

Comments and suggestions concerning Stetson Engineers draft GSP documents provided to the GA TAC August 12, 2019. These documents include 1) “Estimated Shallow Well Impact Analysis of GA Model Runs 3, 4, 5, 6.1 and 6.2” and 2) IWV GSP draft Appendix “Total Dissolved Solids Database”

prepared by Don Decker, member of the TAC representing IWV Domestic Well Owners, August 18, 2019

1) Estimated Shallow Well Impact Analysis of GA Model Runs 3, 4, 5, 6.1 and 6.2.

a) This impact analysis follows previous Stetson Engineers (SE) work already reported for model runs 3, 4, and 5. All of these analyses are based on an approach suggested by this author in a Report to SE dated 11/2/2018. The total number of shallow domestic wells in the IWV Basin is estimated from existing inventories including the Kern County Well permit database. Since the earlier impact analysis runs, additional domestic shallow wells have been added to the original well inventory from data provided from Eastern Kern County Resource Conservation District files. The SE report estimates that there are 872 shallow wells in the IWV Basin. This is consistent with estimates of the number of rural parcels and rural annual domestic water production given by Todd Engineers in their January 2014 Report prepared for Kern County.

b) The new shallow well impact analyses for runs 6.1 and 6.2 are the primary interest here. The available Kern County Water Agency 5 year water level change data (2010 to 2015) was a key input as in the earlier impact analyses. The previous shallow well impact analysis results for model runs 3, 4 and 5 was included in the present discussion so that convenient comparison could be made with these earlier results.

c) This author’s report dated 8/5/2019 provides comments on pumping scenarios 6.1 and 6.2. These scenarios are based largely on scenario 4 which has been judged by some to be closest to providing an acceptable scenario on which the GSP could be based. However, as this author has commented, none of the scenarios to date including 6.1 and 6.2 are based on proper (explicit) recognition of the water rights of many of the major pumpers. What is missing at a minimum, is an outline of the GSP features that these pumping scenarios would be functioning under. Specific water buyouts and at least an estimated budget breakdown would go a long way towards reducing the extreme concerns that these scenarios raise for many pumpers.

d) However, this TAC member report is addressing shallow well impacts resulting from these scenarios—not the scenarios themselves. As expected, scenarios 6.1 and 6.2 have estimated cumulative impacts that are very similar to scenario 4 except for the out-years 2040 and 2070. For those future years, the cumulative impact rate is small and similar to scenario 5, the “abrupt halt of pumping”. Of course, from the domestic well community viewpoint, this low rate of predicted impact for 6.1 and 6.2 is a very welcome change from the ongoing costly repair years.

e) Although the apparent future differences in groundwater levels Basin wide is slight between scenarios 6.1 and 6.2, the 2500 ac-ft/yr of additional recharge water assumed in 6.1 cannot be simply ignored as unimportant. As can be easily seen from the colored maps that summarize groundwater level changes for each of the scenarios, the very large area of the NE remains in a declining water level condition in all scenarios out to 2070. If the flow model were to be carried further into the future the effect of the “extra” recharge water in 6.1 would be apparent. It is important to carry these models further into the future.

Sierra front recharge flow will only be apparent Basin wide in a longer time period. Although the dust issues connected with this drying out may be addressed in a separate project, groundwater will likely play a major role in its solution just as at Owens Lake. As alarming as this observation is, it cannot be ignored without serious future consequence. Even today, strong winds from the west or north pick up a characteristic very white dust from the greater playa. This is a phenomenon of recent years.

2) IWV GSP draft Appendix “Total Dissolved Solids Database”

a) This draft Appendix is nicely written and complete for the purpose. The water quality database is clearly just as important as the water level database as an underpinning of the GSP. We are all aware of the deteriorating water quality issues in some locations in the IWV Basin. The GSP will of necessity have a substantial section on water quality and sustainability. The Appendix database under discussion will be an essential reference.

Extensive water quality studies have been done on groundwater in the IWV basin going back to Charles Lee’s time. For any database to be useful, the data itself must be high quality. SE has clearly spent a very substantial effort in carefully examining the existing data sources including methods and consistency across the many reports involved. Accompanying this examination are notes to sort the data into cross checked and verified confidence levels. As noted in the SE appendix introduction, this is not a static database and the accompanying notes make it possible to easily identify data components for further future examination. This careful effort will undoubtedly pay dividends now and into the future.

b) The multitude of wells from which the documented water samples were taken are nicely distributed across the Basin with only a few weak areas. The most serious omission is the area west of Inyokern- extending both north and south of Hwy 178. Another apparent omission is the relatively weak data set of water quality from the watershed springs. However, the spring flows are small except for a few examples in wet years and most do not contribute significantly to the present day recharge. The relatively weak water level and quality data representation in the El Paso sub basin should not be a problem for now. If a groundwater recharge project were to be developed there in the future, additional water level and quality data would undoubtedly be brought forth.