July 29, 2015

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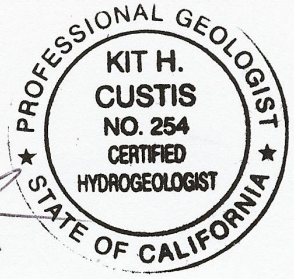

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RE: Comments and Recommendations on Draft Environmental Impact Report for Glenn Colusa Irrigation District's Groundwater Supplemental Supply Project, June 2015

This letter provides comments and recommendations on the information provided in the June 2015 Draft Environmental Impact Report (DEIR) prepared by the Glenn Colusa Irrigation District (GCID). This document evaluates the potential impacts from the alternatives in a proposed groundwater extraction project that's intended to supplement GCID's surface water supplies during dry or critically dry water years. The proposed project would include the installation and operation of five new GCID groundwater production wells along with continued operation of five existing groundwater wells. The proposed project wells are located in the eastern portion of Glenn County along or near GCID's main service canal. The DEIR analyzed the impacts from pumping each well at a rate of approximately 2,500 gallons per minute (gpm) with a maximum cumulative total annual pumping volume of 28,500 acre-feet per year (AFY). The DEIR also briefly evaluated impacts of five alternatives that include: 1) no project, 2) pumping only the five existing GCID wells in conjunction with other landowner wells, 3) conservation, 4) cropland idling, and 5) water importation through transfers from outside GCID.

The DEIR evaluated a number of potential environmental impacts from the groundwater pumping of the ten GCID production wells using a finite element groundwater model, SACFEM2013. The potential impacts evaluated include: groundwater levels; surface water flow; water quality; biological resources, including vegetation, wildlife and fisheries; and the associated cumulative effects and impacts. The DEIR analyzed four water resource impacts (Section 3.1), and provided two mitigation measures to address impacts to third party wells, WR-1, and increases in land subsidence, WR-2. The following comments and recommendations along with tables and figures attached as Exhibits 1 through 31.

1. The amount and extent of groundwater elevation drawdown from the proposed pumping were estimated using the SACFEM2013 groundwater model, which simulated two pumping scenarios from the time period of 1970 to 2010. Two incremental drawdown scenarios of 2 and 6 years of continuous pumping were simulated, labeled the November 15, 1977 and November 15, 1992 scenarios, respectively. The results of the modeling suggest that under prolonged pumping conditions (more than 1 year) a "new dynamic equilibrium" would be established in the aquifer system such that there would be no appreciable difference in incremental drawdown under either a 2- or 6-year operational scenario (Impact WR-2,

Section 3.1.3.2). The DEIR doesn't elaborate on the meaning or significance of "a new dynamic equilibrium" other than in footnote 8 on page 3-18 where the dynamic hydrologic condition of cyclic drought and wet years is noted. My interpretation of the significance of a new dynamic equilibrium is that the groundwater elevations are fluctuating about a new central value. The critical issue is whether this new central value is stable or trending. As I discuss below, it appears that the current long-term condition for the groundwater elevations in the area of GCID's project is one of a downward trend rather that a new lowered steady-state condition, even without the groundwater extractions being proposed by GCID.

Because the November 15, 1992 forecasted drawdown boundary in the shallow aquifer from the 6-year operations scenario is the outer boundary of the GCID's project impacts, I have used that boundary throughout my review of the DEIR as the estimated of the minimal area to be impacted by the GCID groundwater extraction project. Although I'm using this outermost-impacts boundary for my review, it must be noted that the outer boundary is only estimated and is based on a model simulation that does not extend into the present time, and thus fails to consider the hydrogeologic conditions resulting from the current period of sustained drought. In addition, as I'll discuss below, the simplified SACFEM2013 model assumptions likely miss some of the complexity of the aquifer hydrostratigraphy, and therefore the shape and extent of the actual groundwater drawdown impacts from GCID's project pumping may differ significantly from the SACFEM2013 model's prediction.

2. The estimated outermost impact area from groundwater drawdown by the GCID project wells overlaps numerous county, irrigation district, and hydrogeologic jurisdictions. The outermost impact area extends across three counties, Glenn, Butte and Tehama counties (Exhibit 1). The outermost impact area extends across four and possibly as many as six irrigation/water districts in Glenn County and 3 in Butte County (Exhibit 2). Drawdown impacts will affect seven to nine of the Glenn County Basin Groundwater Management Plan Sub-Areas; Sub-Areas 4, 5, 8, 9, 10 11, 12 and possibly 6 and 13 (Exhibit 3). Finally, the outermost impact area extends into four Department of Water Resources (DWR) Bulletin 118 groundwater basins; Corning (5-21.51), Colusa (5-21.52), Vina (5-21.57), and West Butte (5-12.58) (Exhibit 4). The DEIR discusses in Section 1.2.1.6 the recently passed Sustainable Groundwater Management Act of 2014 and in Section 1.2.1.7 Glenn County's Groundwater Management Plan (Glenn County Code, Title 20, Chapter 0003 – Ordinance 1115 amended by Ordinance 1237), but doesn't discuss how these management laws will facilitate the needed regional management of the GCID production well impacts. How will water agencies outside Glenn County participate in mitigation monitoring or mitigation measures related to the project?

   I recommend the DEIR be revised to provide additional discussion and procedures on how to manage the impacts in all of the affected jurisdictions that are the result of GCID's groundwater extraction project. Specific processes and procedures for developing and implementing project mitigation measures should be provided that define how all of the agencies will interact, investigate and mitigate future impacts.

3. Exhibits 5, 6, and 7 were taken from DWR's Groundwater Information Center's GIS web site (https://gis.water.ca.gov/app/groundwater/) with the project's outermost impact bounty overlain to show the relative spring 2004 to spring 2014 groundwater elevation changes. Exhibit 5 shows the actual values of the spring 2011 to spring 2014 groundwater elevation

changes; Exhibit 6 shows the actual values of the spring 2013 to spring 2014 groundwater elevation changes; and Exhibit 7 shows the actual values of the spring 2004 to spring 2014 groundwater elevation changes. A review of the rate of groundwater change given in these exhibits shows that much of the drawdown since 2004 has occurred in the last 4 years. The DEIR in Table 3-2 and Figure 3-2 gives statistics and drawdown contours for the summer of 2004 to summer 2014, and summer of 2013 to summer 2014. Figure 3-2 doesn't show the locations or the forecasted impact areas from GCID's pumping; instead it leaves it up to the reader to interpret the relationships. These DEIR figures also indicate that a large percentage of the drawdown between 2004 and 2014 occurred in the last few years. Thus much of the drop in groundwater elevations has occurred after the time simulated by the SACFEM2013 model that terminates with model year 2010.

The SACFEM2013 forecasts that drawdown from the project will decrease groundwater elevations as much as 8 feet in the shallow aquifer, 30 feet in the intermediate aquifers and 55 feet in the deepest aquifers (Section 3.1.3.2, page 3-20). By the year 2020, when the Groundwater Sustainability Agencies are to begin managing groundwater basins being impacted by the GCID's project wells, the drop in groundwater levels in the area adjacent to the GCID wells may be greater than what has occurred in the last 10 years. Based on the statistics in Table 3-2, the forecasted maximum drawdown from the GCID project will lower groundwater levels over the next 10 years by another 40% in the shallow aquifer (8ft/19.1ft), 45% in the intermediate aquifer (30ft/66.9ft), and 150% in the deep aquifer (55ft/36.7ft). Note there is a problem with the maximum decrease statistic for the deep aquifer in that the decrease from 2013 to 2014 exceeds that from 2004 to 2014. Exhibits 8, 9 and 10 show contour maps of the changes from spring 2004 to spring 2014 in the shallow, intermediate and deep aquifer zones' groundwater elevations in northern Sacramento Valley along with the ten GCID project wells (DWR, 2014b). The locations of the GCID project wells suggest that the forecasted impact from pumping may join the two existing intermediate aquifer depressions, and expand to the existing shallow and deep aquifer zone depressions to the east and south. A plot of the GCID project wells onto Figure 3-2 would show a similar pattern.

I recommend the DEIR be revised to provide additional discussion on the existing conditions of the groundwater levels in the area of the project's anticipated impacts and the potential for the project's drawdown to expand the existing area and depth of the groundwater depressions in the shallow, intermediate and deep aquifer zones. Additional monitoring and mitigation measures should be provided that specifically address monitoring any expansion of the groundwater depressions and mitigating the project's impacts to the existing areas of groundwater depressions.

4. The DEIR relies in part on the Best Management Objectives (BMOs) given in the Glenn County Groundwater Management Plan (GCGWMP) for measurement, thresholds of significance, and mitigation measures from the project's groundwater drawdown impacts. The DEIR briefly discusses in Section 3.1.3.2 the BMOs' requirements for Sub-Areas 8 and 9, and 11, and notes that GCID is in Sub-Area 11, but there is no discussion of BMOs for Sub-Areas 4, 5 or 10, which may also be impacted by the GCID project's pumping. On page 3-19 in Section 3.1.2, the DEIR notes that Butte County has established BMOs, but that there are "*no locatable key wells with established groundwater level monitoring within the simulated 5-foot or greater cone of depression.*" No discussion is provided on how groundwater drawdown impacts will be monitored and mitigated in the Tehama County portion of the project's

impacts.

The discussion of mitigation measure WR-1 starting on page 3-40 introduces a second method for measuring groundwater impacts from the project's pumping. Mitigation measure WR-1 will use the existing DWR groundwater monitoring program data to *establish long-term antecedent trends in groundwater levels*. An unspecified number of DWR monitoring program wells will be used to *evaluate groundwater levels prior to, during, and after project operations*. Mitigation measure WR-1 doesn't provide any specific details on how the antecedent trends will be developed or what thresholds will trigger mitigation measures.

I recommend the DEIR be revised to provide additional discussion on how the two groundwater management and monitoring procedures, the Glenn County BMOs and mitigation measure WR-1 antecedent trends, will work together to ensure that the groundwater drawdown impacts from the project are adequately monitored and provide sufficient warning so that mitigation measures can be implemented to reduce the project's impacts to less than significant. I also recommend that the DEIR be revised to provide specific methodologies for selecting the DWR wells, calculating the antecedent trends, the groundwater trend thresholds that indicate project groundwater impacts and the specific mitigation measure based on the thresholds. The DEIR should identify the specific wells that will be used to monitor groundwater drawdown trends and include wells in Sub-Areas 4, 5, and 10 as well as Butte and Tehama counties.

5. The SACFEM2013 groundwater model utilized hydrogeologic input data that simplifies the complexity of the Sacramento Valley aquifer systems. For example, **Exhibits 11 and 12** are maps taken from the February 2015 SACFEM2013 User's Manual (CH2MHill and MBK Engineers, 2015; in Appendix M in the USBR/SLDMWA's March 2015 Long-Term Water Transfer EIS/EIR) that show the hydraulic conductivity distribution for model layers in the SACFEM2013 simulations. The location of the GCID project is shown by an overlay of the outermost impact boundary. Note that the model layers are numbered 1 to 7, shallowest to deepest, respectively. The general chevron shape of horizontal hydraulic conductivity contours beneath GCID's project shown in Exhibit 11 reflects the structural imprint from the underlying Glenn Syncline with values that are generally symmetrical about the current trace of the Sacramento River. That is, the SACFEM2013 model assumes the hydraulic conductivity values are generally similar at similar distances west or east of the river. A recently published study of the hydrostratigraphy of the areas surrounding GCID's wells suggest that the assumption of symmetrical hydraulic conductivity used in SACFEM2013 model may be too simplistic for the lower production aquifers.

   Greene and Hoover (2014) recently published the result of an investigation of the lower Tuscan/Tehama aquifer at depths of approximately 500 to 1500 feet in the vicinity of GCID's production wells. They combined well cuttings from four different wells along with geophysical well logs from 457 wells spanning 440 square miles to create a series of maps that delineate seven subsurface stratigraphic horizons that provide insight to the regional structure of the basin and the distribution of the water-rich, porous sand zones. In addition to the development of hydrostratigraphic maps, the study also analyzed results of four aquifer performance pump tests to evaluate previous interpretations of the hydraulic properties of the lower Tuscan/Tehama aquifer. Three of the pump test wells were existing GCID wells, GCID-2, GCID-3 and GCID-4, and the fourth, was located further to the west, is a Orland Artois Water District's well, OAWD-2, Exhibit 13. This lower Tuscan/Tehama aquifer study

produced a great amount of new information on the deeper aquifers. For this discussion on the impacts of using a simplified model of hydraulic conductivity in estimating the drawdown impacts from the GCID project, the results that are most relevant from the lower Tuscan/Tehama aquifer study are the complexity of the distribution of higher percentage sand zones, and the general occurrence and shape of zones with a higher percentage of sand, and greater thickness in east. Note that hydraulic conductivity can be correlated with the percentage of coarse-grained sediments (Figure C14 in Faunt, 2009) with higher a percentage of sand generally resulting in greater hydraulic conductivity.

Exhibits 14-A to 14-B show five hydrostratigraphic maps for the LT-3 to LT-4, and LT-4 to LT-5 zones. The five maps include the upper and lower structural maps for the surfaces of the two bounding zones. In addition, three other types of maps are provided for the two intervals: 1) an isopach map that depicts the thickness of the interval; 2) a total sand thickness map; and 3) a sand fraction map (0 to 1 with 1 being 100% porous sand). Zones LT-3, LT-4 and LT-5 were selected for my comment letter because the GCID wells are generally screened across some or all of these zones (Exhibits 15-A, 15-B and 15-C). The pump test analysis of the four wells found that the aquifer hydraulic properties differ from west to east. Greene and Hoover interpreted that the differences in transmissivity and storativity found with the pumped well tests reflect the differences in sand composition, thickness, and distribution in the vicinity of the OAWD-2 well from those in the GCID wells as a possible result of a sharp western boundary of the sandy-braided depositional system that generally aligns with the Glenn Syncline and today's Sacramento River and underlies the three GCID wells tested, Exhibit 13.

Three features that are clearly shown in these hydrostratigaphic maps are: 1) the distribution of fine and coarse-grained sediments is not symmetrical about the Glenn Syncline, in that finer-grained sediments predominate in the west and coarser-grained in the east, 2) areas of coarser-grained sediments can be localized with the deposition pattern appearing to reflect an ancient northwest-to-southeast oriented braided stream system, similar to today's river, and 3) the thickness of the coarser-grained sediment is greater to the east of the GCID wells.

The importance of this new information on the hydrostratigraphy around the GCID wells is that the generally symmetrical pattern of drawdown that resulted from the SACFEM2013 modeling effort may not reflect the predominance of coarser-grained, water-rich zones on the east side of the wells. The results of the SACFEM2013 model show that the total area of the pumping impacts and the outer distance to the no-impact boundary is greater to the west in Glenn County, than east in Butte County. In fact, no wells in Butte or Tehama counties are proposed for monitoring in mitigation measures WR-1 and WR-2, and obviously are not included in the Glenn County BMO monitoring program. This lack of monitoring in Butte County, when that area may be a major source of the water pumped by GCID's wells, may allow for impacts that are inadequately recognized and thus improperly mitigated. It should also be noted that a recent draft report on the finding from the 2004 and 2008 GPS network subsidence studies found one sampling point, designated "WILD," in the easternmost Glenn County to have subsided an average of -0.38 feet (Ehorn, 2015).

I recommend the DEIR be revised to provide additional discussion on the SACFEM2013 model and why its assumptions about the distribution aquifer properties, hydraulic conductivity, transmissivity, storage coefficient, thickness, etc., are sufficiently representative to produce a reasonable estimate of the amount and extent of changes in groundwater levels as a result of the GCID

project's pumping. Specifically, the DEIR should address how SACFEM2013 models the complexity of the hydrostratigraphy identified by Greene and Hoover (2014) in the intermediate and deeper aquifers beneath the project area.

6. The DEIR discusses the potential impact from land subsidence that is due to the project's groundwater extraction in section 3.1.1.3, starting on page 3-13. Table 3-3 lists five extensometers that are near the project's wells. Exhibit 16 shows the locations of these extensometers along with the GCID pumping wells. The DEIR also mentions that DWR has a continuous global positioning system (GPS) network for periodic monitoring of changes in ground elevation. A baseline GPS survey was performed in 2004. The DEIR doesn't mention that DWR and the U.S. Bureau of Reclamation conducted a second survey jointly in 2008 (DWR/USBR, 2008). The DEIR doesn't provide any specific information on the results of the GPS subsidence monitoring, but includes use of these GPS measurements in mitigation measure WR-2 as an option for monitoring subsidence impacts. In fact, the DEIR doesn't reference or discuss the results from what DWR presented earlier this year to the Glenn County Water Advisory Committee on the results of the 2004 to 2008 GPS subsidence-monitoring program (Ehorn, 2015), which identified and area of subsidence east of the GCID wells. I'll discuss this report again in my comment no. 10 on mitigation measure WR-2.

   Although the 2014 DWR report titled, "*Summary of Recent, Historical, and Estimated Potential for Future Land Subsidence in California,"* is cited (DWR, 2014a), the DEIR doesn't provide any of the report's maps, which show that there is a high potential for land subsidence in Glenn County (see Figure ES-1). The DEIR Section 3.1.1.3 discusses the five extensometers in the GCID project area and Table 3-3 listing recent subsidence data. The land subsidence at an extensometer between Orland and Willows (21N02W33M001M) is said to be -0.05 feet, but that the land has remained stable since 2009, although Table 3-3 lists the subsidence for this station at -0.08 feet in October 2014. Exhibit 17A is the graph of the land subsidence for extensometer 21N02W33M001M taken from DWR's Groundwater Information Center GIS web site. This graph shows that land subsided approximately 0.02 feet between 2009 and 2010 (-0.06 ft to -0.08 ft). Coincidentally, this subsidence occurred during the year when GCID pumped 1,405 acre-feet (AF) of ground water using one or more the existing wells (page 3-15). In 2011 and 2013, GCID pumped 6,300 AF and 5,000 AF, respectively, using the existing wells without the increase in subsidence seen in 2009. Because the DEIR doesn't provide information on which of the existing wells were pumped during 2009, 2011 and 2013, there is uncertainty about the impact of the GCID's pumping on land subsidence. Exhibit 17B is a map of the land subsidence values determined by comparing the DWR 2004 and the DWR/USBR 2008 GPS surveys that was presented to the Glenn County Water Advisory Committee on February 10, 2015 (Ehorn, 2015). The results of the GPS surveys found an area of land subsidence several miles east of the GCID well no. E3 at the station designated "WILD" that averaged -0.38 feet. This information is now 7 years old and pre-dates the GCID groundwater extractions of 2009, 2011 and 2013. Note that the 7-year delay by DWR/USBR between collecting the GPS subsidence data and reporting the results is too long to be used in mitigation monitoring measure WR-2. GCID would need to conduct and analyze the GPS or land surveys at regular intervals to effectively monitor the subsidence from GCID's pumping. The results from the 2008 study suggest that additional subsidence surveys in the area of "WILD" GPS station to document current rates of land subsidence appear to be warranted. **Therefore, I recommend that the monthly GPS or land surveys given as an option in Step 2 of WR-2 be implemented at the start of the GCID's project**.

Exhibit 18, also taken from the 2014 DWR subsidence report, shows the percentage of wells with groundwater levels at or below the historical spring low by DWR Bulletin 118 groundwater basin. The Colusa basin in Glenn County is shown as having greater than 30% but less than 50% of the wells with groundwater levels below the historical spring low. The West Butte and Vina basins in Butte County and the Corning basin in Tehama County are shown as having greater than 50% of the wells with water levels at or below the historical spring low. The DEIR doesn't acknowledge this current information or it's importance in accessing the existing and potential land subsidence within and surrounding the project's impact area. In fact, the DEIR's analysis of land subsidence in the project area, Impact WR-4, on page 3-39 states that:

> *The proposed project would not be anticipated to cause a substantial permanent land subsidence due to lowering of groundwater levels, because the production wells would only be pumped in years of drought, and water levels would recover during wetter years. The possible exception would be during multiyear droughts, when water levels would take longer to recover and could result in minimal subsidence. However, based on historical hydrology, severe multiyear drought conditions are anticipated to occur infrequently (this hydrologic condition has occurred twice in the past 110 years [DWR, 2015e]). Although not expected, minimal subsidence could occur as a result of project pumping that may result in damage to surrounding infrastructure and would be considered significant.*

I recommend the DEIR be revised to provide additional discussion on subsidence in and adjacent to the project's impact area. Specific information is needed regarding why DWR has categorized the Corning sub-basin as having a high potential for future subsidence. Information is also needed regarding the conditions at each of the three existing extensometers lying within or adjacent to the project's impact area. Specifically, what are the conditions at extensometer 21N02W33M001M and how does the subsidence relate to past groundwater extractions by GCID. Information is needed on the cause of subsidence measured at the "WILD" GPS station from 2004 to 2008. Information is needed on what measures GCID will take to assess the current rates of land subsidence in area of the "WILD" GPS station and other areas that are subsiding. Analysis is needed on the potential for the project's pumping to increase the number of wells whose groundwater level might fall below the historical low. Specific mitigation measures should be given on how the project's pumping will minimize the known areas of subsidence in the future.

7. The following comments are on stream depletion resulting from the extraction of groundwater, and in particular, the GCID project analysis in the DEIR. I have a number of comments and have divided them into subject areas to facilitate review.

a. General Comments on the DEIR

Three sections of the DEIR discuss the issue of depletion of surface water resources due to pumping the GCID wells. A general discussion on surface water-groundwater interaction in the Sacramento Valley Groundwater Basin is given on page 3-11. The discussion notes that drought conditions or groundwater production near gaining streams can result in losing streams with surface flows recharging the groundwater system. The DEIR states that if a stream dries up, it no longer provides a source of recharge to the underlying aquifer system.

This discussion doesn't provide any specific information on the GCID production well project's impacts to surface water resources.

The second section on the GCID project's impacts to surface water resource starts on page 3-38 in the Impact WR-3 section (DEIR Section 3.1.3.2, Operational Impacts). The DEIR states that Figure 3-4 shows several streams that flow across the maximum forecasted area of shallow drawdown of 1-foot or greater. I think the more appropriate figure might be Figure 3-6. Table 3-6 summarizes the SACFEM2013 simulated reductions in stream flow as maximum and average reductions. This stream flow impact analysis was focused on impacts on supplies to the Central Valley Project, State Water Project, or other non-project water users. The WR-3 impacts section concludes that:

> *Because the magnitude of streamflow reduction along the length of the streams is small and because many of the streams are anticipated to be dry during drought conditions, surface water supplies would not be substantially depleted because of drawdown resulting from project operations, and impacts on streams would be less than significant.*

The third section of the DEIR discusses the impacts of the GCID pumping on biological resources, and in particular, fisheries, starting on page 3-52 in the Impact Bio-4 section (DEIR Section 3.2.3.2, Operational Impacts). The analysis discusses forecasted losses in flow in three major streams, Stony Creek, Big Chico Creek and Little Chico Creek, with the losses listed in Table 3-6. The basic conclusion regarding GCIS project's pumping impacts to these three streams is that because they currently don't support habitat for anadromous salmonids the effects of the project's drawdown will be less than significant for these species. For warm water and resident fish species, the DEIR concludes that they are adapted to variable flows, and will survive in the deep pools or upper reaches not affected by the project. I'll have to defer to the fisheries biologist regarding the habitat value of these streams, but I will comment on the adequacy of the modeling forecast of stream depletion and the information provided on depletion rates and timing.

b. Uncertainty in Calculation of Stream Depletion by SACFEM2013

The stream depletion from GCID's pumping was calculated with the SACFEM2013 model using a number of approximations and assumptions. The description of the stream depletion modeling procedures is provided in the SACFEM2013 User's Manual (CH2MHill and MBK Engineers, 2015) in Appendix M of the March 2015 Final Long-Term Water Transfer Environmental Impact Statement/Environmental Impact Report prepared by the U.S. Bureau of Reclamation and San Luis & Delta-Mendota Water Authority. The specific assumptions, formulas, and methods for modeling impacts of GCID's pumping on surface waters are given in the discussion of Head-dependent Flux Boundaries, Section 3.2.4.1 of the SACFEM2013 User's Manual.

To accurately model the exchange between surface water and shallow groundwater, accurate information is needed on at least the following parameters: 1) the elevations of the ground surface and stream bed; 2) the length of the stream bed; 3) the variations in the quantity of stream flow with water year type; 4) the variations in the depth of the surface water flows throughout the year and along the length of channel; 5) the wetted width of the flows in the creek; 6) the vertical hydraulic conductivity of the streambed sediments; and 7) the thickness of the streambed sediments. The values for these parameters used in the SACFEM2013 model were developed using various methods of approximation and estimation. Neither the

User's Manual nor the DEIR indicate what field measurements were taken to validate the stream depletion model parameter estimations, and no references are given for independent field studies.

As an example, the methodology for developing the ground and streambed elevations used in the model is an example of model parameter uncertainty. The ground and streambed elevations were calculated using the USGS 30-meter digital elevation model (DEM) and the SACFEM2013 model grid (User's Manual pages 3-19 to 3-20). The statistics of maximum, minimum and mean elevations were developed for each model node from DEM values in the area that contributes flow to the node. The ground surface was assumed to be equal to the mean DEM value, while the streambed was initially assumed to be the minimum value. When the results of the initial streambed elevations looked unrealistic, a polynomial trend line through to the minimum values was used for the streambed elevation.

The other model parameter values used for calculating stream depletion are developed by making assumptions (pages 3-14 to 3-35 in User's Manual) and these estimates likely have large ranges of uncertainty resulting in a large margin of error in the model results. All of the following page numbers refer to the SACFEM2013 User's Manual.

- The model used a uniform vertical hydraulic conductivity (Kv) based on assumptions of streambed deposit size expected for the given stream size (page 3-19; no references cited).
- Streambeds draining from the Sierra Nevada were generally assigned lower streambed Kv values, and west side streams were assigned higher values (page 3-19; no references cited).
- The wetted stream width was calculated at two and occasionally more locations from aerial photos on each stream.
- Transient stream stage was developed from historical stream gauge data. Unfortunately, the vertical datum for these records is often different and couldn't be related to a standard datum so it isn't possible to making a consistent datum for all stage and flow data (page 3-20). Some gauge reports give only flow and not stage, and rating curves were not readily available. *To utilize as much of the available gage data as possible while addressing the issue of multiple or unknown vertical datums, historical stage data were assumed to approximate stream depth above the streambed elevation. Historical stream depths were then added to estimated streambed elevations to determine water surface elevations for input into SACFEM2013* (page 3-20).
- Ungauged or incomplete stream stage and flow records were estimated using data from nearby or similar gauged streams (page 3-31).
- In the absence of any additional data, the stream stage from one gauge was assumed to be at a uniform depth along the length of the stream (page 3-31). Factors that might change the stream stage such as watershed area, diversions, return flows, channel geometry, and others weren't considered due to the effort required in collecting this information.
- For streams with multiple gauges, the stage was set equal to the gauge record with the stage between gauges interpolated based on stream distance (page 3-31).

Finally, after all of the parameters were estimated, the model stream depletion was calculated only every 1,640 feet along the channel length. While this is acceptable for a regional model, it may not produce sufficient accuracy when individual projects are evaluated. An accurate estimate of stream depletion is critical to assessing the potential impacts from the GCID's

groundwater extraction project because the SACFEM2013 stream depletion estimates are used in combination with the assertions that the reaches of the surface waters potentially impacted by the pumping have no fisheries habitat value. This leads the DEIR to reason that monitoring and mitigation measures are unnecessary for protection of fisheries resources.

Because of the uncertainty in the parameters used, it is likely that the SACREM2013 modeled estimate of stream depletion resulting from GCID's groundwater extraction project has a large margin of error. The DEIR doesn't provide any information on the range of stream depletion values that would result from using different, but equally valid parameters in the SACFEM2013 model simulations. In addition, it isn't clear from the DEIR discussion how the combined stream depletion from groundwater extractions by GCID's and third parties wells is calculated. That is, how the baseline stream depletion was affected by GCID's project stream depletions. Yet the DEIR concludes that there isn't a need for stream channel or fisheries monitoring, or any channel flow or fisheries mitigation measures.

Because of uncertainty in the estimate of stream depletion that would result from GCID's groundwater extractions, I recommend that monitoring be added to the DEIR that requires prior to the beginning of each pumping season, the streams and rivers potentially impacted by GCID's pumping be surveyed to determine whether there are fisheries resources needing protection. If fisheries or other biological resources needing protection are found, then repeated field surveys should be conducted throughout the pumping season. I also recommend that a mitigation measure be added to the DEIR that requires a plan for rescuing fish that become stranded or endangered. This rescue plan should be developed in conjunction with Federal and State wildlife agencies. Implementation of the rescue plan should be carried out whenever flows in the streams drop to a level that threatens the fisheries or other resources.

c. Surface Water-Groundwater De-coupling

The accuracy of stream elevation is important because the SACFEM2013 model de-couples the stream from the ground water whenever the groundwater elevation is below the elevation of the stream and assigns a value to seepage based on the head difference between the stream stage and channel bed (equation 5 on page 3-14 in User's Manual). The User's Manual doesn't cite any reference for why this is the most appropriate estimate of seepage when the groundwater elevation drops below the streambed. Bouwer (1978) discusses seepage rates from streams and canals (pages 268 to 279) and identifies three basic conditions. Bouwer describes a condition "C" that requires a "clogging layer" along the channel's wetted perimeter. In this condition, the depth of the water table has no effect on seepage rate when the top of the capillary fringe is below the channel bottom. The User's Manual is silent on whether the presence of a clogging layer was required for stream de-coupling to be activated.

d. Seepage Rate Calculations

The analysis of stream flow impacts due to pumping the GCID wells is also inadequate because the DEIR doesn't provide specific information on:

1) How the *average* seepage rate was actually calculated. Over what duration was the average calculated; the annual period of pumping, a complete year, 6 years, 16 years, or all 41 modeled years (Table 3-6 footnote c)?
2) The timing of the *maximum* seepage rate isn't given relative to the beginning of pumping. Does it occur annually, or after several years of pumping?
3) The duration of stream depletion that continues following cessation of a single pumping event isn't stated. That is, how long will a single season of GCID's extraction continue to impact surface flow and by how much?
4) Whether stream depletion from a the number of pumping events, whether consecutive or not, is cumulative and how does this change the value and timing of maximum seepage rate?
5) The cumulative impacts to surface water flows from the combined pumping of the ten GCID and other wells in Glenn, Butte and Tehama counties, particularly other irrigation and production wells. The DEIR notes that there are 175 private production wells throughout the GCID district (page 3-15) and more than 3,000 known domestic, irrigation, and miscellaneous wells within Glenn County (page 3-19). However, the groundwater diversion rates and volumes for these wells are unstated as well as their seepage impacts.
6) No references are provide as to why it can be assumed that once a section of streambed becomes dry, groundwater pumping no longer impacts surface water resources. This validity of this assumption is important in part because the biological impact assessment assumes that warm and resident fish will survive in the deep pools that need to be fed by stream channel underflow.

e. Importance of Underflow to Stream Resources

The DEIR's evaluation of impacts from stream depletion is also inadequate because it assumes that once a streambed becomes dry continued pumping of groundwater has no effect on surface flow. This assumption ignores the role that stream underflow plays on maintaining pools and riparian habitats. The assumption also ignores the fact that the depth to saturated ground water beneath a streambed will impact the volume and duration of flow needed to re-wet the channel at the beginning of the next rainy season. The deeper the depth of ground water, the more aquifer voids there are that need to be re-filled in order for the stream to sustain surface flows. In other words, a greater volume of water for a longer period of time is needed at the beginning of the rainy season to sustain surface flows.

f. Cumulative Stream Depletion and Recovery Time

Stream depletion is additive. Cyclic pumping year after year will continue to add up (Bredehoft, 2011). The concept of a long-term average value of stream flow loss from pumping implies that cyclic pumping by the GCID wells will be cumulative. Wallace and others (1990) analyzed the effects of cyclic pumping and the duration for the groundwater aquifer to recover 95% of the pumped water by recharge from surface water bodies. They found, with some specific correction factors, that cyclic pumping could be evaluated as a time-weighted pumping average. That is, to achieve an instantaneous time-weighted average pumping rate, the volume of water pumped is divided by the total time of interest. For example, pumping at a rate of 1,000 gallons per minute for 6 consecutive months is effectively pumping at 500 gallons per minute for a full year.

The time needed for recovery of the loss in groundwater storage due to pumping, by recharge from surface water, is dependent on the hydraulic characteristics of the pumped aquifer and stream bed, and the distance between the well and stream (Jenkins, 1968; and Miller and others, 2007). Wallace and others (1990) calculated that the time needed to recover 95% of the water pumped from an aquifer is approximately 127 times the stream depletion factor (SDF), which is calculated as the square of the distance between the well and stream (a^2) times the storativity (S) divided by the transmissivity (T) ($SDF = a^2 * S/T$). The stream depletion factor, SDF, has units of time, such as days or years. Jenkins (1968) noted that for ideal aquifers when the pumping duration is equal to the value of the SDF (pumping duration / SDF = 1.0), the volume of water taken from the stream is 28% of the total volume of water pumped by the well. In addition, the instantaneous rate of stream depletion when the pumping time equals the SDF value is equal to 48% of the total pumping rate. Although the DEIR doesn't provide an estimate of the stream depletion rate as a percentage of the stream flow, it appears from the maximum values listed in Table 3-6 that the depletion rates for the listed streams and rivers are less than 48% of the average stream flow. This would suggest that the time it takes until the aquifers pumped by the GCID well are 95% recharged by stream depletion may take decades. In fact, a report on the pumping impacts from the 2009 Sacramento Valley groundwater substitution transfers using the SACFEM model with a simulation period from 1976 to 2003 showed aquifer recovery following a single 1976 pumping event was only 60% after 30 years (Figure 4d in CH2MHill, 2010). This suggests that the impacts from a single year of GCID's groundwater extraction project and the impacts from reoccurring pumping events will continue for many years.

The ten GCID wells don't pump in isolation; they are part of a wide area of agriculture that relies in part on the use of groundwater, particularly during dry and critically dry water years when surface water deliveries are reduced. The DEIR doesn't provide much specific information on how much groundwater is pumped by third parties in the Glenn, Butte Colusa and Tehama counties, but the 2013 Water Plan (DWR, 2013) indicates that negative changes in groundwater supply in the Sacramento River hydrologic region ranged from 1,211,000 to 2,049,000 AFY from 2001 to 2010 (Table SR-13 on page SR-62).

I recommend the DEIR be revised to provide additional discussion and analysis of the long-term impacts to surface water bodies within and adjacent to the project area of impact. This analysis should include the duration of impacts to surface water bodies from the project's groundwater extraction and the cumulative depletion and impacts from all of the groundwater extractions currently being done in the portions of Glenn, Butte and Tehama counties that are impacted by the project. The DEIR should provide specific monitoring requirements to assess whether the extent and rate of the anticipated impacts to surface water bodies are remaining within the levels predicted by the modeling effort. I also recommend that an emergency plan be prepared that will facilitate the rescue of any fisheries resources or other biological resource should the flows in the streams potentially impacted by GCID's project drop to a level that threatens the resources. In addition, the DEIR should provide specific mitigation measures to correct any impacts to surface water resources that exceed anticipated levels to a level of less than significant.

8. **Exhibit 3** provides a map of the Glenn County Groundwater Management Plan Sub-Areas with the BMO groundwater monitoring wells listed for each Sub-Area, and the outermost impact boundary for the GCID project. The DEIR states on page 3-37 that the SACFEM

2013 model forecasted drawdown from the 6 years of the project's pumping at six "key" wells in Sub-Areas 8 and 9 and nine "key" wells in GCID's Sub-Area 11 were reviewed to evaluate potential impacts to third party wells and concluded on page 3-38 that no impacts due to drawdown would occur. This conclusion seems to conflict with the summary of BMO exceedances given in Table A-3 of Appendix A. Table A-3 gives the forecasted exceedances of Stage 1, 2 and 3 alert levels at key BMO wells due to GCID's project pumping for the 41-year simulation period of the SACFEM2013 model. Table A-3 indicates that the model found a number of additional exceedances of BMO Stage thresholds as a result of GCID's pumping. Remembering that the SACFEM2013 model simulation ended in 2010 and doesn't evaluate the current groundwater levels, thus the number of additional BMO Stage exceedances given in Table A-3 is likely low. Apparently, the approach being taken by the DEIR is that project's pumping will create known impacts to groundwater levels, exceedance of BMO Stage threshold, but then be mitigated by actions that might be taken as required by mitigation measure WR-1. I will discuss mitigation measure WR-1 further in my comment no. 9.

The DEIR doesn't list the "key" wells that were reviewed in assessing pumping impacts, presumably they are the ones listed in the GCGWMP for each Sub-Area. Figures 3-9a and 3-9b present hydrographs showing simulated groundwater elevations versus time from water years 1970–2010, but no information, tables or graphs are provided that show how the forecasted drawdowns affect the current groundwater levels in the key monitoring wells. That is, what groundwater elevations are anticipated from future pumping starting with today's groundwater levels? Have actual recent groundwater levels in these key monitoring wells already dropped below a BMO Stage threshold? This is a critical issue that needs to be addressed because of the current extended period of drought and the historical drop in groundwater levels in the Glenn and Butte counties (Exhibits 5 through 10 and 18). If groundwater levels in some of the "key" wells are already below a BMO Stage threshold, then actions and mitigation measures required by the GCGWMP should be currently implemented and mitigation measure in WR-1 and perhaps WR-2 would need to be implemented when the GCID project is approved. Immediate implementation of the DEIR mitigation measures would likely change the project description and thereby alter the monitoring and mitigation requirements. In particular, some of the optional mitigation measures might need to be mandatory.

Although the DEIR selects 15 key wells to monitor the project's drawdown impacts, these wells are but a few of the wells being monitored by DWR or other agencies within the project's outermost impact area. Exhibit 19 is a table of the 15 key wells listed for Sub-Areas 8, 9 and 11 in the GCGWMP. Exhibit 20 is a map of these 15 BMO wells, the GCID project wells, and the outermost impact boundary. Exhibits 21, 22, 23 and 24 show the locations taken from DWR's CASGEM web site of all the active CASGEM wells, monitoring wells, irrigation wells, and residential wells in the vicinity of the project, respectively (http://www.water.ca.gov/groundwater/casgem/online_system.cfm). It should be noted that GCID for the 2013 groundwater substitution transfer program that pumped from the five existing GCID wells utilized only three of the nine Sub-Area 11 monitoring wells (20N02W11A001M, -2M and -3M), and none of Sub-Areas 8 and 9 wells, but instead used 35 of the observation wells, which are listed in Exhibit 25A (West Yost, 2014) and 25B. The DEIR doesn't however propose for mitigation measures WR-1 and WR-2 to use any of the 2013 GCID monitored wells that sample groundwater within the outermost impact area, even though some are located closer to the existing GCID Sub-Area 11 wells (Exhibit 26).

Exhibit 27 is a map plotted on a Google Earth image that shows the locations of the ten GCID project pumping wells and a selection of other observation, irrigation and residential wells that occur within or near the outermost impact area. Exhibit 28 is a table that lists the location, well identification and groundwater monitoring start and end dates for the selected wells shown in Exhibit 27. Exhibits 29-O-1 to 29-O-20D provide the well information, hydrographs and recent groundwater level measurements in the selected wells plotted in Exhibit 27 that taken from DWR CASGEM and Water Data Library web sites. Most of the wells listed in Exhibit 28 are closely spaced groups of wells that sample at multiple depths. Of particular importance are wells that lie within Butte County. Even though these Butte County wells may not be part of a formal BMO monitoring program, they can still be used to monitor the impacts from the project's groundwater extractions. Most of the wells in Exhibit 29 show a drop in groundwater level since 2010. Because the SACFEM2013 model simulation ended in 2010, the model's results likely don't reflect recent conditions and thus are not representative of current groundwater conditions in the area being impacted by GCID's groundwater extraction project.

The groundwater level data for most of the wells listed in Exhibit 28 were measured only in the last 15 years. However, nine of the wells have measurements extending back to 1976 or earlier, which is important because they provide a long-term record. The nine wells are: O-3A, O-3B, I-4, I-6, I-7, I-11, I-14, I-17 and R-19. A review of the hydrographs for these wells in Exhibit 29 finds that there is an overall downward trend in groundwater level since the mid-1990s. This is consistent with the recent drop in groundwater levels shown in Exhibits 5 through 10 and 18. DEIR mitigation measure WR-1 will *establish longer-term antecedent trends in groundwater level in the basin* (page 3-40). These nine wells should be used in this analysis. WR-1 also requires that recent antecedent trends be established along with the historical lows in groundwater elevation. WR-1 doesn't elaborate on how the longer-term antecedent trends will be compared to or used with recent antecedent trends, or what thresholds will be use to indicate impacts from GCID's pumping that would require implementation of a mitigation measure.

I recommend the DEIR be revised to provide additional information on the GCID project's groundwater-monitoring program. Specific information on the wells used to monitor the project's impacts, including establishing antecedent trends and historical lows. The DEIR should discuss why these wells are most representative and how additional wells might be used if they yield more representative information. The DEIR should provide information on the historical groundwater levels measured in the project's proposed monitoring wells, including graphs and tables, and should document past and current (2015) conditions. The DEIR should provide a complete documentation of the methodology for assessing and determining thresholds for implementing mitigation measures or other corrective actions.

9. Mitigation measure WR-1 described in Section 3.1.4 on page 3-40 is intended to reduce potential impact to third-party wells as a result of pumping GCID's wells. The description of the groundwater-monitoring program for mitigation measure WR-1 indicates that *long-term antecedent trends in groundwater levels within the basin* and *historical low groundwater elevations* will be established using DWR's existing monitoring program data. A subset of DWR's wells will be used for measurements one month before pumping starts, weekly during pumping, and one month after pumping stops. The number of wells selected and their spatial distribution will be adequate to evaluate groundwater levels prior, during and after pumping.

The volume of groundwater pumped by the GCID wells will be continuously measured along with pH, temperature and electrical conductivity (EC).

The DEIR defines in Section 3.1.2 that potential impact from pumping the GCID's project wells would be considered significant if *the depletion of aquifer volume or lowering of local groundwater levels such that the yield of existing wells is substantially reduced and not capable of supporting existing land uses or planned uses for which permits have been granted.* Footnote 5 on page 3-16 defines well yield *as the maximum sustainable pumping rate that can be supplied by a well without inducing a decline in water levels that exceeds the available drawdown. Available drawdown is defined as the height of the column of water between the static water level and the total depth of the well or the depth of the pump intake.* If a third party believes that the pumping of GCID's project wells have affected the operation of his well, then according to mitigation measure WR-1 *he can submit a report* to the GCID. The third party report will then be reviewed and GCID in coordination with the WAC (Water Advisory Committee) or GSA (Groundwater Sustainability Agency), or both, to *determine whether potential impacts are the result of District pumping, other groundwater production in the basin, or natural climatic conditions.* WR-1 proposes that GCID **may** do one of the following four actions if it is determined that GCID's project pumping has cause an impact to a third party's well:

- *Reduce or relocate pumping until natural recharge corrects the issue*
- *Lower the pump in third-party wells affected by the proposed project*
- *Reimburse third parties for significant increases in pumping costs due to an increase in lift*
- *Other actions, as appropriate*

While mitigation measure WR-1 has a number of good concepts for evaluating the impacts of pumping GCID's project wells, it doesn't actually require that GCID mitigate any impacts. GCID is defining the standard of significant impact as well-yield being both substantially reduced **and** not capable of supporting existing permitted planned land uses. Again, the third party appears to bear the burden to demonstration that there is **substantial** reduction in well yield, suggesting historical metering or well testing is required, **and** that they can't continue with the existing land uses at any level, because of the wording *not capable of supporting*. It appears that by this standard increases in water production costs, like electricity or pump maintenance, and reductions in land productivity are considered an acceptable third-party impacts. In addition, WR-1 likely requires that the third party create a technical report not just a letter of complaint, which likely will require hiring a licensed professional engineer and/or hydrogeologist to collect and analyze the data, make findings, and recommendations with the third-party paying all of these costs. Finally, GCID is a party to the decision to accept the third party's report, which would triggering the requirement that GCID possibly implement one of the four actions intended to remedy the injury.

The WR-1 mitigation investigation, review and dispute resolution process doesn't seem to be impartial. The burden of cost of this mitigation measure, that is bringing a complaint, is placed solely on the third party. This seems to conflict with the analysis that determined that 136 wells out of 3,000 investigated wells are located within the forecasted drawdown of 5 feet or greater (DEIR page 3-37; Appendix A pages A-9 and A-10). It would seem that the owners of these wells should and told of there is a potential for impact. It would also seem that these well owners shouldn't have to prove that GCID's pumping impacted their well.

There doesn't' appear to be any design in the WR-1 or BMO monitoring programs that is intended to collect or analyze data to address the potential for impacts to any specific third

party, such as the 136 known wells, even though a number of existing areas of impacts to groundwater supply are already known from publications by DWR and others. GCID isn't required to investigate its potential impacts, even when the groundwater levels in the area of potential impacts drop to elevations that have obvious detrimental effects on third party wells. The DEIR doesn't provide the locations of 3,000 wells investigated for potential impacts from GCID's pumping (Appendix A), so there is no method for comparing whether the wells investigated for the GCID's forecasted drawdown impacts cover the entire GCID project's impact area or lie within areas of known groundwater drawdown. The DEIR leaves it to an interested third party to determine what wells they have already investigated. Information on the locations of the 3,000 wells is needed to evaluate the adequacy of the DEIR's third party well investigation. DWR (2014c) has already published well depth summary maps for both domestic and production wells that give the range of the number of wells in each section within Glenn, Butte, Colusa and Tehama counties and the minimum, maximum and average well depths for wells in each section (http://www.water.ca.gov/groundwater/data_and_monitoring/northern_region/GroundwaterLevel/gw_level_monitoring.cfm). The locations of the 3,000 wells investigated should be placed on these well summary maps to demonstrate the thoroughness of the study. Additional analysis of the potential impacts from the GCID project's pumping could be made by adding together the existing summer depths to groundwater (likely to be the annual lowest), the GCID project's projected drawdown, and an estimate of the drop in water level at each third party well during pumping (derived from the well's specific capacity or calculated from the aquifers' transmissivity and storage coefficient). This cumulative increase in groundwater depth could then be compared to the information on the 3,000 wells, such as the well's screen interval depth, and the statistics in DWR's well depth summary maps. Exhibits 30 and 31 are maps made by cropping the DWR domestic and production well depth summary maps of Glenn County with an overlay of the GCID's outermost impact area boundary (DWR, 2014c).

In WR-1's impact dispute resolution process, GCID assigns to itself, rather than an independent and neutral party, the role of deciding if it has impacted a third party's well. If the mitigation process were impartial, I would think that GCID's only role would be rebutting the third party's report. In an impartial process, the determination of the responsible party would be delegated to a knowledgeable, independent and neutral party, like when a dispute is mitigated or arbitrated. Arbitrations are an effective method of resolving conflict. I've personally participated in arbitrations where a knowledgeable, independent and neutral party, in my case the non-profit JAMS (http://www.jamsadr.com/), presided over the dispute resolution as an alternative to filing a civil suit. My experience is that this process works effectively at resolving problems.

In addition to the problem with making the finding of third party impacts, the WR-1 groundwater-monitoring program doesn't address how the existing BMO's monitoring requirements will be utilized. The evaluation of the trends in groundwater elevations is critical to understanding the impacts from GCID's pumping and the overall condition of the groundwater basins. There is however a conflict with the BMO methodologies for Sub-Areas 8, 9 and 11, as well as the other Sub-Areas, because the BMO Stage thresholds are generally based on an average groundwater elevation and the variation from this average. There is a fundamental problem when the data, in this case groundwater elevations, has a trend rather than cycling around a consistent average value. There is no consistent "average" value in data that are trending. A slope of a regression line and variance from that regression line can be calculated, but this isn't a fixed "average" value. This issue of the "new dynamic

equilibrium" is also discussed in my comment no. 1. The BMOs for Sub-Areas 8 and 11 use the deviation from the "average" to establish Stage thresholds, while Sub-Area 9 uses a regression between groundwater elevation and the sum of the surface water deliveries and precipitation (see August 21, 2001 GCGWMP Cover Report for methodologies). The lack of specifics on how the WR-1 and BMO groundwater-monitoring program will be integrated may have a significant effect on whether any third party can prevail in a complaint of GCID pumping impacts. The BMOs don't actually require that specific actions be taken when Stage Alerts are triggered. BMO actions are given as "may" or "should" be undertaken and specific conservation measure are considered voluntary. Similarly, mitigation measures in WR-1 "may" be implemented by aren't required even when it is determine that GCID's pumping has resulted in an impact to a third party well (page 3-40). With multiple, and apparently conflicting, thresholds of significance and multiple mitigation actions, all of which are voluntary, there is uncertainty whether the measures given in WR-1 for mitigating impacts to third party wells from drawdown due to the GCID project can be effective.

I recommend that in addition to resolving how the County BMOs and mitigation measure WR-1 will facilitate monitoring of the project's impacts (also see my comment no. 4), the DEIR be revised to provide additional discussion on the procedures for how a third party should proceed if a groundwater level threshold of significance is exceeded. The DEIR should discuss and provide an example of the types of data that would be needed to document impacts to a third party's well that's resulted from groundwater extractions by GCID's wells. The DEIR should provide information on how the antecedent trends in groundwater levels will be calculated and how these trends will be used to assess impacts from GCID's pumping. The DEIR should provide maps and additional analysis that shows which of the 136 wells is anticipated to be potentially impacted by GCID's pumping. The DEIR should calculate the potential drawdown impacts to third party wells using recent summer groundwater levels and the estimated pumping drawdowns at the third party wells along with the forecasted GCID drawdown. The DEIR should document that all of the wells within the forecasted outermost impact area were evaluated for potential drawdown impacts from GCID's pumping. I also recommend that the DEIR consider the use of an independent, neutral party for arbitrating any third party disputes of GCID project impacts.

10. Mitigation for potential land subsidence due to the project's groundwater extractions is given in mitigation measure WR-2 starting on page 3-41. Mitigation measure WR-2 has five progressive steps that rely on groundwater level measurements, the DWR extensometer and GPS network measurements, and possibly GPS or land elevation benchmark surveys specific to GCID. Each of these five steps have land subsidence thresholds that trigger actions. For example, progression from Step 1, groundwater level monitoring, to Step 2, ground surface elevation monitoring, is based on groundwater levels falling below historical low elevations. Mitigation measure WR-2 is silent on the fact that DWR finds that the groundwater levels in 30% or more of the wells within the four DWR Bulletin 118 basins that will be impacted by the project's extractions already are below the historical low elevations (Exhibit 18). This fact suggests that at the start of GCID's project mitigation measure WR-2 should begin with Step 2 and undertake active measurement of the changes in land surface elevation.

    Step 3 has three actions that **may** be taken when the amount of land subsidence is greater than 0.2 feet from the pre-operation level. Monitor, with the possible reduction or termination of pumping; investigate relocating pumping; or investigate infrastructures'

tolerances to subsidence. The reduction in subsidence resulting from termination or reduction in pumping is obvious. However, the relocation of pumping should trigger a new or supplemental CEQA process because the new pumping is a separate yet to be analyzed project that likely has new set of impacts. The investigation of infrastructures susceptible to subsidence should be done before, not after, subsidence has begun, and those structures that are most vulnerable should be part of the Step 2 monitoring program.

Steps 4 and 5 deal with subsidence from *non-project* pumping. Step 4 offers coordination with *non-project* pumpers and if the project's pumping is proven to have caused damage to infrastructures, then GCID will repair or replace each. Coordination with *non-pumpers* is a critical action. However, the assumption that subsidence can be attributed to a single pumper in an area of regional subsidence seems unrealistic. It also ignores the complexities of groundwater flow where the capture of groundwater by a well can result in down gradient impacts that are outside of the immediate vicinity of the pumping well. The replacement or repair of subsidence-impacted infrastructures should probably be the responsibility of all large volume groundwater extractors within the subsiding region, rather than trying to assert that only one pumper is responsible.

In Step 5, GCID may elect to monitor land subsidence using a GPS network or local land surveys; this action is already part of Step 2. Step 5 seems to say that the GPS or local survey subsidence monitoring would cease when groundwater levels recover above historical lows, but no longer than 6 months. Step 5 doesn't address the issue of the need to continue subsidence monitoring if the next year's pumping would again draw groundwater levels down below the historical lows. It is presumed that the historical low isn't a moving target, although this isn't actually stated. It also isn't clear if Step 5 is allowing that after 6 months if groundwater elevations rise above historical lows, then extraction by GCID's project can resume, but because the project description seems to be for extractions that continue in perpetuity this would be logical. Step 5 only requires that if groundwater levels don't recover above historic lows within 6 months, pumping would not resume for the next year. WR-2 is somewhat unclear if GCID pumping could continue in second year following a failure to recover above historic lows in 6 months, or whether the low groundwater level would be considered a "regional condition" and extractions could resume.

For some reason not explained in Step 5, if groundwater levels don't recover above historical lows after 6 months following cessation of GCID's pumping, then the drawdown is assumed to be a *regional condition* and Step 5 subsidence monitoring will stop. I assume this to mean that GCID has technical analyses to show that groundwater levels from their extraction will always recover to a near pre-pumping condition within at least six months. However, the six-month period seems to conflict with the project's description. The project is designed to be a multiyear project with pumping based on climatic conditions, that is, during dry and critically dry years and with reductions in the availability of surface water deliveries. The duration of the pumping is said to be 8.5 months (Section 2.3.2), which only leaves 3.5 months of recovery before the next cycle of pumping begins. So the requirement that unless groundwater levels recover above the historical low, GCID pumping won't continue the next year, really means recovery must occur within 3.5 months or pumping would need to be delayed for at least 2.5 months. If, at that time, groundwater levels haven't recovered above the historical low, then no GCID pumping would occur for the year, or perhaps the pumping would be relocated as in Step 3. However, if GCID's pumping is relocated, then it seems that the area of relocation might be within the portion of the basin that is contributing to the

regional subsidence condition, which would exacerbate the regional condition. Again the need for additional supplemental CEQA analysis with the use of relocated wells seems to be clear.

WR-2 is silent on the fact that the 2008 DWR/USBR GPS survey found subsidence that averaged -0.38 feet between 2004 and 2008 at the station designated "WILD" in an area about 9 miles northeast of extensometer 21N02W33M001M and 2 miles east of GCID Well No. 3 (Exhibit 17B), which exceeds the -0.2 foot threshold of Step 3 that triggers one or more mitigation measures be undertaken. This historical information suggests that a portion of the land adjacent to the GCID project wells may already be subsiding. It seems that either past GCID groundwater extractions and/or other *non-project* pumping has already created a *regional subsidence condition*. Follow-up measurements of the amount of subsidence since 2008 in the area of station "WILD" apparently haven't been taken, but are critical to establishing the status of land subsidence in the basin.

I recommend the following:

1) **The Draft EIR should be revised to provide additional discussion on subsidence in and adjacent to the project's impact area.**
2) **Specific information should be provided on why DWR has categorized the Corning sub-basin as having a high potential for future subsidence.**
3) **Information should be provided on the conditions at each of the three existing extensometers lying within or adjacent to the project's impact area. Specifically, what are the conditions at extensometer 21N02W33M001M that causes the active subsidence?**
4) **Information should be provided on how WR-2 will address the existing land subsidence in the area of "WILD" station. Specifically, what monitoring has already been done and needs to be in the future to evaluate the current condition of ground subsidence in the area?**
5) **Information should be provided on what actions will be undertaken at the start of the GCID project's pumping to mitigate known land subsidence.**
6) **Additional analyses should be provided on the condition of the ground water in the area(s) of the wells that DWR indicates already having levels below the historical lows.**
7) **Analysis should be provided on the potential for the project's pumping to increase the number of wells whose groundwater levels might fall below the historical low.**
8) **Additional analysis should be provided on the potential impacts from land subsidence to any relocation site for GCID wells and for any *non*-GCID wells that may be utilize for the project.**
9) **Additional information should be provided on the sequencing of GCID extractions, subsidence monitoring and the interaction with any *regional subsidence condition*.**
10) **Information should be provided regarding why GCID believes that the failure of groundwater levels at GCID project wells to recover above historical lows within 6 months following cessation of pumping is due to a *regional condition*.**

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Wallace, R.B., Yakup, D., and Annable, M.D., 1990, Stream depletion by cyclic pumping of wells, Water Resources Research, v. 26, no. 6, pgs. 1263–1270 (http://www.hydra.iwr.msu.edu/iwr/cv/proposals/publications/documents/1990/Stream%20Depletion%20by%20Cyclic%20Pumping%20of%20Wells%20Vol%2026%20No%206%20June%201990.pdf)

West Yost Associates, 2014, 2013 Final Water Transfer Report, prepared for Glenn-Colusa Irrigation District, dated May 2014, 16 pp., 5 Appendices.

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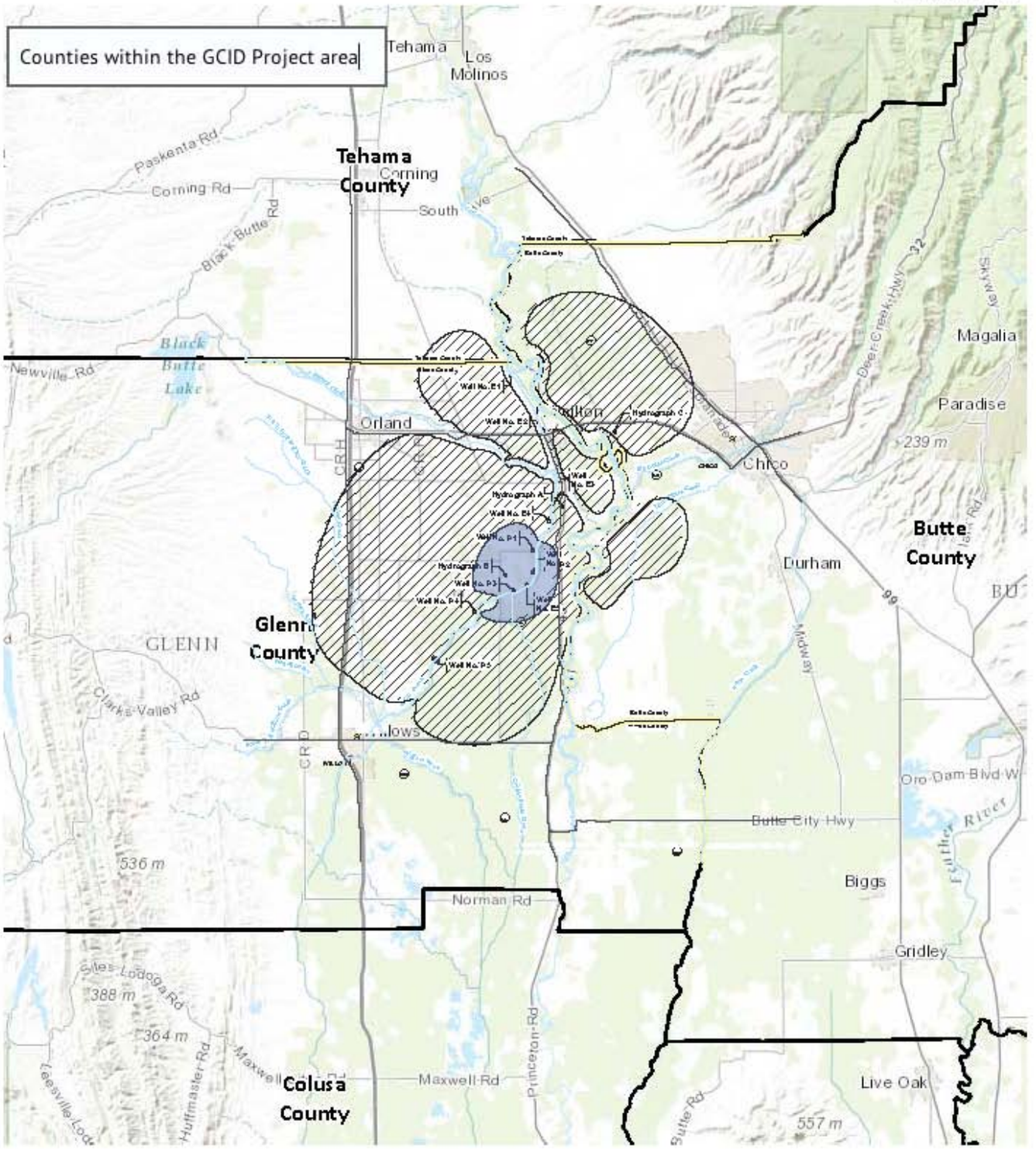
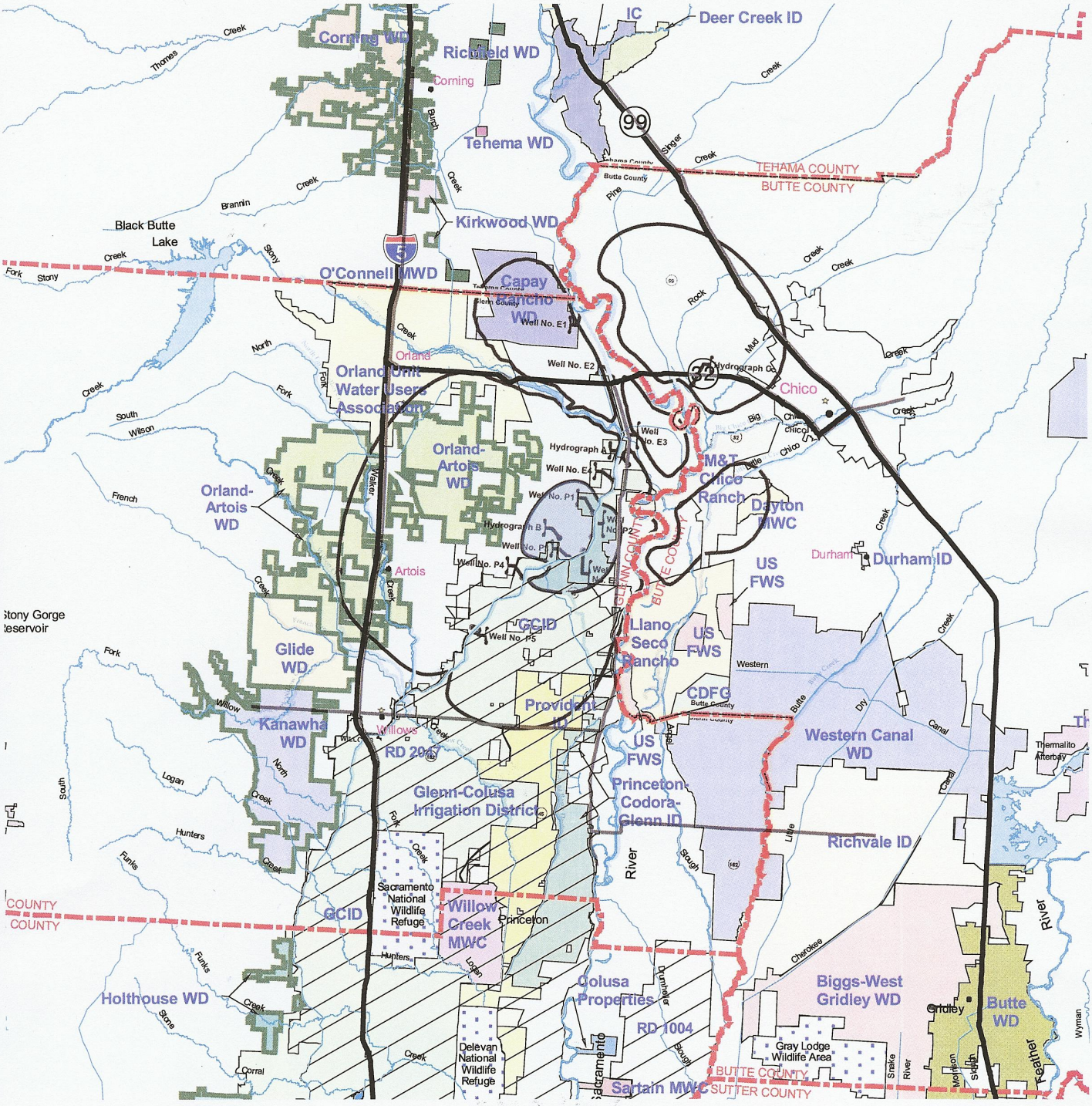


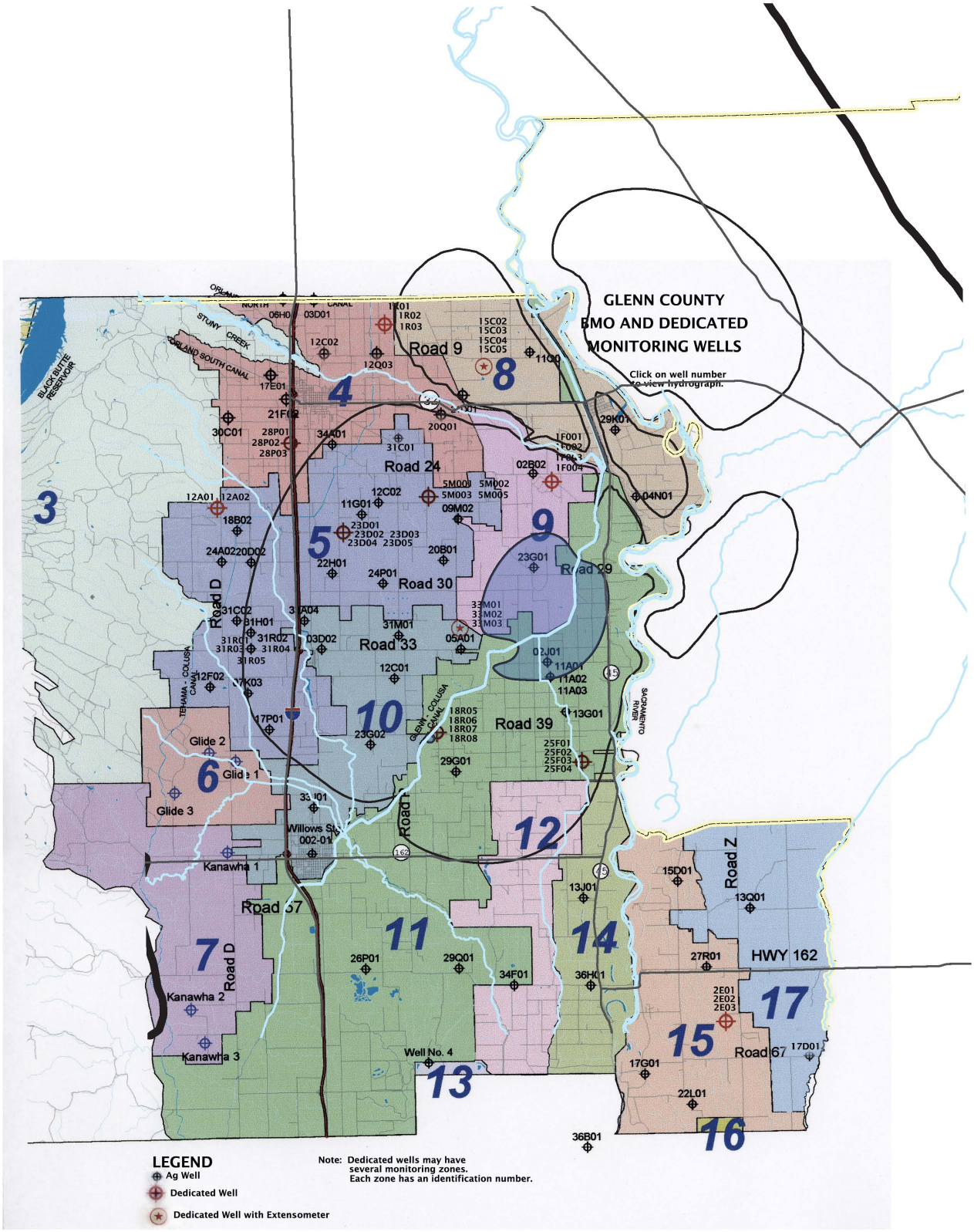
base map source: DWR, Groundwater Information Center Map Interface, accessed July 2015

Exhibit



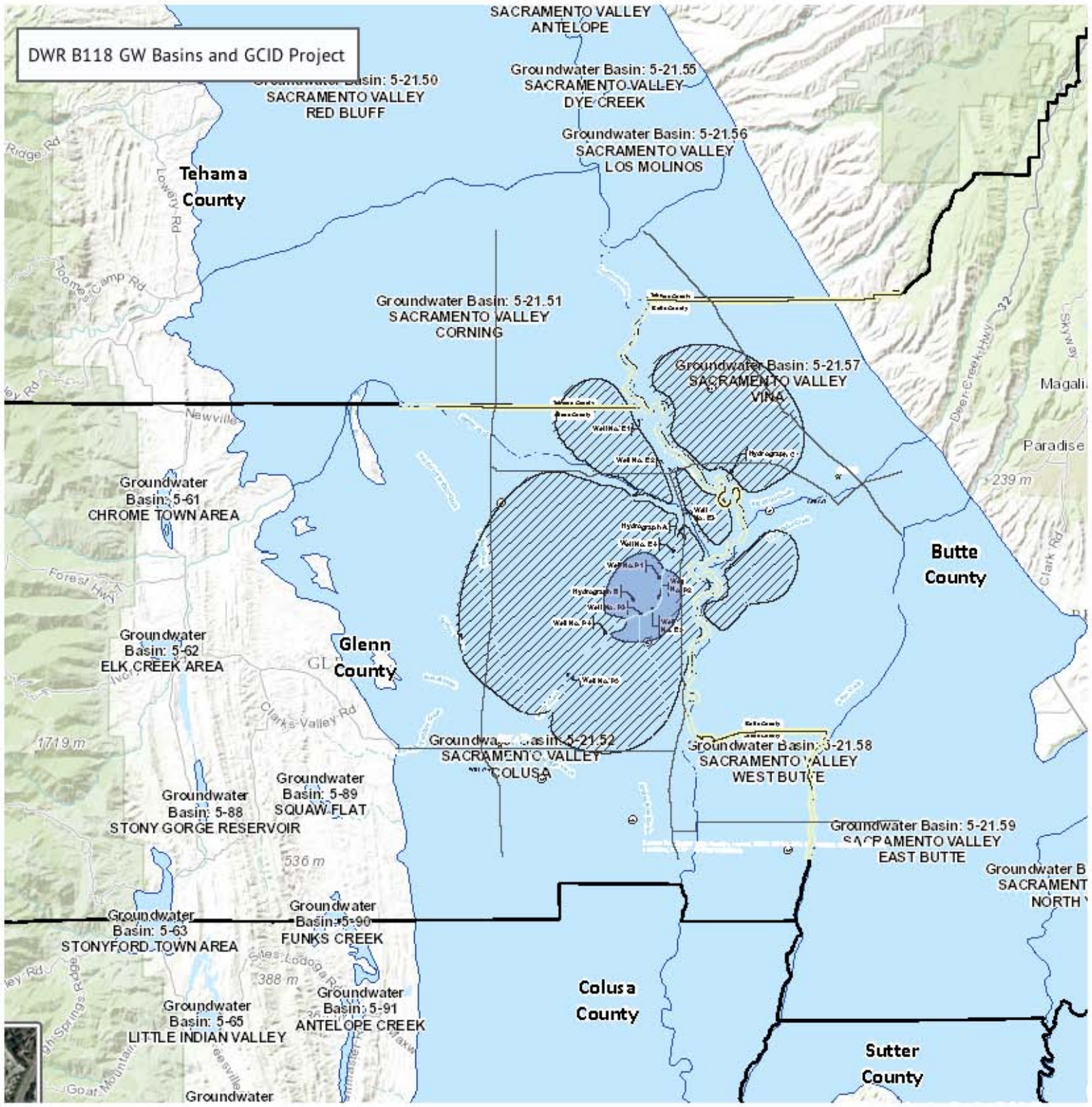
base map source: Northern California Water Association,

