



March 15, 2017
Project No. 2015.0171

Mr. Jim Bennett, CHG
County of San Diego
Planning and Development Services
5510 Overland Avenue
San Diego, CA 92123

MONTHLY GROUNDWATER MONITORING REPORT – FEBRUARY 2017
TULE WIND CONSTRUCTION PROJECT
EAST SAN DIEGO COUNTY, CALIFORNIA

On behalf of Avangrid Renewables, LLC (Avangrid), Geo-Logic Associates (GLA) is pleased to provide this letter presenting February 2017 daily water level data and weekly flowmeter readings from project construction-related wells (production wells 6, 6a, and 8, and piezometer PZ-1) on Rough Acres Ranch. In accordance with the requirements established in the County of San Diego Planning and Development Services in the Major Use Permit 3300 09-019, weekly groundwater production data must be recorded from wells 6, 6a and 8, and daily water level data measured in the piezometer (PZ-1) and in wells 6 and 8. This report presents a summary of the collected data obtained in February 2017.

Following initial training by GLA on water level and flowmeter protocols for the Tule Wind construction project, daily water levels and weekly flowmeter readings are being obtained by Carol Brady with LG Equipment. Additionally, wells 6, 8, 8a and PZ-1 are each equipped with a pressure transducer to measure and record water level data, which can be uploaded to corroborate the manual measurements throughout the construction program. Well 6a is a non-community public water supply well, supplying water to Rough Acres Ranch, and a pressure transducer cannot be inserted into this well; collection of water levels in this well is not required.

Weekly Flow Meter Readings. Flowmeter readings at each well are recorded on field forms, provide in Attachment 1. Based on the flow meter readings obtained during the February 2017 period, the following water volumes were pumped, and stored or applied:

February 2017 Water Production Totals

Well	Gallons Pumped	Acre-Feet Pumped
Well 6	574,100	1.76
Well 6a	571400	1.75
Well 8	726,832	2.23
Project Monthly Total		5.74

Note: Total volumes represent water pumped to storage (lake or tanks)

Since the start of the project in December 2016, the total volume of water pumped is 16.49 acre-feet; approximately 4.74 acre-feet from well 8 and the balance (11.75 acre-feet) from wells 6 and 6a (Attachement A – Groundwater Production Summary).

Daily Water Level Data. During the February 2017 period, water levels were measured manually in pumping Wells 6, 8, and piezometer PZ-1 each construction day and recorded on field forms (Attachment A). However, the pressure transducer in Well 8, at a depth of about 240 feet, prevented collection of water level data during most of the month, when the water level dropped during well pumping. In lieu of measurements from Well 8, Ms. Brady measured water levels in Well 8a located 286 feet east of Well 8. Table 1 presents a summary of the manual measurements obtained during the month.

CLOSING

This monthly report pertains to the Avangrid Tule Wind Project. It may not be appropriate for other projects or for other sites. If you have any questions, please contact me.

Sincerely,
Geo-Logic Associates



Sarah J. Battelle, CHG 609
Principal Geologist

Attachments:

