

February 3, 2015

County Response to Comments to Snyder Geologic letter dated January 13, 2014

Jacumba Community Services District

Comment 1: For the 50% reduction in storage calculation, the percent cover of several soil types has changed over the study area between the December 2013 and September 2014 GRIR. Dudek must explain why were these numbers changed and how this affects the amount of water in storage.

Response 1: The percent cover of the soil types changed as an additional 2,385 acres (19.5%) of the contributing watershed located in Mexico that previously was not evaluated was included in the storage calculation. As an additional 2,385 acres was evaluated the contributing watershed storage increased from an estimated 5,495 acre-feet to 6,835 acre-feet.

Comment 2: Dudek needs to explain how an apparent 24% increase in groundwater in storage (from 5,495 Acre-Feet [AF] to 6,835 AF) occurred for the basin between the December 2013 and September 2014 reports.

Response 2: The December 2013 Report did not include the storage of the Boundary Creek groundwater basin for the area located in Mexico which is included in the September 2014 report.

Comment 3: For existing demand on JCSD Well 4, the existing potable demand has been reduced from 7,323 AF over 30 years in the December 2013 report, down to 3,919 AF in the September 2014 report (potable demand of Well 4 is reduced from 200 acre-feet per year (AFY) to 85 AFY). That is a reduction of existing demand, not projected future conditions. No explanation is given in the text for the reduction. Dudek needs to explain how and why this existing demand has been reduced.

Response 3: The existing potable demand was reduced based on actual water demand of the Jacumba Community Services, which for 2013 and 2014 averaged 82.7 acre-feet per year (85 acre-feet per year was used in the existing conditions analysis). In the December 2013 report, the Jacumba Community Services District demand was overestimated at 200 acre-feet per year.

Comment 4: In the December 2013 report, the 50% reduction in storage calculation for Scenario 3b results in a reduction in storage down to 52%, just above the threshold for a determination of significance. This did not include water demand for Jacumba Solar at 59 AF. In the September 2014 report, with Jacumba Solar added in to the calculation (but existing demand reduced from 200 AFY to 85 AFY), the resulting reduction in storage level is 78%. Dudek needs to explain how the existing demand can be different between December 2013 and September 2014 and how the change in groundwater in storage can rise from 52% to 78%.

Response 4: The results are different due to the increased storage (24% increase) of the Boundary Creek groundwater basin for the area located in Mexico and the reduced existing water demands based on actual Jacumba Community Services District production records from 2013-2014.

Comment 5: The amount of groundwater in storage as reflected in the data sheets (Appendix B far right column) in Appendix B does not match the graphs presented in Section 3.13 of the September 2014 report. Dudek needs to explain how the data were derived for those graphs in Section 3.13.

Response 5: Appendix B, far right column is not the groundwater in storage results. There is an error in the output path file of the September 2014 Draft Report. The digital results which were presented in the report are correct and available for review in consultation with Dudek.

Comment 6: In several years the amount of groundwater in storage is shown as zero. The reason for this needs to be explained by Dudek.

Response 6: See Response 5.

Comment 7: The data in column "P-(PET+RO)" of Appendix B in the 2013 report are in many cases, orders of magnitude different than the same output column of the report in September 2014. Dudek needs to explain this.

Response 7: See Response 5.

Comment 8: Unless Dudek can satisfactorily explain why several key values were changed between the December 2013 and September 2014 report, Dudek needs to recalculate the % reduction in storage using the original maximum storage value of 5,495 AF, existing demand of 200 AFY (not the revised 85 AFY), and include the demand for Jacumba Solar.

Response 8: As discussed in Response 2, the storage value has changed due to analyzing additional contributing area of the Boundary Creek groundwater basin located in Mexico. As discussed in Response 3, the existing potable demand has been revised based on actual data for the Jacumba Community Services District, which for 2013 and 2014 averaged 82.7 acre-feet per year (85 acre-feet per year was used in the existing conditions analysis).

Well #4 Production Cap

Comment 9: In the December 2013 report, Dudek indicated that the historical production cap on JCSD Well #6 has been 80,000 gallons per day (gpd). In the September 2014 report Dudek claimed that the historical production cap of Well #4 has been 100,000 gpd. How can there have been an increase of 20,000 gpd historical cap

on Well #6 between December 2013 and September 2014? The cap can't be 80,000 gpd and 100,000 gpd at the same time. Dudek needs to explain why there is a change in the historical production cap.

