JOHN C. NEILSEN
1037 W ERDA WAY
ERDA UT 84074

13 December 2001

DIVISION OF WATER RIGHTS
PO BOX 146300
SALT LAKE CITY UT 84114-6300

RE: Tooele Valley Ground-water Management Plan

I manage 1054 acres of irrigated crop land with six irrigation wells in Erda and currently serve as president of the Tooele County Farm Bureau.

I reviewed the Cooperative Investigations Report no. 42 and found it informative but limited in detail. T.A. Kenny noted the fluctuations in withdrawals for irrigation in 1999 and 2000 in spite of above average precipitation of 18.43 in. To me these fluctuations are explained by the precipitation pattern and timing in relation to the area that is irrigated solely by ground water. Most of the land irrigated solely by wells is located in Erda. I believe Erda gets significantly less precipitation than Tooele or Grantsville because of topography. I recall a dry open winter, significant rain for crops only twice in April of 2000, and little more until mid November in Erda. This created an exceptionally long irrigation season for us. Year 2001 was also a long dry growing season. Spring of 1999 was unusually wet delaying the need to begin irrigation. A map showing irrigated, municipal, industrial and grazing land and sources of water (ground, surface, combined) may help explain the apparent anomalies. When no surface water or storage is available, the months that precipitation occurs can strongly influence how much irrigation water is required. A rain gage at Erda Airport recording daily precipitation may be useful in accounting for these anomalies.

Of the 11 hydro graphs published, only no. 7 (Grantsville) indicates a downward trend and it is flat since 1960. No. 4 shows an upward trend, but I don't believe the same well has been measured since 1958. I believe a new well was drilled in that area in 1973 which developed greater artesian pressure. All others show either a flat or a rising trend in water level. Something appears to have destabilized well no. 3 since 1984. The cause of this should be identified. The difference between the historical maximum and minimum in a given well is mostly caused by fluctuations in annual precipitation and vary in magnitude from 2 feet to 37 feet depending on the well. The unusual precipitation of the early 1980s created a corresponding peak in all of the published hydro graphs, but with varying lag phases and shapes. It appears that the Tooele Valley cannot all be managed with a single policy because stability of the water level differs greatly throughout the valley.

For many irrigators the real issue is not so much the ground water level, but flow rate. As pressure is reduced, the natural flow rate of an artesian well or spring is reduced and that is the parameter that most greatly impacts the water user who doesn't irrigate under pressure. That is a major difference between deep wells equipped with a pump of fixed capacity and flowing wells and springs. I'd like to know how flow rates correlate with fluctuations in water level and how ground water levels are influenced by fluctuations in annual precipitation. Can you predict the flow rate of an artesian well by precipitation records one, two or three years earlier? One of our wells has stopped flowing for the first time in our memory. A neighbor is having to drill his well deeper. These conditions may be weather related and transient, but often people attribute these problems to the neighbor's new well. We need data and models that provide evidence of causes of fluctuations in flow rates.

I do not see a 50 ft permanent draw down as acceptable. It is so outrageous that the only reason I can see for Mr. Schlotthouer starting with such an assumption is to stimulate a lot of public comment (and if adopted as policy, a lot of litigation). The greatest artesian pressure reported is 30 ft at well no. 4 in 1987. The average water level is closer to 15 ft. Therefore, even a 15 ft added draw down would likely dry up all head dependent sources most years. It would require almost all current wells to be equipped or reequipped with new pumps to continue to operate. After that tremendous cost, it would require a significant increase in energy costs to pump all of those wells. I know of a case in Utah where one water user was forced by court order to pay the pumping bill of a neighbor because the flow rate of his well was reduced after his neighbor drilled other wells in the area. This suggests that natural flow rate is a part of a legal water right and policy should not be adopted that allows water levels to change permanently.

Water quality in the center of the valley already has enough salts to be a limiting factor for irrigation. The source of this salt should be determined and ground water managed to prevent this problem from becoming worse. More information relating to salt-water intrusion is needed. Natural water quality is also a part of a water right.

Mr. Schlotthauer reported average annual recharge to be 75,000 ac-ft. Mr. Manning reported water rights already granted as 67,800 ac-ft in wells plus 16,000 ac-ft in springs summing to well over the annual recharge. The current hydrology study presented at the public meetings is not complete enough to predict the impact of new wells on the existing water rights and no change applications should be approved that move water rights more than a few feet from existing wells or springs until more thorough study is completed.

Mr. Manning's presentation comparing legal diversion rights to actual diversion suggests that you are considering a change in duty allowed for various uses. Some argument may be made that less than full diversion of the legal amount is a failure to put the water right to full beneficial use. This may be true for municipal or industrial use, but not for irrigation. Full diversion is only necessary in the most extreme of circumstances, but the possibility of needing 4 ac-ft per acre is well documented.

Currently irrigators are using 50 to 75 percent of the legal amount. That is because most crops use less water than alfalfa and most crops are under irrigated, especially when the leaching requirement is added to total evapotranspiration. When wells supplement seasonal flow from streams, the amount that must be diverted from wells can vary greatly. In the driest years wells may need to provide much more of the total than on the average year. Still all irrigated land should have the right to grow alfalfa and irrigate it with **best** management practices, not **current** management practices.

Municipalities are only using 25 percent of their legal rights, domestic stock owners use 16 percent, and industry currently uses only 6 percent. These water users should justify why their rights are so underutilized.

Of the 9,000 acres of irrigated land, I would like to know how many of those acres are crop land, pastures or orchards, how many are landscapes, playgrounds and golf courses. A distinction between productive irrigated land and recreational irrigated land may be informative and important in policy development. With the new sewage treatment plant using treated water to irrigate a new golf course, land is being irrigated that was not before. Is this classified irrigation or municipal?

I appreciate the invitation to comment and your efforts to develop a better ground water management plan for Tooele Valley. I look forward to your response to these questions and other opportunities for dialog.

Sincerely,

John C. Neilsen

John C. Neilsen
President, Tooele County Farm Bureau