Appendix 1A

Glossary of Terms

GLOSSARY

This Glossary includes terms from a variety of legal and administrative sources relevant to SGMA and GSP development. These sources include:

- California Water Code Section 10721, Sustainable Groundwater Management Definitions (CWC Section 10721)
- California Code of Regulations Title 23 Section 341, Groundwater Basin Boundaries Definitions (23 CCR Section 341)
- California Code of Regulations Title 23 Section 351, Groundwater Sustainability Plan Definitions (23 CCR Section 351)
- DWR Bulletin 118 Definitions, updated 2003 (B118, 2003)
- Locally defined terms used in the GSP

The source of each term is provided in the citation following that term. Page numbers are included when a definition is not found in the referenced document's definitions or glossary. Additional information regarding each source are summarized at the end of this glossary.

Adjudication Action — The action filed in the superior or federal district court to determine the rights to extract groundwater from a basin or store water within a basin, including, but not limited to, actions to quiet title respecting rights to extract or store groundwater or an action brought to impose a physical solution on a basin. **(CWC Section 10721)**

Administrative Adjustment — The basin or subbasin boundary adjustment by the Department that either (1) amends existing basin or subbasin boundary data files to accurately reflect an unambiguous written basin or subbasin boundary description as defined in Bulletin 118 or amended pursuant to this Part, or (2) restates the description of a basin or subbasin boundary to more precisely reflect a mapped basin or subbasin boundary consistent with the original description. **(B118, 2003)**

Agency — The groundwater sustainability agency as defined in the Act. **(23 CCR Section 351)**

Agricultural Water Management Plan — The plan adopted pursuant to the Agricultural Water Management Planning Act as described in Part 2.8 of Division 6 of the Water Code, commencing with Section 10800 et seq. **(23 CCR Section 351)**

Alternative — The alternative to a Plan described in Water Code Section 10733.6. **(23 CCR Section 351)**

Annual Report — The report required by Water Code §10728. **(23 CCR Section 351)**

Aquifer — The three-dimensional body of porous and permeable sediment or sedimentary rock that contains sufficient saturated material to yield significant quantities of groundwater to wells and springs, as further defined or characterized in Bulletin 118. **(B118, 2003)**

Baseline or Baseline Conditions — The historical information used to project future conditions for hydrology, water demand, and availability of surface water and to evaluate potential sustainable management practices of a basin. **(23 CCR Section 351)**

Basin — Defined in the Sustainable Groundwater Management Act as a groundwater basin or subbasin identified and defined in Bulletin 118. Unless the context indicates otherwise, those terms are further defined as follows: (1) The term ***basin*** shall refer to an area specifically defined as a basin or ***groundwater basin*** in Bulletin 118, and shall refer generally to an aquifer or stacked series of aquifers with reasonably well-defined

	boundaries in a lateral direction, based on features that significantly impede groundwater flow, and a definable bottom, as further defined or characterized in Bulletin 118. (2) The term ***subbasin*** shall refer to an area specifically defined as a subbasin or ***groundwater subbasin*** in Bulletin 118 and shall refer generally to any subdivision of a basin based on geologic and hydrologic barriers or institutional boundaries, as further described or defined in Bulletin 118. **(B118, 2003)**
Basin Setting	The information about the physical setting, characteristics, and current conditions of the basin as described by the Agency in the hydrogeologic conceptual model, the groundwater conditions, and the water budget, pursuant to Sub article 2 of Article 5. **(23 CCR Section 351)**
Beneficial Use	Water in Bulletin 118 references 23 categories of water uses identified by the State Water Resource Control Board and are listed and briefly described in Appendix E. **(B118, 2003)**
Best Available Science	The use of sufficient and credible information and data, specific to the decision being made and the time frame available for making that decision, that is consistent with scientific and engineering professional standards of practice. **(23 CCR Section 351)**
Best Management Practice	The practice, or combination of practices, that are designed to achieve sustainable groundwater management and have been determined to be technologically and economically effective, practicable, and based on best available science. §351. **(23 CCR Section 351)**
Board	The State Water Resources Control Board. **(23 CCR Section 351)**
Bulletin 118	The department's report entitled "California's Groundwater: Bulletin 118" updated in 2003, as it may be subsequently updated or revised in accordance with § 12924. **(CWC Section 10721)**
CASGEM	The California Statewide Groundwater Elevation Monitoring Program developed by the Department pursuant to Water Code Section 10920 et seq., or as amended. **(23 CCR Section 351)**
Condition of Long-Term Overdraft	The condition of a groundwater basin where the average annual amount of water extracted for a long-term period, generally 10 years or more, exceeds the long-term average annual supply of water to the basin, plus any temporary surplus. Overdraft during a period of drought is not sufficient to establish a condition of long-term overdraft if extractions and recharge are managed as necessary to ensure that reductions in groundwater levels or storage during a period of drought are offset by increases in groundwater levels or storage during other periods. **(CWC Section 10721)**
Coordination Agreement	The legal agreement adopted between two or more groundwater sustainability agencies that provides the basis for coordinating multiple agencies or groundwater sustainability plans within a basin pursuant to this part. **(CWC Section 10721)**
Data Gap	The lack of information that significantly affects the understanding of the basin setting or evaluation of the efficacy of Plan implementation and could limit the ability to assess whether a basin is being sustainably managed. **(23 CCR Section 351)**
Existing Stored Groundwater	Groundwater that is already underground from centuries of accumulated native groundwater. Historic pumping has been diminishing the existing stored groundwater at rates greater than the native groundwater can sustain, causing overdraft and unsustainable conditions. If more water is pumped from a basin than what is added from Native Groundwater and Introduced Groundwater, this water comes from the Existing Stored Groundwater. Continuing to use this previously stored groundwater will continue to exacerbate overdraft conditions. Temporarily using some of this

	water during the transition to sustainability will likely continue to cause lowering of groundwater levels.
Groundwater	Water beneath the surface of the earth within the zone below the water table in which the soil is completely saturated with water but does not include water that flows in known and definite channels. **(CWC Section 10721)**
Groundwater Basin	The groundwater basin or subbasin identified and defined in Bulletin 118 or as modified pursuant to Water Code 10722 et seq. **(23 CCR Section 351)**
Groundwater Dependent Ecosystem	The ecological communities or species that depend on groundwater emerging from aquifers or on groundwater occurring near the ground surface. **(23 CCR Section 351)**
Groundwater Flow	The volume and direction of groundwater movement into, out of, or throughout a basin. **(23 CCR Section 351)**
Groundwater in Storage	The quantity of water in the zone of saturation. **(B118, 2003)**
Groundwater Overdraft	The condition of a groundwater basin in which the amount of water withdrawn by pumping exceeds the amount of water that recharges the basin over a period of years during which water supply conditions approximate average conditions. **(B118, 2003)**
Groundwater Recharge or Recharge	The augmentation of groundwater by natural or artificial means. **(CWC Section 10721)**
Groundwater Storage Capacity	The volume of void space that can be occupied by water in a given volume of a formation, aquifer, or groundwater basin. **(B118, 2003)**
Groundwater Sustainability Agency	One or more local agencies that implement the provisions of this part. For purposes of imposing fees pursuant to Chapter 8 (commencing with Section 10730) or taking action to enforce a groundwater sustainability plan, ***Groundwater Sustainability Agency*** also means each local agency comprising the groundwater sustainability agency if the plan authorizes separate agency action. **(CWC Section 10721)**
Hydrogeologic Conceptual Model	The description of the geologic and hydrologic framework governing the occurrence of groundwater and its flow through and across the boundaries of a basin and the general groundwater conditions in a basin or subbasin. **(23 CCR Section 341)**
Interconnected Surface Water	The surface water that is hydraulically connected at any point by a continuous saturated zone to the underlying aquifer and the overlying surface water is not completely depleted. **(23 CCR Section 351)**
Interested Parties	The persons and entities on the list of interested persons established by the Agency pursuant to Water Code Section 10723.4. **(23 CCR Section 351)**
Interim Milestone	The target value representing measurable groundwater conditions, in increments of five years, set by an Agency as part of a Plan. **(23 CCR Section 351)**
Introduced Groundwater	Water that is added to the sustainable yield of groundwater supply derived from percolation of imported surface water. This can be the directly through groundwater replenishment projects or groundwater banking or can be indirectly through percolation from irrigation and unlined canals.
Management Area	The area within a basin for which the Plan may identify different minimum thresholds, measurable objectives, monitoring, or projects and management actions based on differences in water use sector, water source type, geology, aquifer characteristics, or other factors. **(23 CCR Section 351)**
Measurable Objectives	The specific, quantifiable goals for the maintenance or improvement of specified groundwater conditions that have been included in an adopted Plan to achieve the sustainability goal for the basin. **(23 CCR Section 351)**