Response 9: The production cap on Well #6 is set at the discretion of the Jacumba Community Services District. The Jacumba Community Services District is a Water Service Agency regulated by the California Department of Public Health's (CDPH) Drinking Water Program (DWP). At this time, the production cap on Well #6 is 100,000 gpd.

Tierra Del Sol Groundwater Resource Investigation

Well Interference Calculations and Request for Maximum Flow Rate Restriction (TDS)

Comment 10: An important item to note with regard to the transmissivity used by Dudek for the well interference calculations at Tierra Del Sol (TDS), is that of the four transmissivities calculated from the aquifer test, Dudek used the second highest, which is 5% higher than the average value. A more conservative approach would be to use either the average value, or the lowest value.

Response 10: Dudek used the transmissivity whose residual statistics indicated the best fit of the solution methods used to calculate transmissivity. The transmissivity estimated for Well B that best fit the data is 31.53 feet²/day or 235.84 gallons per day/foot (gpd/ft) using the Theis Recovery solution with a sum of squares of 12.07. Use of the best fit transmissivity is standard practice and acceptable for purposes of well interference calculations.

Comment 11: Given the transmissivity value used however, the calculations of drawdown for the 90-day construction period at a flow rate of 18 gpm for wells RM-1 and RM-2 is not 19.9 feet, but rather exceeds the 20-foot threshold at 20.46 feet. This result was calculated using the same numbers provided by Dudek in their GRIR. The reason for the discrepancy is unknown, but it is our opinion that the 20.45 foot result is correct. At 17 gpm, the threshold is not exceeded with a result of 19.32. Based on the inaccuracy of flow meters, a flow rate of 17 gpm, without exceedance, is infeasible.

Response 11: There is a rounding issue and the correct value is 17.5 gallons per minute. The drawdown calculation was correctly calculated at 19.9 feet. Flow meters used in the water industry have a reported accuracy of plus or minus 0.5 percent. The accuracy of the flow meter is considered sufficiently accurate for compliance purposes.

Comment 12: The drawdown calculation for the one year timeframe is similarly flawed at RM-1 and RM-2. The drawdown after one year is not 19.9 feet at 11.2 gpm, but rather 20.35 feet. At 11 gpm, the 20-foot threshold is not exceeded.

Response 12: The correct value is 11.0 gallons per minute. This equates to 17.74 acre-feet per year or approximately 18 acre-feet per year (rounded). Minor discrepancy appears to be in rounding to 18 acre-feet and back calculating to 11.2 gallons per minute.

Comment 13: While a total extracted volume cap has been placed on Well B for the peak construction period, a maximum flow rate has not been placed on the well. Based on our analysis, if the well is used at the maximum flow rate of 61 gpm, the 20-foot interference criterion is exceeded after only 17 days; at 90 days, the drawdown is 69 feet. At 30 gpm, the 20-foot criterion is exceeded after 35 days; at 90 days the drawdown is 34 feet. At 20 gpm, the criterion is exceeded after 68 days; at 90 days the drawdown is 22.7 feet.

Response 13: The flow rate cap of 7 acre-feet over the first 90 day and 18 acre-feet over the 1 year construction period in combination with the water level thresholds is sufficient to protect off-site wells. If water level response is measured in the off-site wells during or in response to pumping, action will be taken to curtail or cease production.

Comment 14: Based on the factors above, we request that the County impose a flow rate cap of 15 gpm on Well B during the 90-day construction period, in addition to a commensurate 6 AF total extraction cap. Similarly, we request that a flow rate cap of 10 gpm be placed on Well B for the nine month time period following peak construction.

Response 14: The production cap of 7 acre-feet over the first 90 days and 18 acre-feet over the 1 year construction period in combination with the water level thresholds is sufficient to protect off-site wells. If water level response is measured in the off-site wells during or in response to pumping of Well B, action will be taken to curtail or cease production.