Exhibit 3



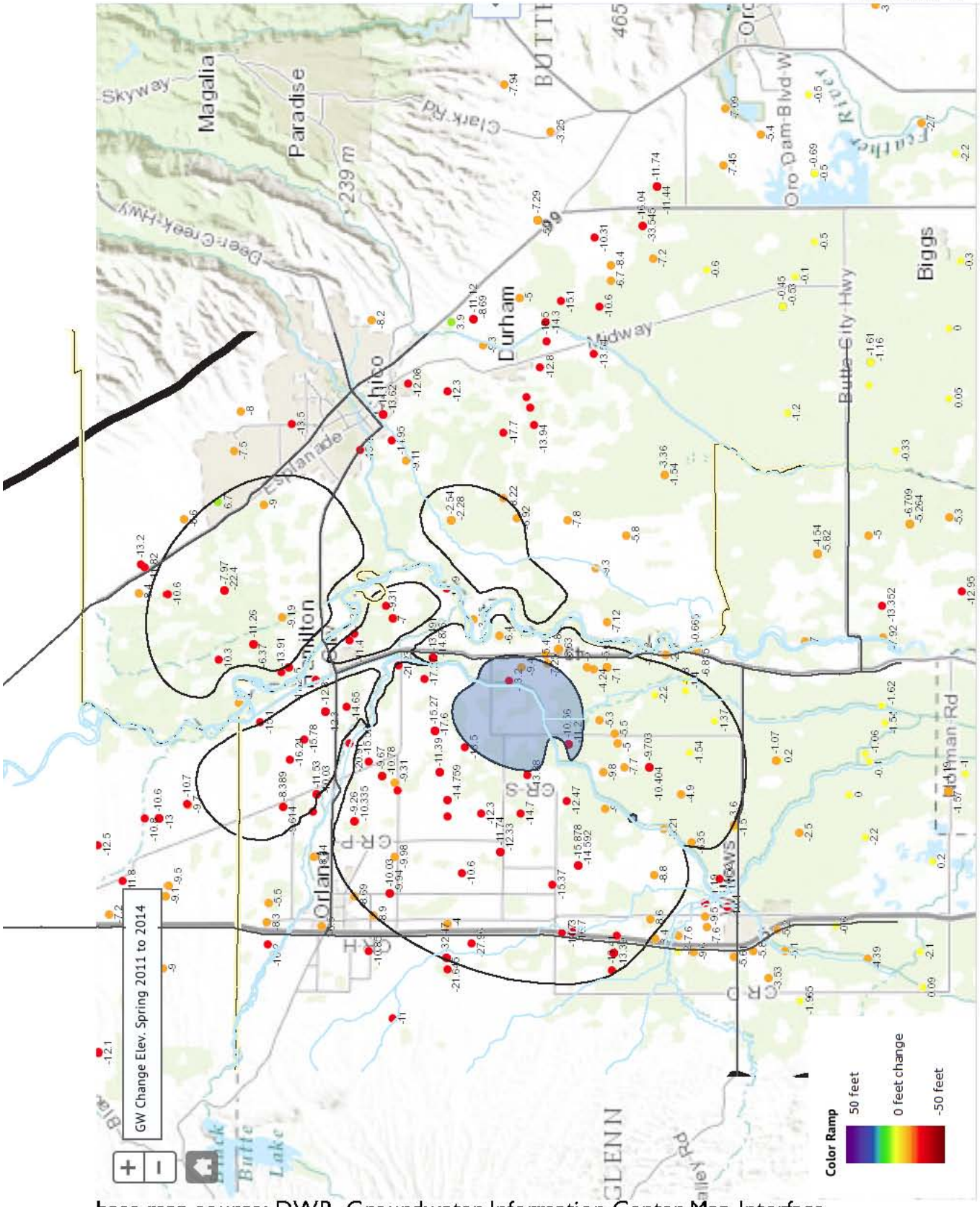
base map source: Glenn County Water Advisory Committee, MonWellMapNew.jpg

Exhibit 4



base map source: DWR, Groundwater Information Center Map Interface, accessed July 2015

Exhibit 5



base map source: DWR, Groundwater Information Center Map Interface, accessed July 2015

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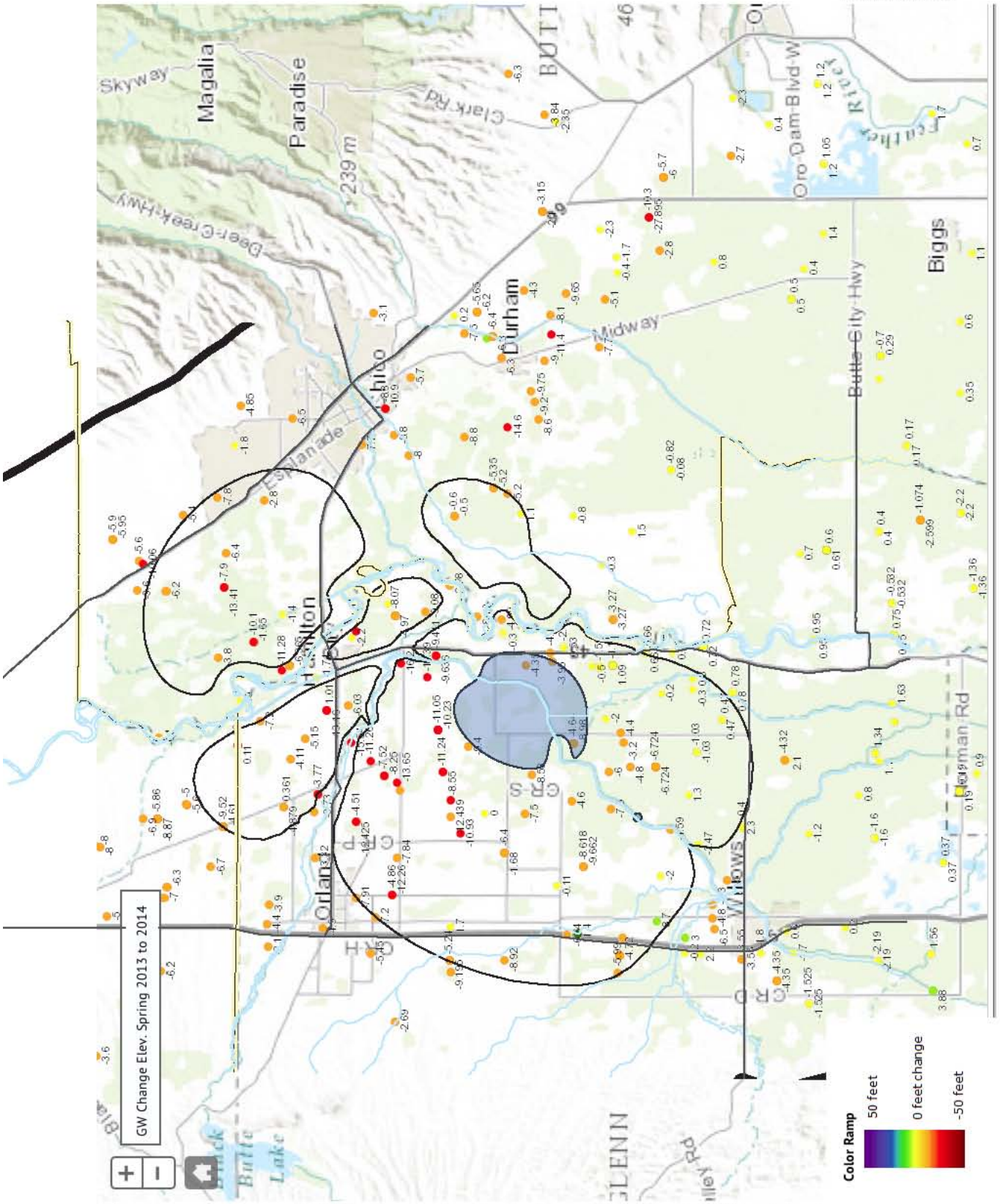

base map source: DWR, Groundwater Information Center Map Interface, accessed July 2015

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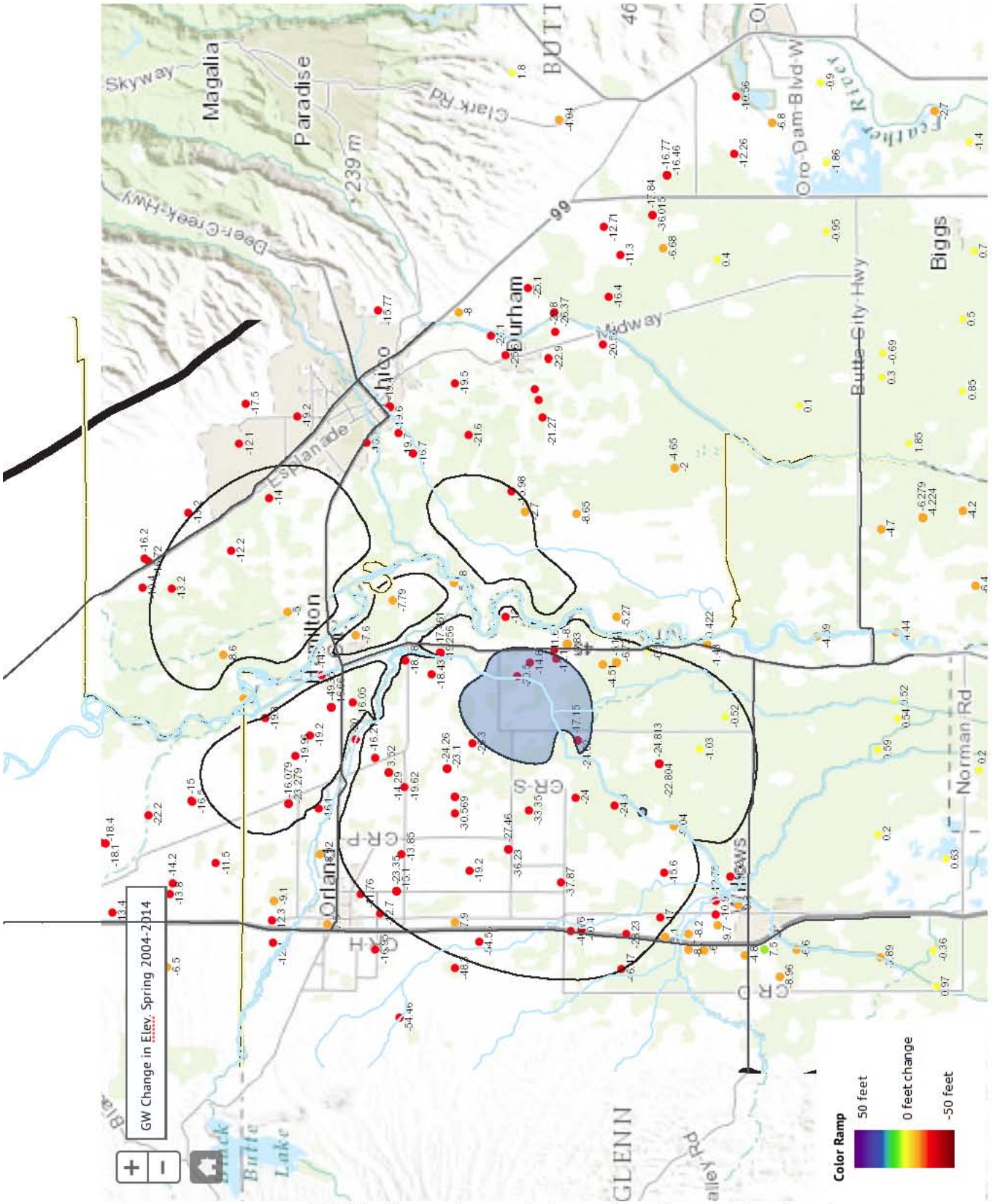


base map source: DWR, Groundwater Information Center Map Interface, accessed July 2015

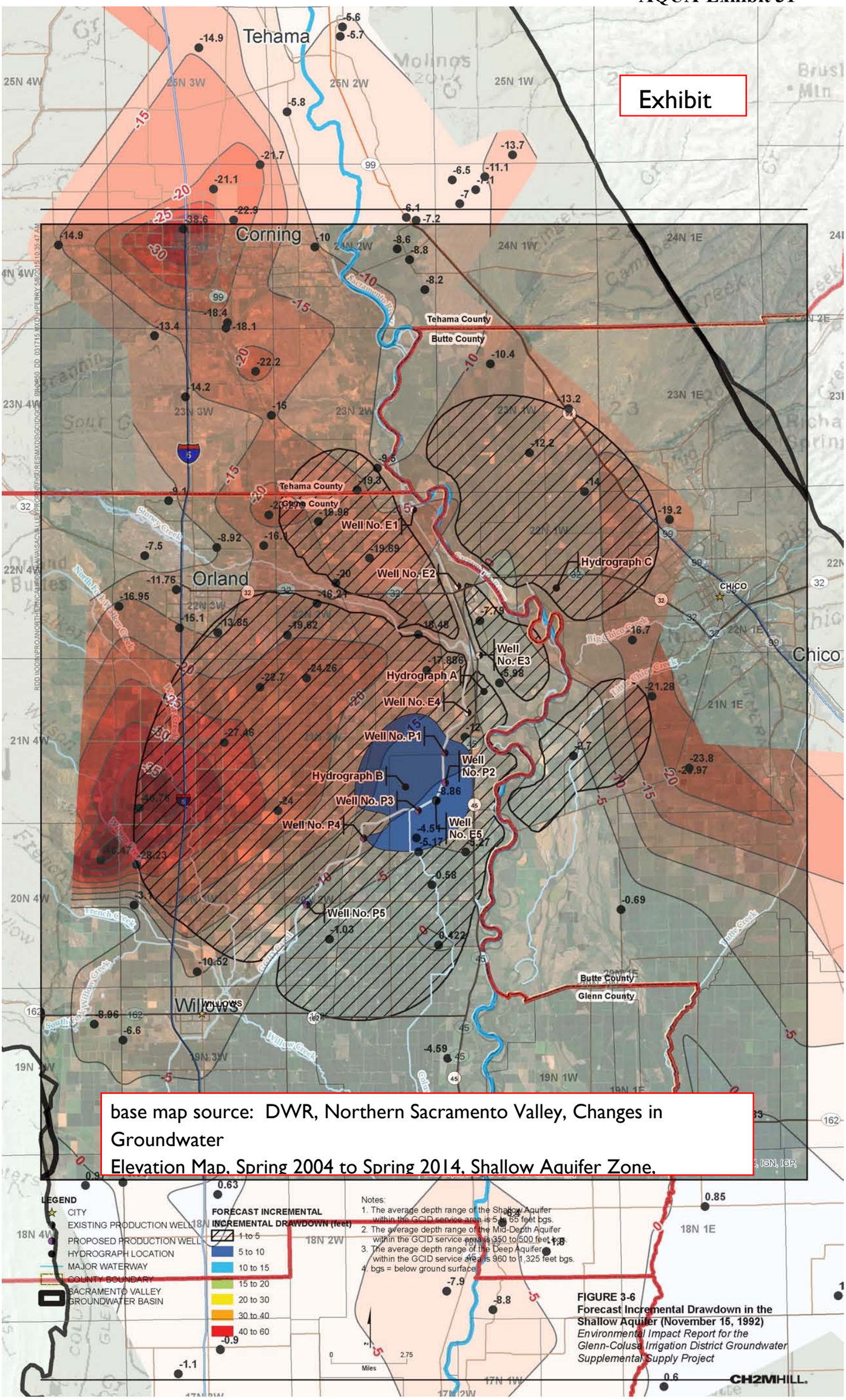
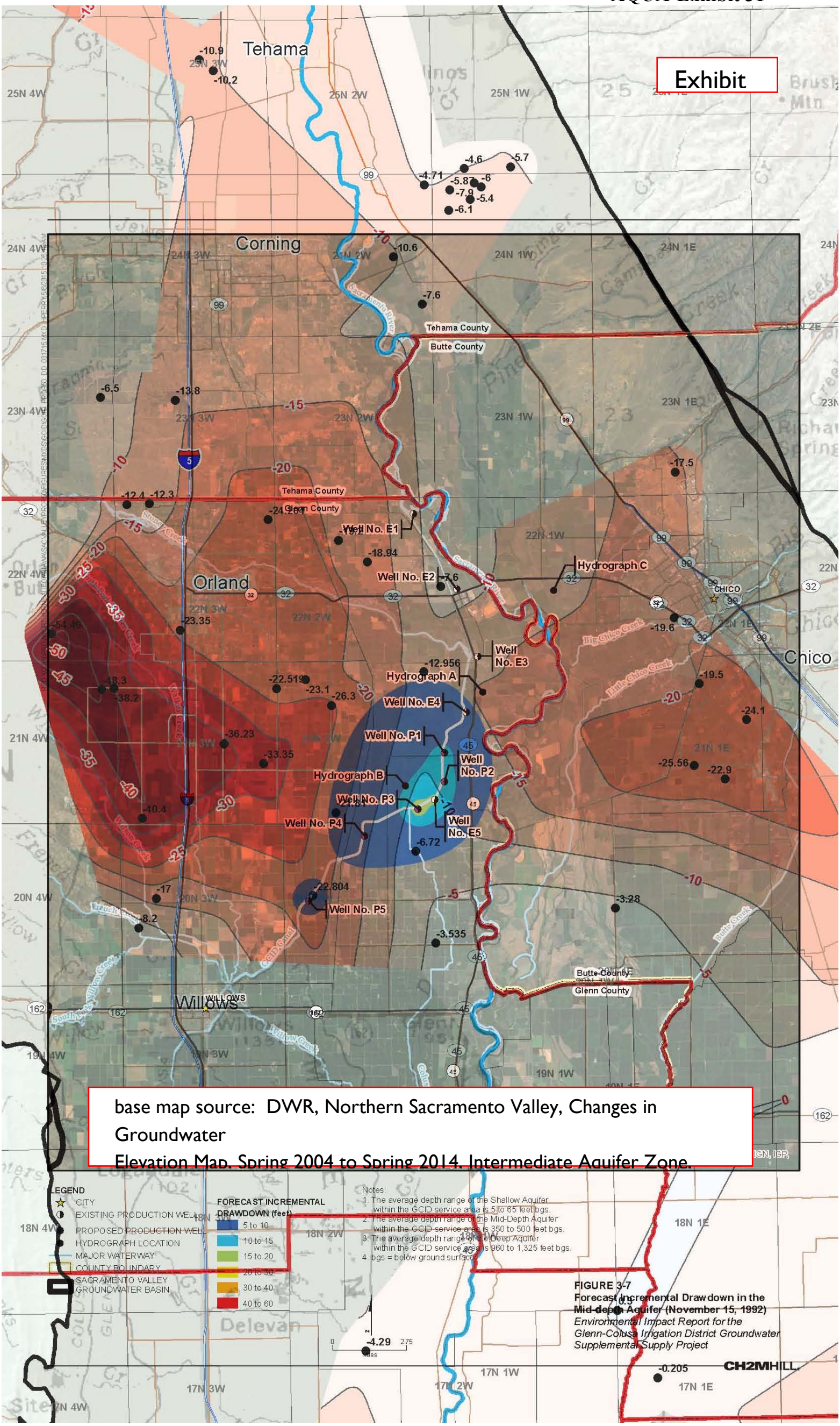


FIGURE 3-6
Forecast Incremental Drawdown in the Shallow Aquifer (November 15, 1992)
Environmental Impact Report for the Glenn-Colusa Irrigation District Groundwater Supplemental Supply Project

CH2MHILL.

Exhibit



base map source: DWR, Northern Sacramento Valley, Changes in Groundwater Elevation Map, Spring 2004 to Spring 2014, Intermediate Aquifer Zone.

LEGEND
- CITY
- EXISTING PRODUCTION WELL
- PROPOSED PRODUCTION WELL
- HYDROGRAPH LOCATION
- MAJOR WATERWAY
- COUNTY BOUNDARY
- SACRAMENTO VALLEY GROUNDWATER BASIN

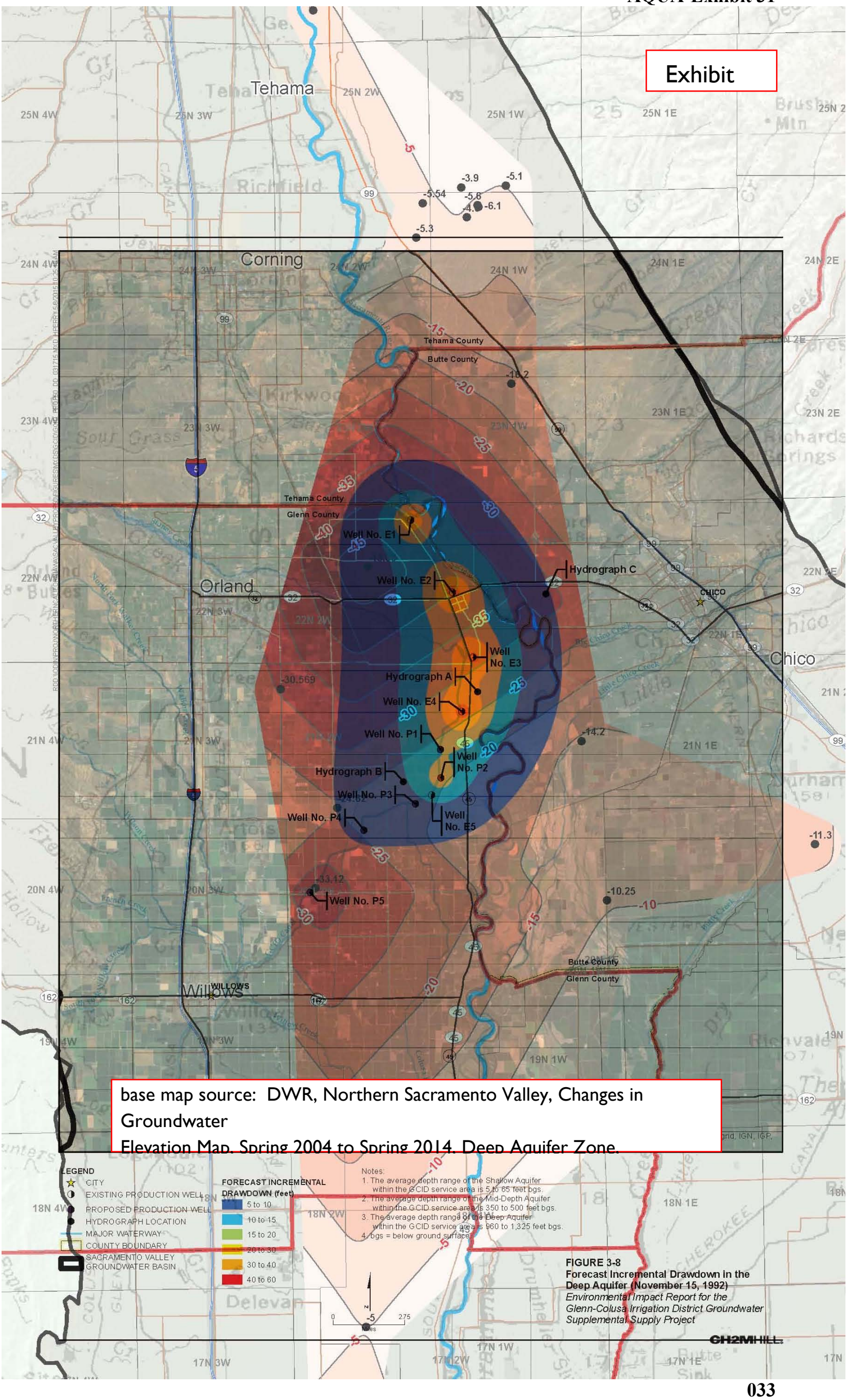
FORECAST INCREMENTAL DRAWDOWN (feet)
- 5 to 10
- 10 to 15
- 15 to 20
- 20 to 30
- 30 to 40
- 40 to 60

Notes:
1. The average depth range of the Shallow Aquifer within the GCID service area is 5 to 65 feet bgs.
2. The average depth range of the Mid-Depth Aquifer within the GCID service area is 350 to 500 feet bgs.
3. The average depth range of the Deep Aquifer within the GCID service area is 960 to 1,325 feet bgs.
4. bgs = below ground surface.

FIGURE 3-7
Forecast Incremental Drawdown in the Mid-depth Aquifer (November 15, 1992)
Environmental Impact Report for the Glenn-Colusa Irrigation District Groundwater Supplemental Supply Project

CH2MHILL

Exhibit



base map source: DWR, Northern Sacramento Valley, Changes in Groundwater Elevation Map, Spring 2004 to Spring 2014, Deep Aquifer Zone.

FIGURE 3-8
Forecast Incremental Drawdown in the Deep Aquifer (November 15, 1992)
Environmental Impact Report for the Glenn-Colusa Irrigation District Groundwater Supplemental Supply Project

CH2MHILL

Exhibit

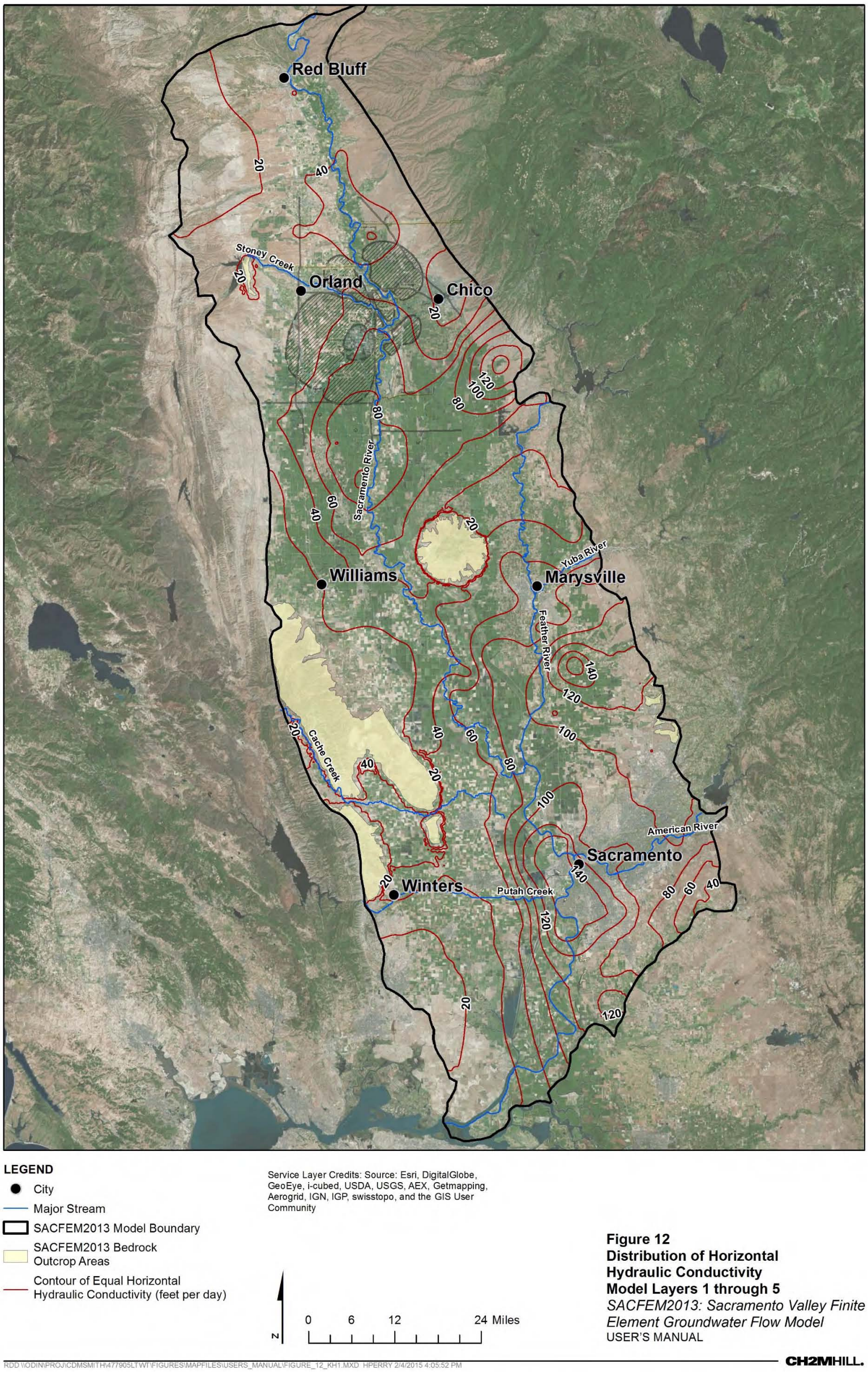


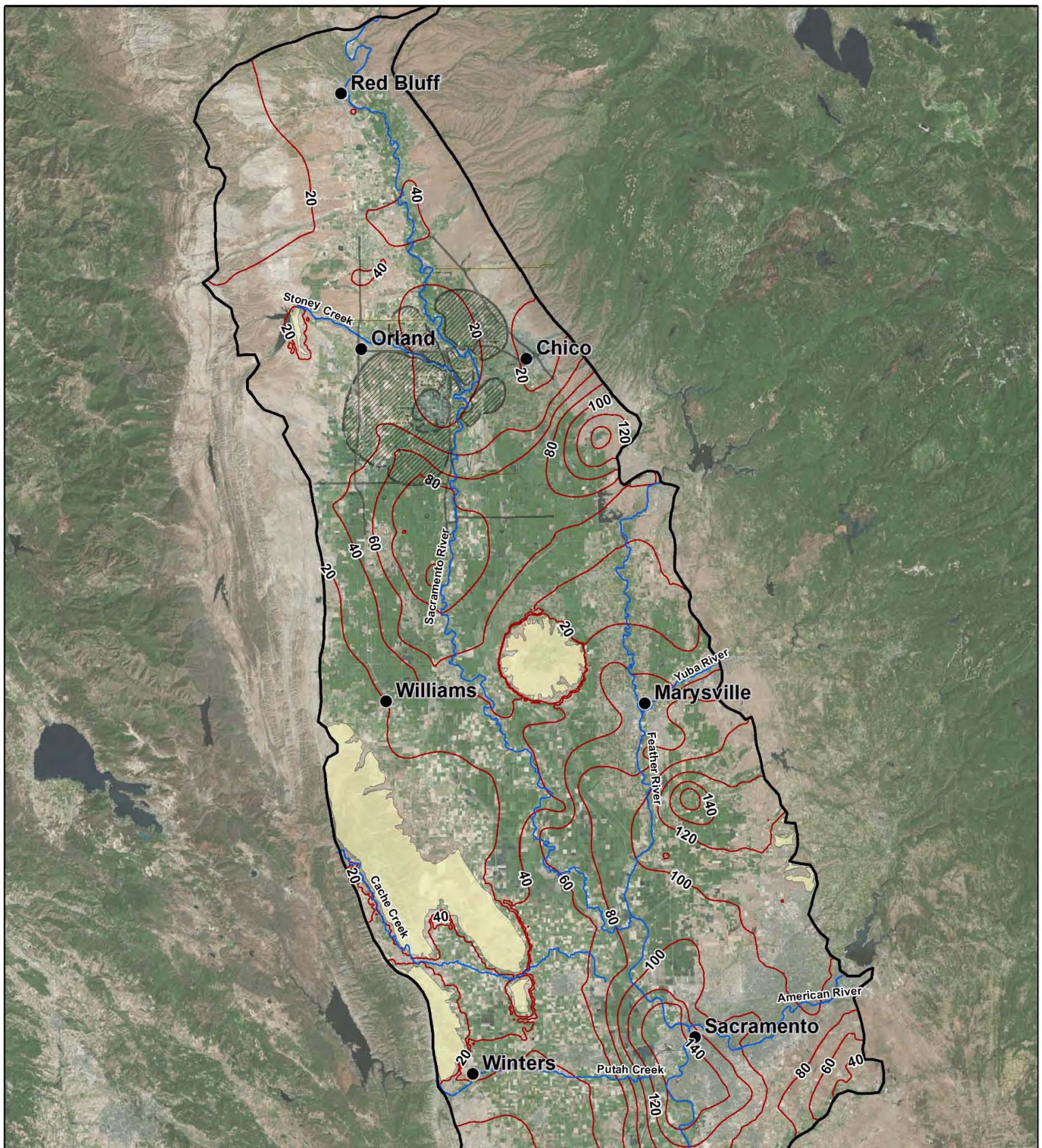
Figure 12
Distribution of Horizontal Hydraulic Conductivity Model Layers 1 through 5
SACFEM2013: Sacramento Valley Finite Element Groundwater Flow Model
USER'S MANUAL

RDD \\ODIN\PROJ\CDMSMITH\477905LTWT\FIGURES\MAPFILES\USERS_MANUAL\FIGURE_12_KH1.MXD HPERRY 2/4/2015 4:05:52 PM

CH2MHILL.

base map source: SACFEM2013 User's Manual, CH2MHill and MBK Engineers, February

Exhibit



LEGEND

- City
- Major Stream
- SACFEM2013 Model Boundary
- SACFEM2013 Bedrock Outcrop Areas
- Contour of Equal Horizontal Hydraulic Conductivity (feet per day)

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

N

0 6 12 24 Miles

Figure 13
Distribution of Horizontal Hydraulic Conductivity Model Layers 6 and 7
SACFEM2013: Sacramento Valley Finite Element Groundwater Flow Model
USER'S MANUAL

RDD \\ODIN\PROJ\CDMSMITH\477905LTWT\FIGURES\MAPFILES\USERS_MANUAL\FIGURE_13_KH6-7.MXD HPERRY 2/4/2015 4:06:56 PM

CH2MHILL.

base map source: SACFEM2013 User's Manual, CH2MHill and MBK Engineers, February

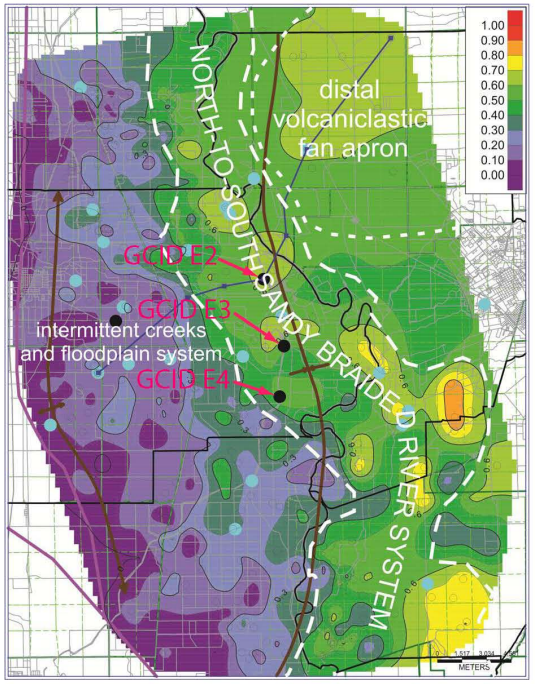


FIGURE 5. SAND FRACTION MAP FROM LT-2 THROUGH LT-5. NOTE THE GENERAL MEANDERING HIGH-SAND (WARM COLORS) FEATURE IN THE EASTERN AREA AND THE LOW-SAND (COLD COLORS) AREA IN THE WESTERN PORTION. INTERPRETATIONS ARE IN WHITE. FILLED BLACK CIRCLES ARE PUMP-TEST WELLS, FILLED LIGHT BLUE CIRCLES ARE MONITORING WELLS, AND OPEN CIRCLES ARE WELLS USED TO CREATE THE MAP. THE KEY SHOWS THE FRACTION OF SAND (0 TO 1; 1 = 100% SAND) IN THE LT-2 THROUGH LT-5 INTERVAL. THE BLUE LINE MARKS THE CROSS-SECTION IN FIGURE 6.

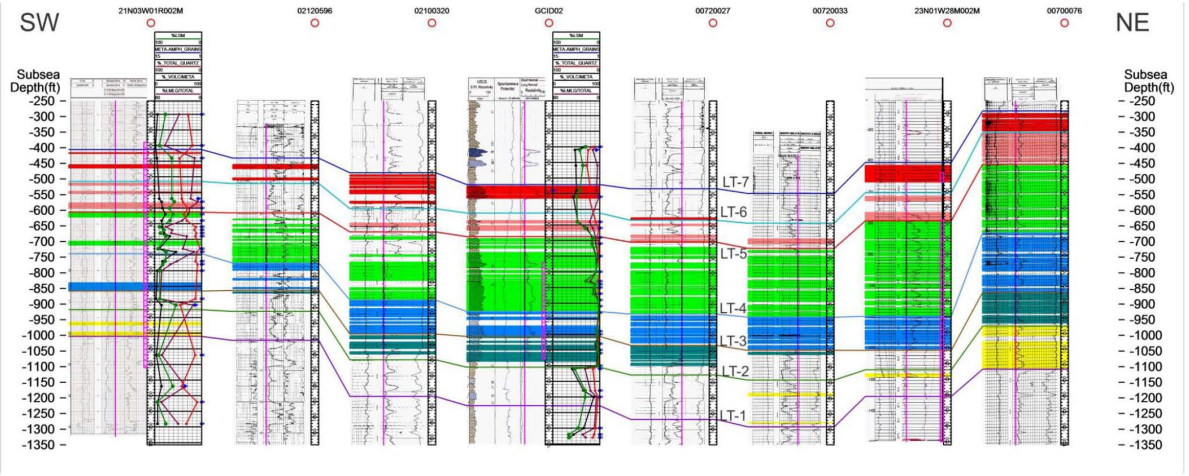


FIGURE 6. REGIONAL CROSS-SECTION SHOWING LT-1 THROUGH LT-7 CORRELATION LINES AS WELL AS THE PORTION EACH SECTION INTERPRETED TO BE SAND-RICH (TRANSPARENT COLORS). THE PINK LINE IN EACH WELL SHOWS THE RESISTIVITY CUT-OFF USED TO INTERPRET POROUS SAND. SEE FIGURE 5 FOR CROSS-SECTION LOCATION.

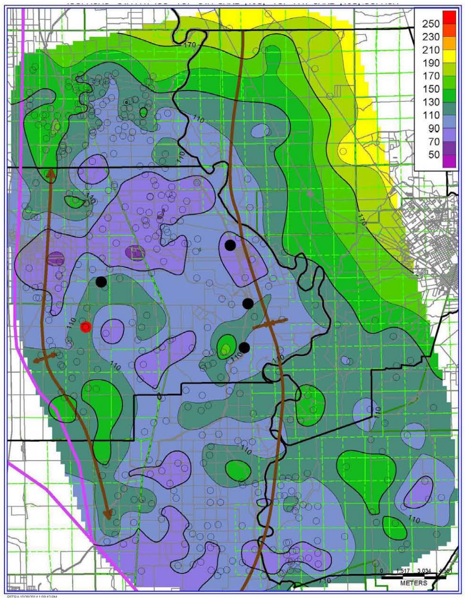
Exhibit

From:
Hydrostratigraphy and Pump-test Analysis
of the Lower Tuscan/Tehama A...

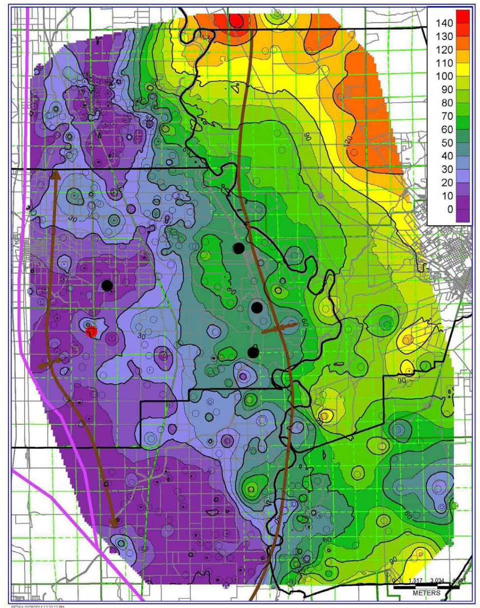
Exhibit

Hydrostratigraphy
of
LT 3 to LT 4
of Lower Tuscan/Tehama Aquifer
Northern Sacramento Valley, CA
from
Greene and Hoover, Nov. 2014

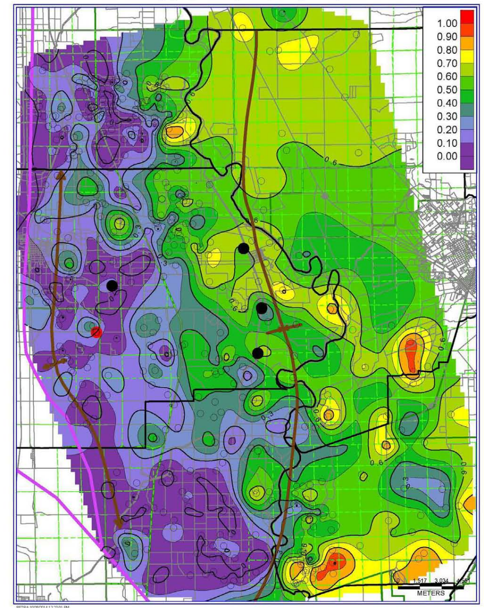
LT-3 to LT-4 isopach map (ft.)



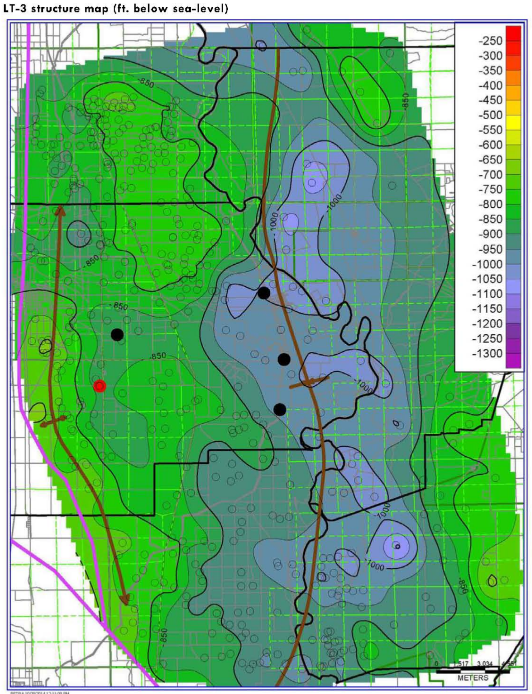
LT-3 to LT-4 sand thickness (ft.)



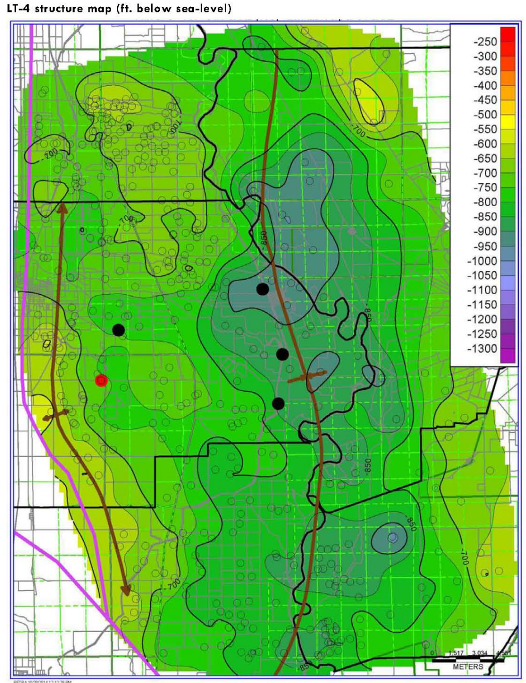
LT-3 to LT-4 sand fraction map (0-1, 1=100%sand, 0=0% sand)



LT-3 structure map (ft. below sea-level)

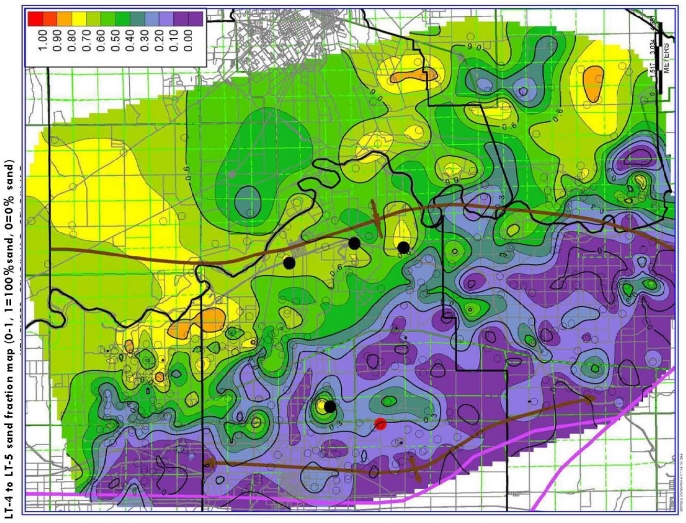


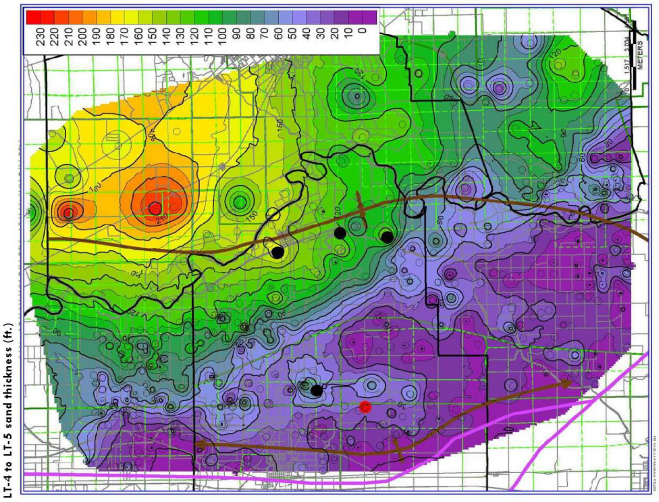
LT-4 structure map (ft. below sea-level)

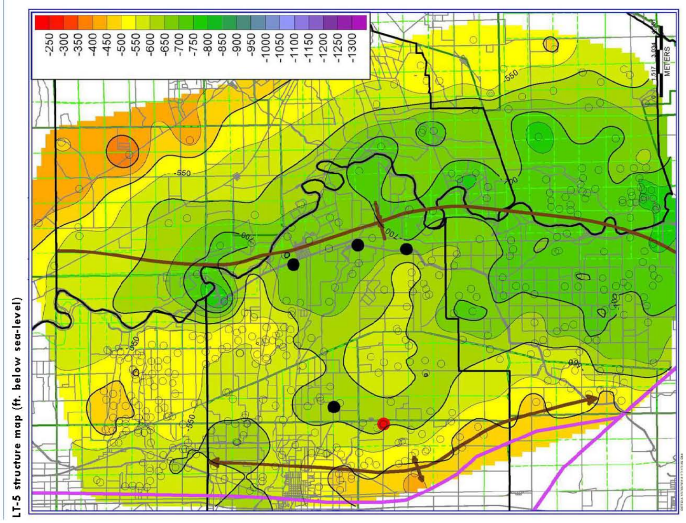


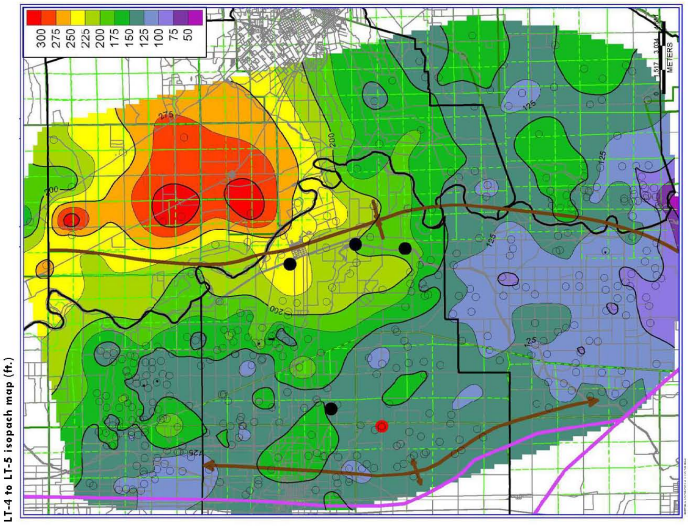
Exhibit

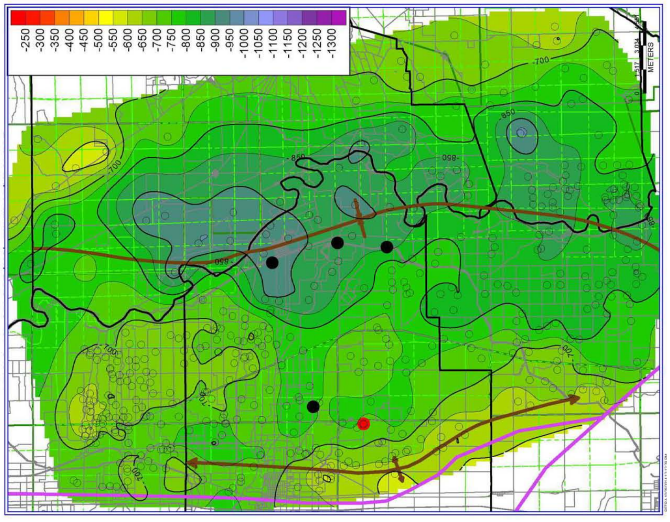
Hydrostratigraphy
of
LT 4 to LT 5
of Lower Tuscan/Tehama Aquifer
Northern Sacramento Valley, CA
from
Greene and Hoover, Nov. 2014











Exhibit

From:
Hydrostratigraphy and Pump-test Analysis
of the Lower Tuscan/Tehama A...if...

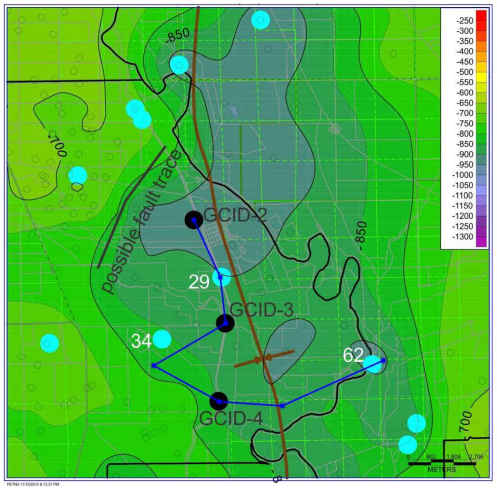


FIGURE 9. PUMP-TEST 2: STRUCTURE MAP (ELEVATION IN FEET) OF THE LT-4 SURFACE SHOWING PUMP-TEST WELLS (FILLED BLACK CIRLCES) AND
AND WELL LABELS IN WHITE). THE POSSIBLE FAULT TRACE PREDICTED BY IMAGE ANALYSIS IS SCHEMATICALLY POSITIONED BASED ON THE CLOSELY SPACED CONTOURS. THE DARK BLUE SHOWS THE POSITION OF THE CROSS-SECTION IN FIGURE 10. BROWN LINE IS THE TRACE OF THE GLENN SYNCLINE.

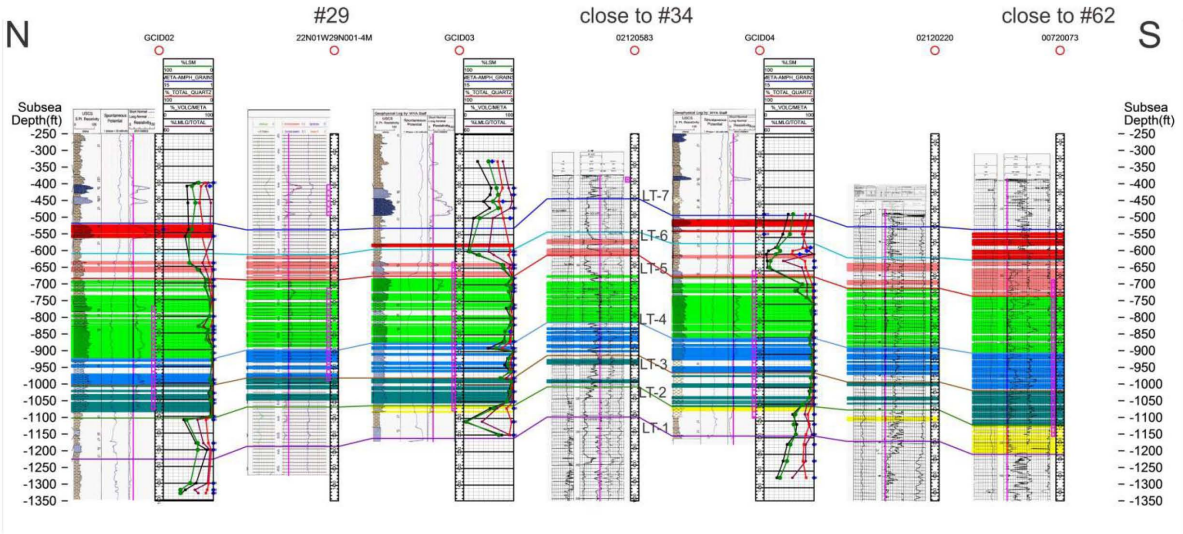


FIGURE 10. PUMP-TEST 2: CROSS-SECTION SHOWN IN FIGURE 9. NOTE THE CONNECTION BETWEEN THE SCREENED INTERVALS THE PUMP-TEST WELLS (GCID-2, 3, 4) AND THE MONITORING WELLS 29, 34, AND 62. SCREENS ARE MARKED WITH PINK RECTANGLES. COLORED TRANSPARENT BOXES SHOW INTERPRETED ZONES WITH POROUS SANDS.

Exhibit

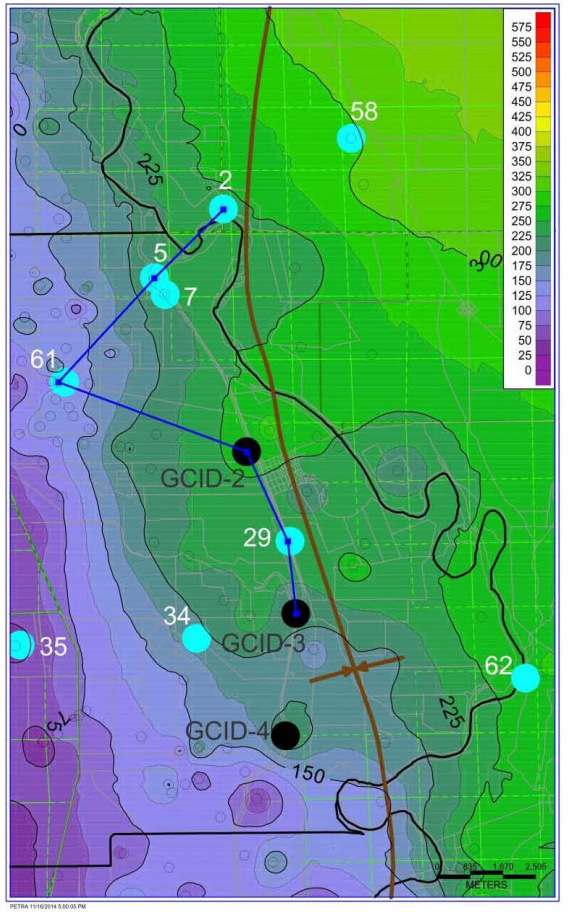


FIGURE 11. PUMP-TEST 3: TOTAL SAND THICKNESS (FT.) MAP FROM LT-2 THROUGH LT-5. SHOWING PUMP-TEST AND MONITORING WELLS (FILLED LIGHT BLUE CIRLCES); WELL LABELS ARE IN WHITE. THE DARK BLUE SHOWS THE POSITION OF THE CROSS-SECTION IN FIGURE 12. BROWN LINE IS THE TRACE OF THE GLENN SYNCLINE.

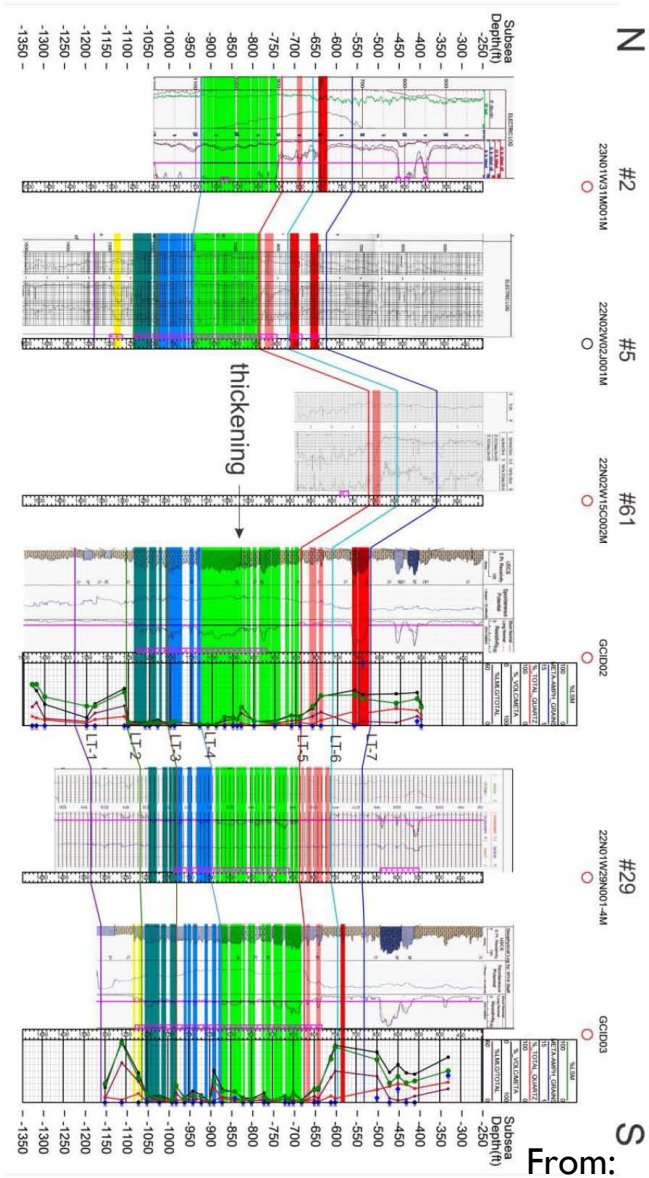


FIGURE 12. PUMP-TEST 3: CROSS-SECTION SHOWN IN FIGURE 11. NOTE THE CONNECTION BETWEEN THE SCREENED INTERVALS THE PUMP-TEST WELLS (GCID-2, 3) AND THE MONITORING WELLS 2, 5, 29. SCREENS ARE MARKED WITH PINK RECTANGLES. COLORED TRANSPARENT BOXES SHOW INTERPRETED ZONES WITH POROUS SANDS.

From:

Hydrostratigraphy and Pump-test Analysis of the Lower Tuscan/ Tehama Aquifer, Northern Sacramento Valley, CA., Greene and

Exhibit

From:
Hydrostratigraphy and Pump-test Analysis
of the Lower Tuscan/Tehama

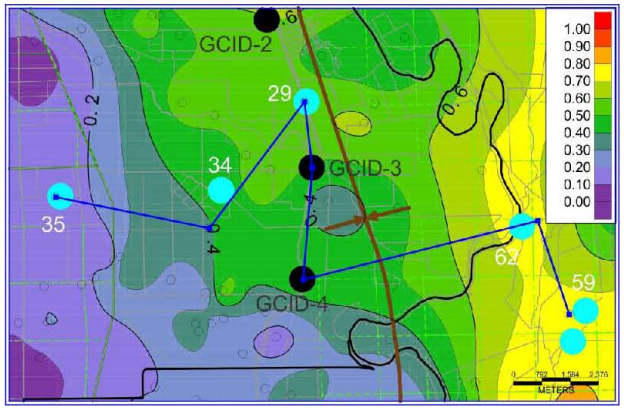


FIGURE 13. PUMP-TEST 4: SAND FRACTION MAP FOR THE LT-2 THROUGH LT-6 INTERVAL SHOWING PUMP-TEST WELLS (FILLED BLACK CIRLCES) AND MONITORING WELLS (FILLED LIGHT BLUE CIRLCES); WELL LABELS ARE IN WHITE. THE DARK BLUE LINE SHOWS THE POSITION OF THE CROSS-SECTION IN FIGURE 14. BROWN LINE IS THE TRACE OF THE GLENN SYNCLINE.

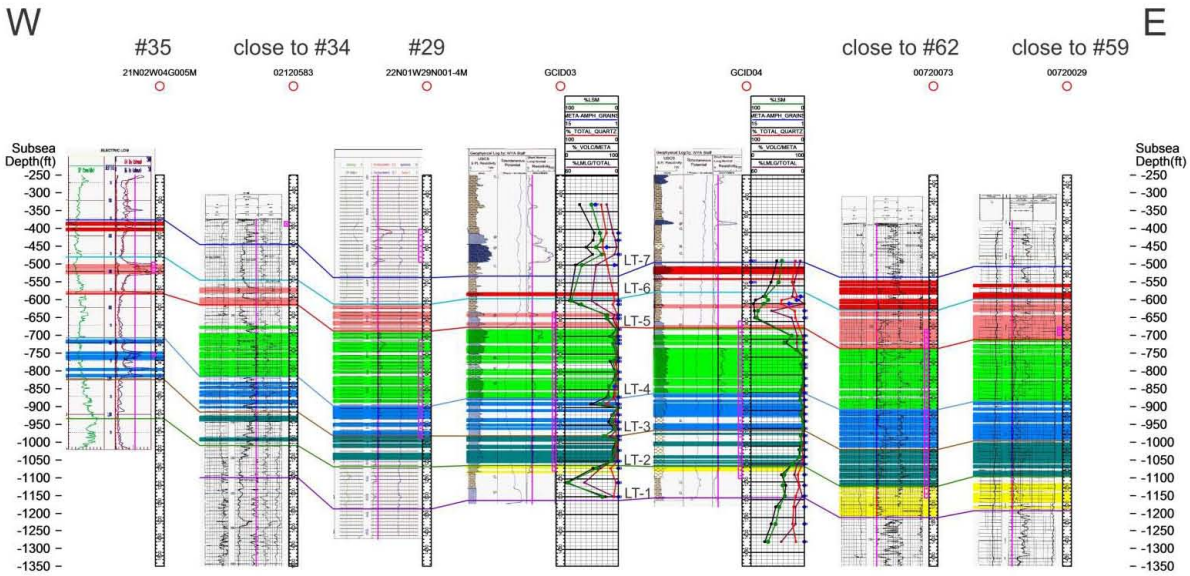
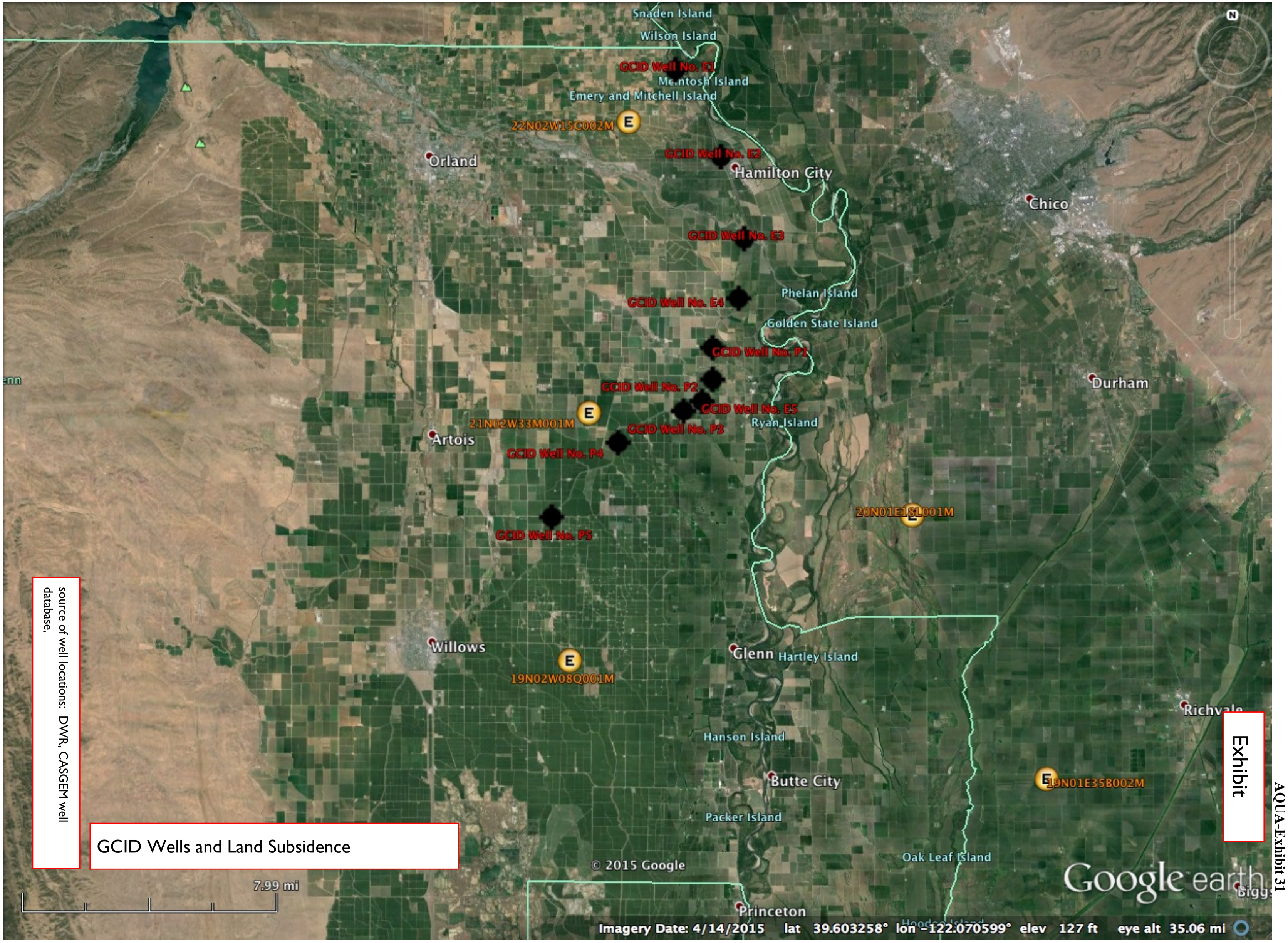


FIGURE 14. PUMP-TEST 4: CROSS-SECTION SHOWN IN FIGURE 13. NOTE THE CONNECTION BETWEEN THE SCREENED INTERVALS IN THE PUMP-TEST WELL (GCID-4) AND THE MONITORING WELLS 35, 29, 62, AND 59. SCREENS ARE MARKED WITH PINK RECTANGLES. COLORED TRANSPARENT BOXES SHOW INTERPRETED ZONES WITH POROUS SANDS.



source of well locations: DWR, CASGEM well database,

GCID Wells and Land Subsidence

Exhibit

AQUA-Exhibit 31

California Department of Water Resources

HYPLOT V133 Output 07/04/2015

Period 11 Year Plot Start 00:00_01/01/2005
Interval 6 Day Plot End 00:00_01/01/2016

Extensometer 21N02W33M001M, Glenn County

2005-16

— 21N02W33M001M Screen: 869-890 ft 115.00 Mean GS Displacement (ft)

Glenn-Colusa Irrigation District Groundwater Pumping 2007 to 2013
(GCID DEIR pg 3-15)

< 547 AF
< 500 AF
1,405 AF
0 AF
6,300 AF
< 500 AF
5,000 AF

-0.02
-0.045
-0.07
-0.095

2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015

source of graph: DWR Groundwater Information Center GIS web site

Exhibit 17A

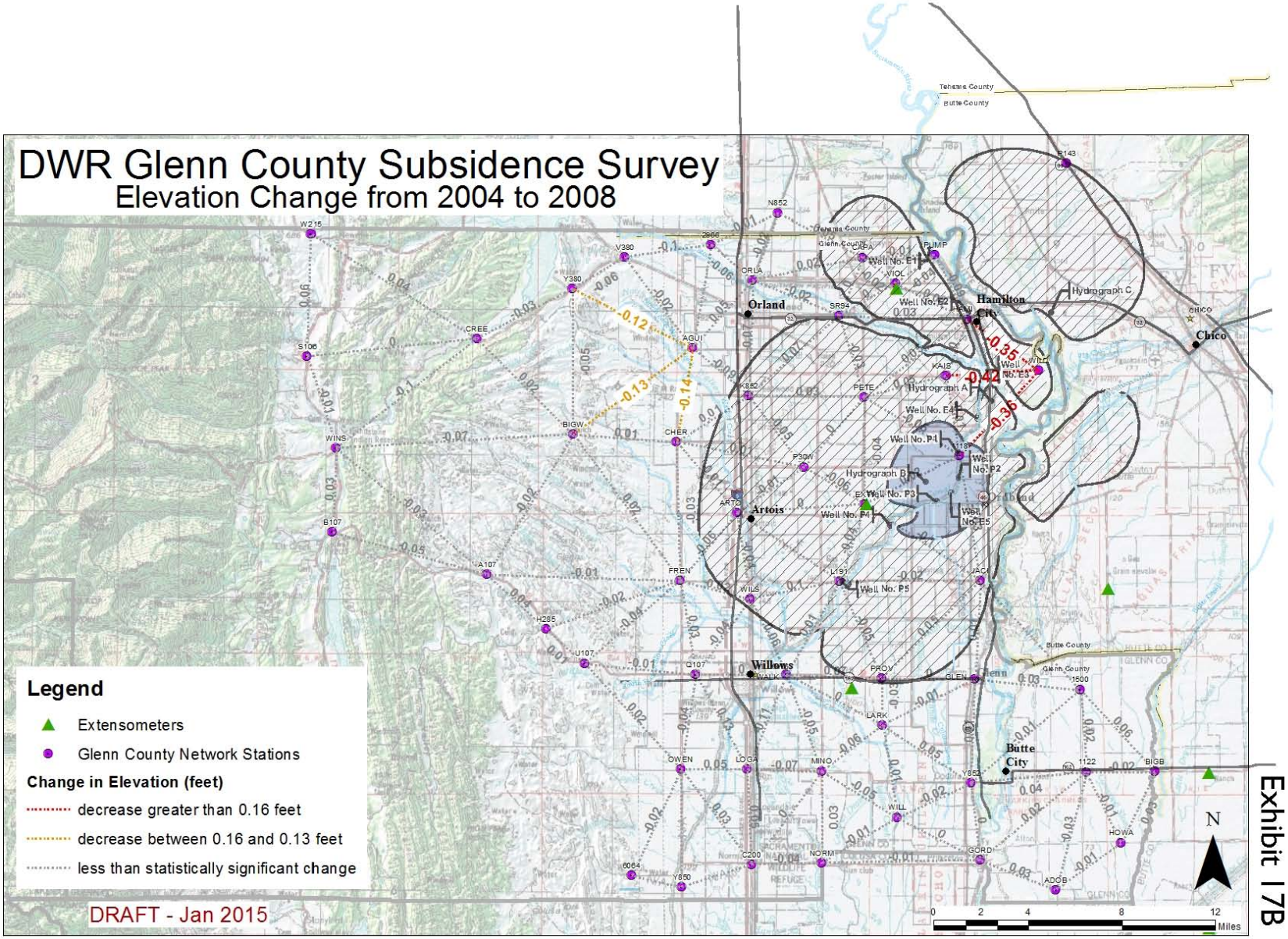
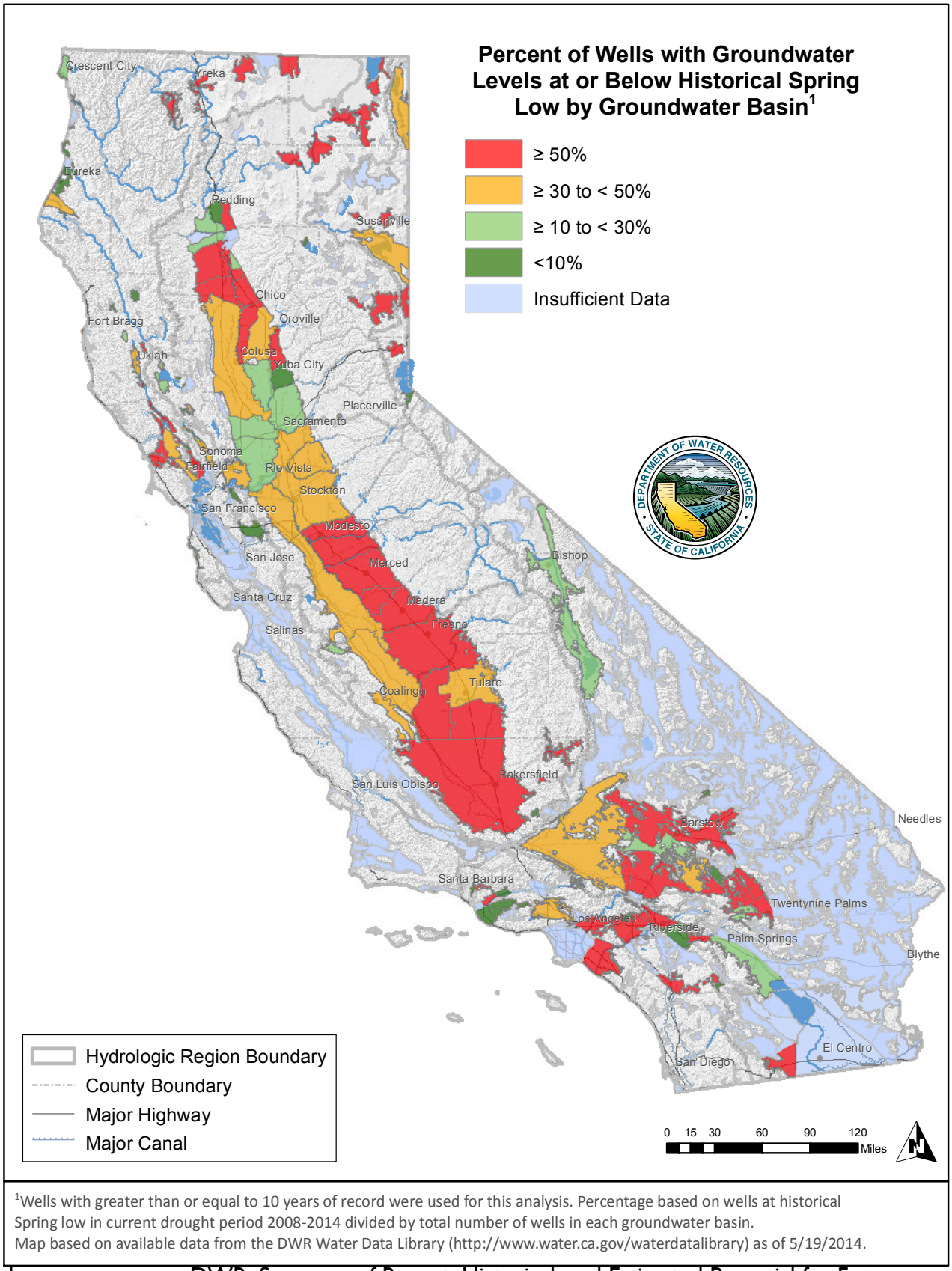


