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2013 Review of Groundwater Levels

Groundwater is the primary supply for nearly 70 percent of the annual agricultural, domestic, and industrial water demand of Tehama County. Over 13,000 water wells have been constructed over several decades across the county to extract groundwater.

Since 1996, Tehama County has been implementing a county wide groundwater management Plan aimed at monitoring and managing the local groundwater supply. Spring and fall groundwater levels are measured in 48 “key wells” to acquire information about groundwater levels. Are groundwater levels stable, rising, or declining?

Several criteria were considered in the selection of key wells such as 1) broad geographic

distribution throughout the 12 groundwater sub-basins in the county, 2) long history (10 to over 40 years) of groundwater level monitoring that provides baseline trends and long-term variation, 3) known well construction features and good representation of other surrounding wells, and 4) landowner permission to access monitoring sites and take measurements.

Static (non-pumping) groundwater levels measured in the spring and fall, before and after the most intensive summer pumping season, are better indicators of the basin-wide groundwater levels. Static levels versus actual pumping levels during the summer season, provide more accurate tracking data, because actual pumping levels are site-specific and can vary significantly depending upon how the well is constructed, whether water is pumped from it regularly, and whether other nearby wells are pumping at the same time. Spring groundwater levels are important because they provide an indicator of how sufficiently the groundwater levels recover each year after the rains, snowpack, and runoff season prior to the more intensive summer season of groundwater extraction begins. Fall measurements provide an indicator of groundwater levels following the more intensive summer season of groundwater extraction and provide a sense of whether extraction is similar to other years and how much recharge is needed.

The Table, (*on the insert)*, summarizes groundwater levels measured Fall 2011, Spring 2012, Fall 2012, and Spring 2013 in 9 of 12 groundwater sub-basins of Tehama County. These groundwater levels are also compared to the Spring and Late Season Alert Levels. Alert Levels are established specifically for each key well. The Spring Alert Level 1 is calculated as the historical low of the spring measurements plus 20 percent of the range in historic spring groundwater levels. The Spring Alert Level 2 is defined as the historical low groundwater level in the past 10 to 40 years and typically corresponds with periods of critically dry or dry hydrologic conditions that occurred in 1977, 1991, and 2008 timeframe. The Late Season Alert Levels represent the historical low groundwater level measured during the Fall (usually October). The Late Season Alert Levels also usually correspond with groundwater levels measured during critically dry or dry hydrologic periods.

A comparison of recent groundwater levels to these Alert Levels provides a system to signal when groundwater levels are declining to levels that have not been experienced in the past. When monitoring indicates that groundwater levels have declined below an Alert Level, the county-wide Groundwater Management Plan calls for attention to the matter. A series of “Awareness Actions” have been defined to outline response steps. The Awareness Actions focus on communication, education, investigation, and cooperation to manage the groundwater resource

Recent groundwater level monitoring from the Fall of 2011 through the Spring of 2013 shows groundwater levels are generally trending toward historically low levels. Groundwater level measurements in about 70 percent of the key wells (34 of 48 key wells) were deeper than one or more of the Alert Levels. This reflects that since 2007, only one (2011) of five years has been a “wet’ hydrologic year in the Sacramento River Watershed. The other four years have been critically dry, dry, or below normal according to the Sacramento River Hydrologic Index. As a result, opportunity for groundwater levels to recover has been reduced. The trend towards lower groundwater levels may also reflect some growth and changes in land use.

Public Briefing on Bay Delta Conservation Plan

The Butte County Department of Water and Resource Conservation and Glenn County Water Advisory Committee will be sponsoring a public briefing on the Bay Delta Water Conservation Plan.

Meeting Details:

DATE: **Wednesday, August 21, 2013**

LOCATION: Chico Masonic Family Center
1110 W. East Avenue
Chico, CA 95926

TIME: **1:00 to 4:00 p.m.**

For additional information contact Vickie Newlin at the Butte County Department of Water and Resource Conservation. Phone: (530) 538-2179 or email VNewlin@buttecounty.net.

2013 Review of Groundwater Levels for Key Wells in Tehama County

Currently groundwater levels are not monitored in the South Battle Creek, Bend, and Corning West groundwater sub-basins.

