


1-3-2019

2014 - Salinas Valley Hydrologic Subareas, 4th Quarter Water Conditions

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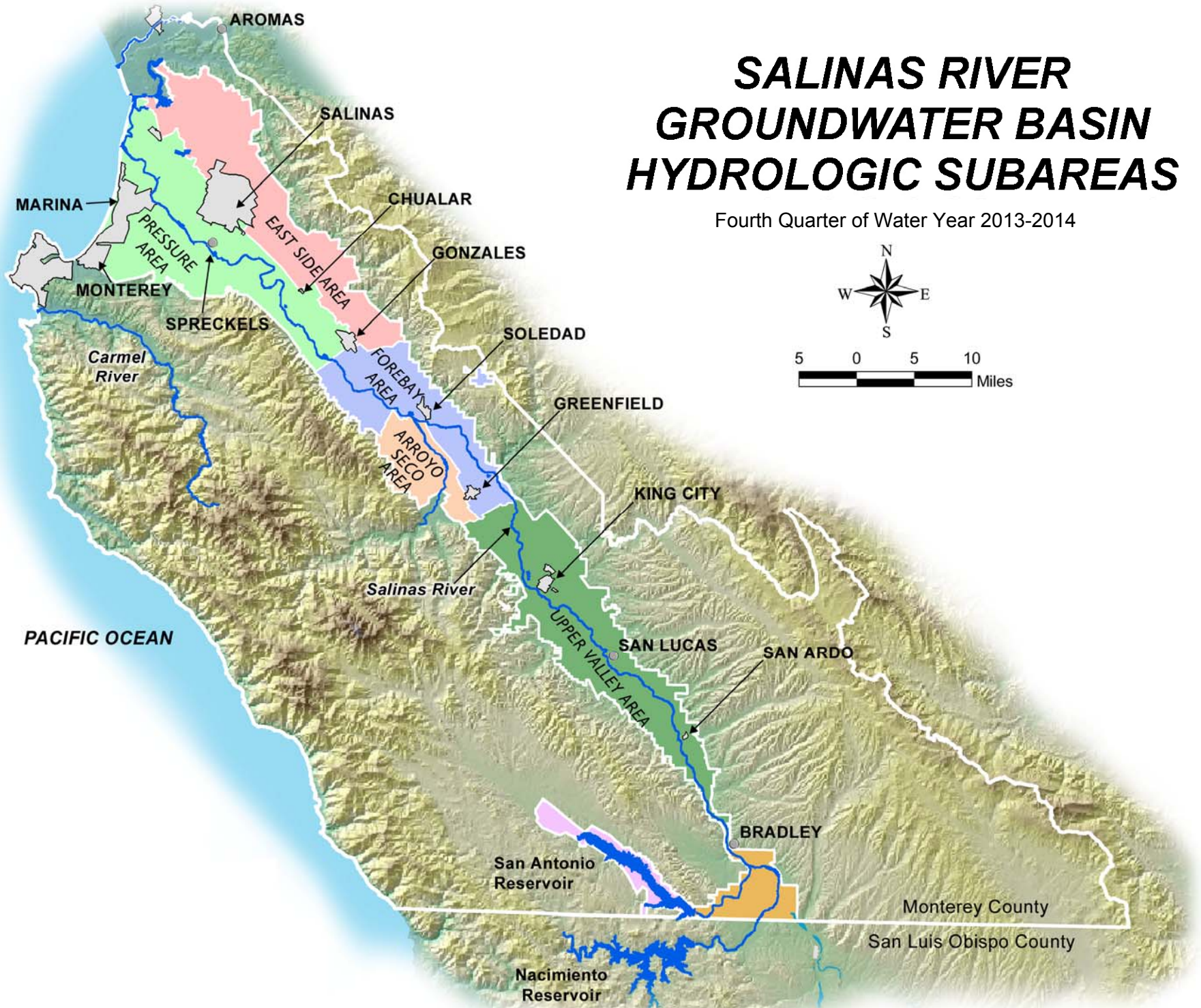
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SALINAS RIVER GROUNDWATER BASIN HYDROLOGIC SUBAREAS

Fourth Quarter of Water Year 2013-2014



**MONTEREY COUNTY WATER RESOURCES AGENCY
BOARD OF DIRECTORS**

MEETING DATE:	October 27, 2014	AGENDA ITEM:	
AGENDA TITLE:	RECEIVE REPORT ON SALINAS VALLEY WATER CONDITIONS FOR THE FOURTH QUARTER OF WATER YEAR 2013-2014		
Consent (X)		Action ()	
Information ()			
SUBMITTED BY:	Robert Johnson	PREPARED BY:	Peter Kwiek, Jess Barreras
PHONE:	755-4860	PHONE:	755-4860
DEADLINE FOR BOARD ACTION:	October 27, 2014		

RECOMMENDED BOARD ACTION:

Receive report on Salinas Valley water conditions for the fourth quarter of Water Year 2013-2014.

PRIOR RELEVANT BOARD ACTION:

A report was last presented to the Board on September 22, 2014, covering the third quarter of Water Year 2013-2014.

DISCUSSION/ANALYSIS:

This report covers the fourth quarter of Water Year 2013-2014 (WY14), July through September, 2014. It provides a brief overview of water conditions in the Salinas Valley with discussion of precipitation, reservoir storage, and ground water level trends. Data for each of these components are included as graphs and tables in Attachments A through I.

Precipitation – The fourth quarter of WY14 brought less than normal rainfall to Salinas and King City. Cumulative totals for the quarter were 0.11 inches (55% of normal rainfall for the quarter) at the Salinas Airport, while no measurable rainfall was logged in King City, which, on average, receives a total of 0.17 inches during the months of July through September.

