

TO: BOARD OF DIRECTORS  
FROM: MICHAEL S. LEBRUN *MGL*  
GENERAL MANAGER  
DATE: June 8, 2012



## PRESENTATIONS AND REPORTS

- C-1) RECEIVE SPRING 2012 GROUNDWATER INDEX PRESENTATION BY BRAD NEWTON, Ph.D, P.G. OF WAGNER& BONSIGNORE CONSULTING CIVIL ENGINEERS
- C-2) NCSD DISTRICT ENGINEER PETER SEVCIK  
Update Report re: Recent Activities
- C-3) DIRECTORS' ANNOUNCEMENTS OF DISTRICT & COMMUNITY INTEREST AND REPORTS ON ATTENDANCE AT PUBLIC MEETINGS, TRAINING PROGRAMS, CONFERENCES, AND SEMINARS.  
Receive Announcements and Reports from Directors
- C-4) RECEIVE PUBLIC COMMENT ON PRESENTATIONS AND REPORTS PRESENTED UNDER ITEM C AND BY MOTION RECEIVE AND FILE PRESENTATIONS AND REPORTS

TO: BOARD OF DIRECTORS  
FROM: MICHAEL S. LEBRUN *MSL*  
GENERAL MANAGER  
DATE: JUNE 8, 2011



## 2012 SPRING GROUNDWATER INDEX

### ITEM

Receive Spring 2012 Groundwater Index Presentation by Brad Newton, PhD, PG of Wagner & Bonsignore Consulting Civil Engineers [RECEIVE PRESENTATION]

### BACKGROUND

Mr. Brad Newton is scheduled to summarize the 2012 Spring groundwater index. The report is an independent product of Wagner & Bonsignore and is not reviewed or recognized by the Nipomo Mesa Management Area Technical group.

### FISCAL IMPACT

Development of this report is included in the contract budget with Wagner & Bonsignore.

### STRATEGIC PLAN

Strategic Plan Goal 1.1 – Protect, Enhance and Assess available Water Supplies

### RECOMMENDATION

Staff recommends that the Board receive the report and give direction to staff.

### ATTACHMENTS

- 2012 Spring Groundwater Index Technical Memorandum
- Presentation Slides



TO: NCS D Board of Directors

RE: Spring 2012 GWI

DATE: June 08, 2012

Page 2 of 6

## 1 **Groundwater Surface Elevation Measurements**

2 Groundwater surface elevation data were obtained from SLO DPW, NCS D, USGS, and  
3 Woodlands. SLO DPW measures GSE in monitoring wells during the spring (April) and the fall  
4 (October) of each year. Woodlands and NCS D measures GSE in their monitoring wells  
5 monthly. For the years 1975 to 1999, available representative GSE data were used to compute  
6 GWI. For the years 2000 to 2011, only GSE data from the same 45 wells were used to compute  
7 GWI.

8 The GSE data was reviewed in combination with well completion reports and historical  
9 hydrographic records in order to exclude measurements that do not accurately represent static  
10 water levels within the principal production aquifer. Wells that do not access the principal  
11 production aquifer or were otherwise determined to not accurately represent static water levels  
12 within the aquifer were not included in analysis.

## 13 **Groundwater Surface Interpolation**

14 The individual GSE measurements from each year were used to produce a GSE field by  
15 interpolation using the inverse distance weighting (IDW) method.

## 16 **Groundwater Index**

17 The GWI is defined as the saturated volume above sea level and bedrock multiplied by the  
18 specific yield of 11.7 percent. The value of the groundwater index was computed for the area  
19 defined in Phase III of the trial, which differs from the area defined as the NMMA. The primary  
20 difference is the coastal area (generally Sections 11N-36W-12 and 11N-35W-07) west of Hwy 1  
21 included in the NMMA that was not part of the area defined in Phase III of the trial. This  
22 coastal area has little to no pumping stress. The base of the saturated volume is mean sea level  
23 surface (elevation equals zero) or the bedrock above sea level, whichever is higher. The bedrock  
24 surface elevation is based on Figure 11: Base of Potential Water-Bearing Sediments, presented in  
25 the report, Water Resources of the Arroyo Grande - Nipomo Mesa Area (DWR 2002). The  
26 bedrock surface elevation was preliminarily verified by reviewing driller reports obtained from  
27 DWR (Figure 2). The specific yield is based on the average weighted specific yield  
28 measurement made at wells within the Nipomo Mesa Hydrologic Sub-Area (DWR 2002, pg. 86).

## 29 **Key Well Index**

30 The NMMA Technical Group selected the data from eight inland key wells to represent  
31 the whole of the NMMA. The Key Well Index was calculated annually using spring GSE  
32 measurements from 1975 to 2012. The key wells were selected to represent various portions of  
33 the groundwater basin within the NMMA. In selecting the eight key wells, the following  
34 criteria were applied so that the wells generally represent the NMMA as a whole:

- 35 (1) The wells are geographically distributed,
- 36 (2) No single well overly influences the Key Well Index.

TO: NCSB Board of Directors

RE: Spring 2012 GWI

DATE: June 08, 2012

Page 3 of 6

1 The first criterion was met in the selection of the wells, such that no well represented a  
2 disproportionate area. To meet the second criterion, groundwater elevations from each well  
3 were normalized so that any well where elevations were on the average higher or lower than  
4 the other wells did not overly influence the magnitude of the Key Well Index. This  
5 normalization was accomplished by dividing each spring groundwater elevation measurement  
6 by the sum of all the Spring GSE data for that well.

7 The Key Well Index was defined for each year as the average of the normalized spring  
8 groundwater data from each well. The lowest value of the Key Well Index could be considered  
9 the "historical low" within the NMMA.

10

#### 11 REFERENCES

12 Department of Water Resources (DWR). 2002. Water Resources of the Arroyo Grande - Nipomo  
13 Mesa Area, Southern District Report.

