross Only	246.4	157.5	Sr-90/129pCi/li	Gross/HTDN
106S	5 o'clock to Cnmt.	<6.3	<4.8	No Alpha	Gross Only	35.6	55	Sr-90/6 pCi/li	Gross/HTDN
109D	By River west of Cnmt.	8.5	12.4	No Alpha	Gross Only	7.9	4.3	No Beta	Gross/HTDN
110D	By River s/w of Cnmt.	19.1	20.6	No Alpha	Gross Only	18	12.8	No Beta	Gross/HTDN
111S	On Peninsula by Septic	41.9	14	No Alpha	Gross Only	24.3	9.8	No Beta	Gross/HTDN
201	At Landfill	<3.9	<3.6	Alpha@MDC	Alpha Spec	3.3	4.8	No Beta	Gross Only
207	At Landfill	<3.9	<3.3	No Alpha	Gross Only	3.6	5.3	No Beta	Gross Only
B. Wells To Be Analyzed with Intermittent and/or Abnormally High Gross Alpha or Gross Beta									
EOF	EOF Well Water(WSW))	22.9	33.4	Not Analyzed	Alpha Spec	14.3	6	Not Analyzed	Gross Only
115S	West of Fuel Bldg.	<6.9	7.3	Not Analyzed	Gross Only	11.6	159.8	Not Analyzed	Gross/HTDN
203	At Landfill	<3.9	<3.1	Not Analyzed	Gross Only	<2.7	198.6	Not Analyzed	Gross/HTDN
C. Other Wells to be Analyzed for HTDNs to Envelope Possible Plume/Provide Info									
102D	East of Fuel Bldg	11.2	10.7	Not Analyzed	Gross Only	17.9	5.2	Not Analyzed	Gross/HTDN
105D	7 o'clock to Cnmt.	<5.8	6.5	Not Analyzed	Gross Only	5.7	10.2	Not Analyzed	Gross/HTDN
106D	5 o'clock to Cnmt.	6.1	5.7	Not Analyzed	Gross Only	5.4	<3.2	Not Analyzed	Gross/HTDN

Table 2
Connecticut Yankee Atomic Power Company
Summary - Groundwater Analyses
Plant-related Alpha Spectroscopy and Hard To Detect Radionuclides

June 2001

Radionuclide	Monitoring Well Location								
	MW-103D	MW-103S	MW-105S	MW-106S	MW-109D	MW-110D	MW-111S	MW-201	MW-207
Americium 241	<0.22	<0.33	<0.22	<0.31	<0.32	<0.31	<0.26	<0.30	<0.21
Technetium-99 (liquid scintillation)	3.9 J	<3.8	<4.2	<4.1	<4.8	<4.1	<3.9	<3.8	<4.6
Strontium-90 (905.5 by GPC)	<0.69	2.55 J	129 */120	6.6	<0.82	<0.81	<0.68	<0.63	<1.3
Strontium-89 (905.5 by GPC)	<0.9	<0.81	<1.0	<1.8	<1.4	<1.2	<1.0	<1.0	<2.1
Nickel-63	<16.6	<14.7	<16.8	<15.2	<15.0	<17.1	<15.8	<17.8	<18.2
Iron-55	<49.7	<49.2	<53.5	<49.8	<51.4	<50.8	<50.9	<53.6	<50.5
Plutonium-241 (liquid scintillation)	<14.8	<11.6	<12.5	<11.9	<13.2	<16.9	<13.4	<9.22	<9.68
Plutonium-238 (Alpha Spec)	<0.16	<0.13	<0.13	<0.13	<0.21	<0.17	<0.15	<0.30	<0.19
Plutonium-239/240 (Alpha Spec)	<0.29	<0.13	<0.19	<0.19	<0.14	<0.26	<0.22	0.379J	<0.28
Curium 243 (Alpha Spec)	<0.16	<0.16	<0.22	<0.19	<0.26	<0.15	<0.17	<0.15	<0.14
Curium 244 (Alpha Spec)	<0.12	<0.14	<0.12	<0.23	<0.14	<0.18	<0.20	<0.12	<0.19

Notes: Bold values represent detections.

All reported concentrations are in picocuries per liter (pCi/L)

<0.22: represents less than the MDC value.

J: Represents estimated value, greater than sample detection limit but less than reporting limit.

129 * : MW-105S sample result was re-evaluated for Strontium 90. The re-analysis was returned at 120.

MW-201: MDC for this sample was 0.205 pCi/L with an associated total uncertainty of 0.35 pCi/L, Plutonium-;