Attachment A contains graphs for both stations showing monthly and cumulative precipitation data for the current and a normal water year. Tables with precipitation values shown on the graphs and percent of normal precipitation are also presented in Attachment A.

Rainfall data for Salinas and King City should be considered preliminary until verified by National Weather Service data at a later date.

Reservoirs - The following table compares fourth quarter storage at Nacimiento and San Antonio reservoirs for the past two years. Storage in Nacimiento Reservoir is 46,763 acre-feet lower than in September 2013, while storage in San Antonio Reservoir is 8,547 acre-feet lower.

Reservoir	September 30, 2014 (WY14) Storage in acre-feet	September 30, 2013 (WY13) Storage in acre-feet	Difference in acre-feet
Nacimiento	63,850	110,613	-46,763
San Antonio	12,266	20,813	-8,547

Graphs for both reservoirs showing daily storage for the last five water years and average daily storage are included as Attachments B and C.

Ground Water Levels – More than 80 wells are measured monthly throughout the Salinas Valley to monitor seasonal ground water level fluctuations. Data from approximately 50 of these wells is used in the preparation of this report. The measurements are categorized by hydrologic subarea, averaged, and graphed to compare current water levels with selected past conditions. Graphs for individual subareas, showing the current year’s water level conditions, last year’s conditions (WY13), dry conditions (WY91), and near-normal conditions (WY85), are found in Attachments D through H. Attachment I is a summary of water level changes for all subareas.

Ground water level measurements indicate that, by the end of the fourth quarter of WY14, water levels were recovering in the Pressure and East Side Subareas, but not in the Forebay or Upper Valley Subareas. Over the past month, average ground water levels rose by four feet in the Pressure 180-Foot Aquifer, two feet in the Pressure 400-Foot Aquifer, and one foot in the East Side Subarea while declining by two feet in the Forebay Subarea and one foot in the Upper Valley Subareas.

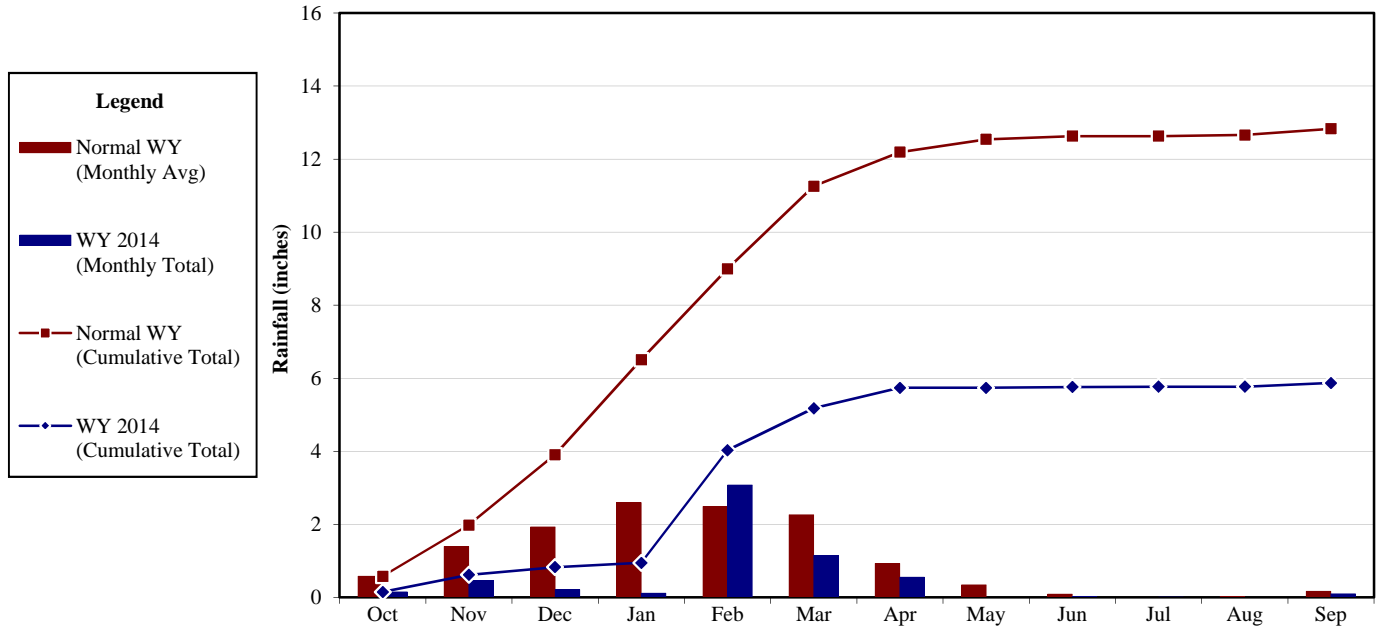
Compared to September 2013, average ground water levels in September 2014 were eight to twelve feet lower in all subareas, as shown in Attachment I.

When compared to WY85, which is considered to be a year of near normal ground water conditions, current water levels are 25 feet lower in the East Side Subarea, 10 feet lower in the Pressure 180-Foot Aquifer, eight feet lower in the Forebay Subarea and six feet lower in the Upper Valley Subarea. Water levels in the Pressure 400-Foot Aquifer are two feet higher than in WY85.

Average ground water levels for the fourth quarter of WY14 have fallen to WY91 levels in the Forebay Subarea, while falling below WY91 levels in both the East Side and Upper Valley Subareas. In the Pressure 180-Foot Aquifer, water levels equaled WY91 levels in August 2014 before recovering by two feet by the end of the quarter. By contrast, throughout the fourth quarter, water levels in the Pressure 400-Foot Aquifer remained eight to 10 feet higher than in WY91.