Comment 15: All wells tested at Rough Acres Ranch should have flow rate caps placed on them. For Well 6a the flow rate cap should be 49 gpm, for Well 6b the flow rate cap should be 39 gpm, and for Well 8 the flow rate cap should be 27 gpm. These are the rates at which the wells were tested and the conclusions drawn.

Response 15: Production caps in combination with water level monitoring is considered appropriate. If water level thresholds are exceeded in established monitored wells, action will be taken to curtail or cease production. Thus, flow caps are not recommended to be placed on the wells.

Well Testing

Comment 16: The depth of Well B at TDS is 1,311 feet. No other wells in the vicinity are as deep; the deepest well is 1,000 feet according to the GRIR. The average depth of wells in the area based on the GRIR is 353 feet and the median depth is 299 feet. We are concerned that a deep well, while perhaps not reducing groundwater in storage to less than 50%, could reduce the overall groundwater levels below the depths of

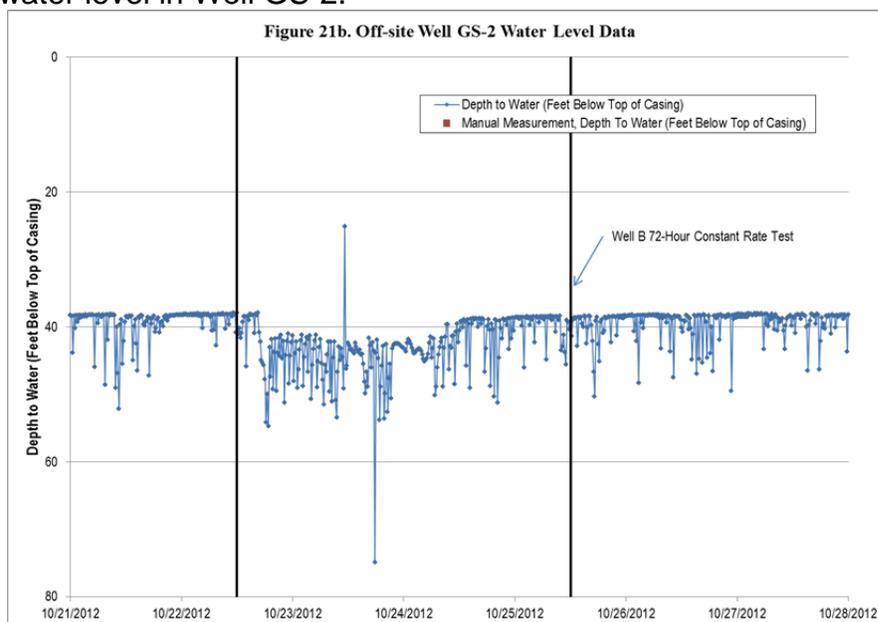
shallower wells. Per the GRIR, water-bearing fractures in Well B we encountered at depths greater than nearly every well in the area. If these fractures are connected to fractures used by shallower wells, groundwater levels could be drawn down below the bottom of residential wells.

Response 16: If the fractures encountered by Well B are connected to fractures used by the shallower off-site wells, a water level response (i.e. drawdown in water level) in the shallow wells will occur because of Well B pumping. Thus, an existing monitoring well network has been established to document baseline water levels and monitor water level changes as a result of pumping Well B.

Drawdown of Nearby Wells during Testing

Comment 16: Although Dudek claims drawdown was not observed in any off-site wells during testing of Well B, drawdown at GS-2 is apparent in the graph (Figure 21) during the test, but the supporting datalogger readings are not provided in the report, only the 3 manual measurements. Data from the data loggers for GS-2 should be provided.

Response 16: Dudek claims that drawdown does not appear to result in any of the off-site wells as a result of pumping Well B. It appears Well GS-2 was being pumped by the homeowner during the 72-hour constant rate test (see figure 21 of TDS GRIR). Well GS-2 pump cycles on and off on a pressure switch in order to sustain pressure in an adjacent pressure tank. The water level recovered in Well GS-2 prior to the Well B 72-hour test ending suggests that this is water level recovery from pumping Well GS-2 (see figure 21b below, which is figure 21 at large scale) and not the result of pumping Well B. Well GS-2 is reported to be 366 feet deep with a pump depth of 320 feet and a maximum reported production capacity of 65 gpm. Additionally, adjacent off-site wells were pumping during the Well B 72 hour constant rate test including GR-1 (see Figure 19 in TDS GRIR) and other unmonitored residential wells, which likely influence the water level in Well GS-2.