Exhibit 17B

base map source: DWR, Letter from Bill Ehorn to Glenn Co. Supervisors and Water Advisory Committee, Spring 2008 Subsidence GPS survey results, dated February 3, 2015

FIGURE 2

Percent of Wells with Groundwater Levels at or Below Historical Spring Low by Groundwater Basin



[1]Wells with greater than or equal to 10 years of record were used for this analysis. Percentage based on wells at historical Spring low in current drought period 2008-2014 divided by total number of wells in each groundwater basin.
Map based on available data from the DWR Water Data Library (http://www.water.ca.gov/waterdatalibrary) as of 5/19/2014.

base map source: DWR, Summary of Recent, Historical, and Estimated Potential for Future Land Subsidence in California, 2014

Exhibit 19

Glenn Colusa Irrigation District Sub-Areas 8, 9 & 11 BMO Monitoring Wells							
Map ID Number	**Latitude**	**Longitude**	**Name**	**BMO**	**Description**	**Start Date**	**End Date**
S8-1	39.6971	-121.9893	21N01W04N001M	4	Irrigation	8/24/59	6/2/15
S8-2	39.7687	-122.0547	22N02W11Q001M	4	Irrigation	8/8/73	6/2/15
S8-3	39.7301	-122.0022	22N01W29K001M	4	Irrigation	12/13/73	6/2/15
S9-1	39.7090	-122.0542	21N02W02B002M	1	Residential	3/9/60	6/3/15
S9-2	39.6869	-122.0130	21N02W09M002M	1	Irrigation	6/19/63	6/3/15
S9-3	39.6628	-122.0553	21N02W23G001M	1	Irrigation	1/20/65	6/3/15
S11-1	39.4661	-122.1076	19N02W29Q001M	3	Residential	9/13/41	7/15/15
S11-2	39.4665	-122.1670	19N03W26P001M	3	Residential	2/6/74	6/1/15
S11-3	39.6159	-122.0471	20N02W02J001M	3	Residential	12/22/41	7/15/15
S11-4	39.6237	-122.1016	20N02W05A001M	3	Irrigation	8/26/59	10/12/06
S11-5	39.6087	-122.0456	20N02W11A001M	3	Observation 70-90'	11/17/76	6/1/15
S11-6	39.6087	-122.0456	20N02W11A002M	3	Observation 140-180'	11/16/76	6/1/15
S11-7	39.6087	-122.0456	20N02W11A003M	3	Observation 490-510'	11/17/76	6/1/15
S11-8	39.5913	-122.0367	20N02W13G001M	3	Residential	8/26/59	7/15/15
S11-9	39.5632	-122.1069	20N02W29G001M	3	Residential	12/20/41	6/1/15

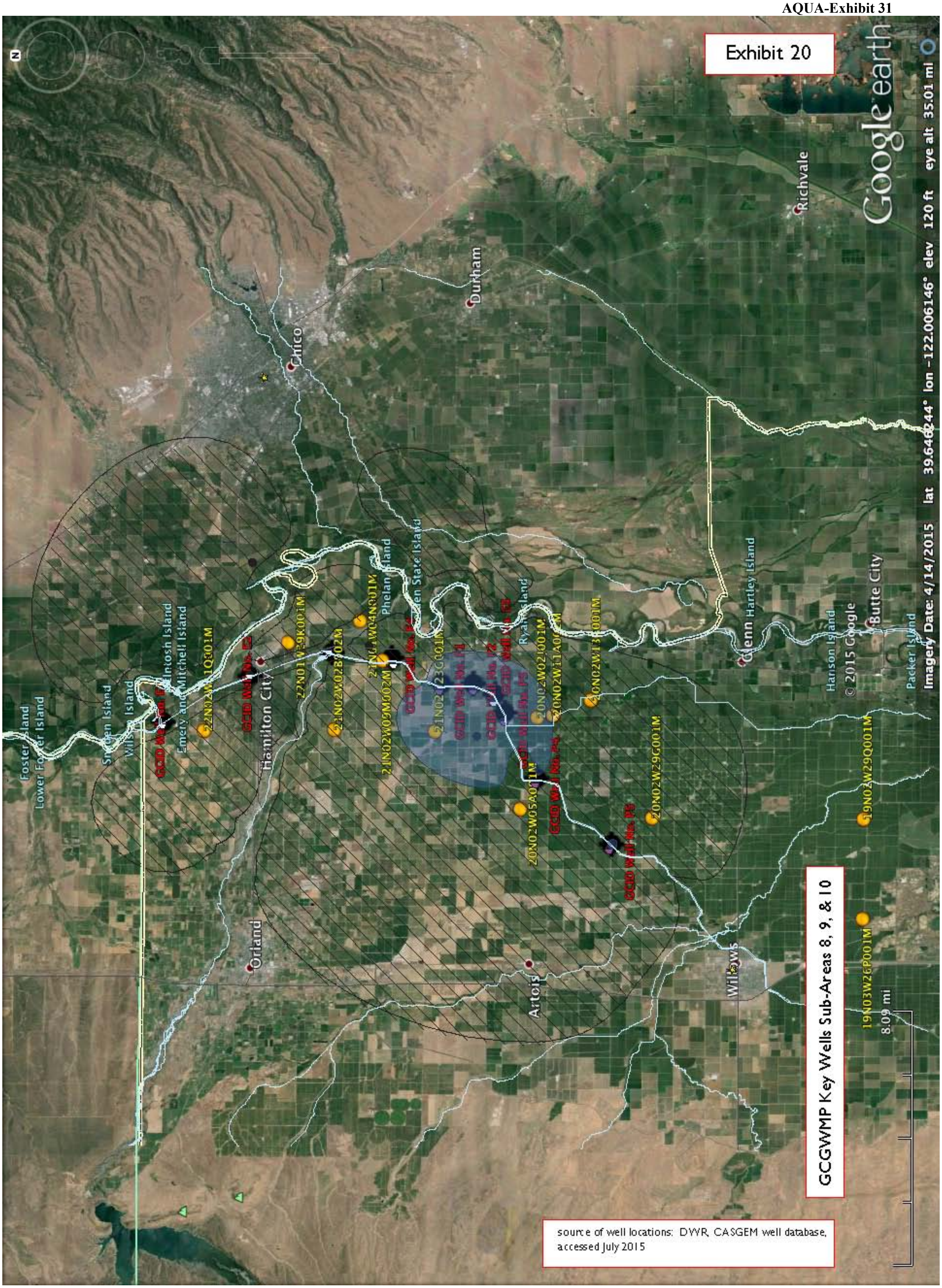


Exhibit 20
Google earth
Richvale
Durham
Chico
Butte City
Glenn
Hartley Island
Harison Island
Packer Island
Phelan Island
Ryan Island
Hamilton City
Orland
Artois
Willows
Imagery Date: 4/14/2015 lat 39.648244° lon -122.006146° elev 120 ft eye alt 35.01 mi
© 2015 Google
GCGWMP Key Wells Sub-Areas 8, 9, & 10
8.09 mi
source of well locations: DWR, CASGEM well database, accessed July 2015

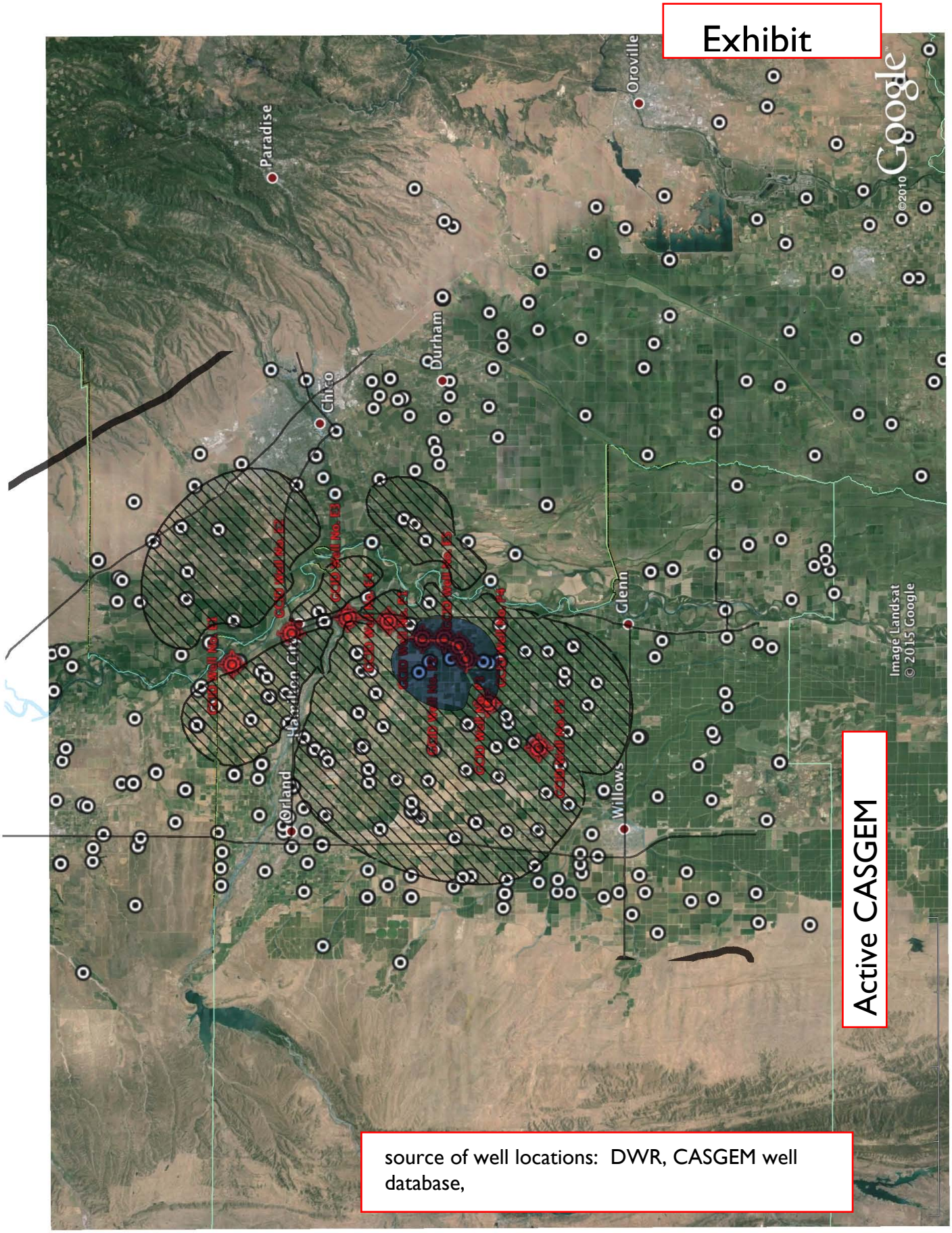


Exhibit
Paradise
Oroville
Chico
Durham
Glenn
Orland
Willows
Hamilton City
Google
©2010
Image Landsat
© 2015 Google
Active CASGEM
source of well locations: DWR, CASGEM well database,

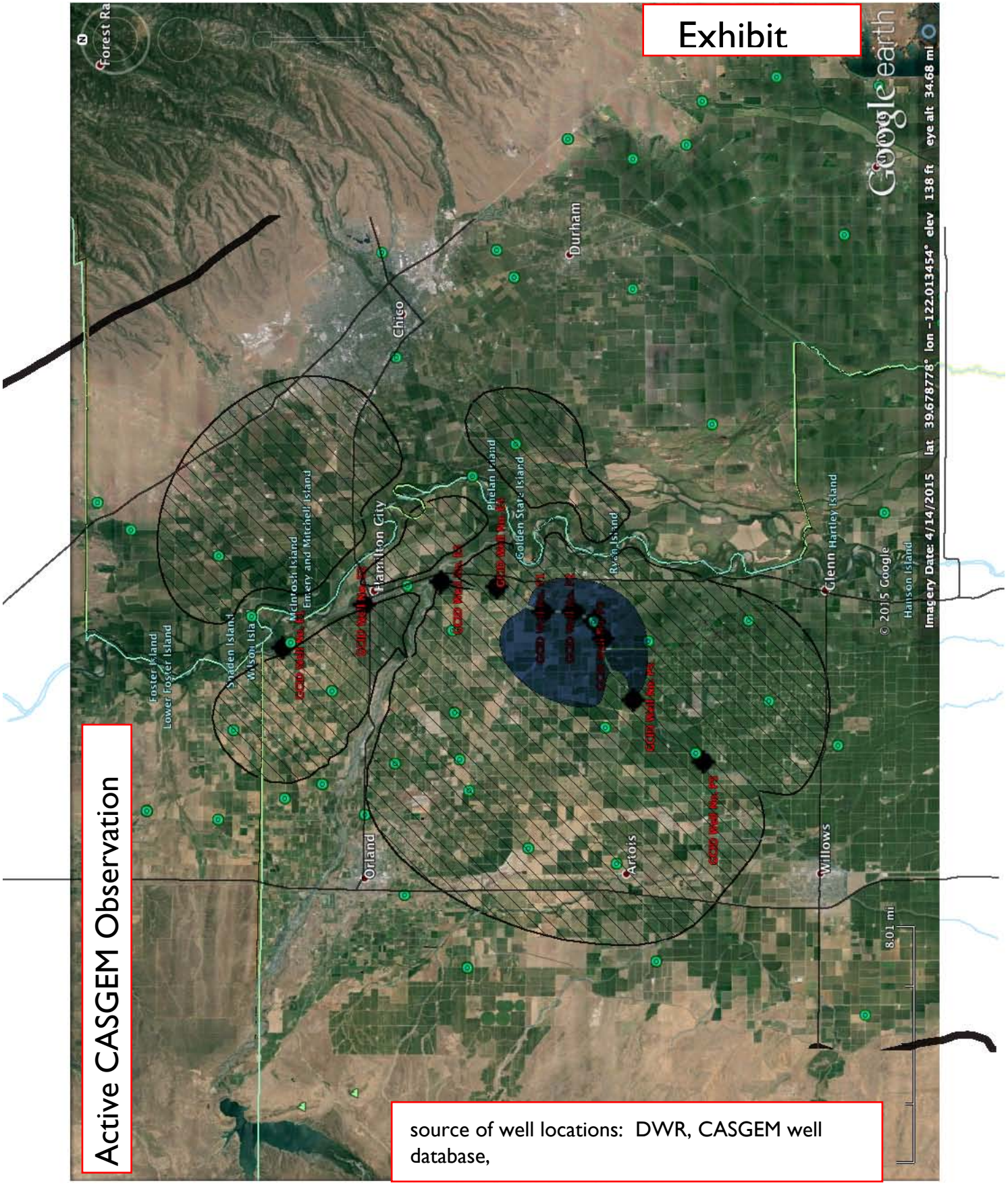
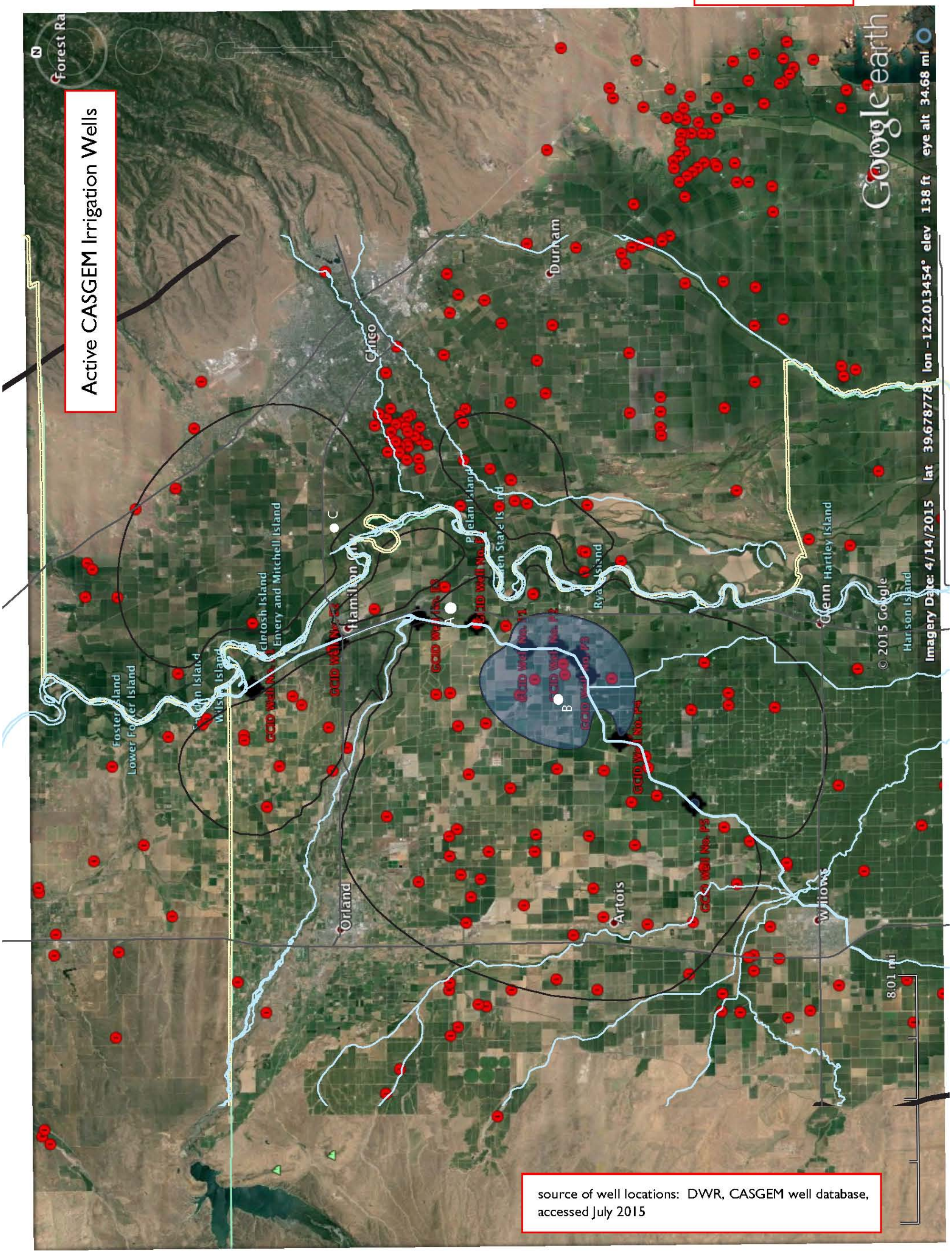


Exhibit
Active CASGEM Observation
source of well locations: DWR, CASGEM well database,
Chico
Durham
Hamilton City
Orland
Artois
Willows
Glenn
Pinelan Island
Golden State Island
Ryer Island
Hartley Island
Hanson Island
McIntosh Island
Emery and Mitchell Island
Snaden Island
Wilson Isla
Foster Island
Lower Foster Island
8.01 mi
© 2015 Google
Imagery Date: 4/14/2015 lat 39.678778° lon -122.013454° elev 138 ft eye alt 34.68 mi
Google Earth

Exhibit 23


Active CASGEM Irrigation Wells
Forest Ra
Chico
Durham
Hamilton City
Orland
Artois
Willows
Glenn
Hartley Island
Harson Island
Ryan Island
Pelan Island
Foster Island
Lower Foster Island
Wilson Island
Clintosh Island
Emery and Mitchell Island
GCID Well No. P1
GCID Well No. P2
GCID Well No. P3
GCID Well No. P4
GCID Well No. P5
A
B
C
Google earth
eye alt 34.68 mi
elev 138 ft
lon -122.013454
lat 39.678778
Imagery Date: 4/14/2015
© 2015 Google
8.01 mi
source of well locations: DWR, CASGEM well database, accessed July 2015

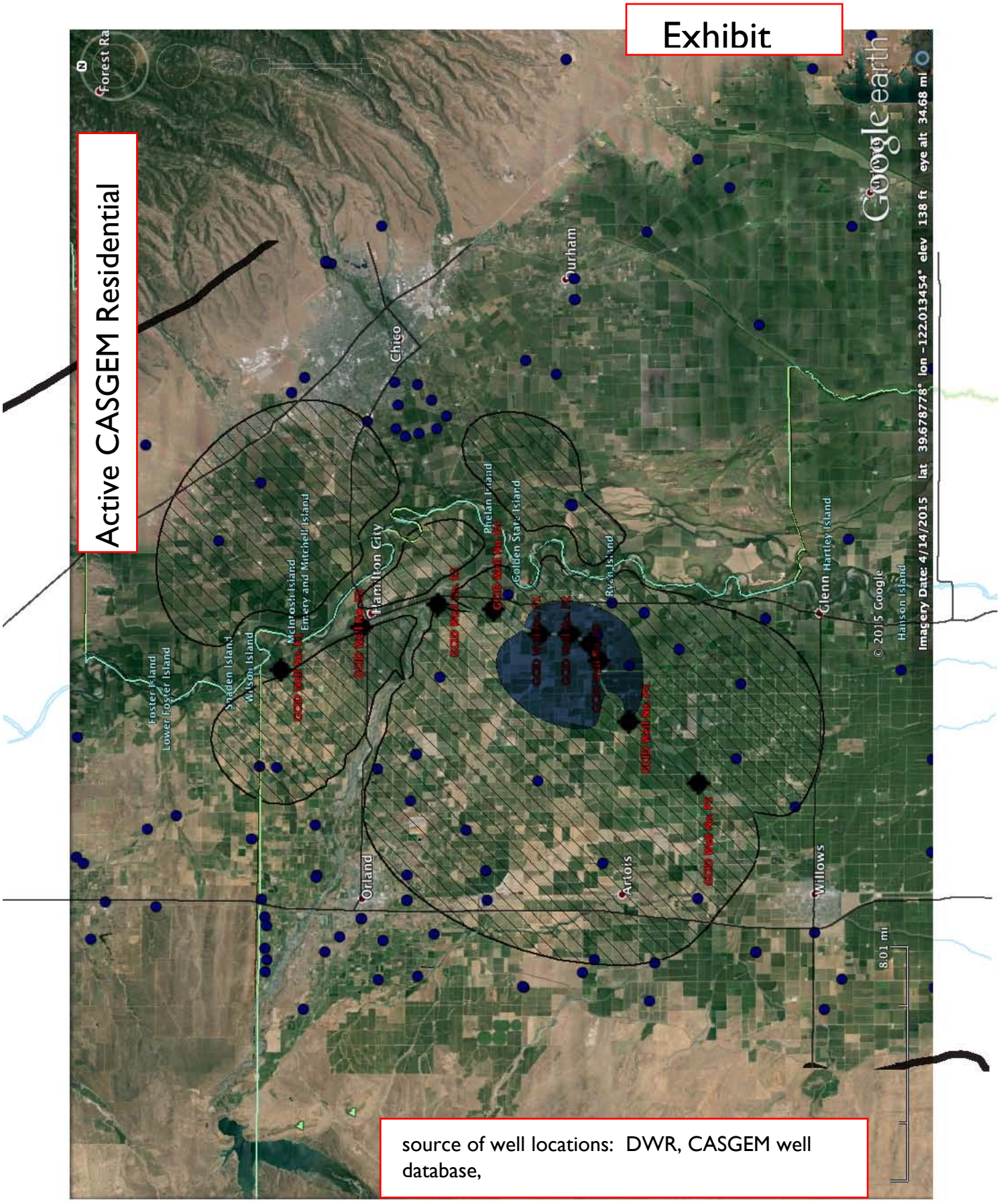


Exhibit
Active CASGEM Residential
Chico
Durham
Hamilton City
Orland
Artois
Willows
Glenn
Hartley Island
Hanson Island
Pinelan Island
Golden State Island
Ryer Island
Snaden Island
Wilson Island
McIntosh Island
Emery and Mitchell Island
Foster Island
Lower Foster Island
8.01 mi
Google earth
Imagery Date: 4/14/2015 lat 39.678778° lon -122.013454° elev 138 ft eye alt 34.68 mi
© 2015 Google
source of well locations: DWR, CASGEM well database,

Table 1. Well Construction Details

Well Name	State Well Number	Latitude	Longitude	Total Depth, feet	Screened Interval(s), feet bgs	Total Screen Length, feet	Reference Point Elevation, feet mean sea level	Power Source
Production Wells								
GCID 1	22N02W02J001M	39.7873	-122.0494	1,320	800 to 820, 840 to 870, 900 to 1,240, 1,270 to 1,300	420	164.00	Electric
GCID 2	22N01W19K005M	39.7474	-122.0219	1,250	920 to 1,230	310	154.21	Electric
GCID 3	21N01W05D001M	39.7099	-122.0080	1,248	782 to 1,228	446	150.70	Electric
GCID 4	21N01W31H001M	39.6821	-122.0115	1,261	799 to 1,241	442	143.89	Electric
GCID 5 (Jacinto)	21N02W36A001M	39.6351	-122.0329	720	190 to 500, 600 to 710	420	134.70	Electric
Monitoring Wells [(a)]								
20N02W11A001M	20N02W11A001M	39.6087	-122.0456	90	70 to 90	20	125.90	NA[(b)]
20N02W11A002M	20N02W11A002M	39.6087	-122.0456	160	140 to 160	20	125.40	NA
20N02W11A003M	20N02W11A003M	39.6087	-122.0456	510	490 to 510	20	125.90	NA
21N01W11A001M	21N01W11A001M	39.6943	-121.9410	1,311	810 to 820, 960 to 970, 1,050 to 1,060, 1,270 to 1,280	40	133.82	NA
21N01W11A002M	21N01W11A002M	39.6943	-121.9410	200	125 to 135, 175 to 185	20	133.56	NA
21N01W11A003M	21N01W11A003M	39.6943	-121.9410	104	30 to 50	20	133.23	NA
21N01W13J001M	21N01W13J001M	39.6730	-121.9206	830	780 to 820	40	128.94	NA
21N01W13J002M	21N01W13J002M	39.6730	-121.9206	610	570 to 591	21	129.21	NA
21N01W13J003M	21N01W13J003M	39.6730	-121.9206	400	355 to 385	30	129.46	NA
21N02W01F001M	21N02W01F001M	39.7044	-122.0383	600	547 to 557	10	162.13	NA
21N02W01F002M	21N02W01F002M	39.7044	-122.0383	385	297 to 307	10	162.28	NA
21N02W01F003M	21N02W01F003M	39.7044	-122.0383	119	109 to 119	10	162.28	NA
21N02W01F004M	21N02W01F004M	39.7044	-122.0383	80	55 to 65	10	163.22	NA
21N02W04G002M	21N02W04G002M	39.7033	-122.0910	964	928 to 938	10	180.21	NA
21N02W04G003M	21N02W04G003M	39.7033	-122.0910	715	674 to 684, 693 to 704	21	180.51	NA
21N02W04G004M	21N02W04G004M	39.7033	-122.0910	327	165 to 175, 269 to 279	20	180.31	NA
21N02W04G005M	21N02W04G005M	39.7033	-122.0910	99	57 to 67	10	181.16	NA
21N02W36A002M	21N02W36A002M	39.6351	-122.0332	145	120 to 140	20	137.49	NA
22N01W29N001M	22N01W29N001M	39.7263	-122.0106	1,204	859 to 879, 990 to 1,010, 1,116 to 1,136	59	150.95	NA
22N01W29N002M	22N01W29N002M	39.7263	-122.0106	670	549 to 559, 595 to 605, 631 to 641	30	150.68	NA
22N01W29N003M	22N01W29N003M	39.7263	-122.0106	400	189 to 199, 255 to 265, 320 to 330, 370 to 380	40	149.99	NA
22N01W29N004M	22N01W29N004M	39.7263	-122.0106	120	89 to 99	10	149.06	NA
22N02W01N001M	22N02W01N001M	39.7836	-122.0462	1,100	810 to 820, 1,040 to 1,050	20	161.07	NA
22N02W01N002M	22N02W01N002M	39.7836	-122.0462	730	700 to 710	10	161.31	NA
22N02W01N003M	22N02W01N003M	39.7836	-122.0462	440	210 to 220, 360 to 370	20	161.50	NA
22N02W01N004M	22N02W01N004M	39.7836	-122.0462	108	70 to 80	10	161.65	NA
22N02W15C002M	22N02W15C002M	39.7634	-122.0771	825	760 to 781	21	192.37	NA
22N02W15C003M	22N02W15C003M	39.7634	-122.0771	422	370 to 380	10	192.01	NA
22N02W15C004M	22N02W15C004M	39.7634	-122.0771	258	210 to 220	10	192.25	NA
22N02W15C005M	22N02W15C005M	39.7634	-122.0771	100	60 to 70	10	192.71	NA
23N01W28M002M	23N01W28M002M	39.8188	-121.9912	1,044	791 to 801, 881 to 891, 951 to 961, 1,011 to 1,021	40	160.33	NA
23N01W28M003M	23N01W28M003M	39.8188	-121.9912	696	640 to 650, 660 to 670	20	160.57	NA
23N01W28M004M	23N01W28M004M	39.8188	-121.9912	217	120 to 130, 155 to 165	20	160.70	NA
23N01W28M005M	23N01W28M005M	39.8188	-121.9912	72	30 to 50	20	161.05	NA
23N01W31M001M	23N01W31M001M	39.8028	-122.0294	1,200	969 to 979, 1,020 to 1,030	20	162.86	NA
23N01W31M002M	23N01W31M002M	39.8028	-122.0294	616	545 to 555, 590 to 600	20	162.76	NA
23N01W31M003M	23N01W31M003M	39.8028	-122.0294	245	140 to 150, 191 to 201	20	162.68	NA
23N01W31M004M	23N01W31M004M	39.8028	-122.0294	106	66 to 76	10	162.58	NA

[(a)]Monitoring well construction details were obtained from the California Department of Water Resources CASGEM database.
[(b)]NA - Not applicable.

					Exhibit 25B	
Glenn Colusa Irrigation District 2013 Observation Monitoring Wells						
Map ID Number	**Latitude**	**Longitude**	**Name**	**Description**	**Start Date**	**End Date**
GC-1A	39.8188	-121.9912	23N01W28M002M	Screened 791-1021 ft bgs	1/15/09	7/9/15
GC-1B	39.8188	-121.9912	23N01W28M003M	Screened 640-670 ft bgs	1/15/09	7/9/15
GC-1C	39.8188	-121.9912	23N01W28M004M	Screened 120-165 ft bgs	1/15/09	7/9/15
GC-1D	39.8188	-121.9912	23N01W28M005M	Screened 30-50 ft bgs	1/15/09	7/9/15
GC-2A	39.8028	-122.0294	23N01W31M001M	Screened 1020-1030 ft bgs	7/2/09	7/9/15
GC-2B	39.8028	-122.0294	23N01W31M002M	Screened 590-600 ft bgs	7/11/09	7/9/15
GC-2C	39.8028	-122.0294	23N01W31M003M	Screened 140-201 ft bgs	7/11/09	7/9/15
GC-2D	39.8028	-122.0294	23N01W31M004M	Screened 66-76 ft bgs	7/11/09	7/9/15
GC-3A	39.7836	-122.0461	22N02W01N001M	Screened 812-1050 ft bgs	8/17/06	6/2/15
GC-3B	39.7836	-122.0461	22N02W01N002M	Screened 698-708 ft bgs	8/17/06	6/2/15
GC-3C	39.7836	-122.0461	22N02W01N003M	Screened 209-367 ft bgs	8/17/06	6/2/15
GC-3D	39.7836	-122.0461	22N02W01N004M	Screened 70-80 ft bgs	2/14/07	6/2/15
GC-4A	39.7634	-122.0771	22N02W15C002M	Screened 760-781 ft bgs	2/18/03	6/3/15
GC-4B	39.7634	-122.0771	22N02W15C003M	Screened 370-380 ft bgs	2/18/03	6/3/15
GC-4C	39.7634	-122.0771	22N02W15C004M	Screened 210-220 ft bgs	2/18/03	6/3/15
GC-4D	39.7634	-122.0771	22N02W15C005M	Screened 60-70 ft bgs	2/18/03	6/3/15
GC-5A	39.7263	-122.0105	22N01W29N001M	Screened 859-1135 ft bgs	1/5/10	6/2/15
GC-5B	39.7263	-122.0105	22N01W29N002M	Screened 549-641 ft bgs	1/5/10	6/2/15
GC-5C	39.7263	-122.0105	22N01W29N003M	Screened 189-380 ft bgs	1/5/10	6/2/15
GC-5D	39.7263	-122.0105	22N01W29N004M	Screened 99-109 ft bgs	1/5/10	6/2/15
GC-6A	39.7043	-122.0387	21N02W01F001M	Screened 547-557 ft bgs	9/17/02	6/3/15
GC-6B	39.7043	-122.0387	21N02W01F002M	Screened 297-307 ft bgs	9/17/02	6/3/15
GC-6C	39.7043	-122.0387	21N02W01F003M	Screened 109-119 ft bgs	9/17/02	6/3/15
GC-6D	39.7043	-122.0387	21N02W01F004M	Screened 55-65 ft bgs	9/17/02	6/3/15
GC-7A	39.7033	-122.0910	21N02W04G002M	Screened 928-938 ft bgs	3/22/07	6/3/15
GC-7B	39.7033	-122.0910	21N02W04G003M	Screened 673-703 ft bgs	3/22/07	6/3/15
GC-7C	39.7033	-122.0910	21N02W04G004M	Screened 269-279 ft bgs	3/22/07	6/3/15
GC-7D	39.7033	-122.0910	21N02W04G005M	Screened 57-67 ft bgs	3/22/07	6/3/15
GC-8A	39.6943	-121.9410	21N01W11A001M	Screened 810-1280 ft bgs	11/8/10	7/8/15
GC-8B	39.6943	-121.9410	21N01W11A002M	Screened 125-185 ft bgs	11/8/10	7/8/15
GC-8C	39.6943	-121.9410	21N01W11A003M	Screened 30-50 ft bgs	11/8/10	7/8/15
GC-9A	39.6730	-121.9206	21N01W13J001M	Screened 780-820 ft bgs	3/28/12	7/10/15
GC-9B	39.6730	-121.9206	21N01W13J002M	Screened 570-591 ft bgs	3/28/12	7/10/15
GC-9C	39.6730	-121.9206	21N01W13J003M	Screened 355-385 ft bgs	3/28/12	7/10/15
GC-10	39.6355	-122.0331	21N02W36A002M	Screened 120-140 ft bgs	6/29/90	7/15/15
GC-11A	39.6087	-122.0456	20N02W11A001M	Screened 70-90 ft bgs	11/17/76	6/1/15
GC-11B	39.6087	-122.0456	20N02W11A002M	Screened 140-180 ft bgs	11/16/76	6/1/15
GC-11C	39.6087	-122.0456	20N02W11A003M	Screened 490-510 ft bgs	11/17/76	6/1/15

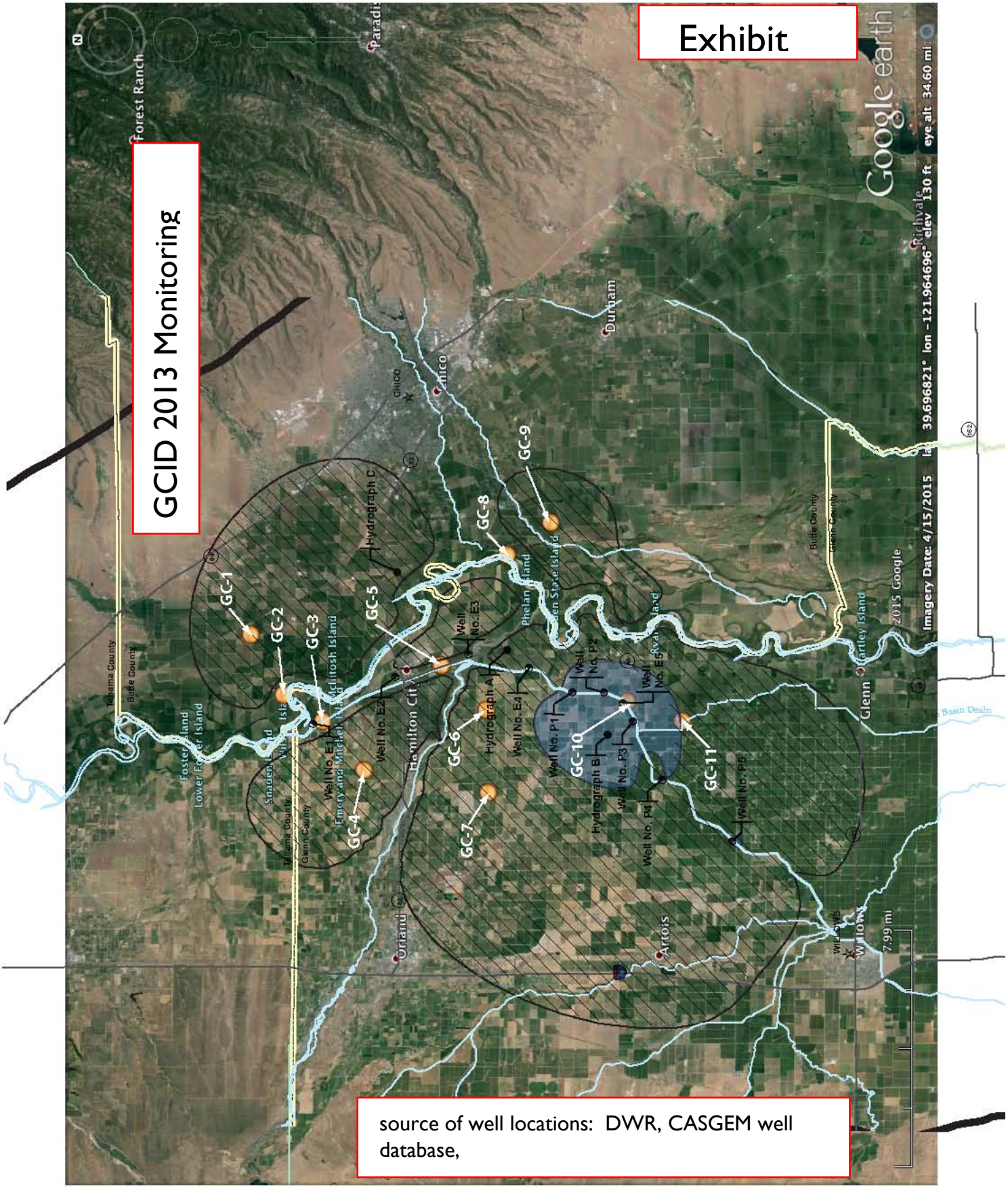
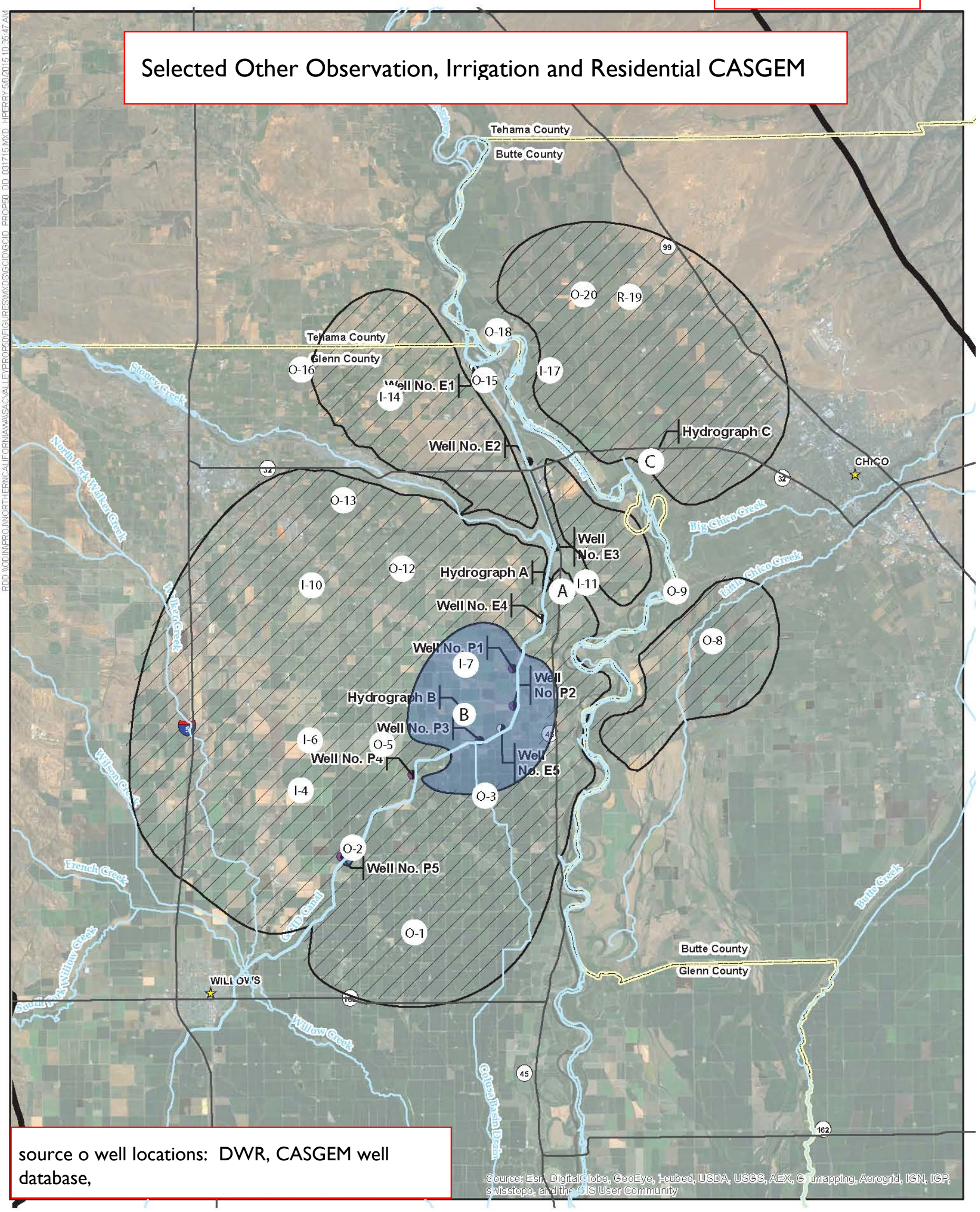


Exhibit
GCID 2013 Monitoring
GC-1
GC-2
GC-3
GC-4
GC-5
GC-6
GC-7
GC-8
GC-9
GC-10
GC-11
Hydrograph C
Hydrograph A
Hydrograph B
Well No. E1
Well No. E2
Well No. E3
Well No. E4
Well No. P1
Well No. P2
Well No. P3
Well No. P4
Well No. P5
Chico
Durham
Glenn
Willows
Orland
Artois
Hamilton City
Forest Ranch
Tehama County
Butte County
Glenn County
Google earth
Imagery Date: 4/15/2015
© 2015 Google
7.99 mi
source of well locations: DWR, CASGEM well database,

Exhibit

Selected Other Observation, Irrigation and Residential CASGEM



source o well locations: DWR, CASGEM well database,

LEGEND
- CITY
- EXISTING PRODUCTION WELL
- PROPOSED PRODUCTION WELL
- HYDROGRAPH LOCATION
- MAJOR WATERWAY
- COUNTY BOUNDARY
- SACRAMENTO VALLEY GROUNDWATER BASIN

FORECAST INCREMENTAL INCREMENTAL DRAWDOWN (feet)
- 1 to 5
- 5 to 10
- 10 to 15
- 15 to 20
- 20 to 30
- 30 to 40
- 40 to 60

Notes:
1. The average depth range of the Shallow Aquifer within the GCID service area is 5 to 65 feet bgs.
2. The average depth range of the Mid-Depth Aquifer within the GCID service area is 350 to 500 feet bgs.
3. The average depth range of the Deep Aquifer within the GCID service area is 960 to 1,325 feet bgs.
4. bgs = below ground surface.

N
0 2.75
Miles

FIGURE 3-6
Forecast Incremental Drawdown in the Shallow Aquifer (November 15, 1992)
Environmental Impact Report for the Glenn-Colusa Irrigation District Groundwater Supplemental Supply Project

CH2MHILL

Exhibit 28

Selected Groundwater Monitoring Wells in Butte, Glenn and Tehama Counties						
Map ID Number	Latitude	Longitude	Name	Description	Start Date	End Date
O-1	39.549600	-122.0839	395496N1220839W001	Observation-100-320	8/11/97	6/1/15
O-2A	39.585500	-122.1170	395855N1221170W001	Observation-920-980	2/5/02	6/1/15
O-2B	39.585500	-122.1170	395855N1221170W002	Observation-635-655	2/5/02	6/1/15
O-2C	39.585500	-122.1170	395855N1221170W003	Observation-450-526	2/15/02	6/1/15
O-2D	39.585500	-122.1170	395855N1221170W004	Observation-140-180	2/5/02	6/1/15
O-3A	39.608700	-122.0456	396087N1220456W001	Observation-70-90	11/17/76	6/1/15
O-3B	39.608700	-122.0456	396087N1220456W002	Observation-140-160	11/16/76	6/1/15
I-4	39.609600	-122.1469	396096N1221469W001	Irrigation	6/20/63	6/3/15
O-5A	39.629900	-122.1007	396299N1221007W001	Observation-869-890	8/19/02	6/3/15
O-5B	39.629900	-122.1007	396299N1221007W002	Observation-540-550	8/19/02	6/3/15
O-5C	39.629900	-122.1007	396299N1221007W003	Observation-140-150	8/19/02	6/3/15
I-6	39.631000	-122.1411	396310N1221411W001	Irrigation	12/4/29	6/3/15
I-7	39.662800	-122.0553	396628N1220553W001	Irrigation	1/20/65	6/2/15
O-8A	39.673024	-121.9206	396730N1219206W001	Observation-780-820	3/28/12	6/4/15
O-8B	39.673024	-121.9206	396730N1219206W002	Observation-570-591	3/28/12	6/4/15
O-8C	39.673024	-121.9206	396730N1219206W003	Observation-335-385	3/28/12	6/4/15
O-9A	39.694341	-121.9410	396943N1219410W001	Observation-810-1280	11/8/10	6/4/15
O-9B	39.694341	-121.9410	396943N1219410W002	Observation-125-185	11/8/10	6/4/15
O-9C	39.694341	-121.9410	396943N1219410W003	Observation-30-50	11/8/10	6/4/15
I-10	39.696300	-122.1405	396963N1221405W001	Irrigation	5/17/03	6/3/15
I-11	39.697100	-121.9893	396971N1219893W001	Irrigation	8/24/59	6/2/15
O-12A	39.703300	-122.0910	397033N1220910W001	Observation - 928-938	3/22/07	6/3/15
O-12B	39.703300	-122.0910	397033N1220910W002	Observation - 674-704	3/22/07	6/3/15
O-12C	39.703300	-122.0910	397033N1220910W003	Observation - 165-279	3/22/07	6/3/15
O-12D	39.703300	-122.0910	397033N1220910W004	Observation - 57-67	3/22/07	6/3/15
O-13A	39.732500	-122.1233	397325N1221233W001	Observation-850-880	5/13/04	6/2/15
O-13B	39.732500	-122.1233	397325N1221233W002	Observation-130-260	5/13/04	6/2/15
O-13C	39.732500	-122.1233	397325N1221233W003	Observation-45-70	5/13/04	6/2/15
I-14	39.775200	-122.0970	397752N1220970W001	Irrigation	3/12/65	6/2/15
O-15A	39.783564	-122.0461	397836N1220461W001	Observation-810-1050	8/17/06	6/2/15
O-15B	39.783564	-122.0461	397836N1220461W002	Observation-700-710	8/17/06	6/2/15
O-15C	39.783564	-122.0461	397836N1220461W003	Observation-210-370	8/17/06	6/2/15
O-15D	39.783564	-122.0461	397836N1220461W004	Observation-70-80	2/14/07	6/2/15
O-16A	39.786619	-122.1455	397866N1221455W001	Observation-470-480	7/24/03	6/2/15
O-16B	39.786619	-122.1455	397866N1221455W002	Observation-270-280	7/24/03	6/2/15
O-16C	39.786619	-122.1455	397866N1221455W003	Observation-60-70	7/24/03	6/2/15
I-17	39.787113	-122.0100	397871N1220100W001	Irrigation	4/1/47	6/3/15
O-18A	39.802800	-122.0394	398028N1220294W001	Observation-969-1030	7/2/08	6/3/15
O-18B	39.802800	-122.0394	398028N1220294W002	Observation-545-600	7/11/08	6/3/15
O-18C	39.802800	-122.0394	398028N1220294W003	Observation-140-201	7/11/08	6/3/15
O-18D	39.802800	-122.0394	398028N1220294W004	Observation-65.5-75.5	7/11/08	6/3/15
R-19	39.818000	-121.9669	398180N1219669W001	Residential	3/10/76	6/5/15
O-20A	39.818773	-121.9912	398188N1219912W001	Observation-791-1021	1/15/09	6/5/15
O-20B	39.818773	-121.9912	398188N1219912W002	Observation-640-670	1/15/09	6/5/15
O-20C	39.818773	-121.9912	398188N1219912W003	Observation-120-165	1/15/09	6/5/15
O-20D	39.818773	-121.9912	398188N1219912W004	Observation-30-50	1/15/09	6/5/15

source of well location data: DWR, CASGEM well database, accessed July 2015

Groundwater Levels for Station 395496N1220839W001

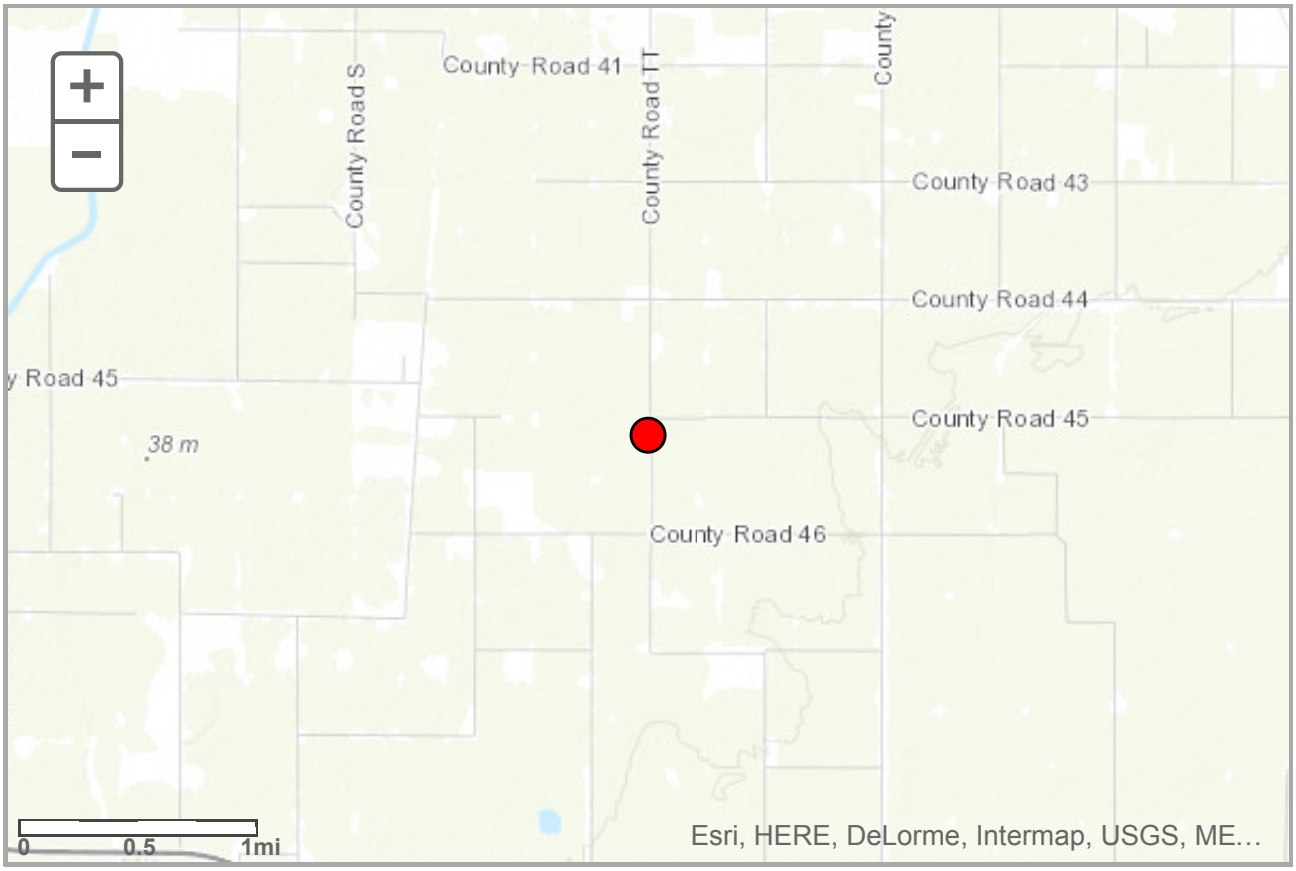
Exhibit 29 - O-1

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number: 20N02W33B001M
Local Well ID: 20N02W33B001M
Site Code: 395496N1220839W001
Latitude (NAD83): 39.549600
Longitude (NAD83): -122.0839
Groundwater Basin (code): Colusa (5-21.52)

Well Use: Observation
Well Status: Active
Well Completion Report Number: 3686
Reference Point Elevation (NAVD88 ft): 107.01
Ground Surface Elevation (NAVD88 ft): 105.41
Total Depth (ft): 320
Perforated Interval Depths (ft): 100.000 120.000 200.000 320.000

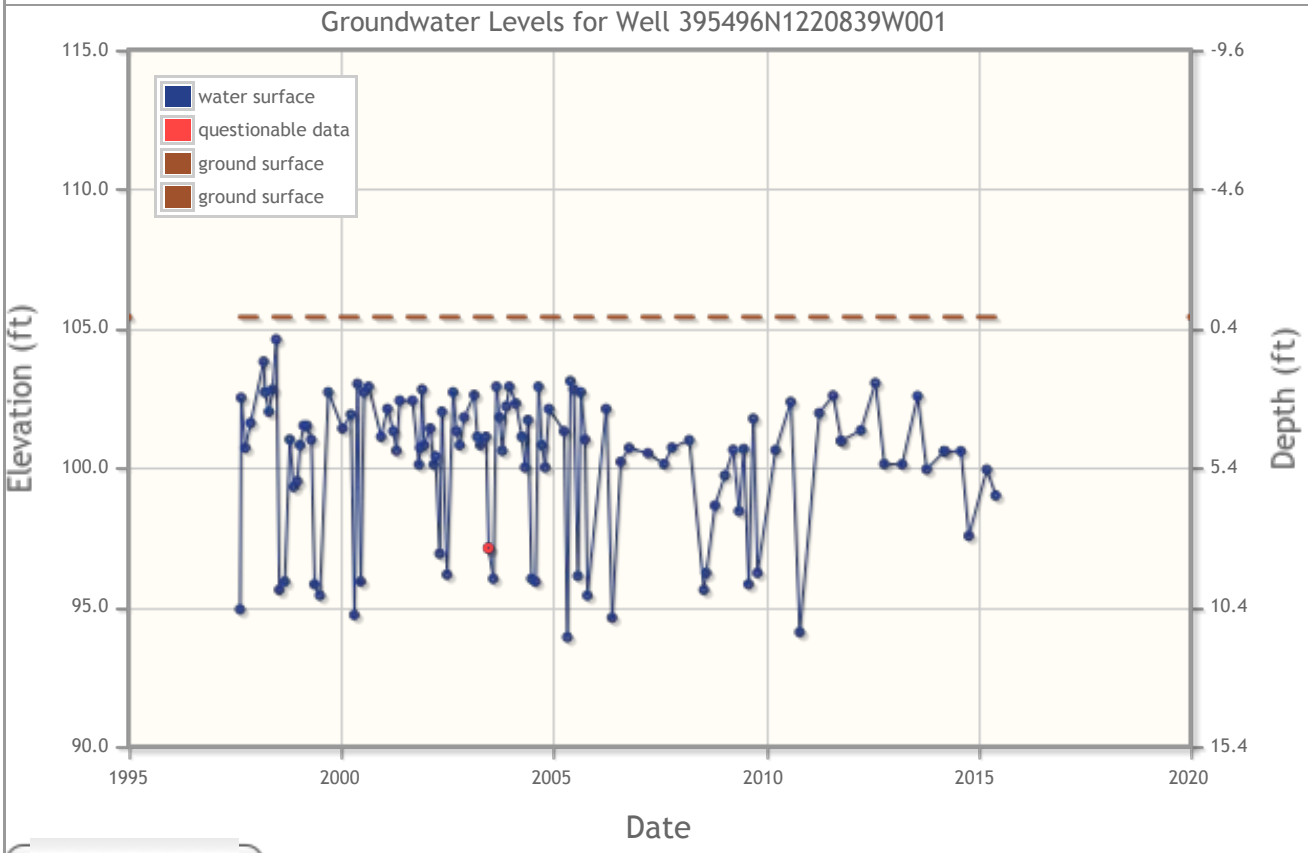


Perform a New Well Search

Groundwater Levels for Station 395496N1220839W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
08/11/1997 00:00	107.010	105.410	12.1	94.91	10.5		N	1	
08/21/1997 00:00	107.010	105.410	4.5	102.51	2.9		N	1	
09/25/1997 00:00	107.010	105.410	6.3	100.71	4.7		N	1	
11/11/1997 00:00	107.010	105.410	5.4	101.61	3.8		N	1	
03/02/1998 00:00	107.010	105.410	3.2	103.81	1.6		N	1	
03/13/1998 00:00	107.010	105.410	4.3	102.71	2.7		N	1	
04/16/1998 00:00	107.010	105.410	5	102.01	3.4		N	1	
05/18/1998 00:00	107.010	105.410	4.2	102.81	2.6		N	1	
06/18/1998 00:00	107.010	105.410	2.4	104.61	0.8		N	1	
07/14/1998 00:00	107.010	105.410	11.4	95.61	9.8		N	1	
08/31/1998 00:00	107.010	105.410	11.1	95.91	9.5		N	1	
10/13/1998 00:00	107.010	105.410	6	101.01	4.4		N	1	
11/17/1998 00:00	107.010	105.410	7.7	99.31	6.1		N	1	

Exhibit 29 - O-2A

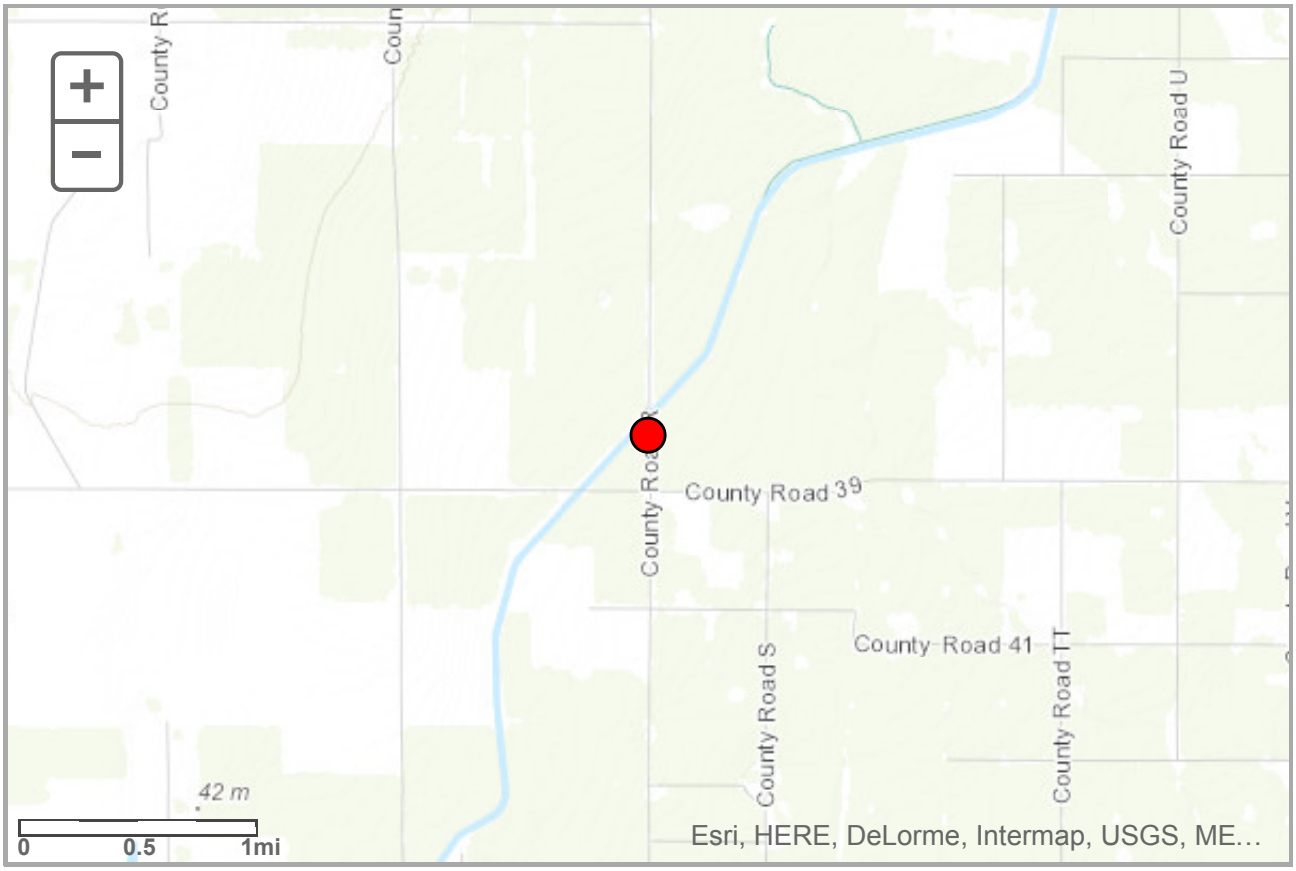
Groundwater Levels for Station 395855N1221170W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number: 20N02W18R005M
Local Well ID: 20N02W18R005M
Site Code: 395855N1221170W001
Latitude (NAD83): 39.585500
Longitude (NAD83): -122.117
Groundwater Basin (code): Colusa (5-21.52)

Well Use: Observation
Well Status: Active
Well Completion Report Number: 801448
Reference Point Elevation (NAVD88 ft): 132.45
Ground Surface Elevation (NAVD88 ft): 131.35
Total Depth (ft): 1020
Perforated Interval Depths (ft): 920.000 930.000 970.000 980.000

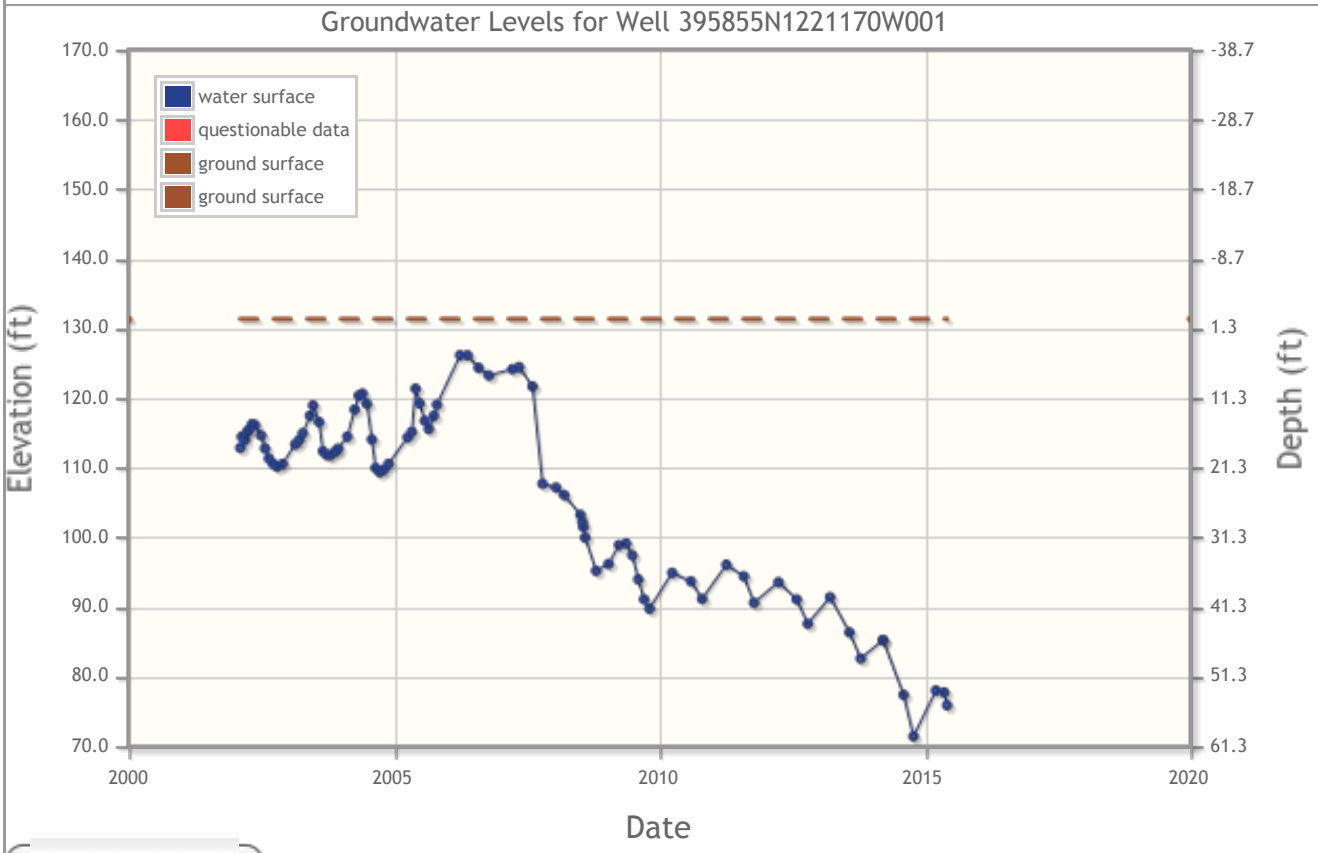


Perform a New Well Search

Groundwater Levels for Station 395855N1221170W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
02/05/2002 00:00	132.450	131.350	19.6	112.85	18.5		N	1	NE
02/15/2002 00:00	132.450	131.350	18	114.45	16.9		N	1	
03/04/2002 00:00	132.450	131.350	18.5	113.95	17.4		N	1	
03/19/2002 00:00	132.450	131.350	17.4	115.05	16.3		N	1	
04/03/2002 00:00	132.450	131.350	16.98	115.47	15.88		N	1	
04/25/2002 00:00	132.450	131.350	16.2	116.25	15.1		N	1	
05/14/2002 00:00	132.450	131.350	16.3	116.15	15.2		N	1	
06/27/2002 00:00	132.450	131.350	17.82	114.63	16.72		N	1	
07/23/2002 00:00	132.450	131.350	19.69	112.76	18.59		N	1	
08/19/2002 00:00	132.450	131.350	21.15	111.3	20.05		N	1	
09/17/2002 00:00	132.450	131.350	21.89	110.56	20.79		N	1	
10/15/2002 00:00	132.450	131.350	22.29	110.16	21.19		N	1	
11/22/2002 00:00	132.450	131.350	21.92	110.53	20.82		N	1	

Groundwater Levels for Station 395855N1221170W002

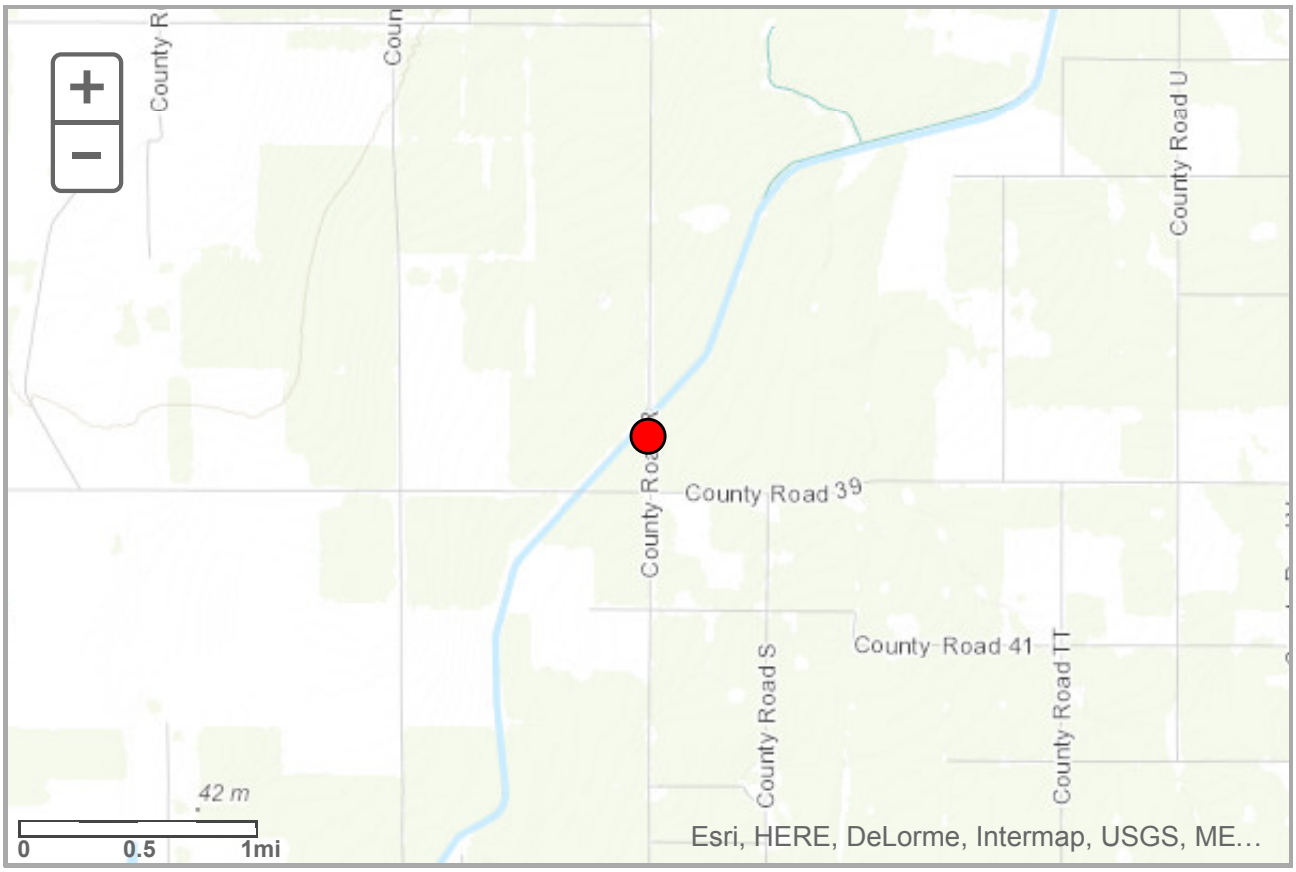
Exhibit 29 - O-2B

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number:	20N02W18R006M
Local Well ID:	20N02W18R006M
Site Code:	395855N1221170W002
Latitude (NAD83):	39.585500
Longitude (NAD83):	-122.117
Groundwater Basin (code):	Colusa (5-21.52)