TO: NCSB Board of Directors

RE: Spring 2012 GWI

DATE: June 08, 2012

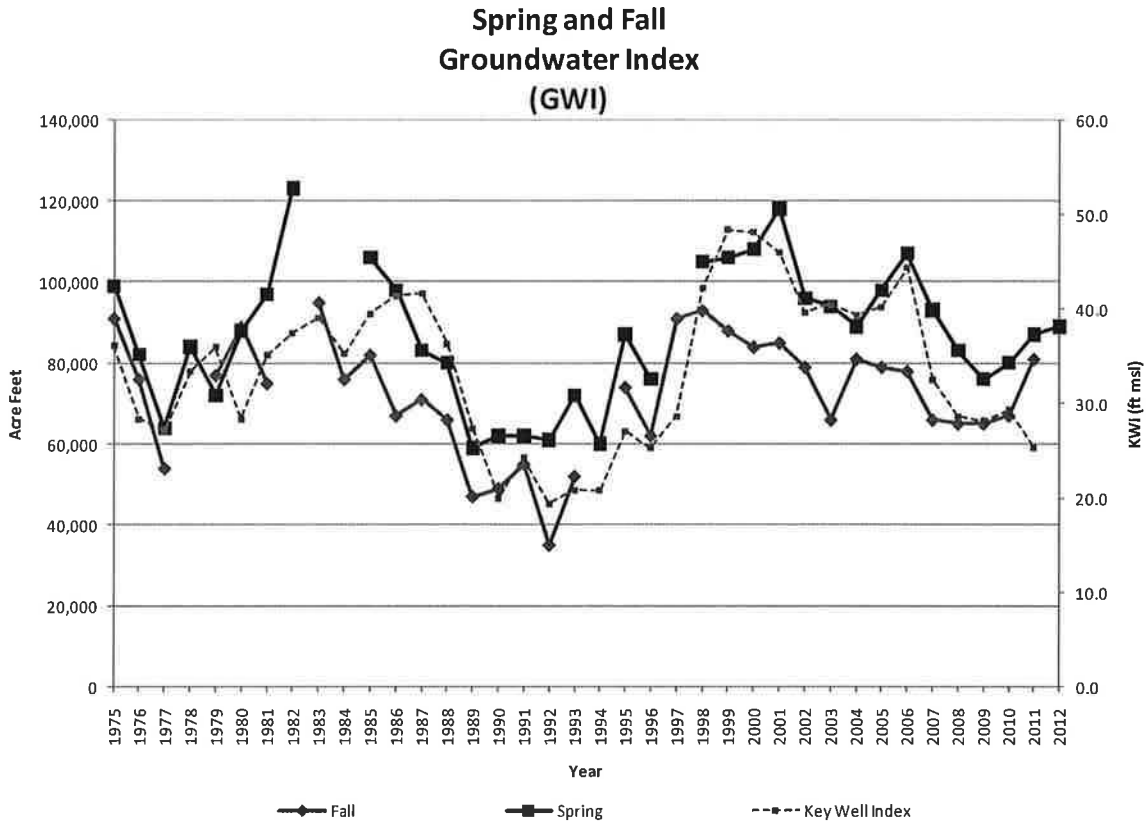
Page 4 of 6

**Spring and Fall  
Groundwater Index  
(GWI)**

Year	Rainfall (inches)	Spring GWI (Acre-Feet)	Number of Wells	Fall GWI (Acre-Feet)	Number of Wells	Spring to Fall Difference (Acre-Feet)
1975	17.29	99,000	54	91,000	54	8,000
1976	13.45	82,000	45	76,000	65	6,000
1977	10.23	64,000	59	54,000	63	10,000
1978	30.66	84,000	62	---	35	---
1979	15.80	72,000	57	77,000	63	(5,000)
1980	16.57	88,000	55	89,000	46	(1,000)
1981	13.39	97,000	46	75,000	47	22,000
1982	18.58	123,000	42	---	31	---
1983	33.21	---	35	95,000	42	---
1984	11.22	---	14	76,000	37	---
1985	12.20	106,000	37	82,000	41	24,000
1986	16.85	98,000	51	67,000	51	31,000
1987	11.29	83,000	48	71,000	52	12,000
1988	12.66	80,000	51	66,000	49	14,000
1989	12.22	59,000	47	47,000	57	12,000
1990	7.12	62,000	55	49,000	53	13,000
1991	13.18	62,000	52	55,000	54	7,000
1992	15.66	61,000	52	35,000	48	26,000
1993	20.17	72,000	54	52,000	61	20,000
1994	12.15	60,000	54	---	36	---
1995	25.87	87,000	35	74,000	52	13,000
1996	16.54	76,000	45	62,000	57	14,000
1997	20.50	---	20	91,000	48	---
1998	33.67	105,000	41	93,000	44	12,000
1999	12.98	106,000	56	88,000	49	18,000
2000	17.07*	108,000	44	84,000	41	24,000
2001	18.52*	118,000	43	85,000	35	33,000
2002	8.87*	96,000	29	79,000	41	17,000
2003	11.39	94,000	37	66,000	42	28,000
2004	12.57	89,000	42	81,000	35	8,000
2005	22.23	98,000	38	79,000	39	19,000
2006	20.83	107,000	44	78,000	41	29,000
2007	7.11	93,000	44	66,000	42	27,000
2008	15.18	83,000	43	65,000	42	18,000
2009	10.31	76,000	44	65,000	43	11,000
2010	20.07	80,000	45	67,000	42	13,000
2011	34.05*	87,000	43	81,000	43	6,000
2012	11.01*	89,000	45			

Table 1: Groundwater Index computed from Spring 1975 to Spring 2012.

TO: NCS D Board of Directors  
 RE: Spring 2012 GWI  
 DATE: June 08, 2012  
 Page 5 of 6



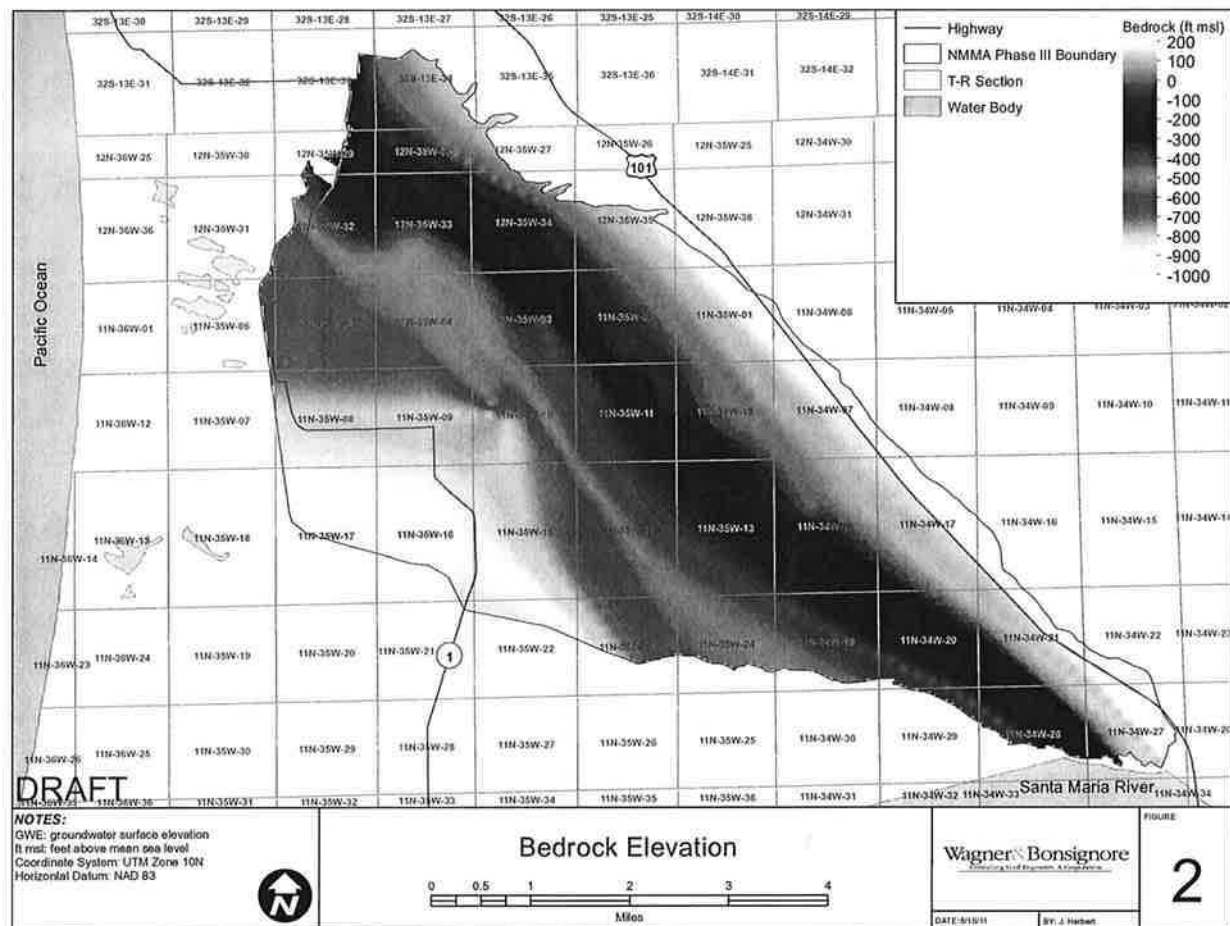
1  
 2 Figure 1: Groundwater Index from Spring 1975 to Spring 2012 and the Key Well Index computed from Spring 1975 to Spring  
 3 2011.

TO: NCSB Board of Directors

RE: Spring 2012 GWI

DATE: June 08, 2012

Page 6 of 6



1  
2

Figure 2: Elevation of bedrock underlying the NMMA.



An aerial photograph of a rural landscape, likely in a semi-arid region, showing a mix of brown and green fields. A prominent yellow line is drawn across the image, forming an irregular boundary that encloses a central area. The text is overlaid on this image.

# **Spring 2012 Groundwater Surface Elevations and Rainfall 2012**

**Prepared by Wagner & Bonsignore,  
Consulting Civil Engineers**

**June 13, 2012**

# Overview

---

- Spring 2012 Groundwater Index
- Rainfall
- Analysis

An aerial photograph of a rural landscape, likely a farm or ranch, showing a mix of green and brown fields, some buildings, and a winding road. A yellow line is drawn across the image, roughly following the perimeter of the main property. A vertical blue line is drawn on the left side of the image. The text "Spring 2012 Groundwater Index" is overlaid in the center of the image.