Minimum Threshold	The numeric value for each sustainability indicator used to define undesirable results. **(23 CCR Section 351)**
Monitoring Protocols	Designed to detect changes in groundwater levels, groundwater quality, inelastic surface subsidence for basins for which subsidence has been identified as a potential problem, and flow and quality of surface water that directly affect groundwater levels or quality or are caused by groundwater extraction in the basin. The monitoring protocols shall be designed to generate information that promotes efficient and effective groundwater management. §10727.2. Required Plan Elements. **(CWC Section 10721)**
NAD83	The North American Datum of 1983 computed by the National Geodetic Survey, or as modified.
Native Groundwater	Water naturally infiltrating into the groundwater from precipitation and runoff. This is the average quantity of water annually added to the groundwater budget from rain, rivers, and streams, and reflects the portion of estimated sustainable yield of the groundwater supply that is not derived from imported surface water.
NAVD88	The North American Vertical Datum of 1988 computed by the National Geodetic Survey, or as modified. **(23 CCR Section 351)**
Plain Language	The language that the intended audience can readily understand and use because that language is concise, well-organized, uses simple vocabulary, avoids excessive acronyms and technical language, and follows other best practices of plain language writing. **(23 CCR Section 351)**
Plan	The groundwater sustainability plan as defined in the Act. **(23 CCR Section 351)**
Plan Implementation	The Agency's exercise of the powers and authorities described in the Act, which commences after an Agency adopts and submits a Plan or Alternative to the Department and begins exercising such powers and authorities. **(23 CCR Section 351)**
Plan Manager	An employee or authorized representative of an Agency, or Agencies, appointed through a coordination agreement or other agreement, who has been delegated management authority for submitting the Plan and serving as the point of contact between the Agency and the Department. **(23 CCR Section 351)**
Planning and Implementation Horizon	The 50-year time period over which a groundwater sustainability agency determines that plans and measures will be implemented in a basin to ensure that the basin is operated within its sustainable yield. **(CWC Section 10721)**
Principal Aquifers	The aquifers or aquifer systems that store, transmit, and yield significant or economic quantities of groundwater to wells, springs, or surface water systems. **(23 CCR Section 351)**
Qualified Map	The geologic map of a scale no smaller than 1:250,000 that is published by the U. S. Geological Survey or the California Geological Survey, or is a map published as part of a geologic investigation conducted by a state or federal agency, or is a geologic map prepared and signed by a Professional Geologist that is acceptable to the Department. **(23 CCR Section 341)**
Recharge Area	The area that supplies water to an aquifer in a groundwater basin. **(CWC Section 10721)**
Reference Point	The permanent, stationary and readily identifiable mark or point on a well, such as the top of casing, from which groundwater level measurements are taken, or other monitoring site. **(23 CCR Section 351)**
Representative Monitoring	The monitoring site within a broader network of sites that typifies one or more conditions within the basin or an area of the basin. **(23 CCR Section 351)**
Safe Yield	The maximum quantity of water that can be continuously withdrawn from a groundwater basin without adverse effect. **(B118, 2003)**

Saturated Zone The zone in which all interconnected openings are filled with water, usually underlying the unsaturated zone. **(B118, 2003)**

Seasonal High The highest annual static groundwater elevation that is typically measured in the Spring and associated with stable aquifer conditions following a period of lowest annual groundwater demand. **(23 CCR Section 351)**

Seasonal Low The lowest annual static groundwater elevation that is typically measured in the Summer or Fall and associated with a period of stable aquifer conditions following a period of highest annual groundwater demand. **(23 CCR Section 351)**

Seawater Intrusion The advancement of seawater into a groundwater supply that results in degradation of water quality in the basin and includes seawater from any source. **(23 CCR Section 351)**

Statutory Deadline The date by which an Agency must be managing a basin pursuant to an adopted Plan, as described in Water Code Sections 10720.7 or 10722.4. **(23 CCR Section 351)**

Sustainability Goal The existence and implementation of one or more groundwater sustainability plans that achieve sustainable groundwater management by identifying and causing the implementation of measures targeted to ensure that the applicable basin is operated within its sustainable yield. **(CWC Section 10721)**

Sustainability Indicator The effects caused by groundwater conditions occurring throughout the basin that, when significant and unreasonable, cause undesirable results, as described in Water Code §10721(x). **(23 CCR Section 351)**

Sustainable Groundwater Management The management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results. **(CWC Section 10721)**

Sustainable Yield The maximum quantity of water calculated over a base period representative of long-term conditions in the basin and including any temporary surplus, that can be withdrawn annually from a groundwater supply without causing an undesirable result. **(CWC Section 10721)**

Technical Study The geologic or hydrologic report prepared and published by a state or federal agency, or a study published in a peer-reviewed scientific journal, or a report prepared and signed by a Professional Geologist or by a Professional Engineer. **(23 CCR Section 341)**

Uncertainty The lack of understanding of the basin setting that significantly affects an Agency's ability to develop sustainable management criteria and appropriate projects and management actions in a Plan, or to evaluate the efficacy of Plan implementation, and therefore may limit the ability to assess whether a basin is being sustainably managed. **(23 CCR Section 351)**

Undesirable Result One or more of the following effects caused by groundwater conditions occurring throughout the basin: (1) Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon. Overdraft during a period of drought is not sufficient to establish a chronic lowering of groundwater levels if extractions and groundwater recharge are managed as necessary to ensure that reductions in groundwater levels or storage during a period of drought are offset by increases in groundwater levels or storage during other periods. (2) Significant and unreasonable reduction of groundwater storage. (3) Significant and unreasonable seawater intrusion. (4) Significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies. (5) Significant and unreasonable land subsidence that substantially interferes with surface land uses. (6) Depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water. **(CWC Section 10721**

Urban Water Management Plan	The plan adopted pursuant to the Urban Water Management Planning Act as described in Part 2.6 of Division 6 of the Water Code, commencing with Section 10610 et seq. **(23 CCR Section 351)**
Water Budget	The accounting of the total groundwater and surface water entering and leaving a basin including the changes in the amount of water stored. **(CWC Section 10721)**
Water Source Type	The source from which water is derived to meet the applied beneficial uses, including groundwater, recycled water, reused water, and surface water sources identified as Central Valley Project, the State Water Project, the Colorado River Project, local supplies, and local imported supplies. **(23 CCR Section 351)**
Water Use Sector	The categories of water demand based on the general land uses to which the water is applied, including urban, industrial, agricultural, managed wetlands, managed recharge, and native vegetation. **(23 CCR Section 351)**
Water Year	The period from October 1 through the following September 30, inclusive. **(CWC Section 10721)** or the period from October 1 through the following September 30, inclusive, as defined in the Act. **(23 CCR Section 351)**
Water Year Type	The classification provided by the Department to assess the amount of annual precipitation in a basin. **(23 CCR Section 351)**
Wellhead Protection Area	The surface and subsurface area surrounding a water well or well field that supplies a public water system through which contaminants are reasonably likely to migrate toward the water well or well field. **(CWC Section 10721)**

REFERENCES

California Code of Regulations. Title 23, Section 341.

California Code of Regulations. Title 23, Section 351.

California Department of Water Resources (DWR). 2003. Bulletin 118: California's Groundwater.

California Water Code. Division 6. Part 2.74. Section 10721. Chapter 2. Definitions. (Amended by Stats. 2018, Ch. 255, Sec. 1. (AB 1944) Effective January 1, 2019.)