Well Use:	Observation
Well Status:	Active
Well Completion Report Number:	801448
Reference Point Elevation (NAVD88 ft):	132.98
Ground Surface Elevation (NAVD88 ft):	131.38
Total Depth (ft):	706
Perforated Interval Depths (ft):	635.000 655.000

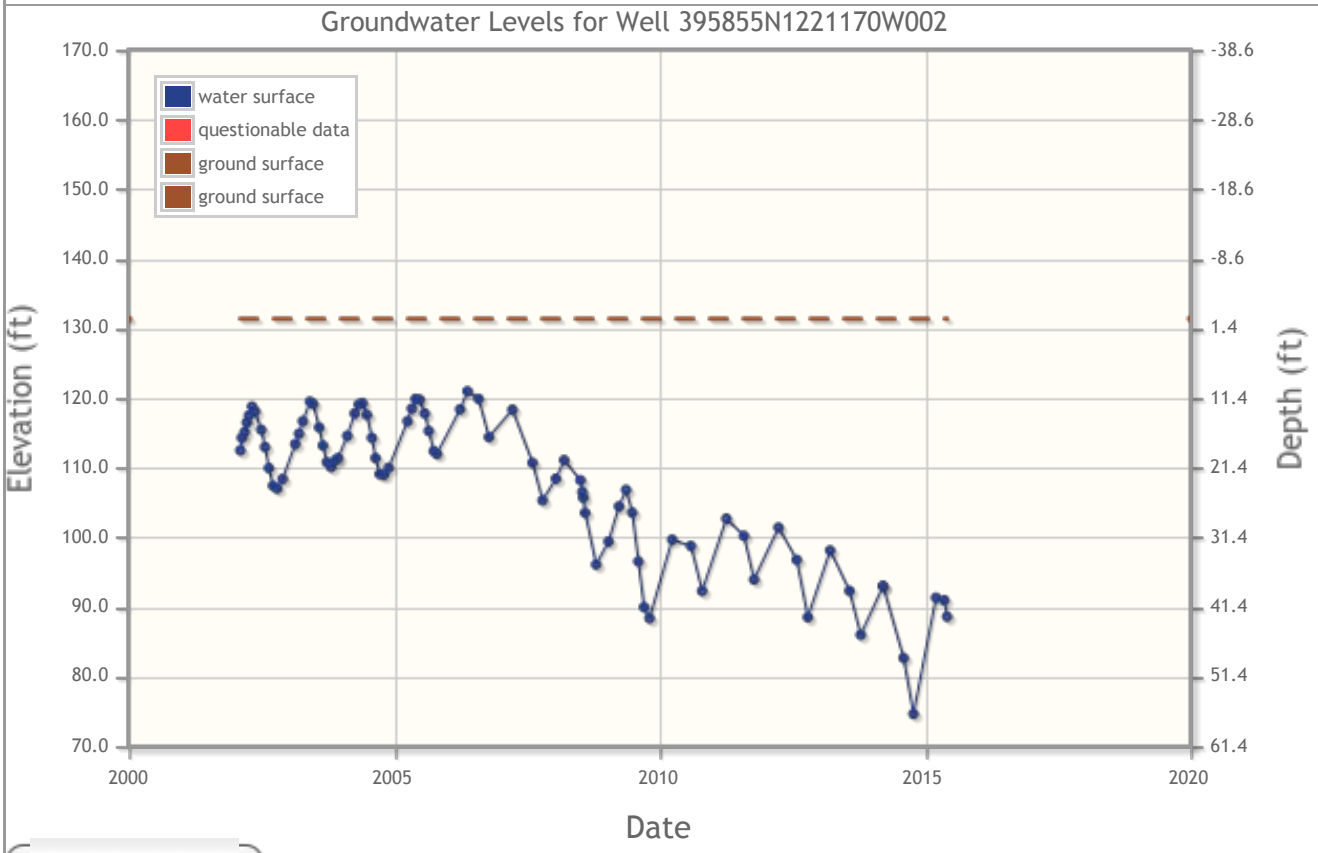


Perform a New Well Search

Groundwater Levels for Station 395855N1221170W002

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
02/05/2002 00:00	132.983	131.383	20.5	112.483	18.9		N	1	NE
02/15/2002 00:00	132.983	131.383	18.7	114.283	17.1		N	1	
03/04/2002 00:00	132.983	131.383	17.9	115.083	16.3		N	1	
03/19/2002 00:00	132.983	131.383	16.5	116.483	14.9		N	1	
04/03/2002 00:00	132.983	131.383	15.5	117.483	13.9		N	1	
04/25/2002 00:00	132.983	131.383	14.2	118.783	12.6		N	1	
05/14/2002 00:00	132.983	131.383	14.9	118.083	13.3		N	1	
06/27/2002 00:00	132.983	131.383	17.53	115.453	15.93		N	1	
07/23/2002 00:00	132.983	131.383	20.02	112.963	18.42		N	1	
08/19/2002 00:00	132.983	131.383	23.05	109.933	21.45		N	1	
09/17/2002 00:00	132.983	131.383	25.58	107.403	23.98		N	1	
10/15/2002 00:00	132.983	131.383	25.96	107.023	24.36		N	1	
11/22/2002 00:00	132.983	131.383	24.61	108.373	23.01		N	1	

Exhibit 29 - O-2C

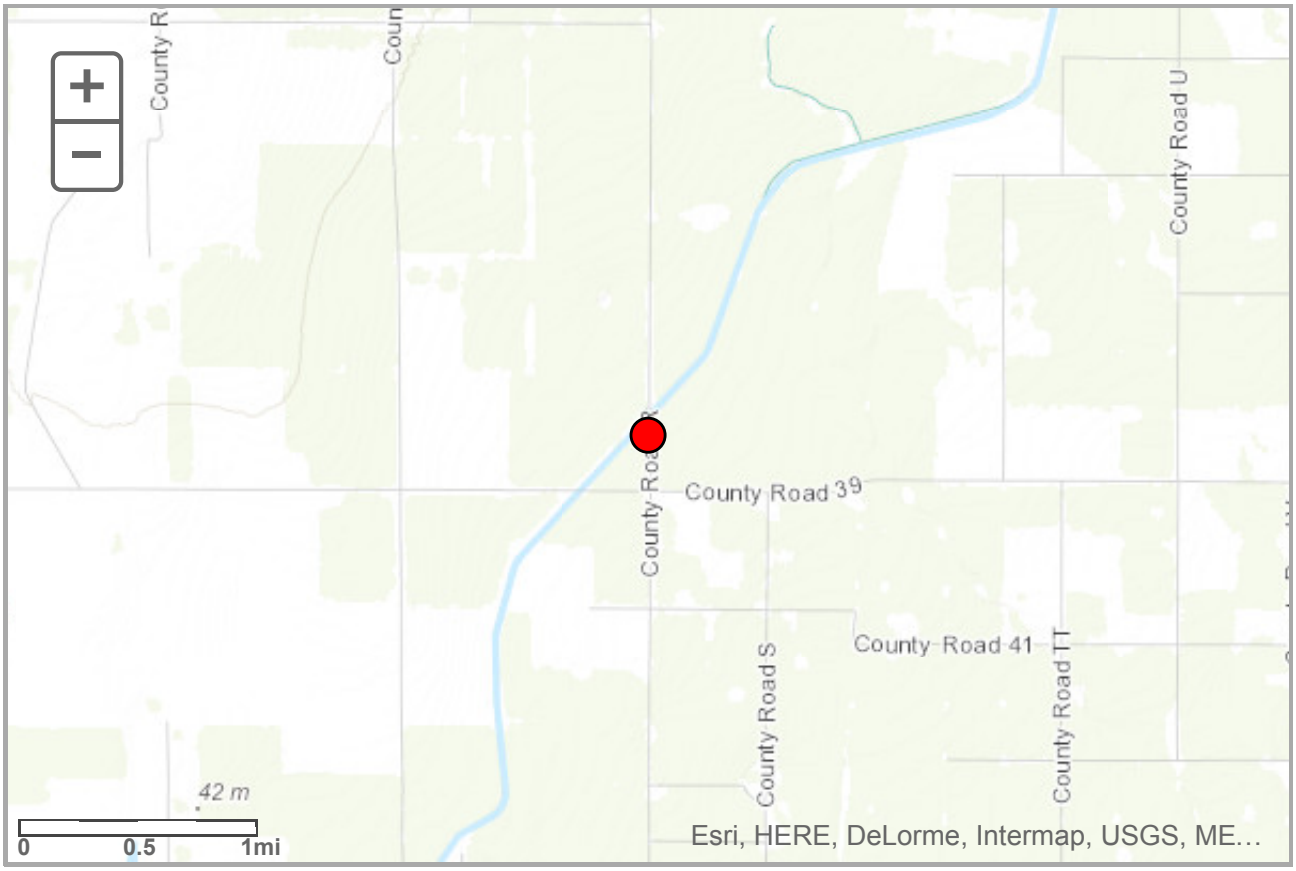
Groundwater Levels for Station 395855N1221170W003

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number: 20N02W18R007M
Local Well ID: 20N02W18R007M
Site Code: 395855N1221170W003
Latitude (NAD83): 39.585500
Longitude (NAD83): -122.117
Groundwater Basin (code): Colusa (5-21.52)

Well Use: Observation
Well Status: Active
Well Completion Report Number: 801448
Reference Point Elevation (NAVD88 ft): 133.43
Ground Surface Elevation (NAVD88 ft): 131.38
Total Depth (ft): 535
Perforated Interval Depths (ft): 450.000 460.000 515.000 526.000

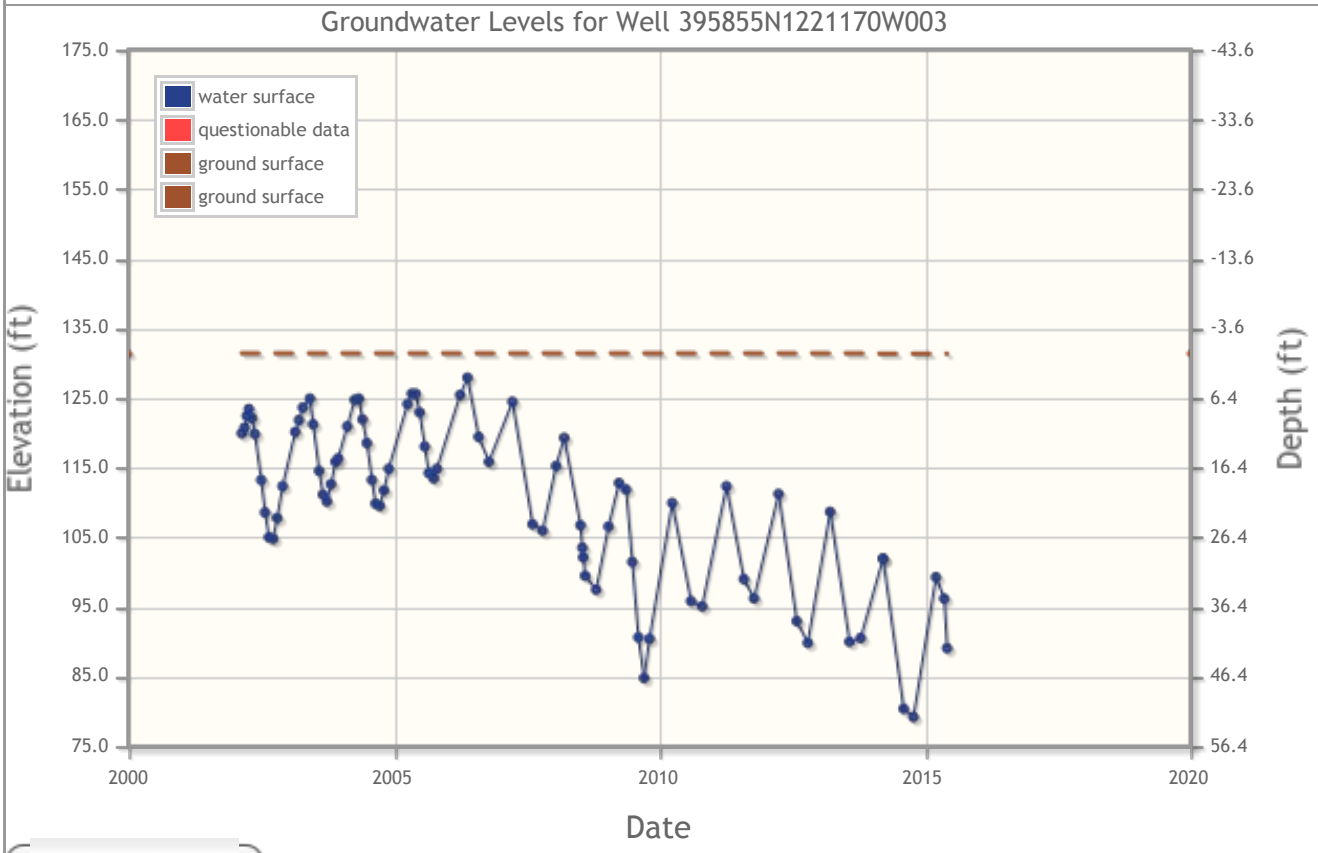


Perform a New Well Search

Groundwater Levels for Station 395855N1221170W003

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
02/15/2002 00:00	133.434	131.434	13.5	119.934	11.5		N	1	
03/04/2002 00:00	133.434	131.434	12.7	120.734	10.7		N	1	
03/19/2002 00:00	133.434	131.434	11	122.434	9		N	1	
04/03/2002 00:00	133.434	131.434	10.01	123.424	8.01		N	1	
04/25/2002 00:00	133.434	131.434	11.3	122.134	9.3		N	1	
05/14/2002 00:00	133.434	131.434	13.6	119.834	11.6		N	1	
06/27/2002 00:00	133.434	131.434	20.2	113.234	18.2		N	1	
07/23/2002 00:00	133.434	131.434	24.86	108.574	22.86		N	1	
08/19/2002 00:00	133.434	131.434	28.44	104.994	26.44		N	1	
09/17/2002 00:00	133.434	131.434	28.63	104.804	26.63		N	1	
10/15/2002 00:00	133.434	131.434	25.67	107.764	23.67		N	1	
11/22/2002 00:00	133.434	131.434	21.1	112.334	19.1		N	1	
02/18/2003 00:00	133.434	131.434	13.3	120.134	11.3		N	1	

Exhibit 29 - O-2D

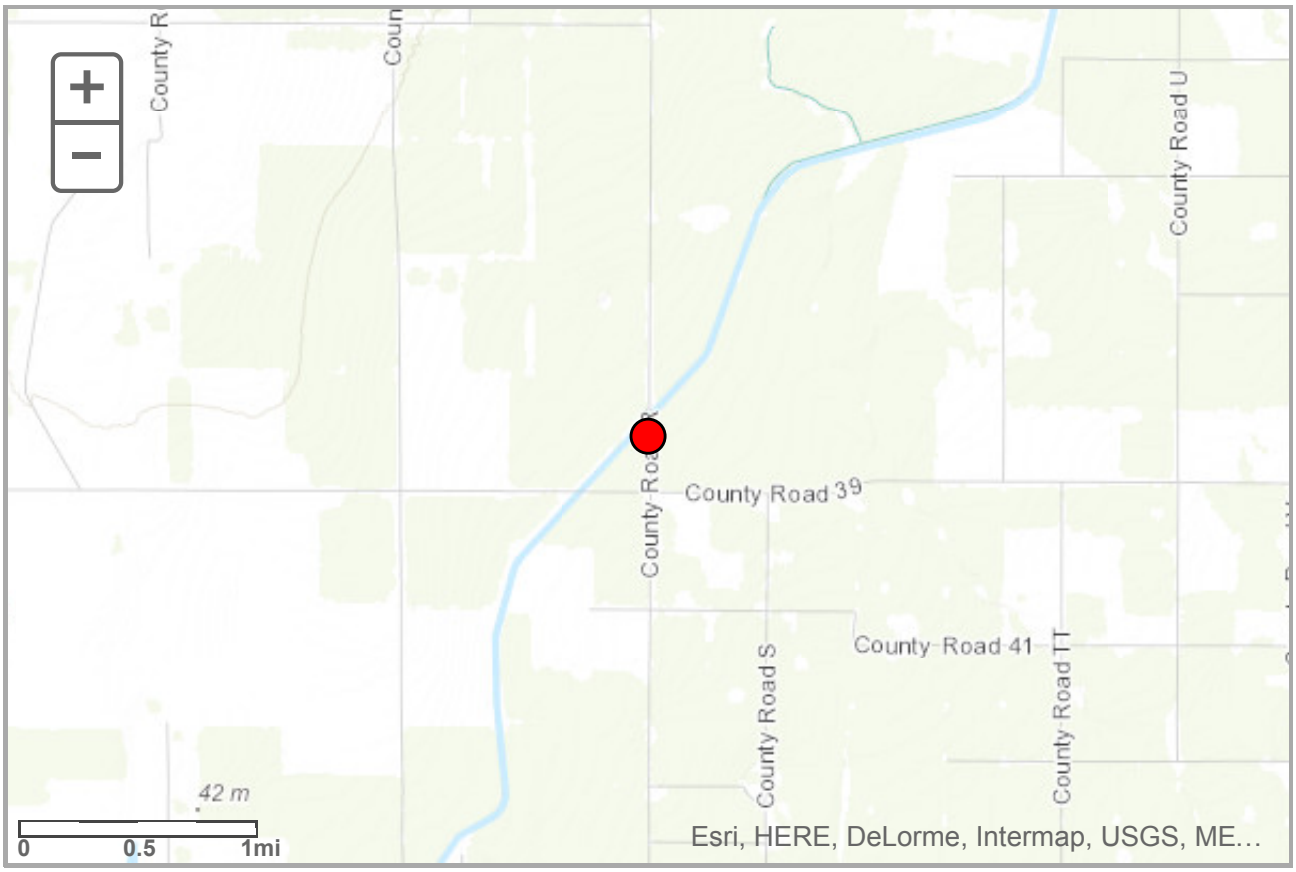
Groundwater Levels for Station 395855N1221170W004

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number: 20N02W18R008M
Local Well ID: 20N02W18R008M
Site Code: 395855N1221170W004
Latitude (NAD83): 39.585500
Longitude (NAD83): -122.117
Groundwater Basin (code): Colusa (5-21.52)

Well Use: Observation
Well Status: Active
Well Completion Report Number: 801448
Reference Point Elevation (NAVD88 ft): 133.97
Ground Surface Elevation (NAVD88 ft): 131.37
Total Depth (ft): 225
Perforated Interval Depths (ft): 140.000 150.000 170.000 180.000

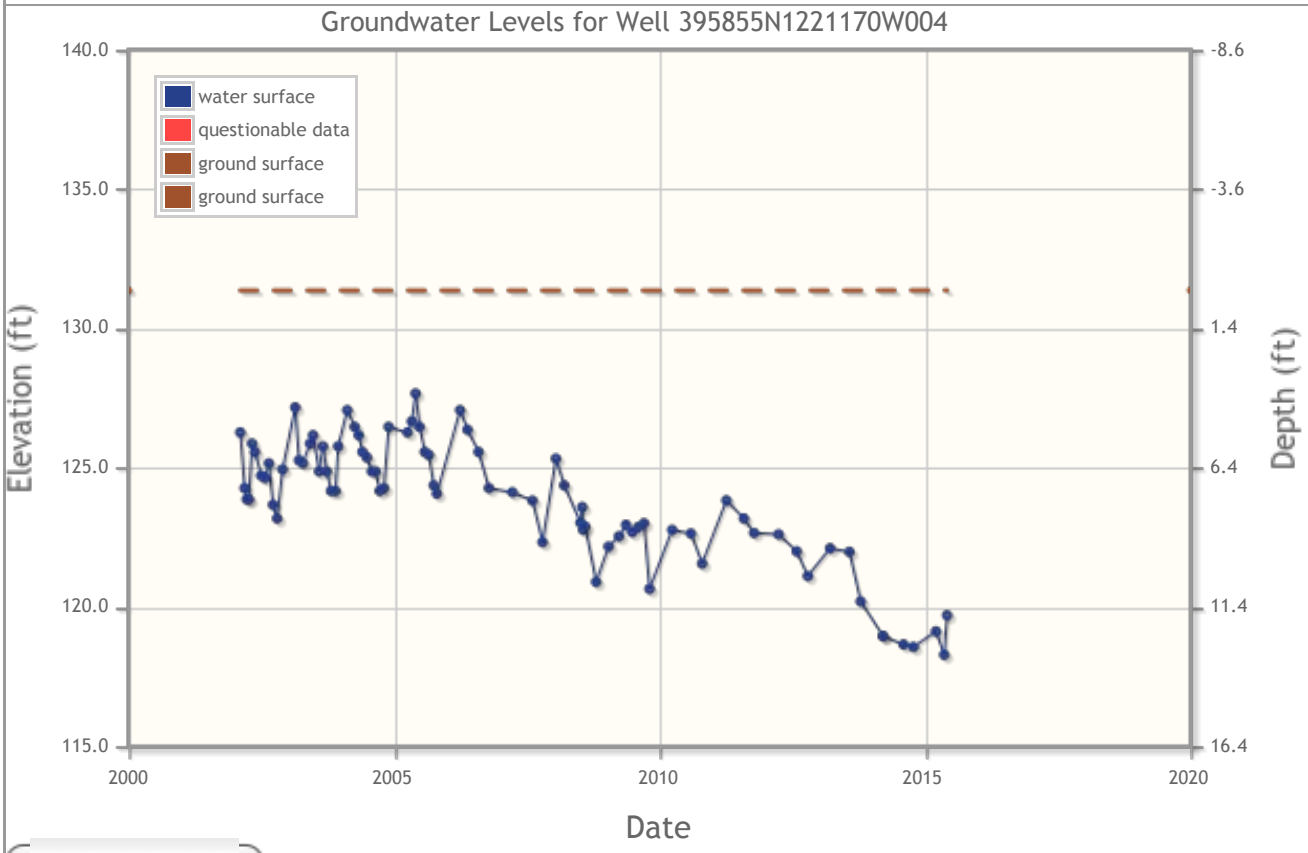


Perform a New Well Search

Groundwater Levels for Station 395855N1221170W004

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
02/05/2002 00:00	133.965	131.365	7.7	126.265	5.1		N	1	NE
03/04/2002 00:00	133.965	131.365	9.7	124.265	7.1		N	1	
03/19/2002 00:00	133.965	131.365	10.1	123.865	7.5		N	1	
04/03/2002 00:00	133.965	131.365	10.1	123.865	7.5		N	1	
04/25/2002 00:00	133.965	131.365	8.1	125.865	5.5		N	1	
05/14/2002 00:00	133.965	131.365	8.4	125.565	5.8		N	1	
06/27/2002 00:00	133.965	131.365	9.25	124.715	6.65		N	1	
07/23/2002 00:00	133.965	131.365	9.33	124.635	6.73		N	1	
08/19/2002 00:00	133.965	131.365	8.81	125.155	6.21		N	1	
09/17/2002 00:00	133.965	131.365	10.3	123.665	7.7		N	1	
10/15/2002 00:00	133.965	131.365	10.79	123.175	8.19		N	1	
11/22/2002 00:00	133.965	131.365	9.03	124.935	6.43		N	1	
02/18/2003 00:00	133.965	131.365	6.8	127.165	4.2		N	1	

Groundwater Levels for Station 396087N1220456W001

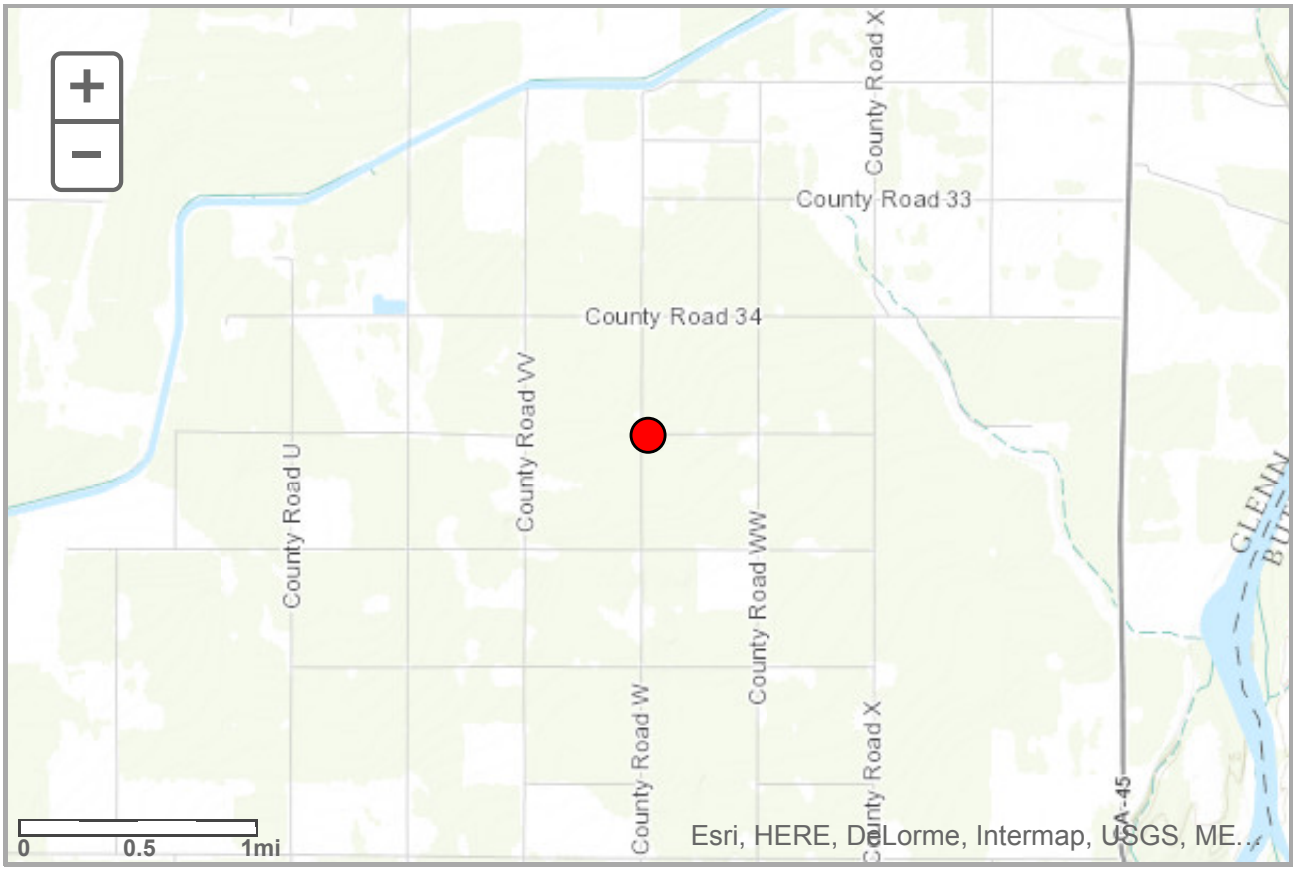
Exhibit 29 - O-3A

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number: 20N02W11A001M
Local Well ID: 20N02W11A001M
Site Code: 396087N1220456W001
Latitude (NAD83): 39.608700
Longitude (NAD83): -122.0456
Groundwater Basin (code): Colusa (5-21.52)

Well Use: Observation
Well Status: Active
Well Completion Report Number: 3669
Reference Point Elevation (NAVD88 ft): 125.90
Ground Surface Elevation (NAVD88 ft): 125.40
Total Depth (ft): 90
Perforated Interval Depths (ft): 70.000 90.000

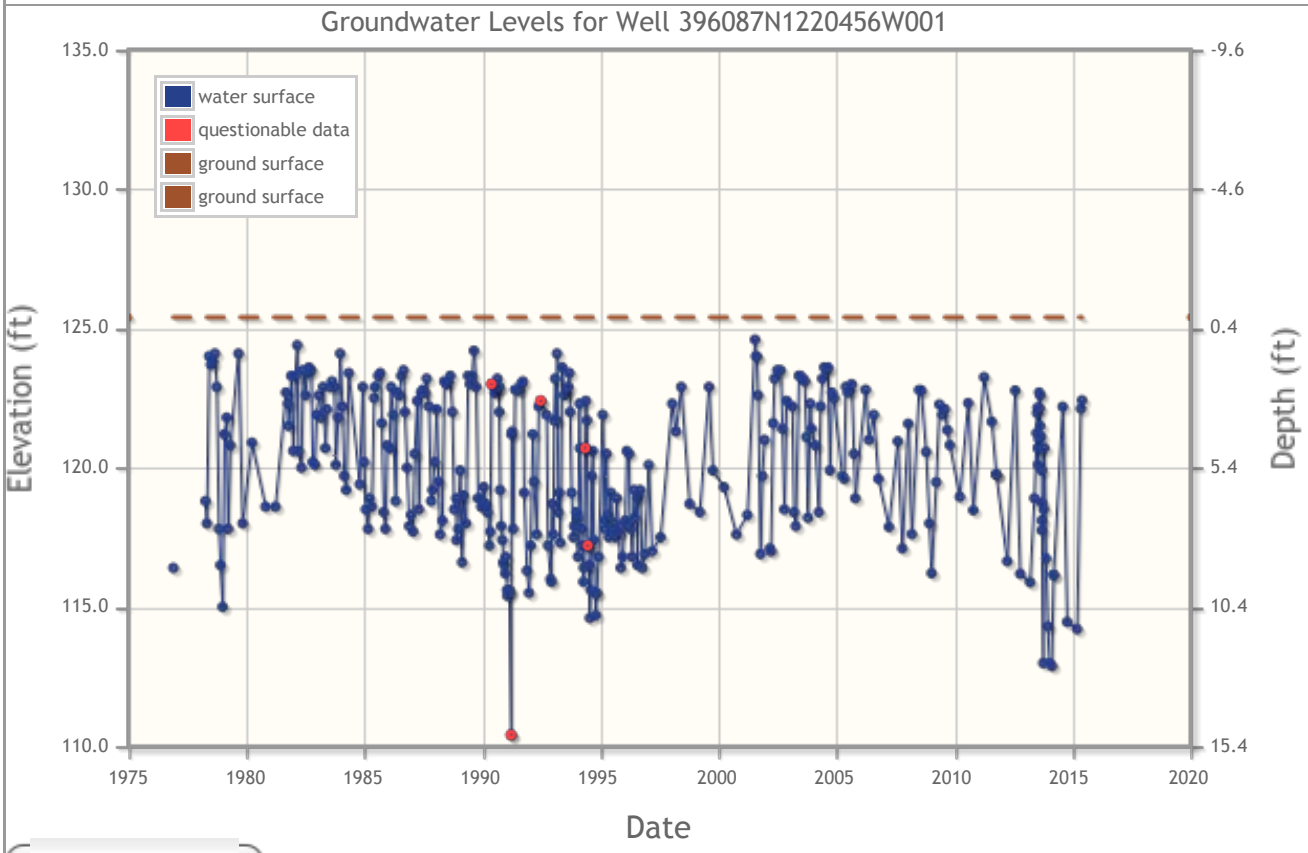


Perform a New Well Search

Groundwater Levels for Station 396087N1220456W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
11/17/1976 00:00	125.400	125.400	9	116.4	9		N	1	
03/28/1978 00:00	125.400	125.400	6.6	118.8	6.6		N	1	
04/18/1978 00:00	125.400	125.400	7.4	118	7.4		N	1	
05/23/1978 00:00	125.400	125.400	1.4	124	1.4		N	1	
06/19/1978 00:00	125.400	125.400	1.7	123.7	1.7		N	1	
07/18/1978 00:00	125.400	125.400	1.6	123.8	1.6		N	1	
08/22/1978 00:00	125.400	125.400	1.3	124.1	1.3		N	1	
09/19/1978 00:00	125.400	125.400	2.5	122.9	2.5		N	1	
10/23/1978 00:00	125.400	125.400	7.6	117.8	7.6		N	1	
11/15/1978 00:00	125.400	125.400	8.9	116.5	8.9		N	1	
12/19/1978 00:00	125.400	125.400	10.4	115	10.4		N	1	
01/16/1979 00:00	125.400	125.400	4.2	121.2	4.2		N	1	
02/21/1979 00:00	125.400	125.400	3.6	121.8	3.6		N	1	

Groundwater Levels for Station 396087N1220456W002

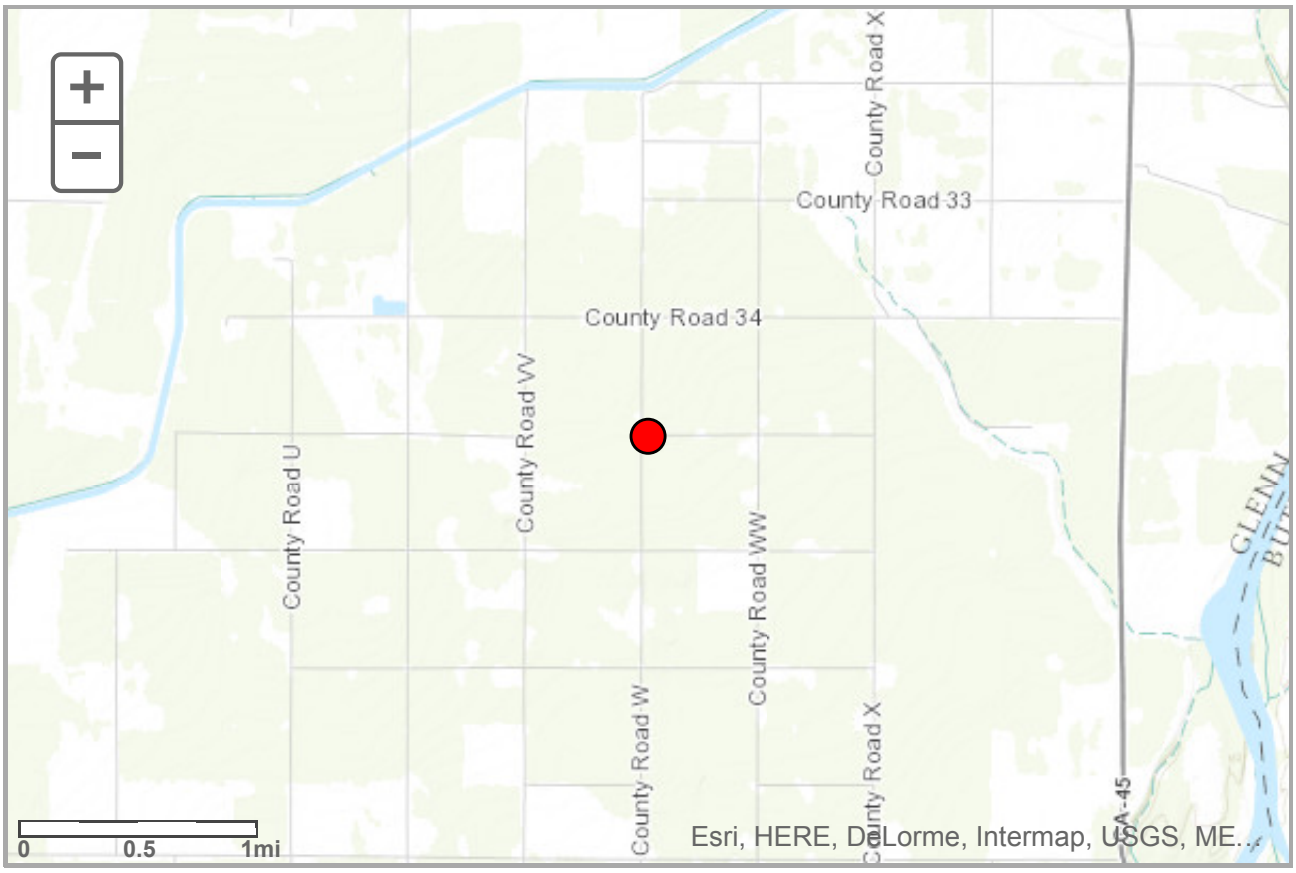
Exhibit 29 - O-3B

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number:	20N02W11A002M
Local Well ID:	20N02W11A002M
Site Code:	396087N1220456W002
Latitude (NAD83):	39.608700
Longitude (NAD83):	-122.0456
Groundwater Basin (code):	Colusa (5-21.52)

Well Use:	Observation
Well Status:	Active
Well Completion Report Number:	3669
Reference Point Elevation (NAVD88 ft):	125.40
Ground Surface Elevation (NAVD88 ft):	125.40
Total Depth (ft):	160
Perforated Interval Depths (ft):	140.000 160.000

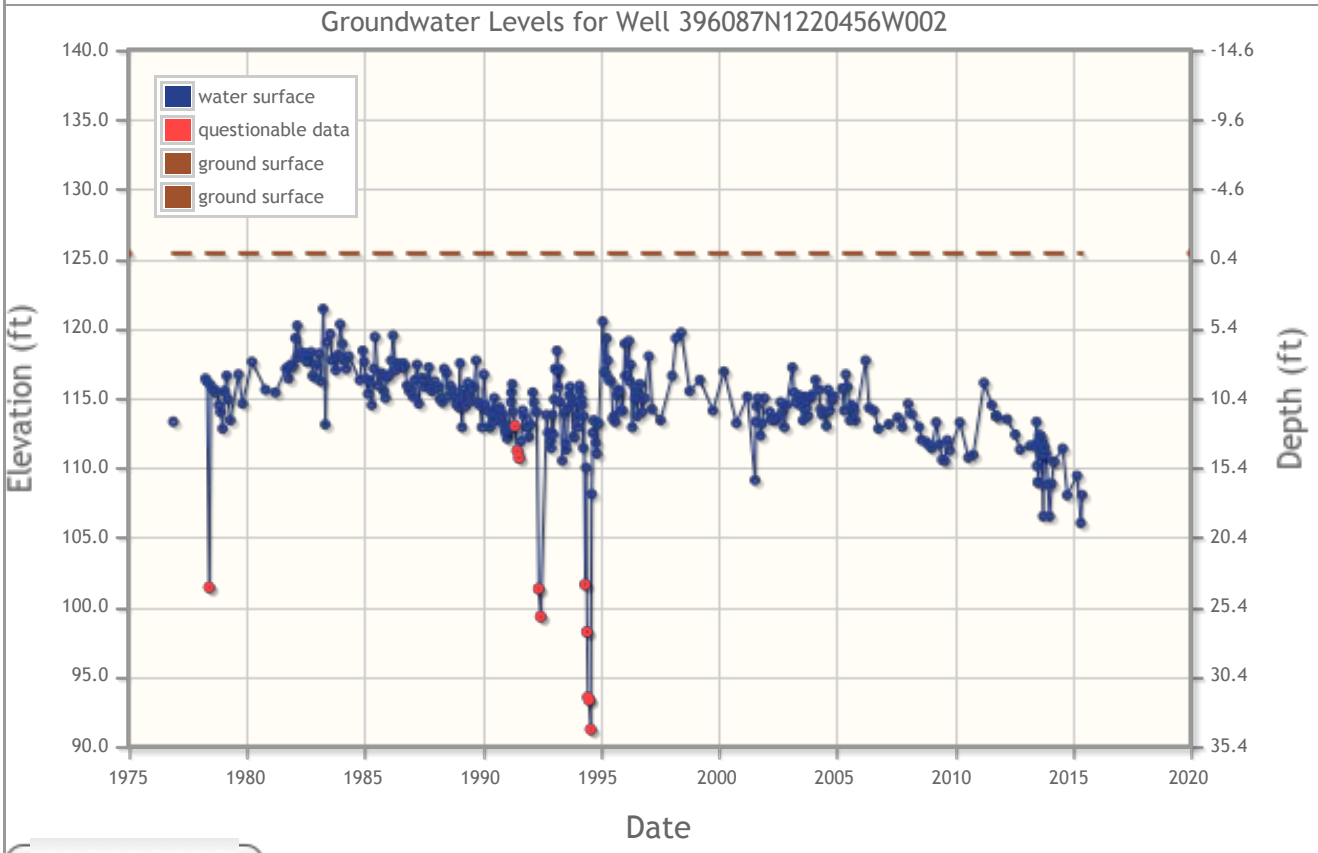


Perform a New Well Search

Groundwater Levels for Station 396087N1220456W002

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
11/16/1976 00:00	125.400	125.400	12.1	113.3	12.1		N	1	
03/28/1978 00:00	125.400	125.400	9	116.4	9		N	1	
04/18/1978 00:00	125.400	125.400	9.2	116.2	9.2		N	1	
05/23/1978 00:00	125.400	125.400	24	101.4	24	Q-6	N	1	GC
06/19/1978 00:00	125.400	125.400	9.5	115.9	9.5		N	1	
07/18/1978 00:00	125.400	125.400	9.8	115.6	9.8		N	1	
08/22/1978 00:00	125.400	125.400	10	115.4	10		N	1	
09/19/1978 00:00	125.400	125.400	9.9	115.5	9.9		N	1	
10/23/1978 00:00	125.400	125.400	10.9	114.5	10.9		N	1	
11/15/1978 00:00	125.400	125.400	11.4	114	11.4		N	1	
12/19/1978 00:00	125.400	125.400	12.6	112.8	12.6		N	1	
01/16/1979 00:00	125.400	125.400	9.9	115.5	9.9		N	1	
02/21/1979 00:00	125.400	125.400	8.8	116.6	8.8		N	1	

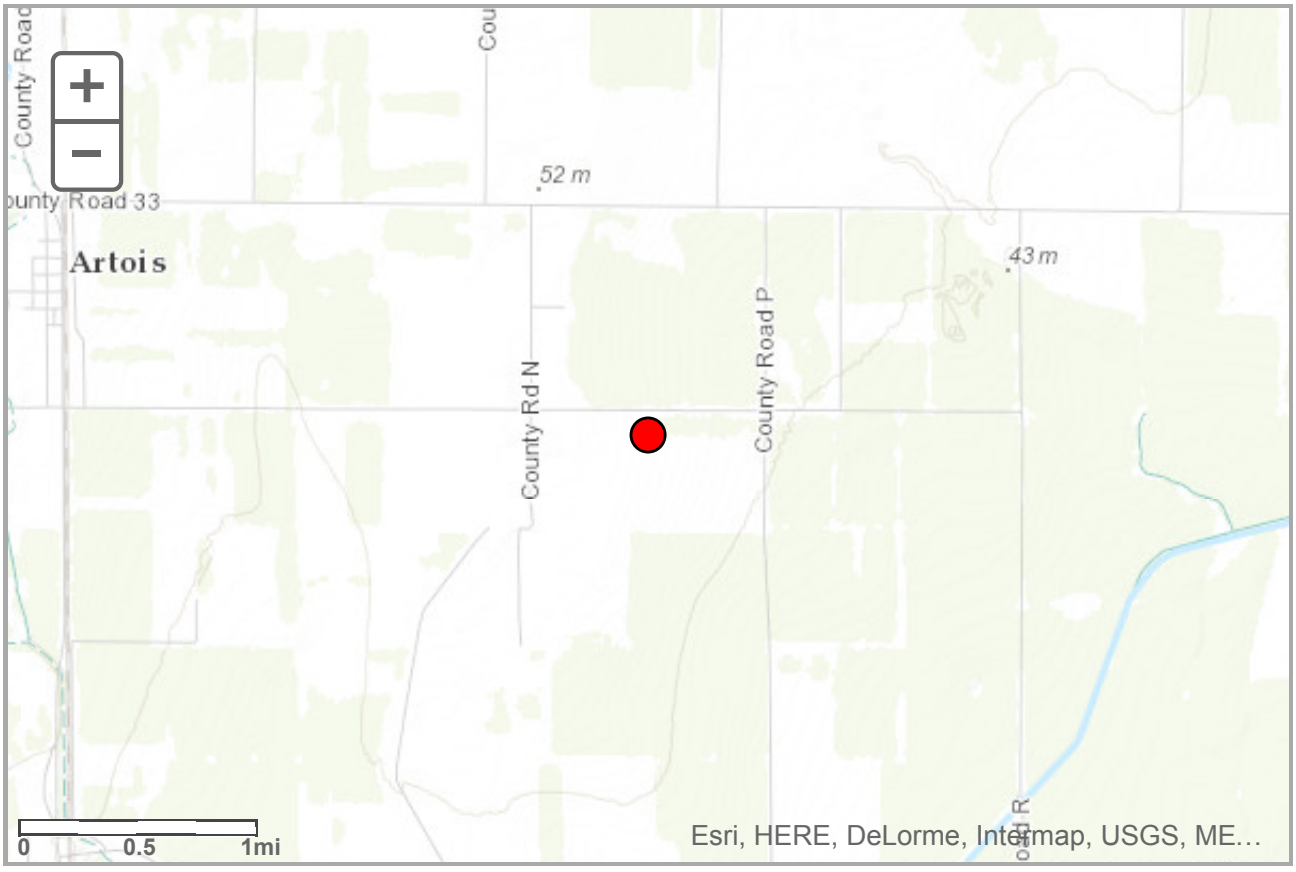
Groundwater Levels for Station 396096N1221469W001

Exhibit 29 - I-4

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number: 20N03W12C001M	**Well Use:** Irrigation
Local Well ID: 20N03W12C001M	**Well Status:** Active
Site Code: 396096N1221469W001	**Well Completion Report Number:**
Latitude (NAD83): 39.609600	**Reference Point Elevation (NAVD88 ft):** 162.43
Longitude (NAD83): -122.1469	**Ground Surface Elevation (NAVD88 ft):** 161.43
Groundwater Basin (code): Colusa (5-21.52)	**Total Depth (ft):** Confidential
	Perforated Interval Depths (ft): Confidential

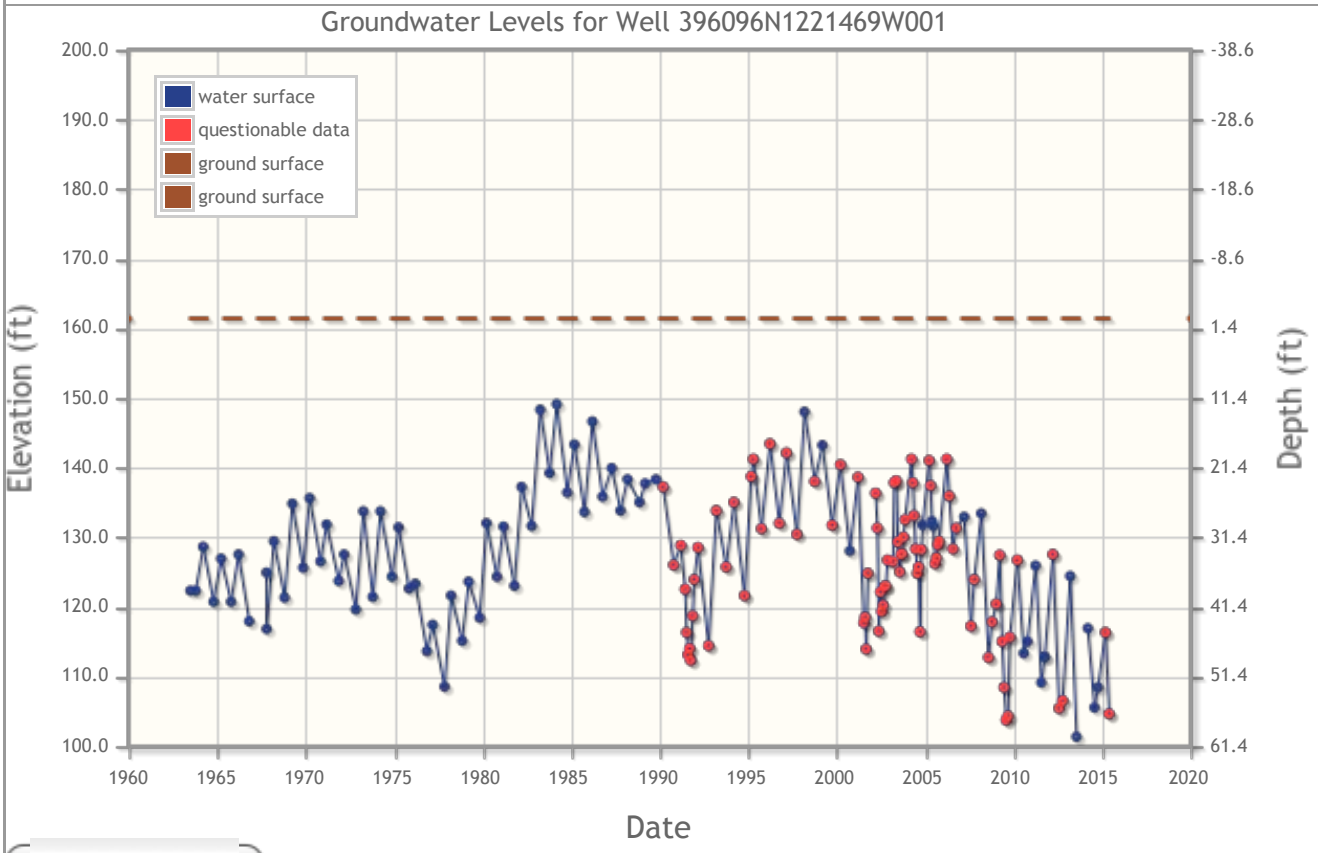


Perform a New Well Search

Groundwater Levels for Station 396096N1221469W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
06/20/1963 00:00	162.430	161.430	40.1	122.33	39.1		N	308	
10/07/1963 00:00	162.430	161.430	40.1	122.33	39.1		N	308	
03/10/1964 00:00	162.430	161.430	33.8	128.63	32.8		N	308	
10/12/1964 00:00	162.430	161.430	41.7	120.73	40.7		N	308	
03/16/1965 00:00	162.430	161.430	35.5	126.93	34.5		N	308	
10/07/1965 00:00	162.430	161.430	41.7	120.73	40.7		N	308	
03/10/1966 00:00	162.430	161.430	34.9	127.53	33.9		N	308	
10/17/1966 00:00	162.430	161.430	44.5	117.93	43.5		N	308	
10/08/1967 00:00	162.430	161.430	37.5	124.93	36.5		N	308	
10/11/1967 00:00	162.430	161.430	45.6	116.83	44.6		N	308	
03/08/1968 00:00	162.430	161.430	33	129.43	32		N	308	
10/16/1968 00:00	162.430	161.430	41.1	121.33	40.1		N	308	
03/25/1969 00:00	162.430	161.430	27.6	134.83	26.6		N	308	

Exhibit 29 - O-5A

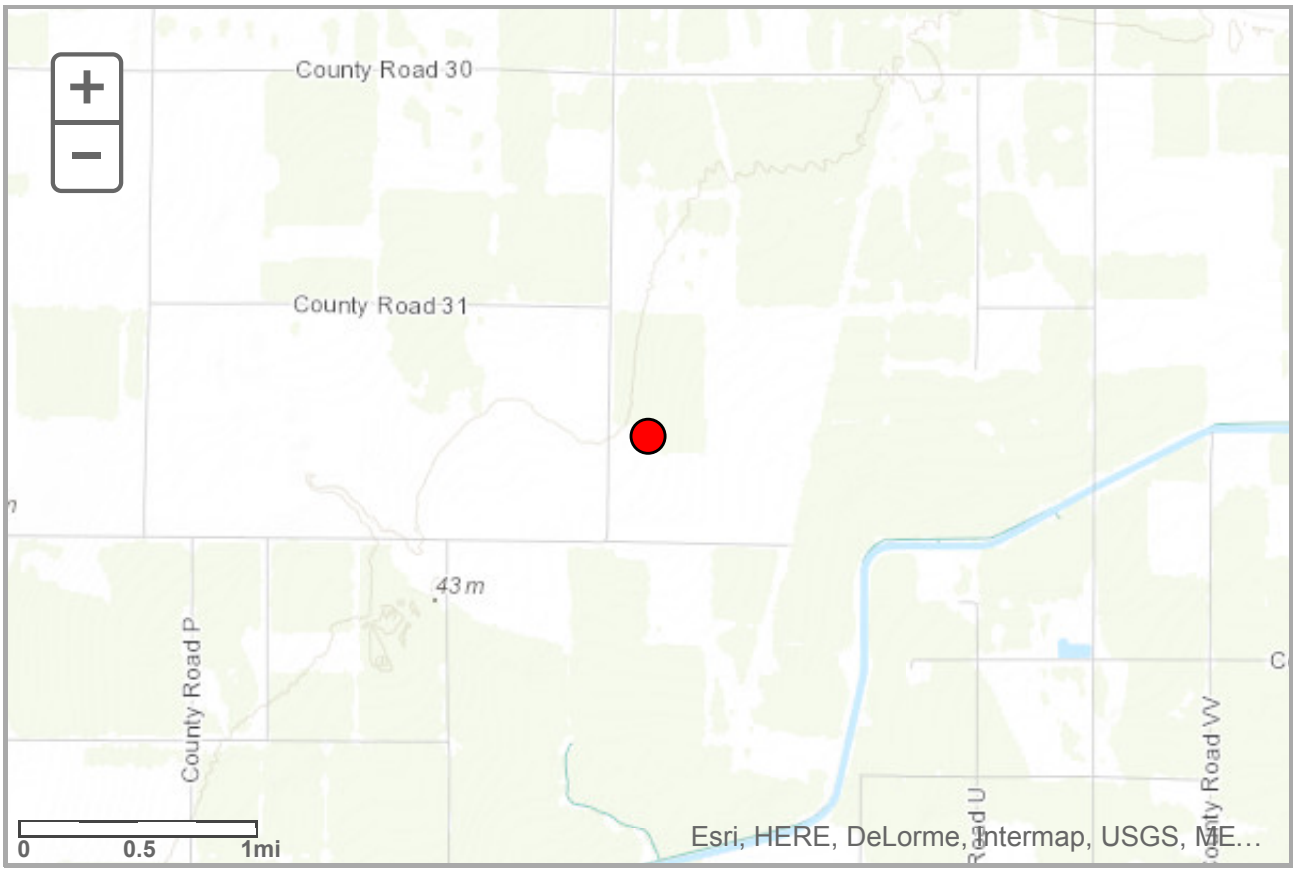
Groundwater Levels for Station 396299N1221007W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number: 21N02W33M001M
Local Well ID: 21N02W33M001M
Site Code: 396299N1221007W001
Latitude (NAD83): 39.629900
Longitude (NAD83): -122.1007
Groundwater Basin (code): Colusa (5-21.52)

Well Use: Observation
Well Status: Active
Well Completion Report Number: 726724
Reference Point Elevation (NAVD88 ft): 151.60
Ground Surface Elevation (NAVD88 ft): 149.00
Total Depth (ft): 929
Perforated Interval Depths (ft): 869.000 890.000

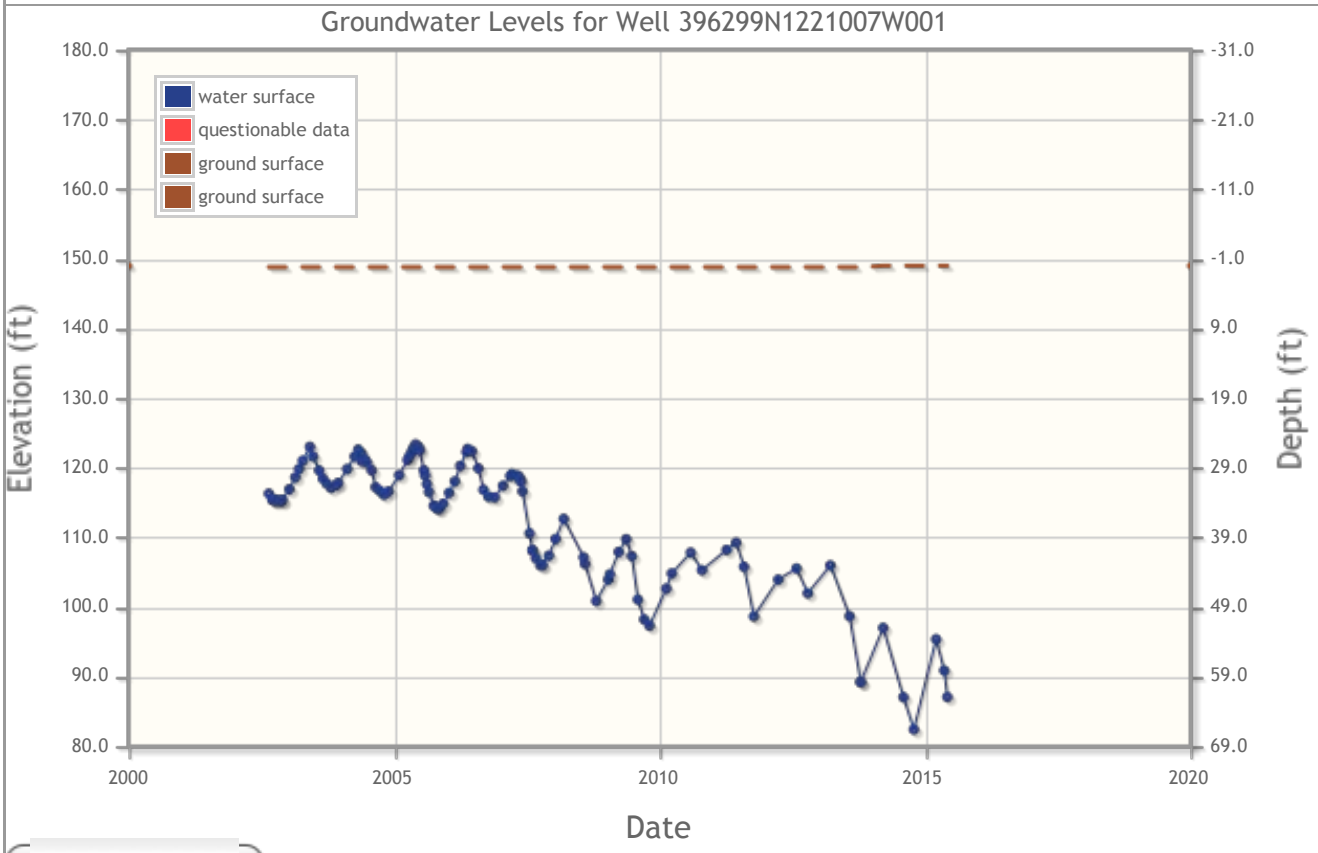


Perform a New Well Search

Groundwater Levels for Station 396299N1221007W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
08/19/2002 00:00	151.601	148.811	35.33	116.271	32.54		N	1	Ne
09/12/2002 00:00	151.601	148.811	36.22	115.381	33.43		N	1	
09/17/2002 00:00	151.601	148.811	36.25	115.351	33.46		N	1	
10/03/2002 00:00	151.601	148.811	36.37	115.231	33.58		N	1	
10/16/2002 00:00	151.601	148.811	36.22	115.381	33.43		N	1	
11/12/2002 00:00	151.601	148.811	36.41	115.191	33.62		N	1	
11/20/2002 00:00	151.601	148.811	36.23	115.371	33.44		N	1	
01/08/2003 00:00	151.601	148.811	34.7	116.901	31.91		N	1	
02/18/2003 00:00	151.601	148.811	33	118.601	30.21		N	1	
03/13/2003 00:00	151.601	148.811	31.8	119.801	29.01		N	1	
04/09/2003 00:00	151.601	148.811	30.6	121.001	27.81		N	1	
05/28/2003 00:00	151.601	148.811	28.6	123.001	25.81		N	1	
06/19/2003 00:00	151.601	148.811	30	121.601	27.21		N	1	

Exhibit 29 - O-5B

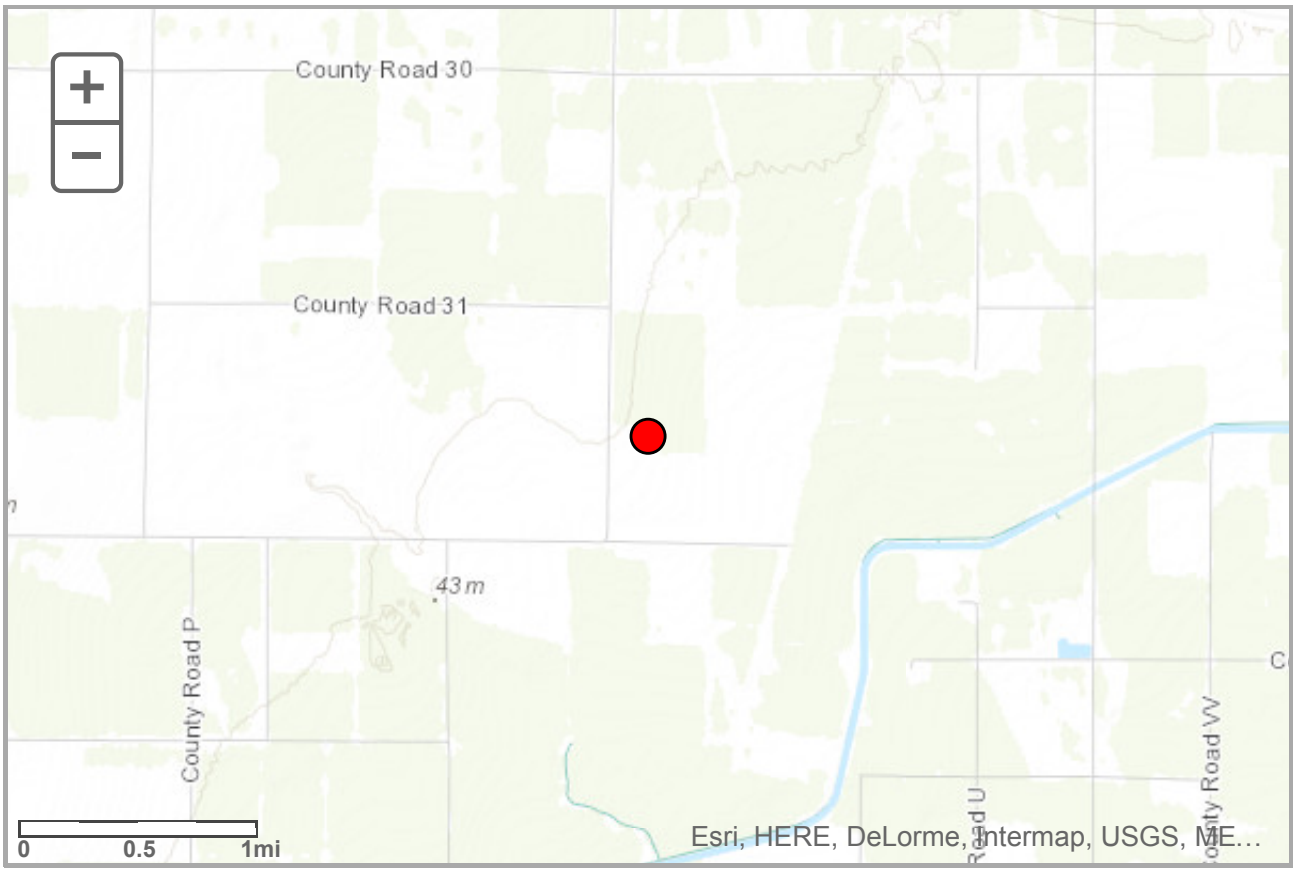
Groundwater Levels for Station 396299N1221007W002

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number: 21N02W33M002M
Local Well ID: 21N02W33M002M
Site Code: 396299N1221007W002
Latitude (NAD83): 39.629900
Longitude (NAD83): -122.1007
Groundwater Basin (code): Colusa (5-21.52)

Well Use: Observation
Well Status: Active
Well Completion Report Number: 726724
Reference Point Elevation (NAVD88 ft): 151.26
Ground Surface Elevation (NAVD88 ft): 149.00
Total Depth (ft): 577
Perforated Interval Depths (ft): 540.000 550.000

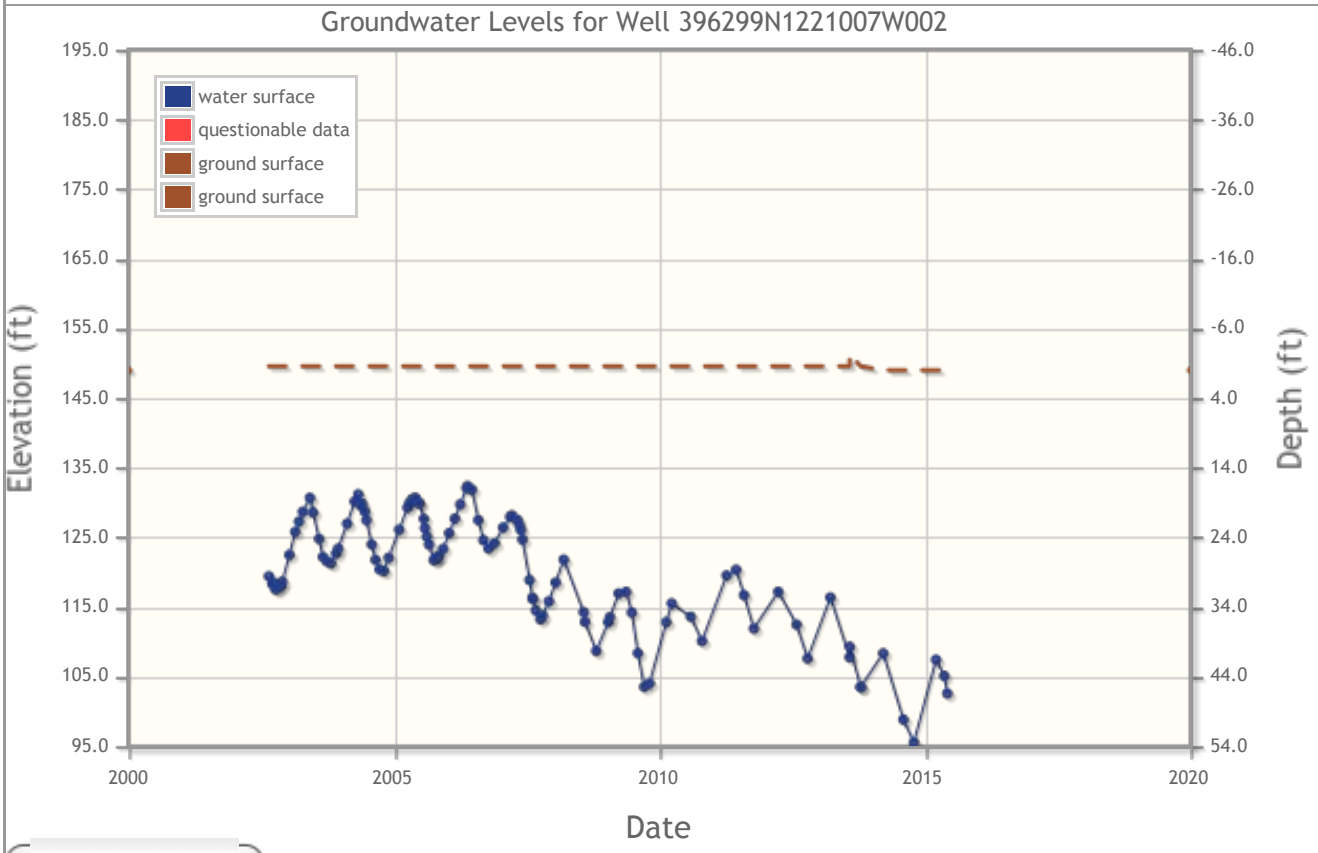


Perform a New Well Search

Groundwater Levels for Station 396299N1221007W002

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
08/19/2002 00:00	151.261	149.571	31.87	119.391	30.18		N	1	Ne
09/12/2002 00:00	151.261	149.571	32.97	118.291	31.28		N	1	
09/17/2002 00:00	151.261	149.571	32.73	118.531	31.04		N	1	
10/03/2002 00:00	151.261	149.571	33.74	117.521	32.05		N	1	
10/16/2002 00:00	151.261	149.571	33.61	117.651	31.92		N	1	
11/12/2002 00:00	151.261	149.571	33.23	118.031	31.54		N	1	
11/20/2002 00:00	151.261	149.571	32.64	118.621	30.95		N	1	
01/08/2003 00:00	151.261	149.571	28.8	122.461	27.11		N	1	
02/18/2003 00:00	151.261	149.571	25.49	125.771	23.8		N	1	
03/13/2003 00:00	151.261	149.571	24	127.261	22.31		N	1	
04/09/2003 00:00	151.261	149.571	22.6	128.661	20.91		N	1	
05/28/2003 00:00	151.261	149.571	20.6	130.661	18.91		N	1	
06/19/2003 00:00	151.261	149.571	22.7	128.561	21.01		N	1	

Groundwater Levels for Station 396299N1221007W003

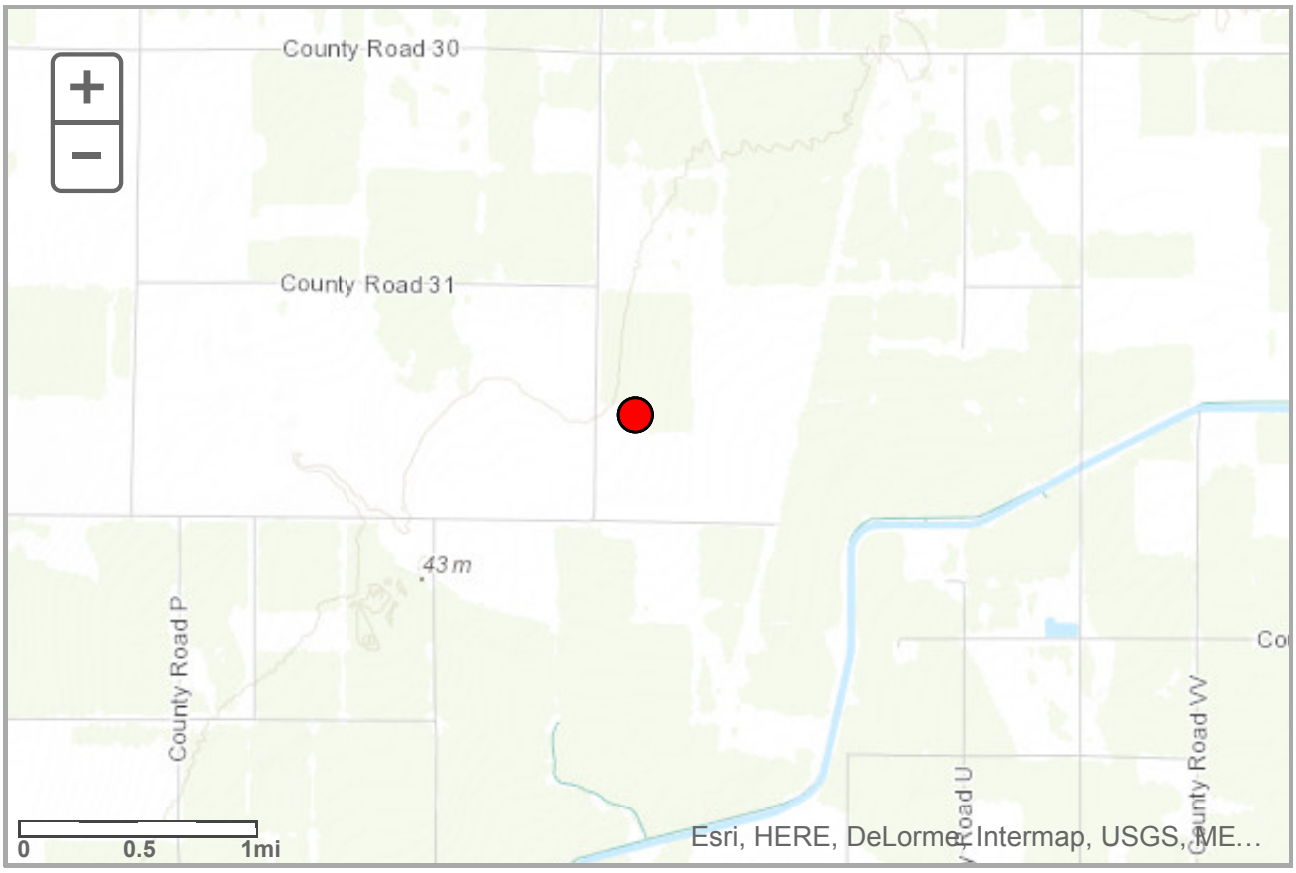
Exhibit 29 - O-5C

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number: 21N02W33M003M
Local Well ID: 21N02W33M003M
Site Code: 396299N1221007W003
Latitude (NAD83): 39.629900
Longitude (NAD83): -122.1007
Groundwater Basin (code): Colusa (5-21.52)