# Spring 2012 Groundwater Index

# Spring 2012 GWI

Spring and Fall  
Groundwater Index  
(GWI)

Year	Rainfall (inches)	Spring GWI (Acre-Feet)	Number of Wells	Fall GWI (Acre-Feet)	Number of Wells	Spring to Fall Difference (Acre-Feet)
2010	20.07	80,000	45	67,000	42	13,000
2011	34.05*	87,000	43	81,000	43	6,000
2012	11.01*	89,000	45			

Spring and Fall  
Groundwater Index  
(GWI)

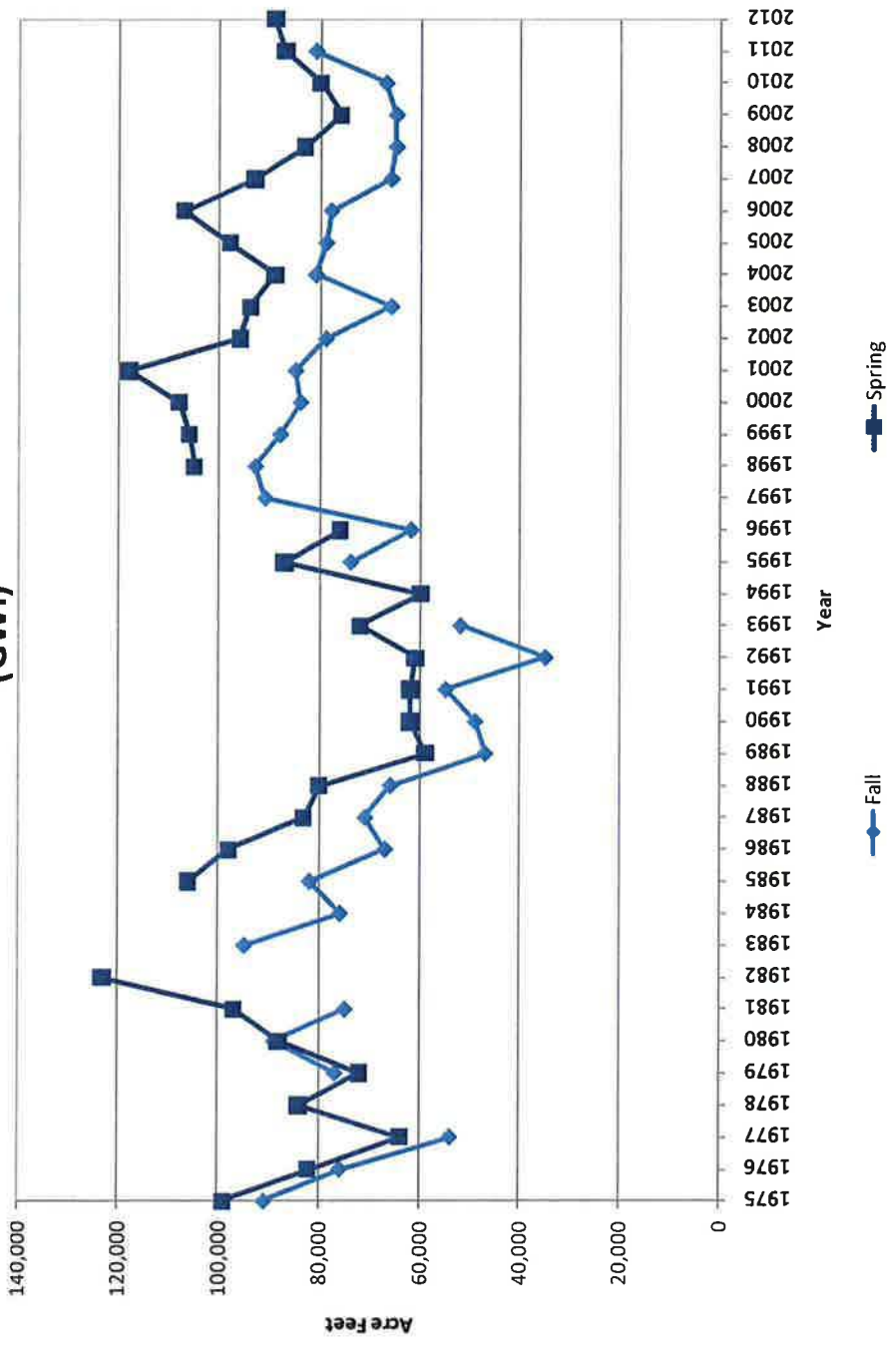
Year	Rainfall (inches)	Spring GWI (Acre-Feet)	Number of Wells	Fall GWI (Acre-Feet)	Number of Wells	Spring to Fall Difference (Acre-Feet)
1998	33.67	105,000	41	93,000	44	12,000
1999	12.98	106,000	56	88,000	49	18,000
2000	17.07*	108,000	44	84,000	41	24,000
2001	18.52	118,000	43	85,000	35	33,000
2002	8.87*	96,000	29	79,000	41	17,000
2003	11.39	94,000	37	86,000	42	28,000
2004	12.57	89,000	41	81,000	35	8,000
2005	22.23	98,000	38	79,000	39	19,000
2006	20.83	107,000	44	78,000	41	29,000
2007	7.11	93,000	44	66,000	42	27,000
2008	15.18	83,000	3	65,000	42	18,000
2009	10.31	76,000	54	65,000	43	11,000
2010	20.07	80,000	45	67,000	42	13,000
2011	34.05*	87,000	43	81,000	43	6,000
2012	11.01*	89,000	45			

\*: Estimated

Spring 2012 GWI

# 1975 - 2012 GWI

Spring and Fall  
Groundwater Index  
(GWI)



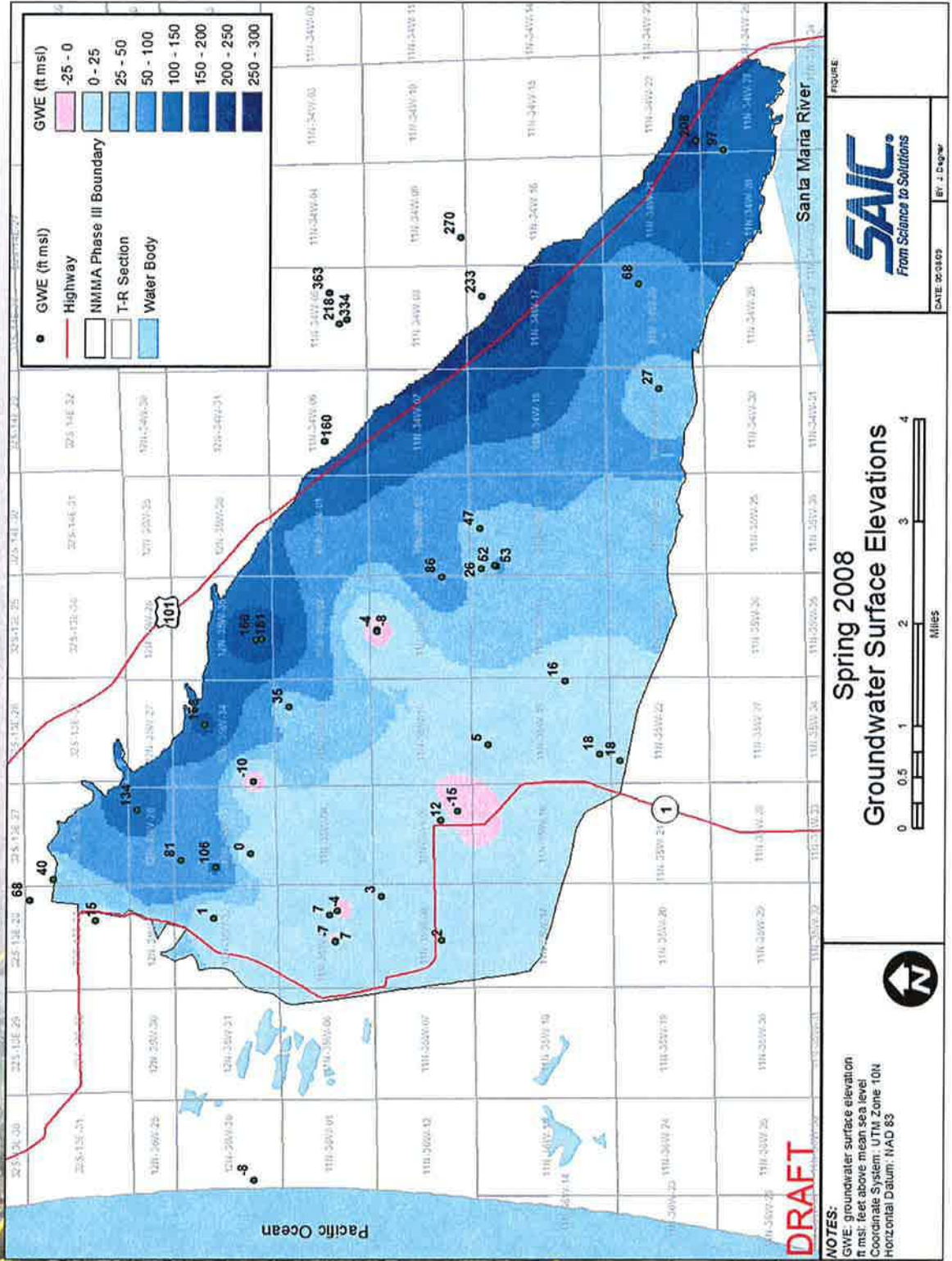
Spring 2012 GWI

# Spatial Distribution GSE

- Groundwater surface elevations are not uniform
- Lowest water levels are in the central and western portion of the Nipomo Mesa
- Several GWE are below sea level in the western portion of the Nipomo Mesa

