

Robertson, Jean

From: Zach Latham [zach.latham@brockwayeng.com]
Sent: Tuesday, February 02, 2010 5:03 PM
To: Robertson, Jean
Cc: Merritt, Allen; Cooper, Jeff; Van Dyke, Nick
Subject: Sun Valley Ranch LLC Permit 37-22459 First Fill Analysis
Attachments: Sun Valley Ranch LLC- Permit 37-22459 First Fill Analysis- 2-2-10.pdf

Jeanie-

Attached is a PDF document with 3 tables which outline the first fill analysis for permit 37-22459.

- Table 1 places each of the proposed storage features in a category, categories are explained on Table 1.
- Table 2 lists all of the proposed irrigation management wetland cells (a portion of the total storage) and analyzes whether or not they are covered under the IDWR 24 hour fill rule. These cells will be used for irrigation management and to increase irrigation efficiency on the property.
- Table 3 lists the proposed storage features and their associated volumes that we believe need to be filled by irrigation water (first fill). Additionally, Table 3 calculates how many acres will need to be dried up the first year only for the first fill of storage features identified within the table.

Chuck Sr. and I would be happy to sit down with you, Allen, Jeff and Nick to discuss this analysis if needed. Thanks for your time and please give me a call or email with comments or questions.

Zach Latham

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(1 OF 3) TABLE 1:
SUN VALLEY RANCH LLC-
PROPOSED STORAGE FEATURES:

*CATEGORY 1 FEATURES:			
Feature Name:	Total Estimated Fill Volume (acre- feet):	Feature Name:	Total Estimated Fill Volume (acre-feet):
CW - 1	0.28	OX - 27	5.58
CW - 2	0.26	OX - 28	6.35
CW - 3	0.62	OX - 29	2.70
CW - 4	1.42	OX - 30	5.56
CW - 4b	0.96	OX - 31	7.07
CW - 5	0.40	OX - 32	3.79
CW - 6	0.60	OX - 33	9.09
CW - 7	0.63	OX - 34	4.93
CW - 8	1.39	OX - 35	9.21
CW - 9	1.16	OX - 36	6.57
CW - 12	0.78	OX - 37	6.10
CW - 13	0.29	OX - 38	5.20
CW - 14	0.34	OX - 39	3.22
CW - 15	0.54	OX - 40	2.33
CW - 16	0.66	OX - 41	3.50
CW - 17	0.49	OX - 42	1.74
CW - 18	0.68	OX - 43	1.17
CW - 19	0.52	OX - 44	1.10
CW - 20	0.68	OX - 45	5.47
CW - 21a	0.79	OX - 46	3.00
CW - 21b	0.79	OX - 47	2.77
CW - 22	0.86	OX - 48	1.95
CW - 23	0.67	OX - 49	2.54
CW - 24	1.14	DU-1	5.30
CW - 25	0.77	DU-2	9.25
CW - 26	0.06	DU-3	1.65
CW - 27	0.09	DU-4	4.13
CW - 28	0.04	DU-5	3.06
CW - 29	0.18	DU-6	2.83
CW - 30	0.25	DU-7	4.18
FP - 1	32.60	DU-8	7.73
FP - 2	72.80	DU-9	3.25
FP - 3	8.67	DU-10	23.67
OX - 12	7.51	DU-11	3.20
OX - 13	10.23	DU-12	1.20
OX - 14	9.84	DU-13	1.20
OX - 15	19.48	DU-14	2.60
			353.62

**CATEGORY 2 FEATURES:	
Feature Name:	Total Estimated Fill Volume (acre- feet):
OX - 4	10.02
OX - 5	9.33
OX - 6	8.54
OX - 7	11.27
OX - 8	14.42
OX - 9	13.86
OX - 10	11.15
OX - 11	9.85
OX - 21	27.66
OX - 22	27.21
OX - 23	15.95
OX - 24	6.62
OX - 25	11.55
OX - 26	10.41
WS - 3	7.89
195.74	

All Category Totals: **799.0**

***CATEGORY 3 FEATURES:	
Total Estimated Fill Volume	
Feature Name:	(acre-feet):
OX - 1	27.67
OX - 2	21.00
OX - 3	16.47
OX - 16	17.53
OX - 17	19.76
OX - 18	21.59
OX - 19	19.78
OX - 20	21.99
WS - 1	19.78
WS - 2	16.56
DU-15	11.70
DU-16	8.09
DU-17	4.19
DU-18	15.30
DU-19	5.40
DU-20	2.80
249.60	

***Category 1 Features:** Proposed storage features that are anticipated to completely fill from ground water as a result of natural, existing conditions. Therefore, no additional volume will need to be used to fill these features. Flow data from multiple flumes support this hypothesis. Includes irrigation management cells able to be filled under the IDWR 24 hr fill rule. These features will NOT need a first fill.