Well Use: Observation
Well Status: Active
Well Completion Report Number: 726724
Reference Point Elevation (NAVD88 ft): 151.49
Ground Surface Elevation (NAVD88 ft): 149.00
Total Depth (ft): 210
Perforated Interval Depths (ft): 140.000 150.000

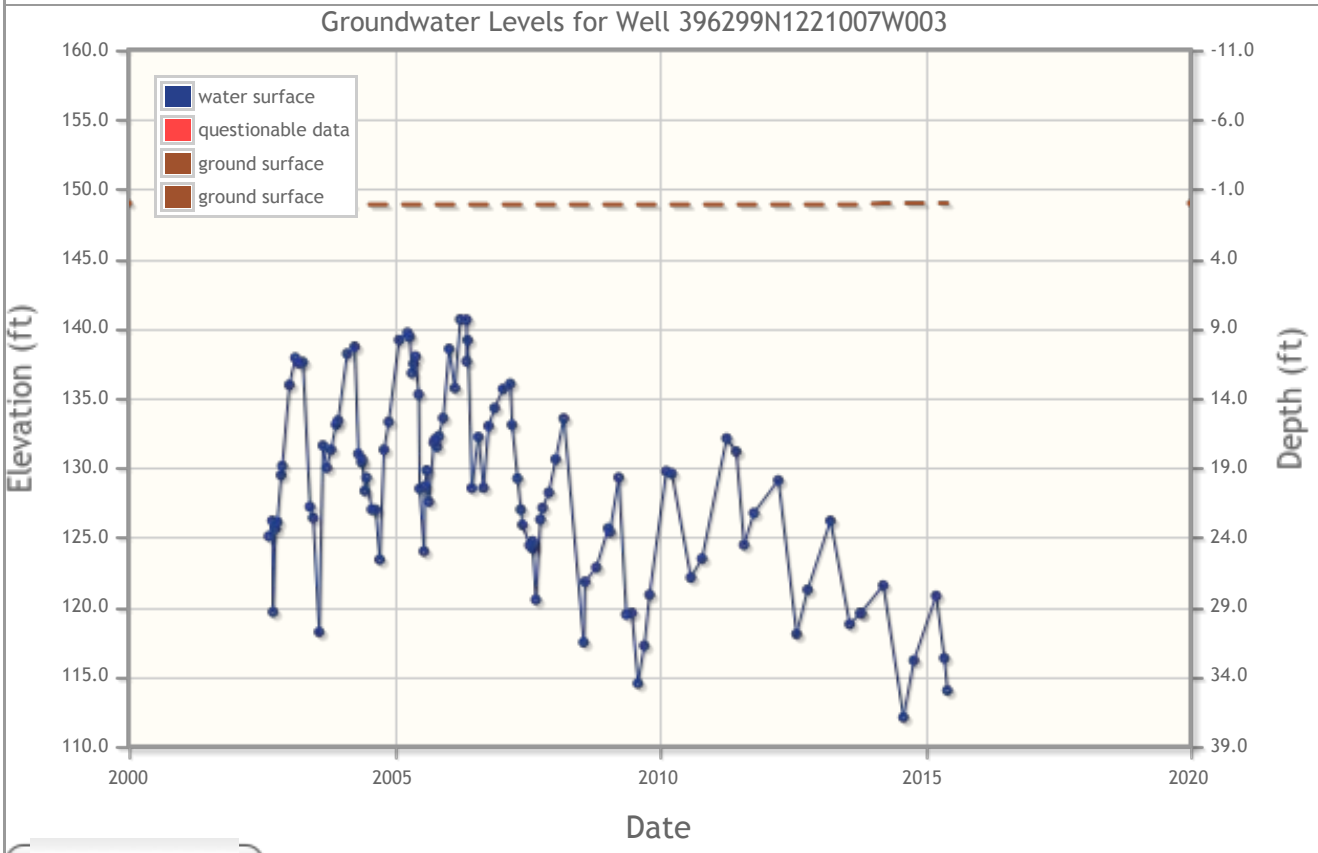


Perform a New Well Search

Groundwater Levels for Station 396299N1221007W003

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
08/19/2002 00:00	151.493	148.903	26.42	125.073	23.83		N	1	Ne
09/12/2002 00:00	151.493	148.903	25.31	126.183	22.72		N	1	
09/17/2002 00:00	151.493	148.903	31.86	119.633	29.27		N	1	
10/03/2002 00:00	151.493	148.903	25.89	125.603	23.3		N	1	
10/16/2002 00:00	151.493	148.903	25.39	126.103	22.8		N	1	
11/12/2002 00:00	151.493	148.903	22.03	129.463	19.44		N	1	
11/20/2002 00:00	151.493	148.903	21.37	130.123	18.78		N	1	
01/08/2003 00:00	151.493	148.903	15.55	135.943	12.96		N	1	
02/18/2003 00:00	151.493	148.903	13.6	137.893	11.01		N	1	
03/13/2003 00:00	151.493	148.903	14	137.493	11.41		N	1	
04/09/2003 00:00	151.493	148.903	13.9	137.593	11.31		N	1	
05/28/2003 00:00	151.493	148.903	24.3	127.193	21.71		N	1	
06/19/2003 00:00	151.493	148.903	25.1	126.393	22.51		N	1	

Groundwater Levels for Station 396310N1221411W001

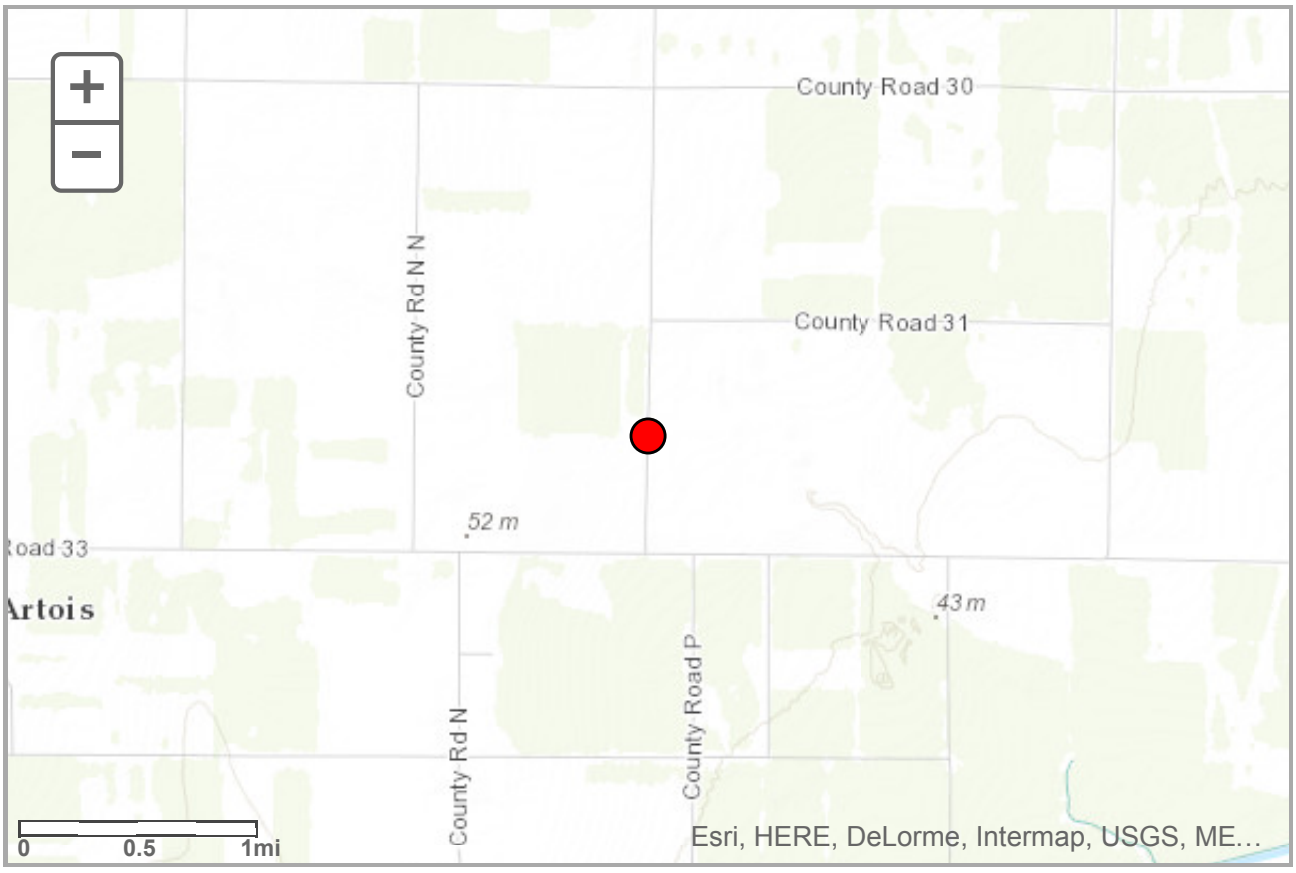
Exhibit 29 - I-6

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number: 21N02W31M001M
Local Well ID: 21N02W31M001M
Site Code: 396310N1221411W001
Latitude (NAD83): 39.631000
Longitude (NAD83): -122.1411
Groundwater Basin (code): Colusa (5-21.52)

Well Use: Irrigation
Well Status: Active
Well Completion Report Number:
Reference Point Elevation (NAVD88 ft): 164.53
Ground Surface Elevation (NAVD88 ft): 163.43
Total Depth (ft): Confidential
Perforated Interval Depths (ft): Confidential

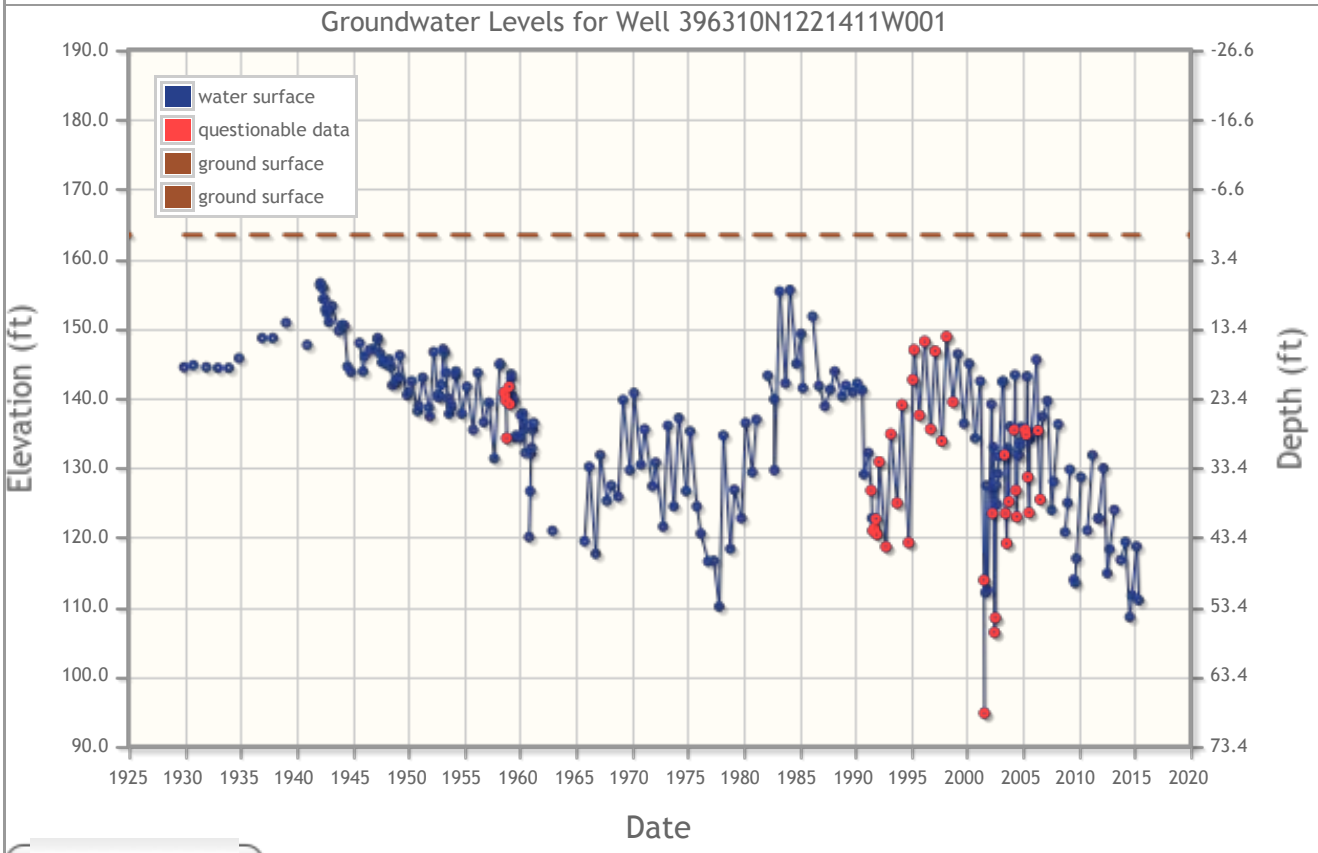


Perform a New Well Search

Groundwater Levels for Station 396310N1221411W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
12/04/1929 00:00	163.830	163.430	19.4	144.43	19		N	1	
10/02/1930 00:00	163.830	163.430	19.1	144.73	18.7		N	1	
12/02/1931 00:00	163.830	163.430	19.4	144.43	19		N	1	
12/17/1932 00:00	163.830	163.430	19.5	144.33	19.1		N	1	
12/06/1933 00:00	163.830	163.430	19.5	144.33	19.1		N	1	
11/05/1934 00:00	163.830	163.430	18.1	145.73	17.7		N	1	
12/01/1936 00:00	163.830	163.430	15.2	148.63	14.8		N	1	
11/18/1937 00:00	163.830	163.430	15.2	148.63	14.8		N	1	
01/20/1939 00:00	163.830	163.430	13	150.83	12.6		N	1	
12/13/1940 00:00	163.830	163.430	16.2	147.63	15.8		N	1	
02/03/1942 00:00	163.830	163.430	7.6	156.23	7.2		N	624	
02/19/1942 00:00	163.830	163.430	7.3	156.53	6.9		N	624	
03/18/1942 00:00	163.830	163.430	7.7	156.13	7.3		N	624	

Groundwater Levels for Station 396628N1220553W001

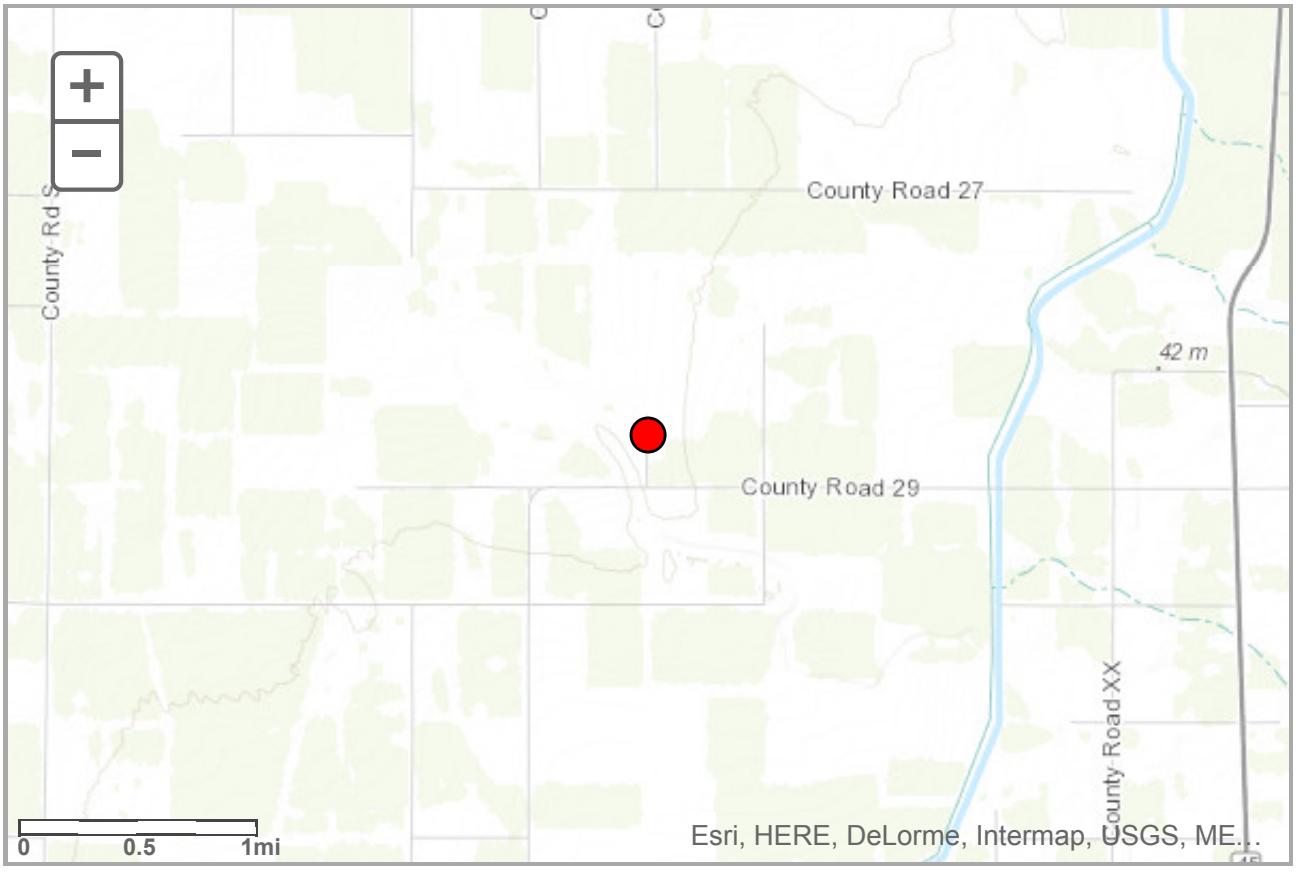
Exhibit 29 - I-7

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number: 21N02W23G001M
Local Well ID: 21N02W23G001M
Site Code: 396628N1220553W001
Latitude (NAD83): 39.662800
Longitude (NAD83): -122.0553
Groundwater Basin (code): Colusa (5-21.52)

Well Use: Irrigation
Well Status: Active
Well Completion Report Number: 3852
Reference Point Elevation (NAVD88 ft): 154.90
Ground Surface Elevation (NAVD88 ft): 154.40
Total Depth (ft): Confidential
Perforated Interval Depths (ft): Confidential

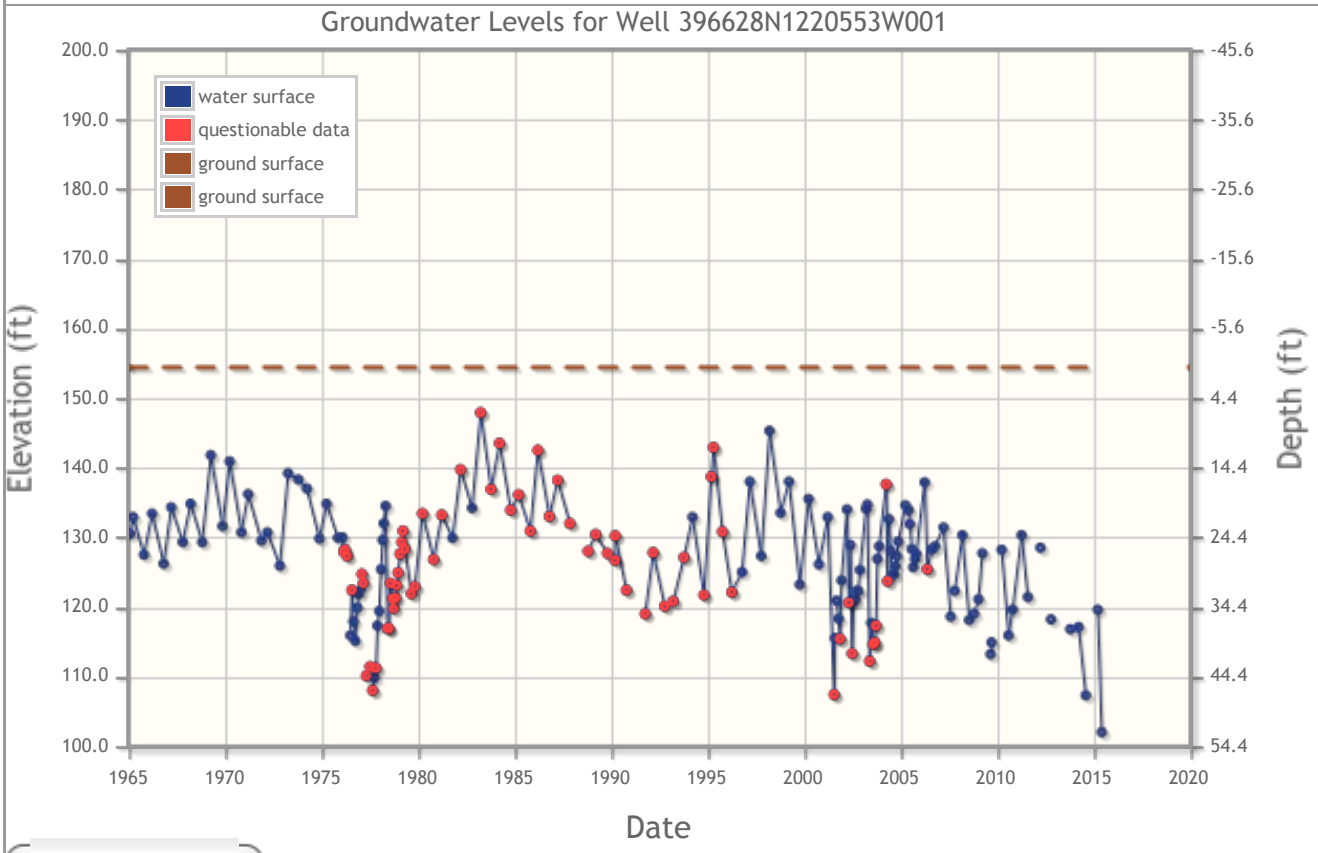


Perform a New Well Search

Groundwater Levels for Station 396628N1220553W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
01/20/1965 00:00	154.900	154.400	24.4	130.5	23.9		N	308	
03/15/1965 00:00	154.900	154.400	22	132.9	21.5		N	308	
10/08/1965 00:00	154.900	154.400	27.4	127.5	26.9		N	308	
03/10/1966 00:00	154.900	154.400	21.5	133.4	21		N	308	
10/16/1966 00:00	154.900	154.400	28.7	126.2	28.2		N	308	
03/08/1967 00:00	154.900	154.400	20.6	134.3	20.1		N	308	
10/11/1967 00:00	154.900	154.400	25.6	129.3	25.1		N	308	
03/09/1968 00:00	154.900	154.400	20.1	134.8	19.6		N	308	
10/16/1968 00:00	154.900	154.400	25.6	129.3	25.1		N	308	
03/26/1969 00:00	154.900	154.400	13.1	141.8	12.6		N	308	
11/05/1969 00:00	154.900	154.400	23.3	131.6	22.8		N	308	
03/19/1970 00:00	154.900	154.400	14	140.9	13.5		N	308	
10/27/1970 00:00	154.900	154.400	24.2	130.7	23.7		N	308	

Exhibit 29 - O-8A

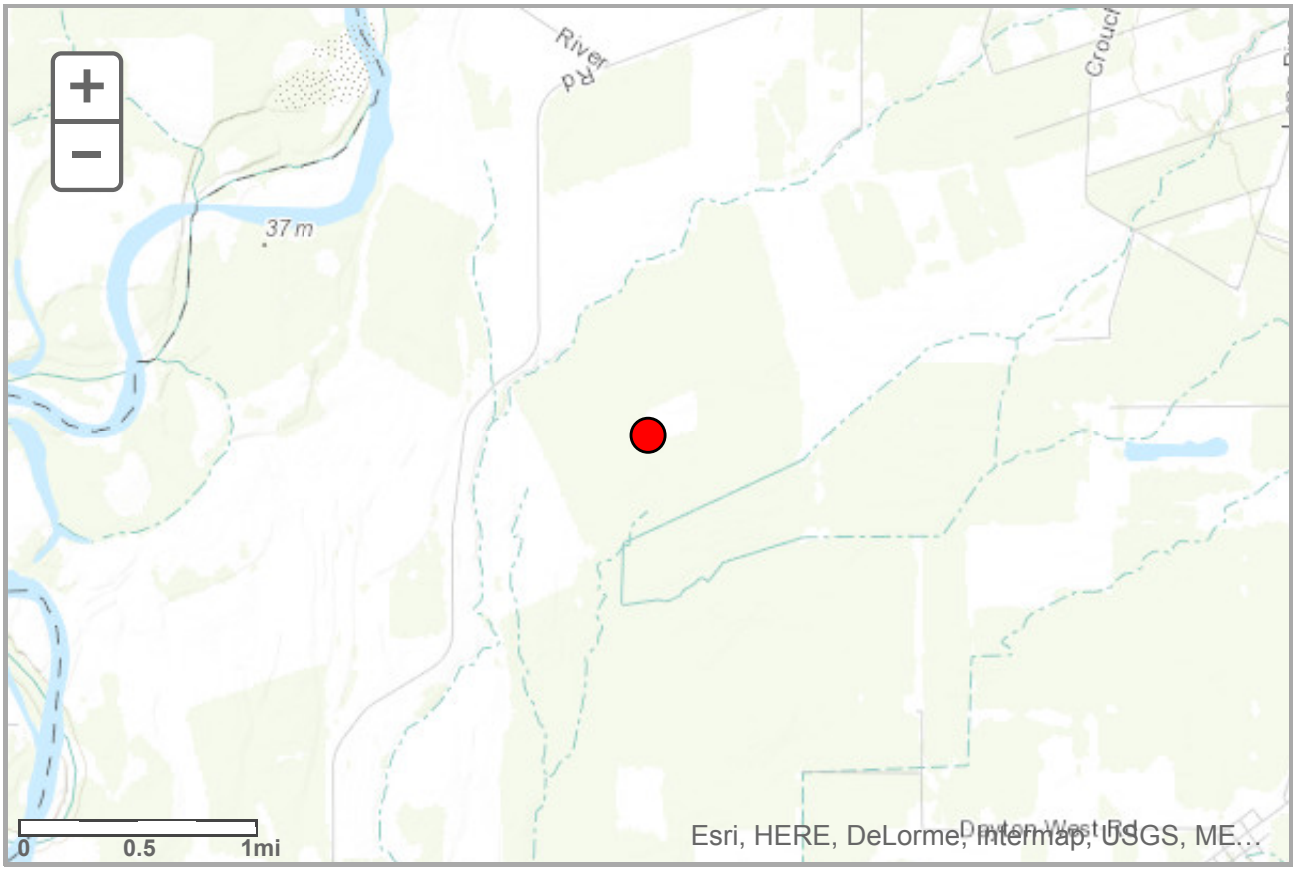
Groundwater Levels for Station 396730N1219206W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number:	21N01W13J001M
Local Well ID:	BMO 21N01W13J001M
Site Code:	396730N1219206W001
Latitude (NAD83):	39.673024
Longitude (NAD83):	-121.9206
Groundwater Basin (code):	West Butte (5-21.58)

Well Use:	Observation
Well Status:	Active
Well Completion Report Number:	e0136959C
Reference Point Elevation (NAVD88 ft):	128.94
Ground Surface Elevation (NAVD88 ft):	127.68
Total Depth (ft):	830
Perforated Interval Depths (ft):	780.000 820.000

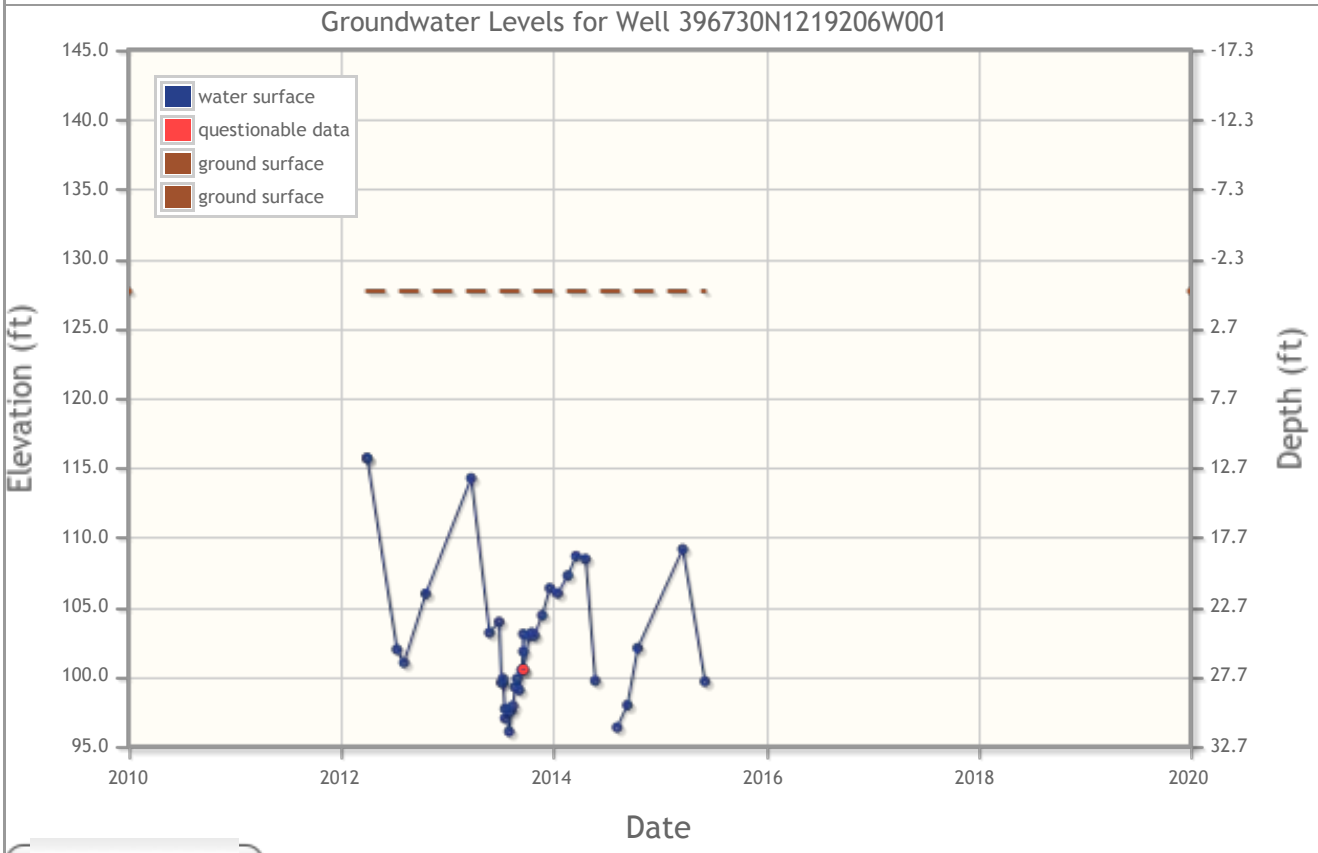


Perform a New Well Search

Groundwater Levels for Station 396730N1219206W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
03/28/2012 16:07	128.940	127.680	13.26	115.68	12		Y	1	
03/28/2012 16:07	128.940	127.680	13.26	115.68	12		Y	1	
07/09/2012 00:00	128.940	127.680	27	101.94	25.74		Y	1	
08/03/2012 00:00	128.940	127.680	27.95	100.99	26.69		Y	5053	
10/17/2012 00:00	128.940	127.680	23	105.94	21.74		Y	1	
03/21/2013 00:00	128.940	127.680	14.7	114.24	13.44		Y	1	
05/23/2013 00:00	128.940	127.680	25.8	103.14	24.54		N	1	
06/26/2013 00:00	128.940	127.680	25.02	103.92	23.76		N	1	
07/03/2013 00:00	128.940	127.680	29.38	99.56	28.12		N	1	
07/08/2013 00:00	128.940	127.680	29.4	99.54	28.14		Y	5053	
07/09/2013 00:00	128.940	127.680	29.1	99.84	27.84		N	1	
07/16/2013 00:00	128.940	127.680	31.95	96.99	30.69		N	1	
07/16/2013 00:00	128.940	127.680	31.27	97.67	30.01		N	1	

Exhibit 29 - O-8B

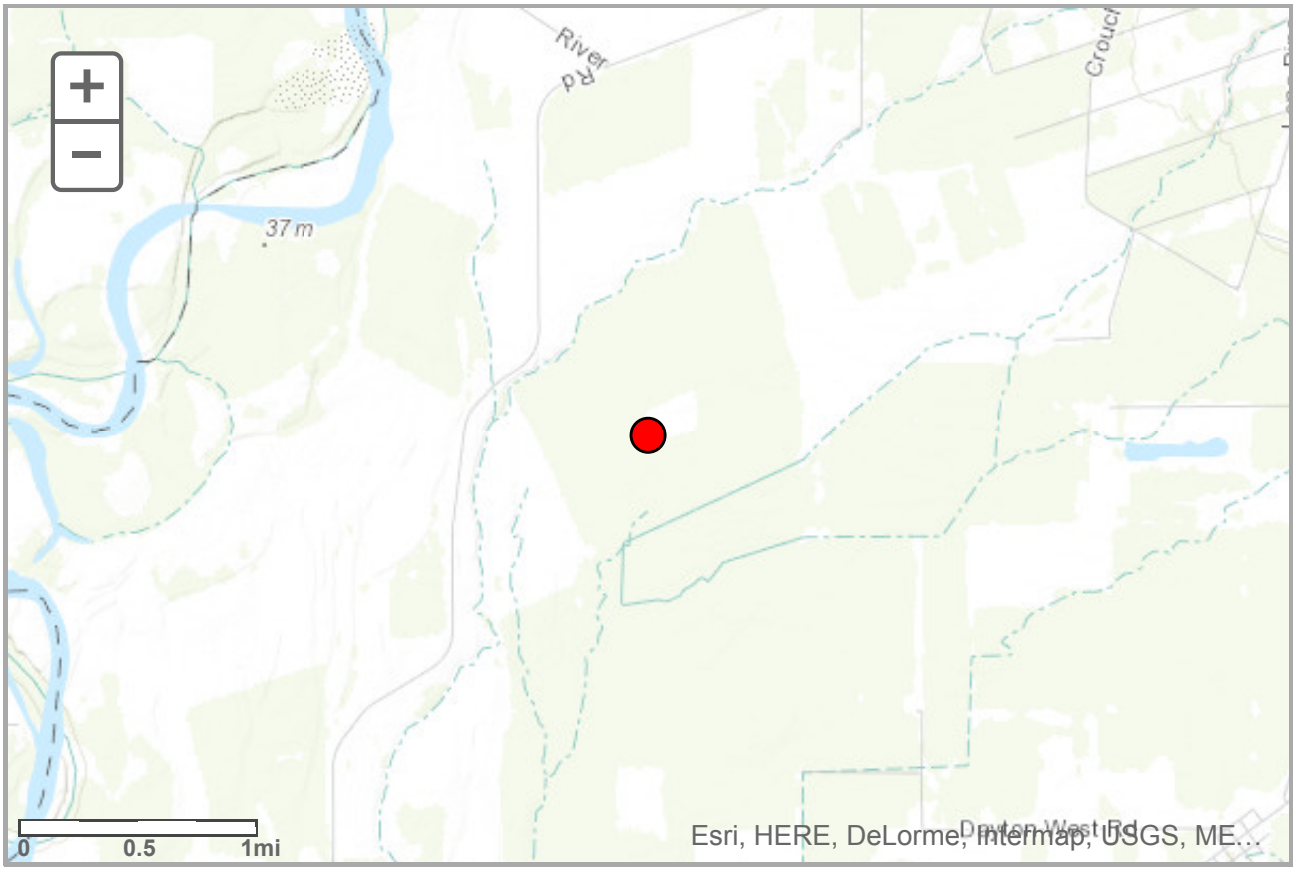
Groundwater Levels for Station 396730N1219206W002

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number:	21N01W13J002M
Local Well ID:	BMO 21N01W13J002M
Site Code:	396730N1219206W002
Latitude (NAD83):	39.673024
Longitude (NAD83):	-121.9206
Groundwater Basin (code):	West Butte (5-21.58)

Well Use:	Observation
Well Status:	Active
Well Completion Report Number:	E0136959B
Reference Point Elevation (NAVD88 ft):	129.21
Ground Surface Elevation (NAVD88 ft):	127.68
Total Depth (ft):	610
Perforated Interval Depths (ft):	570.000 591.000

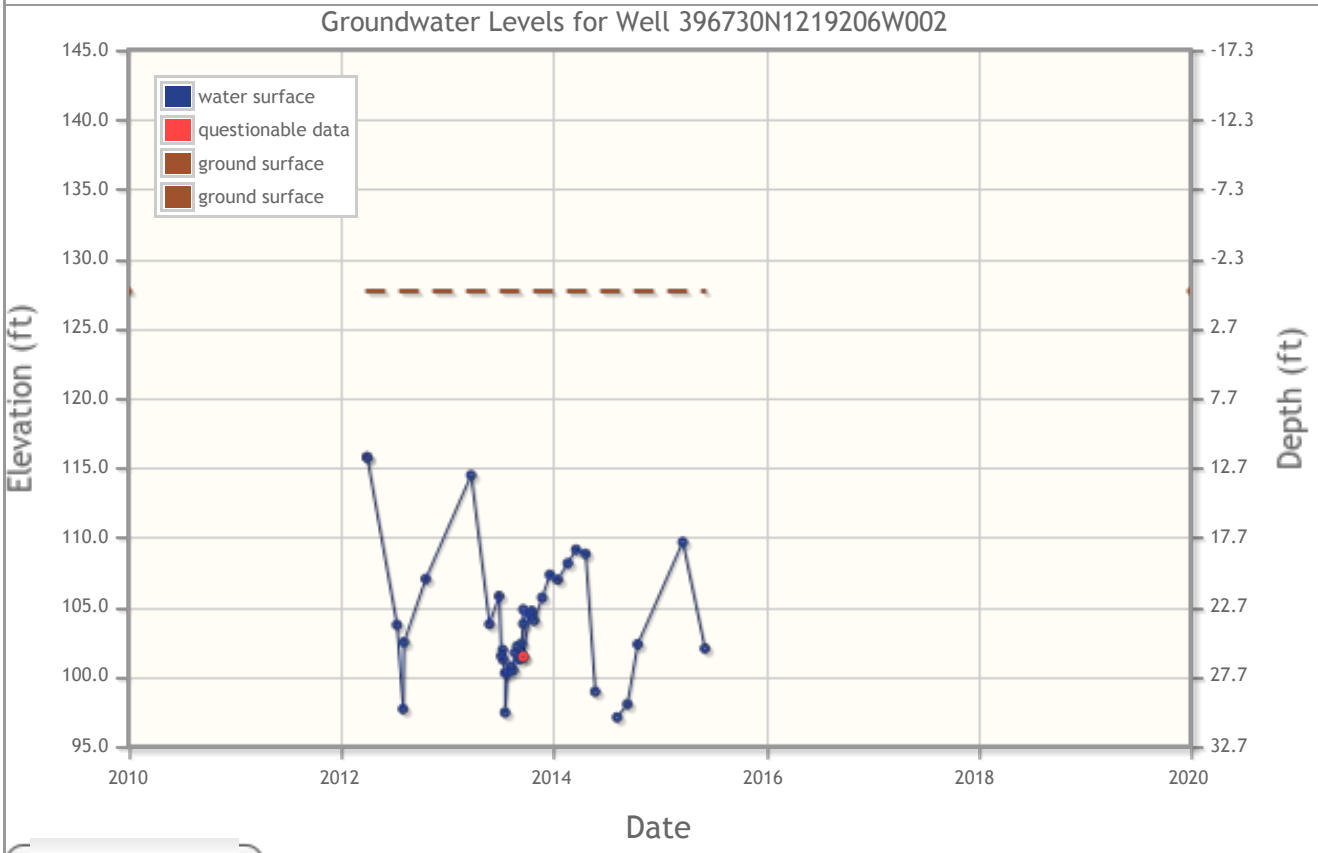


Perform a New Well Search

Groundwater Levels for Station 396730N1219206W002

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
03/28/2012 16:16	129.210	127.680	13.46	115.75	11.93		Y	1	
03/28/2012 16:16	129.210	127.680	13.46	115.75	11.93		Y	1	
07/09/2012 00:00	129.210	127.680	25.5	103.71	23.97		Y	1	
07/30/2012 00:00	129.210	127.680	31.55	97.66	30.02		Y	5053	
08/03/2012 00:00	129.210	127.680	26.75	102.46	25.22		Y	5053	
10/17/2012 00:00	129.210	127.680	22.2	107.01	20.67		Y	1	
03/21/2013 00:00	129.210	127.680	14.75	114.46	13.22		Y	1	
05/23/2013 00:00	129.210	127.680	25.45	103.76	23.92		N	1	
06/26/2013 00:00	129.210	127.680	23.44	105.77	21.91		N	1	
07/03/2013 00:00	129.210	127.680	27.74	101.47	26.21		N	1	
07/08/2013 00:00	129.210	127.680	27.3	101.91	25.77		Y	5053	
07/09/2013 00:00	129.210	127.680	28	101.21	26.47		N	1	
07/16/2013 00:00	129.210	127.680	28.96	100.25	27.43		N	1	

Groundwater Levels for Station 396730N1219206W003

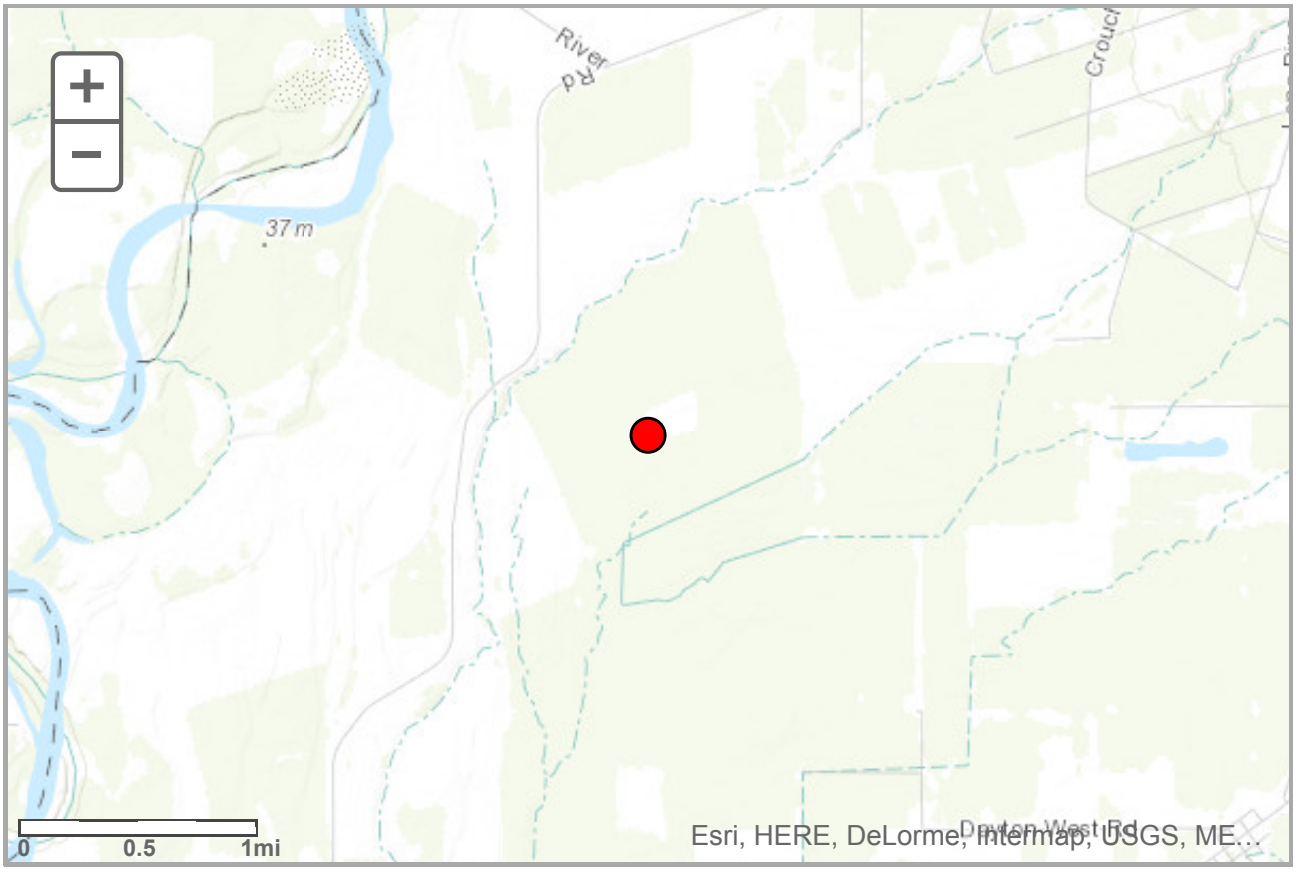
Exhibit 29 - O-8C

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number: 21N01W13J003M
Local Well ID: BMO 21N01W13J003M
Site Code: 396730N1219206W003
Latitude (NAD83): 39.673024
Longitude (NAD83): -121.9206
Groundwater Basin (code): West Butte (5-21.58)

Well Use: Observation
Well Status: Active
Well Completion Report Number: E0136959A
Reference Point Elevation (NAVD88 ft): 129.46
Ground Surface Elevation (NAVD88 ft): 127.68
Total Depth (ft): 400
Perforated Interval Depths (ft): 355.000 385.000

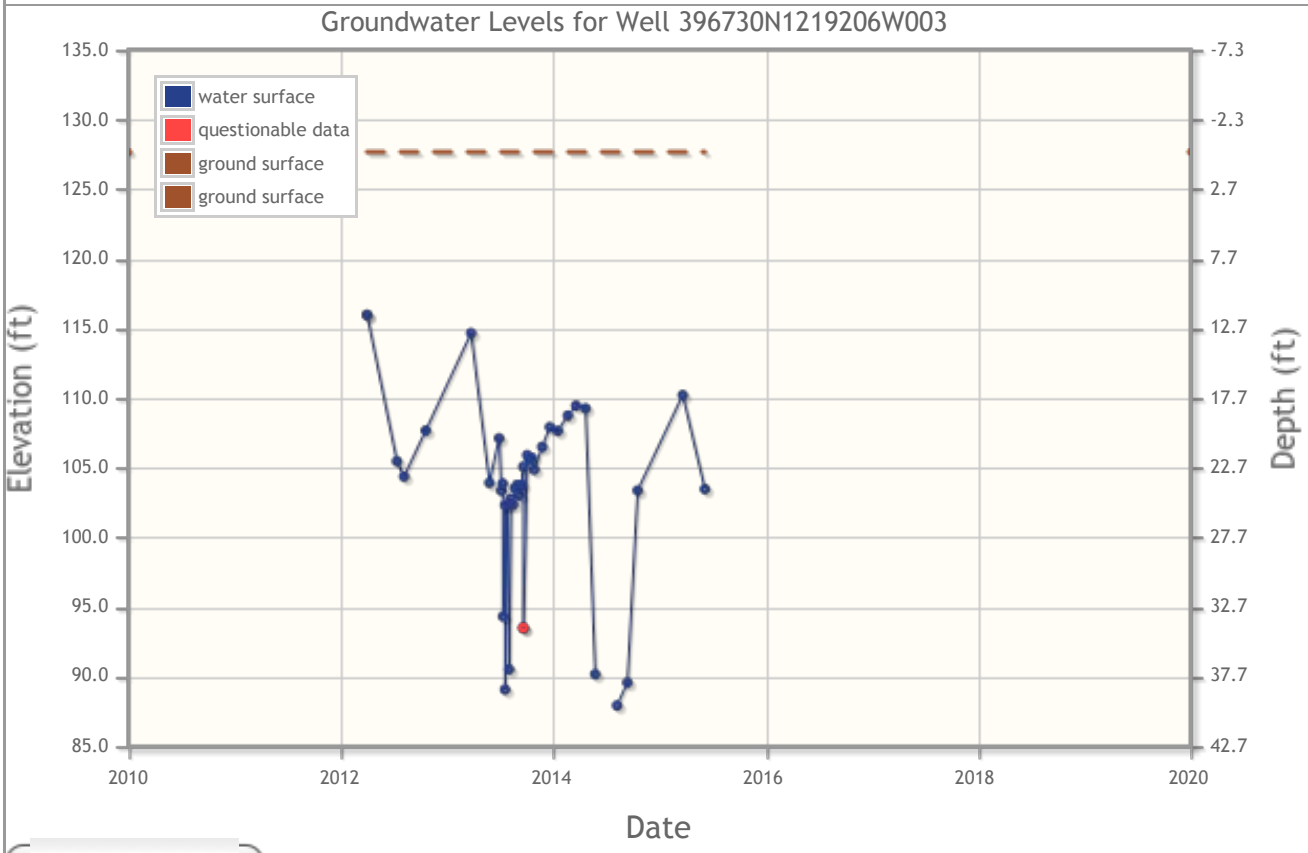


Perform a New Well Search

Groundwater Levels for Station 396730N1219206W003

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
03/28/2012 16:22	129.460	127.680	13.49	115.97	11.71		Y	1	
03/28/2012 16:22	129.460	127.680	13.49	115.97	11.71		Y	1	
07/09/2012 00:00	129.460	127.680	24	105.46	22.22		Y	1	
08/03/2012 00:00	129.460	127.680	25.1	104.36	23.32		Y	5053	
10/17/2012 00:00	129.460	127.680	21.8	107.66	20.02		Y	1	
03/21/2013 00:00	129.460	127.680	14.8	114.66	13.02		Y	1	
05/23/2013 00:00	129.460	127.680	25.55	103.91	23.77		N	1	
06/26/2013 00:00	129.460	127.680	22.35	107.11	20.57		N	1	
07/03/2013 00:00	129.460	127.680	26.11	103.35	24.33		N	1	
07/08/2013 00:00	129.460	127.680	25.6	103.86	23.82		Y	5053	
07/09/2013 00:00	129.460	127.680	35.15	94.31	33.37		N	1	
07/16/2013 00:00	129.460	127.680	27.15	102.31	25.37		N	1	
07/16/2013 00:00	129.460	127.680	40.4	89.06	38.62		N	1	

Groundwater Levels for Station 396943N1219410W001

Exhibit 29 - O-9A

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number: 21N01W11A001M
Local Well ID: BMO 21N01W11A001M
Site Code: 396943N1219410W001
Latitude (NAD83): 39.694341
Longitude (NAD83): -121.940961
Groundwater Basin (code): West Butte (5-21.58)

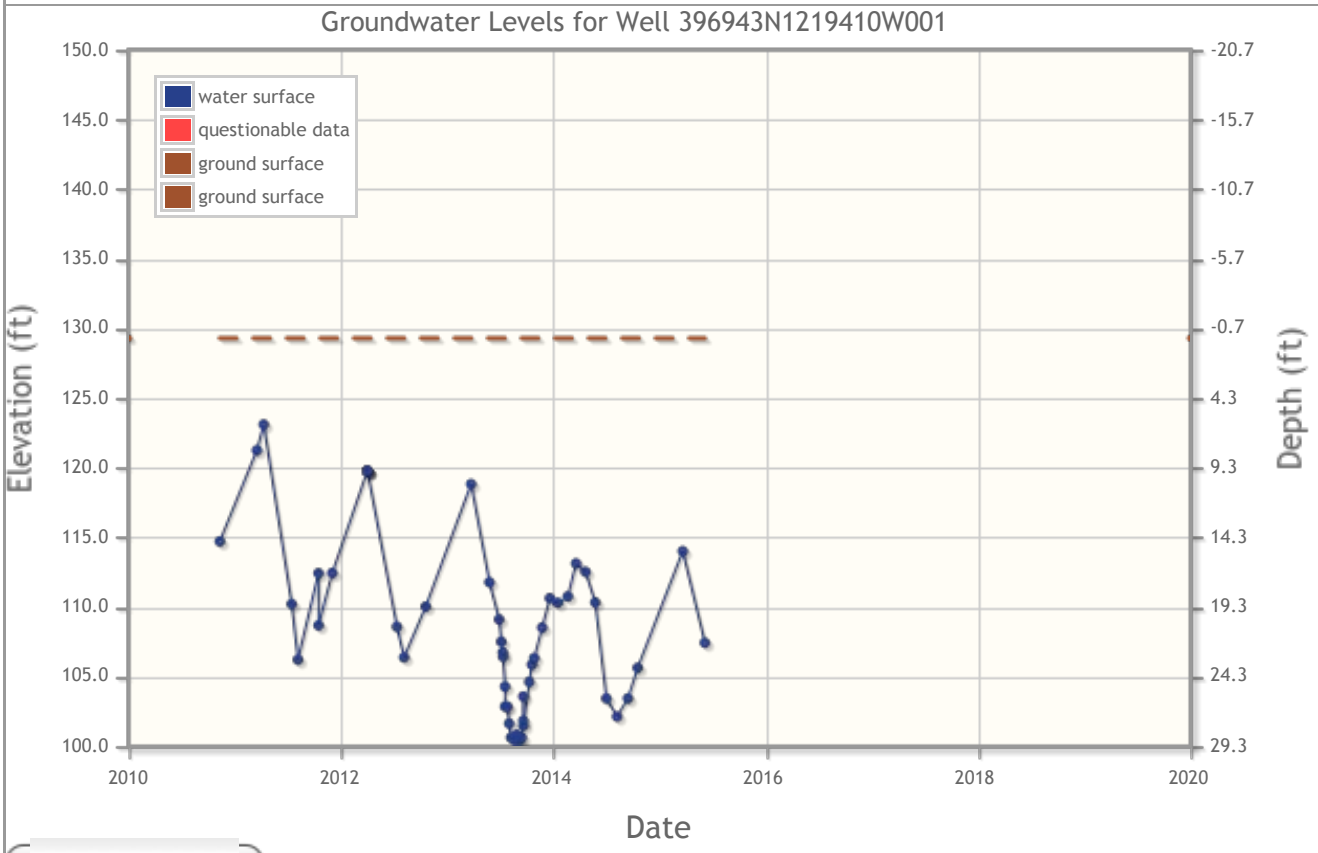
Well Use: Observation
Well Status: Active
Well Completion Report Number: E0119824C
Reference Point Elevation (NAVD88 ft): 133.82
Ground Surface Elevation (NAVD88 ft): 129.30
Total Depth (ft): 1311
Perforated Interval Depths (ft): 810.000 820.000
960.000 970.000
1050.000 1060.000
1270.000 1280.000

Perform a New Well Search

Groundwater Levels for Station 396943N1219410W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
11/08/2010 00:00	133.820	129.300	19.12	114.7	14.6		N	1	
03/14/2011 00:00	133.820	129.300	12.57	121.25	8.05		N	1	TR
04/07/2011 00:00	133.820	129.300	10.72	123.1	6.2		N	1	
07/12/2011 00:00	133.820	129.300	23.62	110.2	19.1		N	1	
08/03/2011 00:00	133.820	129.300	27.62	106.2	23.1		N	1	
10/13/2011 00:00	133.820	129.300	21.4	112.42	16.88		Y	5053	
10/13/2011 00:00	133.818	129.298	25.15	108.668	20.63		N	1	
11/30/2011 00:00	133.820	129.300	21.39	112.43	16.87		N	1	
03/29/2012 13:09	133.820	129.300	14.06	119.76	9.54		Y	1	
03/29/2012 13:09	133.818	129.298	14.06	119.758	9.54		Y	1	
03/29/2012 13:09	133.818	129.298	14.06	119.758	9.54		Y	1	
03/29/2012 13:09	133.818	129.298	14.06	119.758	9.54		Y	1	
03/29/2012 13:09	133.820	129.300	14.06	119.76	9.54		Y	1	

Groundwater Levels for Station 396943N1219410W002

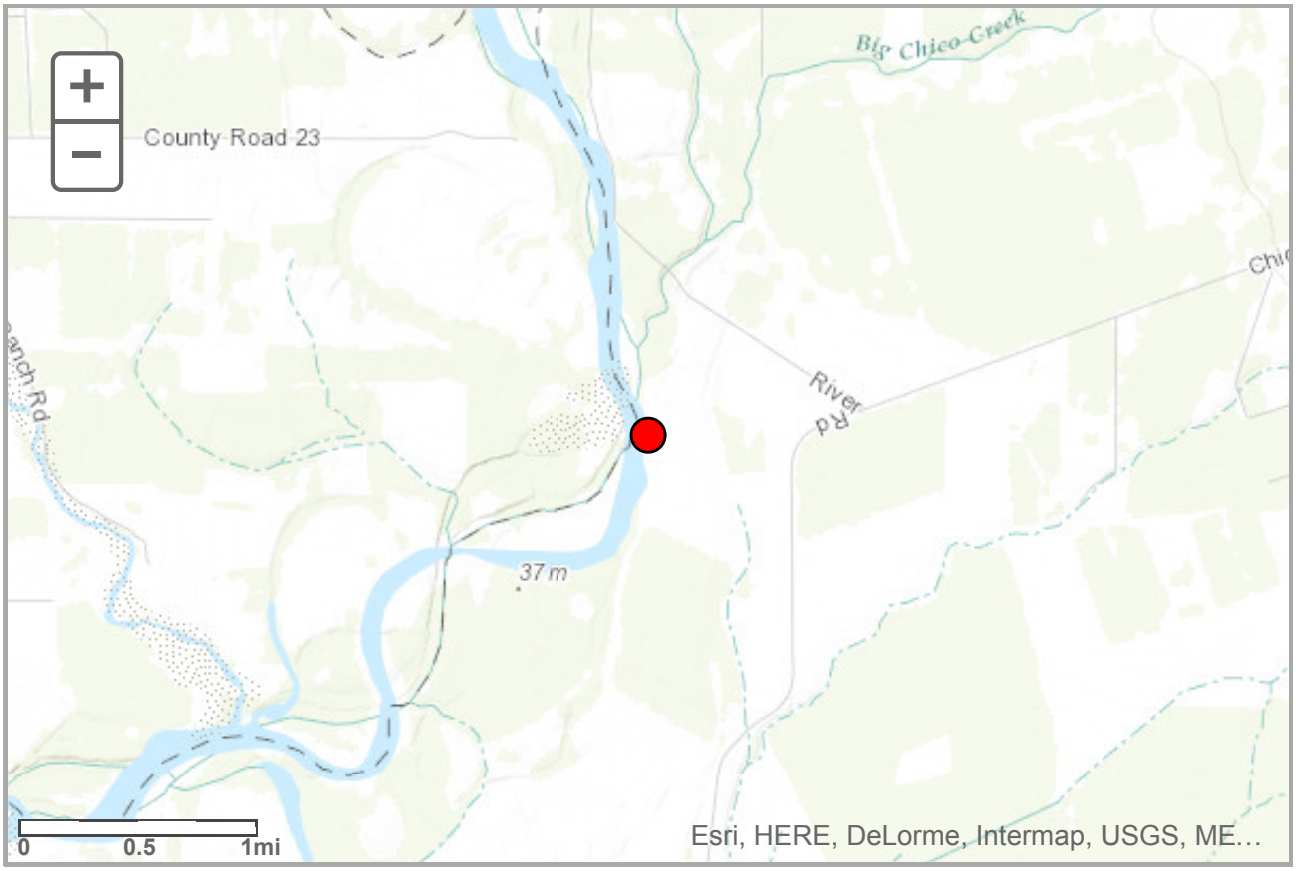
Exhibit 29 - O-9B

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number: 21N01W11A002M
Local Well ID: BMO 21N01W11A002M
Site Code: 396943N1219410W002
Latitude (NAD83): 39.694341
Longitude (NAD83): -121.940961
Groundwater Basin (code): West Butte (5-21.58)

Well Use: Observation
Well Status: Active
Well Completion Report Number: E0119824B
Reference Point Elevation (NAVD88 ft): 133.56
Ground Surface Elevation (NAVD88 ft): 129.30
Total Depth (ft): 200
Perforated Interval Depths (ft): 125.000 135.000 175.000 185.000

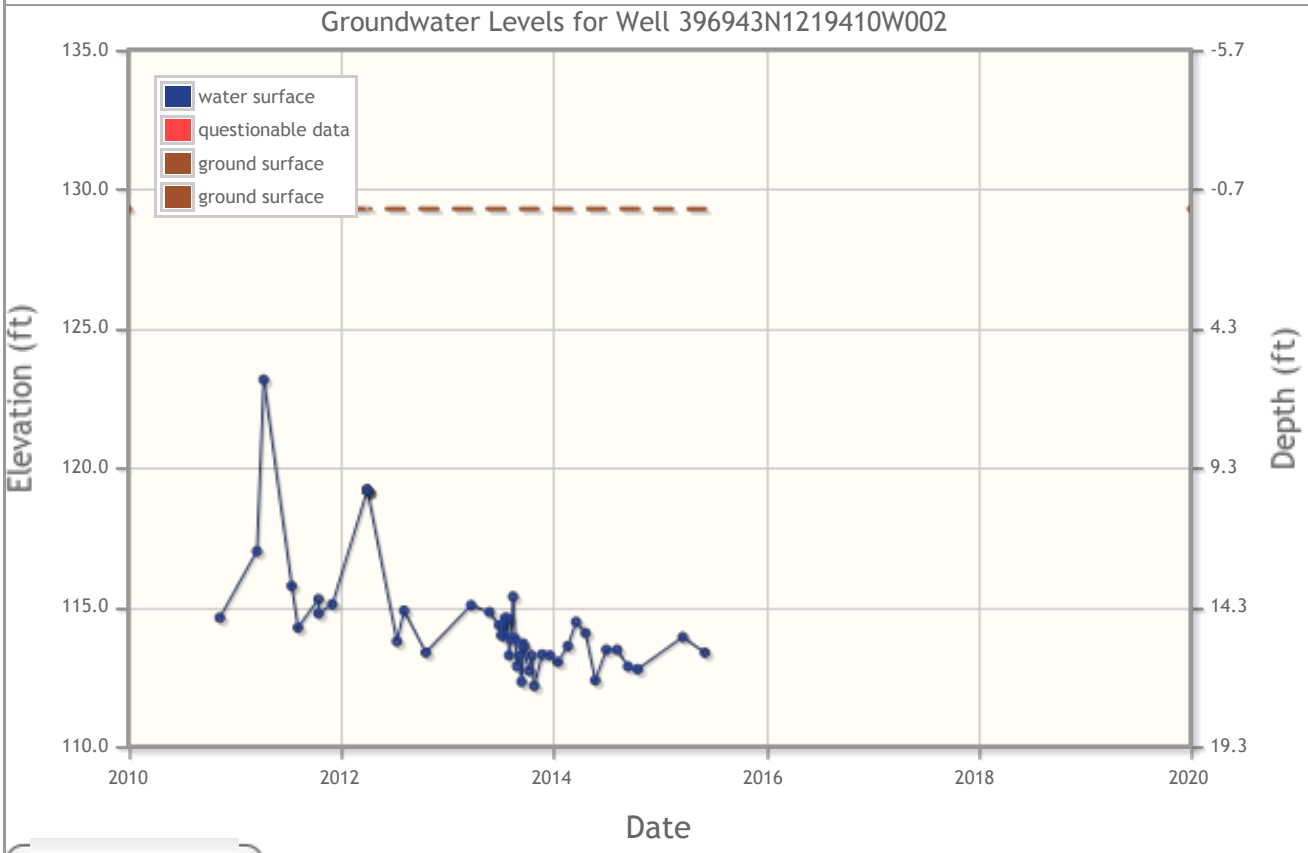


Perform a New Well Search

Groundwater Levels for Station 396943N1219410W002

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
11/08/2010 00:00	133.560	129.300	18.95	114.61	14.69		N	1	
03/14/2011 00:00	133.560	129.300	16.56	117	12.3		N	1	TR
04/07/2011 00:00	133.560	129.300	10.4	123.16	6.14		N	1	
07/12/2011 00:00	133.560	129.300	17.81	115.75	13.55		N	1	
08/03/2011 00:00	133.560	129.300	19.31	114.25	15.05		N	1	
10/13/2011 00:00	133.555	129.295	18.28	115.275	14.02		N	1	
10/13/2011 00:00	133.560	129.300	18.8	114.76	14.54		Y	5053	
11/30/2011 00:00	133.560	129.300	18.47	115.09	14.21		N	1	
03/29/2012 13:14	133.560	129.300	14.37	119.19	10.11		Y	1	
03/29/2012 13:14	133.560	129.300	14.37	119.19	10.11		Y	1	
03/29/2012 13:14	133.555	129.295	14.37	119.185	10.11		Y	1	
03/29/2012 13:14	133.555	129.295	14.37	119.185	10.11		Y	1	
03/29/2012 13:14	133.560	129.300	14.37	119.19	10.11		Y	1	

Groundwater Levels for Station 396943N1219410W003

Exhibit 29 - O-9C

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number:	21N01W11A003M
Local Well ID:	BMO 21N01W11A003M
Site Code:	396943N1219410W003
Latitude (NAD83):	39.694341
Longitude (NAD83):	-121.940961
Groundwater Basin (code):	West Butte (5-21.58)

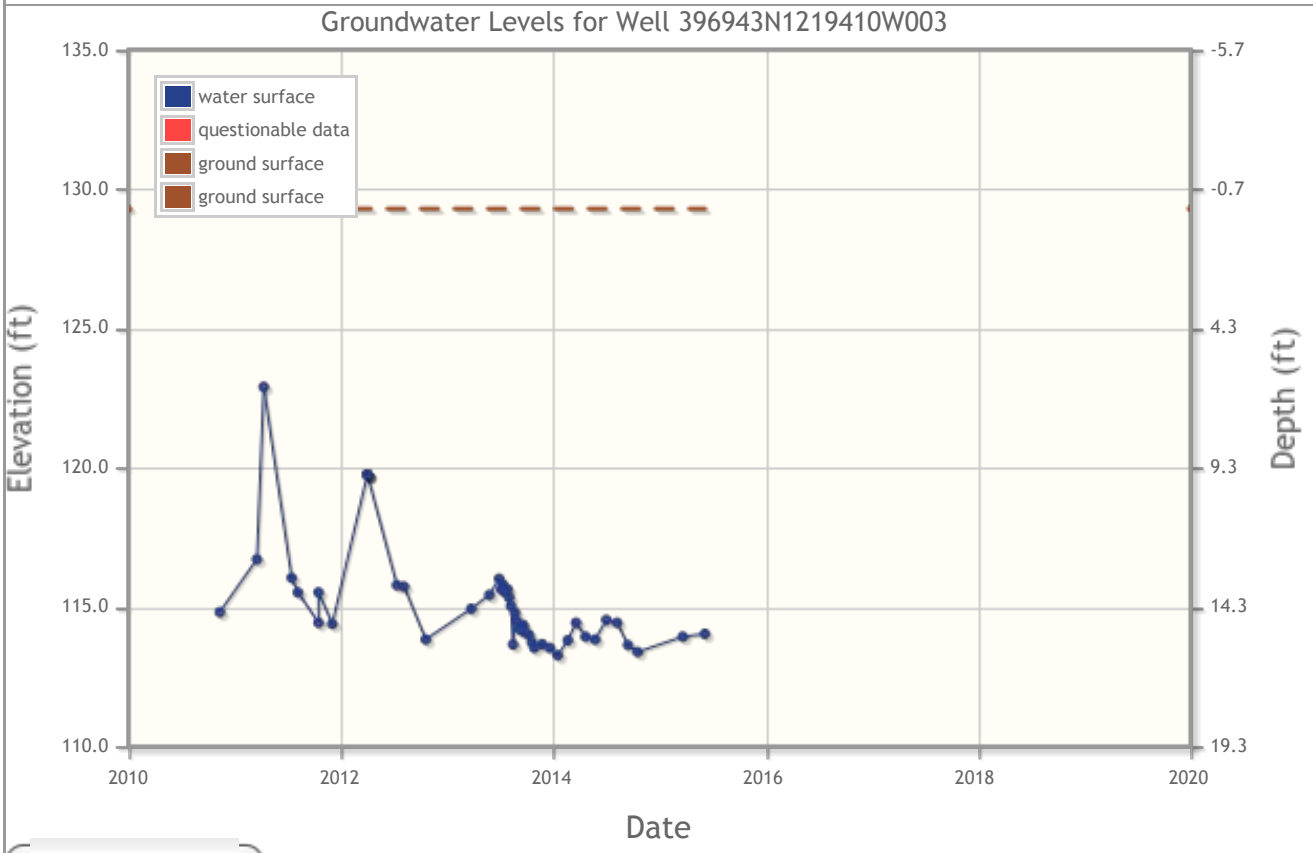
Well Use:	Observation
Well Status:	Active
Well Completion Report Number:	E0119824A
Reference Point Elevation (NAVD88 ft):	133.23
Ground Surface Elevation (NAVD88 ft):	129.30
Total Depth (ft):	104
Perforated Interval Depths (ft):	30.000 50.000

Perform a New Well Search

Groundwater Levels for Station 396943N1219410W003

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
11/08/2010 00:00	133.230	129.300	18.42	114.81	14.49		N	1	
03/14/2011 00:00	133.230	129.300	16.52	116.71	12.59		N	1	
04/07/2011 00:00	133.230	129.300	10.33	122.9	6.4		N	1	
07/12/2011 00:00	133.230	129.300	17.19	116.04	13.26		N	1	
08/03/2011 00:00	133.230	129.300	17.71	115.52	13.78		N	1	
10/13/2011 00:00	133.230	129.300	18.8	114.43	14.87		Y	5053	
10/13/2011 00:00	133.230	129.300	17.71	115.52	13.78		N	1	
11/30/2011 00:00	133.230	129.300	18.84	114.39	14.91		N	1	
03/29/2012 01:20	133.230	129.300	13.48	119.75	9.55		Y	1	
03/29/2012 01:20	133.230	129.300	13.48	119.75	9.55		Y	1	
03/29/2012 01:20	133.230	129.300	13.48	119.75	9.55		Y	1	
03/29/2012 01:20	133.230	129.300	13.48	119.75	9.55		Y	1	
03/29/2012 01:20	133.230	129.300	13.48	119.75	9.55		Y	1	