Appendix 2A

Selected General Plan Goals and Policies

Table 1. Selected Colusa County General Plan Goals and Policies	
Goal or Objective	**Policy or Action**
Agriculture Element	
Goal AG-2: Maintain and enhance agriculture as the County's most critical land use, economic sector, and resource.	**Policy AG 2-1:** Agricultural-related industrial support operations shall be permitted on agricultural lands. Such uses may include, but are not limited to, processing, assembly, distribution and warehousing of agricultural materials and commodities and alternative energy systems that provide energy for on-site uses. These uses should be permitted on agricultural lands as principal permitted uses subject to the standards of the Zoning Ordinance provided the following findings are made: *d. The operational or physical characteristics of the use will not have a significant adverse impact on water resources or the use or management of surrounding agricultural properties within at least a one-quarter (1/4) mile radius*.
Objective AG 2-C: Preserve and Protect Water, Soil, and Natural Resources Necessary for Agricultural Operations	**Policy AG 2-8:** Support and promote water development projects which provide additional sources of water for agricultural uses. Policy AG 2-9: Support the procurement of expanded and additional water rights which provide for contractual supply reliability for agricultural use. **Policy AG 2-10:** Seek to increase the County's influence regarding water rights and distribution legislation at the state and federal level, to the greatest degree feasible for both surface water and ground water sources. This may occur through County support for local farm interest groups seeking to influence water-related legislation at the state and federal levels. **Policy AG 2-11:** Assist landowners in resolving water rights, water delivery, and water supply issues with other agencies such as the California Department of Fish and Game, the U.S. Army Corps of Engineers, the U.S. Bureau of Reclamation, and the California Department of Water Resources. Policy AG 2-12: Within conservation easements and habitat conservation lands, preclude the practice of fallowing fields for the purpose of water export. **Policy AG 2-13:** Encourage the reuse of treated wastewater for agricultural purposes. **Policy AG 2-14:** Preserve water resources for agriculture, both in quantity and quality, from competition with development, non-agricultural uses, mitigation banks, and/or interests from outside of the County. **Policy AG 2-15:** Promote best management practices in agricultural operations (including animal operations) to reduce emissions, conserve energy and water, and utilize alternative energy sources. **Policy AG 2-16:** Promote wildlife-friendly farm practices, such as tailwater ponds, native species/grasslands restoration in field margins, hedgerows, ditch management for riparian habitat, and restoration of riparian areas in a manner consistent with ongoing agricultural activities, water delivery systems, reduction of pesticides, and other appropriate measures.
	Action AG 2-F: Coordinate with irrigation districts to identify cost-effective and feasible Best Management Practices for the application and use of water resources that address the range of agricultural activities in Colusa County. Work with entities such as the irrigation districts, Agricultural Commissioner, UC Extension Office, the Colusa County Resource Conservation District, and the Natural Resources Conservation Service to distribute Best Management Practices information to agricultural operations in the County. **Action AG 2-G**: Collaborate with water suppliers and wastewater treatment plant operators to increase the availability of treated or recycled water for agricultural purposes.
Community Character	
GOAL CC-2: Ensure that New Growth Addresses the Needs, Challenges and Opportunities Unique to Each Community	**Policy CC 2-6:** Require new residential development to connect to municipal water and sewer services. **Policy CC 2-19:** Prohibit lot splits or subdivision of land into new parcels smaller than two acres until centralized water and wastewater services are available. **Policy CC 2-24:** The use, expansion and development of private or mutually owned water and wastewater systems serving large-scale commercial and industrial land uses or multiple users shall be supported within the Sphere of Influence, provided that the systems meet the requirements outlined in Policy PSF 1-26 and all applicable State regulations. **Policy CC 2-25:** Encourage urban residential development within the City's Sphere of Influence to connect to municipal sewer and wastewater service and discourage the use, expansion and development of private or mutually owned water and wastewater systems serving residential uses within the Sphere of Influence. **Policy CC 2-42:** Require new urban development in Maxwell to connect to the municipal water and wastewater systems. **Policy CC 2-47:** Require new residential development in Princeton to connect to the municipal water and wastewater systems. **Policy CC 2-57:** Require applicants requesting land subdivisions or parcel splits in the Stonyford Lodge area to provide proof of adequate water supply for domestic use and fire protection. Additionally, sewage disposal meeting the County's standards and frontage for each parcel on a road built to County standards shall be ensured. **Policy CC 2-60:** Allow the subdivision of land designated Agriculture Transition (AT) and zoned Upland Conservation, 10 acre minimum (UC-10) into 10 acre parcels, provided that the project can demonstrate sufficient roadway access, water supply, septic capacity, no significant aesthetic impacts, and that no significant risk associated with wildland fires or slope stability would occur. **Policy CC 2-67:** Encourage urban residential development within the City's (Williams) Sphere of Influence to connect to municipal water and wastewater service. **Policy CC 2-69:** Discourage the use, expansion and development of private or mutually owned water and wastewater systems serving residential uses within the Sphere of Influence (Williams)

Table 1. Selected Colusa County General Plan Goals and Policies	
Goal or Objective	Policy or Action
Conservation Element	
Goal CON-1: Conserve and protect Colusa County's ecosystem.	**Policy CON 1-4:** Encourage conservation, rather than preservation, through the active management of natural resources, including wildlife, water, air, minerals, forests, and land. Conservation and management techniques include replacing trees, crops, and other renewable resources at a pace that ensures they are not consumed more quickly than they can be replaced; use of non-renewable resources in a manner that ensures the resources are not depleted but available to future generations for use; strategic forest thinning and fuels management to prevent wildfires; making resource areas accessible to the public while protecting resources from being diminished to non-recoverable levels; reducing incompatible wildlife/agricultural interface; and increasing public understanding and responsible use of resource conservation areas.
	Policy CON 1-7: Conserve and enhance those biological communities that contribute to the County's rich biodiversity including, but not limited to, blue oak woodlands, annual grasslands, mixed chaparral, pine woodlands, wetlands, riparian areas, aquatic habitat, and agricultural lands.
Objective CON-1B: Protect Endangered, Threatened and Special-Status Plant and Animal Species, their Habitats, and Other Sensitive Habitats	**Policy CON 1-13:** Sensitive habitats include oak woodlands, wetlands, vernal pools, riparian areas, wildlife and fish migration corridors, native plant nursery sites, waters of the U.S., and other habitats designated by state and federal agencies and laws. **Policy CON 1-14:** Require any proposed project that may affect special-status species, their habitat, or other sensitive habitat to submit a biological resources evaluation as part of the development review process. Evaluations shall be carried out under the direction of the Colusa County Department of Planning and Building and consistent with applicable state and federal guidelines. Additional focused surveys shall be conducted during the appropriate season (e.g., nesting season, flowering season, etc.), if necessary. **Policy CON 1-15:** Require that impacts to wetlands and riparian habitat protected by State or Federal regulations be avoided to the greatest extent feasible. If avoidance is not possible, fully mitigate impacts consistent with applicable local, State and Federal requirements. **Policy CON 1-16:** Require new development projects to incorporate measures that eliminate or avoid direct impacts to lakes, reservoirs, rivers, creeks, streams, wetlands, and other waterways to the greatest extent feasible. Measures may include, but are not limited to, appropriate setbacks or the implementation of best management practices approved by the Department of Planning and Building. **Policy CON 1-17:** All discretionary public and private projects that identify special-status species or sensitive habitats in a biological resources evaluation shall avoid impacts to special-status species and their habitat to the maximum extent feasible. Where impacts cannot be avoided, projects shall include the implementation of site-specific or project-specific effective mitigation strategies developed by a qualified professional in consultation with state or federal resource agencies with jurisdiction (if applicable) including, but not limited to, the following strategies: *a. Preservation of habitat and connectivity of adequate size, quality, and configuration to support the special-status species. Connectivity shall be determined based on the specifics of the species' needs.* *b. Project design measures, such as clustering of structures or locating project features to avoid known locations of special-status species and/or sensitive habitats.* *c. Provision of supplemental planting and maintenance of grasses, shrubs, and trees of similar quality and quantity to provide adequate vegetation cover to enhance water quality, minimize sedimentation and soil transport, and provide adequate shelter and food for wildlife.* *d. Protection for habitat and the known locations of special-status species through adequate buffering or other means.* *e. Provision of replacement habitat of like quantity and quality on- or off-site for special status species.* *f. Enhancement of existing special-status species habitat values through restoration and replanting of native plant species.* *g. Provision of temporary or permanent buffers of adequate size (based on the specifics of the special-status species) to avoid nest abandonment by nesting migratory birds and raptors associated with construction and site development activities.* *h. Incorporation of the provisions or demonstration of compliance with applicable recovery plans for federally listed species.* *i. Monitoring of construction activities by a qualified biologist to avoid impacts to on-site special status species.*
	Action CON 1-C: Review development project proposals, infrastructure projects, long range planning projects, and other projects that may potentially impact special-status species and sensitive resources to determine whether significant adverse impacts will occur. Where adverse impacts are identified, develop appropriate mitigation measures, in conformance with General Plan policies and relevant state and federal laws, to reduce or avoid impacts to the maximum extent feasible and practical. **Action CON 1-D**: Update the Zoning Ordinance to include standards to address significant impacts to special-status species and sensitive habitats consistent with Policies CON 1-13 through 1-18.
Objective CON-1C: Protect and Enhance Local Fisheries and Riparian and Aquatic Habitat	**Policy CON 1-21:** Protect riparian habitat along the Sacramento River in order to maintain suitable habitat for anadromous fish species, including salmon and steelhead trout, and for native sportfishing species
	Action CON 1-E: Coordinate with the California Department of Fish and Game to identify adversely impacted aquatic habitat within the County and to develop riparian management guidelines to be implemented by development, recreation, and other projects adjacent to rivers, lakes, reservoirs, and streams.