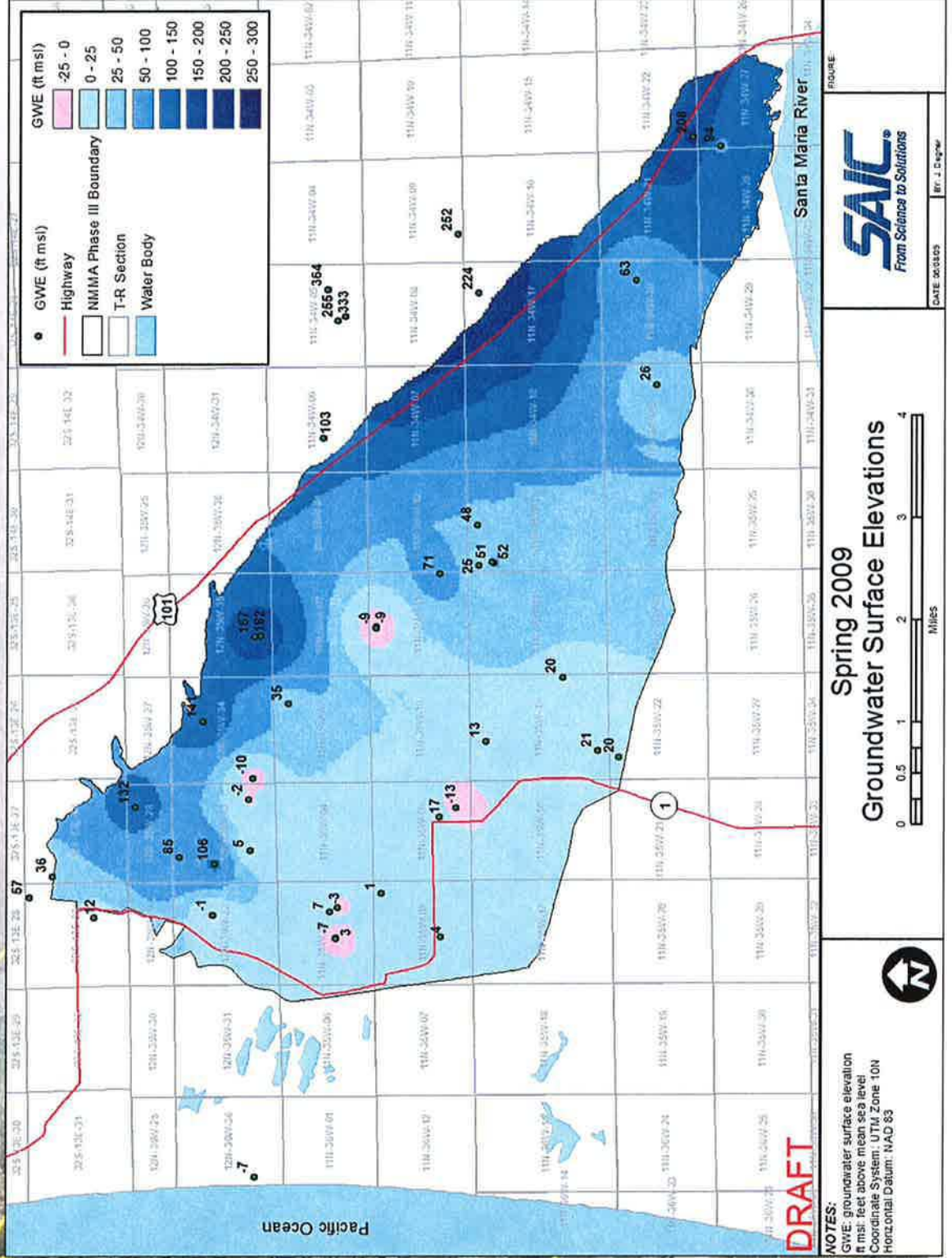
Spring 2012 GWI

# Groundwater Surface Elevation Map



Spring 2012 GW

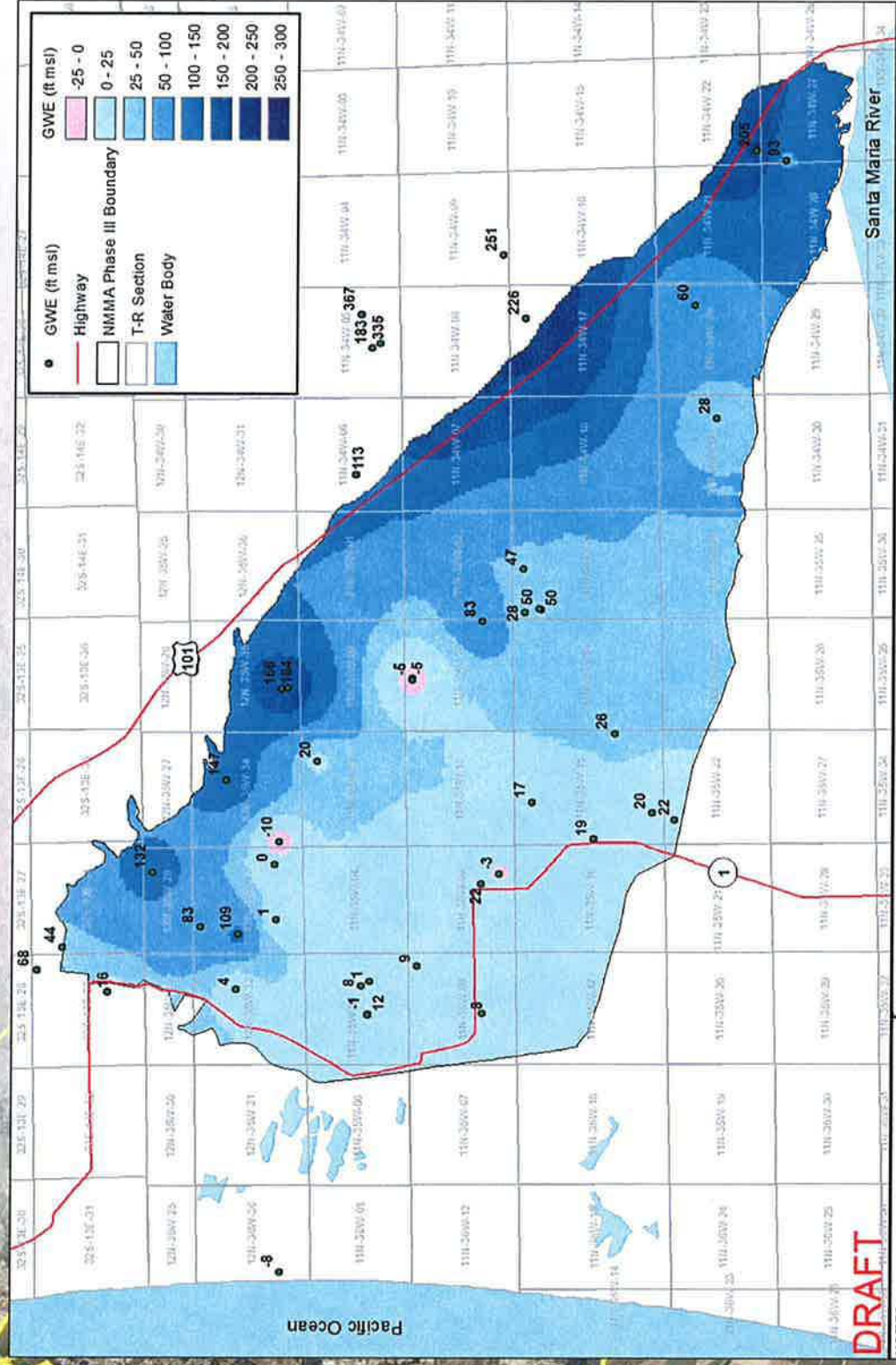
# Groundwater Surface Elevation Map





Spring 2012 GW

# Groundwater Surface Elevation Map



**DRAFT**

**NOTES:**  
 GWE: groundwater surface elevation  
 ft msl: feet above mean sea level  
 Coordinate System: UTM, Zone 10N  
 Horizontal Datum: NAD 83