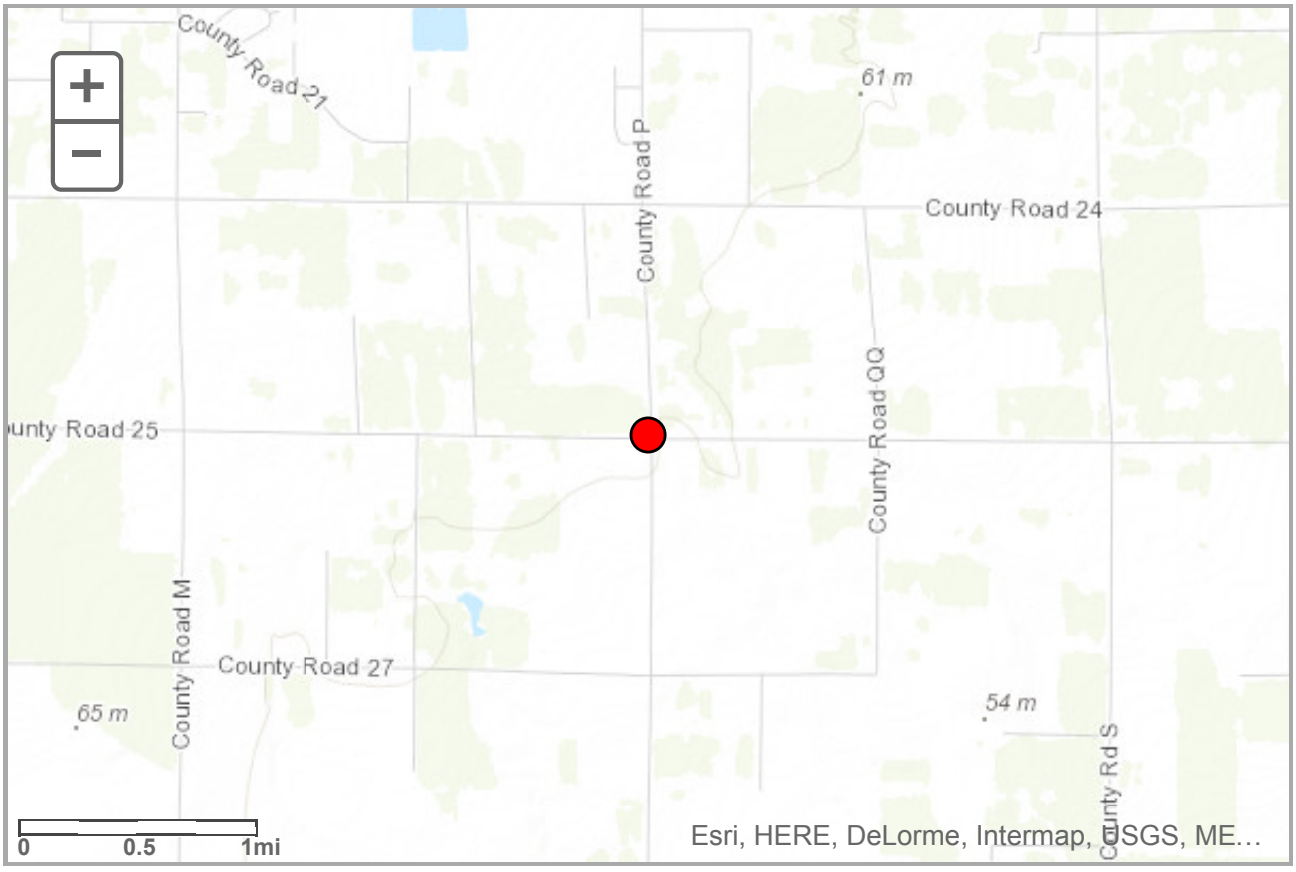
Exhibit 29 - I-10

Groundwater Levels for Station 396963N1221405W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number: 21N03W01R003M	**Well Use:** Irrigation
Local Well ID: OAWD-Prod Well	**Well Status:** Active
Site Code: 396963N1221405W001	**Well Completion Report Number:** 726925
Latitude (NAD83): 39.696300	**Reference Point Elevation (NAVD88 ft):** 205.50
Longitude (NAD83): -122.1405	**Ground Surface Elevation (NAVD88 ft):** 203.53
Groundwater Basin (code): Colusa (5-21.52)	**Total Depth (ft):** Confidential
	Perforated Interval Depths (ft): Confidential

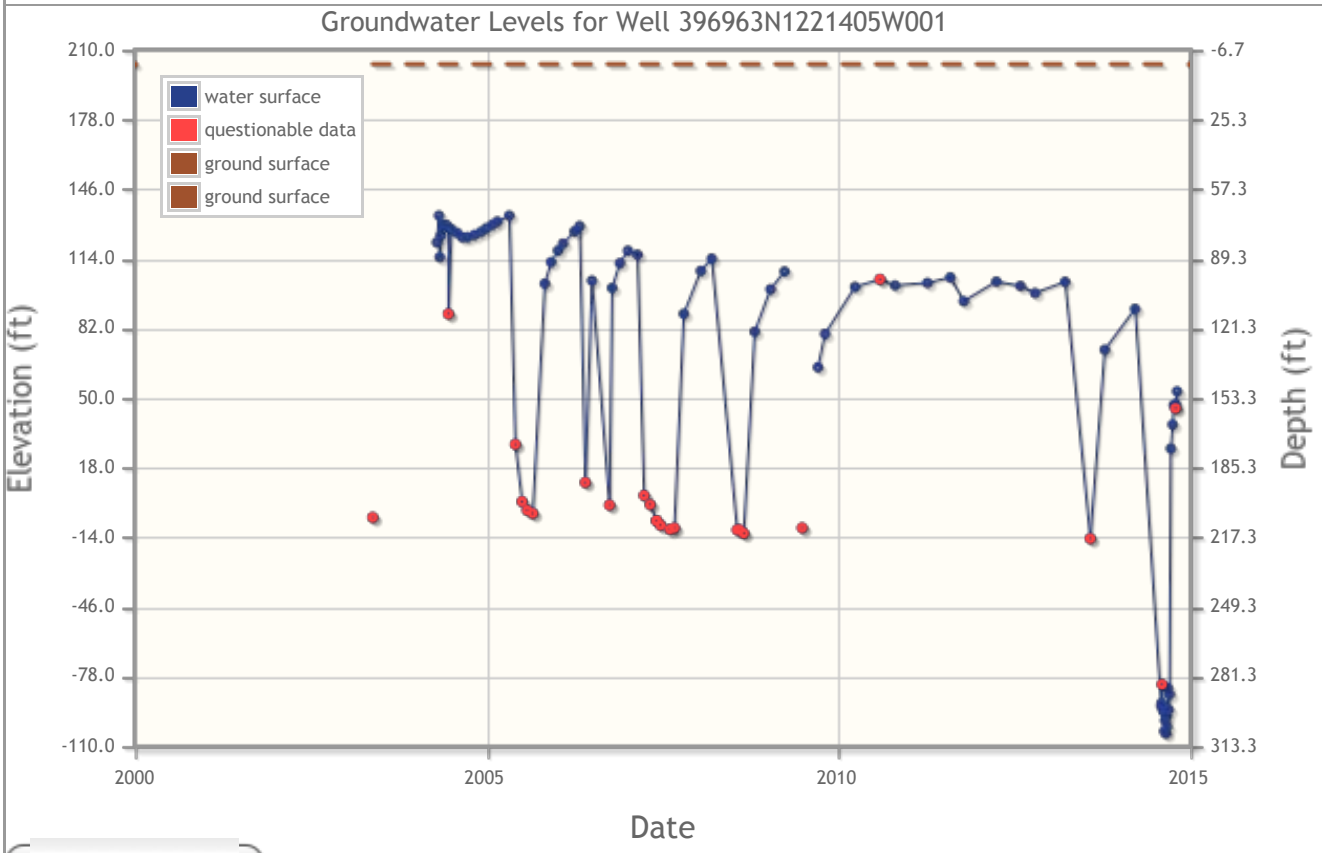


Perform a New Well Search

Groundwater Levels for Station 396963N1221405W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
05/17/2003 00:00	205.499	203.529	210.4	-4.901	208.43	Q-1	N	1	
04/15/2004 00:00	205.499	203.529	83.93	121.569	81.96		N	1065	Ne
04/26/2004 00:00	205.499	203.529	71.6	133.899	69.63		N	1065	
04/30/2004 00:00	205.499	203.529	90.72	114.779	88.75		N	1065	
05/05/2004 00:00	205.499	203.529	80.83	124.669	78.86		N	1065	
05/13/2004 00:00	205.499	203.529	76.15	129.349	74.18		N	1065	
05/18/2004 00:00	205.499	203.529	75.76	129.739	73.79		N	1065	
05/27/2004 00:00	205.499	203.529	75.98	129.519	74.01		N	1065	
06/04/2004 00:00	205.499	203.529	75.96	129.539	73.99		N	1065	
06/14/2004 06:00	205.499	203.529	77	128.499	75.03		N	1065	
06/14/2004 18:00	205.499	203.529	116.8	88.699	114.83	Q-1	N	1065	
06/30/2004 00:00	205.499	203.529	77.92	127.579	75.95		N	1065	
07/29/2004 00:00	205.499	203.529	79.53	125.969	77.56		N	1065	

Exhibit 29 - I-11

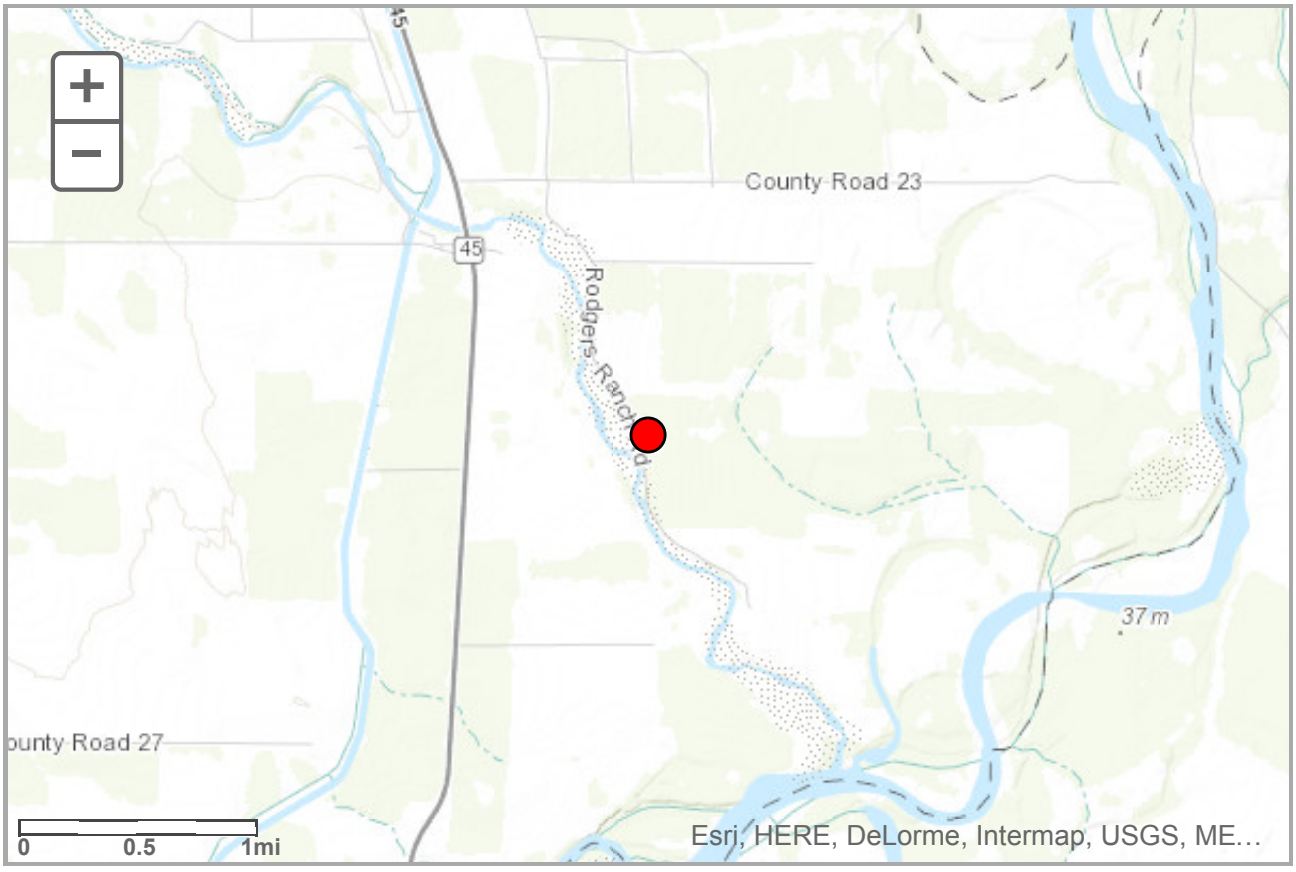
Groundwater Levels for Station 396971N1219893W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number: 21N01W04N001M
Local Well ID: 21N01W04N001M
Site Code: 396971N1219893W001
Latitude (NAD83): 39.697100
Longitude (NAD83): -121.9893
Groundwater Basin (code): Corning (5-21.51)

Well Use: Irrigation
Well Status: Active
Well Completion Report Number:
Reference Point Elevation (NAVD88 ft): 137.68
Ground Surface Elevation (NAVD88 ft): 137.38
Total Depth (ft): Confidential
Perforated Interval Depths (ft): Confidential

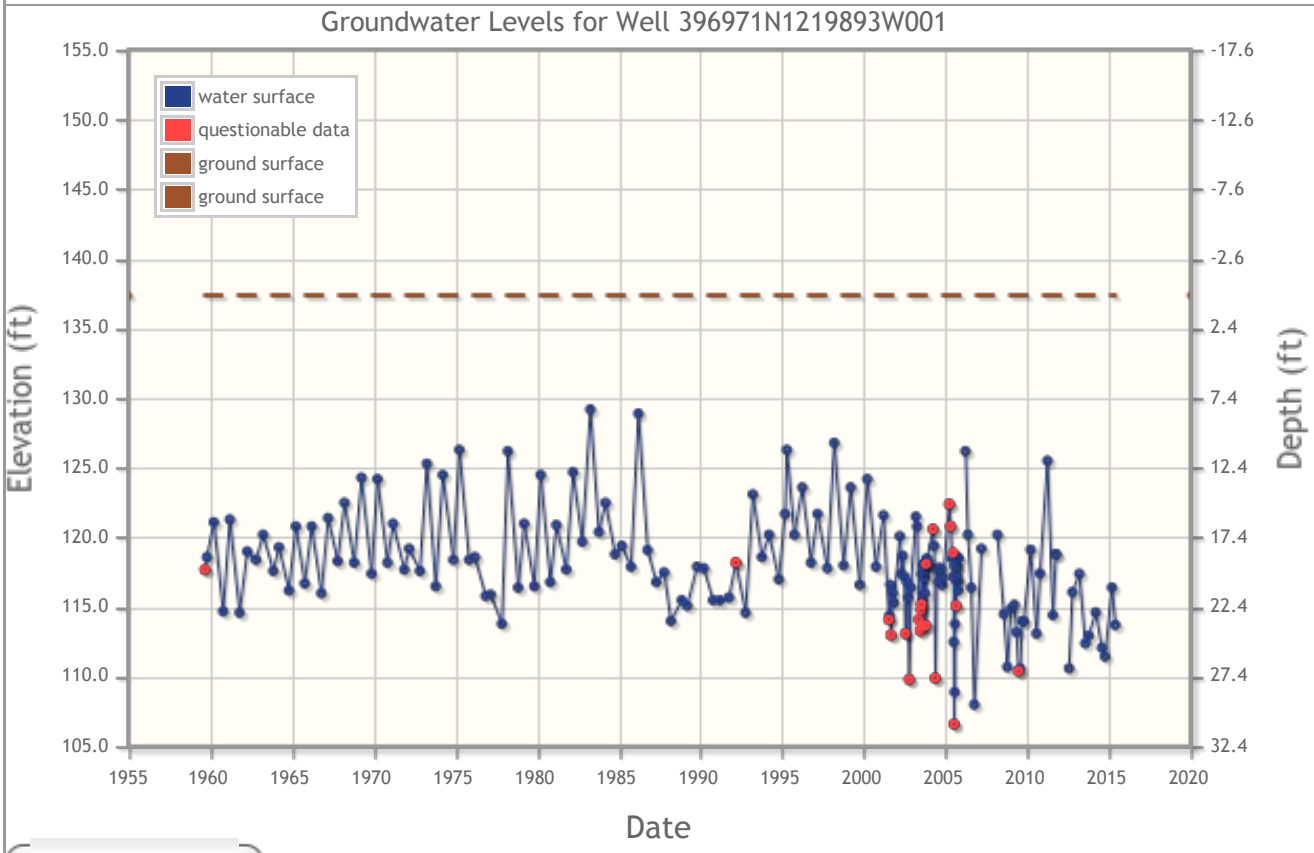


Perform a New Well Search

Groundwater Levels for Station 396971N1219893W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
08/24/1959 00:00	138.380	137.380	20.7	117.68	19.7	Q-4	N	624	
10/09/1959 00:00	138.380	137.380	19.8	118.58	18.8		N	624	
03/09/1960 00:00	138.380	137.380	17.3	121.08	16.3		N	624	
10/05/1960 00:00	138.380	137.380	23.7	114.68	22.7		N	624	
03/03/1961 00:00	138.380	137.380	17.1	121.28	16.1		N	624	
10/07/1961 00:00	138.380	137.380	23.8	114.58	22.8		N	624	
03/27/1962 00:00	138.380	137.380	19.4	118.98	18.4		N	624	
10/11/1962 00:00	138.380	137.380	20	118.38	19		N	624	
03/15/1963 00:00	138.380	137.380	18.2	120.18	17.2		N	624	
10/31/1963 00:00	138.380	137.380	20.8	117.58	19.8		N	624	
03/06/1964 00:00	138.380	137.380	19.1	119.28	18.1		N	624	
10/15/1964 00:00	138.380	137.380	22.2	116.18	21.2		N	624	
03/18/1965 00:00	138.380	137.380	17.6	120.78	16.6		N	624	

Groundwater Levels for Station 397033N1220910W001

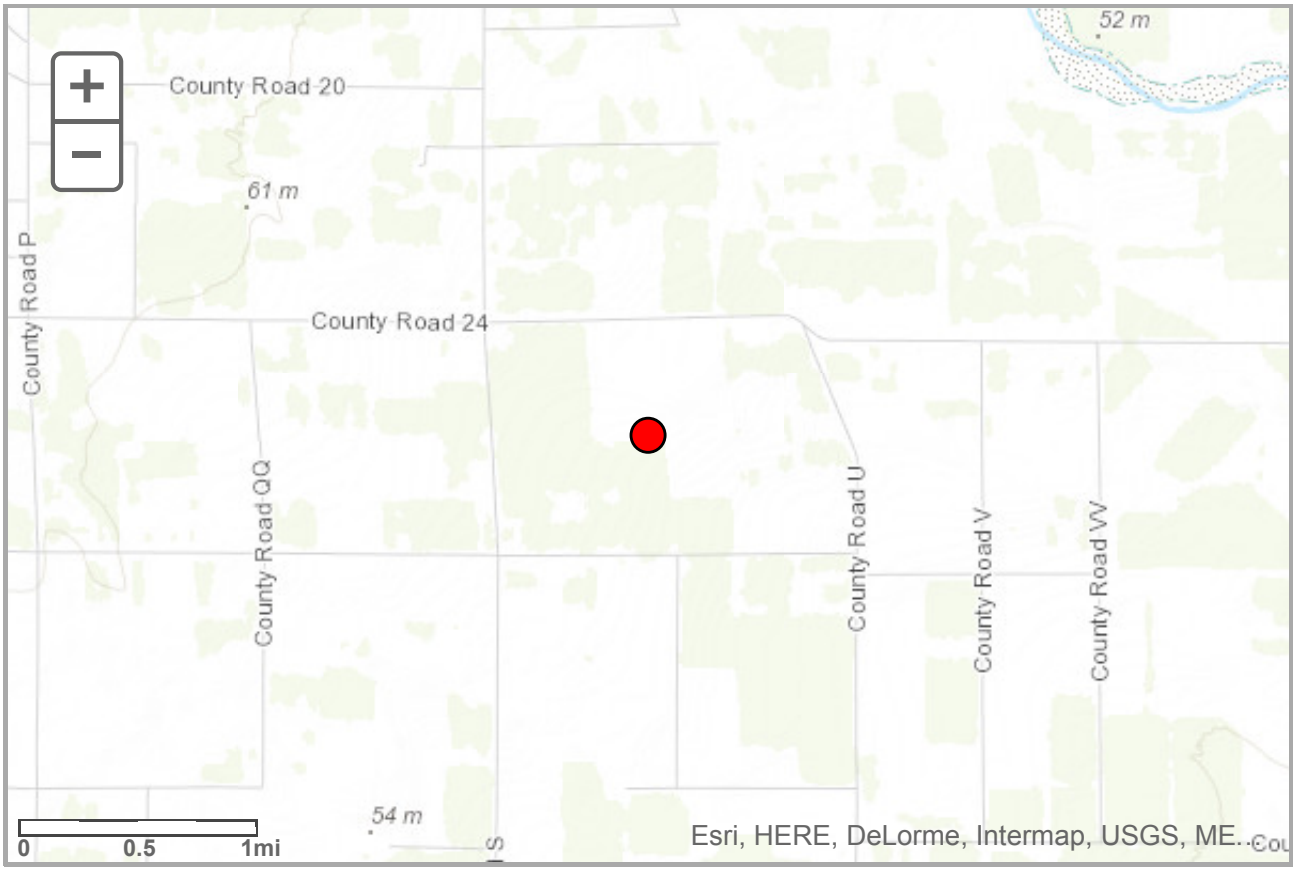
Exhibit 29 - O-12A

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number: 21N02W04G002M
Local Well ID: 21N02W04G002M
Site Code: 397033N1220910W001
Latitude (NAD83): 39.703300
Longitude (NAD83): -122.091
Groundwater Basin (code): Colusa (5-21.52)

Well Use: Observation
Well Status: Active
Well Completion Report Number: E044112
Reference Point Elevation (NAVD88 ft): 180.21
Ground Surface Elevation (NAVD88 ft): 178.41
Total Depth (ft): 964
Perforated Interval Depths (ft): 928.000 938.000

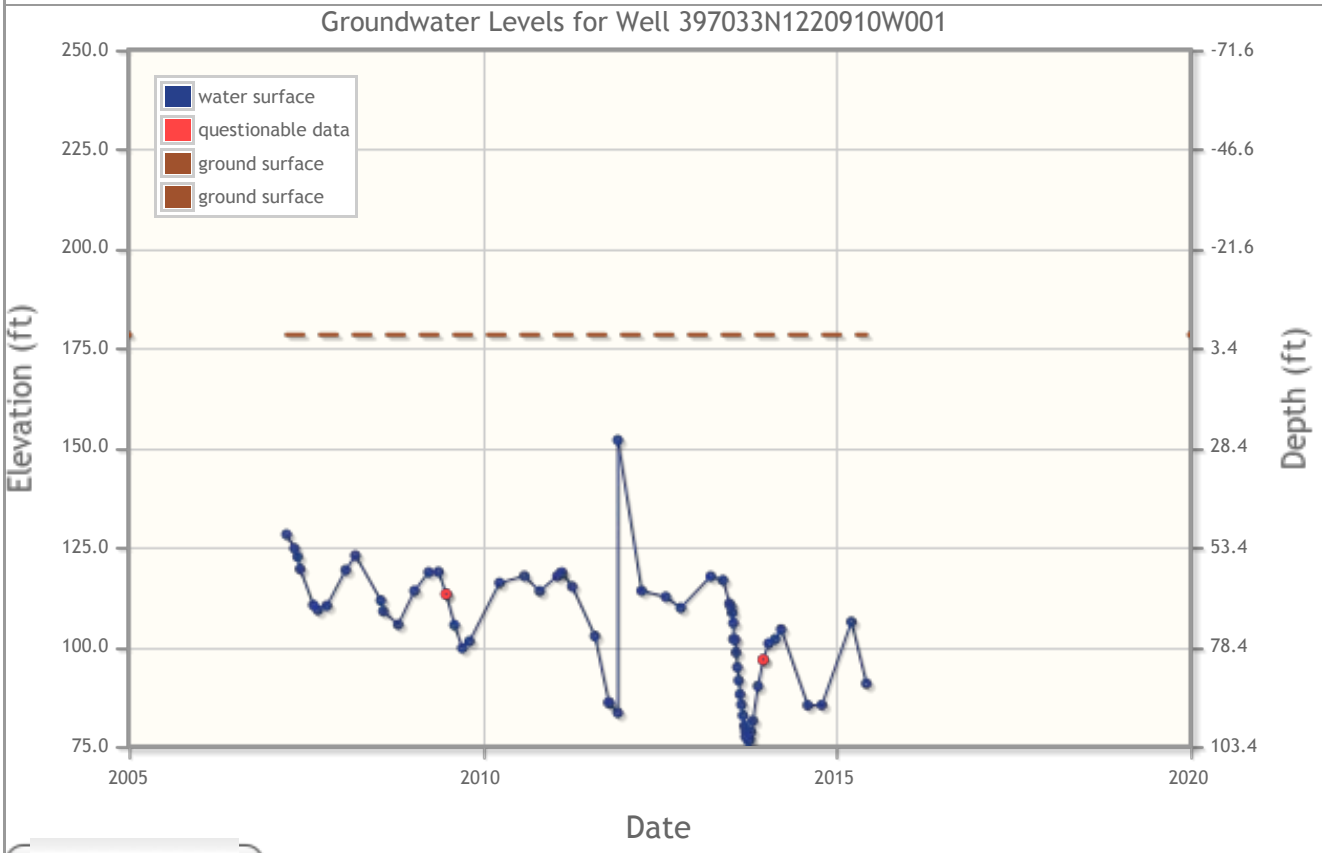


Perform a New Well Search

Groundwater Levels for Station 397033N1220910W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
03/22/2007 00:00	180.210	178.410	52.02	128.19	50.22		N	1	
05/02/2007 00:00	180.210	178.410	55.51	124.7	53.71		N	1	
05/18/2007 00:00	180.210	178.410	57.6	122.61	55.8		N	1	
05/31/2007 00:00	180.210	178.410	60.7	119.51	58.9		N	1	
08/08/2007 00:00	180.210	178.410	69.74	110.47	67.94		N	1	
08/31/2007 00:00	180.210	178.410	71.01	109.2	69.21		N	1	
10/17/2007 00:00	180.210	178.410	69.92	110.29	68.12		N	1	
01/23/2008 00:00	180.210	178.410	60.95	119.26	59.15		N	1	
03/12/2008 00:00	180.210	178.410	57.3	122.91	55.5		N	1	
07/22/2008 00:00	180.210	178.410	68.61	111.6	66.81		N	1	
08/04/2008 00:00	180.210	178.410	71.3	108.91	69.5		N	1	
10/20/2008 00:00	180.210	178.410	74.65	105.56	72.85		N	1	
01/13/2009 00:00	180.210	178.410	66.18	114.03	64.38		N	1	

Groundwater Levels for Station 397033N1220910W002

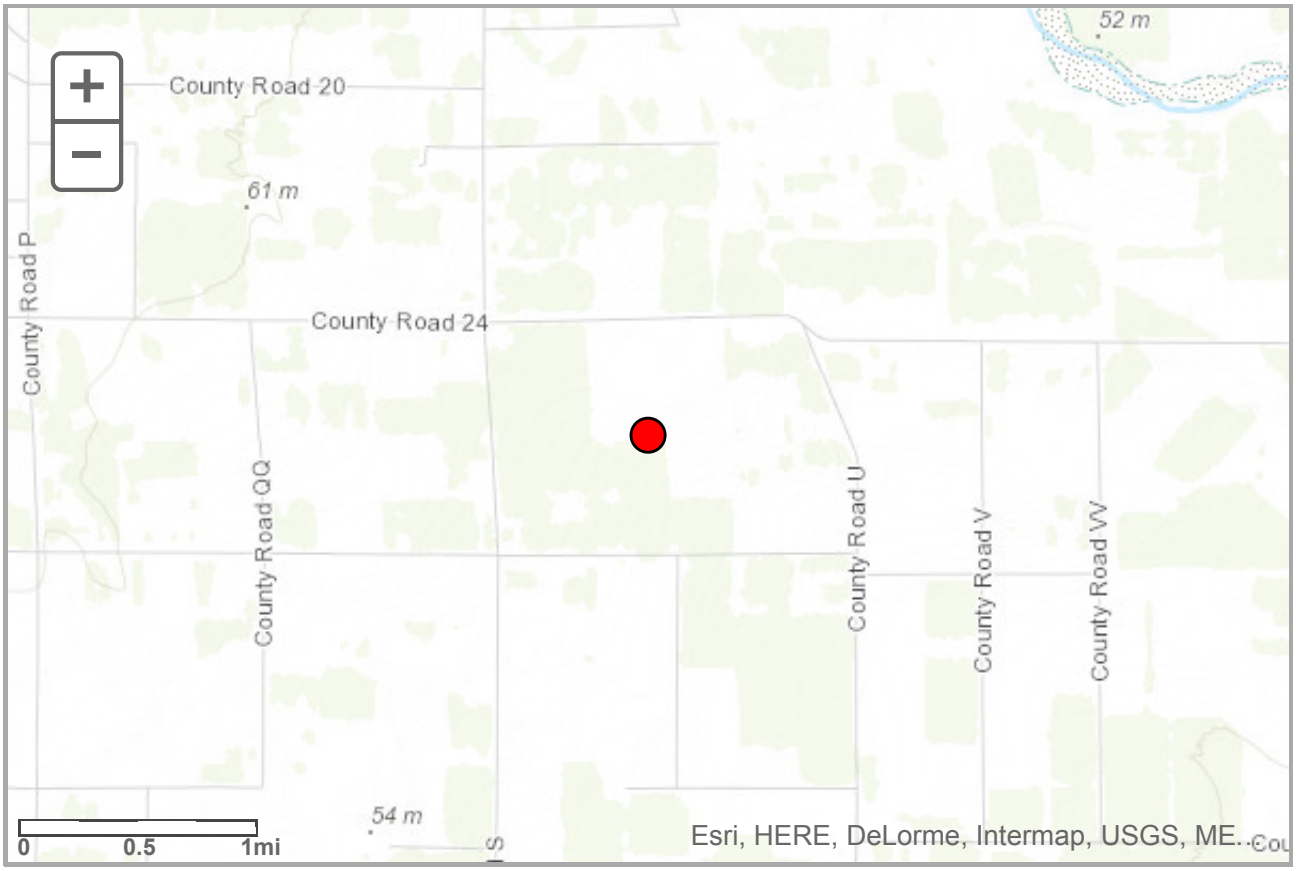
Exhibit 29 - O-12B

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number: 21N02W04G003M
Local Well ID: 21N02W04G003M
Site Code: 397033N1220910W002
Latitude (NAD83): 39.703300
Longitude (NAD83): -122.091
Groundwater Basin (code): Colusa (5-21.52)

Well Use: Observation
Well Status: Active
Well Completion Report Number: E044112
Reference Point Elevation (NAVD88 ft): 180.51
Ground Surface Elevation (NAVD88 ft): 178.41
Total Depth (ft): 715
Perforated Interval Depths (ft): 674.000 684.000 693.000 704.000

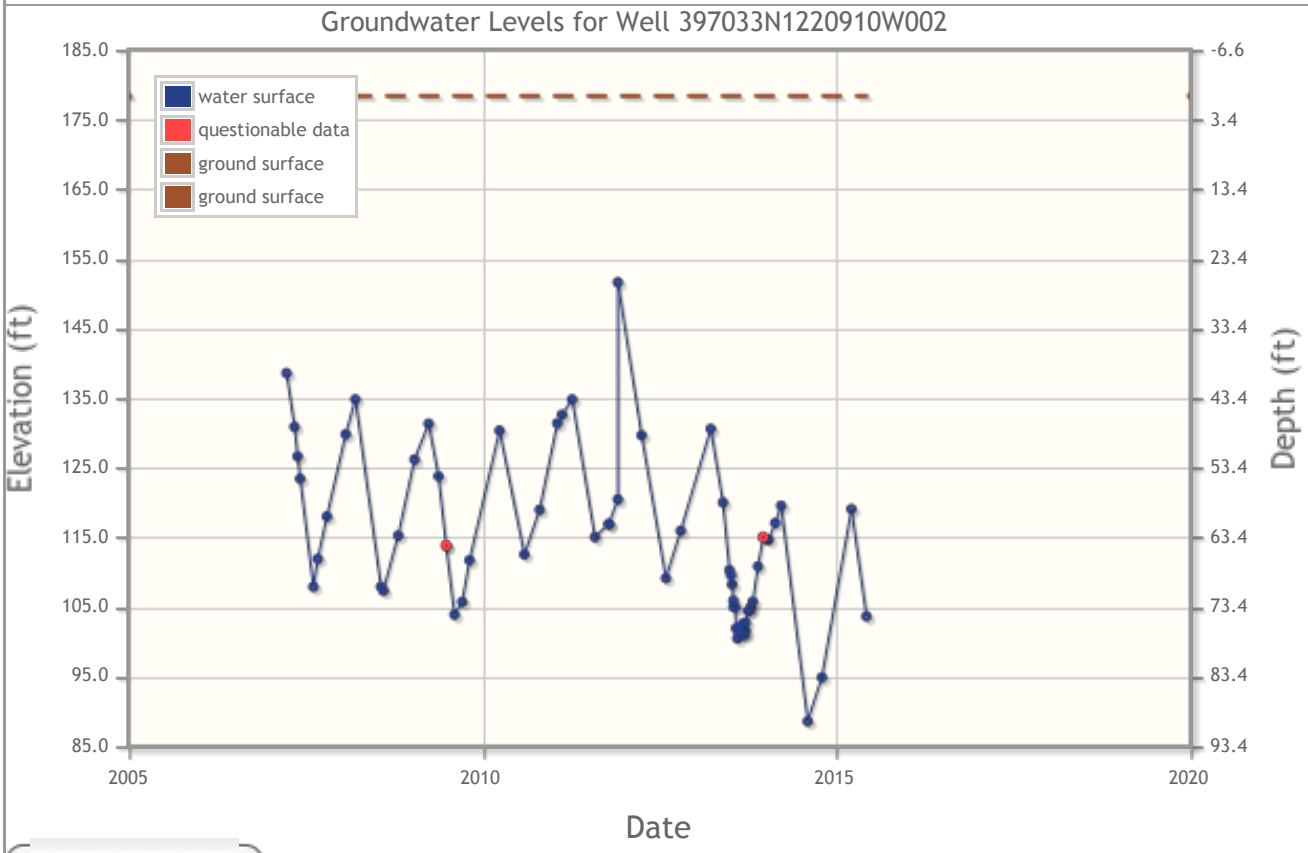


Perform a New Well Search

Groundwater Levels for Station 397033N1220910W002

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
03/22/2007 00:00	180.510	178.410	41.92	138.59	39.82		N	1	
05/02/2007 00:00	180.510	178.410	49.64	130.87	47.54		N	1	
05/18/2007 00:00	180.510	178.410	53.9	126.61	51.8		N	1	
05/31/2007 00:00	180.510	178.410	57.1	123.41	55		N	1	
08/08/2007 00:00	180.510	178.410	72.63	107.88	70.53		N	1	
08/31/2007 00:00	180.510	178.410	68.61	111.9	66.51		N	1	
10/17/2007 00:00	180.510	178.410	62.52	117.99	60.42		N	1	
01/23/2008 00:00	180.510	178.410	50.71	129.8	48.61		N	1	
03/12/2008 00:00	180.510	178.410	45.7	134.81	43.6		N	1	
07/22/2008 00:00	180.510	178.410	72.61	107.9	70.51		N	1	
08/04/2008 00:00	180.510	178.410	73.19	107.32	71.09		N	1	
10/20/2008 00:00	180.510	178.410	65.26	115.25	63.16		N	1	
01/13/2009 00:00	180.510	178.410	54.34	126.17	52.24		N	1	

Exhibit 29 - O-12C

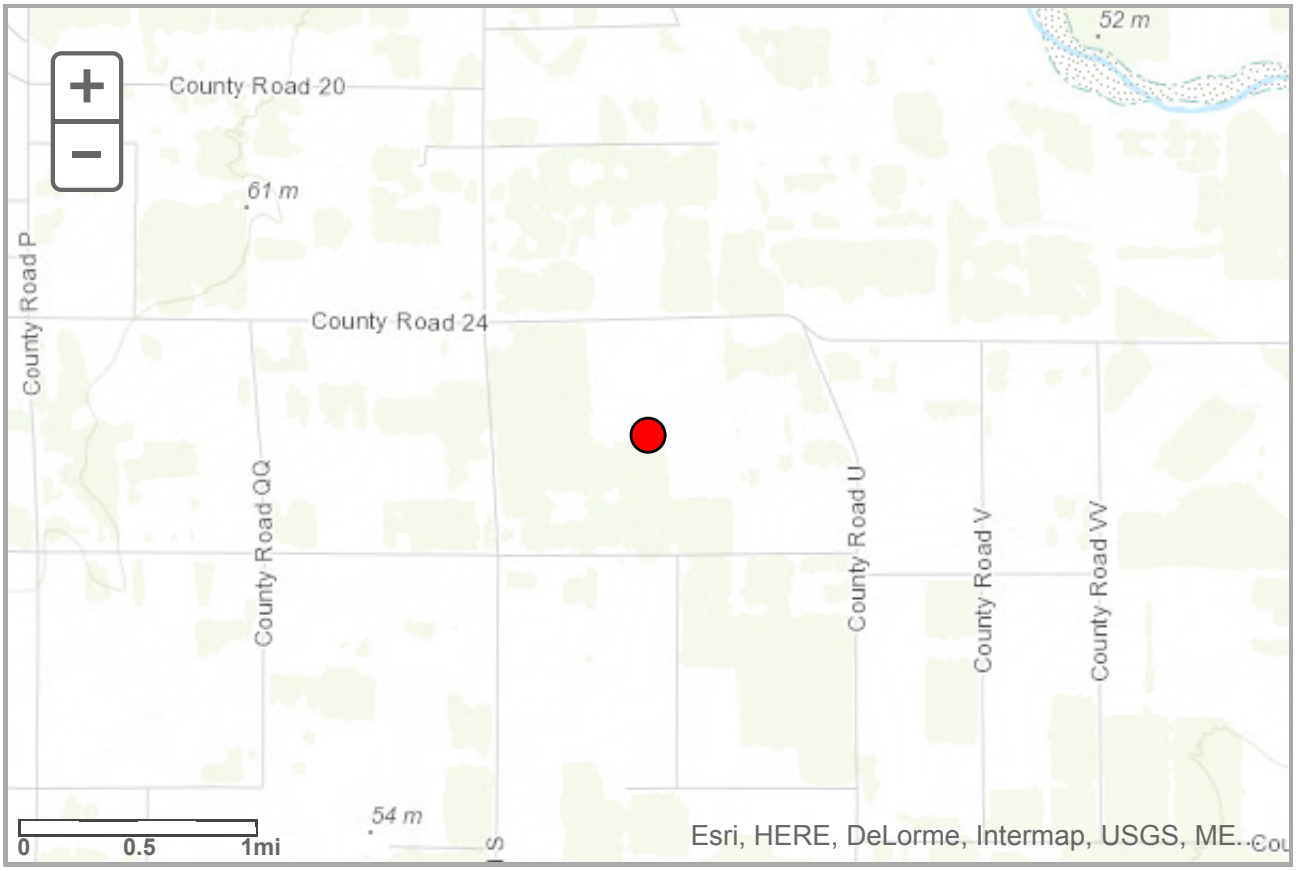
Groundwater Levels for Station 397033N1220910W003

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number: 21N02W04G004M
Local Well ID: 21N02W04G004M
Site Code: 397033N1220910W003
Latitude (NAD83): 39.703300
Longitude (NAD83): -122.091
Groundwater Basin (code): Colusa (5-21.52)

Well Use: Observation
Well Status: Active
Well Completion Report Number: E044112
Reference Point Elevation (NAVD88 ft): 180.31
Ground Surface Elevation (NAVD88 ft): 178.41
Total Depth (ft): 327
Perforated Interval Depths (ft): 165.000 175.000 269.000 279.000

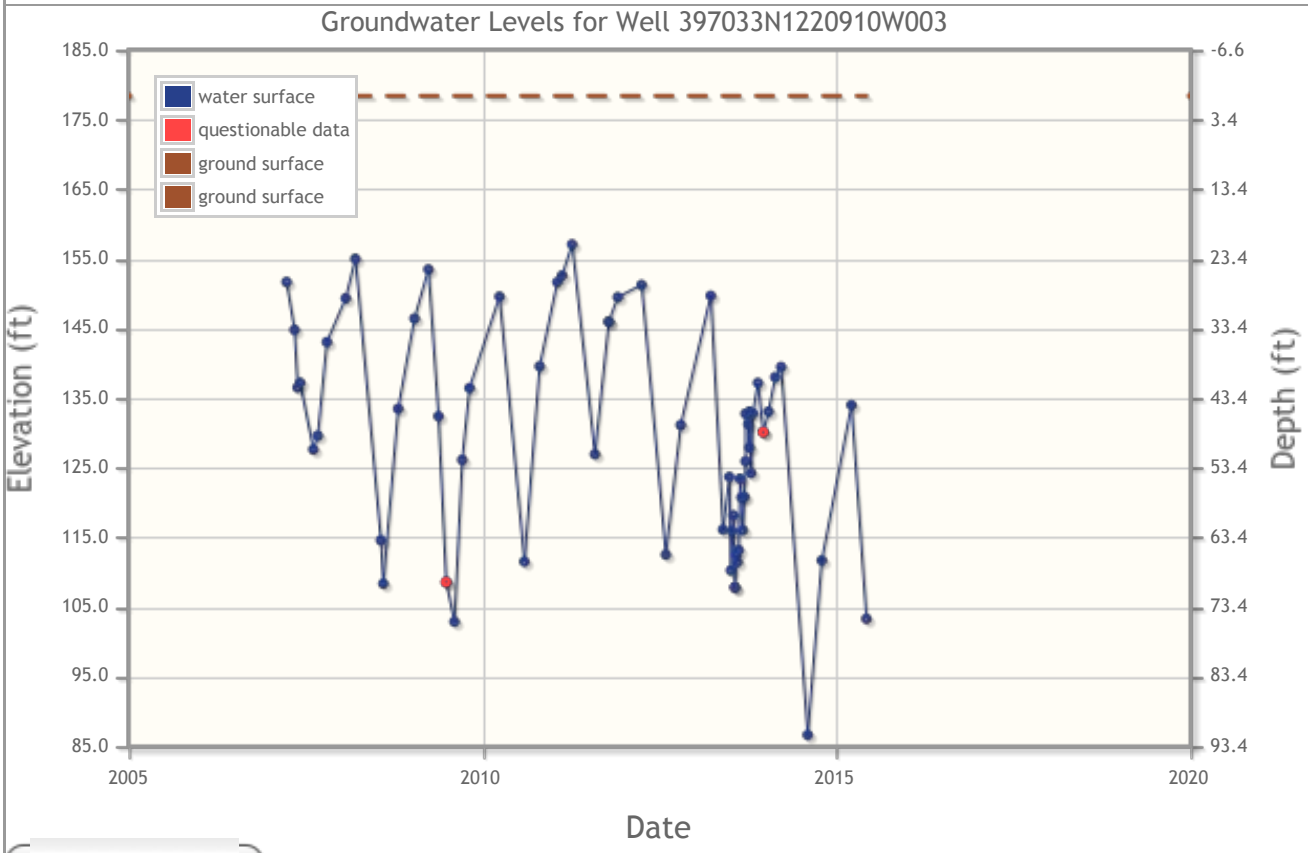


Perform a New Well Search

Groundwater Levels for Station 397033N1220910W003

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
03/22/2007 00:00	180.910	178.410	29.23	151.68	26.73		N	1	
05/02/2007 00:00	180.910	178.410	36.11	144.8	33.61		N	1	
05/18/2007 00:00	180.910	178.410	44.4	136.51	41.9		N	1	
05/31/2007 00:00	180.910	178.410	43.7	137.21	41.2		N	1	
08/08/2007 00:00	180.910	178.410	53.3	127.61	50.8		N	1	
08/31/2007 00:00	180.910	178.410	51.31	129.6	48.81		N	1	
10/17/2007 00:00	180.910	178.410	37.86	143.05	35.36		N	1	
01/23/2008 00:00	180.910	178.410	31.58	149.33	29.08		N	1	
03/12/2008 00:00	180.910	178.410	25.9	155.01	23.4		N	1	
07/22/2008 00:00	180.910	178.410	66.33	114.58	63.83		N	1	
08/04/2008 00:00	180.910	178.410	72.58	108.33	70.08		N	1	
10/20/2008 00:00	180.910	178.410	47.44	133.47	44.94		N	1	
01/13/2009 00:00	180.910	178.410	34.48	146.43	31.98		N	1	

Groundwater Levels for Station 397033N1220910W004

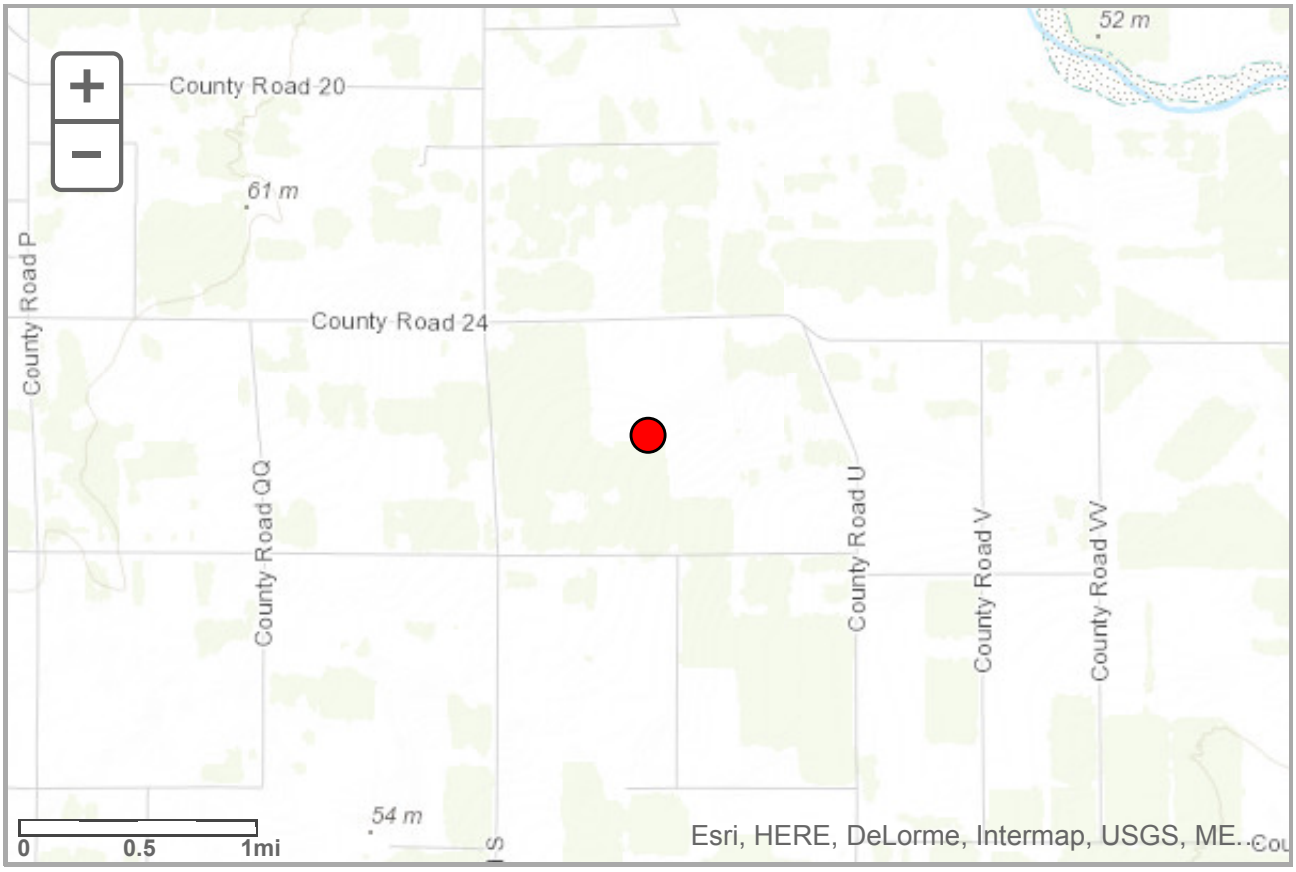
Exhibit 29 - O-12D

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number: 21N02W04G005M
Local Well ID: 21N02W04G005M
Site Code: 397033N1220910W004
Latitude (NAD83): 39.703300
Longitude (NAD83): -122.091
Groundwater Basin (code): Colusa (5-21.52)

Well Use: Observation
Well Status: Active
Well Completion Report Number: E044112
Reference Point Elevation (NAVD88 ft): 181.16
Ground Surface Elevation (NAVD88 ft): 178.41
Total Depth (ft): 99
Perforated Interval Depths (ft): 57.000 67.000

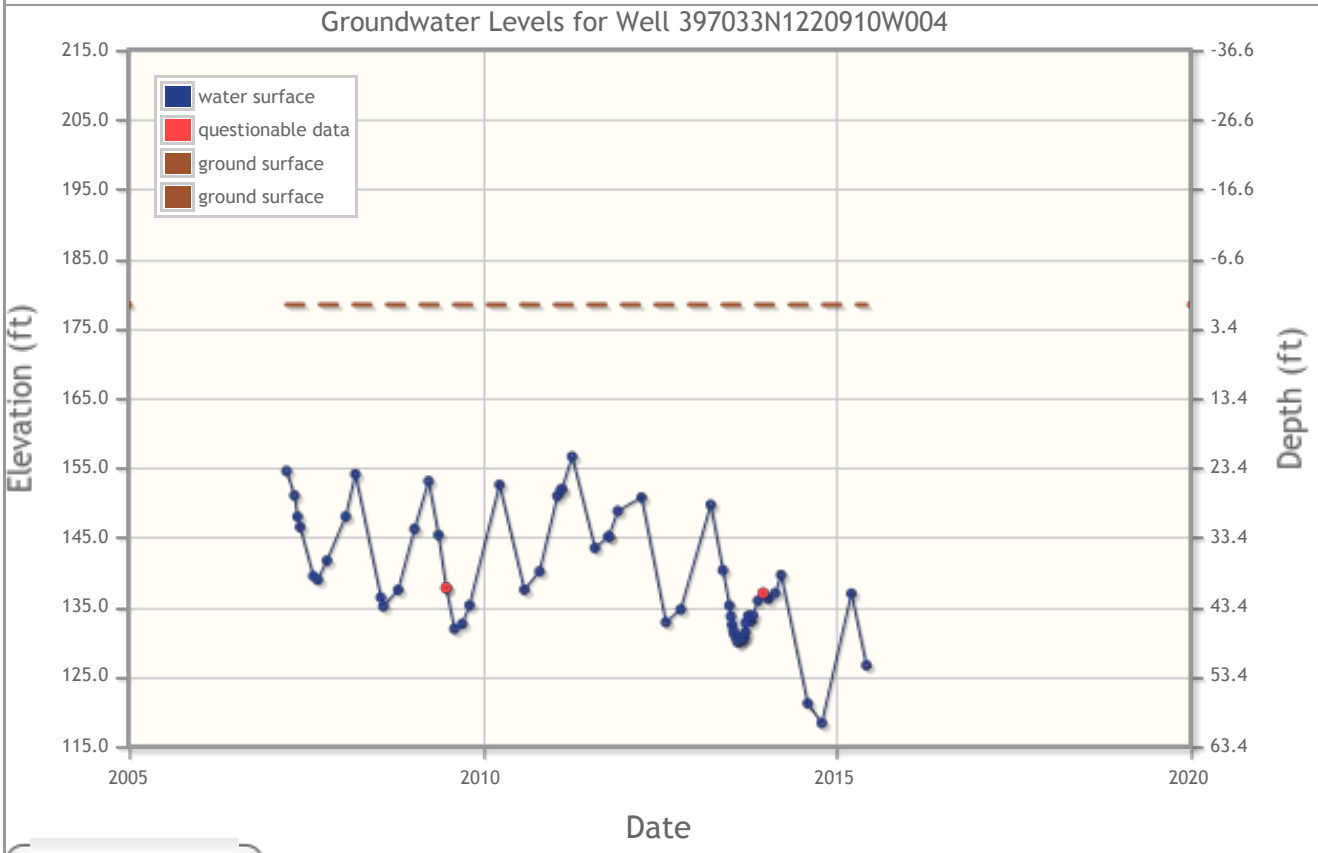


Perform a New Well Search

Groundwater Levels for Station 397033N1220910W004

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
03/22/2007 00:00	181.160	178.410	26.64	154.52	23.89		N	1	
05/02/2007 00:00	181.160	178.410	30.16	151	27.41		N	1	
05/18/2007 00:00	181.160	178.410	33.2	147.96	30.45		N	1	
05/31/2007 00:00	181.160	178.410	34.7	146.46	31.95		N	1	
08/08/2007 00:00	181.160	178.410	41.74	139.42	38.99		N	1	
08/31/2007 00:00	181.160	178.410	42.27	138.89	39.52		N	1	
10/17/2007 00:00	181.160	178.410	39.53	141.63	36.78		N	1	
01/23/2008 00:00	181.160	178.410	33.18	147.98	30.43		N	1	
03/12/2008 00:00	181.160	178.410	27.1	154.06	24.35		N	1	
07/22/2008 00:00	181.160	178.410	44.82	136.34	42.07		N	1	
08/04/2008 00:00	181.160	178.410	46.09	135.07	43.34		N	1	
10/20/2008 00:00	181.160	178.410	43.72	137.44	40.97		N	1	
01/13/2009 00:00	181.160	178.410	34.97	146.19	32.22		N	1	

Groundwater Levels for Station 397325N1221233W001

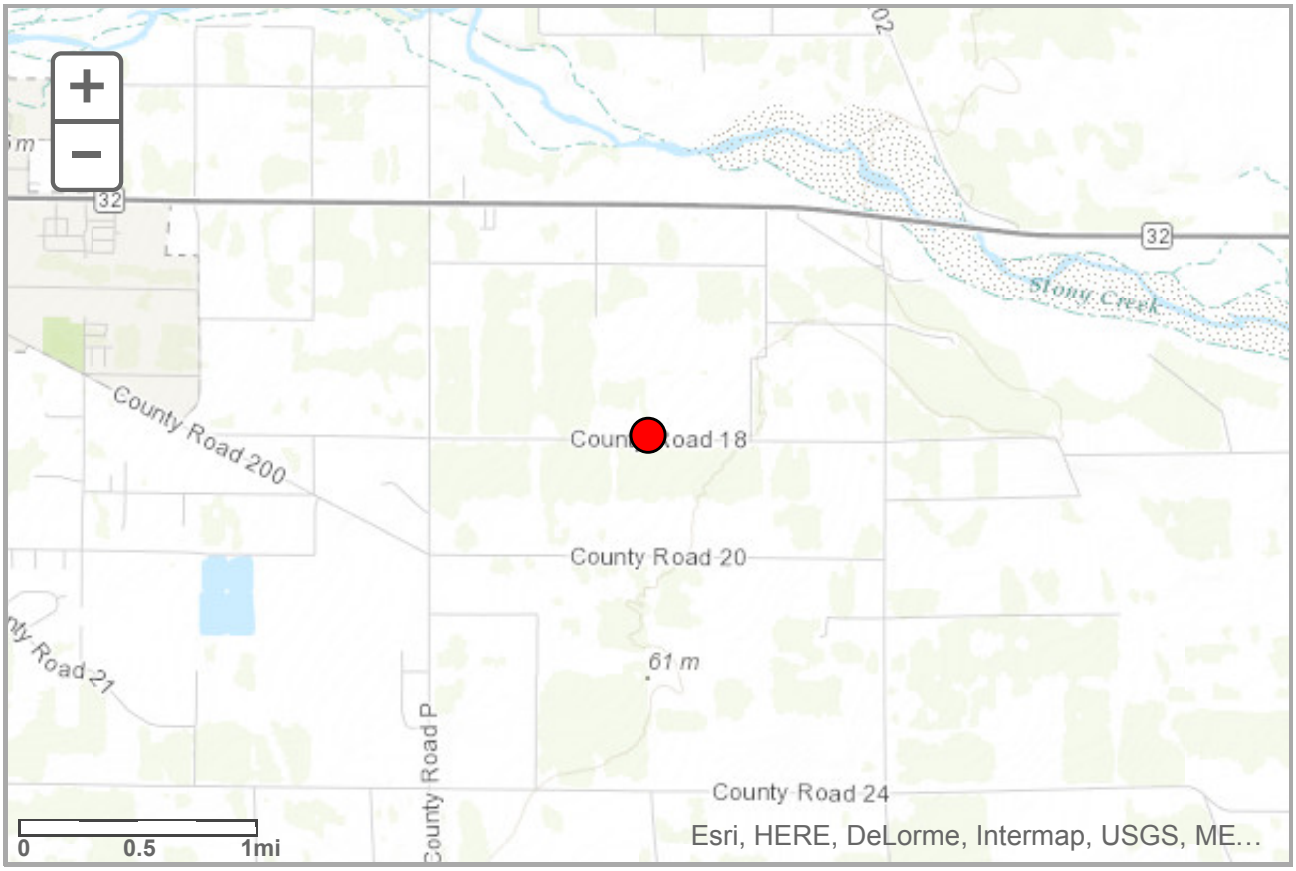
Exhibit 29 - O-13A

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number: 22N02W30H002M
Local Well ID: 22N02W30H002M
Site Code: 397325N1221233W001
Latitude (NAD83): 39.732500
Longitude (NAD83): -122.1233
Groundwater Basin (code): Colusa (5-21.52)

Well Use: Observation
Well Status: Active
Well Completion Report Number: 726922
Reference Point Elevation (NAVD88 ft): 205.22
Ground Surface Elevation (NAVD88 ft): 204.43
Total Depth (ft): 930
Perforated Interval Depths (ft): 850.000 880.000

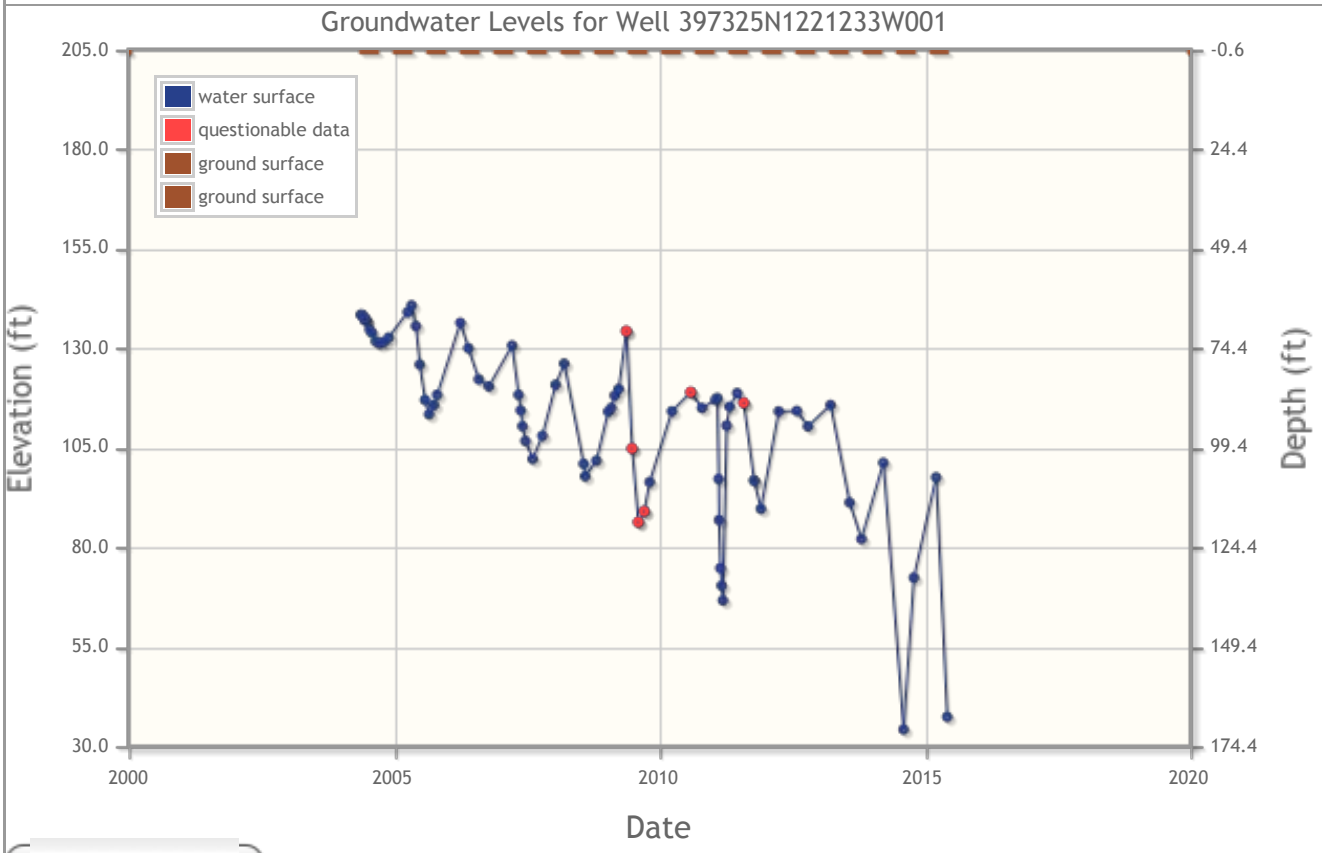


Perform a New Well Search

Groundwater Levels for Station 397325N1221233W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
05/13/2004 00:00	205.220	204.430	66.78	138.44	65.99		N	1	Ne
05/21/2004 00:00	205.220	204.430	66.78	138.44	65.99		N	1	
05/25/2004 00:00	205.220	204.430	66.91	138.31	66.12		N	1	
06/04/2004 00:00	205.220	204.430	67.7	137.52	66.91		N	1	
06/10/2004 00:00	205.220	204.430	68.16	137.06	67.37		N	1	
06/14/2004 00:00	205.220	204.430	68	137.22	67.21		N	1	
06/14/2004 06:00	205.220	204.430	67.98	137.24	67.19		N	1	
06/14/2004 18:00	205.220	204.430	67.94	137.28	67.15		N	1	
07/13/2004 00:00	205.220	204.430	70.5	134.72	69.71		N	1	
07/27/2004 00:00	205.220	204.430	71.3	133.92	70.51		N	1	
08/25/2004 00:00	205.220	204.430	73.5	131.72	72.71		N	1	
09/21/2004 00:00	205.220	204.430	74	131.22	73.21		N	1	
10/20/2004 00:00	205.220	204.430	73.6	131.62	72.81		N	1	

Groundwater Levels for Station 397325N1221233W002

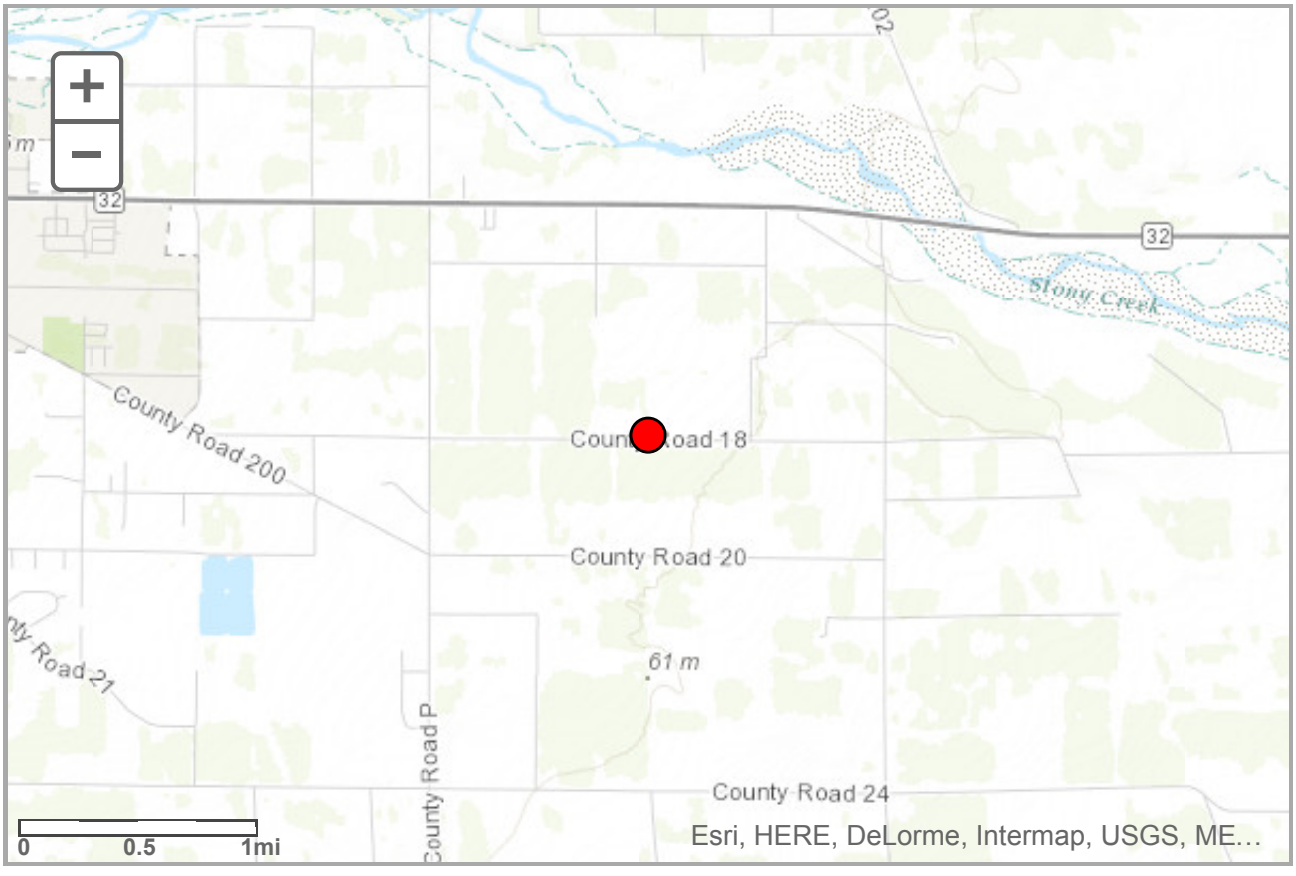
Exhibit 29 - O-13B

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number: 22N02W30H003M
Local Well ID: 22N02W30H003M
Site Code: 397325N1221233W002
Latitude (NAD83): 39.732500
Longitude (NAD83): -122.1233
Groundwater Basin (code): Colusa (5-21.52)

Well Use: Observation
Well Status: Active
Well Completion Report Number: 726922
Reference Point Elevation (NAVD88 ft): 205.77
Ground Surface Elevation (NAVD88 ft): 204.43
Total Depth (ft): 291
Perforated Interval Depths (ft): 130.000 140.000 150.000 160.000 250.000 260.000

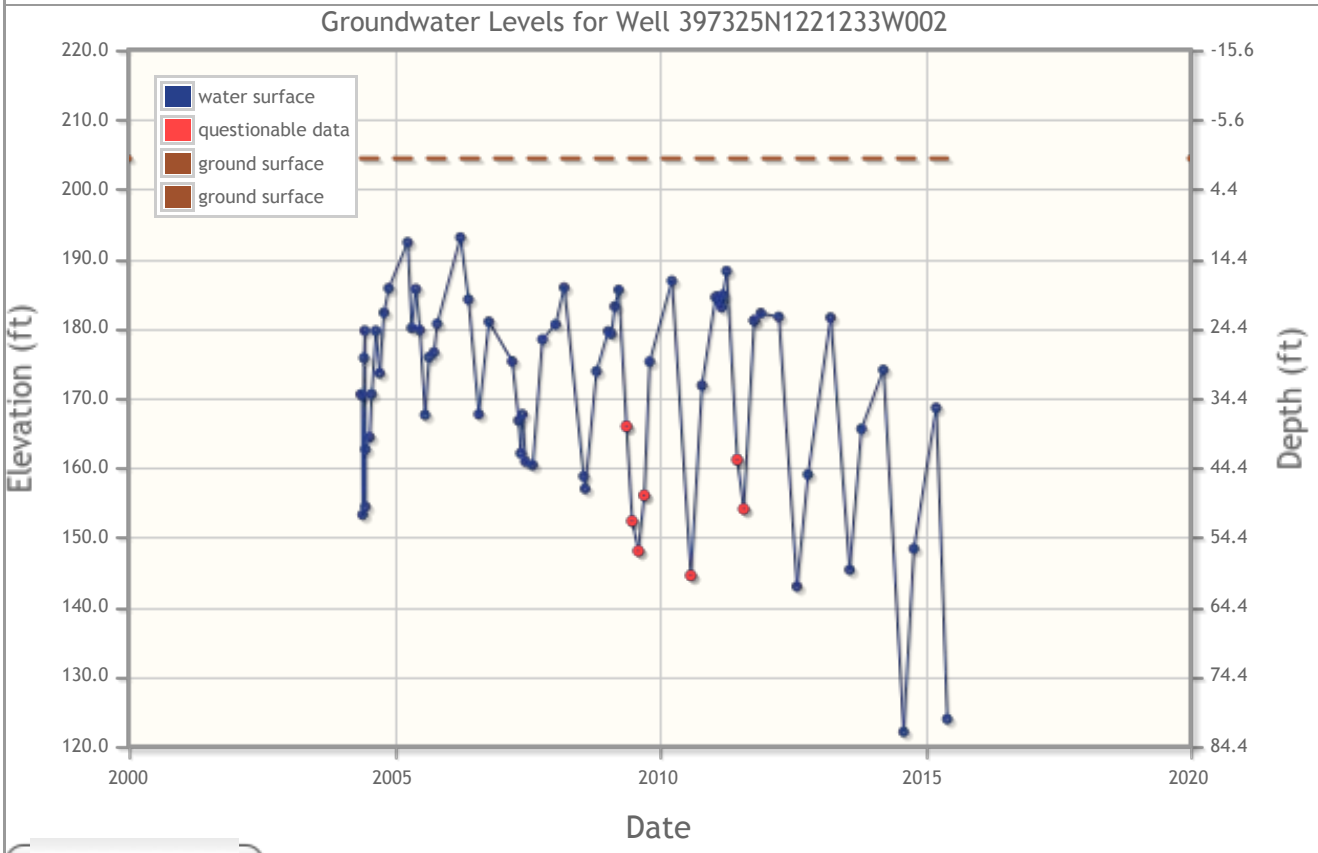


Perform a New Well Search

Groundwater Levels for Station 397325N1221233W002

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
05/13/2004 00:00	205.770	204.430	35.25	170.52	33.91		N	1	Ne
05/21/2004 00:00	205.770	204.430	35.25	170.52	33.91		N	1	
05/25/2004 00:00	205.770	204.430	52.54	153.23	51.2		N	1	
06/04/2004 00:00	205.770	204.430	30	175.77	28.66		N	1	
06/10/2004 00:00	205.770	204.430	26.09	179.68	24.75		N	1	
06/14/2004 06:00	205.770	204.430	51.38	154.39	50.04		N	1	
06/14/2004 18:00	205.770	204.430	43.13	162.64	41.79		N	1	
07/13/2004 00:00	205.770	204.430	41.4	164.37	40.06		N	1	
07/27/2004 00:00	205.770	204.430	35.2	170.57	33.86		N	1	
08/25/2004 00:00	205.770	204.430	26.1	179.67	24.76		N	1	
09/21/2004 00:00	205.770	204.430	32.2	173.57	30.86		N	1	
10/20/2004 00:00	205.770	204.430	23.5	182.27	22.16		N	1	
11/22/2004 00:00	205.770	204.430	20	185.77	18.66		N	1	

