APPENDIX G:
DOMESTIC WELL ZONE OF CAPTURE ANALYSIS

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Mr. J.J. Westra
Assistant Manager
Tulare Lake Basin WSD
1001 Chase Avenue
Corcoran, CA 93212

Re: Lakebed Delisting

Dear J.J.:

Pursuant to your request, we have prepared a revised zone of capture evaluation for a representative private domestic well on the fringes of the Tulare Lakebed. The pumping rate used was 20 gpm. A lateral hydraulic conductivity of 100 feet per day was used. A relatively flat water level slope of about six feet per mile was used. The distance between the wells and the stagnation point is the downgradient extent of the cone of depression due to pumping of the well. The distance to the stagnation point is determined from the following equation from Fetter (1994):

$$X_0 = \frac{Q}{2\pi Kbi}$$

Where X_0: *distance to stagnation point*
Q: *pumping rate* (ft^3/day)
K: *hydraulic conductivity* (ft/day)
b: *aquifer initial thickness* (ft)
i: *hydraulic gradient* $(unitless)$

$Q = 20\ gpm\ or\ 3{,}850\ ft^3\ per\ day$
$K = 100\ ft\ per\ day$
$b = 50\ feet$
$i = 6\ feet\ per\ mile / 5{,}280\ ft/mile = 0.0014$
$X_0 = 3{,}850/44.0 = 87.5\ feet$

A more permeable sand, with a greater hydraulic conductivity, or a steeper hydraulic gradient, would result in a lower value for this distance. To be conservative a value of 100 feet is used for X_0.

Please call me if you have any questions.

Sincerely yours,

Kenneth D. Schmidt

KDS/cl