used to determine effect of the discharges on the hydrologic system. Figure 19 on Page 35 indicates that the X nodes are no-flow boundary nodes. Is this true? I thought that the river boundary nodes were "held-potential" (constant head) nodes. There are problems with some of the pumping test analyses. The well drawdown/recovery data generally indicate that hydrologic boundaries were intercepted during the tests. This is particularly evident in Figures 28 through 33. When this occurs, the tests are not amenable to quantitative evaluation by the Jacob straight-line approximation method, because the conditions violate the assumptions that were made in deriving the equation. The larger question is: Why are we doing pumping tests on wells that were previously tested? The geohydrology obviously has not changed. Are the previous data suspect? It would seem not, since the later results appear to support the earlier tests. We should be working toward a stochastic approach to determine transmissivity from evaluation of energy dissipation within the flow field, rather than evaluation of point-source pumping tests. Should the 1325-N Crib study be included in the annual report? This work was mainly performed under the auspices and support of UNI. We should at least obtain UNI's agreement and approval for inclusion of the data in the report. I'm concerned that this approach can create problems between PNL and the other Hanford contractors.

In the Bank Storage Study, similar data were reported in the 1982 report (for CY 1982). These data should be related to the 1983 data and results, and the two data sets tied together in the final evaluation. The 1982 part of the study is not even mentioned except for the reference on Page 56. There seems to be some problems in the quality control section of the report. We should consult with a statistician to obtain the proper procedure for data comparison and display of precision, accuracy and variation. The comparison methods used in the QC section appear inappropriate, to say the least. The range listed in Table 4 should be: -26.7 to +26.7. In Table 5, I don't think that "standard deviation" is the correct way to analyze these data sets. The statement in the text that, "The low standard deviation signifies that the two sets of data are in close agreement", is not correct - The standard deviations are large. It is evident that the USGS reported nitrate concentration as nitrogen, whereas we report it as nitrate, thus a fourfold (actually 4.57) difference exists between the analyses.

Please contact me if you have any additional questions regarding my comments on the report.