Table 1. Selected Colusa County General Plan Goals and Policies	
Goal or Objective	Policy or Action
Objective CON-1D: Protect Surface Water Quality in the County's Lakes, Streams, Creeks and Rivers	**Policy CON 1-22:** Maintain lakes, rivers, streams, creeks, and waterways in a natural state whenever possible. These water features may be actively managed and/or improved or modified in order to function as natural flood protection and storm water management features during storms and flooding events. **Policy CON 1-23:** Protect and enhance streams, channels, seasonal and permanent marshland, wetlands, sloughs, riparian habitat and vernal pools through sound land use planning, community design, and site planning. **Policy CON 1-24**: If a proposed project may result in impacts to wetlands or other Waters of the U.S., require the project proponent to consult with the appropriate regulatory agency and implement all applicable permit requirements as a condition of project approval. **Policy CON 1-25:** Balance the needs of aquatic and riparian ecosystem enhancement efforts with flood management objectives. Policy CON 1-26: Discourage development within 50 feet from the top of banks for all lakes, perennial ponds, rivers, creeks, sloughs, and perennial streams unless County-approved best management practices have been incorporated into the project's design in order to protect water quality and shoreline resources. Appropriate uses within the setback areas may include, but are not necessarily limited to: a. Fire and flood protection areas b. Maintenance of riparian habitat c. Recreational trails d. Vegetated landscaping e. Boat launch facilities Levees g. Docks h. Irrigation pumps **Policy CON 1-27:** Encourage agricultural land owners to improve on-site storm water retention features and implement feasible Best Management Practices (BMPs) to reduce site runoff and provide for natural removal of water pollutants. **Policy CON 1-28:** Support non-regulatory programs for protection of streams and riparian habitat, including education, technical assistance, tax incentives, and voluntary efforts to protect riparian resources.
	Action CON 1-F: Continue to require implementation of the County's Grading Ordinance. Review projects to ensure that BMPs are implemented during construction and site grading activities as well as in project design to reduce pollutant runoff into water bodies.
Objective CON-1E: Ensure a Sustainable and Long-Term Supply of Safe and Reliable Water to Support the Needs of County Residents, Businesses, and Agricultural Operations	**Policy CON 1-29:** Support water development, treatment, and storage projects that are needed to meet existing and future local and regional demand. **Policy CON 1-30:** Ensure that regional, state, and federal water projects, including proposed Sites Reservoir, protect local water rights and areas of origin. **Policy CON 1-31:** Encourage municipal water purveyors to install water meters and abandon flat-fee water use rate structures where feasible. **Policy CON 1-32:** Demonstrate leadership in water conservation by including water-efficient plumbing and landscaping at all new County facilities, and by reducing the County's own water use to the extent possible. **Policy CON 1-33:** Require new development and expansion of existing uses to incorporate best management practices for water use and include water conservation measures. **Policy CON 1-34:** Encourage the use of water conservation measures for agriculture and in existing residences and businesses. **Policy CON 1-35:** Encourage the use of water conservation measures, including low flow plumbing; reclaimed wastewater for non-potable uses; dual plumbing that allows grey water from showers, sinks, and washers to be reused for landscape irrigation in new developments; and native and drought-tolerant landscaping.
	Action CON 1-G: Adopt a Water Efficient Landscaping Ordinance for residential, park, recreational, and commercial uses, based on the state model ordinance as amended to address local concerns. The ordinance should address: 1. Water-efficient landscape designs using low water-use plants. 2. Efficient irrigation systems. 3. Minimized turf areas. 4. Soil improvements and mulch. 5. Regular maintenance and adjustment of irrigation systems. 6. Scheduling irrigation during early or late hours. 7. Water budgeting, when necessary. 8. Education of residents, customers and employees regarding the importance of efficient water use. **Action CON 1-H:** Continue to implement the policies, actions, and Basin Management Objectives (BMOs) contained in the Colusa County Groundwater Management Plan. Action CON 1-I: Continue to cooperate with Butte, Glenn, Tehama, Shasta and Sutter Counties through the Northern Sacramento Valley Integrated Regional Water Management Group, and continue to foster regional cooperation with other counties and water purveyors.

<table>
<tr><th colspan="2">Table 1. Selected Colusa County General Plan Goals and Policies</th></tr>
<tr><th>Goal or Objective</th><th>Policy or Action</th></tr>
<tr><td colspan="2">Housing Element</td></tr>
<tr><td rowspan="3">Goal HO-2: Provide Adequate Sites and Infrastructure to Accommodate the County’s Housing Needs</td><td>Policy HO-11: Implement all policies and programs of the Housing Element with adequate consideration given to the protection of the County’s agricultural and groundwater resources, and maintaining consistency with the County’s Conservation Element of the General Plan.</td></tr>
<tr><td>Program HO 2-5 Provision of Public Services

The County will make every effort to ensure that infrastructure is available in a timely manner to accommodate development of its fair share of regional housing needs. Particular effort will be made to provide adequate infrastructure to accommodate the R-2, R-3, and R-4 sites in Arbuckle, Maxwell, Princeton, and the unincorporated area of Colusa.

The County will coordinate with the local water and sewer agencies to assist in planning for adequate water and sewer service. The County will take the following actions, as needed, to provide service to developing areas:

<u>All Service Providers</u>
Each water and sewer provider will be mailed a copy of the Housing Element, upon its adoption, along with a letter that includes: 1) the text of Government Code Section 65589.7 requiring water and sewer providers to grant priority for service allocations to proposed developments that include housing units affordable to lower (including very low and extremely low) income households; 2) a summary of the County’s regional housing needs allocation; and 3) specific actions the provider should take to ensure adequate service (see below for actions specific to each district/area in the County).
<u>Rural Areas</u>
Review potential treatment technologies that could be developed to provide water and sewer service for rural market-rate and affordable housing; develop performance standards for potential treatment technologies to assist public and/or private sewer and water providers in determining which will be most feasible in their locations within the County. • Allow a wide range of feasible alternative system sizes and treatment technologies to provide water and sewer service for rural market-rate and affordable housing.
Program HO 2-6 Adequate Water and Wastewater Service for Subdivisions

Revise the Zoning Ordinance to ensure parcel map or subdivision map approval is dependent on demonstrated ability to provide potable water and meet septic capacity requirements.</td></tr>
<tr><td>Policy HO-18: Give priority for water service connections to extremely low, very low, and low income housing units in areas receiving water service from the County. Encourage local water and sewer providers to give priority to these lower income developments pursuant to Government Code Section 65589.7. Provide a copy of the Housing Element Update to local water and sewer providers upon its adoption.</td></tr>
<tr><td colspan="2">Land Use Element</td></tr>
<tr><td rowspan="2">Goal LU-1: Maintain the efficient and harmonious use of land in the county, promoting a well organized and orderly development pattern, avoiding random, haphazard growth, protecting public health and safety, and accommodating the orderly and sustainable growth of employment and population.</td><td>Policy LU 1-4: Locate lands designated for future development based on constraints associated with natural features, such as soil, slope, and drainage, preservation of the County’s resources, including agriculture, open space, and scenic views, and by public service availability, such as sewer and water capability; policies and actions related to these requirements are set forth in more detail in the Safety, Conservation, and Public Facilities and Services Elements.</td></tr>
<tr><td>Action LU 1-D: Review development projects, consistent with the requirements of the California Environmental Quality Act and other applicable laws, to identify potential impacts associated with aesthetics, agriculture, air quality, circulation, community character, natural and cultural resources, greenhouse gases, public health and safety, water quality and supply, public services and facilities, and utilities and to mitigate of adverse impacts to the maximum extent that is feasible and practical.</td></tr>
<tr><td>Objective LU-1C: Ensure a Streamlined and Equitable Process for Project Permitting and Outside Agency Coordination without Compromising the Enforcement of Local Land Use Regulations</td><td>Policy LU 1-27: Participate in countywide, regional and other multi-agency planning efforts related to agriculture, water supply, tourism, open space, air quality, housing, green infrastructure, recreation, habitat conservation, energy, emergency preparedness and flood protection to ensure that the needs of the County’s residents and businesses are not overlooked.</td></tr>
<tr><td>Goal LU-3: Ensure that Future Development Achieves the County’s Goals of Agricultural Conservation, Rural Character, Growth Focused Around Existing Communities and Uses Sustainable Practices through Application of Development Requirements</td><td>Policy LU 3-1: Require proposed urban and rural residential development to be consistent with the following:

<u>Rural Residential</u>
The soil is determined to be suitable for septic tank use by the Environmental Health Department
Groundwater is determined to be sufficient to support a well by the Environmental Health Department
The parcel can be made accessible from a public street
It can be demonstrated that the development is compatible with surrounding uses and will not have a significant, adverse effect on adjoining properties.
The area is accessible for fire protection and can meet fire resistance guidelines if located in a high hazard area.
It can be demonstrated that potable water is available.
<u>Urban Residential</u>
The community utility systems, including water, drainage, and sewer, if available, can accommodate the additional demand.
The area has access to a major transportation route.
The impact of the development on local streets can be mitigated to acceptable levels.
Adequate fire protection measures are provided.
The site adjoins existing urban (residential, commercial, public facility, etc.) development.
The project avoids the repetition of residential facades/designs within subdivisions.
The development is compact, is sensitive to natural resources, public safety, efficiently uses water and energy, maximizes bicycle and pedestrian opportunities, provides multimodal connections to nearby neighborhoods, bike/pedestrian routes and trails, and provides direct, safe routes to services, schools, and shopping.</td></tr>
</table>