General Comments on all GRIRs

50 % Reduction in Storage

Comment 17: For the 50% reduction in storage calculations for each GRIR, Dudek assumed a groundwater withdrawal rate for residential properties of 0.5 AFY, equivalent to 0.31 gallons per minute (gpm) or 446 gpd. While this may be water use for a typical American family, we feel this extraction rate for residents of the Project area is grossly underestimated for some of the land owners, and at the very least places an undue burden and restriction on residents. The size of the properties for many residents in the area can exceed 10 acres and some own 100 acres or more. In addition, many residents have livestock or landscaping which both place an additional demand on the water resources. Residential properties have the right to use up to 20,000 gpd without being considered a water intensive use, i.e., without special permission from the County, and this is not factored into the storage calculations. As a conservative approach, the 50% reduction in storage analysis should reflect true "full General Plan build out" by considering the maximum permitted withdrawal by residences, or 22.4 AFY per property. The 50% reduction in storage calculations should be reanalyzed using a 22.4 AFY demand for residential lots.

Response 17: Offsite residential wells have no caps on their pumping. 22.4 acre-feet per year per property is neither representative of the existing water demands nor representative of "full General Plan build out."

The following excerpt from Page 9 and 10 of the County of San Diego General Plan Update Groundwater Study dated April 2010 provides an explanation as to the use of 0.5 acre-feet per year for residential uses:

For purposes of this study, it is estimated that an average residence has a consumptive use of 0.5 acre-feet of water per year per single-family residence (consumptive use is the amount of water lost from the groundwater resource due to human use, including evaporation and evapotranspiration losses associated with human use). The County Groundwater Ordinance (Ordinance No. 9826, N.S., Section 67.703) requires that all groundwater investigations subject to the Ordinance use this value for residential uses. This number was originally established in the Groundwater Ordinance in 1991 based on findings from a USGS groundwater study in Lee Valley (Kaehler and Hsieh, 1991). From 1983 to 1988, groundwater pumping for indoor use and irrigation from four households in Lee Valley were recorded and averaged 0.52 acre-feet per year. When considering septic system returns to the aquifer from water used indoors, the consumptive use value was considerably less than 0.52 acre-feet per year. Hence, the value of 0.5 acre-feet per year for consumptive loss was conservative.

As part of this study, additional information was obtained which substantiates the residential consumptive use value of 0.5 acre-feet per year per residence. The CWA member agencies, which serve water to approximately 97% of County residents estimate that the average household has a water demand of approximately 0.5 acre-feet per year (CWA, 2006). Additionally, residential water uses recorded from over 1,000 residences served by three groundwater-dependent water service agencies was evaluated. The average groundwater demand per service connection during higher than average production years (drought years) was 0.48 acre-feet. Below, is a summary of the information obtained from each water service agency.

1) Descanso Community Water District: As of 2008, the water district served approximately 310 residential service connections in the community of Descanso. Water production records were reviewed from 1999 to 2004 during an extended drought period. Using the peak annual production value that occurred in 2002, the water district's gross water demand per water connection averaged 0.36 acre-feet during that high demand year.

2) Los Tules Mutual Water Company: As of 2004, the water company served approximately 91 single-family residences in the community of Warner Springs. Water production records were reviewed for the year 2004, which the last year of an extended drought. The gross water demand per residence averaged 0.63 acre-feet. As summarized by the water company, the full-time residences averaged 0.87 acre-feet, and the part-time residences averaged 0.32 acre-feet.

3) Pine Valley Mutual Water Company: As of 2008, the water company served approximately 695 service connections (675 were residential connections) in the community of Pine Valley. Water production records were reviewed from 1999 through 2004 during an extended drought period. Using the peak annual production value that occurred in 2002, the water company's gross water demand per water connection averaged 0.45 acre-feet during that high demand year.

Well Monitoring

Comment 18: Due to the heterogeneous nature of hydrogeologic properties of fractured rock, wells within close proximity of the pumping well may not experience effect due to pumping if they do not penetrate the same fracture system as the pumping well, while wells at much greater distance from the pumping wells may be affected if the wells intersect the same fracture network as the pumping well.

