

TA 50

Los Alamos

NATIONAL LABORATORY

*Chemical Science and Technology
Responsible Chemistry for America*CST-13 Rad & Industrial Waste Water Science,
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Date: November 13, 1995

Refer to: CST-13LW-95-280

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QUALITY BUREAU**

Joe Vozella, Acting Assistance Area Manager
 Environment, Safety and Health
 Department of Energy
 Los Alamos Area Office
 528 35th St.
 Los Alamos, New Mexico, 87544

Dear Mr. Vozella:

I would like to take this opportunity to update you on the activities currently being undertaken at the Radioactive Liquid Waste Treatment Facility (RLWTF), located at Technical Area 50 (TA-50).

As you aware, there have been a variety of issues surrounding the operations at this facility in recent months. In particular, are the recent National Pollutant Discharge Elimination System (NPDES) apparent violations of both the radium 228 standard and the pH continuous monitoring standard.

You have heard me state, on numerous occasions, that the current technology in place at the facility is inadequate to treat a variety of constituents found in both the NPDES, as well as in DOE Order 5400.5, which stipulates Derived Concentration Guidelines (DCGs), such as: tritium, strontium, cesium and others. This continues to be true, however, it does not mean that we are not working on a solution to this problem.

In fact, we will be submitting the implementation plan required by the Best Available Technology (BAT), mentioned in both the CWA and 5400.5 around the first part of January, 1996. This document has indeed taken a long time to complete, primarily due to the detail of the information required for a proper assessment of current technology. Historical data was compiled from the last fifteen (15) years of operation, essentially going back to when TA-55 process wastes were segregated from the industrial waste stream. The following documents were utilized to formulate the completed BAT:

- an intensive Radioactive and Industrial Liquid Waste Collection System Study, completed in February, 1995,
- the TA-53 Radioactive Cooling Water Management Study, completed in December 1994,
- 1995 Nuclear Weapons Matrix.



- Future Waste Streams Study, addressing the next forty (40) years of potential liquid waste streams to be generated at LANL.

As you will see in the implementation plan, we are incorporating both the BAT analysis information, as well as the successes of our pilot studies at TA-21-257 in order to enhance the quality of the effluent currently leaving TA-50-2. We realize that this is merely a stop-gap measure, but are fairly certain that we will not exceed NPDES contaminant limits due to process inefficiencies, as well as obtaining a goal of not exceeding any DOE order 5400.5 DCG limits. The plan involves continued enhancements of the processes, seen as an area in which the DOE/UC-LANL can be a major player for the promotion of wastewater treatment technology advancements, with the goal of minimizing the impact of contaminants on the environment.

In regards to the apparent radium contamination, this issue was finally traced to the fact that the company performing that analysis utilized a detection technique which, though permitted by the EPA, did not allow for the segregation of radium from other 'soft-beta' emitters. As it turns out, after an exhausting search of our upstream generator databases and generation points, this analytical method would also include any interfering radioisotopes to be counted as radium. This, in fact, has been validated through an assessment of the influent analysis over the past year, showing correlation of the presence of beta emitters to the higher than normal radium 228 results. Therefore, there has been no release of radium 228 to the environment from this facility which exceeded NPDES levels.

The pH reading is a continuous reading taken at the 'official' point of discharge to the environment. The problem, which was a combination of instrument line 'noise', percent (%) error of the instrument, and degradation of the effluent due to stagnant conditions in the pH loop, was solved by rerouting the pH loop to the effluent tank and recirculating the water in the loop for a period of three to five (3-5) minutes in order for the pH to stabilize before commencing discharge of the effluent.

I realize that this is quite lengthy, yet it may not cover all the issues you may have. I would like to invite you to tour the facility so as to show you the upgrades, processes and procedural changes first hand.

If you would like a tour, call me at 7-4301 at your convenience.

Sincerely,



Steve Hanson
CST-13 Group Leader
RAD and Industrial Wastewater Science Group
LANL