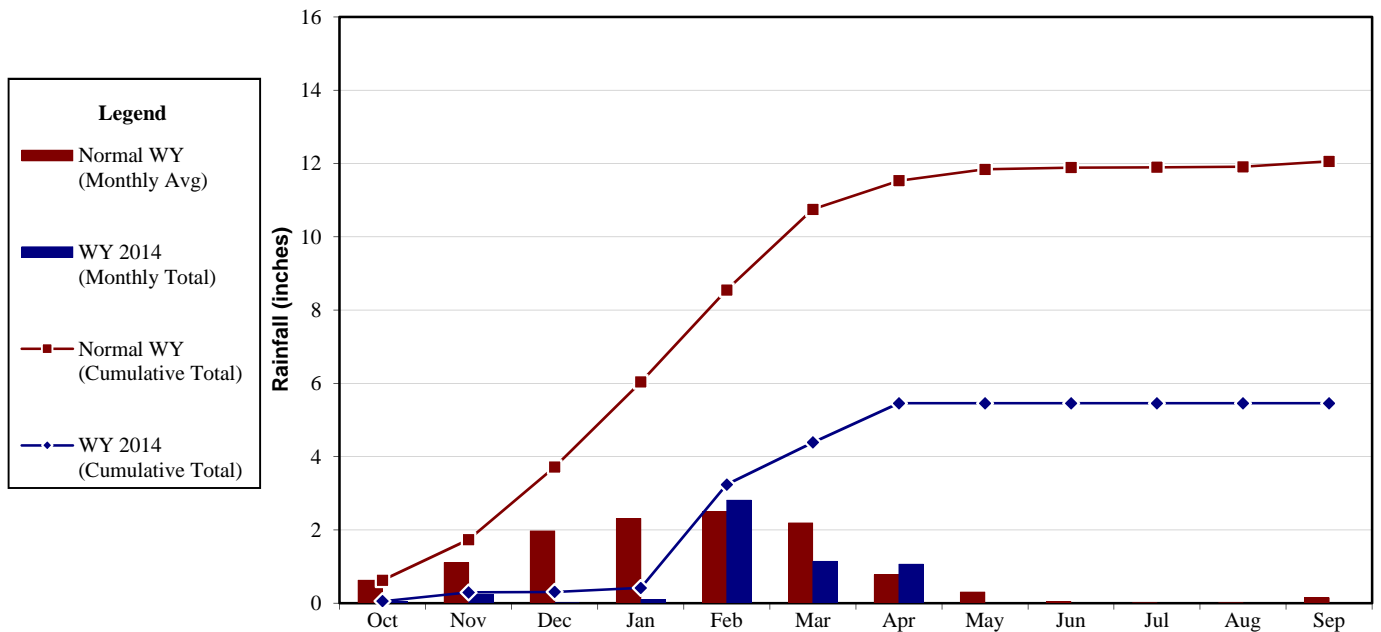
FINANCIAL IMPACT:	YES () NO (X)
FUNDING SOURCE:	
COMMITTEE REVIEW AND RECOMMENDATION:	None
ATTACHMENTS:	<ol style="list-style-type: none">1. Salinas Valley Hydrologic Subareas Map2. Salinas and King City Precipitation Graphs, Attachment A3. Nacimiento and San Antonio Reservoir Graphs, Attachments B and C4. Salinas Valley Monthly Water Level Graphs for Each Subarea, Attachments D through H5. Generalized Ground Water Trends, Attachment I.
APPROVED:	<hr/> General Manager Date

SALINAS AIRPORT RAINFALL WATER YEAR 2014



Monthly Rainfall (WY 2014)	0.15	0.47	0.21	0.12	3.08	1.15	0.56	0.00	0.02	0.01	0.00	0.10
Monthly Rainfall (Normal WY*)	0.58	1.40	1.93	2.60	2.49	2.26	0.93	0.35	0.09	0.00	0.03	0.17
Percent of Normal for Month	26%	34%	11%	5%	124%	51%	60%	0%	22%	N/A	0%	59%
Cumulative Rainfall (WY 2014)	0.15	0.62	0.83	0.95	4.03	5.18	5.74	5.74	5.76	5.77	5.77	5.87
Cumulative Rainfall (Normal WY*)	0.58	1.98	3.91	6.51	9.00	11.26	12.19	12.54	12.63	12.63	12.66	12.83
Percent of Cumulative Normal	26%	31%	21%	15%	45%	46%	47%	46%	46%	46%	46%	46%