Table 1. Selected Colusa County General Plan Goals and Policies

Goal or Objective	Policy or Action
Objective LU-3B: Ensure that Reasonable Development Standards and the County's Rural Character and Quality of Life are Not Compromised in Efforts to Attract Commercial and Industrial Growth	**Policy LU 3-24:** Require proposed industrial development to be consistent with the following: • The area can be readily hooked up to public sewer and water facilities where these facilities are available, or to private sewer and water facilities where utilities do not yet exist. • If the industry uses community utilities, that community systems can accommodate the added demand without additional costs to the existing community. • If the project is to be served by groundwater wells, that reliable, scientific data be provided in the project development application that demonstrates that groundwater will be available under all conditions, including drought, that surrounding the wells will not have appreciable adverse effects on the quality and quantity of existing domestic and agricultural water supplies, and that private sewage disposal systems can comply with Environmental Health Department standards. • The project will not significantly contribute to air, water, light, and noise pollution.
Open Space Element	
Objective OSR 1-B: Balance Open Space Preservation with Economic Development Needs	**Policy OSR 1-9:** Maintain open space for future water and drainage projects.
Public Services and Facilities Element	
Objective PSF-1A: Provide Safe, Reliable, and Environmentally Sound Water Services to Existing County Land Uses and Areas of Planned Growth	**Policy PSF 1-3:** Coordinate with water providers throughout the County to manage water supplies in a way that ensures adequate supplies for existing residents, agricultural uses, and businesses, and for projected growth, and avoids groundwater overdraft, water quality degradation and other adverse environmental impacts. **Policy PSF 1-5:** Facilitate, and to the extent feasible, assist with the development of new and reliable sources of water, consistent with County land use plans and regional water needs. **Policy PSF 1-7:** Priority is given to serving existing water uses over new water uses. **Policy PSF 1-8:** Require proof of an adequate (as defined by the County Environmental Health Division) potable water supply to serve the entire project prior to approval of any division of land or use permit. **Policy PSF 1-11:** New residential development on parcels two acres in size or smaller shall be required to connect to a public water system, with the exception of existing Rural Residential and Rural Service Center parcels which may be allowed to have an on-site well if approved by the County Department of Environmental Health.
Safety Element	
Objective SA 1-D: Take Appropriate Steps to Reduce the Risks to Life, Property, and Public Services Associated with Flooding.	**Policy SA 1-27:** Maintain adequate lands that can be used for groundwater recharge and storm water management. These lands may include parcels designated Agriculture General (AG), Designated Floodway (DF), and Resource Conservation (RC). **Policy SA 1-35:** Encourage and accommodate multi-benefit flood control projects that incorporate recreation, resource conservation, preservation of natural riparian habitat, and scenic values of the County's streams, creeks and lakes. Where appropriate and feasible, the County shall also encourage the use of flood and/or stormwater retention facilities for use as groundwater recharge facilities.

Table 2. Selected Glenn County General Plan Goals and Policies	
Goal or Objective	**Policy or Action**
Natural Resources	
Agriculture/Soils	
NRG-1 Preservation of agricultural land	**NRP-3:** Recognize the value of ricelands for waterfowl habitat, watershed management, and for groundwater recharge in an effort to preserve such lands and to maintain necessary water supplies in Glenn County. **NRP-4:** Support efforts underway to explore the potential to utilize ricelands as temporary storage reservoirs in the winter months, thus increasing groundwater recharge and supplies of surface water for both agriculture and wildlife, and potentially providing an alternative to rice straw burning. **NRP-19:** Support the erosion control programs, resource management programs, and agricultural conservation efforts of the Glenn County Resource Conservation District that benefit the county as a whole. Implementation Strategies, Programs and Priorities **NRI-3:** Encourage rice growers as well as other agricultural crop growers and cooperative to emphasize the value of rice land for waterfowl habitat, air quality enhancement, and groundwater recharge through promotions and advertisement. **NRI-4:** Monitor and participate in efforts of State and federal agencies and private conservation groups to find alternatives to rice straw burning, including winter flooding of fields. **NRI-16:** Establish a County notification process for requests to convert land from agricultural and grazing use to wetlands.
Water Resources	
NRG-2 Protection and management of local water resources	**NRP-22:** Oppose the exportation of groundwater resources outside the county. **NRP-23:** Support legislation which will provide for a locally controlled Glenn County groundwater management district. **NRP-24:** Recognize the following local priorities when dealing with questions of ground and surface water use: • Highest: 1) Household/Domestic, 2) Agriculture, 3: Industrial/Commercial, 4) Wildlife/Conservation Lowest: 5) Exportation **NRP-25:** Protect groundwater recharge areas in the county from overcovering and contamination by carefully regulating the type of development which occurs within these areas. **NRP-26:** Discourage onsite sewage disposal systems in areas with high groundwater recharge potential and eliminate existing concentrations of septic tanks in such areas through construction of community sewage treatment and disposal systems. **NRP-27:** Prohibit uses with the potential to accidentally discharge harmful groundwater pollutants in areas of high groundwater recharge, unless appropriate mitigation measures have been incorporated into the operation of such uses. **NRP-28:** Identify and monitor potential sources of groundwater pollution, including harmful agricultural practices. **NRP-29:** Limit structural coverage and impervious surfaces within areas of high groundwater recharge through application of zoning that recognizes the importance of this feature. **NRP-30:** Protect important watershed areas from poor development practices and potential degradation. **NRP-31:** Monitor actions taken at the State and federal level which impact water resources in order to evaluate the effects of these actions on the county's resources. **NRP-33:** Carefully study the potential impact that any future reservoir construction may have on groundwater recharge areas in Glenn County. **NRP-34:** Recognize the value of irrigation system infrastructure by discouraging development within established irrigation district boundaries which would prematurely reduce the utility of such systems. **NRP-35:** Encourage the development of water conservation programs by water purveyors for both agricultural and urban uses. **NRP-36:** Encourage development of educational programs to increase public awareness of water conservation opportunities and the potential benefits of implementing conservation measures and programs. **NRP-37:** Recognize that efforts to reserve water in Glenn County for wildlife may also bring long-term benefits to the effort to retain water resources locally. **NRP-38:** Recognize the impacts of gravel extraction on groundwater quantity and quality and encourage extraction methods that preserve and enhance groundwater resources. Implementation Strategies, Programs and Priorities **NRI-18:** Establish a local groundwater management program including strategies for advancing State legislation supportive of a locally controlled groundwater management district. **NRI-19:** Apply the priorities for water consumption included in this General Plan when reviewing discretionary actions. **NRI-20:** Establish an overlay designation to provide appropriate protections for areas of the county where groundwater recharge occurs, such as limitations on overcovering of soils with impervious surfaces. To provide for appropriate groundwater protection, new zoning proposals that could result in residential lots less than one acre should not be approved until a sewer system is available. Consult with the State Department of Water Resources, the Glenn County Health Department and the Glenn County Planning Department, and incorporate protective measures into the *Glenn County Zoning Code.* **NRI-22:** Work with State and federal agencies to improve local groundwater pollution detection and monitoring. **NRI-23:** Amend County ordinances to include development standards, as contained in this *General Plan,* which protect watershed areas, and coordinate application of the standards with the U.S. Forest Service and other agencies. **NRI-24:** Monitor and participate in efforts of the Bureau of Reclamation and Army Corps of Engineers to study the impacts of additional reservoir construction and of reservoir siltation. **NRI-25:** Develop and actively seek funding to develop water conservation and educational programs.
Biological Resources	

Table 2. Selected Glenn County General Plan Goals and Policies	
Goal or Objective	Policy or Action
NRG-3 Preservation and enhancement of the county's biological resources in a manner compatible with a sound local economy.	**NRP-39:** Approach the retention and enhancement of important habitat by preserving areas or systems which will benefit a variety of species or resources rather than focusing on individual species, resources or properties. **NRP-41:** Preserve natural riparian habitat, especially along Stony Creek and the Sacramento River and Butte Creek. **NRP-42:** Eliminate the E-M (Extractive Industrial) Zone from areas containing natural riparian vegetation/habitat and replace it with a category affording greater protection to stream courses and riparian habitats. **NRP-46:** Promote protection of native biological habitats of local importance such as riparian forests, foothill oak woodlands, Stony Gorge and Black Butte Reservoirs. **NRP-50:** Recognize the Sacramento River corridor, the Sacramento National Wildlife Refuge, migratory deer herd areas, naturally occurring wetlands, and stream courses such as Butte and Stony Creeks as areas of significant biological importance. **NRP-53:** Direct development away from naturally occurring wetlands to the extent such policy is consistent with the concept of compact and contiguous development. **NRP-61:** Support efforts to improve water availability and management when the potential exists to benefit fish and wildlife in cooperation with Glenn County agricultural water users. Implementation Strategies, Programs and Priorities **NRI-27:** Amend the *Glenn County Zoning Code* to include a Streamside Protection Zone and rezone those areas along stream courses currently zoned E-M (Extractive industrial Zone) in accordance with a locally prepared riparian zone management plan. **NRI-32:** Meet with the U.S. Fish and Wildlife Service to determine if there is interest in establishing buffer areas around the Sacramento National Wildlife Refuge and other areas of biological importance, and how the federal government would participate in their formation. **NRI-34:** Identify biologically important areas, such as the Sacramento River Corridor, Sacramento National Wildlife Refuge, deer herd ranges, naturally occurring wetlands, and stream courses such as Butte and Stony Creeks, and show them as constraints to development in this *General Plan* (Reference Biological Importance Overlay and Restorable Wetlands Overlay).
Public Safety	
Water Quality	
PSG-6 Protection and enhancement of water quality.	**PSP-43:** Support ongoing regulatory and compliance efforts at the federal and State level for the protection of water quality. **PSP-45:** Zone floodways and stream channels in a manner that promotes protection of water quality. **PSP-47:** Support the preparation of area groundwater studies to the protection of groundwater and to ensure that the holding capacity of the area is not exceeded. Implementation Strategies, Programs and Priorities **PSI-42:** Sponsor and assist with educational efforts which have as a goal greater public awareness and compliance with established water quality standards.
Community Development	
Land Use/Growth	
CDG-2 Avoidance of land use conflicts in agricultural areas.	**P-45:** Discourage urban growth in floodplains, aquifer recharge areas, scenic and historic sites, or other sensitive areas as specified in this General Plan. **CDP-17:** Encourage agricultural water suppliers to make changes in their service requirements to increase the minimum sized parcel to be served in agricultural areas to ten (10) acres, and recommend that new parcels created within water supply district boundaries which are less than ten (10) acres in size be detached from the district(s), except for the Orland Unit Water Users' Association, for which the minimum size shall be 5.01 acres. **CDP-18:** Within the Orland-Artois Water District, approve no zone changes allowing parcels smaller than twenty (20) acres in size, and approve no tentative maps for parcels less than twenty (20) acres in size. Implementation Strategies, Programs and Priorities **CDI-10:** Contact agricultural water suppliers and formally request establishment of a ten (10) acre minimum parcel size for agricultural water service. **CDI-11:** Apply zoning to properties located within the Orland-Artois Water District that reflects a minimum parcel size of twenty (20) acres or larger.
Public Services and Facilities	
CDG-17 Provision of adequate and cost-effective public services.	**CDP-129:** Maintain coordination and cooperation between the County and water purveyors, and encourage special districts to comply with State law by referring capital projects to the County for review and evaluation for consistency with the General Plan. Implementation Strategies, Programs and Priorities **CDI-83:** Convene a task force composed of representatives of Glenn County and the cities of Willows and Orland to formulate a memorandum of understanding which establishes uniform polities and standards for building construction, public utility connections, sewer and water service, and other matters related to cost-effective development of unincorporated areas within city urban limit lines. **CDI-88:** Request LAFCO to initiate and undertake studies of existing special districts and cities which include inventorying those agencies and determining their maximum service area and service capacities. **CDI-89:** Request LAFCO to adopt standards and procedures for the evaluation of service plans submitted by cities and special districts with annexation/reorganization applications. **CDI-94:** Request the Environmental Health Department to review minimum parcel size standards for areas without public or community water service for adequacy as new information becomes available e.g. soil surveys, new regulations.