The County should require Soitec to provide monitoring, in the form of a downhole datalogger for any and all residences that request monitoring, within a two-mile radius of the pumping wells for the duration of the Project.

Response 18: The project is monitoring residential wells that agree to be monitored within a one-mile radius, which is a reasonable radius based on analysis conducted.

Datalogger monitoring and reporting

Comment 19: Water levels in residential wells should be monitored daily for the first week of extraction at each location. Reporting of groundwater extraction and water levels should be reported weekly for all extraction areas and any exceedances should be reported within 3 working days.

The County should conduct routine, unannounced, random inspections of the groundwater extraction activities at all of the locations during peak construction and for the first year of the Project. This will serve to check the accuracy and reliability of the imposed groundwater flow rate restrictions recommended above, as well as the accuracy of the monitoring with regard to drawdown of the monitoring wells and adherence to the shut down criteria. We also request that a consultant selected by the BPG also be permitted to conduct similar random, unannounced inspections of the same with the cost to be borne by Soitec.

Response 19: As per the Groundwater Monitoring and Mitigation Plans for Tierra del Sol and Rugged, during peak construction water demand transducer data will be downloaded weekly at all monitored wells.

For TDS, daily monitoring rather than weekly monitoring is not warranted as the 72 hour constant rate test has already indicated no water level response in the off-site wells from on-site pumping. For Rugged, no off-site well monitoring occurred. However, daily monitoring rather than weekly monitoring is not warranted as analysis from the 72 hour constant rate tests indicate there should be a minimal response during the first week of pumping.

Planning Commission Hearing

The following are requested changes to the conditions imposed on the project.

Tierra Del Sol Conditions

Comment 20: Page 1-138

26.b. Any residential well within a two-mile radius should be able to have well monitoring provided by Soitec at no cost to the well owner.

Response 20: The project is monitoring residential wells that agree to be monitored within a one-mile radius, which is a reasonable radius based on analysis conducted.

Comment 21: The baseline water levels should be made public and input should be solicited from the public.

Response 21: The baseline water levels will be set by the County Groundwater Geologist and applicant's hydrogeologist, who both have registrations in the State of California as Professional Geologists and are well qualified to set baseline water levels.

Comment 22: Page 1-148 42.a. A flow rate cap of 15 gpm should be imposed on Well B. (This rate is expected to result in less than 20 feet of off-site drawdown per the Dudek analysis.) Groundwater flow rates for Well B should be recorded daily.

Response 22: During peak construction, there is a groundwater production cap of 7 acre-feet during the first 90 days of construction, and no more than 18 acre-feet total for the one year construction period. Additionally, water level thresholds have been placed on individual wells that will be monitored with pressure transducers that collect water level data several times each day. Pressure transducer data will be downloaded on a weekly basis during peak construction and if any threshold is exceeded, groundwater pumping from the associated well would be required to cease immediately and the County notified within 24 hours.

Comment 23: 42.e. Any residential well within a two-mile radius should be able to have well monitoring provided by Soitec at no cost to the property owner. Water levels in residential wells should be monitored daily for the first week of extraction at each location.

Response 23: The project is monitoring residential wells that agree to be monitored within a one-mile radius, which is a reasonable radius based on analysis conducted.

Comment 24: 42.a. Documentation: Data should be provided to the County Groundwater Geologist weekly.

Response 24: Data shall be provided to the County Groundwater Geologist bi-weekly during peak construction.

Comment 25: 42.b. Documentation: Should be 3 working day notification.

Response 25: Notification of exceeding thresholds was changed at the Planning Commission hearing to be a 1 working day notification.

Comment 26: Page 1-149 42.c. Documentation: Should be 3 working day notification.

Response 26: Notification of exceeding thresholds was changed at the Planning Commission hearing to be a 1 working day notification.

Comment 27: 43.a. Groundwater production shall be limited to 80,000 gpd.

Response 27: The production cap is set at the discretion of the Jacumba Community Services District. The Jacumba Community Services District is a Water Service Agency

regulated by the California Department of Public Health's (CDPH) Drinking Water Program (DWP). At this time, the production cap is 100,000 gpd.