**Spring 2010**  
 Groundwater Surface Elevations

Scale: 0 0.5 1 2 3 4 Miles

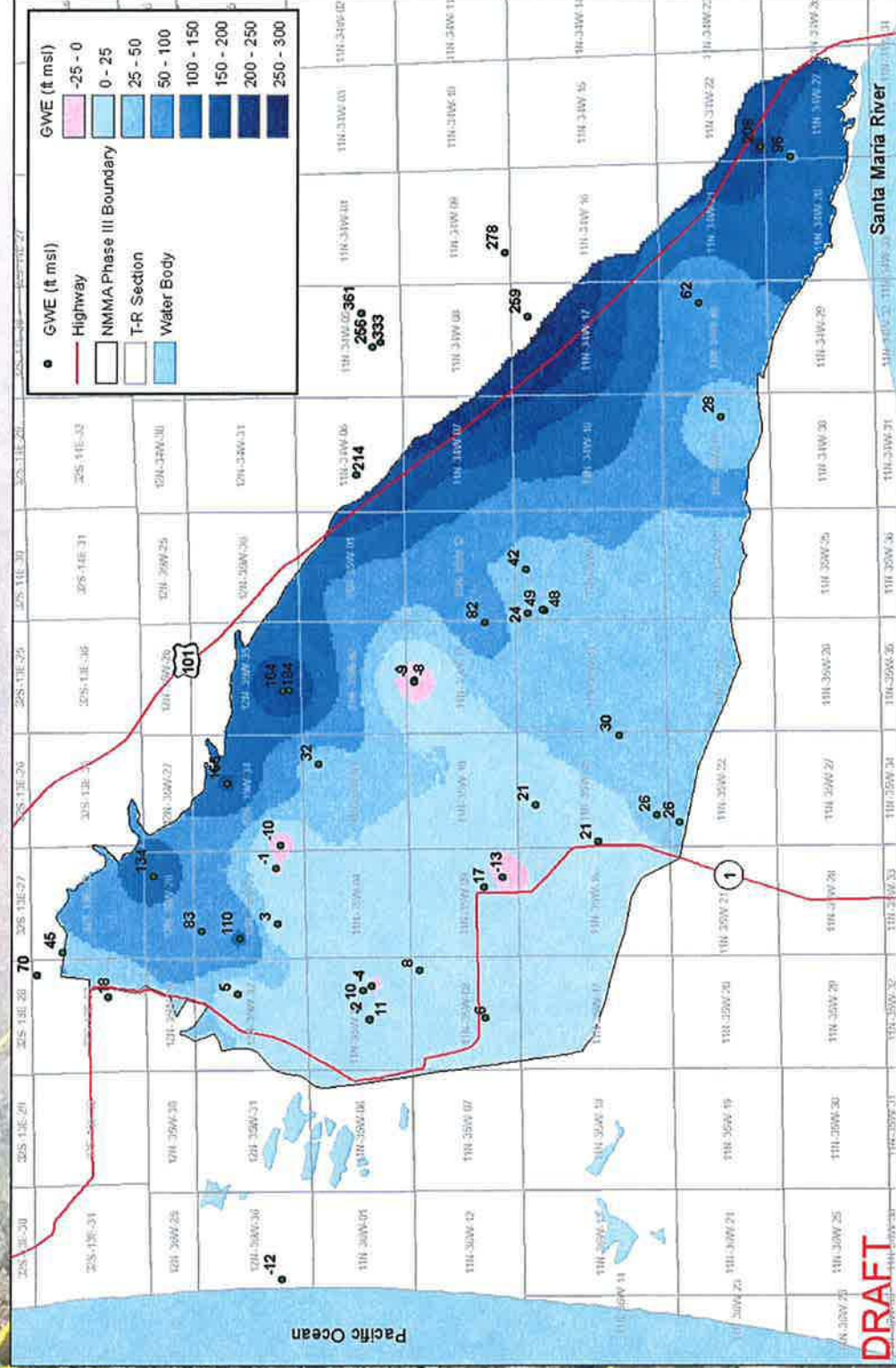
**SALC**  
 From Science to Solutions

DATE: 11-14-10  
 BY: J. Dwyer



Spring 2012 GW

# Groundwater Surface Elevation Map



**DRAFT**

**NOTES:**  
 GWE: groundwater surface elevation  
 ft msl: feet above mean sea level  
 Coordinate System: UTM, Zone 10N  
 Horizontal Datum: NAD 83

**Spring 2012**  
**Groundwater Surface Elevations**

0 0.5 1 2 3 4  
 Miles

**Wagner & Bonsignore**  
 CONSULTING ENGINEERS

DATE: 5/20/12 BY: J. Hebert

FIGURE:

An aerial photograph of a rural landscape, likely a valley or plain, showing a mix of agricultural fields in various shades of green and brown, and some residential or commercial buildings. A prominent yellow line traces a boundary across the terrain, starting from the bottom left, curving around the middle, and extending towards the top right. A solid blue vertical line is positioned on the left side of the image. The text 'Rainfall across the Nipomo Mesa' is overlaid in the center of the image.

# Rainfall across the Nipomo Mesa

# Annual Data

Water Year	Mehlschau (38)	Nipomo CDF (151.1)
1990-1991	16.47	13.18
1991-1992	18.02	15.66
1992-1993	22.2	20.17
1993-1994	13.87	12.15
1994-1995	31.47	25.87
1995-1996	18.57	16.54
1996-1997	23.38	20.5
1997-1998	39.05	33.67
1998-1999	15.53	12.98
1999-2000	19.93	17.07*
2000-2001	21.62	18.52*
2001-2002	10.25	8.78*
2002-2003	16.95	11.39
2003-2004	13.35	12.57
2004-2005	25.81	22.23
2005-2006	26.52	20.83
2006-2007	8.22	7.11
2007-2008	15.8	15.18
2008-2009	12.15	10.31
2009-2010	21.86	20.07
2010-2011	28.91*	34.05*
Period of Record Average	<b>16.7</b>	<b>15.5</b>

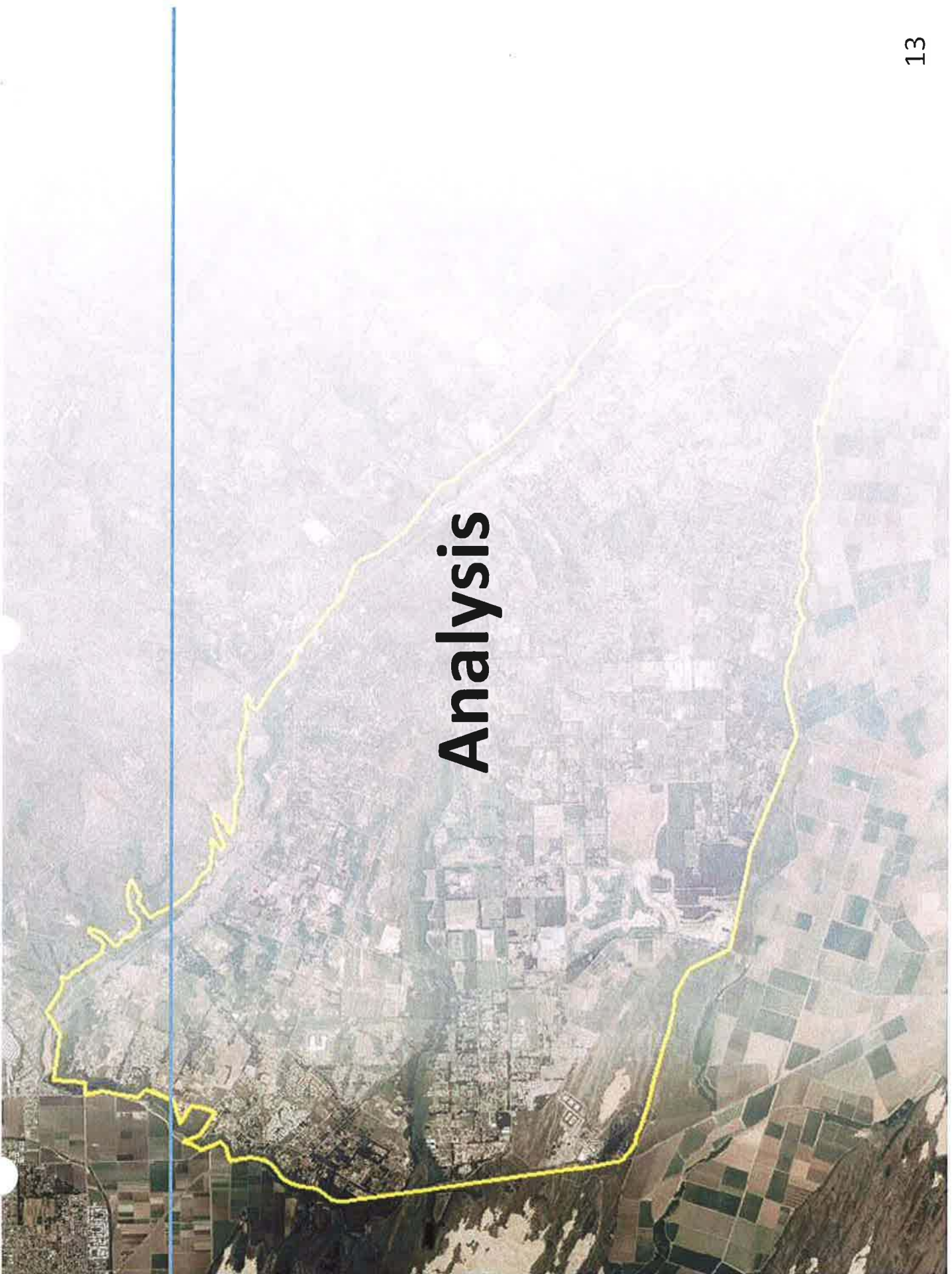
**2011-2012**  
**Nipomo East (728)**  
 Currently – 12.60 in.