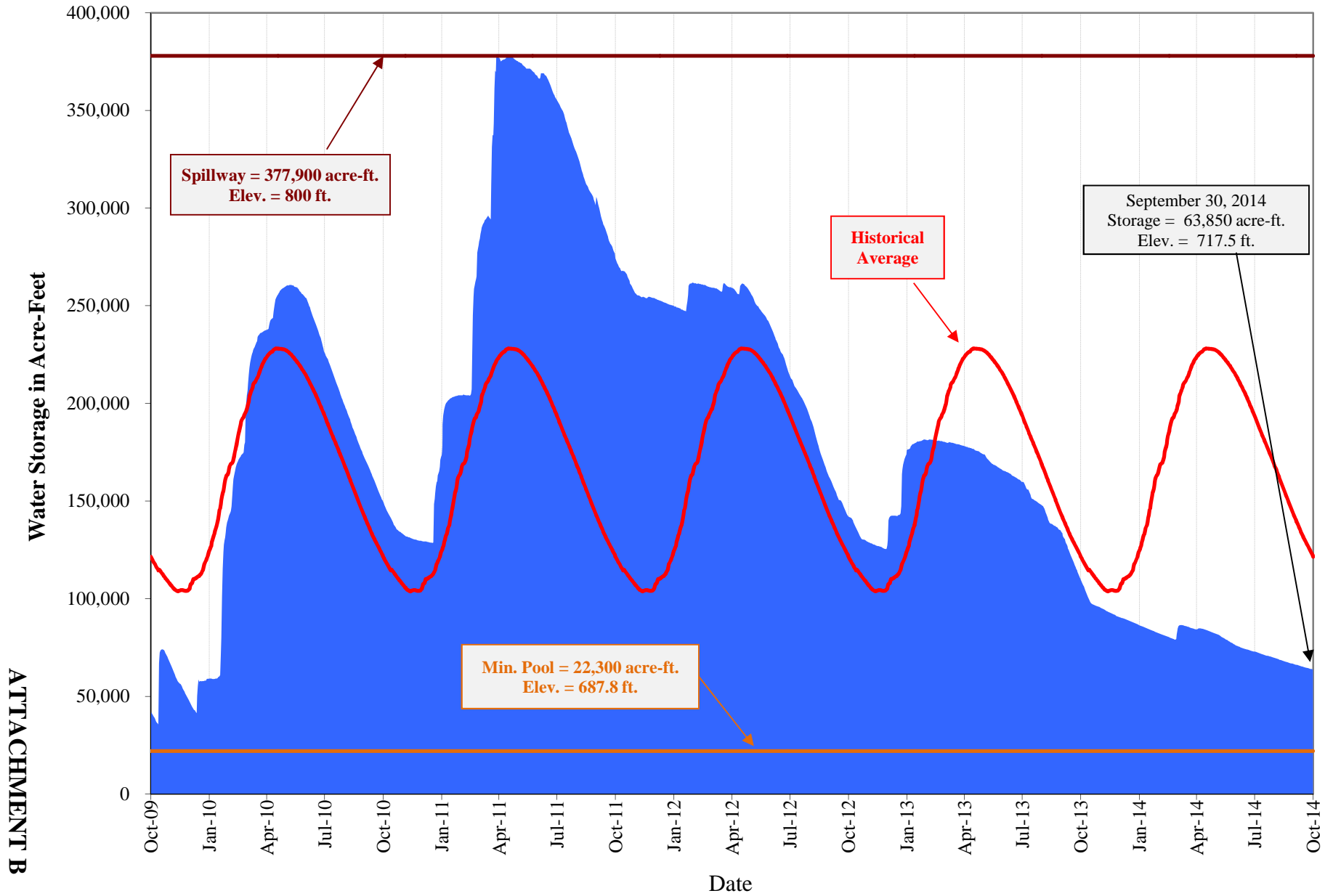
KING CITY RAINFALL WATER YEAR 2014



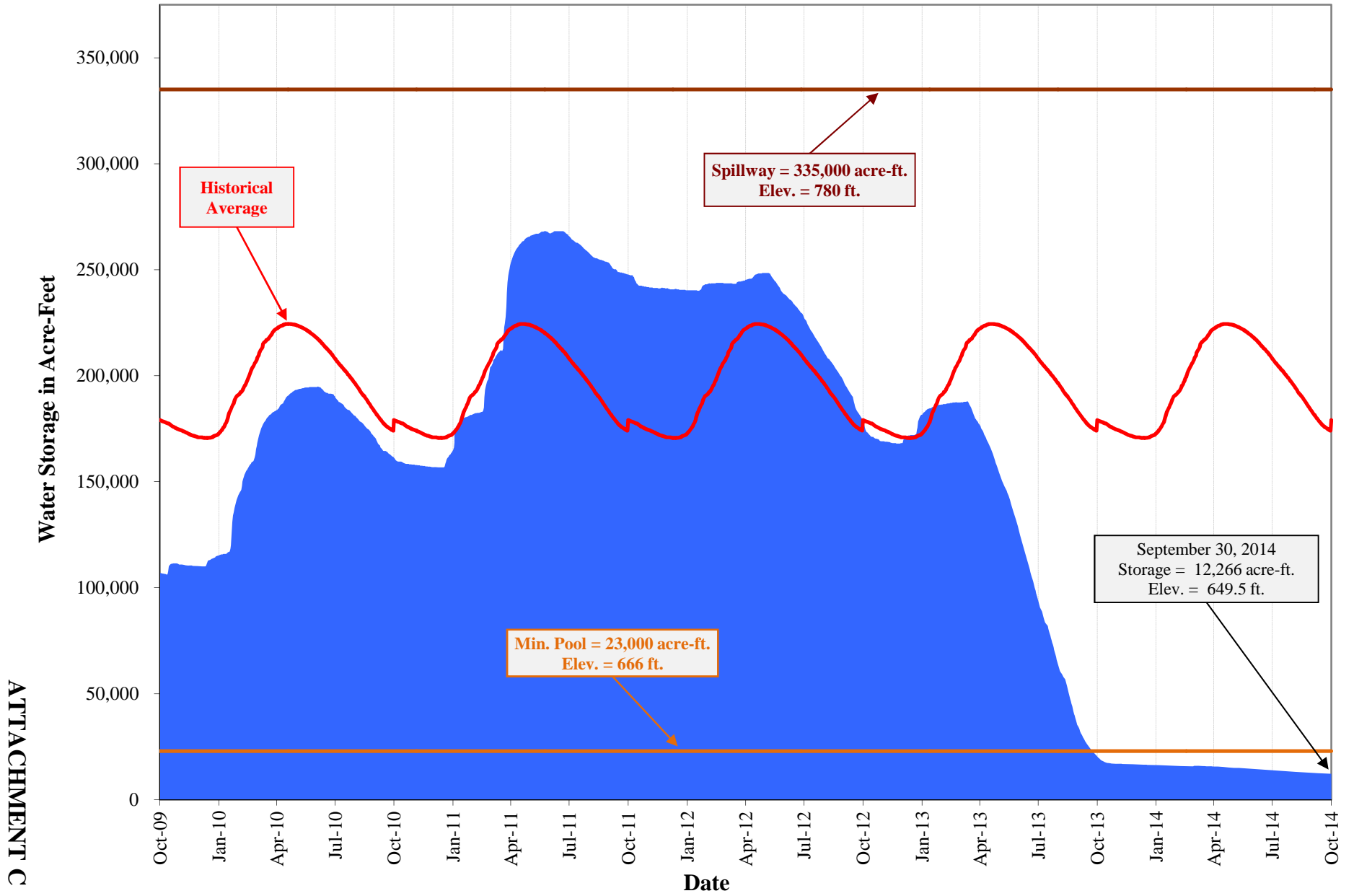
Monthly Rainfall (WY 2014)	0.06	0.24	0.01	0.11	2.82	1.15	1.07	0.00	0.00	0.00	0.00	0.00
Monthly Rainfall (Normal WY*)	0.63	1.11	1.98	2.32	2.51	2.20	0.78	0.31	0.05	0.01	0.01	0.15
Percent of Normal for Month	10%	22%	1%	5%	112%	52%	137%	0%	0%	0%	0%	0%
Cumulative Rainfall (WY 2014)	0.06	0.30	0.31	0.42	3.24	4.39	5.46	5.46	5.46	5.46	5.46	5.46
Cumulative Rainfall (Normal WY*)	0.63	1.74	3.72	6.04	8.55	10.75	11.53	11.84	11.89	11.90	11.91	12.06
Percent of Cumulative Normal	10%	17%	8%	7%	38%	41%	47%	46%	46%	46%	46%	45%