Exhibit 29 - O-13C

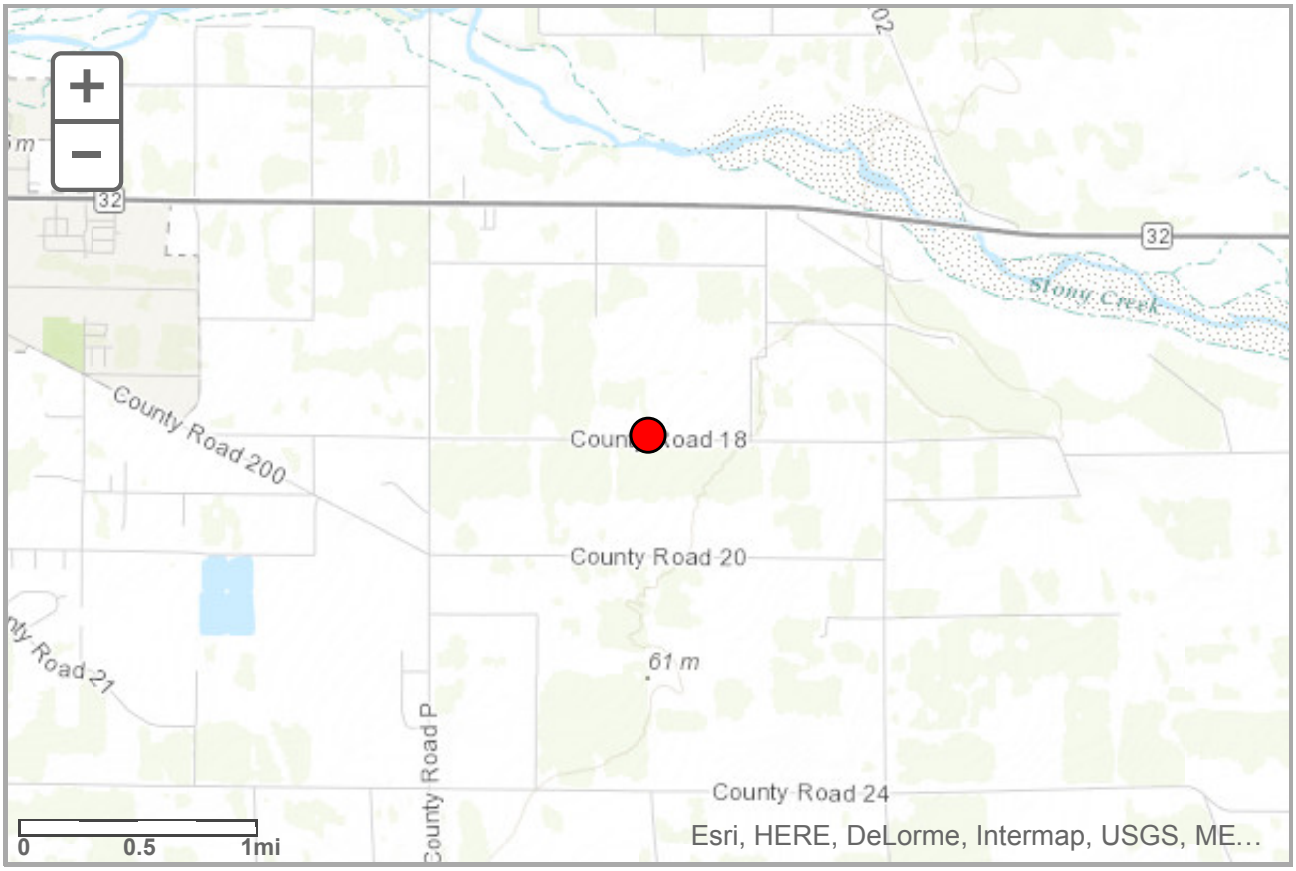
Groundwater Levels for Station 397325N1221233W003

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number: 22N02W30H004M
Local Well ID: 22N02W30H004M
Site Code: 397325N1221233W003
Latitude (NAD83): 39.732500
Longitude (NAD83): -122.1233
Groundwater Basin (code): Colusa (5-21.52)

Well Use: Observation
Well Status: Active
Well Completion Report Number: 726922
Reference Point Elevation (NAVD88 ft): 206.43
Ground Surface Elevation (NAVD88 ft): 204.43
Total Depth (ft): 88
Perforated Interval Depths (ft): 45.000 55.000 60.000 70.000

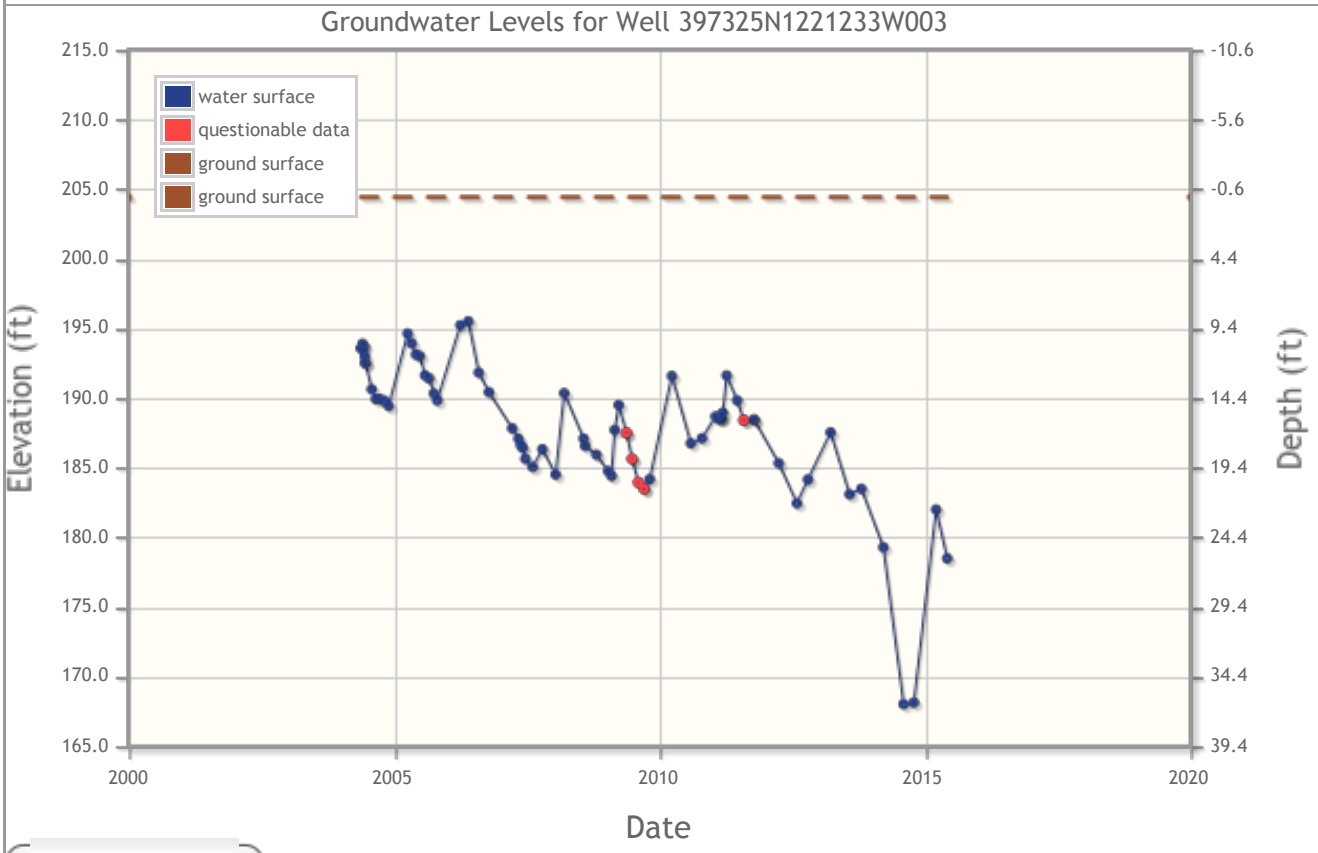


Perform a New Well Search

Groundwater Levels for Station 397325N1221233W003

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
05/13/2004 00:00	206.430	204.430	12.86	193.57	10.86		N	1	Ne
05/21/2004 00:00	206.430	204.430	12.86	193.57	10.86		N	1	
05/25/2004 00:00	206.430	204.430	12.53	193.9	10.53		N	1	
06/04/2004 00:00	206.430	204.430	12.71	193.72	10.71		N	1	
06/10/2004 00:00	206.430	204.430	13.46	192.97	11.46		N	1	
06/14/2004 06:00	206.430	204.430	13.94	192.49	11.94		N	1	
06/14/2004 18:00	206.430	204.430	13.91	192.52	11.91		N	1	
07/27/2004 00:00	206.430	204.430	15.8	190.63	13.8		N	1	
08/25/2004 00:00	206.430	204.430	16.5	189.93	14.5		N	1	
09/21/2004 00:00	206.430	204.430	16.5	189.93	14.5		N	1	
10/20/2004 00:00	206.430	204.430	16.6	189.83	14.6		N	1	
11/22/2004 00:00	206.430	204.430	17	189.43	15		N	1	
03/31/2005 00:00	206.430	204.430	11.8	194.63	9.8		N	1	

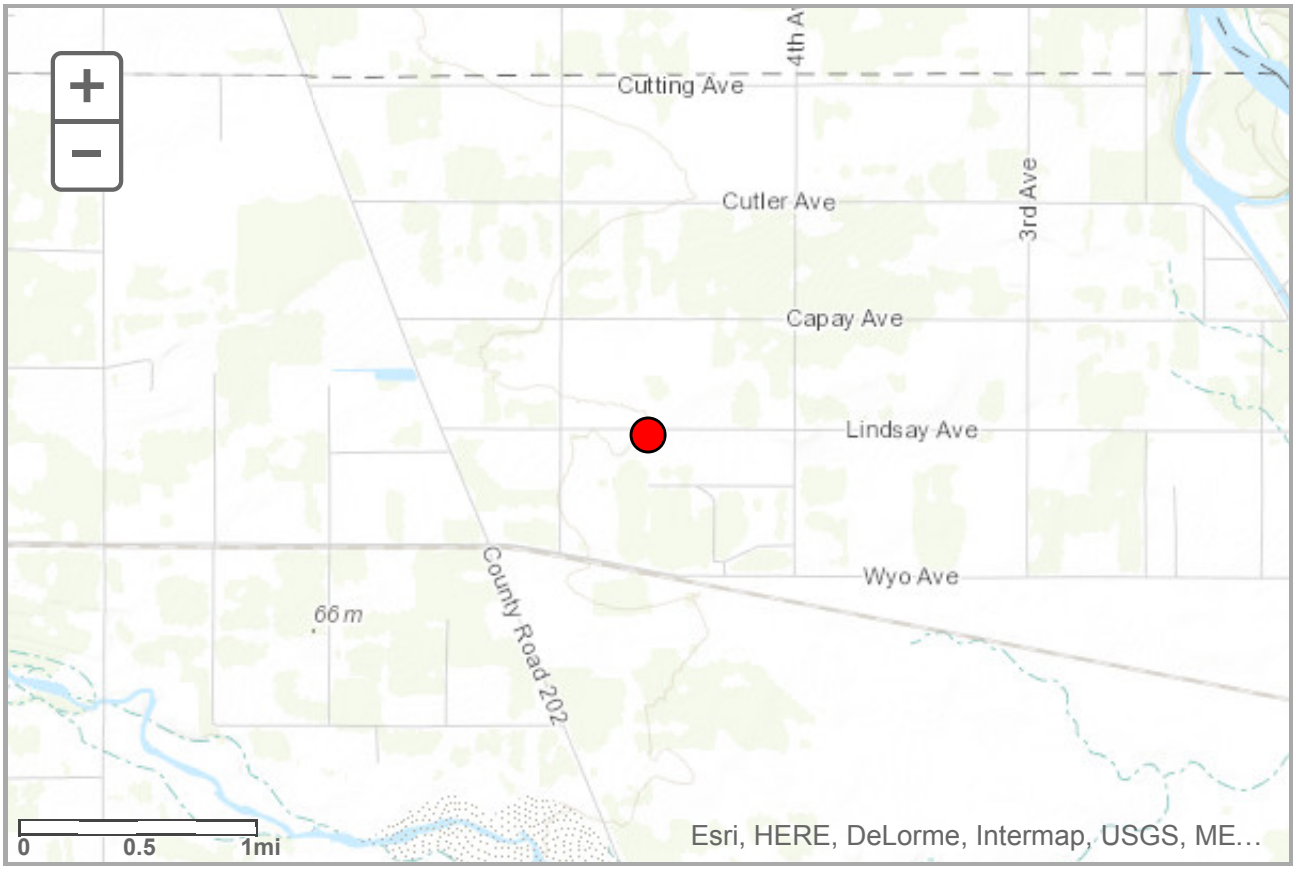
Exhibit 29 - I-14

Groundwater Levels for Station 397752N1220970W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number: 22N02W09L003M	**Well Use:** Irrigation
Local Well ID: 22N02W09L003M	**Well Status:** Active
Site Code: 397752N1220970W001	**Well Completion Report Number:** 10908
Latitude (NAD83): 39.775200	**Reference Point Elevation (NAVD88 ft):** 198.12
Longitude (NAD83): -122.097	**Ground Surface Elevation (NAVD88 ft):** 197.42
Groundwater Basin (code): Corning (5-21.51)	**Total Depth (ft):** Confidential
	Perforated Interval Depths (ft): Confidential

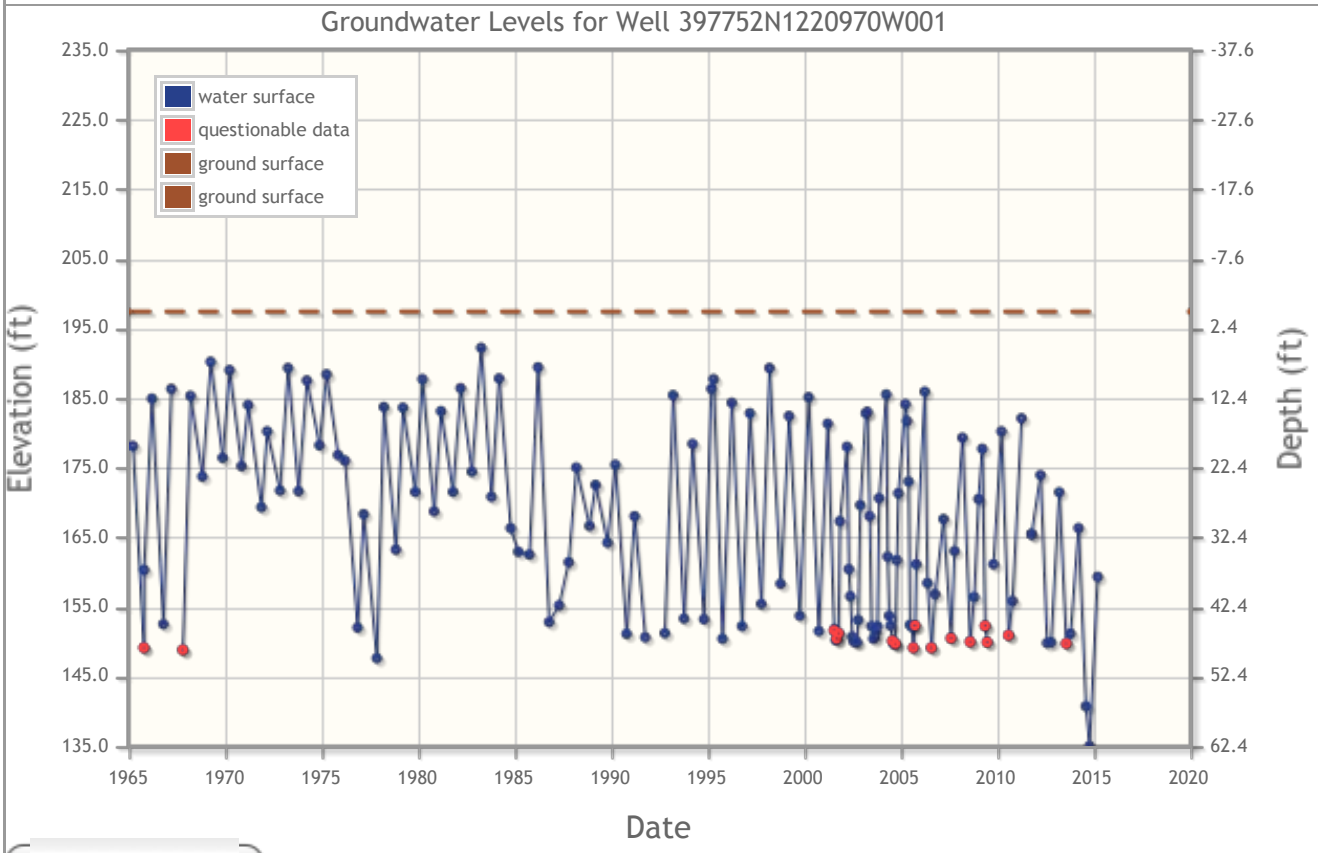


Perform a New Well Search

Groundwater Levels for Station 397752N1220970W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
03/12/1965 00:00	198.120	197.420	20	178.12	19.3		N	308	
10/07/1965 00:00	198.120	197.420	49	149.12	48.3	Q-1	N	308	
10/11/1965 00:00	198.120	197.420	37.8	160.32	37.1		N	308	
03/07/1966 00:00	198.120	197.420	13.2	184.92	12.5		N	308	
10/10/1966 00:00	198.120	197.420	45.6	152.52	44.9		N	308	
03/09/1967 00:00	198.120	197.420	11.8	186.32	11.1		N	308	
10/12/1967 00:00	198.120	197.420				N-1	N	308	
10/13/1967 00:00	198.120	197.420				N-1	N	308	
10/14/1967 00:00	198.120	197.420	49.3	148.82	48.6	Q-4	N	308	
03/07/1968 00:00	198.120	197.420	12.8	185.32	12.1		N	308	
10/18/1968 00:00	198.120	197.420	24.4	173.72	23.7		N	308	
03/24/1969 00:00	198.120	197.420	7.9	190.22	7.2		N	308	
11/06/1969 00:00	198.120	197.420	21.7	176.42	21		N	308	

Exhibit 29 - O-15A

Groundwater Levels for Station 397836N1220461W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number: 22N02W01N001M
Local Well ID: 22N02W01N001M
Site Code: 397836N1220461W001
Latitude (NAD83): 39.783564
Longitude (NAD83): -122.046138
Groundwater Basin (code): Corning (5-21.51)

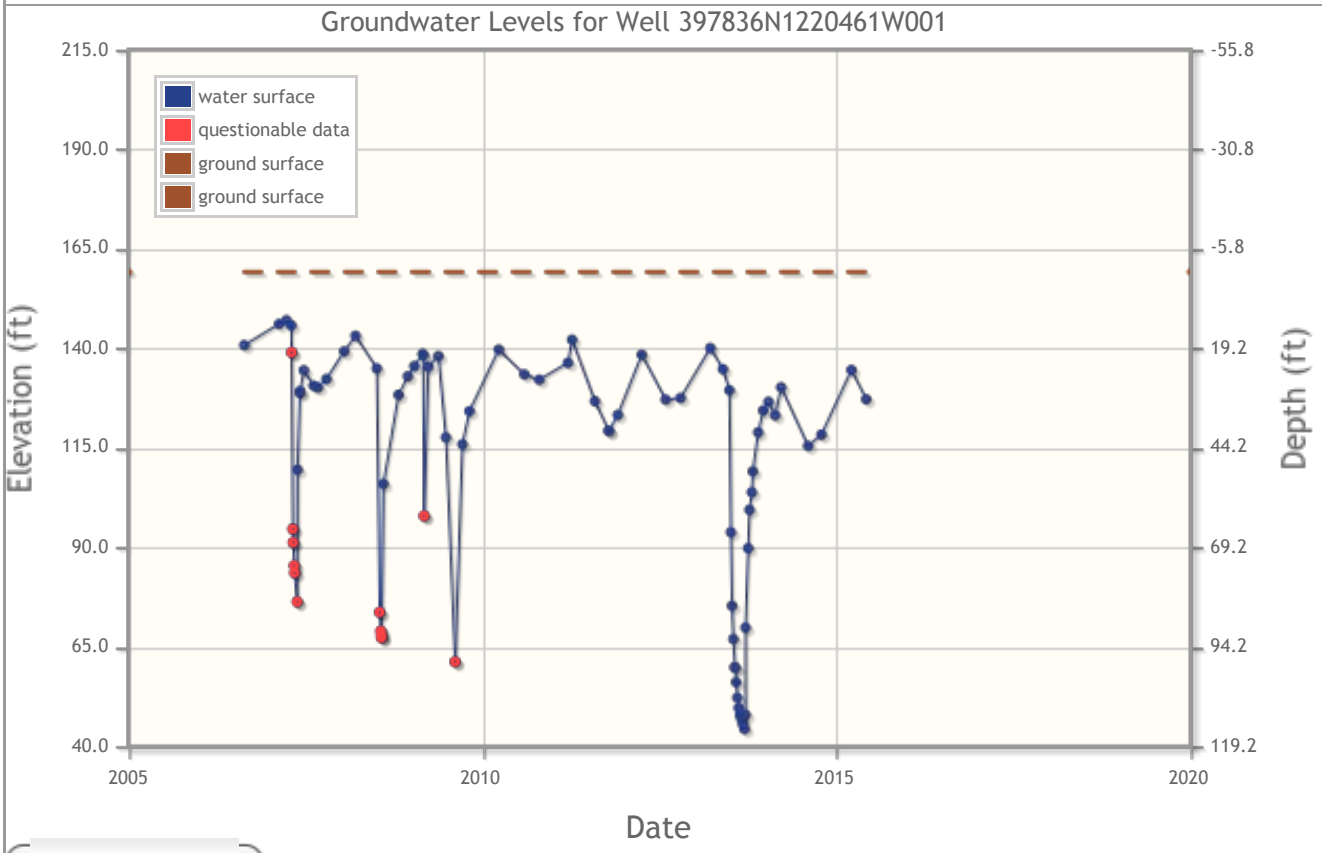
Well Use: Observation
Well Status: Active
Well Completion Report Number: E038764
Reference Point Elevation (NAVD88 ft): 161.07
Ground Surface Elevation (NAVD88 ft): 159.21
Total Depth (ft): 1100
Perforated Interval Depths (ft): 810.000 820.000 1040.000 1050.000

Perform a New Well Search

Groundwater Levels for Station 397836N1220461W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
08/17/2006 00:00	161.065	159.205	20.26	140.805	18.4		N	1	
02/14/2007 00:00	161.065	159.205	14.94	146.125	13.08		N	1	NE
03/22/2007 00:00	161.065	159.205	14	147.065	12.14		N	1	
04/16/2007 00:00	161.065	159.205	15.3	145.765	13.44		N	1	
04/18/2007 00:00	161.065	159.205	22.1	138.965	20.24	Q-2	N	1	
04/24/2007 00:00	161.065	159.205	66.5	94.565	64.64	Q-2	N	1	
04/26/2007 00:00	161.065	159.205	69.9	91.165	68.04	Q-2	N	1	
05/01/2007 00:00	161.065	159.205	75.7	85.365	73.84	Q-2	N	1	
05/03/2007 00:00	161.065	159.205	77.52	83.545	75.66	Q-2	N	1	
05/16/2007 00:00	161.065	159.205	84.8	76.265	82.94	Q-2	N	1	
05/18/2007 00:00	161.065	159.205	51.6	109.465	49.74		N	1	
05/30/2007 00:00	161.065	159.205	32.3	128.765	30.44		N	1	
05/31/2007 00:00	161.065	159.205	31.8	129.265	29.94		N	1	

Groundwater Levels for Station 397836N1220461W002

Exhibit 29 - O-15B

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number: 22N02W01N002M
Local Well ID: 22N02W01N002M
Site Code: 397836N1220461W002
Latitude (NAD83): 39.783564
Longitude (NAD83): -122.046138
Groundwater Basin (code): Corning (5-21.51)

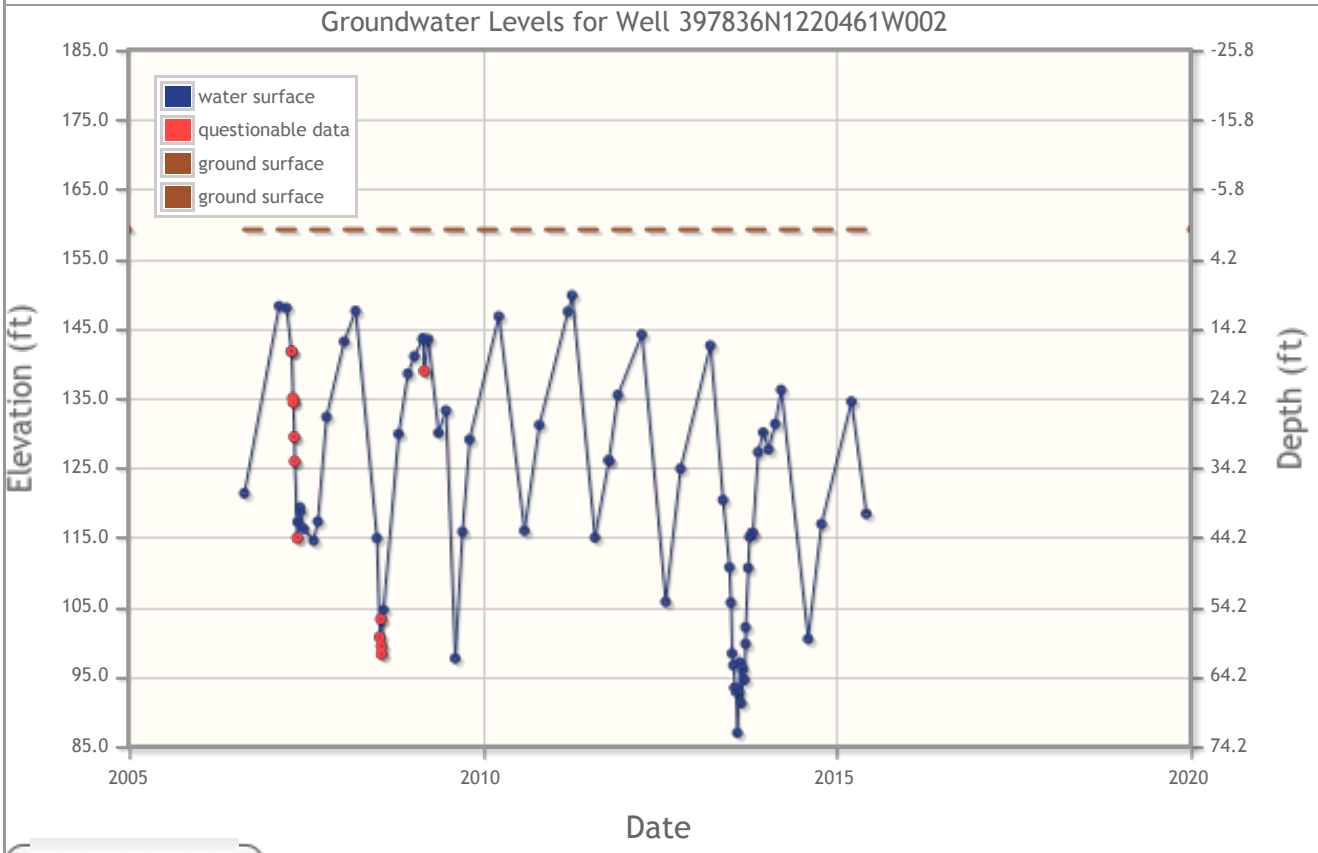
Well Use: Observation
Well Status: Active
Well Completion Report Number: E038764
Reference Point Elevation (NAVD88 ft): 161.31
Ground Surface Elevation (NAVD88 ft): 159.21
Total Depth (ft): 730
Perforated Interval Depths (ft): 700.000 710.000

Perform a New Well Search

Groundwater Levels for Station 397836N1220461W002

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
08/17/2006 00:00	161.305	159.205	39.99	121.315	37.89		N	1	
02/14/2007 00:00	161.305	159.205	13.09	148.215	10.99		N	1	NE
03/22/2007 00:00	161.305	159.205	13.35	147.955	11.25		N	1	
04/16/2007 00:00	161.305	159.205	19.6	141.705	17.5		N	1	
04/18/2007 00:00	161.305	159.205	19.6	141.705	17.5	Q-2	N	1	
04/24/2007 00:00	161.305	159.205	26.3	135.005	24.2	Q-2	N	1	
04/26/2007 00:00	161.305	159.205	26.9	134.405	24.8	Q-2	N	1	
05/01/2007 00:00	161.305	159.205	31.9	129.405	29.8	Q-2	N	1	
05/03/2007 00:00	161.305	159.205	35.4	125.905	33.3	Q-2	N	1	
05/16/2007 00:00	161.305	159.205	46.4	114.905	44.3	Q-2	N	1	
05/18/2007 00:00	161.305	159.205	44.1	117.205	42		N	1	
05/30/2007 00:00	161.305	159.205	42	119.305	39.9		N	1	
05/31/2007 00:00	161.305	159.205	42.6	118.705	40.5		N	1	

Exhibit 29 - O-15C

Groundwater Levels for Station 397836N1220461W003

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number: 22N02W01N003M
Local Well ID: 22N02W01N003M
Site Code: 397836N1220461W003
Latitude (NAD83): 39.783564
Longitude (NAD83): -122.046138
Groundwater Basin (code): Corning (5-21.51)

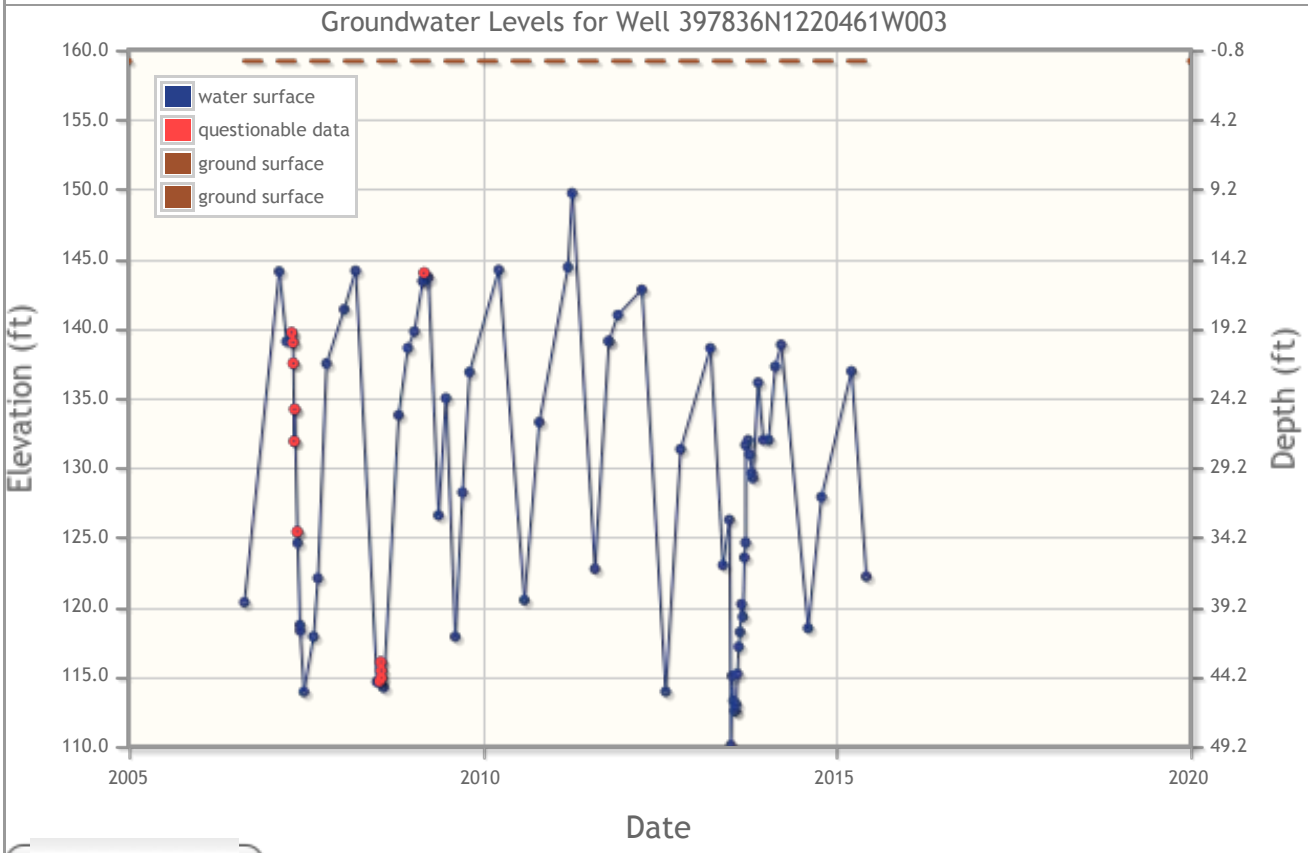
Well Use: Observation
Well Status: Active
Well Completion Report Number: E038764
Reference Point Elevation (NAVD88 ft): 161.50
Ground Surface Elevation (NAVD88 ft): 159.21
Total Depth (ft): 440
Perforated Interval Depths (ft): 210.000 220.000 360.000 370.000

Perform a New Well Search

Groundwater Levels for Station 397836N1220461W003

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
08/17/2006 00:00	161.495	159.205	41.17	120.325	38.88		N	1	
02/14/2007 00:00	161.495	159.205	17.4	144.095	15.11		N	1	NE
03/22/2007 00:00	161.495	159.205	22.43	139.065	20.14		N	1	
04/16/2007 00:00	161.495	159.205	22	139.495	19.71		N	1	
04/18/2007 00:00	161.495	159.205	21.8	139.695	19.51	Q-2	N	1	
04/24/2007 00:00	161.495	159.205	22.5	138.995	20.21	Q-2	N	1	
04/26/2007 00:00	161.495	159.205	24	137.495	21.71	Q-2	N	1	
05/01/2007 00:00	161.495	159.205	29.6	131.895	27.31	Q-2	N	1	
05/03/2007 00:00	161.495	159.205	27.3	134.195	25.01	Q-2	N	1	
05/16/2007 00:00	161.495	159.205	36.1	125.395	33.81	Q-2	N	1	
05/18/2007 00:00	161.495	159.205	36.9	124.595	34.61		N	1	
05/30/2007 00:00	161.495	159.205	42.8	118.695	40.51		N	1	
05/31/2007 00:00	161.495	159.205	43.2	118.295	40.91		N	1	

Groundwater Levels for Station 397836N1220461W004

Exhibit 29 - O-15D

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number: 22N02W01N004M
Local Well ID: 22N02W01N004M
Site Code: 397836N1220461W004
Latitude (NAD83): 39.783564
Longitude (NAD83): -122.046138
Groundwater Basin (code): Corning (5-21.51)

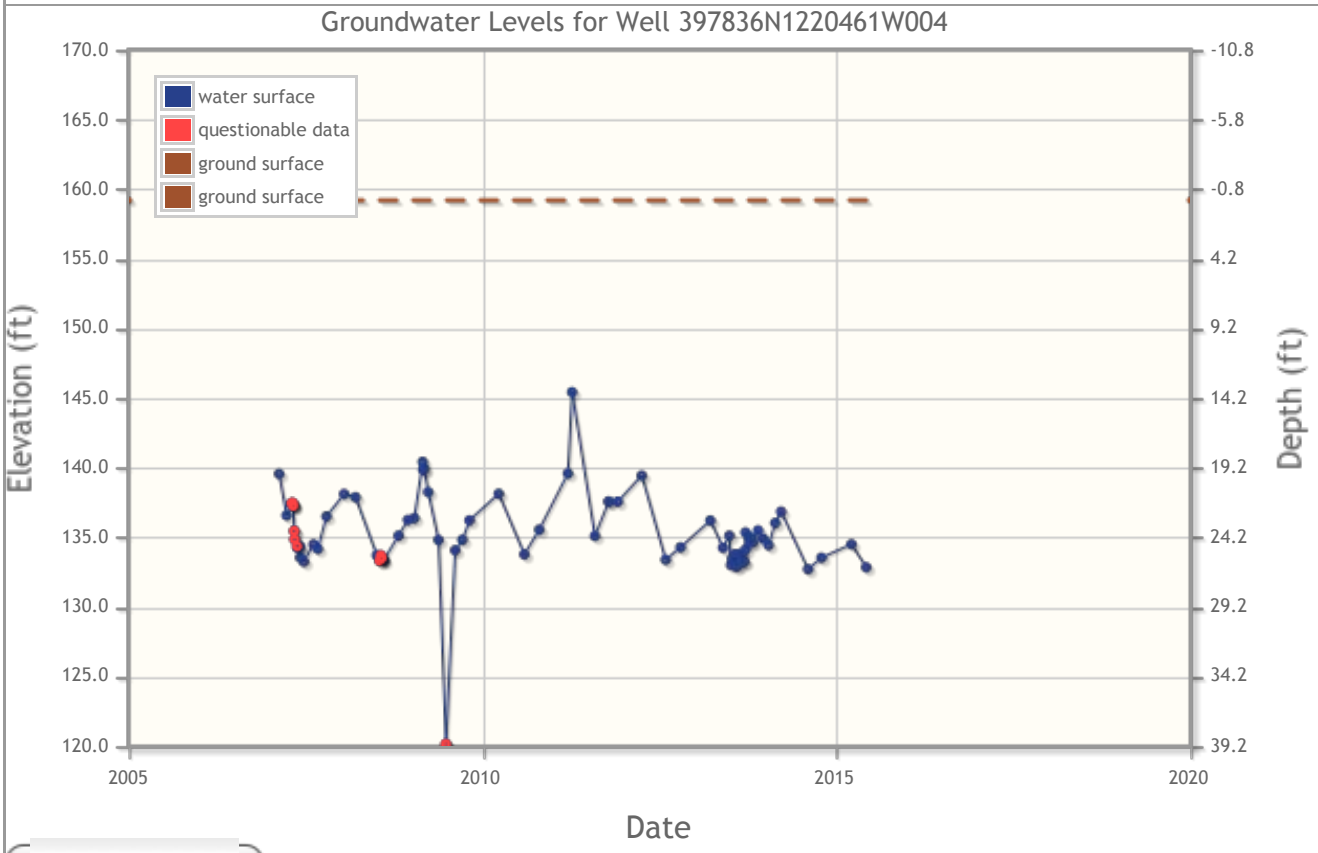
Well Use: Observation
Well Status: Active
Well Completion Report Number: E038764
Reference Point Elevation (NAVD88 ft): 161.65
Ground Surface Elevation (NAVD88 ft): 159.21
Total Depth (ft): 108
Perforated Interval Depths (ft): 70.000 80.000

Perform a New Well Search

Groundwater Levels for Station 397836N1220461W004

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
02/14/2007 00:00	161.645	159.205	22.09	139.555	19.65		N	1	ME
03/22/2007 00:00	161.645	159.205	25.07	136.575	22.63		N	1	
04/16/2007 00:00	161.645	159.205	24.3	137.345	21.86		N	1	
04/18/2007 00:00	161.645	159.205	24.2	137.445	21.76	Q-2	N	1	
04/24/2007 00:00	161.645	159.205	24.2	137.445	21.76	Q-2	N	1	
04/26/2007 00:00	161.645	159.205	24.4	137.245	21.96	Q-2	N	1	
05/01/2007 00:00	161.645	159.205	26.2	135.445	23.76	Q-2	N	1	
05/03/2007 00:00	161.645	159.205	26.8	134.845	24.36	Q-2	N	1	
05/16/2007 00:00	161.645	159.205	27.3	134.345	24.86	Q-2	N	1	
05/18/2007 00:00	161.645	159.205	27.4	134.245	24.96		N	1	
05/30/2007 00:00	161.645	159.205	27.3	134.345	24.86		N	1	
05/31/2007 00:00	161.645	159.205	28.1	133.545	25.66		N	1	
06/20/2007 00:00	161.645	159.205	28.4	133.245	25.96		N	1	

Groundwater Levels for Station 397866N1221455W001

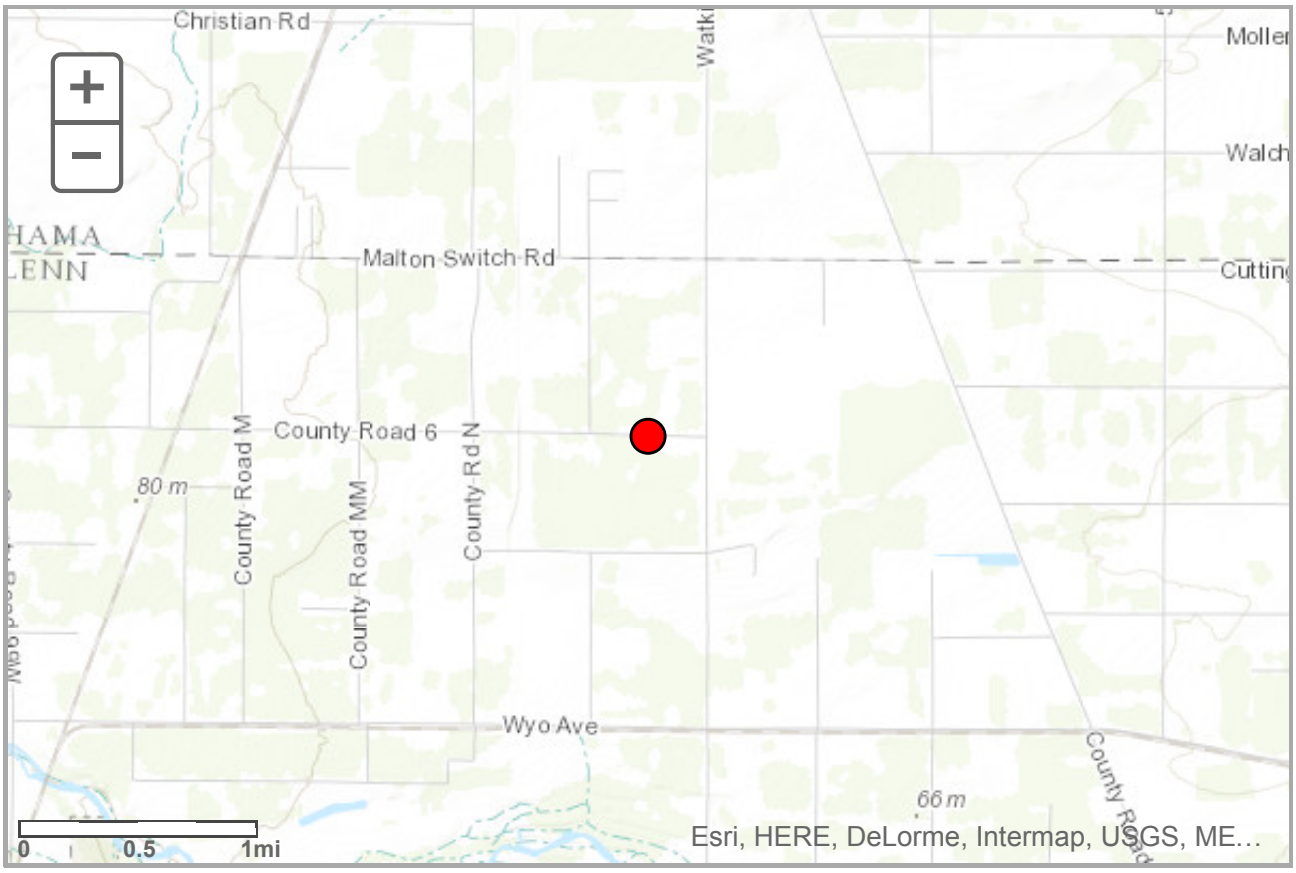
Exhibit 29 - O-16A

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number: 22N03W01R001M
Local Well ID: 22N03W01R001M
Site Code: 397866N1221455W001
Latitude (NAD83): 39.786619
Longitude (NAD83): -122.1455
Groundwater Basin (code): Corning (5-21.51)

Well Use: Observation
Well Status: Active
Well Completion Report Number: 726839
Reference Point Elevation (NAVD88 ft): 228.17
Ground Surface Elevation (NAVD88 ft): 225.97
Total Depth (ft): 515
Perforated Interval Depths (ft): 470.000 480.000

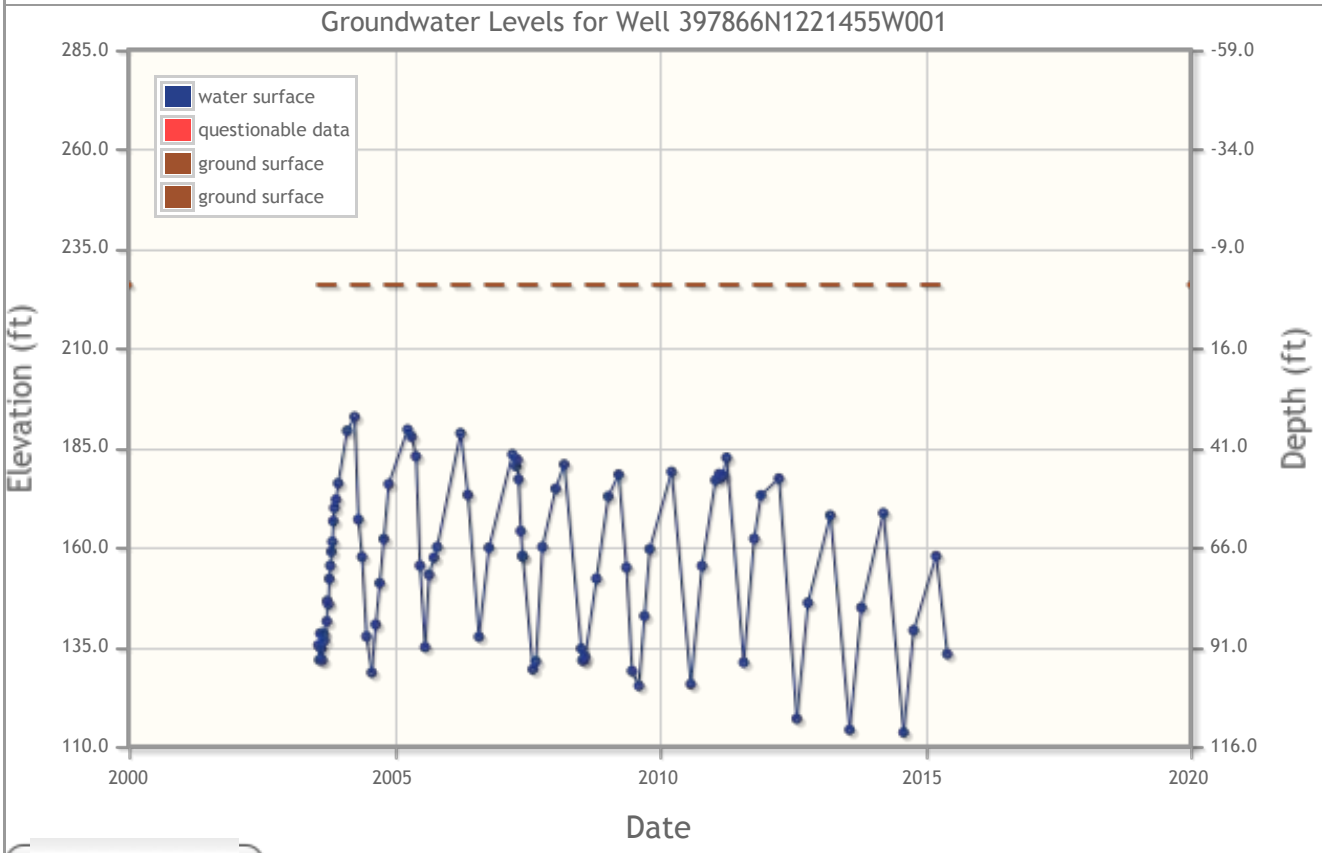


Perform a New Well Search

Groundwater Levels for Station 397866N1221455W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
07/24/2003 00:00	228.174	225.974	92.82	135.354	90.62		N	1	
07/31/2003 00:00	228.174	225.974	96.52	131.654	94.32		N	1	
08/07/2003 00:00	228.174	225.974	89.87	138.304	87.67		N	1	
08/14/2003 00:00	228.174	225.974	93.65	134.524	91.45		N	1	
08/21/2003 00:00	228.174	225.974	96.55	131.624	94.35		N	1	
08/26/2003 00:00	228.174	225.974	89.8	138.374	87.6		N	1	
08/28/2003 00:00	228.174	225.974	89.76	138.414	87.56		N	1	
09/04/2003 00:00	228.174	225.974	91.7	136.474	89.5		N	1	
09/22/2003 00:00	228.174	225.974	86.8	141.374	84.6		N	1	
09/25/2003 00:00	228.174	225.974	81.7	146.474	79.5		N	1	
10/02/2003 00:00	228.174	225.974	82.5	145.674	80.3		N	1	
10/09/2003 00:00	228.174	225.974	76.1	152.074	73.9		N	1	
10/16/2003 00:00	228.174	225.974	72.8	155.374	70.6		N	1	

Exhibit 29 - O-16B

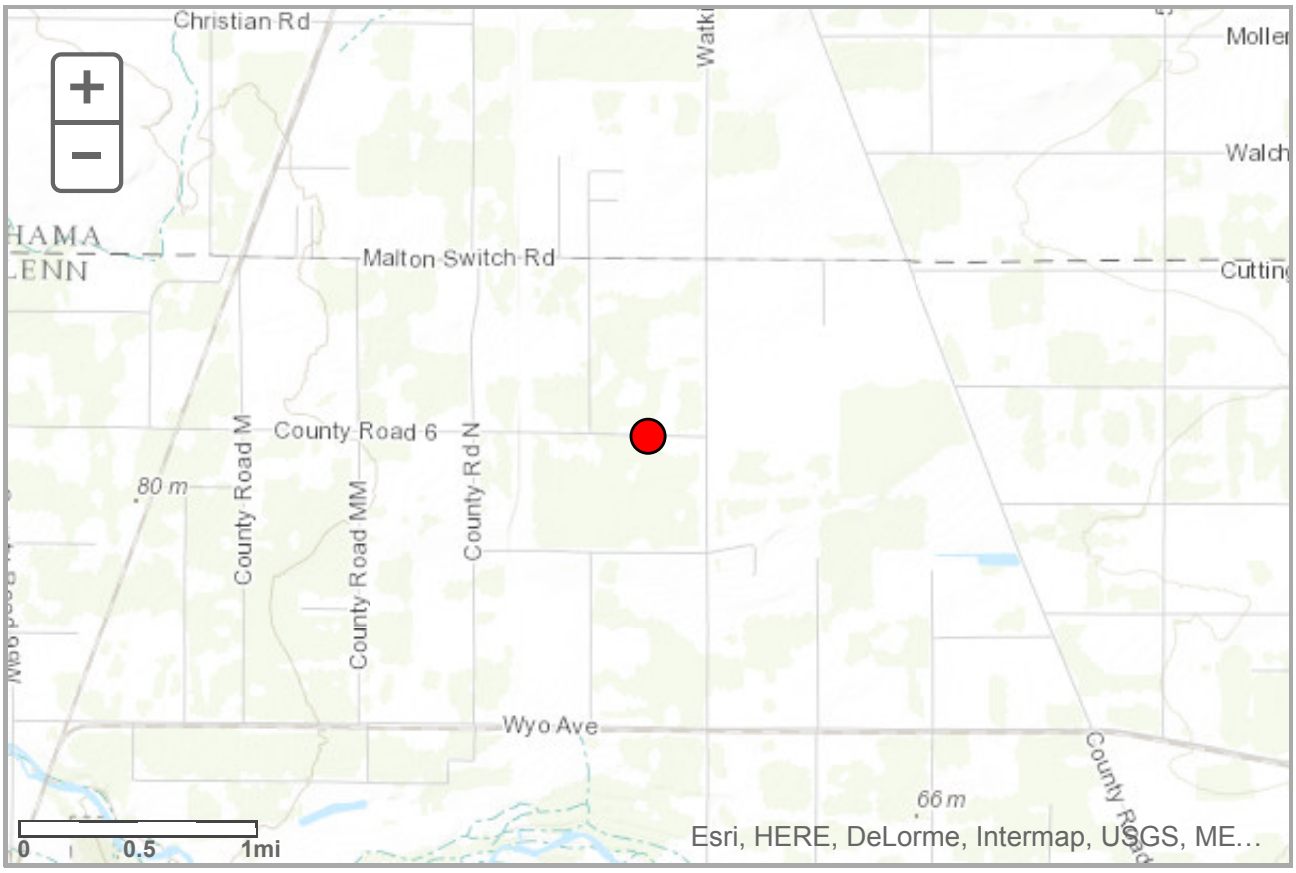
Groundwater Levels for Station 397866N1221455W002

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number:	22N03W01R002M
Local Well ID:	22N03W01R002M
Site Code:	397866N1221455W002
Latitude (NAD83):	39.786619
Longitude (NAD83):	-122.145519
Groundwater Basin (code):	Corning (5-21.51)

Well Use:	Observation
Well Status:	Active
Well Completion Report Number:	726839
Reference Point Elevation (NAVD88 ft):	228.53
Ground Surface Elevation (NAVD88 ft):	226.03
Total Depth (ft):	314
Perforated Interval Depths (ft):	270.000 280.000

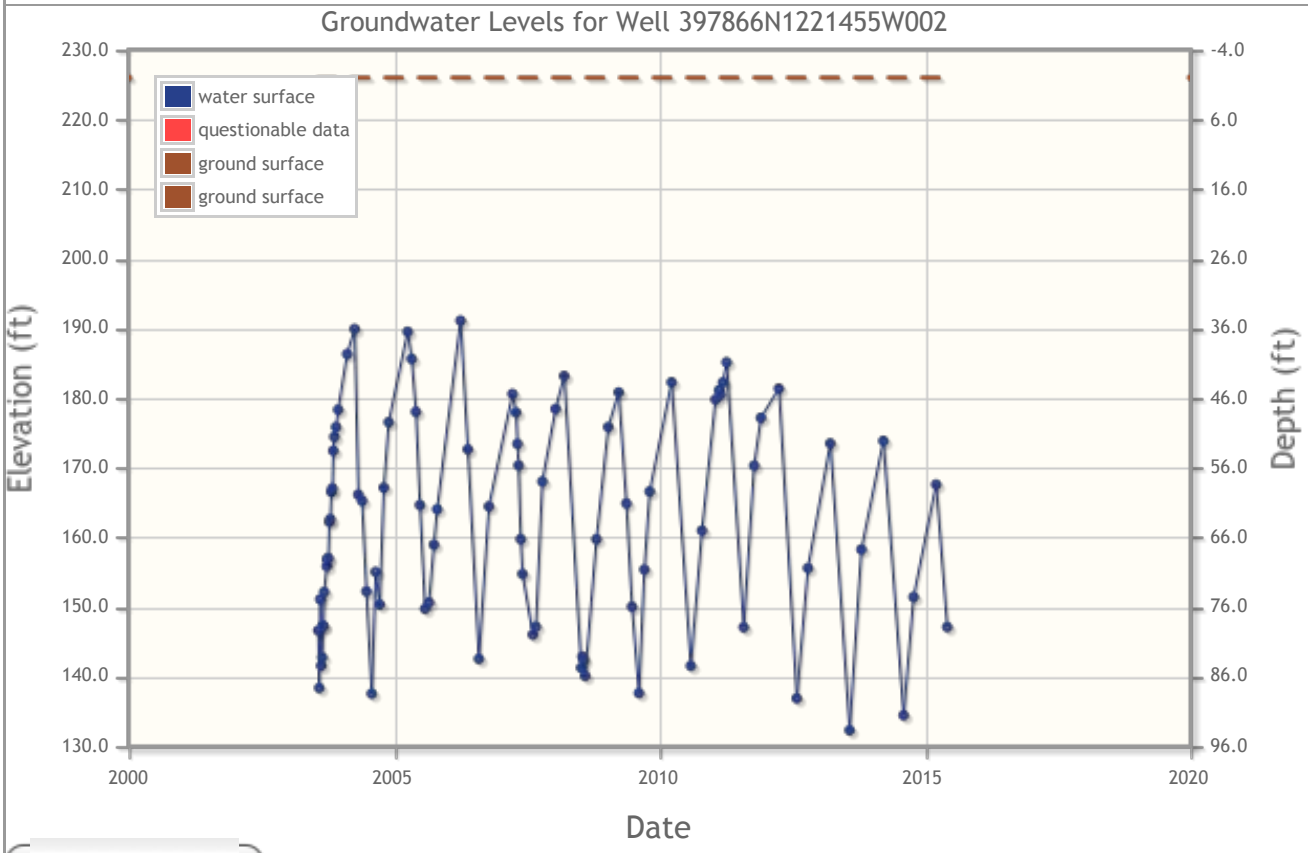


Perform a New Well Search

Groundwater Levels for Station 397866N1221455W002

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
07/24/2003 00:00	228.529	226.029	81.92	146.609	79.42		N	1	
07/31/2003 00:00	228.529	226.029	90.18	138.349	87.68		N	1	
08/07/2003 00:00	228.529	226.029	77.45	151.079	74.95		N	1	
08/14/2003 00:00	228.529	226.029	87	141.529	84.5		N	1	
08/21/2003 00:00	228.529	226.029	85.78	142.749	83.28		N	1	
08/26/2003 00:00	228.529	226.029	81.2	147.329	78.7		N	1	
08/28/2003 00:00	228.529	226.029	81.33	147.199	78.83		N	1	
09/04/2003 00:00	228.529	226.029	76.4	152.129	73.9		N	1	
09/22/2003 00:00	228.529	226.029	72.7	155.829	70.2		N	1	
09/25/2003 00:00	228.529	226.029	71.7	156.829	69.2		N	1	
10/02/2003 00:00	228.529	226.029	71.5	157.029	69		N	1	
10/09/2003 00:00	228.529	226.029	66.3	162.229	63.8		N	1	
10/16/2003 00:00	228.529	226.029	65.9	162.629	63.4		N	1	

Exhibit 29 - O-16C

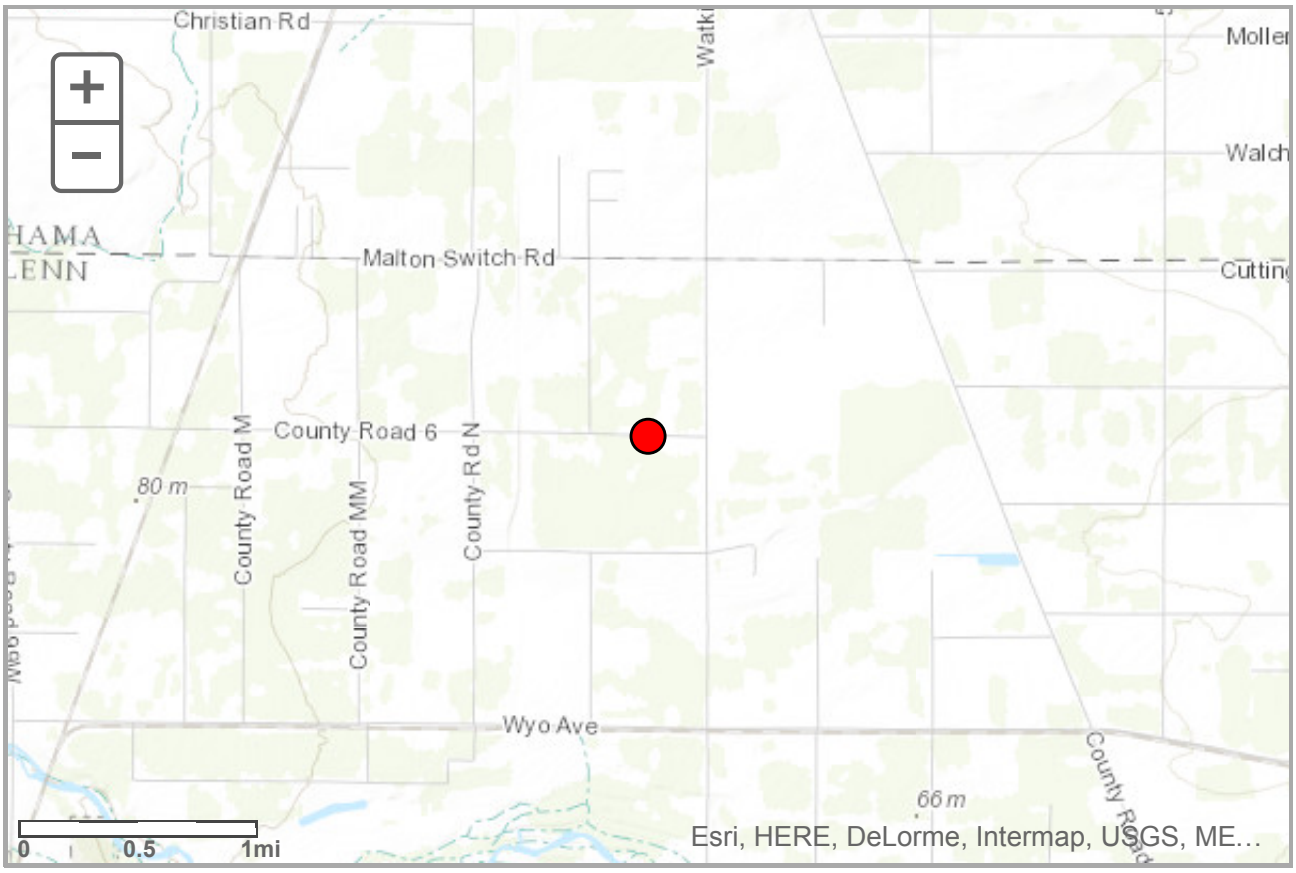
Groundwater Levels for Station 397866N1221455W003

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number: 22N03W01R003M
Local Well ID: 22N03W01R003M
Site Code: 397866N1221455W003
Latitude (NAD83): 39.786619
Longitude (NAD83): -122.145519
Groundwater Basin (code): Corning (5-21.51)

Well Use: Observation
Well Status: Active
Well Completion Report Number: 726839
Reference Point Elevation (NAVD88 ft): 229.04
Ground Surface Elevation (NAVD88 ft): 226.04
Total Depth (ft): 103
Perforated Interval Depths (ft): 60.000 70.000

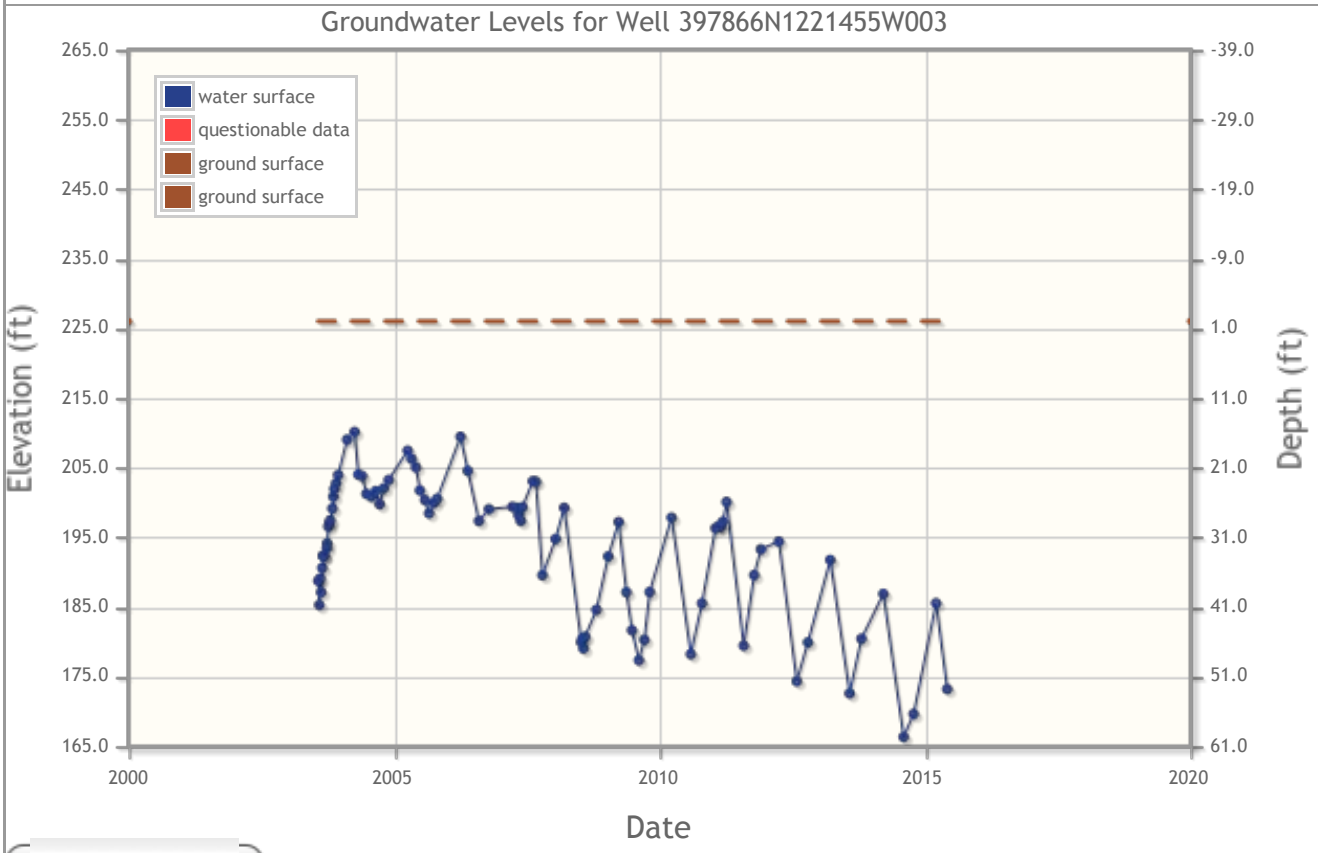


Perform a New Well Search

Groundwater Levels for Station 397866N1221455W003

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
07/24/2003 00:00	229.039	226.039	40.31	188.729	37.31		N	1	
07/31/2003 00:00	229.039	226.039	43.77	185.269	40.77		N	1	
08/07/2003 00:00	229.039	226.039	39.97	189.069	36.97		N	1	
08/14/2003 00:00	229.039	226.039	41.95	187.089	38.95		N	1	
08/21/2003 00:00	229.039	226.039	38.45	190.589	35.45		N	1	
08/26/2003 00:00	229.039	226.039	36.7	192.339	33.7		N	1	
08/28/2003 00:00	229.039	226.039	36.73	192.309	33.73		N	1	
09/04/2003 00:00	229.039	226.039	36.7	192.339	33.7		N	1	
09/22/2003 00:00	229.039	226.039	35.6	193.439	32.6		N	1	
09/25/2003 00:00	229.039	226.039	34.9	194.139	31.9		N	1	
10/02/2003 00:00	229.039	226.039	32.5	196.539	29.5		N	1	
10/09/2003 00:00	229.039	226.039	32	197.039	29		N	1	
10/16/2003 00:00	229.039	226.039	31.6	197.439	28.6		N	1	

Groundwater Levels for Station 397871N1220100W001

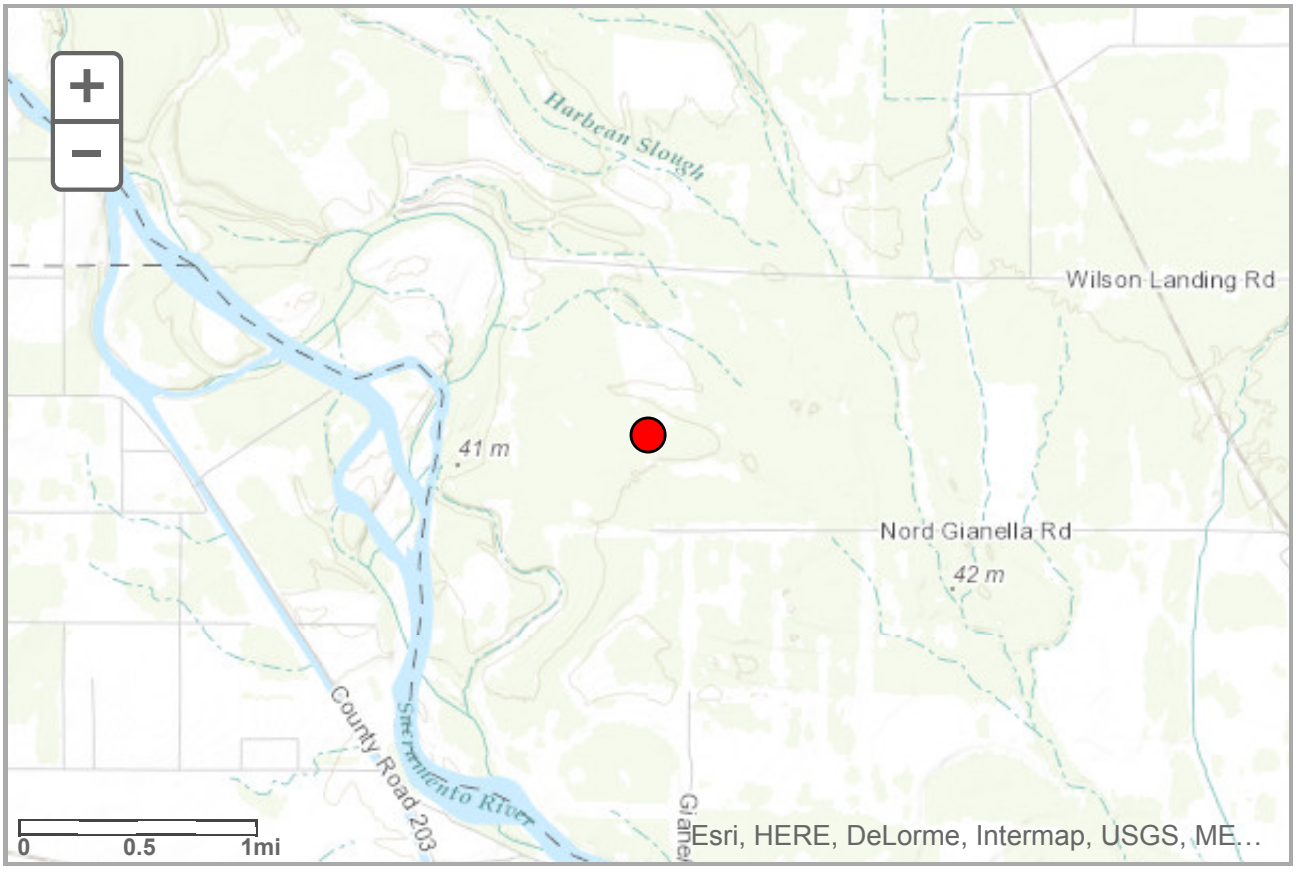
Exhibit 29 - 1-17

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number: 22N01W05M001M
Local Well ID: 22N01W05M001M
Site Code: 397871N1220100W001
Latitude (NAD83): 39.787113
Longitude (NAD83): -122.010001
Groundwater Basin (code): Vina (5-21.57)

Well Use: Irrigation
Well Status: Active
Well Completion Report Number:
Reference Point Elevation (NAVD88 ft): 153.28
Ground Surface Elevation (NAVD88 ft): 151.48
Total Depth (ft): 200
Perforated Interval Depths (ft):