****Category 2 Features:** Proposed storage features that are anticipated to fill during the irrigation season as a result of incidental irrigation application recharge. Estimations of the amount of natural, existing ground water to fill each feature have been made. Flow data from multiple flumes support this hypothesis. The total volume of each feature minus the volume filled by ground water for the same feature will need to be filled by "first fill irrigation water".

*****Category 3 Features:** Proposed storage features that are anticipated to partially fill during irrigation season with existing ground water. These features will not fill completely due to ground water from incidental irrigation over the irrigation season. Estimations per feature of the amount of initial, natural existing ground water fill have been made. The total volume of each feature minus the volume filled by ground water for the same feature will need to be filled by "first fill irrigation water". Includes portions of irrigation management cell total volumes that exceed the IDWR 24 hour fill rule because they are to be constructed above ground and do not intersect ground water.

(2 OF 3) TABLE 2:
SUN VALLEY RANCH LLC
PROPOSED FEATURES FILLED BY 24 HOUR STORAGE:

IRRIGATION MANAGEMENT WETLAND CELL #:	PROPOSED STORAGE (ACRE-FT)	TOTAL PROPOSED STORAGE BY GROUP (ACRE-FT):	WATER RIGHT(S) ABLE TO BE UTILIZED FOR STORAGE UNDER THE 24 HOUR FILL RULE:	SOURCE FOR STORAGE UNDER THE 24 HOUR FILL RULE:	DIVERSION RATE AVAILABLE FOR STORAGE FEATURE (CFS):	24 HOUR DIVERSION VOLUME AVAILABLE FOR STORAGE FEATURE (ACRE-FEET):	DIFFERENCE NEEDED TO BE COVERED BY THE FIRST FILL (ACRE-FEET)
DU-1	5.3	41.4	37-60, 37-61, 37-62, 37-63A, 37-64A, 37-66A, 37-67B, 37-68A, 37-230, 37-231B, 37-232, 37-577AZ	BIG WOOD RIVER	39.4	78.0	0.0
DU-2	9.2						
DU-3	1.6						
DU-4	4.1						
DU-5	3.1						
DU-6	2.8						
DU-7	4.2						
DU-8	7.7						
DU-9	3.2						
DU-10	23.7	26.9	37-180, 37-181, 37-231A, 37-233, 37-1207	BIG WOOD RIVER	16.4	32.5	0.0
DU-11	3.2						
DU-12	1.2	5.0	37-139	CRYSTAL CREEK	3	5.9	0.0
DU-13	1.2						
DU-14	2.6						
DU-15	11.7	19.8	37-69B, 37-70, 37-71B	BIG WOOD RIVER	5.5	10.9	8.9
DU-16	8.1						
DU-17	4.2	27.7	37-2538	GROUND WATER	1.65	3.3	24.4
DU-18	15.3						
DU-19	5.4						
DU-20	2.8						
TOTALS =	120.7	120.7			66.0	130.6	33.3

**(3 OF 3) TABLE 3:
SUN VALLEY RANCH LLC
CATEGORY 2+3 FEATURES NEEDING A FIRST FILL:**

Feature Name:	Total Estimated Fill Volume (acre-feet):	Estimated Ground Water Fill Volume (acre-feet):	Remaining First Fill Volume (acre- feet):
OX - 1	27.7	20.0	7.7
OX - 2	21.0	17.7	3.3
OX - 3	16.5	14.2	2.2
OX - 4	10.0	8.6	1.4
OX - 5	9.3	8.7	0.7
OX - 6	8.5	8.4	0.2
OX - 7	11.3	9.9	1.4
OX - 8	14.4	13.8	0.6
OX - 9	13.9	12.6	1.3
OX - 10	11.1	9.6	1.5
OX - 11	9.8	8.5	1.3
OX - 16	17.5	13.3	4.2
OX - 17	19.8	16.0	3.7
OX - 18	21.6	18.9	2.7
OX - 19	19.8	17.9	1.9
OX - 20	22.0	17.5	4.5
OX - 21	27.7	23.0	4.6
OX - 22	27.2	24.6	2.7
OX - 23	15.9	13.8	2.2
OX - 24	6.6	5.7	0.9
OX - 25	11.5	11.3	0.3
OX - 26	10.4	9.0	1.4
WS - 1	19.8	17.1	2.7
WS - 2	16.6	14.3	2.3
WS - 3	7.9	6.8	1.1
DU-15*	11.7	0.0	24.4
DU-16*	8.1	0.0	
DU-17**	4.2	0.0	
DU-18**	15.3	0.0	
DU-19**	5.4	0.0	24.4
DU-20**	2.8	0.0	
Total Remaining First Fill Volume (acre-feet)			<u>90.1</u>
One-Time Dry Up Acres for First Fill Volume***			<u>47.4</u>
* 24 Hour Fill eliminates 10.9 ac-ft of storage under 37-69B, 37-70, 37-71B - See Table 2.			
** 24 Hour Fill eliminates 3.3 ac-ft of storage under 37-2538 - See Table 2.			
*** Picabo- Grass Pasture, Low Management (Pdef) 1.90 ft per acre			