*Average precipitation over the most recent 30-year period ending in a decade (1981-2010)

NACIMIENTO RESERVOIR DAILY STORAGE



SAN ANTONIO RESERVOIR DAILY STORAGE

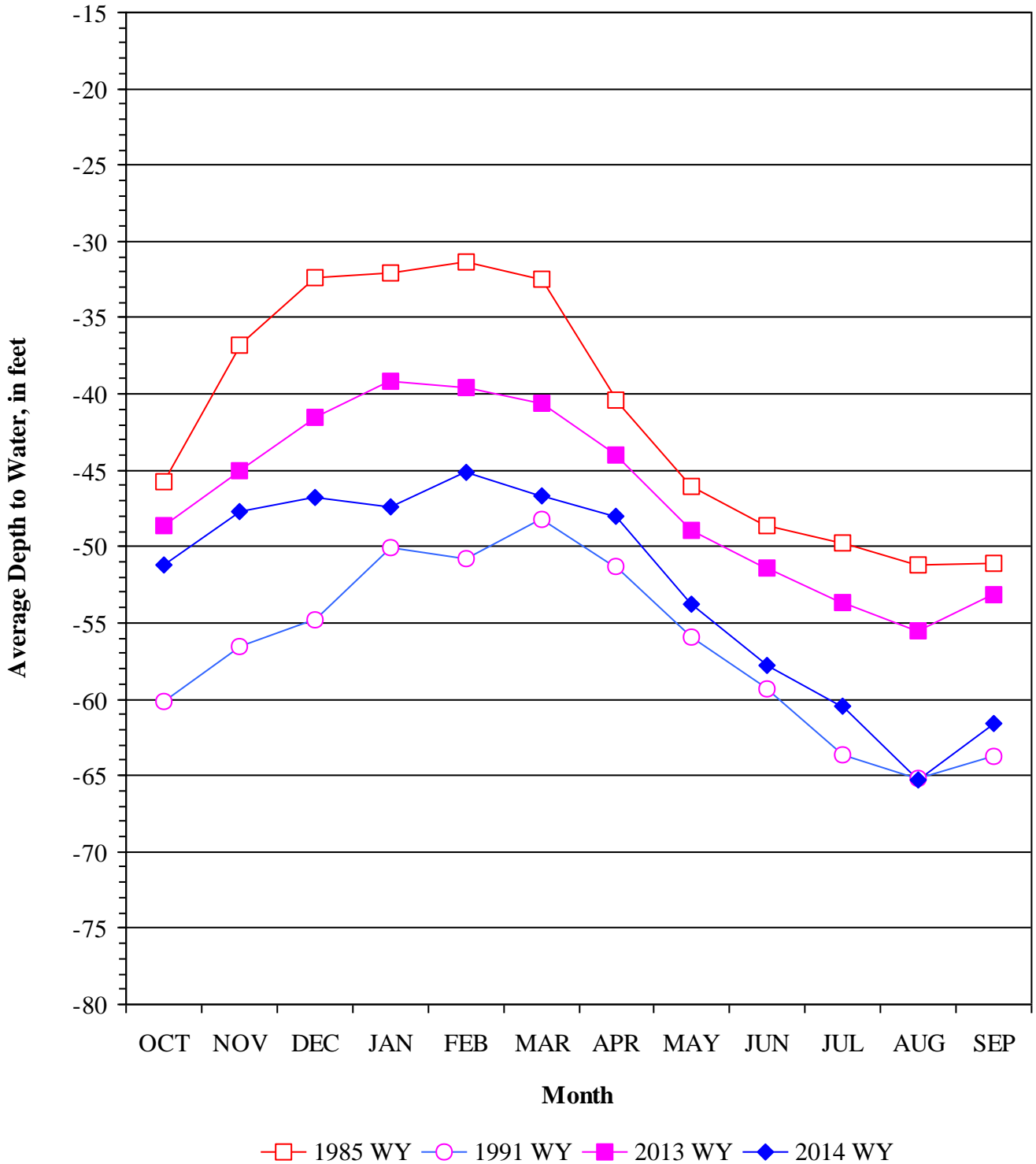


ATTACHMENT C

HISTORIC GROUND WATER TRENDS

PRESSURE 180-FOOT AQUIFER

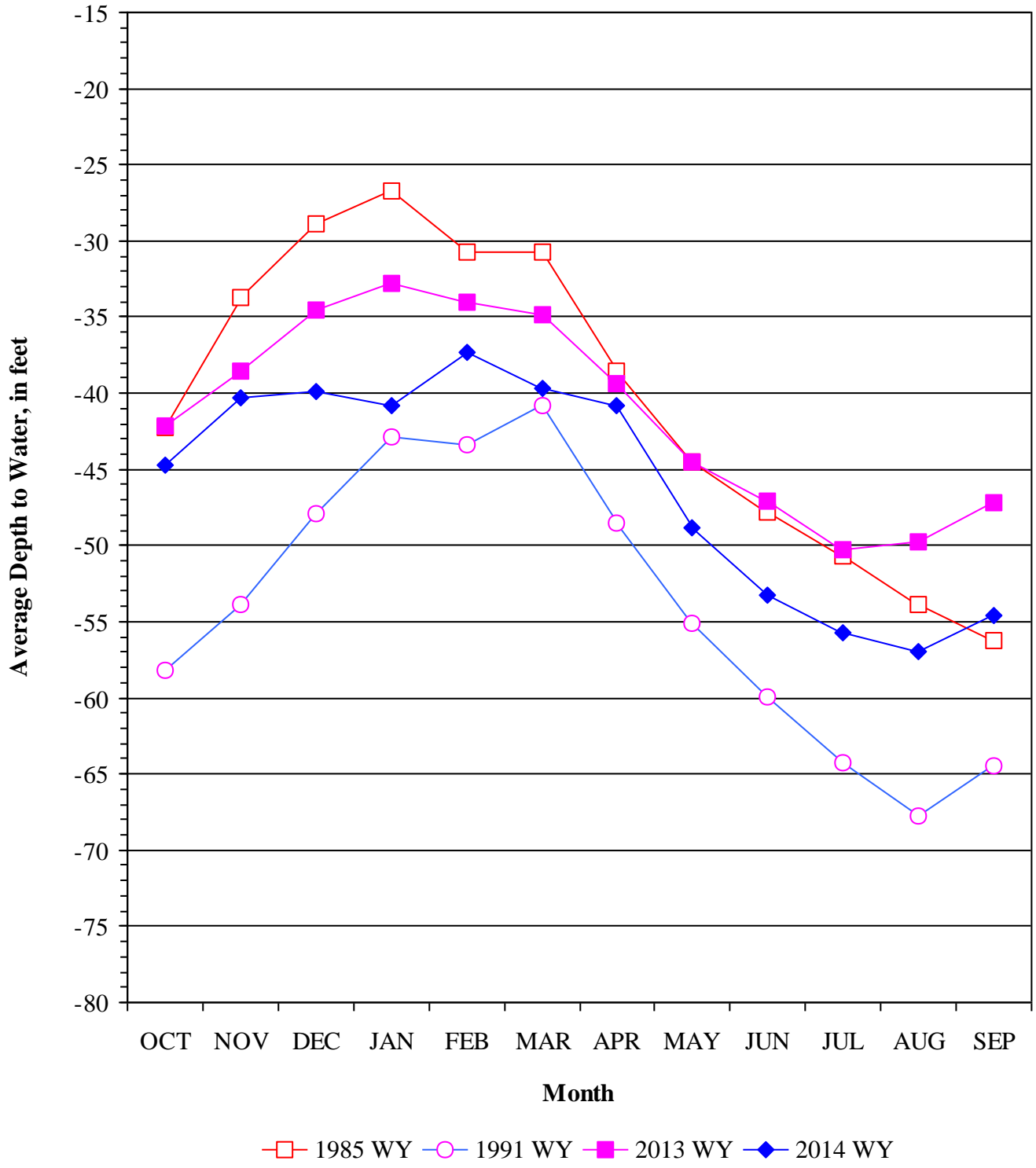
5 Wells