Well ID No.	General Location	Spring Alert Level 1	Spring Alert Level 2	Late Season Alert Level	Fall 2011 Level	Spring 2012 Level	Fall 2012 Level	Spring 2013 Level
		(feet below ground surface)						
ANTELOPE SUB-BASIN								
26N02W17E001M	LeClaire & Decker Ave	16	19	20	20.1	16.8	19.6	19.9
27N02W31C001M	Bray & Craig Ave	28	31	38	29.7	32.7	34.2	32.5
27N03W10B001M	St. Mary & Trinity Ave	57	61	60	61.3	60.8	64.2	58.4
27N03W16K003M	Roundup Ave.	32	34	43	38.5	33.1	45.4	34.2
27N03W23D001M	Hogsback Rd & Hwy 99E	26	30	38	34.4	31.0	39.5	30.4
BOWMAN SUB-BASIN								
28N04W04P001M	Hooker Creek Rd & Hooker Rd	54	60	128	NA[1]	NA[1]	NA[1]	NA[1]
29N03W18M001M	Lake California Drive	32	34	43	25.7	NA[1]	26.9	25.1
29N04W15E002M	Draper Rd & Oak Lane	35	37	40	NA[1]	36.8	36.7	33.7
29N04W20A003M	Bowman Rd & Learning Way	37	38	45	40.2	37.5	45.2	38.3
29N04W28D001M	Hooker Creek & Jeffries Rd	105	108	104	103.8	100.4	106.1	100.7
29N04W35B001M	I-5 & Snively Rd	90	93	90	84.7	87.0	86.4	85.8
CORNING EAST SUB-BASIN								
23N02W16B001M	Near Cattle Drive	38	44	54	42.7	34.0	50.6	36.1
23N02W28N004M	5th & Moller Aves	LD[2]	LD[2]	LD[2]	47.9	39.4	64.4	44.1
23N03W05G001M	Liberal Ave & Cushman Lane	54	60	59	NA[1]	NA[1]	NA[1]	52.0
23N03W13C006M	Capay & Hall Rds	43	44	60	53.3	42.1	61.0	45.9
23N03W24A002M	Capay Rd & Sour Grass Creek	39	43	64	49.6	38.1	58.9	41.6
23N03W25M004M	Ingram Ave & TC Canal	LD[2]	LD[2]	LD[2]	70.4	59.1	81.1	64.1
24N02W29N003M	New York & Hall Rds	37	40	59	46.5	38.6	67.5	43.2
24N03W03R002M	Highway 99W & Finnell Ave	33	35	51	47.0	36.3	54.0	38.7
24N03W29Q001M	Chittenden Rd & Mt. Shasta Ave	75	77	89	87.6	77.4	96.1	82.2
24N04W14N002M	Corning Rd & Freeman School House Rd	73	79	100	72.5	NA[1]	97.6	83.6

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Well ID No.	General Location	Spring Alert Level 1	Spring Alert Level 2	Late Season Alert Level	Fall 2011 Level	Spring 2012 Level	Fall 2012 Level	Spring 2013 Level
		(feet below ground surface)						
DYE CREEK SUB-BASIN								
26N02W14G001M	Foothill Rd	78	81	85	77.0	77.3	78.7	78.1
26N02W15C001M	68th Ave & Hwy 99E	35	38	46	39.9	NA[1]	39.8	35.7
26N02W16C001M	68th & Schafer Ave	17	19	27	19.0	17.8	19.4	25.4[3]
26N02W21Q001M	9th Ave & Hwy 99E	19	21	26	24.1	17.8	23.8	19.4
26N02W29R001M	5th Ave	8	9	9	5.1	4.7	4.4	4.4
27N02W30C002M	Cone Grove Rd	31	36	41	33.1	33.6	35.8	33.1
LOS MOLINOS SUB-BASIN								
24N02W02E001M	Tehama Vina St	4	5	9	5.5	6.6	6.9	NA[1]
25N01W32P001M	Leninger Rd & Deer Crk	76	78	78	78.4	78.2	80.4	78.7
25N02W09G001M	Buena Vista Ave	41	43	42	41.0	40.6	48.4[3]	42.8
25N02W21B001M	Lee & Sherman St	13	15	18	NA[1]	NA[1]	NA[1]	NA[1]
25N02W34K001M	Hwy 99 E & Dye Creek	15	17	22	14.6	15.1	22.5	NA[1]
RED BLUFF EAST SUB-BASIN								
25N03W10L001M	Rodeo & Central Ave	46	51	66	55.6	42.0	76.9	54.5
25NO3W11B001M	99W & Gerber Rd	29	32	47	34.4	23.2	48.2	31.3
25N03W19N001M	Gyle Rd	54	60	97	91.5	66.6	94.4	71.6
26N03W17B001M	Cody Drive	54	55	60	58.6	56.0	61.5	57.1
26N04W25J001M	Ottman Ave & Paskenta Rd	53	58	63	61.4	57.9	63.1	61.4
27N04W35E001M	Live Oak & Red Bank Rd	119	124	133	121.0	111.4	127.6	116.9
RED BLUFF WEST SUB-BASIN								
27N04W05G002M	Hwy 36	45	47	65	49.0	43.0	92.8[3]	47.3
ROSEWOOD SUB-BASIN								
29N05W14L001M	Old Gold Rd	35	37	44	35.2	35.6	40.2	34.1
29N05W21H001M	Farquhar Rd	140	142	143	NA[1]	NA[1]	NA[1]	NA[1]
29N05W33A004M	Farquhar Rd	39	42	45	43.9	40.0	47.2	40.6
VINA SUB-BASIN								
24N01W05J003M	Reed Orchard Rd	88	93	90	89.4	89.1	93.1	89.6
24N01W05Q002M	Reed Orchard Rd	45	47	49	45.1	50.0	47.7	47.9
24N01W18N001M	Hwy 99E	64	65	69	NA[1]	NA[1]	NA[1]	NA[1]
24N02W12P001M	Vina Rd	30	31	31	30.1	30.3	31.4	31.8
24N02W23G001M	Vadney Ave & Rowles Rd	25	28	29	29.6	27.7	36.6	NA[1]
24N02W25G001M	South Ave & Stephens Rd	22	23	27	25.1	24.7	27.7	25.1

Footnotes:

NA[1] Data not available. Key well temporarily inaccessible or monitoring has been discontinued.

LD[2] Limited data. Recently constructed dedicated monitoring wells, insufficient monitoring history to define Spring and Late Season Groundwater Awareness Levels.

[3] Water was being extracted from key well or water had recently been pumped when groundwater levels were measured. Measurement is not likely a good indicator of static groundwater levels.

Highlighted measurements indicate that groundwater levels are deeper than one or more of the Alert Levels.