Comment 28: Page 1-150 43.i. Water level thresholds and groundwater production limits may not be altered.

Response 28: The language within the conditions that is going forward to the Board of Supervisors does not allow for water level thresholds or groundwater production limits to be altered.

Comment 29: 43. Documentation: Groundwater production and levels must be reported on a weekly basis. Groundwater and level threshold exceedances must be reported within 3 working days.

Response 29: For Jacumba, reporting will be monthly through the construction period. There is already data available from past pumping from the JCSD well #6 that indicates weekly reporting is not necessary. The ECO Substation project utilized approximately 47 acre-feet of water from JCSD well#6 (March 2013 through July 2014). Total drawdown in the pumping well was 1.3 feet.

Rugged Conditions

Comment 30: Page 1-223, 22. The Walker Residence Well and any residential well within a two mile radius should be able to have well monitoring provided by Soitec at no cost to the property owner.

Response 30: The Walker residence well has been added to the monitoring well network. The project is monitoring residential wells that agree to be monitored within a one-mile radius, which is a reasonable radius based on analysis conducted.

Comment 31: Page 1-232, 37.a. Well 6a flow rate should be capped at 49 gpm, as tested. Well 6b flow rate should be capped at 39 gpm, as tested. Flow rates for each well should be recorded daily.

Response 31: During peak construction, there is a groundwater production cap of 32.7 acre-feet during construction and potentially an additional 10 acre-feet based on Tule Wind Farm pumping. Additionally, water level thresholds have been placed on individual wells that will be monitored with pressure transducers that collect water level data several times each day. Pressure transducer data will be downloaded on a weekly basis during peak construction and if any threshold is exceeded, groundwater pumping from the associated pumping well would be required to cease immediately and the County notified within 24 hours. Reporting to the County will occur bi-weekly during peak construction and monthly for the remainder of the construction period. Flow rates shall be recorded daily during peak construction.

Comment 32: 37.b. Well 8 flow rate should be capped at 39 gpm as tested. Flow rates for Well 8 should be recorded daily.

Response 32: During peak construction, there is a groundwater production cap of 12 acre-feet during construction and potentially an additional 10 acre-feet based on Tule Wind Farm pumping. Additionally, water level thresholds have been placed on individual wells that will be monitored with pressure transducers that collect water level data several times each day. Pressure transducer data will be downloaded on a weekly basis during peak construction and if any threshold is exceeded, groundwater pumping from the associated pumping well would be required to cease immediately and the County notified within 24 hours. Reporting to the County will occur bi-weekly during peak construction and monthly for the remainder of the construction period. Flow rates shall be recorded daily during peak construction.

Comment 33: 37.d. Walker Residence Well should be subject to the same 10 foot drawdown criteria.

Response 33: The Walker well is subject to the same 10-foot drawdown criterion.

Comment 34: Page 1-233, 37.h.3. Walker Residence Well and any residential well within a two mile radius should be able to have well monitoring provided by Soitec at no cost to the property owner. Water levels in residential wells should be monitored daily for the first week of extraction at each location.

Response 34: The Walker residence well has been added to the monitoring well network. The project is monitoring residential wells that agree to be monitored within a one-mile radius, which is a reasonable radius based on analysis conducted.

Comment 35: Page 1-234, 37.a. Documentation: Groundwater production data and water level data should be reported to the Groundwater Geologist on a weekly basis.

Response 35: Groundwater production data and water level data shall be reported to the Groundwater Geologist on a bi-weekly basis.

Comment 36: 38.b. Documentation: Exceedances should be reported within 3 working days.

37.c. Documentation: Exceedances should be reported within 3 working days.

38.a. Production should be limited to 80,000 gpd

Page 1-236, 38. Documentation: Groundwater production and water levels should be reported weekly during peak construction (first 90 days). Exceedances should be reported within 3 working days.

Response 36: See responses 27 and 29.

Comment 37: Page 1-237, 39. Documentation: Groundwater production and water levels should be reported weekly during peak construction (first 90 days). Exceedances should be reported within 3 working days.

Response 37: Reporting shall be on a monthly basis. Past records indicate the amount of drawdown anticipated from PVMWC Well 5. Exceedances will be reported within 1 working day.