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5 July 1984

Will Focht and Steve Schwartz
US EPA, Region VI
InterFirst Two Building
1201 Elm Street
Dallas, Texas 75270

Dear Will and Steve:

At Will's request, I have reviewed Plateau's Discharge Plan, prepared in March 1984 by American Ground Water Consultants (AGC). Following are my comments on the hydrological aspects of Plateau as pertains to RCRA and the NM Hazardous Waste Management Regulations (HWMR-2).

1. The basic issue still is: Is Plateau a TSD? If so, they must have ground-water monitoring in compliance with RCRA/HWMR-2. Whether or not the uppermost aquifer is "natural", it exists and is capable of carrying hazardous waste constituents into Hammond Ditch and the San Juan River, both of which supply domestic and agricultural water to downstream users.
2. At this point, I believe AGC may be correct that there is little or no natural ground water in the cobble bed. This is based on literature review, discussions with New Mexican ground-water experts, and a quick-and-dirty calculation I performed, utilizing Bureau of Reclamation estimates of seepage from Hammond Ditch.

However, I am not absolutely convinced that there is no natural ground water. The dry well could easily have been drilled into a "bump" of Nacimiento. If it is important to determine whether there is natural ground water in the cobble bed, Plateau should do some or all of the following:

- a. Drill wells east, west and south of P-6 and see if they also are dry.
- b. Survey the elevation of the Hammond Ditch in the summer to see if the head is indeed at 5502 msl.
- c. Take water levels while the ditch is flowing to determine whether the gradient truly turns to the south.
- d. Perform a detailed evaluation of ditch seepage, cobble bed porosity, and flow rate of all seeps. Then do a mass balance to determine what water levels would be, based only on seepage, and compare to actually measured levels.

3. Plateau claims that the similarity of river water above and below the refinery indicates that no detectable levels of contaminants are entering the river from the refinery. However, the samples were taken during relatively high flow conditions. It is conceivable that under such conditions, water flows from the river into the flood-plain aquifer; any contaminants which happen to diffuse into the river are greatly diluted. Under low-flow conditions, the water may flow out of bank storage, carrying significant concentrations of contaminants. Above and below samples should be taken during a low-flow period (probably in December, Bureau of Reclamation can provide information on release schedules).
4. The characterization of the Nacimiento as impermeable and containing no water needs further substantiation. No permeability tests have been performed and no boreholes have been drilled into the Nacimiento to verify a lack of water-yielding zones.

The six monitoring wells are described as being drilled to the top of the Nacimiento. While AGC characterizes the Nacimiento as consisting of unctious clay, none of the well logs describe the last drilling segment as consisting of pure clay. Rather, they speak of cobbles, pebbles, clayey sandstone, sandy claystone, and so forth. As was observed at the the site in March, significant lenses of sandstone exist within the Nacimiento. All this leads to the suspicion that the Nacimiento may indeed be permeable enough for water (carrying contaminants) to infiltrate into that formation. Even if it is true that the cobble bed will never be utilized for water supply (a debatable point), it is possible that water could be recovered from the Nacimiento if the well is screened over a sufficient interval.

AGC argues that any aquifer within the Nacimiento would be artesian, and therefore would resist downward migration of contaminants. This is substantiated only by reference to a personal communication, and the context suggests that the communication may have referred to a deep, regional aquifer, as opposed to a localized, relatively shallow aquifer within the Nacimiento. It is also important to realize that as well as a mechanical hydraulic gradient, there would be a chemical concentration gradient which would drive contaminants into uncontaminated water, even across a hydraulic gradient.

If Plateau is deemed to be a TSD, this matter warrants further investigation.

5. Elevations for the Nacimiento are given on Plate 1 to the nearest 1/100th of a foot. It is not clear how these elevations were obtained, since the well logs are only to the nearest foot. Incidentally, the description of the Nacimiento acting as a French drain supports the contention that Plateau needs an NPDES permit.
6. The hydrological description in the discharge plan does not take into account the contribution of seepage from the raw water ponds and the evaporation ponds. It also does not address the existence of several ground water expressions that were noted during our March visit -- the pond east of and below the fire practice

W. Focht and S. Schwartz
5 July 1984
Page -3-

area, the sump (Tamarisk area) east of the landfill, the pits along the road west of the refinery, the flow in the arroyo east of the spray irrigation area.

I will be out of town until July 16, and will be happy to further discuss these issues at that time.

Sincerely,

A handwritten signature in cursive script that reads "Ann Claassen". The signature is written in dark ink and is positioned above the typed name.

Ann Claassen
Water Resource Specialist
Hazardous Waste Section