

From: [Megan Lawson](#)
To: [Gungle, Ashley](#); [Bennett, Jim](#)
Cc: [Patrick BROWN \(Patrick.BROWN@soitec.com\)](#) ([Patrick.BROWN@soitec.com](#)); [Trey Driscoll](#); [Jill Weinberger](#)
Subject: Response to Comments on Rugged GW Report
Date: Tuesday, October 15, 2013 11:38:52 AM
Attachments: [Response to DPLU September 2013 Comments.pdf](#)
[Rugged GW Report REVISED OCT1 2013.docx](#)

Ashley & Jim,

Please see responses to the comments on the Rugged GW Report (sent Sept 23rd) and the revised GW Report attached.

Hopefully we can set up a meeting to discuss these responses and revisions, comments on the Hydrology EIR section, and the Jacumba and PVMWC groundwater investigations next week once Trey has returned (after the 22nd).

We will be sending the PVMWC groundwater investigation later today.

Thanks,
Megan

Megan Lawson, LEED AP ND

760.479.4243

From: Jill Weinberger
Sent: Monday, October 14, 2013 5:47 PM
To: Megan Lawson
Cc: Trey Driscoll
Subject: Response to Comments

Hi Megan,

Attached are the response to comments memo, and the draft Rugged report with track changes for the County to review. Could you please forward these documents to the appropriate list of people?

Thanks,
Jill

JILL WEINBERGER, Ph.D., P.G.
ASSOCIATE GEOLOGIST

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October 14, 2013

7122

James Bennett
County of San Diego
Department of Planning and Development Services
5510 Overland Avenue, Suite 110
San Diego, California, 92123

**Re: Response to Comments for:
Draft Groundwater Resources Investigation Report Rugged Solar Farm
Project, Major Use Permit 3300-12-007, Boulevard, San Diego County,
California**

Dear Mr. Bennett:

The purpose of this letter is to respond to the County of San Diego Planning and Development Services (PDS) comments dated September 23, 2013 regarding the DRAFT Groundwater Resources Investigation Report, Rugged Solar Farm Project, Major Use Permit 3300-12-007, Boulevard, San Diego County, California. Dudek responses are presented after each comment.

Specific Comments

Groundwater Comment #30: *Please make revisions to Tables 3-3 through 3-8 in accordance with strikeout-underline comments provided within the draft Rugged Groundwater Resources Investigation Report dated September 12, 2013. There are a number of discrepancies that will likely result in changes in estimated water demand. Additionally, the water demand in the tables in several cases do not match up the water demand analyzed within the Groundwater Recharge Spreadsheet which needs to be addressed.*

Response to Comment: Tables 3-3 through 3-8 have been revised in accordance with the comments provided. The tables in the report now match the groundwater demand analyzed in the Groundwater Recharge Spreadsheets.

Groundwater Comment #31: *Unless changes are made to precipitation that are justified, this is a major project issue. Your project along with other projects are intending on pumping at 39 acre-feet over the long-term (above long-term average groundwater recharge calculated). As noted in the water balance analysis this remains above the 50% criterion but it results in a decline in groundwater over the period analyzed indicative of groundwater overdraft conditions developing. Section 4.2 Groundwater Overdraft Conditions of the County Guidelines for Determining Significance are intended to be employed in such cases. Mitigation would include curtailment of groundwater use to a level that remains sustainable. Alternatively, if it can be proven that the precipitation is too conservative and a proper analysis is performed to develop an appropriate rainfall amount for this area based on other precipitation stations, this may be a valid approach if this truly is the case. In review of the County rainfall map, Campo is roughly in the same rainfall belt as the Tierra Del Sol site but rainfall appears less at the Rough Acres site (12 to 15 inches on average). Please call to discuss this issue.*

Response to Comment: The stated volume of 31 acre-feet per year (afy) of recharge within the 0.5 mile study area is the average value over the 30 year period using the average annual rainfall of 11.3 inches from the Tierra del Sol rain gauge. Both the Tierra del Sol and Campo rain gauges are located within the 15 to 18 inch rainfall zone on the County of San Diego Groundwater limitations map. Contrasting with the Tierra del Sol gauge, precipitation at the Campo rain gauge averages 15.4 inches per year. Using the Campo rain gauge results in average annual recharge of 78 afy and does not result in a long term drawdown of groundwater in storage.

The closest rain-gauge to the project site is the Boulevard rain gauge. This gauge did not have a 30 year continuous record of rainfall for use in this analysis, or it would have been used instead of the Tierra del Sol record. The average annual precipitation at Boulevard over the periods from 1931 through 1967 and 1969 through 1994 is 15.0 inches. This suggests that the Tierra del Sol rain gauge underestimates the precipitation by as much as 25%. The discrepancy between all other local rain gauges and the Tierra del Sol gauge was discussed with both Jim Bennett and Rand Allan before the report was submitted. Both agreed that the Tierra del Sol gauge underestimates precipitation, and therefore recharge.