Table 3. Selected City of Colusa General Plan Goals and Policies

Goal or Objective	Policy or Action
Land Use Elements	
Comprehensive Planning	
Goal LU-6: To provide a comprehensive, logical land use planning process rather than an incremental, piecemeal approach.	**Policy LU-6.3:** Growth shall be managed to ensure that adequate public facilities and services are planned for and provided in a manner that protects the public's health, safety, and welfare.
	<u>Implementing Actions</u> Implementing Action LU-6.3.e: Water Master Plan The City will adopt and implement a Water Master Plan. Development projects will be evaluated for consistency with this plan. The plan will provide a framework for timed capital improvements and facility expansion projects and will aid the City in identifying and establishing funding sources beyond monthly service charges to finance improvements related to water quality, supply, recycling, distribution, and water conservation. Municipal water is discussed is discussed in detail in the Municipal Facilities and Services Element. Implementing Action LU-6.3.f: Wastewater Master Plan The City will adopt and implement a Wastewater Master Plan. Development projects will be evaluated for consistency with this plan. The plan will provide the framework for timed capital improvements and facility expansion projects and will identify funding sources beyond monthly service charges to finance improvements related to expansion and upgrades to wastewater capacity, flow, treatment, and reclamation. The City will refer to this plan when constructing improvements and upgrades to the Wastewater Treatment Plant as needed to accommodate existing customers and any approved development. Wastewater is discussed in detail in the Municipal Facilities and Services Element. Implementing Action LU-6.3.g: Storm Drainage Master Plan The City will adopt and implement a Storm Drainage Master Plan. Development projects will be evaluated for consistency with this plan. The plan will identify drainage facilities that will be constructed to eliminate drainage problems in the City and will describe the means for financing the improvements. The Storm Drainage Master Plan will address Regional Water Quality Control Board water quality standards, including Best Management Practices for storm drainage management. Storm drainage is discussed in detail in the Municipal Facilities and Services Element.
Community Character and Design	
Environmental Sustainability	
Goal CCD-2: To ensure that new development respects the natural environment.	**Policy CCD-2.2:** New development shall respect the contours of drainage ways as important recognizable features of the City.
	<u>Implementing Actions</u> Implementing Action CCD-2.2.c: Improvement Standards The City will update and adopt improvement standards to be applied to improvements and private works to be dedicated to the public and accepted by the City for maintenance or operation, as well as improvements to be installed within existing rightsof-way and easements. These standards shall serve to regulate and guide the design and preparation of plans for street construction, alleys, drainage, sewer, street lighting water supply facilities, and related public improvements.
	Policy CCD-2.5: The City shall ensure that infrastructure improvements demonstrate sensitivity to any natural systems affecting a project site.
	Policy CCD-2.5: The City shall ensure that infrastructure improvements demonstrate sensitivity to any natural systems affecting a project site.
	<u>Implementation Actions</u> Implementing Action CCD-2.5.b: Development Review Impacts of proposed new development will be evaluated with each proposal. Mitigation of significant impacts to the natural environment, including biological resources, water quality and air quality, will be required as part of the development review process. Mitigation measures to minimize impacts on these natural resources will be implemented as appropriate.
Safety Element	
Goal SAF-2: To minimize the potential for loss of life and damage to property due to flooding.	**Policy SAF-2.2:** The City shall minimize the potential for flood damage to buildings and other structures, particularly from storm water runoff.
	<u>Implementing Actions</u> Implementing Action SAF-2.2.a: Storm Drainage Master Plan The City will adopt a Storm Drainage Master Plan for Colusa. The Master Plan will identify drainage facilities that will be constructed to eliminate or mitigate drainage problems in the City, and describe the means for financing the proposed improvements. The Storm Drainage Master Plan will be consistent with any Capital Improvements Plan prepared by the City and will address Regional Water Quality Control Board water quality standards, including Best Management Practices for storm drainage. Implementing Action SAF-2.2.b: Development Review The City will require new development to ensure that the cumulative rate of peak runoff does not exceed pre-development levels. New development and redevelopment of existing sites will provide storm water detention or retention facilities (on- or offsite), if necessary, to prevent flooding due to runoff or where existing storm drainage facilities are unable to accommodate increased storm water drainage. Implementing Action SAF-2.2.c: Ordinance and Regulation Review and Update The City will review and revise its Subdivision Ordinance as needed to incorporate specific data and design requirements related to storm water drainage that are contained in this General Plan update.
Parks, Recreation and Resource Conservation	
Water Quality and Water Conservation	
Goal PRC- 9: To manage and protect the City's water resources.	**Policy PRC – 9.1:** The City shall require natural drainage flows be maintained in new development projects to the greatest extent feasible.
	<u>Implementing Action</u> Implementing Action PRC-9.1.a: Development Review As part of the development review process, the City will review individual projects to determine the setback requirements that will adequately buffer natural drainage corridors from development. The City will require that new development protect natural drainage corridors and other watercourses from the adverse effects of construction activities and urban runoff.

Table 3. Selected City of Colusa General Plan Goals and Policies	
Goal or Objective	Policy or Action
	Policy PRC- 9.2: The City shall periodically review the status of the City's groundwater resources.
	Implementing Action Implementing Action PRC-9.2.a: Water Resources Report The City will prepare a Water Resources bi-annual report to the City Council. This report, in part, will include an analysis of groundwater resources. The City will use this report to ensure groundwater resources are protected from contamination and overdraft. As part of the Water Resources Report, the Public Works Department will analyze the quality of drinking water in the City. The City will encourage activities that maintain and improve drinking water quality.
	Policy PRC – 9.3: The City shall maintain its ability to meet its water supply requirements. Implementing Action PRC-9.3.a: Development Review As part of the development review process, the City will evaluate the incorporation of water conservation techniques in all new development.
	Implementing Action Implementing Action PRC-9.3.b: Development Impact Fees (see Implementing Action MFS-1.1.b).
	Policy PRC-9.4: The City shall encourage the use of treated wastewater and other non-potable water sources for irrigation and groundwater recharge.
	Implementing Actions Implementation Action PRC-9.4.a: Landscape Ordinance The City will adopt and implement a landscape ordinance, which will establish standards for water-conserving landscaping in order to reduce water use in developed areas. Requirements will specify the use of reclaimed water, trees, and other vegetation. This ordinance will be applied in the design and development of private and public development projects and will be consistent with the provisions of the General Plan. Implementation Action PRC-9.4.b: Interagency Coordination In cooperation with the Colusa County Water District, the City will identify and develop opportunities for reuse of non-potable water, including reclaimed water, for non-domestic uses.
Municipal Facilities	
Water System	
Goal MFS – 7: To maintain and enhance a water system that meets the needs of existing and future residents of Colusa.	**Policy MFS-7.1:** The City shall establish development standards and plans to ensure that the water treatment and delivery system is not unduly burdened by new development.
	Implementing Action Implementing Action MFS-7.1.c: Water Master Plan The City will prepare and implement a Water Master Plan to provide a framework for timed capital improvements and facility expansion projects. The plan will aid the City in identifying and establishing funding sources beyond monthly service charges to finance improvements related to water quality, supply, recycling, distribution, conservation, and other issue areas identified issue areas identified by the City and the plan. The plan will evaluate the depth, size, recharge rate, and capacity of the aquifer to accommodate the City's projected future growth. The plan will also make determinations regarding the need to develop additional water sources during the planning period of this General Plan.
	Policy MFS-7.2: To minimize the need for the development of new water sources and facilities and to minimize sewer treatment needs, the City shall promote water conservation in City operations and in private development. The City shall annually monitor water usage to assess the effectiveness of the water conservation program.
	Implementing Action MFS-7.2.a: Water Master Plan The City will implement a water conservation program, to be defined and incorporated in its Urban Water Management Plan, to be prepared with the Water System Master Plan. If groundwater levels decline and/or if the "moderate" program does not achieve its intended results, the City will implement the "aggressive" or "maximum" water conservation program as defined in the Water Management Plan.
	Policy MFS-7.3: The City shall, to the extent practical, require the use of drought-tolerant plant species and water efficient irrigation systems in the landscaping of new public and private open space areas, common areas, and parks.
	Implementing Action MFS-7.3.a: Development Review Through review of development projects, the City will condition development, where practical, on water conservation practices.
Stormwater Drainage System	
Goal MFS – 9: To provide adequate stormwater drainage for all existing and future development.	**Policy MFS-9.1:** The City shall ensure its stormwater drainage system is upgraded in phases to adequately accommodate drainage resulting from new development prior to project construction.
	Implementing Action Implementing Action MFS-9.1.a: Storm Drainage Master Plan The City will prepare and adopt a Storm Drainage Master Plan for Colusa. The Master Plan will identify drainage facilities that will be constructed to eliminate existing drainage problems and avoid future drainage problems in the City and describe the means for financing the improvements. The Storm Drainage Master Plan will be consistent with any Capital Improvement Program prepared by the City and address Regional Water Quality Control Board water quality standards, including Best Management Practices for storm drainage.

