

Hingtgen, Robert J

From: Scott Snyder - Snyder Geologic <scott@snydergeologic.com>
Sent: Wednesday, January 14, 2015 4:16 PM
To: Gungle, Ashley; Fogg, Mindy; Hingtgen, Robert J; Fitzpatrick, Lisa; Bennett, Jim; Jacob, Dianne; Wilson, Adam
Subject: Public input for Soitec FEIR
Attachments: Comments for Planning Commission.pdf

Good afternoon,

Please accept these comments with regard to groundwater issues for the Soitec Solar Project FEIR. I will be at the public hearing on Friday morning to present this as well.

Regards,

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January 13, 2014

County of San Diego Planning Commission/Board of Supervisors
County of San Diego
Planning & Development Services
5510 Overland Avenue, Suite 110
San Diego, CA 92123

Subject: Soitec Solar Final Environmental Impact Report Comments

Dear Planning Commission/Board of Supervisors,

Scott Snyder, Principal Hydrogeologist of Snyder Geologic, was contracted by the non-profit organization Backcountry Against Dumps to provide an independent, technical review of relevant groundwater portions of the Soitec Solar Final Environmental Impact Report (FEIR) for the Rugged and Tierra Del Sol Solar Farm Project (Project). Scott Snyder is a California Professional Geologist and Certified Hydrogeologist with 20 years of experience in hydrogeology, 14 of which have been in San Diego County.

We have reviewed the following documents, or portions thereof, with regard to the Project FEIR:

- Section 1.0 Project Description
- Section 3.1.5 Hydrology and Water Quality
- Section 3.1.9 Utilities
- Chapter 9.0 Response to Comments
- Appendix 3.1.5-5 Final Groundwater Resources Investigation Report, Tierra Del Sol Solar Farm Project (Dated November 2013)
- Appendix 3.1.5-5 Final Groundwater Resources Investigation Report, Rugged Solar Farm Project (Dated November 2013)
- Appendix 3.1.5-5 Final Groundwater Resources Investigation Report, Rugged Solar Farm Project (Dated December 2013)
- Appendix 3.1.5-5 Final Groundwater Resources Investigation Report, Pine Valley Mutual Water Company (Dated December 2013)
- Appendix 3.1.5-5 Final Groundwater Resources Investigation Report, Jacumba Community Services District (Dated December 2013)
- Appendix 3.1.5-5 DRAFT Groundwater Resources Investigation Report, Jacumba Community Services District (Dated September 2014)
- Final Groundwater Mitigation and Monitoring Plan, Tierra Del Sol Solar Farm Project (Dated November 2013)
- Final Groundwater Mitigation and Monitoring Plan, Rugged Solar Farm Project (Dated November 2013)

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 - Final Groundwater Mitigation and Monitoring Plan, Jacumba Community Services District (Dated December 2013)
 - WORKING DRAFT Groundwater Mitigation and Monitoring Plan, Jacumba Community Services District (Dated December 2013)
 - Appendix 9.0-2
 - Appendix 9.0-6
 - County of San Diego Planning Commission Hearing Report (dated January 16, 2015)
 - Presentation to Boulevard Planning Group by the County of San Diego, dated January 8, 2015
 - County of San Diego Groundwater Ordinance
 - County of San Diego Guidelines for Determining Significance and Report Format and Content Requirements - Groundwater Resources

These comments have been prepared quickly due to the short time frame between disclosure of updated reports by Dudek, provided to Snyder Geologic on January 9, 2015 by the County, since comments are due by January 14, 2015. Therefore, these comments may be incomplete. The Jacumba Groundwater Resource Investigation Report (GRIR) dated September 2014 contained significant changes. The overall water demand was also changed significantly.

The following comments to the documents' contents and requested changes to conditions are provided. Requested action items are underlined for clarity.

JCSD GRIR

50% reduction in storage calculations

- 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.
- 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.
- 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.

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

Well #4 Production Cap

- In the December 2013 report, Dudek indicated that the historical production cap on JCSD Well #4 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 #4 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.

Tierra Del Sol GRIR

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

- 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.
- 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.

- 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.
- 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.
- 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.
- 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.

Well Testing

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.

Drawdown of Nearby Wells during Testing

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.

General Comments on all GRIRs

50% Reduction in Storage Calculations

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.

Well Monitoring

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.

Datalogger monitoring and reporting

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.

Planning Commission Hearing Report

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

Tierra Del Sol Conditions

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.

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

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.

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.

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

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

Page 1-149

42.c. Documentation: Should be 3 working day notification.

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

Page 1-150

43.i. Water level thresholds and groundwater production limits may not be altered.

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.

Rugged Conditions

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.

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.

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

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

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.

Page 1-234

37.a. Documentation: Groundwater production data and water level data should be reported to the Groundwater Geologist on a weekly basis.

37.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.

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.

Page 1-249

58.a. Groundwater production rates in each well should be limited to Well 6a-49 gpm; Well 6b-39 gpm; Well 8-27 gpm.

58.b. Add Walker Residence Well

58.f. Add Walker Residence Well

We feel these changes will provide substantially more protection for the groundwater dependent communities in the area of the Project. Some of the changes will also further clarify the use of groundwater during the project.

Sincerely,
SNYDER GEOLOGIC



Scott Snyder PG 7356, CHG 748
Principal Hydrogeologist