**Nipomo South (730)**  
 Currently – 10.94 in.

**Oceano (795)**  
 Currently – 9.49 in.

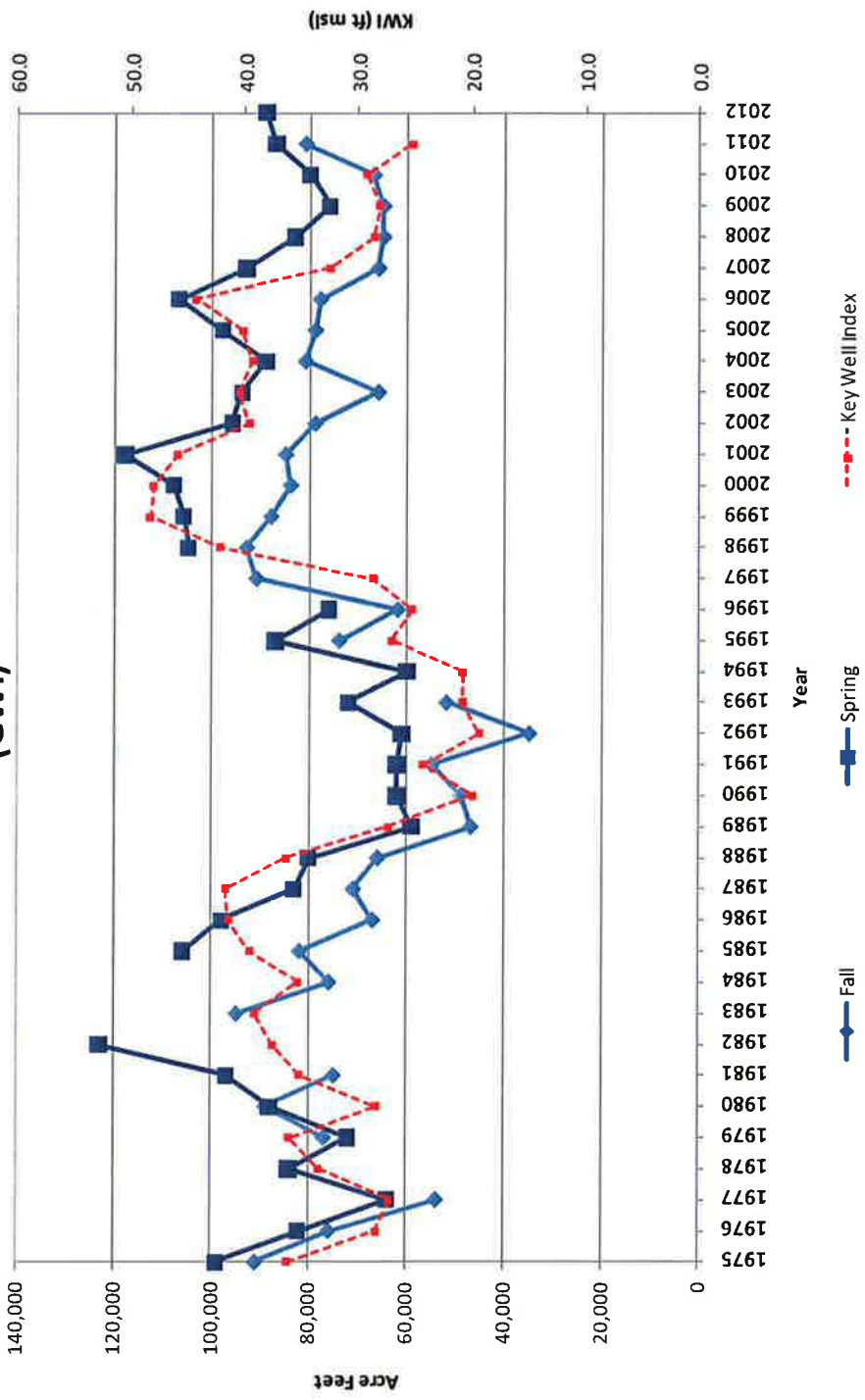
**Average = 11.01 in.**

# Analysis



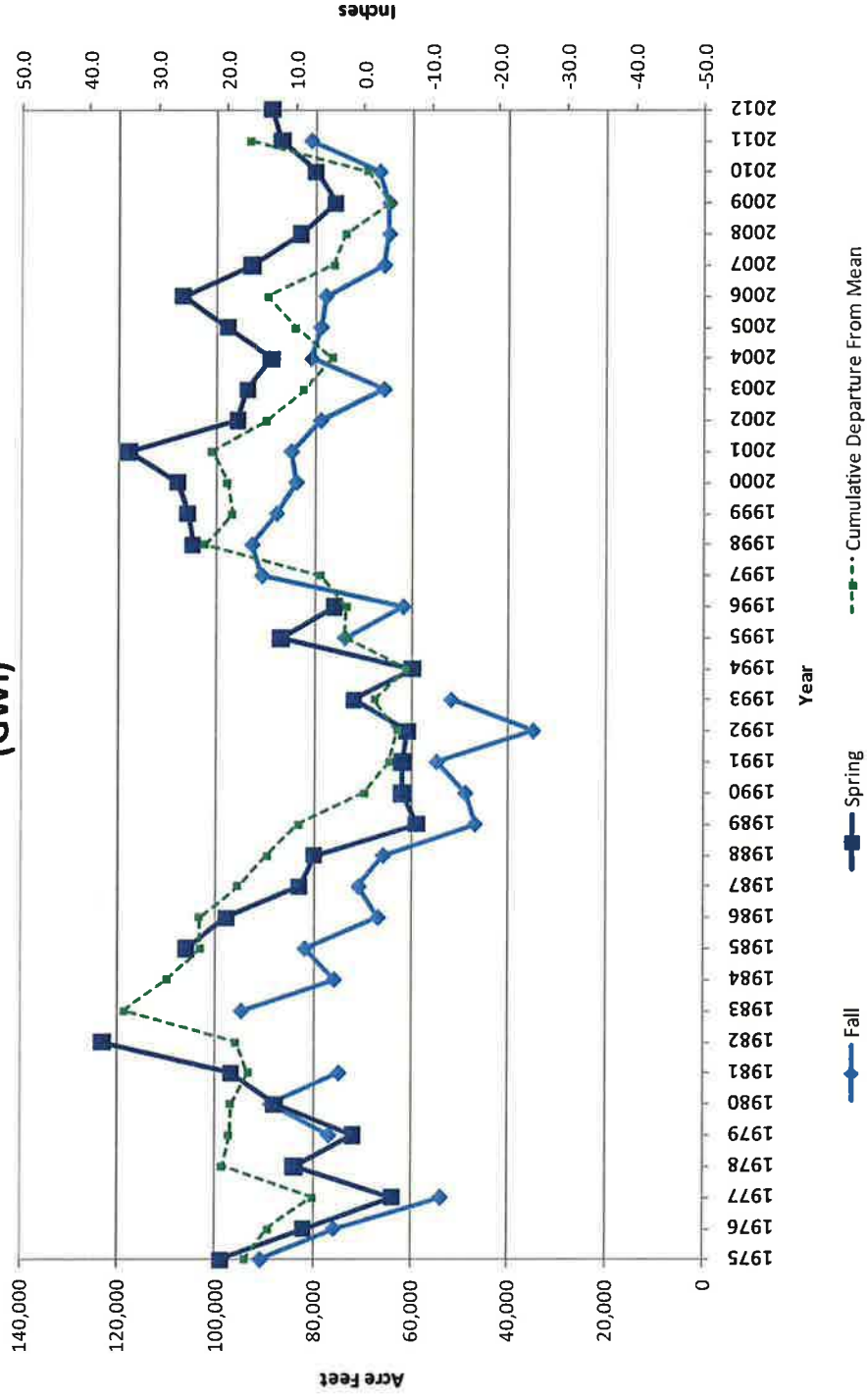
# Spring 2012 GWI & KWI

### Spring and Fall Groundwater Index (GWI)



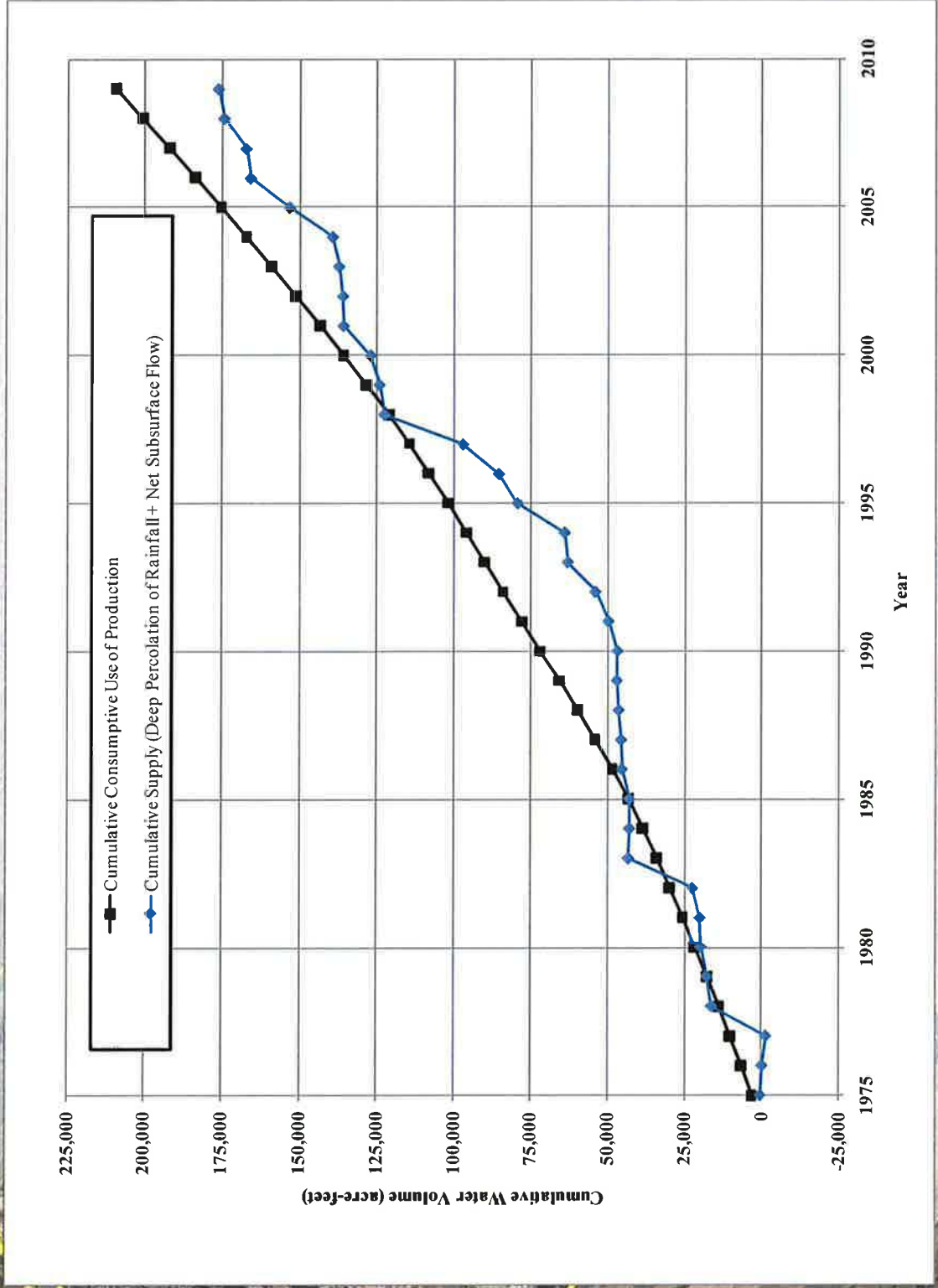
# Spring 2012 GWI & RAINFALL

### Spring and Fall Groundwater Index (GWI)

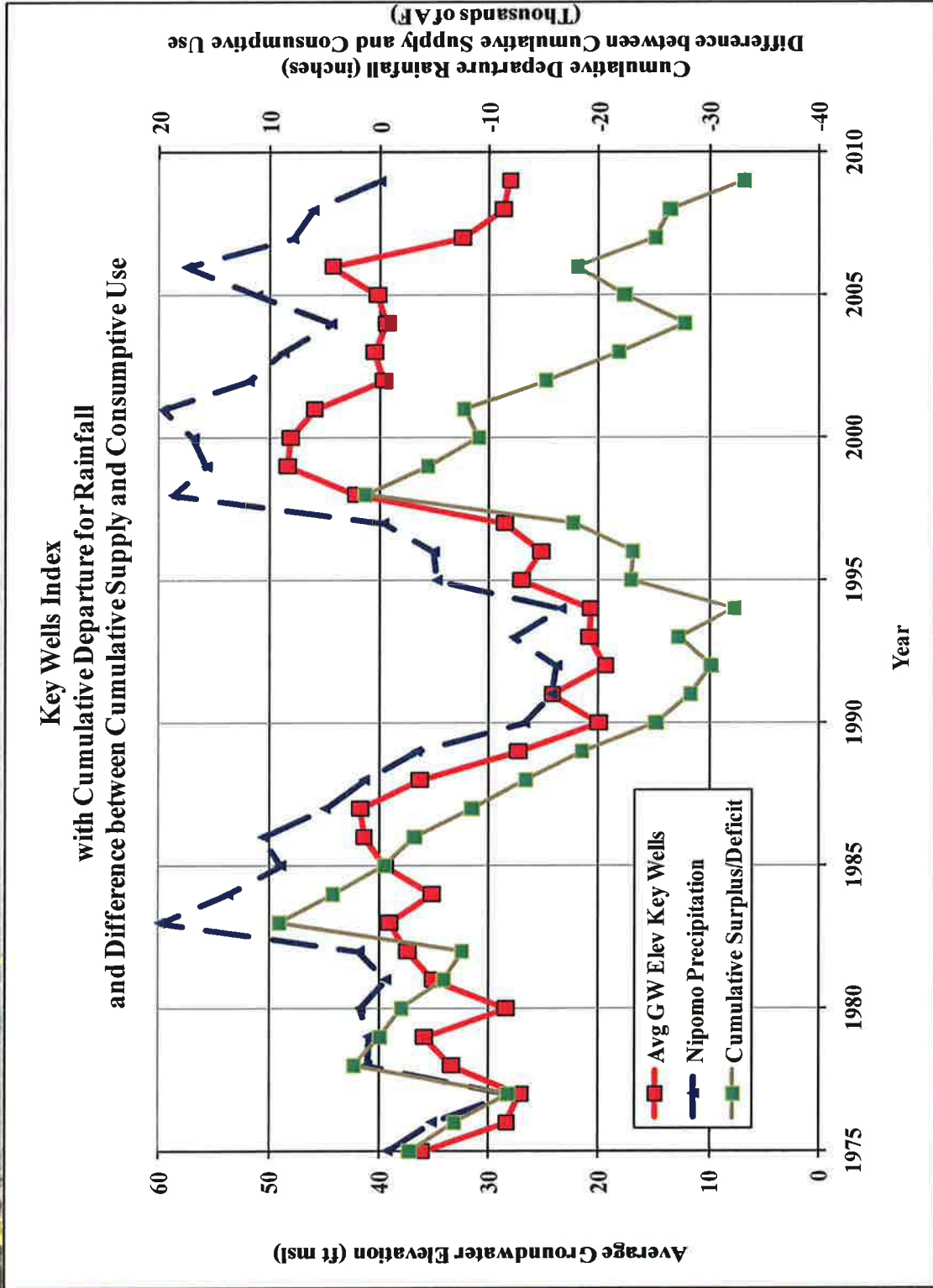




# CONSUMPTIVE USE vs SUPPLY



# STORAGE – SUPPLY - USE



An aerial photograph of a rural landscape, possibly a valley or a river valley. The terrain is a mix of brownish and greenish fields, with some clusters of buildings or structures. A prominent yellow line is drawn across the image, following a path that roughly outlines a specific area or boundary. A vertical blue line is drawn on the left side of the image. The word "QUESTIONS?" is written in large, bold, black capital letters across the center of the image.