The majority of the Rugged site is reported to have an average annual rainfall of 14 inches according to the USGS isohyetal rainfall map. Additionally, the entire Rugged site lies within the 12 to 15 inch rainfall zone on the County of San Diego Groundwater Limitations Map. If the Camp rain gauge data are scaled down to 13.5 inches per year, the average value in the rainfall band, the average recharge is 57 afy and there is no long-term drawdown of the groundwater in storage.

In addition to the rainfall analysis above, the County's concern that the groundwater in storage will not be replenished after 30 years of pumping neglects to consider that this analysis is limited to a 0.5 mile radius around the well. Typically, the analysis is conducted for an entire watershed, at which point the assumption that no subsurface flow into the aquifer may be valid. The County altered the analysis for this project because it has a high demand over a short period of time. The County, therefore, requested that the analysis be conducted over only a 0.5 mile radius, primarily to investigate the short-term impacts of groundwater production. Over a 30 year timeframe, however, there will certainly be subsurface recharge to the 0.5 mile radius around the well that is not considered in this arithmetic approach to the water balance.

Finally, the 17.4 acre-feet for the RAR Campground Project included in this analysis has not been approved. As the last project in line, any reduction in long term pumping would be applied to this project first, based on the County's previous water allocations to projects in the area.

Groundwater Comment #34: *The 60 day peak demand pumping scenario from this project was inexplicably removed from the report. Please place it back into the report and evaluate impacts from peak construction demand.*

Response to Comment: The 60 day peak demand pumping scenario has been put back into the report.

Groundwater Comment #35: *This comment is resolved with the exception of the 60 day peak demand pumping scenario being removed from the report as discussed in the previous comment.*

Response to Comment: The 60 day peak demand pumping scenario has been put back into the report.

Groundwater Comment #38: *Jim Bennett, County Groundwater Geologist has reviewed the draft Rugged Groundwater Resources Investigation Report dated September 12, 2013. Strikeout-underline comments have been provided. Please go through each comment and incorporate changes as specified.*

Response to Comment: The individual comments are addressed in the report, with track changes showing where items were changed to meet the County's request. The report will be sent with this memo for County review.

Groundwater Comment #39: *Well Interference Calculations: The well interference calculations likely need to be re-analyzed due to water demand estimates requiring changes per County staff's review of the water demand estimates in the draft September 13, 2013 groundwater investigation report. Water demand for both Wells 6a/6b and Well 8 are likely to change based on strikeout-underline comments provided for Table 3-3 to 3-8. Please carefully review all water demand estimates and revise to be consistent with any revisions made to Table 3-3 to 3-8. Please re-analyze impacts with revised water demand as necessary.*

Response to Comment: Changes to the water demand scenarios were made, where indicated, and the impacts were re-analyzed. The revised results are presented in the attached report.

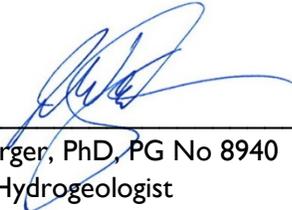
Groundwater Comment #40: *Well Interference Calculations, Guidelines for Determining Significance: The following text shall be included to Section 3.2.1.1: According to the County Groundwater Geologist who was the primary author of the County of San Diego Guidelines, the intent of the above guideline was to cover projects that have continual ongoing water uses which remain static over time which historically has been the case for the vast majority of groundwater dependent projects processed by the County. In recent years, alternative energy projects have been proposing a relatively large amount of water during the construction portion of the project which could potentially cause direct well interference impacts from water demand in these short periods. Therefore, to evaluate potential impacts from short-term pumping of groundwater, the County Groundwater Geologist has requested that in addition to the five year projection of drawdown, that a short-term 60-day drawdown analysis to evaluate the highest rate of pumping for this project and a one year analysis to evaluate construction demand from both the Tule Wind Farm project (Major Use Permit P09-019), the Rough Acres Ranch project (Major Use Permit P12-021) and this project be provided.*

Response to Comment: The above text was added to the report.

If you have any questions or require additional information, please do not hesitate to contact me at (760) 415-1425, or Jill Weinberger, at (760)-479-4116

Sincerely,
DUDEK

Trey Driscoll, PG No. 8511, CHG No. 936
Senior Hydrogeologist



Jill Weinberger, PhD, PG No 8940
Associate Hydrogeologist