Subject: Strontium 90 Monitoring - Dave Rogers reply of 12-11-00
Date: Wed, 20 Dec 2000 15:12:26 -0700
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HSWA LANL 6/19/2002

Dear Dr. Browne,

Thank you for Dr. Rogers 5 page reply to my 11-30-00 e-mail to you - I assume you agree with his assertions. My summary of his remarks concerning Strontium 90 is:

1. "There is no reliable evidence that this contamination has affected the underlying regional aquifer."
2. Corrective action is being taken to improve subterranean water sampling and analysis.
3. The wells being installed per the Hydrogeological Workplan should identify possible future contamination by chemicals of concern into our regional aquifer.

I am pleased to note that your letter of November 30, 2000 conveys your concerns about the seriousness of the prospects for aquifer contamination and the extensive efforts already in place to improve analytical laboratory results. Nonetheless, there are still some unanswered concerns.

EVIDENCE: Attached is Figure 4-23 of December 6, 1996 taken from the draft Hydrogeological Workplan showing "Schematic cross section showing conceptual model and proposed regional aquifer wells for Mortandad Canyon". This drawing was distributed at an early meeting of the group which became the Water Quality Task Force. Dr. Rogers affirms it is available in the final version of the Hydrogeological Workplan. A section is reproduced below:


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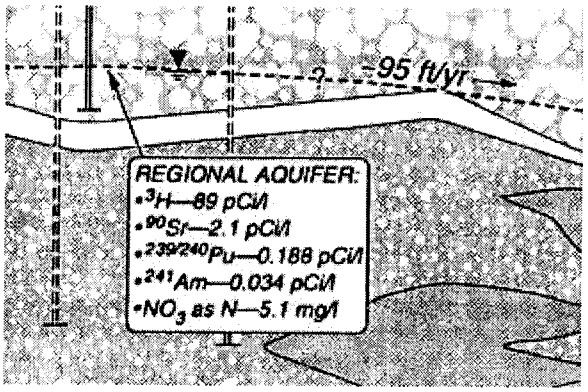

This figure identified the concentration of 2.1 pCi/L of Strontium 90 in the regional aquifer (as well as other COC's such as Plutonium). This value happens to coincide with the 1999 measurement in PM-1. Table 5-22 of this Workplan shows a value of 2.7 pCi/L on 8/13/96 for the "New Community Well". (The one sigma uncertainty is given as 0.6.) In view of the DCG limit of 8, it is admitted that this level is hazardous. Other charts, such as Figure 3-20 of November 1995, show much higher concentrations (perhaps 60 pCi/L) in alluvial groundwater under Los Alamos Canyon from 1990 to 1992.

In 1991, Stoker suggested "Recharge to the regional aquifer maybe occurring through the canyon bottom". In 1994, Stoker wrote, "Low-level Tritium analysis of samples from a test well in the Mortandad Canyon to the regional aquifer clearly shows the presence of recent recharge."

There seems little doubt that the only way this man-made chemical gets into the regional aquifer is via drainage from LANL release sites.

SOURCES: In LANL/DOE publications on Environmental Remediation, the sources of Strontium 90 contamination are given as TA-21 and former TA-45. As I've already indicated, the sources for Mortandad Canyon seems to culminate in the outfall above monitoring wells MCO-4 - 6. This outfall was still discharging waste until recently.

Table 4.6.3.10-2 of the PEIS estimates substantial annual generated waste volumes from the Stockpile Stewardship program. The CAB studies of the LANL Waste Management program reported failure of the lab management to use the monies budgeted for this function. They were treated as discretionary funds for use in other programs. Audits of 11/19/97 for Rad Liquid Waste and 7/15/98 for Tritium Residue Disposal indicate continued inadequate attention to waste management. If surface contamination continues at the increased rate suggested by the quantities estimated for Stockpile Stewardship, might we not expect further drift of COC's (such as Plutonium) into the subterranean waters under Los Alamos?

MONITORING: I and others have expressed doubts that the Hydrogeological Plan is a viable program. It is unlikely to produce (in the reasonably near future) data which will be applicable to the question of the direction and velocity of any plume of COC's toward the possible location of Santa Fe's future water supply. The four accord Pueblos have been receiving upwards of $300,000 per year for monitoring and surveillance. I have been told by Tom Todd, former DOE station chief at LANL, that there is no way in which the Pueblos will make public information derived from these monitoring programs.

Also, there has been no independent, professional risk-based characterization of the area surrounding LANL (as there was at Rocky Flats) to establish the optimum locations for shallow or other monitoring wells dedicated to identify the direction and rate of flow of COC's toward current or future drinking water wells.

ANALYSES: The rejection of the full year of 1999 measurements of Strontium 90 (as stated by Dr. Rogers) is an indication that people were not paying attention to the quality of the data being reported for that year. I understand that duplicate samples were shared between outside labs to insure reliable data. It is not clear whether these duplicates showed the same values or not. We are told that additional samples taken a month after the "hit" failed to show reportable traces of Strontium 90. It seems inappropriate to wait one month for check samples as conditions can change. It is also not clear why LANL's own chemical laboratory can not provide duplicate analyses, especially in light of IG report #0461 of 2/22/2000 on "Groundwater Monitoring" criticising the DOE for spending far too much money on outside analyses.

Further, Dr. Rogers relies on the rejection criteria of 3 sigma discussed in the above-mentioned letter. This is a mistake. An uncertainty of one sigma is sufficient for chemical analysis where we are trying to distinguish between 2 and 3 pCi/L and not, for example, 2.11 vs. 2.12. I cannot understand rejecting all of 1999 measurements if only for failure to meet 3 sigma uncertainty limits.

CONCLUSION: After consideration of the above problem and other problems at LANL reviewed by the Citizens Advisory Board since early 1995, it is my opinion that the only reliable way to eliminate the prospect of further contamination of our underground water supplies is to do as they did at Rocky Flats - that is to relocate the Plutonium fabrication facilities away from a populated area such as Los Alamos. I understand that billions of dollars are being sought for reconstructing the CMR building, repairing buildings damaged by the Cerro Gordo fire and erecting new buildings for weaponry work. These monies might better be used to establish a new facility elsewhere.

I intend to ask our new administration to consider moving all of the hazardous material work out of Los Alamos to be relocated to a safer place, perhaps at White Sands, where security and proximity to WIPP are advantages. While I suppose some of the scientists dependent on military projects would not like to move, there seems, in my opinion, to be ample opportunities in programs to improve our energy situation. I hope you and they can accept this challenge.

H. L. Daneman

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