**QUESTIONS?**

TO: BOARD OF DIRECTORS

FROM: MICHAEL S. LEBRUN *MSL*  
GENERAL MANAGER

DATE: JUNE 7, 2012



## NCSD DISTRICT ENGINEER ACTIVITIES UPDATE

### ITEM

District Engineer Update on Recent Activities [NO ACTION REQUESTED].

### BACKGROUND

District Engineer Peter Sevcik will present this month's engineering activities update.

### RECOMMENDATION

Staff recommends that your Honorable Board receive the written update.

### ATTACHMENT

- District Engineer Activities Summary



# NIPOMO COMMUNITY SERVICES DISTRICT

148 SOUTH WILSON STREET  
POST OFFICE BOX 326  
NIPOMO, CA 93444 - 0326  
(805) 929-1133 FAX (805) 929-1932  
Web site address [www.ncsd.ca.gov](http://www.ncsd.ca.gov)

## MEMORANDUM

TO: MICHAEL S. LEBRUN, P.E., GENERAL MANAGER *MSL*  
FROM: PETER V. SEVCIK, P.E., DISTRICT ENGINEER *PVS*  
DATE: JUNE 7, 2012  
RE: DISTRICT ENGINEER ACTIVITIES UPDATE

### PROJECTS IN CONSTRUCTION

- **Southland WWTF Phase 1 Improvement Project**
  - SCOPE OF WORK - Phase 1 improvements to the treatment plant include a new influent metering station, influent pump station, influent screening system, grit removal system, Biolac® extended-aeration system and two final clarifiers as well as gravity belt thickener and lined drying beds for biosolids handling
  - STATUS
    - Bid award to Cushman Contracting Corporation, approval of MNS Task Order for Construction Management Services, and approval of AECOM Task Order for Engineering Services During Construction scheduled for June 13, 2012 Board Meeting
    - Construction anticipated to begin July 2012 and be completed April 2014

Item	Description	Contract Amount
1	Design – AECOM	\$1,525,120
2	Construction Management – MNS	\$1,276,560
3	Construction Management Contingency	\$65,000
	<b>Subtotal</b>	<b>\$2,866,680</b>
4	Construction Contract – Cushman	\$10,224,900
5	Construction Contingency	\$500,000
	<b>Subtotal</b>	<b>\$10,724,900</b>
6	EIR and Permitting	\$115,370
	<b>Estimated Total Project Cost</b>	<b>\$13,706,950</b>
<b>Construction Contract Cost Summary</b>		
6	Contract	\$10,224,900.00
7	Change Orders	\$0.00
8	Revised Contract	\$10,224,900.00
9	Completed to Date	\$0.00

- **SCADA Upgrade Project**

- SCOPE OF WORK – New SCADA system servers, SCADA software, SCADA software configuration, reconfiguration of all existing remote site control panels, and re-programming of all existing Programmable Logic Controllers (PLC) at all existing remote site control panels.
- BUDGETED PROJECT COST \$350,648
- STATUS –
  - On-site assessments completed.
  - Submittal review process ongoing.
  - Review of existing radio communications system completed.
- PROJECTED COMPLETION – September 2012

Item	Description	Contract Amount
1	Implementation Services	\$318,648
2	Implementation Contingency	\$32,000
<b>Estimated Total Project Cost</b>		<b>\$350,648</b>

- **Willow Road Waterline Extension Phase 2 Project**

- SCOPE OF WORK – 3,115 lineal feet of 12-inch diameter waterline and associated ancillary facilities concurrent with County Willow Road Project
- BUDGETED PROJECT COST \$540,000
- STATUS – Waterline construction 98% complete. Completion pending installation of final asphalt lift.

Item	Description	Contract Amount
1	Design and Construction Management	\$151,890
2	Construction Deposit to County	\$257,892
3	Construction Contingency	\$25,800
<b>Estimated Total Project Cost</b>		<b>\$435,582</b>

**CONSTRUCTION PROJECTS COMPLETED - CLOSE OUT PENDING**

- **Frontage Road Trunk Sewer Replacement Project**

- SCOPE OF WORK – 1,100 lineal feet of 24-inch diameter and 3,160 lineal feet of 21-inch diameter sanitary sewer and associated ancillary facilities
- BUDGETED PROJECT COST \$2,200,000
- ESTIMATED ACTUAL PROJECT COST \$1,900,000
- STATUS – Construction completed. Project close-out process in progress.

- **Willow Road Waterline Extension Phase 1 Project**

- SCOPE OF WORK – 1,260 lineal feet of 14-inch diameter and 6,280 lineal feet of 12-inch diameter waterline and associated ancillary facilities
- Concurrent with County Willow Road Phase 1 Roadway Project
- BUDGETED PROJECT COST \$1,300,000
- ESTIMATED TOTAL PROJECT COST \$928,905
- STATUS – Final accounting from San Luis Obispo County under review

### **PROJECTS IN DESIGN AND PLANNING STAGES**

- **Supplemental Water Project**

- SCOPE OF WORK – 2,600 lineal feet 24-inch diameter HDD bore, 16,000 lineal feet of 12-inch diameter waterline, 210 lineal feet freeway crossing jack and bore, 4,000 lineal feet of 18-inch diameter waterline, 2,480 lineal feet of 24-inch waterline, 300 lineal feet levee crossing jack and bore, 2,000 gallon per minute pump station, 500,000 gallon tank, and 4 wellhead chloramination systems
- STATUS
  - Draft final bid documents for Bid Package 2, Nipomo Area Pipelines, Bid Package 3, Blosser Road Waterline, and Bid Package 4, Joshua Road Pump Station completed
  - 90% design for Bid Package #1, Santa Maria River Crossing, completed
  - Worked with AECOM to develop scope of work for phasing technical feasibility study requested by Water Resources Policy Committee

- **Water and Sewer Master Plan Implementation**

- Blacklake Well #4 Optimization Project
  - District reviewing 75% design submittal

### **OTHER PROJECTS AND PROGRAMS**

- **Safety Program**

- Conducted quarterly safety meeting for all District employees on May 11, 2012
- Continued to coordinate on-line safety training for all District Employees

- **Development Oversight**

- Maria Vista Estates – Sequoia Financial and Rialto Capital
  - Assisting new owners with developing plan to complete project
- Tract 2650 – Via Concha – Margarita Valley Ranch LLC
  - Overseeing construction of water system improvements

**MEETINGS**

- 5/14 – Tesco Controls, Remote site panel review
- 5-15 – General Manager coordination
- 5/15 – Standard and Poor's Rating Call, Southland WWTF Phase 1 Upgrade Project
- 5/17 – AECOM, Project Status, Southland WWTF Phase 1 Upgrade Project and Supplemental Water Project
- 5/18 – Tesco Controls, Technical issue review and project status
- 5/21 – EADOC Setup, Southland WWTF Phase 1 Upgrade Project
- 5/22 – SCADA Upgrade Project operations review
- 5/24 – Cannon, Blacklake Well 4 Optimization Project
- 5/24 – Southland WWTF Phase 1 Upgrade Project Review with General Manager, President Harrison and Director Winn
- 5/29 – Water Resources Policy Committee
- 5/30 and 5/31 – Tesco Controls, SCADA radio system field review
- 6/5 – General Manager coordination