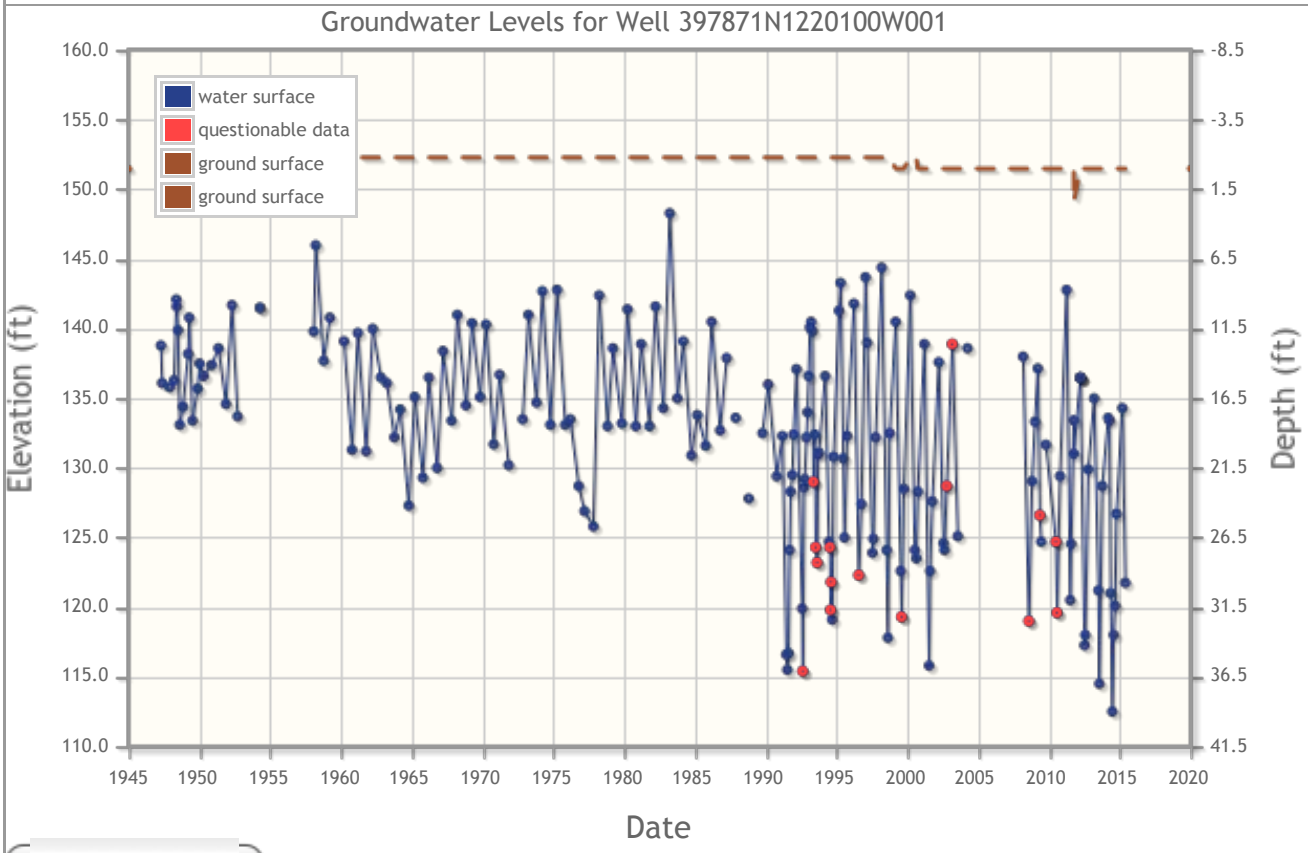


Perform a New Well Search

Groundwater Levels for Station 397871N1220100W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
04/01/1947 00:00	152.780	152.280	14	138.78	13.5		N	624	
05/01/1947 00:00	152.780	152.280	16.7	136.08	16.2		N	624	
09/03/1947 00:00	152.780	152.280				N-5	N	624	
11/14/1947 00:00	152.780	152.280	17	135.78	16.5		N	624	
02/06/1948 00:00	152.780	152.280				N-9	N	624	
03/05/1948 00:00	152.780	152.280	16.5	136.28	16		N	624	
05/03/1948 00:00	152.780	152.280	10.7	142.08	10.2		N	624	
05/12/1948 00:00	152.780	152.280	11.2	141.58	10.7		N	624	
06/14/1948 00:00	152.780	152.280	12.9	139.88	12.4		N	624	
07/29/1948 00:00	152.780	152.280	19.7	133.08	19.2		N	624	
10/21/1948 00:00	152.780	152.280	18.4	134.38	17.9		N	624	
03/03/1949 00:00	152.780	152.280	14.6	138.18	14.1		N	624	
03/31/1949 00:00	152.780	152.280	12	140.78	11.5		N	624	

Exhibit 29 - O-18A

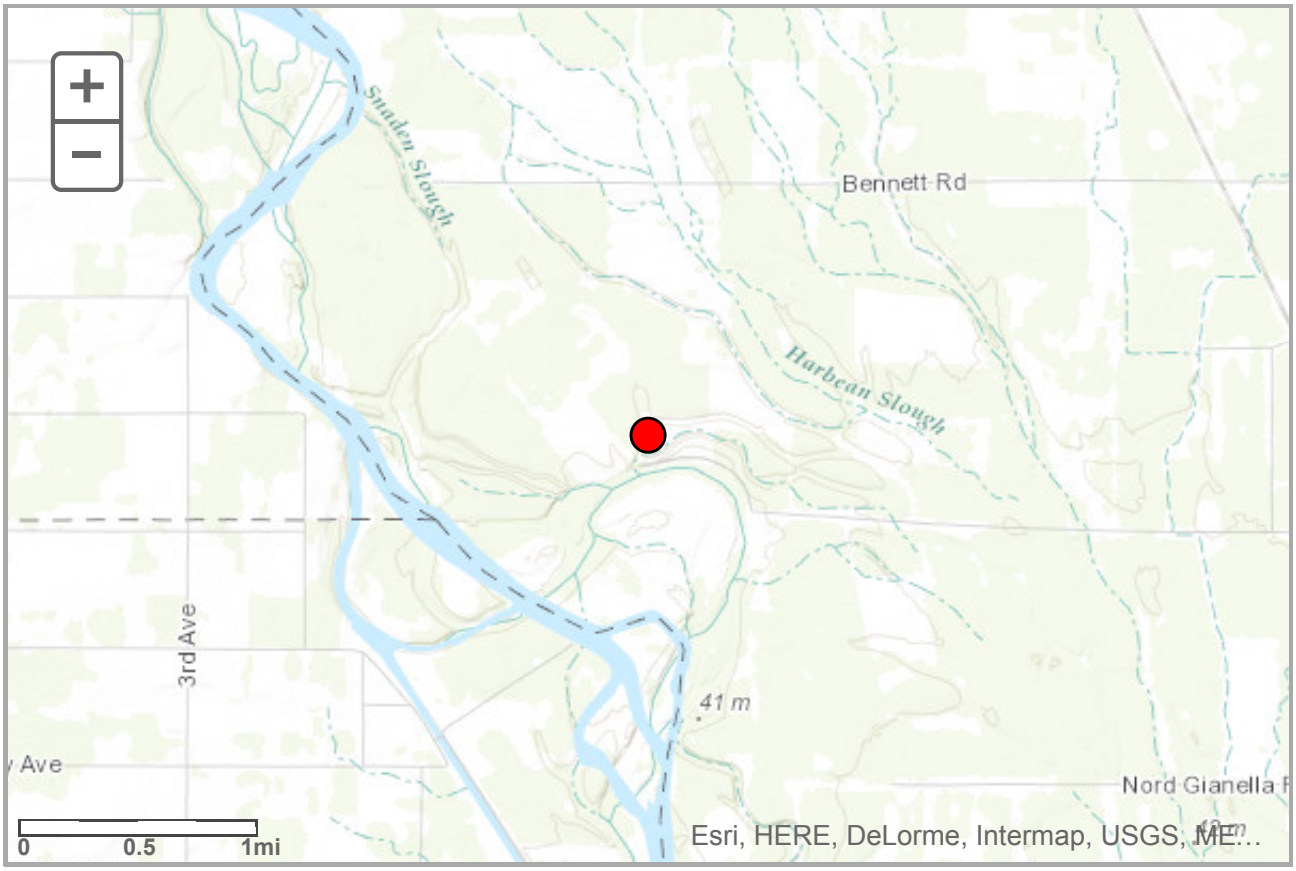
Groundwater Levels for Station 398028N1220294W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number: 23N01W31M001M
Local Well ID: BMO 23N01W31M001M
Site Code: 398028N1220294W001
Latitude (NAD83): 39.802800
Longitude (NAD83): -122.0294
Groundwater Basin (code): Vina (5-21.57)

Well Use: Observation
Well Status: Active
Well Completion Report Number: E074369
Reference Point Elevation (NAVD88 ft): 162.86
Ground Surface Elevation (NAVD88 ft): 154.75
Total Depth (ft): 1200
Perforated Interval Depths (ft): 969.000 979.000 1020.000 1030.000

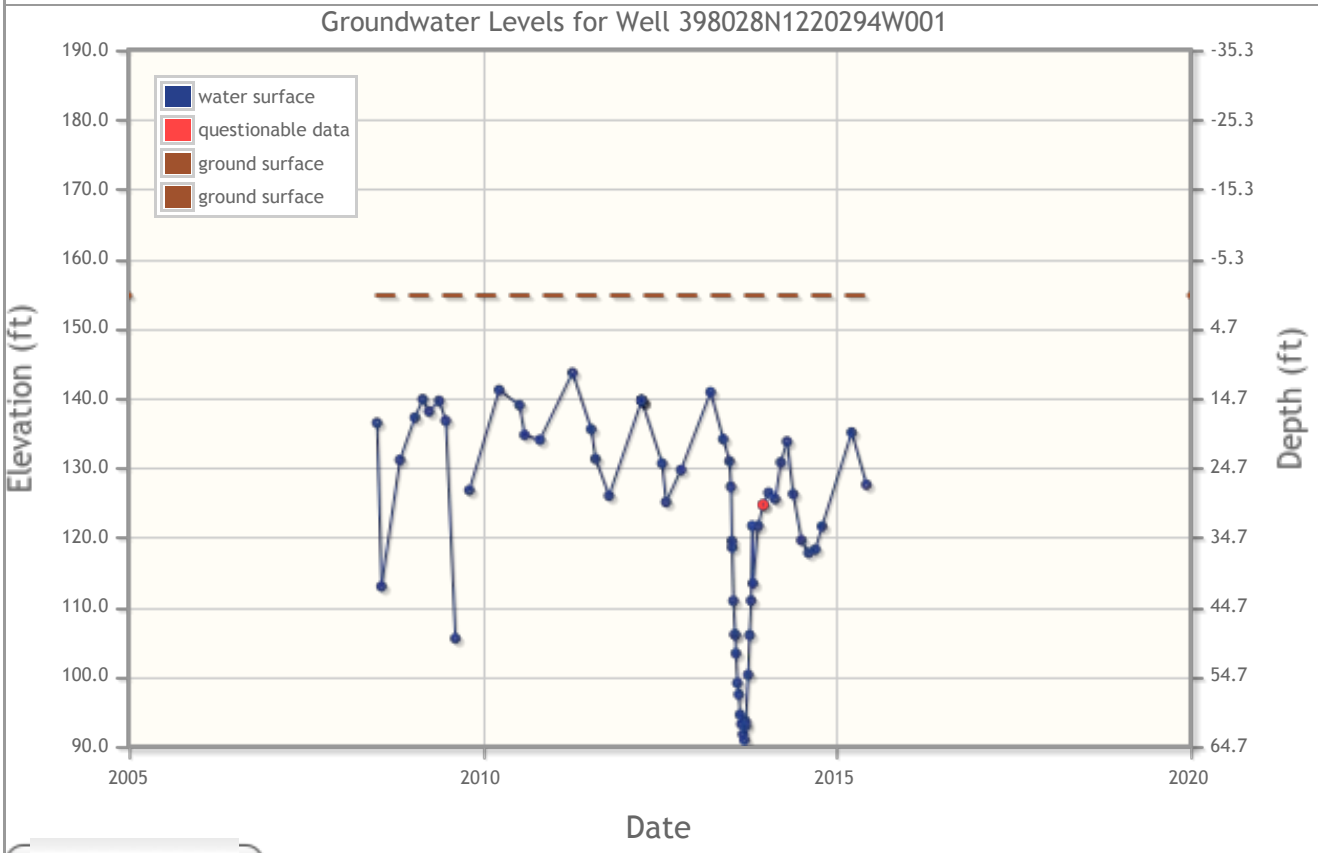


Perform a New Well Search

Groundwater Levels for Station 398028N1220294W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
07/02/2008 00:00	162.860	154.750	26.42	136.44	18.31		N	1	
07/25/2008 00:00	162.860	154.750	49.93	112.93	41.82		N	1	
10/29/2008 00:00	162.860	154.750	31.75	131.11	23.64		N	1	
01/15/2009 00:00	162.860	154.750	25.66	137.2	17.55		N	1	
02/25/2009 00:00	162.860	154.750	23.03	139.83	14.92		N	1	
03/27/2009 00:00	162.860	154.750	24.8	138.06	16.69		N	1	
05/18/2009 00:00	162.860	154.750	23.25	139.61	15.14		N	1	
06/22/2009 00:00	162.860	154.750	26.1	136.76	17.99		N	1	
08/11/2009 00:00	162.860	154.750	57.4	105.46	49.29		N	1	
09/16/2009 00:00	162.860	154.750				N-9	N	1	
10/22/2009 00:00	162.860	154.750	36.1	126.76	27.99		N	1	
03/24/2010 00:00	162.860	154.750	21.7	141.16	13.59		N	1	
07/07/2010 00:00	162.860	154.750	23.87	138.99	15.76		N	1	

Exhibit 29 - O-18B

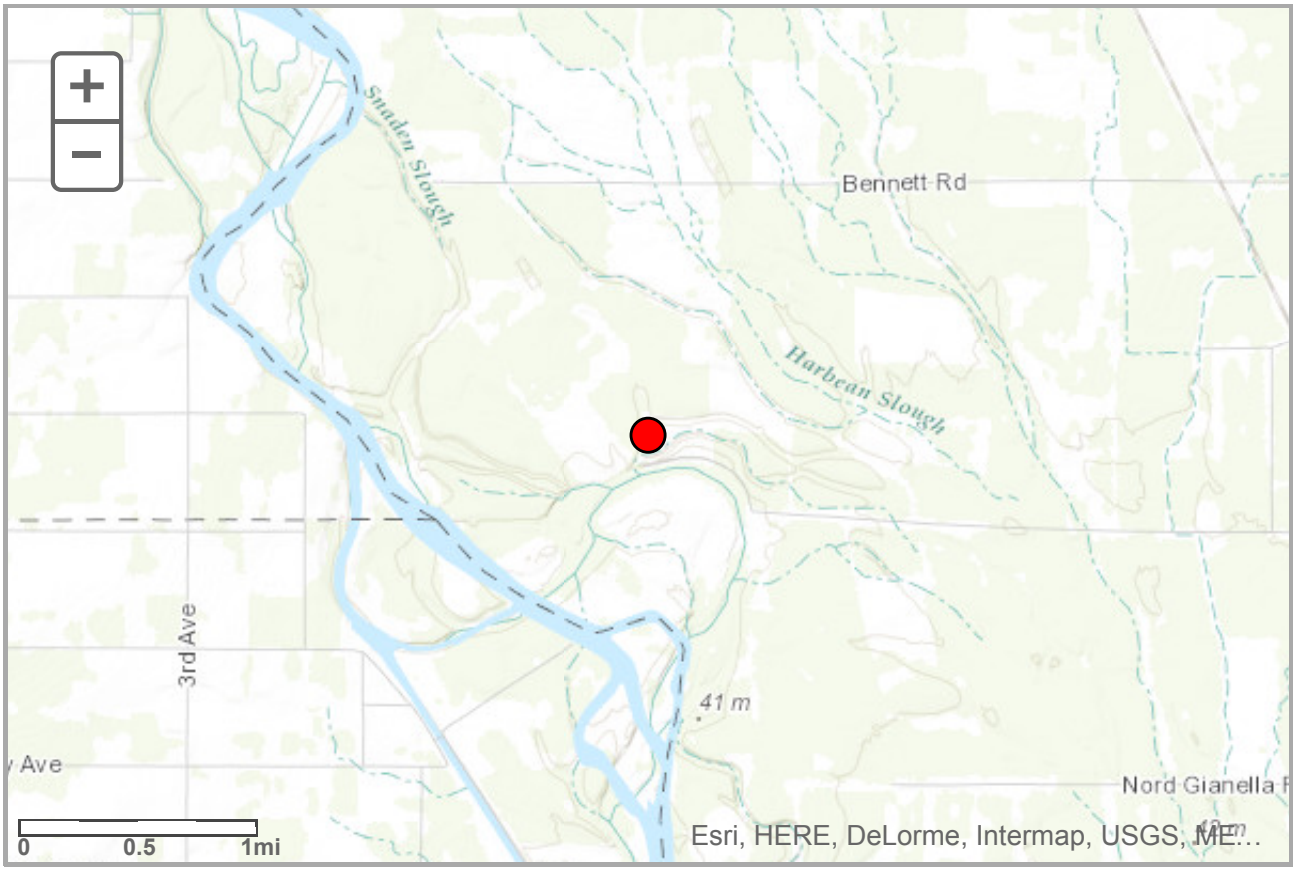
Groundwater Levels for Station 398028N1220294W002

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number: 23N01W31M002M
Local Well ID: BMO 23N01W31M002M
Site Code: 398028N1220294W002
Latitude (NAD83): 39.802800
Longitude (NAD83): -122.0294
Groundwater Basin (code): Vina (5-21.57)

Well Use: Observation
Well Status: Active
Well Completion Report Number: E074369
Reference Point Elevation (NAVD88 ft): 162.76
Ground Surface Elevation (NAVD88 ft): 154.75
Total Depth (ft): 616
Perforated Interval Depths (ft): 545.000 555.000 590.000 600.000

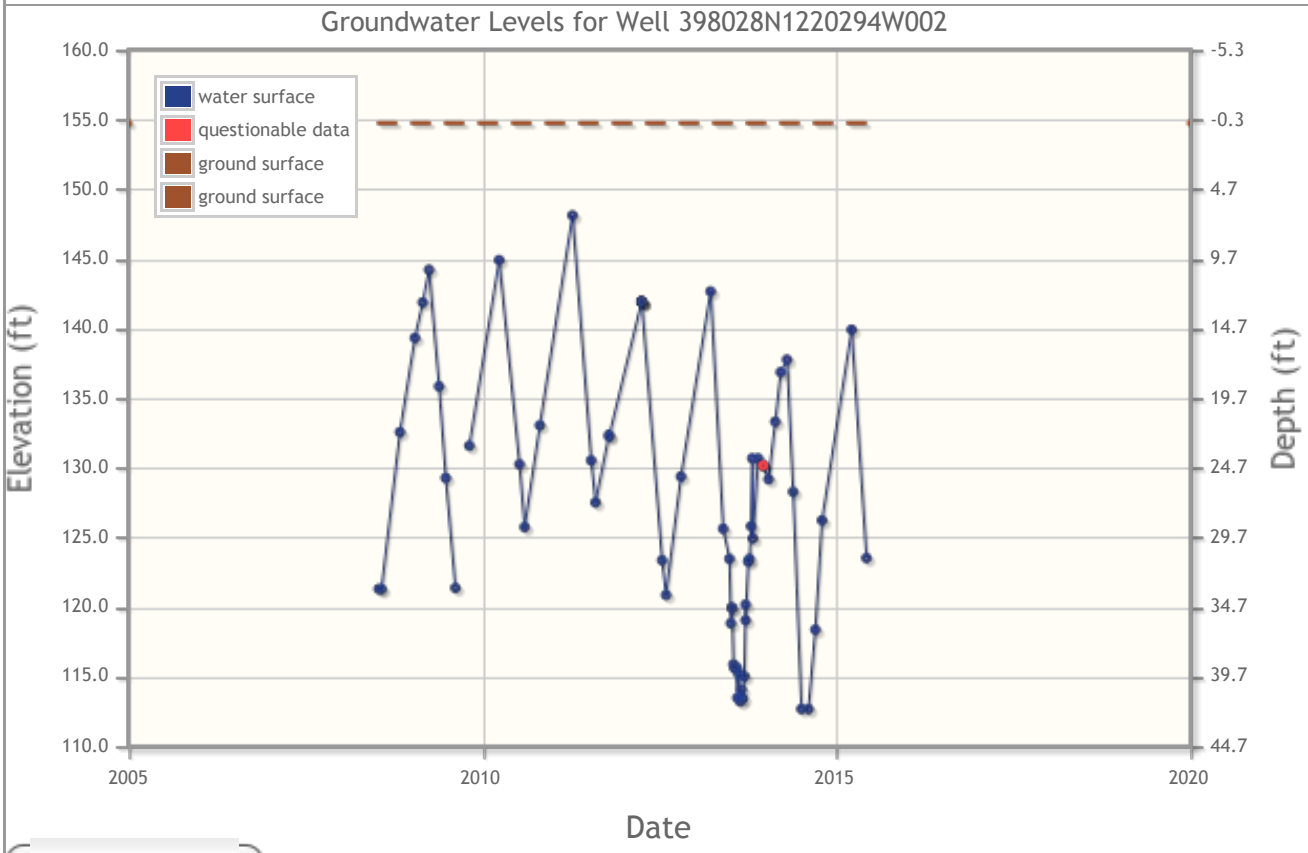


Perform a New Well Search

Groundwater Levels for Station 398028N1220294W002

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
07/11/2008 00:00	162.760	154.750	41.48	121.28	33.47		N	1	
07/25/2008 00:00	162.760	154.750	41.48	121.28	33.47		N	1	
10/29/2008 00:00	162.760	154.750	30.21	132.55	22.2		N	1	
01/15/2009 00:00	162.760	154.750	23.44	139.32	15.43		N	1	
02/25/2009 00:00	162.760	154.750	20.89	141.87	12.88		N	1	
03/27/2009 00:00	162.760	154.750	18.54	144.22	10.53		N	1	
05/18/2009 00:00	162.760	154.750	26.92	135.84	18.91		N	1	
06/22/2009 00:00	162.760	154.750	33.5	129.26	25.49		N	1	
08/11/2009 00:00	162.760	154.750	41.4	121.36	33.39		N	1	
09/16/2009 00:00	162.760	154.750				N-9	N	1	
10/22/2009 00:00	162.760	154.750	31.19	131.57	23.18		N	1	
03/24/2010 00:00	162.760	154.750	17.85	144.91	9.84		N	1	
07/07/2010 00:00	162.760	154.750	32.52	130.24	24.51		N	1	

Exhibit 29 - O-18C

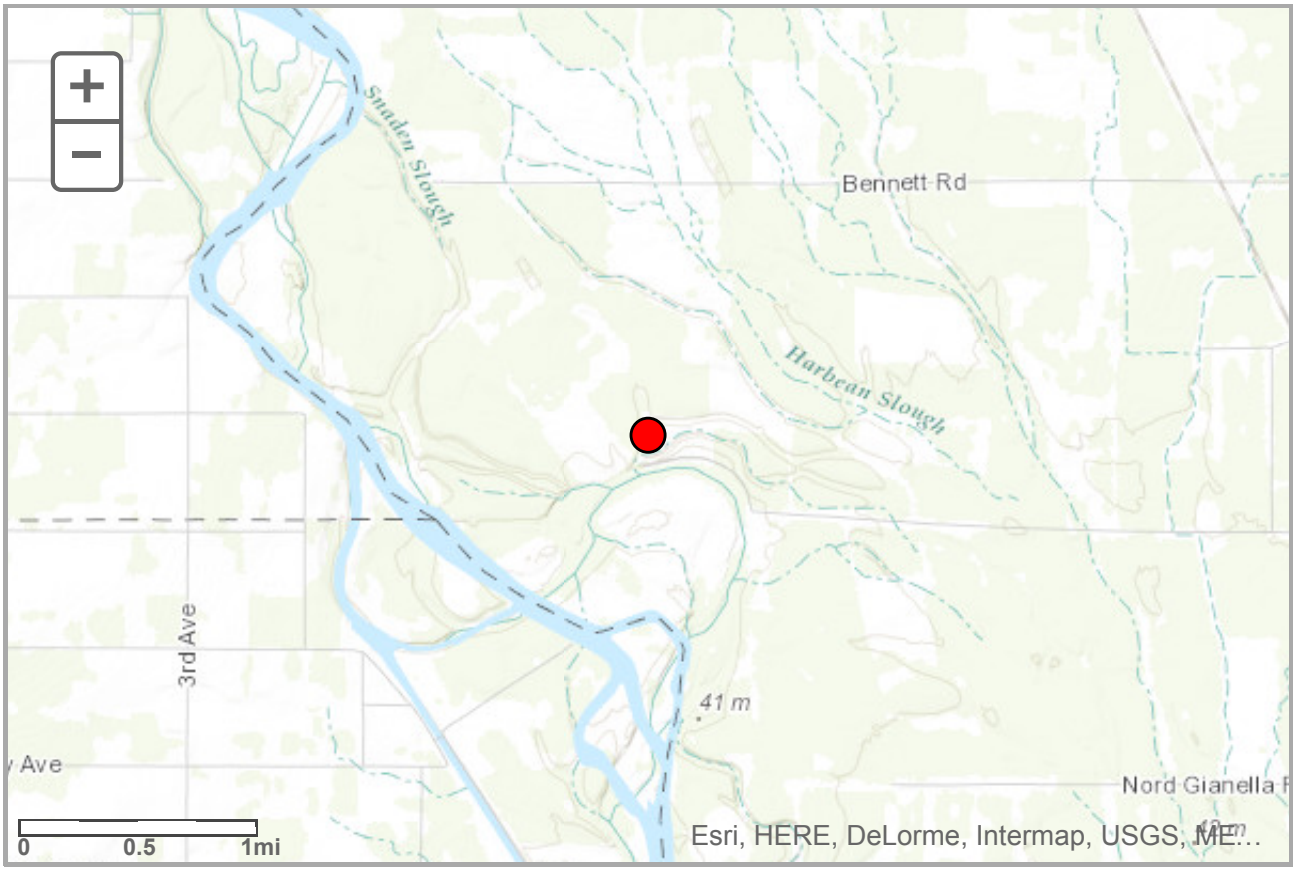
Groundwater Levels for Station 398028N1220294W003

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number: 23N01W31M003M
Local Well ID: BMO 23N01W31M003M
Site Code: 398028N1220294W003
Latitude (NAD83): 39.802800
Longitude (NAD83): -122.0294
Groundwater Basin (code): Vina (5-21.57)

Well Use: Observation
Well Status: Active
Well Completion Report Number: E074369
Reference Point Elevation (NAVD88 ft): 162.68
Ground Surface Elevation (NAVD88 ft): 154.75
Total Depth (ft): 245
Perforated Interval Depths (ft): 140.000 150.000 191.000 201.000

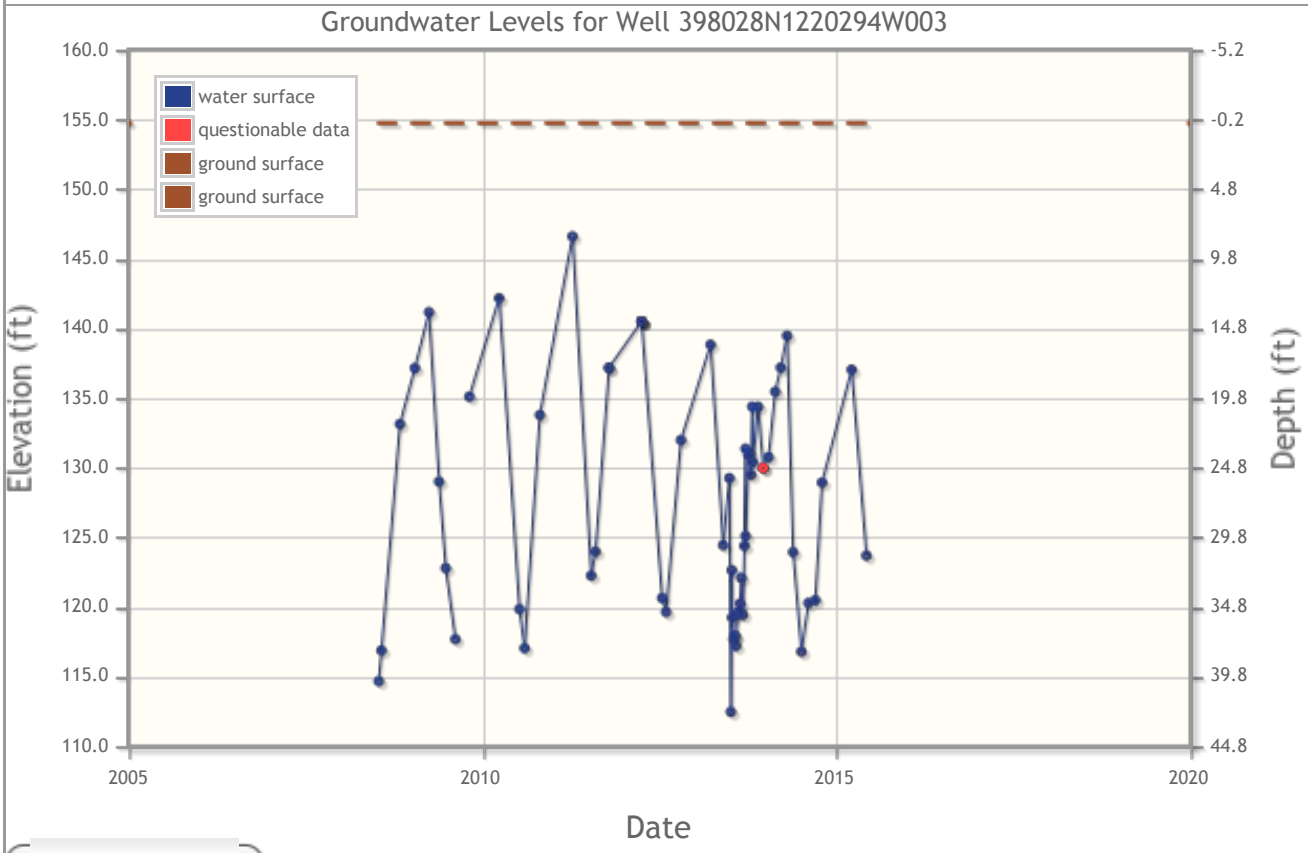


Perform a New Well Search

Groundwater Levels for Station 398028N1220294W003

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
07/11/2008 00:00	162.680	154.750	48.02	114.66	40.09		N	1	
07/25/2008 00:00	162.680	154.750	45.81	116.87	37.88		N	1	
10/29/2008 00:00	162.680	154.750	29.55	133.13	21.62		N	1	
01/15/2009 00:00	162.680	154.750	25.53	137.15	17.6		N	1	
03/27/2009 00:00	162.680	154.750	21.51	141.17	13.58		N	1	
05/18/2009 00:00	162.680	154.750	33.68	129	25.75		N	1	
06/22/2009 00:00	162.680	154.750	39.9	122.78	31.97		N	1	
08/11/2009 00:00	162.680	154.750	45	117.68	37.07		N	1	
09/16/2009 00:00	162.680	154.750				N-9	N	1	
10/22/2009 00:00	162.680	154.750	27.58	135.1	19.65		N	1	
03/24/2010 00:00	162.680	154.750	20.51	142.17	12.58		N	1	
07/07/2010 00:00	162.680	154.750	42.84	119.84	34.91		N	1	
08/03/2010 00:00	162.680	154.750	45.65	117.03	37.72		N	1	

Exhibit 29 - O-18D

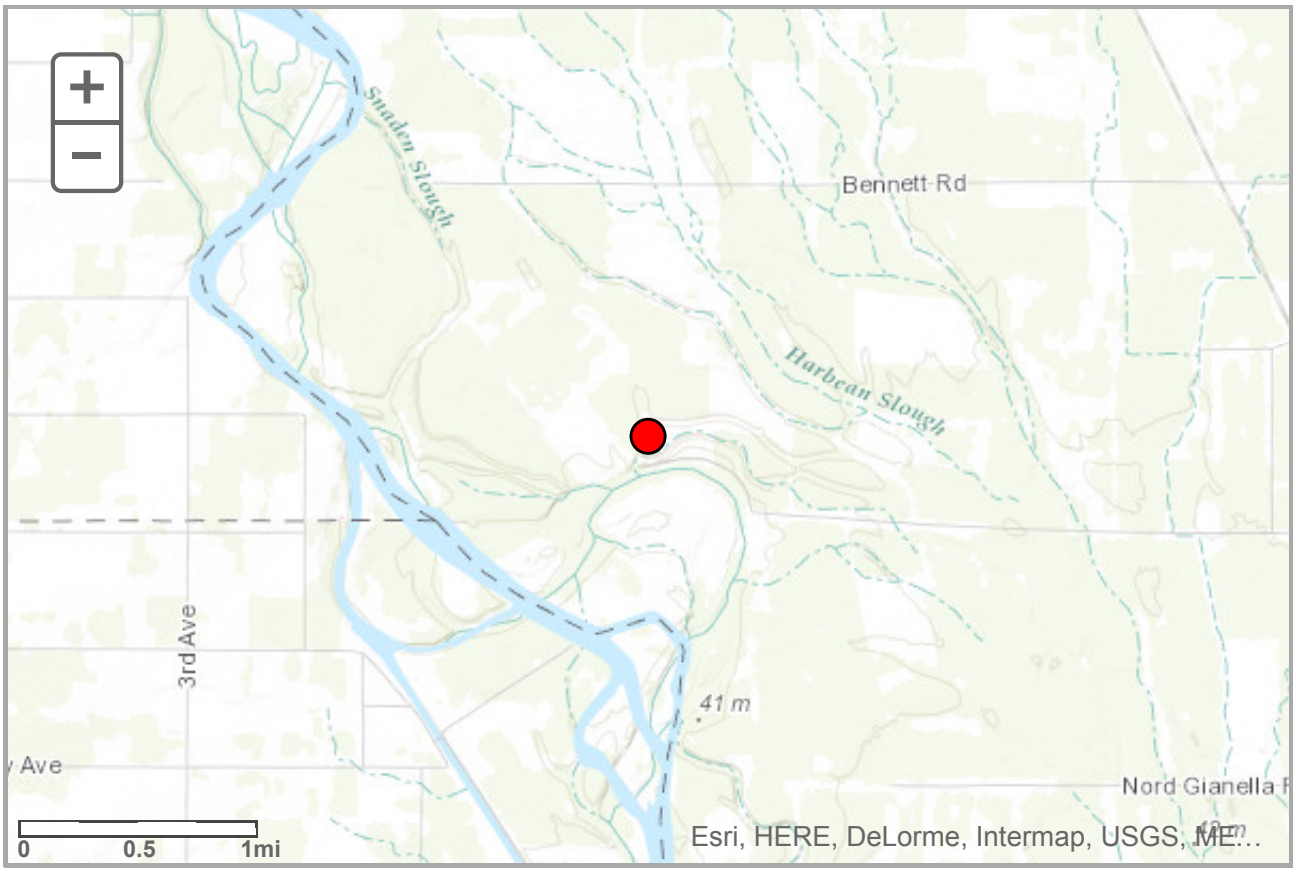
Groundwater Levels for Station 398028N1220294W004

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number:	23N01W31M004M
Local Well ID:	BMO 23N01W31M004M
Site Code:	398028N1220294W004
Latitude (NAD83):	39.802800
Longitude (NAD83):	-122.0294
Groundwater Basin (code):	Vina (5-21.57)

Well Use:	Observation
Well Status:	Active
Well Completion Report Number:	E074369
Reference Point Elevation (NAVD88 ft):	162.58
Ground Surface Elevation (NAVD88 ft):	154.77
Total Depth (ft):	106
Perforated Interval Depths (ft):	65.500 75.500

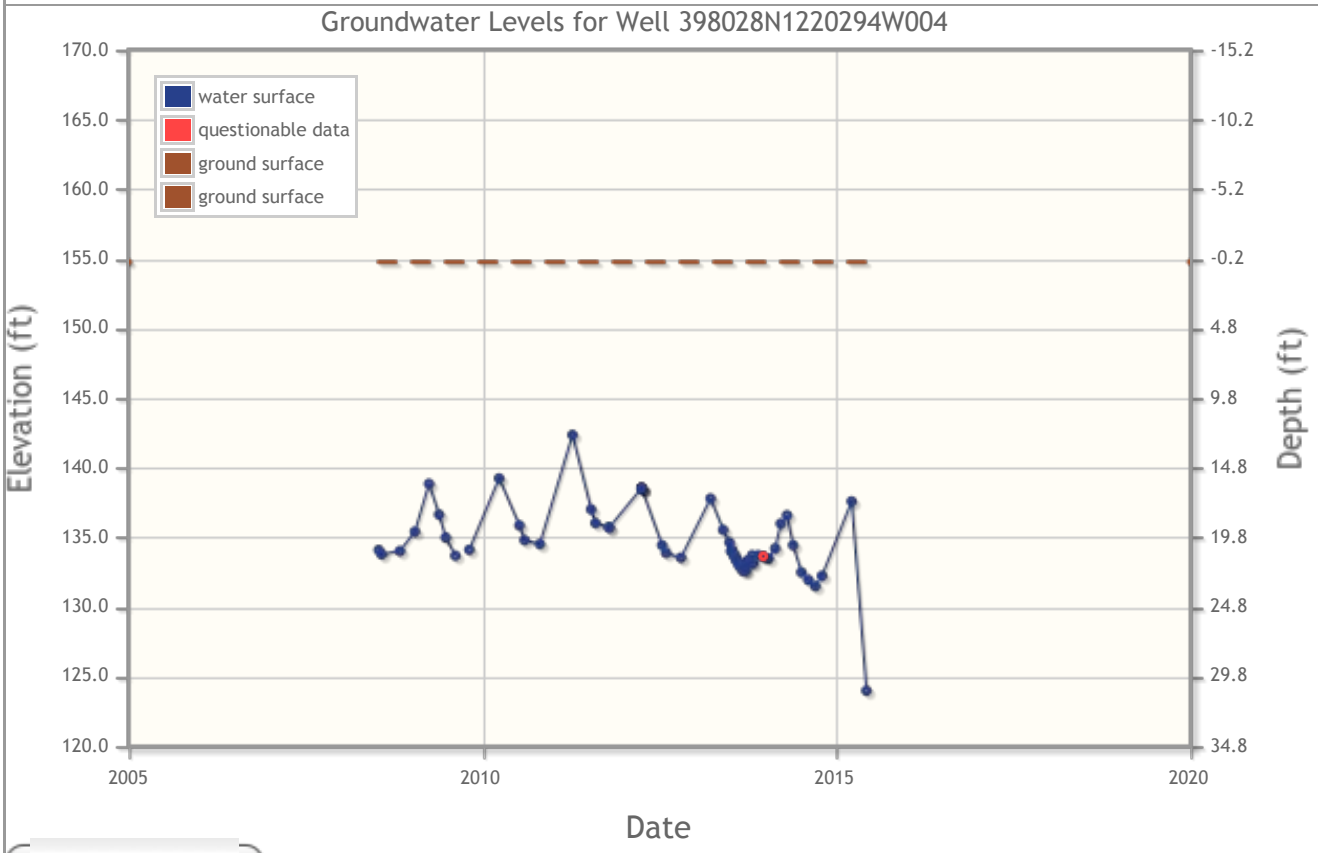


Perform a New Well Search

Groundwater Levels for Station 398028N1220294W004

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
07/11/2008 00:00	162.580	154.770	28.5	134.08	20.69		N	1	
07/25/2008 00:00	162.580	154.770	28.8	133.78	20.99		N	1	
10/29/2008 00:00	162.580	154.770	28.57	134.01	20.76		N	1	
01/15/2009 00:00	162.580	154.770	27.18	135.4	19.37		N	1	
03/27/2009 00:00	162.580	154.770	23.74	138.84	15.93		N	1	
05/18/2009 00:00	162.580	154.770	25.95	136.63	18.14		N	1	
06/22/2009 00:00	162.580	154.770	27.6	134.98	19.79		N	1	
08/11/2009 00:00	162.580	154.770	28.9	133.68	21.09		N	1	
09/16/2009 00:00	162.580	154.770				N-9	N	1	
10/22/2009 00:00	162.580	154.770	28.48	134.1	20.67		N	1	
03/24/2010 00:00	162.580	154.770	23.35	139.23	15.54		N	1	
07/07/2010 00:00	162.580	154.770	26.73	135.85	18.92		N	1	
08/03/2010 00:00	162.580	154.770	27.79	134.79	19.98		N	1	

Exhibit 29 - R-19

Groundwater Levels for Station 398180N1219669W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number: 23N01W27L001M
Local Well ID: BMO 23N01W27L001M
Site Code: 398180N1219669W001
Latitude (NAD83): 39.818000
Longitude (NAD83): -121.9669
Groundwater Basin (code): Vina (5-21.57)

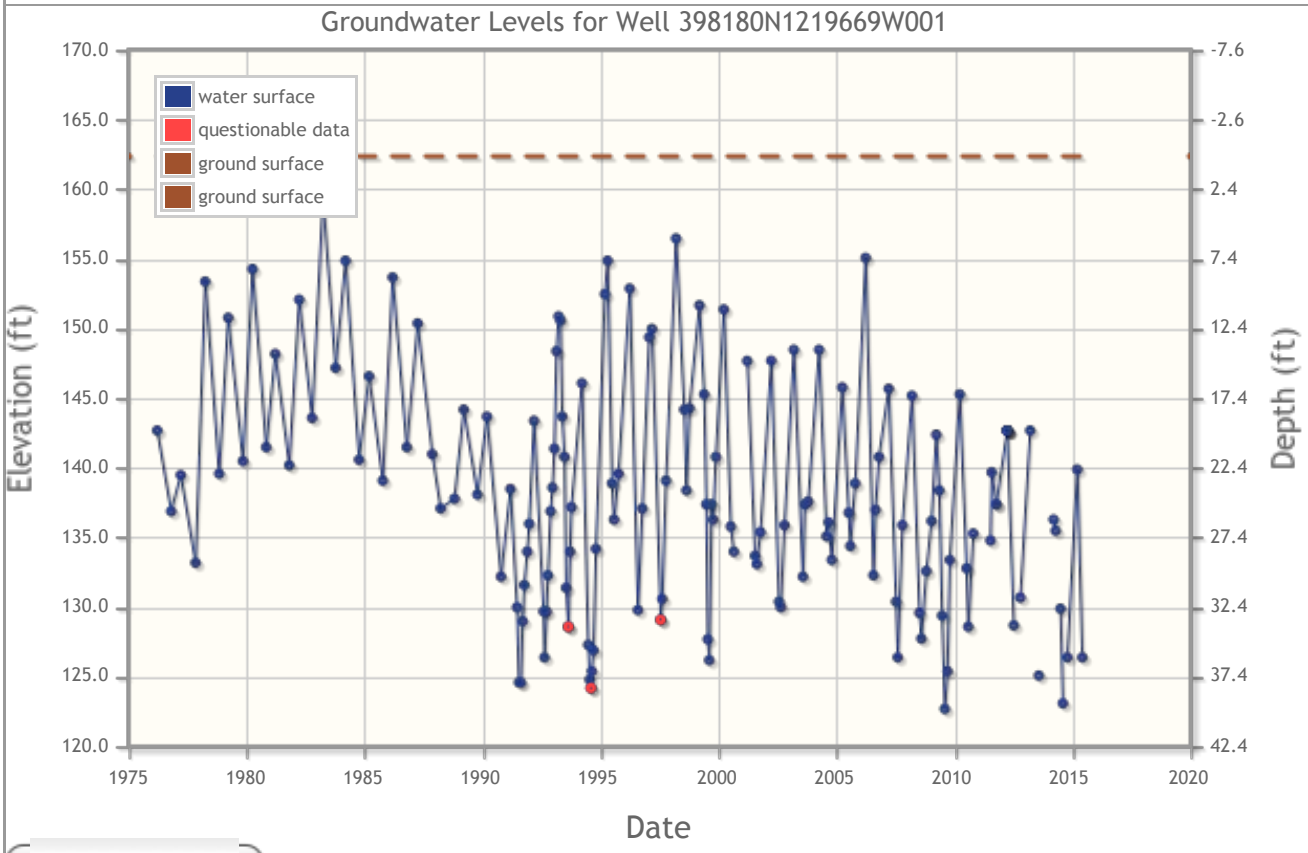
Well Use: Residential
Well Status: Active
Well Completion Report Number: 57350
Reference Point Elevation (NAVD88 ft): 163.37
Ground Surface Elevation (NAVD88 ft): 162.37
Total Depth (ft): Confidential
Perforated Interval Depths (ft): Confidential

Perform a New Well Search

Groundwater Levels for Station 398180N1219669W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
03/10/1976 00:00	163.370	162.370	20.7	142.67	19.7		N	1	
10/13/1976 00:00	163.370	162.370	26.5	136.87	25.5		N	1	
03/10/1977 00:00	163.370	162.370	23.9	139.47	22.9		N	1	
10/26/1977 00:00	163.370	162.370	30.2	133.17	29.2		N	1	
03/23/1978 00:00	163.370	162.370	10	153.37	9		N	1	
10/26/1978 00:00	163.370	162.370	23.8	139.57	22.8		N	1	
03/14/1979 00:00	163.370	162.370	12.6	150.77	11.6		N	1	
10/29/1979 00:00	163.370	162.370	22.9	140.47	21.9		N	1	
03/25/1980 00:00	163.370	162.370	9.1	154.27	8.1		N	1	
10/24/1980 00:00	163.370	162.370	21.9	141.47	20.9		N	1	
03/12/1981 00:00	163.370	162.370	15.2	148.17	14.2		N	1	
10/16/1981 00:00	163.370	162.370	23.2	140.17	22.2		N	1	
03/18/1982 00:00	163.370	162.370	11.3	152.07	10.3		N	1	

Exhibit 29 - O-20A

Groundwater Levels for Station 398188N1219912W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number: 23N01W28M002M
Local Well ID: BMO 23N01W28M002M
Site Code: 398188N1219912W001
Latitude (NAD83): 39.818773
Longitude (NAD83): -121.991188
Groundwater Basin (code): Vina (5-21.57)

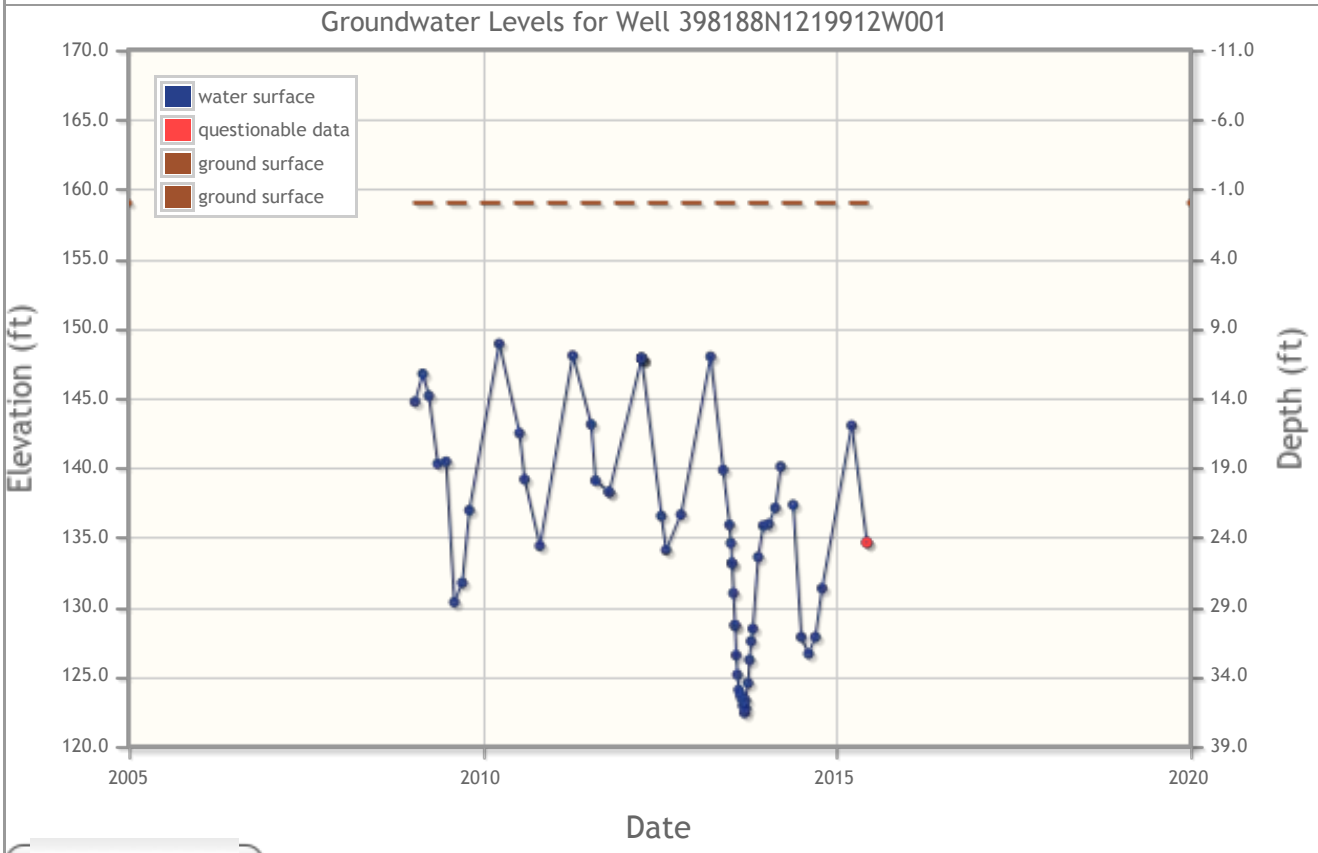
Well Use: Observation
Well Status: Active
Well Completion Report Number: E0085239
Reference Point Elevation (NAVD88 ft): 160.33
Ground Surface Elevation (NAVD88 ft): 159.02
Total Depth (ft): 1044
Perforated Interval Depths (ft): 791.000 801.000
881.000 891.000
951.000 961.000
1011.000 1021.000

Perform a New Well Search

Groundwater Levels for Station 398188N1219912W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
01/15/2009 00:00	160.330	159.020	15.6	144.73	14.29		N	1	
02/25/2009 00:00	160.330	159.020	13.59	146.74	12.28		N	1	
03/26/2009 00:00	160.330	159.020	15.16	145.17	13.85		N	1	
05/11/2009 00:00	160.330	159.020	20.05	140.28	18.74		N	1	
06/24/2009 00:00	160.330	159.020	19.9	140.43	18.59		N	1	
08/05/2009 00:00	160.330	159.020	30	130.33	28.69		N	1	
09/16/2009 00:00	160.330	159.020	28.6	131.73	27.29		N	1	
10/22/2009 00:00	160.330	159.020	23.39	136.94	22.08		N	1	
03/24/2010 00:00	160.330	159.020	11.43	148.9	10.12		N	1	
07/07/2010 00:00	160.330	159.020	17.85	142.48	16.54		N	1	
08/03/2010 00:00	160.330	159.020	21.17	139.16	19.86		N	1	
10/21/2010 00:00	160.330	159.020	25.95	134.38	24.64		N	1	
04/08/2011 00:00	160.330	159.020	12.28	148.05	10.97		N	1	

Exhibit 29 - O-20B

Groundwater Levels for Station 398188N1219912W002

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number: 23N01W28M003M
Local Well ID: BMO 23N01W28M003M
Site Code: 398188N1219912W002
Latitude (NAD83): 39.818773
Longitude (NAD83): -121.991188
Groundwater Basin (code): Vina (5-21.57)

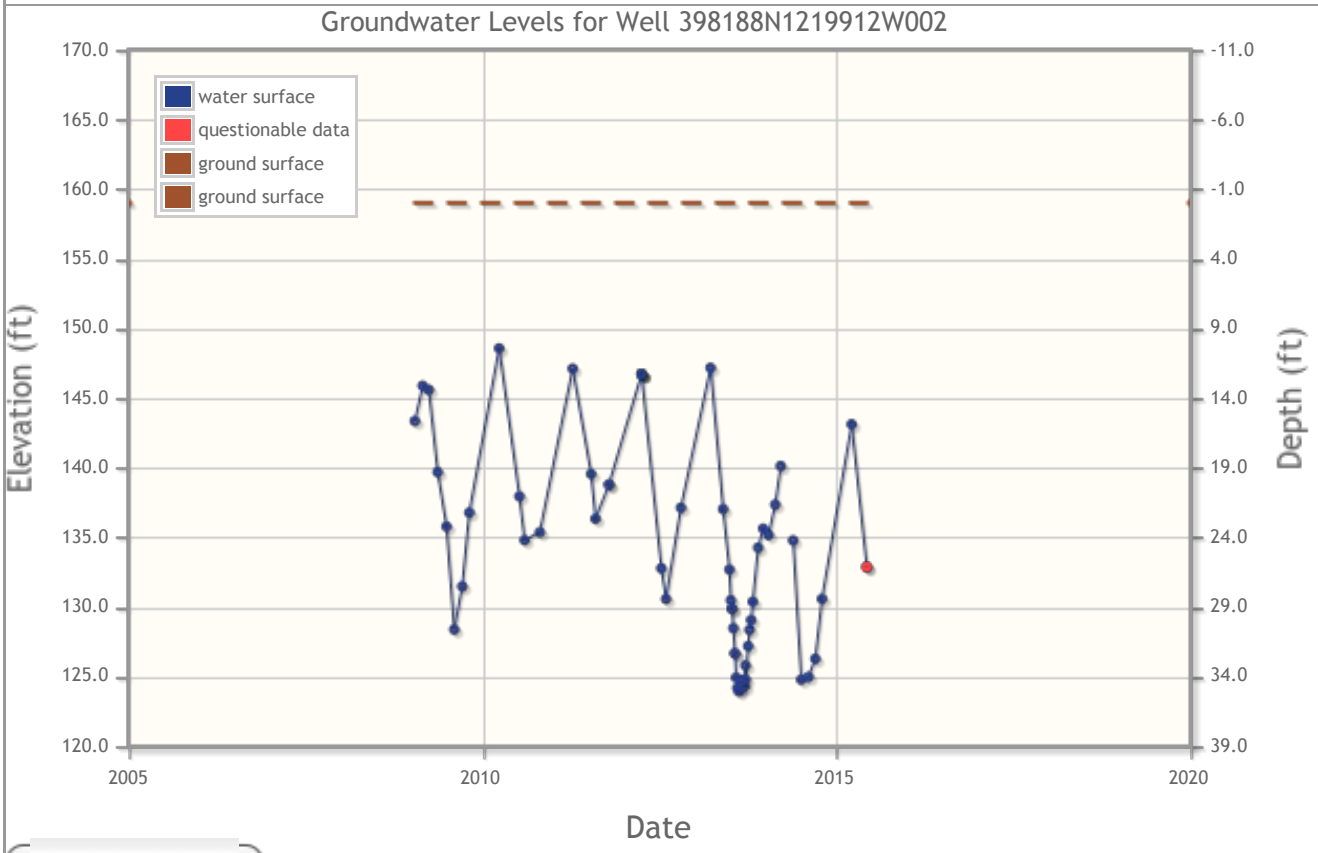
Well Use: Observation
Well Status: Active
Well Completion Report Number: E0085239
Reference Point Elevation (NAVD88 ft): 160.57
Ground Surface Elevation (NAVD88 ft): 159.02
Total Depth (ft): 696
Perforated Interval Depths (ft): 640.000 650.000 660.000 670.000

Perform a New Well Search

Groundwater Levels for Station 398188N1219912W002

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
01/15/2009 00:00	160.570	159.020	17.22	143.35	15.67		N	1	
02/25/2009 00:00	160.570	159.020	14.69	145.88	13.14		N	1	
03/26/2009 00:00	160.570	159.020	14.97	145.6	13.42		N	1	
05/11/2009 00:00	160.570	159.020	20.89	139.68	19.34		N	1	
06/26/2009 00:00	160.570	159.020	24.8	135.77	23.25		N	1	
08/05/2009 00:00	160.570	159.020	32.2	128.37	30.65		N	1	
09/16/2009 00:00	160.570	159.020	29.1	131.47	27.55		N	1	
10/22/2009 00:00	160.570	159.020	23.8	136.77	22.25		N	1	
03/24/2010 00:00	160.570	159.020	12	148.57	10.45		N	1	
07/07/2010 00:00	160.570	159.020	22.63	137.94	21.08		N	1	
08/03/2010 00:00	160.570	159.020	25.78	134.79	24.23		N	1	
10/21/2010 00:00	160.570	159.020	25.21	135.36	23.66		N	1	
04/08/2011 00:00	160.570	159.020	13.46	147.11	11.91		N	1	

Groundwater Levels for Station 398188N1219912W003

Exhibit 29 - O-20C

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number: 23N01W28M004M
Local Well ID: BMO 23N01W28M004M
Site Code: 398188N1219912W003
Latitude (NAD83): 39.818773
Longitude (NAD83): -121.991188
Groundwater Basin (code): Vina (5-21.57)

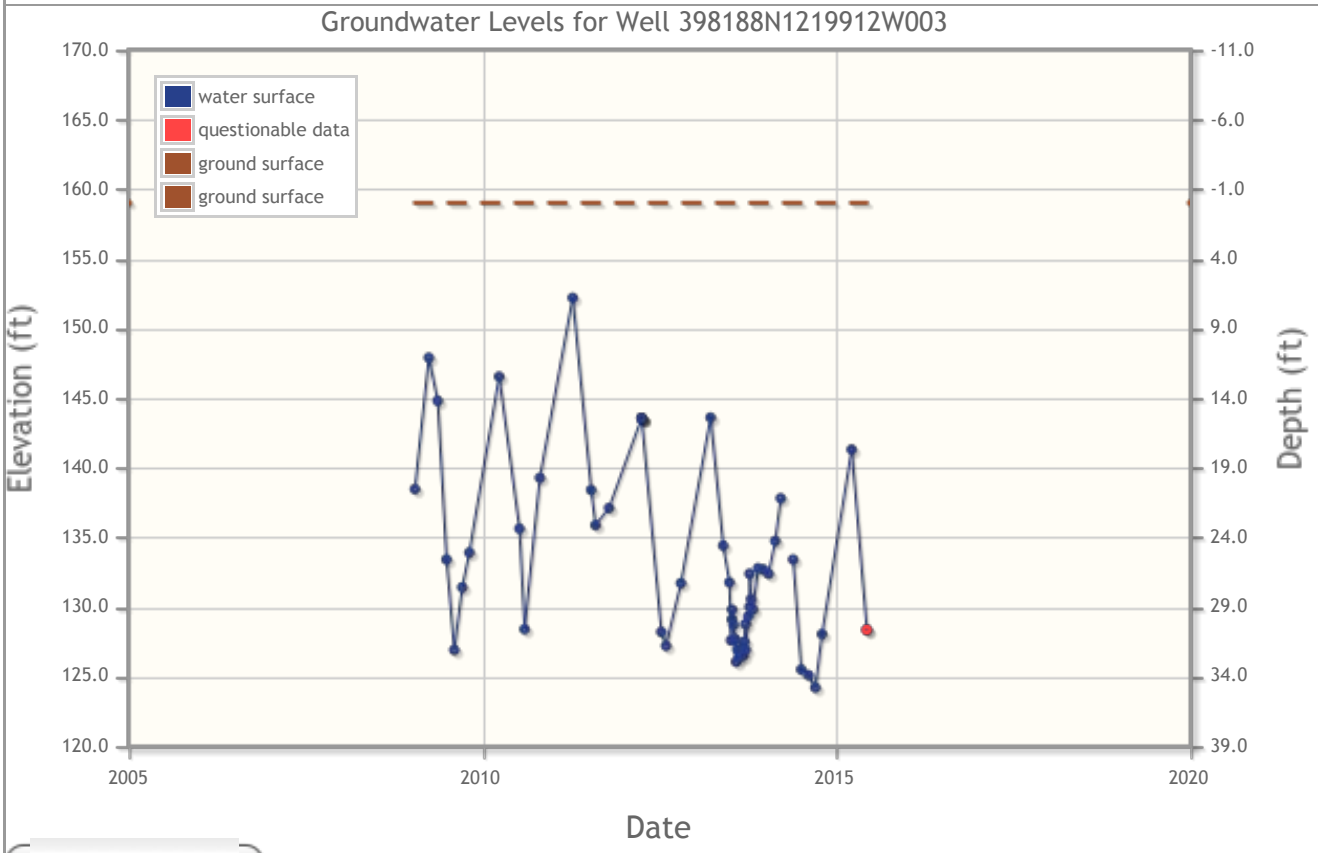
Well Use: Observation
Well Status: Active
Well Completion Report Number: E0085239
Reference Point Elevation (NAVD88 ft): 160.70
Ground Surface Elevation (NAVD88 ft): 159.02
Total Depth (ft): 217
Perforated Interval Depths (ft): 120.000 130.000 155.000 165.000

Perform a New Well Search

Groundwater Levels for Station 398188N1219912W003

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
01/15/2009 00:00	160.700	159.020	22.24	138.46	20.56		N	1	
03/26/2009 00:00	160.700	159.020	12.8	147.9	11.12		N	1	
05/11/2009 00:00	160.700	159.020	15.9	144.8	14.22		N	1	
06/26/2009 00:00	160.700	159.020	27.3	133.4	25.62		N	1	
08/05/2009 00:00	160.700	159.020	33.8	126.9	32.12		N	1	
09/16/2009 00:00	160.700	159.020	29.3	131.4	27.62		N	1	
10/22/2009 00:00	160.700	159.020	26.8	133.9	25.12		N	1	
03/24/2010 00:00	160.700	159.020	14.16	146.54	12.48		N	1	
07/07/2010 00:00	160.700	159.020	25.08	135.62	23.4		N	1	
08/03/2010 00:00	160.700	159.020	32.3	128.4	30.62		N	1	
10/21/2010 00:00	160.700	159.020	21.43	139.27	19.75		N	1	
04/08/2011 00:00	160.700	159.020	8.5	152.2	6.82		N	1	
07/12/2011 00:00	160.700	159.020	22.3	138.4	20.62		N	1	

Groundwater Levels for Station 398188N1219912W004

Exhibit 29 - O-20D

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data | Recent Groundwater Level Data | Historical Groundwater Level Data

State Well Number: 23N01W28M005M
Local Well ID: BMO 23N01W28M005M
Site Code: 398188N1219912W004
Latitude (NAD83): 39.818773
Longitude (NAD83): -121.991188
Groundwater Basin (code): Vina (5-21.57)

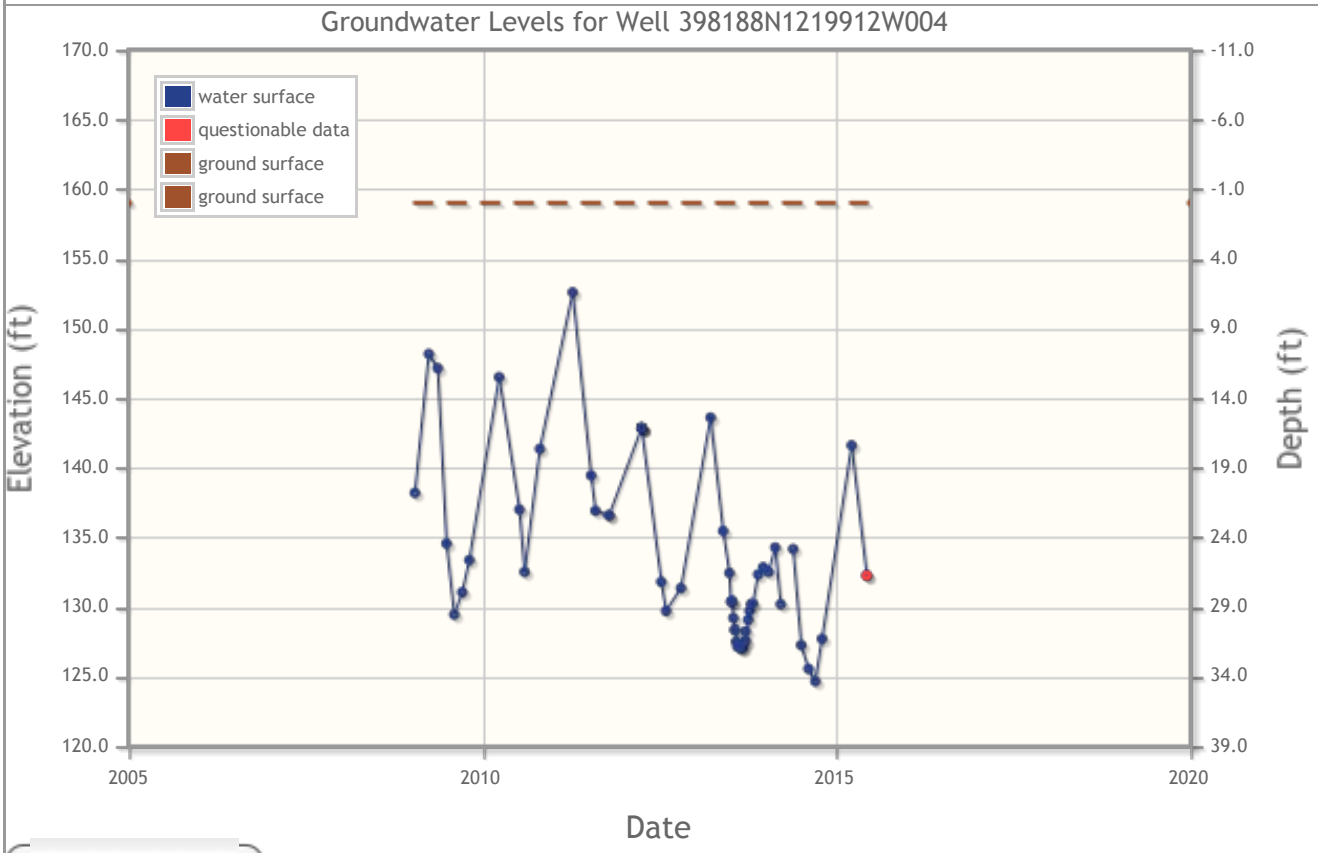
Well Use: Observation
Well Status: Active
Well Completion Report Number: E0085239
Reference Point Elevation (NAVD88 ft): 161.05
Ground Surface Elevation (NAVD88 ft): 159.02
Total Depth (ft): 72
Perforated Interval Depths (ft): 30.000 50.000

Perform a New Well Search

Groundwater Levels for Station 398188N1219912W004

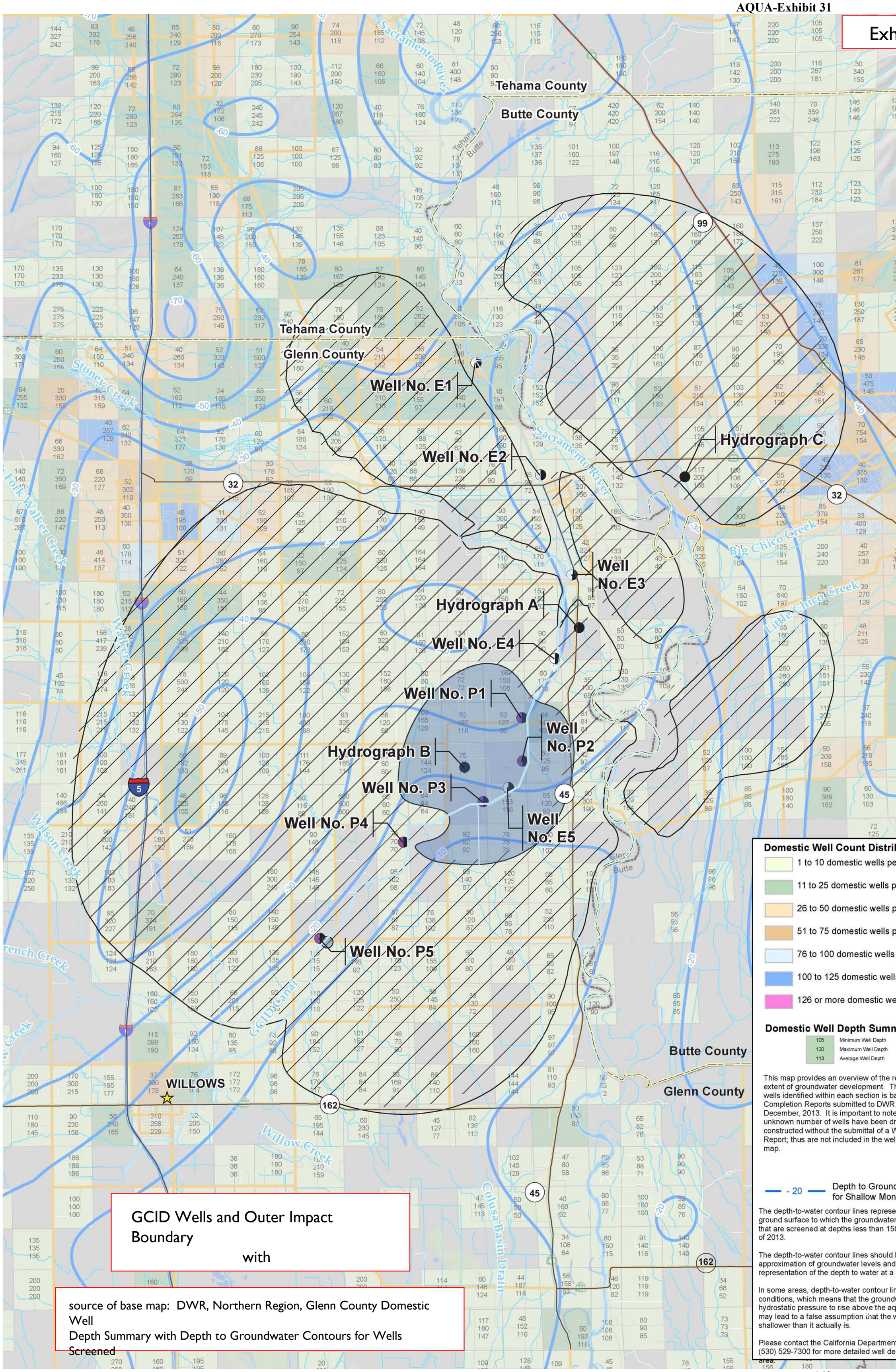
Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data **Recent Groundwater Level Data** Historical Groundwater Level Data



Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency	Co
01/15/2009 00:00	161.050	159.020	22.86	138.19	20.83		N	1	
03/26/2009 00:00	161.050	159.020	12.88	148.17	10.85		N	1	
05/11/2009 00:00	161.050	159.020	13.9	147.15	11.87		N	1	
06/26/2009 00:00	161.050	159.020	26.5	134.55	24.47		N	1	
08/05/2009 00:00	161.050	159.020	31.6	129.45	29.57		N	1	
09/16/2009 00:00	161.050	159.020	30	131.05	27.97		N	1	
10/22/2009 00:00	161.050	159.020	27.69	133.36	25.66		N	1	
03/24/2010 00:00	161.050	159.020	14.55	146.5	12.52		N	1	
07/07/2010 00:00	161.050	159.020	24.06	136.99	22.03		N	1	
08/03/2010 00:00	161.050	159.020	28.54	132.51	26.51		N	1	
10/21/2010 00:00	161.050	159.020	19.7	141.35	17.67		N	1	
04/08/2011 00:00	161.050	159.020	8.46	152.59	6.43		N	1	
07/12/2011 00:00	161.050	159.020	21.61	139.44	19.58		N	1	



GCID Wells and Outer Impact Boundary

with

source of base map: DWR, Northern Region, Glenn County Domestic Well
Depth Summary with Depth to Groundwater Contours for Wells Screened

Exhibit

Tehama County

Butte County

Tehama County

Glenn County

Well No. E1

Well No. E2

Hydrograph C

CHICO

Well No. E3

Hydrograph A

Well No. E4

Well No. P1

Well No. P2

Hydrograph B

Well No. P3

Well No. P4

Well No. E5

Well No. P5

WILLOWS

Butte County

Glenn County

Sacramento River

Stoney Creek

Walker Creek

Wilson Creek

Willow Creek

Big Chico Creek

Little Chico Creek

Butte Creek

Colusa Basin Drain

GCID Canal

99

32

5

45

162

Large Production Well Count Distribution

- 1 to 5 large production wells per
- 6 to 10 large production wells per
- 11 to 15 large production wells per
- 16 to 20 large production wells per
- 21 to 25 large production wells per
- 26 to 30 large production wells per

Large Production Well Depth Summary

105	Minimum Well Depth
120	Maximum Well Depth
113	Average Well Depth

This map provides an overview of the regional and local extent of groundwater development. The number of wells identified within each section is based on Well Completion Reports submitted to DWR through December, 2013. It is important to note that an unknown number of wells have been drilled and constructed without the submittal of a Well Completion Report; thus are not included in the well statistics for this map.

Large production wells include irrigation, municipal, public, and industrial wells.

- 20 — Depth to Groundwater Contour for Deep Monitoring Wells (feet)

The depth-to-water contour lines represent the depth below ground surface to which the groundwater was measured in wells that are screened at depths between 150 and 500 feet during the summer of 2013.

The depth-to-water contour lines should be considered a regional approximation of groundwater levels and not a specific representation of the depth to water at a particular location.

In some areas, depth-to-water contour lines reflect artesian conditions, which means that the groundwater is under sufficient hydrostatic pressure to rise above the aquifer containing it. This may lead to a false assumption that the water-bearing aquifer is shallower than it actually is.

Please contact the California Department of Water Resources at (530) 529-7300 for more detailed well depth information in your area.

GCID Wells and Outer Impact Boundary

with

source of base map: DWR, Northern Region, Glenn County Production Well
Depth Summary with Depth to Groundwater Contours for Wells Screened