Table 1 – Manual Water Level Measurements

Attachment A - Groundwater Production Summary

Table 1
Manual Water Level Measurements
Tule Wind Project Monitoring Wells

Well Information	Well			
	6*	PZ-1	8*	8a
Depth below TOC:				
11/18/2016	30.68	31.30	242.90	30.70
12/6/2016	106.50	30.00	156.10	30.00
12/7/2016	105.10	31.90	212.35	31.90
12/8/2016	117.10	31.20	>240	31.20
12/9/2016	123.80	33.90	>240	33.90
12/12/2016	122.30	32.20	>240	35.30
12/13/2016	125.80	32.30	>240	35.70
12/14/2016	129.40	32.40	>240	37.80
12/15/2016	128.90	32.30	>240	38.00
12/16/2016	120.30	NA	>240	NA
12/19/2016	48.50	32.30	>240	36.00
12/20/2016	NA	32.30	>240	37.30
1/4/2017	37.60	32.45	>240	31.50
1/5/2017	71.60	32.50	>240	36.00
1/6/2017	78.60	32.35	>240	35.90
1/7/2017	103.80	32.50	>240	36.50
1/9/2017	77.80	32.40	>240	34.60
1/10/2017	74.70	32.40	>240	33.30
1/11/2017	99.40	32.40	>240	33.10
1/12/2017	66.20	32.45	>240	35.10
1/16/2017	33.10	32.30	44.70	32.40
1/17/2017	118.70	32.40	>240	34.50
1/18/2017	33.80	32.40	>240	36.60
1/30/2017	38.20	31.70	25.70	32.70
1/31/2017	88.00	31.70	>240	35.80
2/1/2017	35.80	31.60	>240	35.80
2/3/2017	93.90	31.60	>240	35.70
2/6/2017	34.20	31.40	>240	34.20
2/7/2017	36.40	31.30	>240	35.70
2/8/2017	36.80	31.30	42.50	36.50
2/9/2017	37.60	31.30	>240	36.70
2/10/2017	32.30	31.30	>240	37.00
2/11/2017	34.40	31.30	>240	36.20
2/13/2017	36.20	31.30	75.80	36.70
2/14/2017	36.70	31.30	>240	37.20
2/15/2017	111.50	31.30	>240	37.20
2/16/2017	36.10	31.30	>240	38.40
2/17/2017	37.10	31.30	>240	38.50
2/20/2017	96.10	31.30	>240	38.50
2/21/2017	96.10	31.30	>240	40.10
2/22/2017	94.10	31.30	>240	40.90
2/23/2017	96.10	31.30	>240	40.90
2/24/2017	44.60	31.30	>240	41.10
2/25/2017	36.10	31.30	>240	41.70
2/27/2017	36.40	31.30	>240	42.90
2/28/2017	37.10	31.30	>240	43.30

Notes:

*Production well - Water level measurements are not static levels.

NA - Water level could not be measured.

ATTACHMENT A

Groundwater Production Summary

GROUNDWATER PRODUCTION SUMMARY

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	Piezometer PZ-1					
Date	Depth to Water					
11/18/2016	31.30		Production Summary		Total Acre Foot	
12/20/2016	32.30		WELL 6/6A	3,828,565	11.749419	
1/31/2017	31.60		WELL 8	1,544,440	4.739708	
2/28/2017	31.30					
			TOTAL	5,373,005	16.4891265	
Well Location:	WELL 6					
Date	Meter Reading	Date	Meter Reading	Total Gallons	Depth to Water	Comments
11/18/2016	664,935	12/20/2016	1,987,900	1,322,965	30.68	This Well feeds the Lake and
12/20/2016	1,987,900	1/31/2017	2,519,800	531,900	35.8	the 3 towers at well 6
1/31/2017	2,519,800	2/11/2017	2,544,700	24,900	129.2	
2/11/2017	2,544,700	2/17/2017	2,891,800	347,100	37.1	The Lake currently holds
2/17/2017	2,891,800	2/28/2017	3,093,900	202,100		1 million gallons of water
				-		for use at a later date
				-		
TOTAL				2,428,965		

Well Location:	WELL 6A	Production Portion				
Date	Meter Reading	Date	Meter Reading	Total Gallons	Depth to Water	Comments
12/5/2016	4,335,200	12/20/2016	4,802,700	467,500		This meter is located at the one tower labeled Rough Acres
12/20/2016	4,802,700	1/31/2017	5,163,400	360,700		
1/31/2017	5,163,400	2/11/2017	5,290,300	126,900		
2/11/2017	5,290,300	2/17/2017	5,497,900	207,600		
2/17/2017	5,497,900	2/28/2017	5,734,800	236,900		
			-	-		
			-	-		
TOTAL				1,399,600		
Well Location:	WELL 8	Cubic Feet				
Date	Meter Reading	Date	Meter Reading	Total Gallons	Depth to Water	Comments
11/18/2016	1,054	12/20/2016	52,650	385,938	242.9	This Well feeds the 3 towers at well 8
12/20/2016	52,650	1/31/2017	110,360	431,671		
1/31/2017	110,360	2/11/2017	135,320	186,701		
2/11/2017	135,320	2/17/2017	159,690	182,288		This well has a blockage at 240ft
2/17/2017	159,690	2/28/2017	207,530	357,843		
			-	-		
			-	-		
TOTAL				1,544,440		