Table 4. Selected City of Williams General Plan Goals and Policies	
Goal or Objective	Policy or Action
Land Use and Character	
Achieving a Quality Community Character	
	Policy 3.27: The land use plan and zoning districts will address for the character of development, which accounts for the design/intensity of development, the arrangement of buildings and parking areas, and the preservation of open space.
	Actions **3.hh.** Establish minimum open space standards within each district, which may be used for storm water detention, resource protection (e.g. riparian buffers along streams), bufferyards, and/or parks, trails, and open space. The amount of private or common open space relates to the character of development. For instance, in the Agriculture and Estate Residential districts, there is a high proportion of private open space whereas the Suburban Residential and Urban Residential districts have increasing percentages of common (public or semipublic) open space. **3.jj**. Incorporate development options within each zoning district. Different lot sizes and percentages of open space maintain the district character while allowing market flexibility and adjustment to site conditions. In other words, a smaller lot may be used and clustered to set aside adequate open space to preserve agricultural resources, such as the orchards, or to fulfill the City's storm water management objectives. A comparable density and character is achieved.
Service Provision	
	Policy 3.41: The City's land use pattern shall focus new development and significant redevelopment where adequate public services and utility capacity are already in place or projected for improvement, including streets, water, wastewater, and drainage infrastructure.
Environmental Sensitivity, Resource Protection, and Flood Prevention	
	Policy 3.45: Sensitive resources, including floodplains, wetlands, riparian buffer areas along stream channels, and valued view sheds, will be protected and preserved. **Policy 3.50:.** The City will consider the location of natural resources to be used for groundwater recharge and stormwater management.
Public Safety	
Flood Protection	
	Policy 4.9: The design of drainage improvements will be sensitive to community aesthetics, aquatic habitat, recreation (trails, playing fields), wetlands, and water quality mitigation. **Policy 4.10:** The City will encourage design strategies to reduce the impact of impervious surfaces on storm water quality through the use of water gardens, rain barrels or cisterns, pervious pavement, vegetated swales, swale blocks, and green roofs, among others.
	Actions **4.d.** Maintain a Flood and Drainage Master Plan that addresses the following, at a minimum: • Storm water and drainage improvements for all sections of the City that are needed to accommodate planned growth; • Coordination with irrigation districts, the County and other affected flood control agencies to develop uniform standards for irrigation and storm water conveyance infrastructure; and • Standard measures used for new development to address localized flooding, such as measures to avoid off-site drainage impacts from adjacent agricultural operations. **4.e.** At the time the City reaches a size by which it is required to comply with Section 402(p) of the Federal Clean Water Act, prepare a Storm Water Management Plan (SWMP) to fulfill the requirements for improving the quality of storm water discharges from Small Municipal Separate Storm Sewer Systems (MS4) for Phase II municipalities. **4.f.** Begin identifying Best Management Practices (BMPs), particularly construction site storm water runoff control and post-construction storm water management, to reduce the discharge of pollutants to the storm water system. These should be integrated as standards into the City's subdivision regulations. **4.g.** Through improved land development practices and regulations, establish a hierarchy for managing storm water with the following priorities: minimize impervious surfaces, attenuate flows by use of open, vegetated swales and natural depressions and preserve existing natural stream channels, infiltrate runoff 3, provide storm water retention and then detention structures, provide velocity dissipation structures or channel design, and construct storm sewers. **4.m.** Investigate the feasibility of the alternatives outlined in the Preliminary Technical Memorandum for Flood Hazard Mitigation Study Project Alternatives. The structural alternatives include improving the conveyance capacity of Freshwater and Salt Creeks and the supporting network of drainage laterals, replacing bridge crossings to remove obstructions, constructing diversion dams to channel flows away from the City, constructing flood detention and multi-purpose flood retention reservoirs, constructing levees to the west and north of the City with removable floodwall sections, and elevating existing structures. The non-structural alternatives include land acquisition, cropland storage, channel restoration, upland re-vegetation, and improved maintenance of stream channels.

Table 4. Selected City of Williams General Plan Goals and Policies	
Goal or Objective	Policy or Action
Public Facilities	
Water, Wastewater, and Storm Drainage	
	Policy 5.1: The City of Williams will provide utilities concurrently with development.
	Actions **5.b.** Continue developing the City's Capital Improvement Program (CIP) to repair and replace aging and deteriorated sewer lines, which will improve the flow efficiency, reduce inflow and infiltration into the collection and treatment systems, and help to mitigate ground water impacts. **5.c.** Execute plans to install a new water well. **5.d.** Further develop plans for a second water storage tank. **5.e.** Amend the zoning ordinance to include ground water protection measures in site development standards. Include open space provisions in the density standards. **5.f.** Amend the subdivision ordinance to include ground water protection measures in future subdivisions. **5.g.** In accordance with AB 1881, the Water Conservation Landscape Act of 2006, develop water efficient landscaping standards for new development to include: • Requirements for specific species of plantings; • Prohibition of invasive species; • Submittal requirements for landscaping and irrigation plans (and requirement for both to be installed per approved plans); • Landscaping and hardscaping to be designed based on "hydrozone" specifications; • Provision for recirculating and recycling water systems; • Requirements for a soil report with recommendations regarding the most efficient types of planting and irrigation for the specific soil types existing on a site; • Specific "plant factors" in compliance with state standards for high, medium and low water using plantings; and • Irrigation to be designed according to hydrozone needs. **5.k.** Incorporate into City standards and specifications means for addressing storm water quality, including a first preference for nonstructure best management practices such as bioretention, vegetated swales and buffer strips, constructed wetlands, and other environmentally sensitive design and construction practices.
Open Space and Conservation	
Vegetation	
	Policy 7.24: Preference will be given to native and drought-tolerant plant species to reduce water consumption, minimize invasive species, and preserve the appearance of the natural landscape.
	Actions **7.zz** Consider provisions in the subdivision regulations may require riparian buffers around all naturally occurring water bodies and wetlands. The standards shall restrict septic systems within the buffer area and include requirements for planting indigenous plants and trees to enhance the buffer's absorption and filtering potential. 7.aaa Include the use of bio-swales and permanent water features for drainage management to reduce the volume and rate of stormwater runoff from new developments. 7.bbb Support green roofs on new developments as a method of stormwater mitigation, as well as reduction of the urban "heat island" effect. For new construction, the use of green roofs shall result in a reduction in the extent of stormwater facilities that need to be constructed to meet standards. 7.ccc The City will identify areas that may accommodate floodwater for the purposes of groundwater recharge and stormwater management.