HISTORIC GROUND WATER TRENDS

PRESSURE 400-FOOT AQUIFER

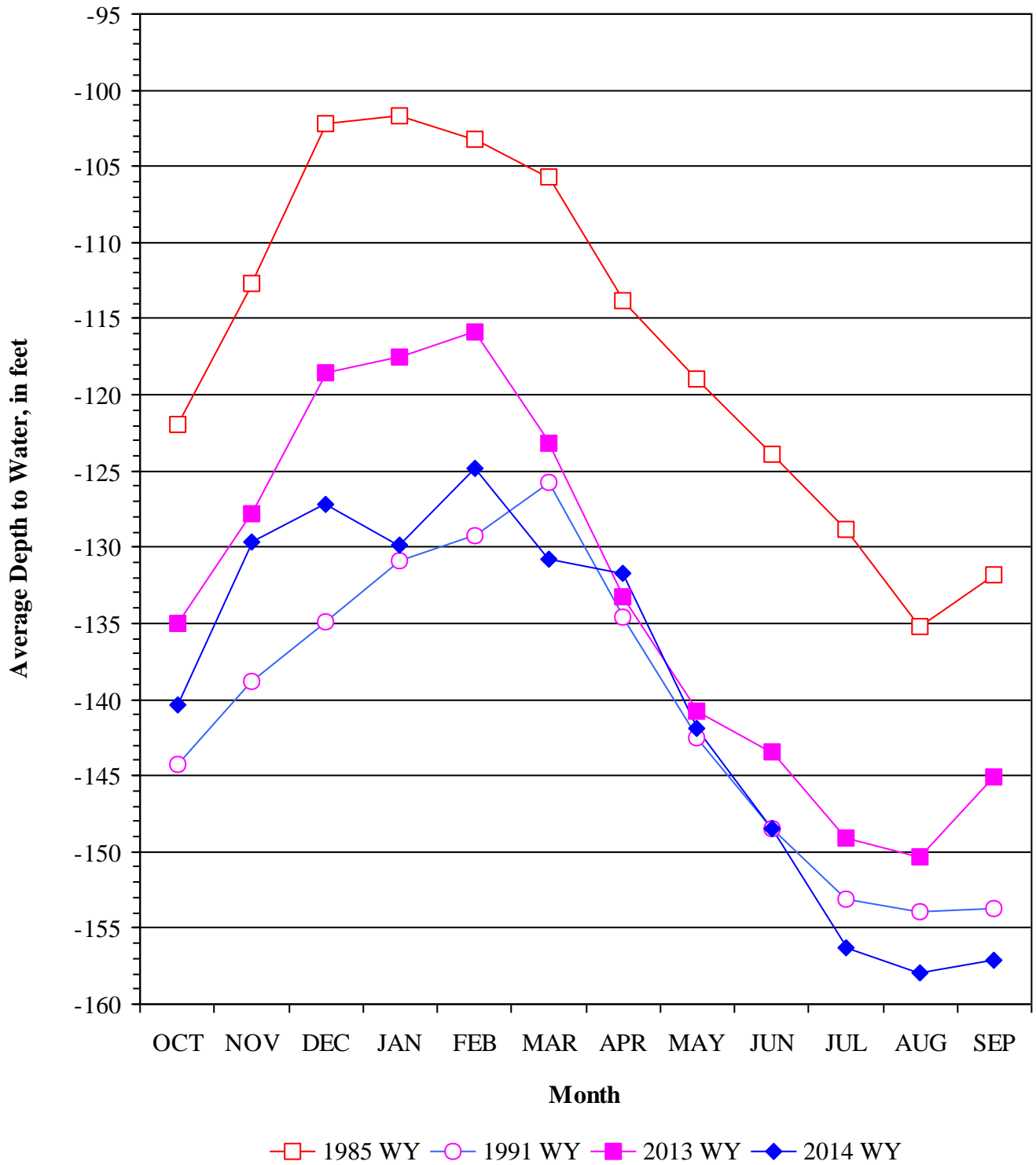
11 Wells



HISTORIC GROUND WATER TRENDS

EAST SIDE SUBAREA

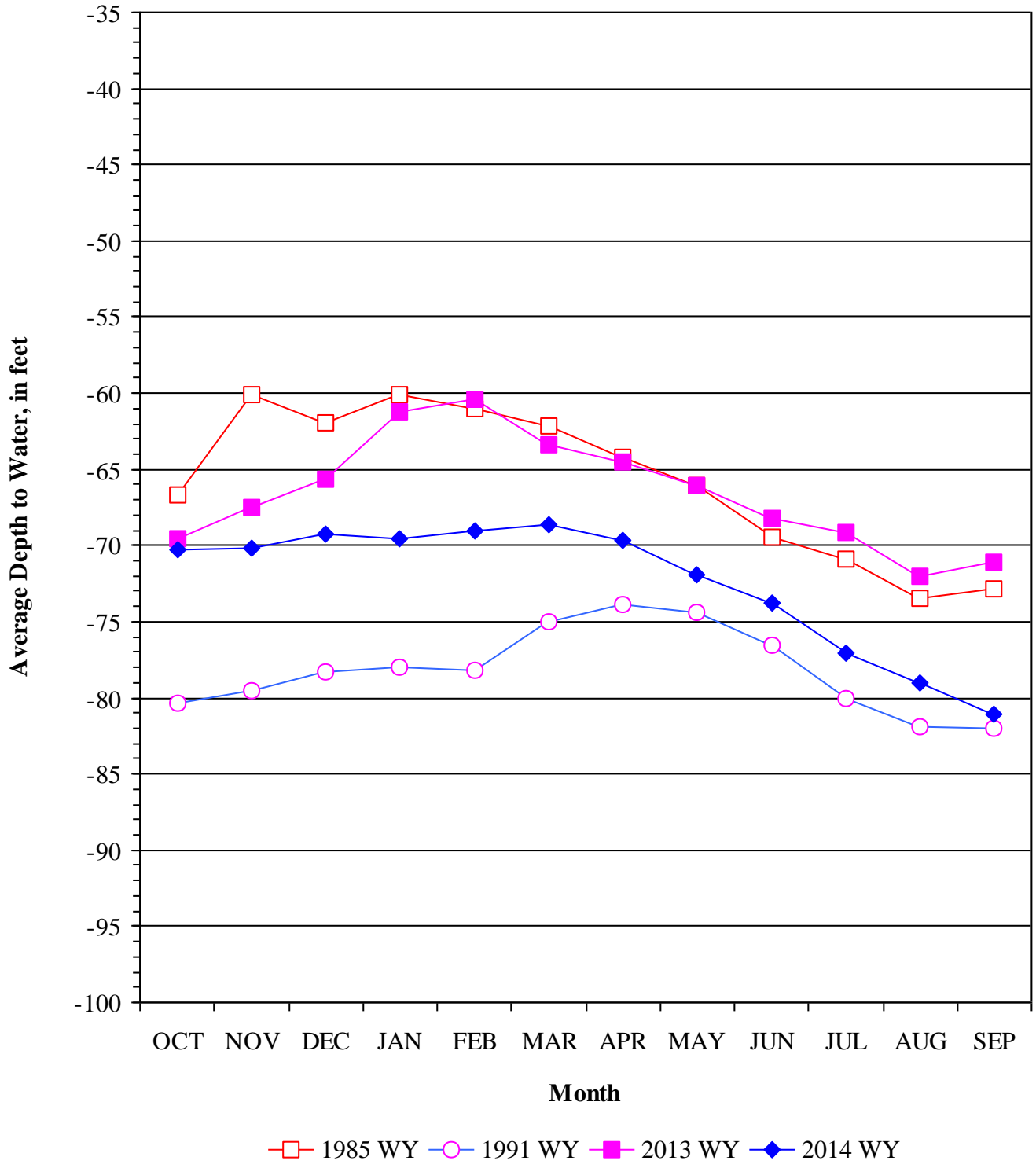
11 Wells



HISTORIC GROUND WATER TRENDS

FOREBAY SUBAREA

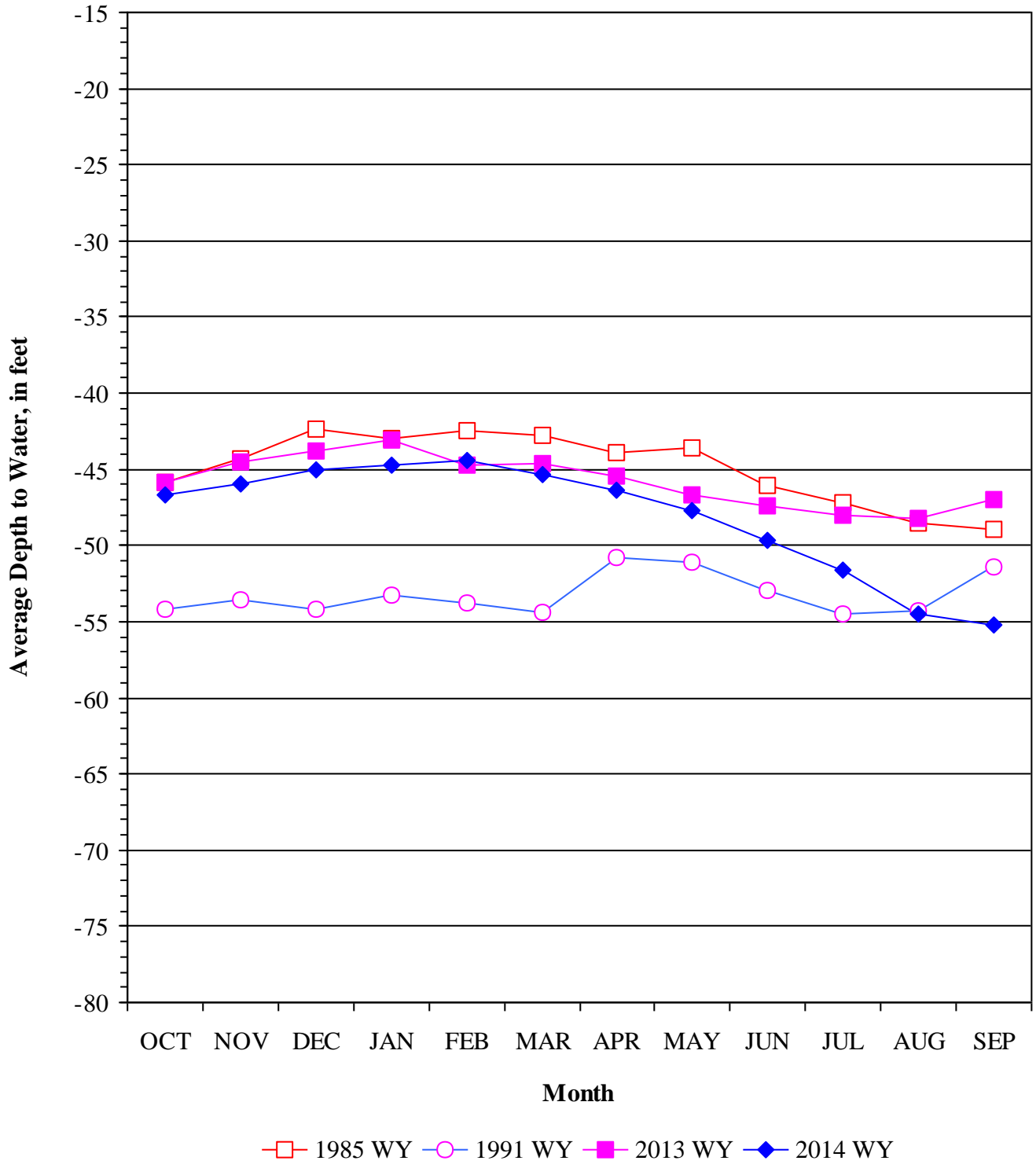
10 Wells



HISTORIC GROUND WATER TRENDS

UPPER VALLEY SUBAREA

9 Wells



Generalized Ground Water Trends

September 2014

Area	September 2014 Depth to Water	1 Year Change	Change From WY 1985	1 Month Change
Pressure 180-Foot Aquifer	62'	down 8'	down 10'	up 4'
Pressure 400-Foot Aquifer	55'	down 7'	up 2'	up 2'
East Side Subarea	157'	down 12'	down 25'	up 1'
Forebay Subarea	81'	down 10'	down 8'	down 2'
Upper Valley Subarea	55'	down 8'	down 6'	down 1'

September water levels, compared to last year, range from 12' lower to 7' lower.

September water levels, compared to WY 1985, range from 25' lower to 2' higher.

September changes in water levels over the last month range from 2' lower to 4' higher.