Table 5. Selected City of Orland General Plan Goals and Policies

Goal or Objective	Policy or Action
Safety Element	
Subsidence	
	Policy 4.6.C: Applications for projects that extract groundwater, oil, or gas shall include a report evaluating the potential for resulting subsidence. Reports shall discuss appropriate mitigation measures to reduce the potential for subsidence.
Open Space, Conservation, and Public Facilities Element	
Water Quality	
Goal 5.6: Conserve, enhance, and manage water resources, protect their quality, and ensure an adequate long-term supply of water for domestic, agricultural, industrial, and recreational use.	**Policy 5.6.A:** Ensure that new development complies with State and federal regulations and standards in order to maintain and improve water quality. Program 5.6.A.1: The City shall require applicants for new development projects to adhere to RWQCB discharge standards, including identifying specific measures for minimizing project related erosion and resulting siltation of surface water features. <u>Programs</u> Program 5.6.A.2: The City shall require that a grading and erosion control plan be submitted with each tentative parcel and tentative subdivision map prior to action by the City. Standard RWQCB best management practices (BMPs) shall be incorporated in these plans as a means to control runoff and minimize erosion impacts. Program 5.6.A.3: The City shall ensure that new development has a minimal impact on natural drainage channels and flow capacity. **Policy 5.6.B:** Reduce the potential for sediment and other pollutants to contaminate surface and ground water resources. <u>Programs</u> Program 5.6.B.1: Where feasible, the City shall maintain the natural condition of waterways and floodplains and protect watersheds to ensure adequate ground water recharge and water quality. Program 5.6.B.2: The City shall require that new development at a density greater than one unit per acre and commercial and industrial areas annexed to the City be connected to the City's wastewater collection system. Existing residential development and individual homes where septic systems have failed also may be connected to the system. Program 5.6.B.3: The City shall review City standards for drainage structures and, if determined appropriate, adopt requirements for grease and sediment traps for roads and parking lots to improve water quality of urban runoff. **Policy 5.6.C:** Explore the use of pervious concrete/pavement to allow the continued filtration of groundwater into the soil. **Policy 5.6.D:** Encourage the use of site design techniques for non-residential uses that provide for the discharge of on-site stormwater into landscaped basins or swales prior to discharge to the City's storm drainage system. **Policy 5.6.E:** Encourage water conservation as a means of conserving not only water but also minimizing energy consumption and costs associated with pumping and delivery systems.
Water Supply	
Goal 5.7: Protect the quantity and quality of community water supplies	**Policy 5.7.A:** Ensure that groundwater resources in the vicinity of Orland are protected from contamination. <u>Programs</u> Program 5.7.A.1: The City shall require wells located on land annexed to the City and served by City water service to be properly abandoned or all possibility of cross connection with the City water system eliminated in accordance with Glenn County Health Department guidelines. Program 5.7.A.2: The City shall ensure that all City wells are operated and maintained to meet California Department of Health Services standards for public drinking water supplies. **Policy 5.7.B:** Avoid the wasteful use of water within the planning area. Program 5.7.B.1: The City shall promote the use of water-conserving devices and practices in both new construction and major alterations and additions to existing buildings.
Stormwater Drainage System	
Goal 5.9: Provide for the collection, transport, and stormwater in a safe manner to protect people and property from damage arising from storm drainage.	**Policy 5.9.A:** Require new development to ensure that the cumulative rate of peak runoff does not exceed pre-development levels. <u>Programs</u> Program 5.9.A.1: New development and redevelopment of existing sites should provide storm water detention or retention facilities (on- or offsite), if necessary, to prevent flooding due to runoff or where existing storm drainage facilities are unable to accommodate increased storm water drainage. Program 5.9.A.2: The City shall review and revise its Zoning and Subdivision Ordinances, as needed, to incorporate specific data and design requirements related to stormwater drainage that are contained in this general plan. Program 5.9.A.3: The City shall complete its Storm Drainage Master Plan. **Policy 5.9.B:** Minimize the potential for flood damage to buildings and other structures, particularly from storm water runoff. <u>Programs</u> Program 5.9.B.1: The City shall explore the use of pervious concrete and pavement to assist in the return of water to the regional aquifer and to assist in the management of storm drainage. Program 5.9.B.2: The City shall encourage the use of landscaped bioswales to filter oil and other pollutants from stormwater drainage. Program 5.9.B.3: The City shall consider the use of filtered storm drainage inlets to screen pollutants from drainage waters.

Table 6. Selected City of Willows General Plan Goals and Policies	
Goal	Objective, Policy or Implementation
Land Use Element	
Development	
DPS-1 Goal: Accommodate and plan for new growth.	Objective: During the life of this plan, maintain flexibility and responsiveness to the changing conditions and opportunities for development. Policy: The City should only approve development proposals that are consistent with this plan.
Community Services, Facilities, and Infrastructure	
DPS-4 Goal: Adequate community services, facilities, and infrastructure.	Objective: Maintain existing services, facilities, and infrastructure, and provide for expansion, extension, or upgrades to meet the needs of new development without adversely impacting existing levels of service or the revenues required to provide them. Policy: Before approving a development proposal, the City should determine through the California Environmental Quality Act (CEQA) process that a proposed project will not adversely impact existing community services, facilities, and infrastructure The City Council should determine that revenues are, or will be, available to maintain and/or expand, extend, or upgrade services related to new development.
High Groundwater	
DPS-13 Goal: Protect water quality.	Objective: Prevent septic system failure and ground water contamination in high groundwater areas. Policy: The City Council should only approve projects in the high ground water areas that will be served by city sewers.

Appendix 2B

Example of Comment Tracking System

Not included with this submittal.

Appendix 2C

Distribution Lists of GSA-specific Beneficial Users

Note: some information has been redacted for confidentiality purposes and GSA commitments.

Not included with this submittal.

Appendix 2D

Example Meeting Workshop and Flyers

Not included with this submittal.

Appendix 2E

Engagement Matrix

Not included with this submittal.

Appendix 2F

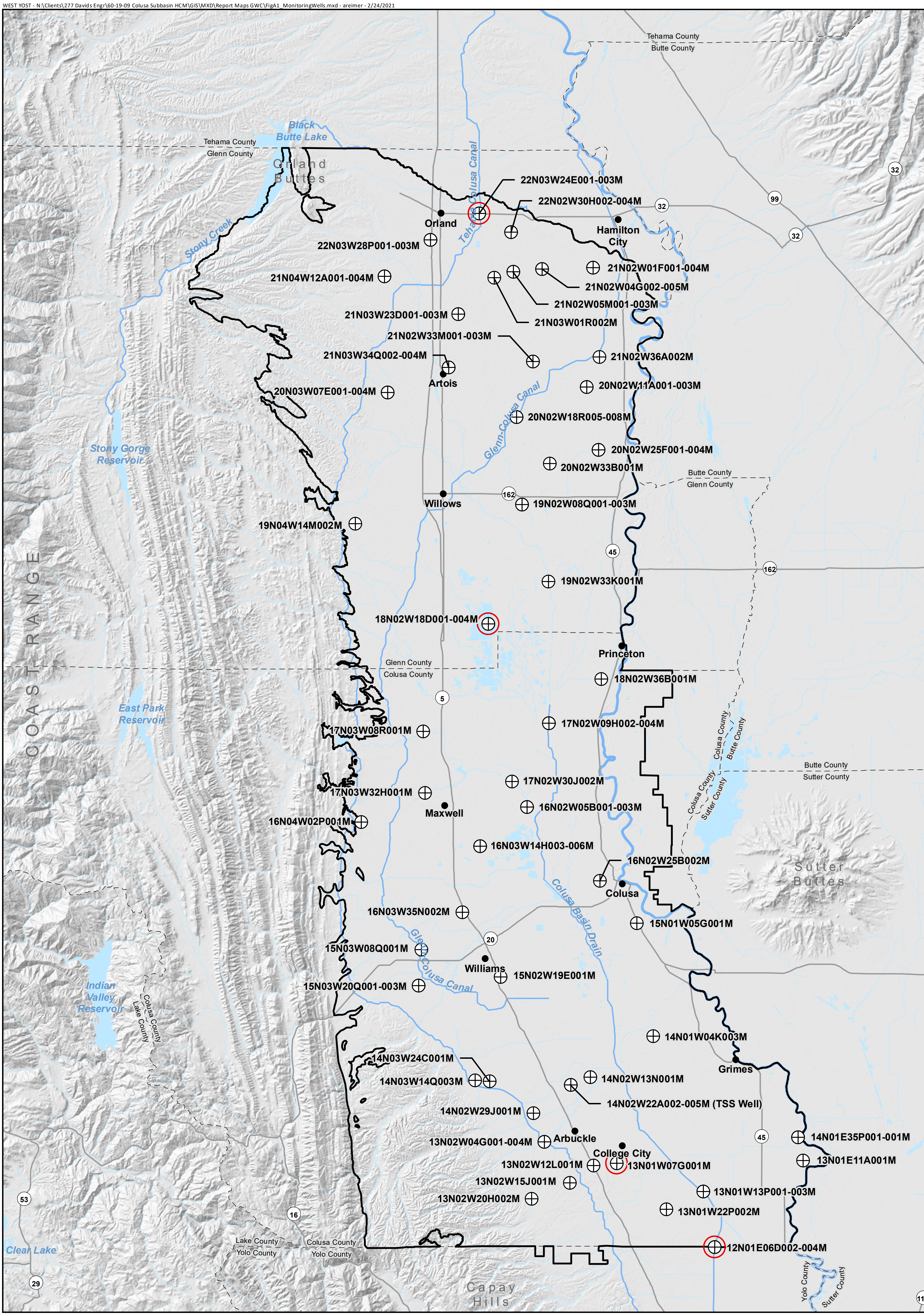
Beneficial User Input and Decision Making Development

Not included with this submittal.

Appendix 3A

Monitoring Network Groundwater Elevation Hydrographs

WEST YOST - N:\Clients\277 Davids Engr\60-19-09 Colusa Subbasin HCM\GIS\MXD\Report Maps GWC\FigA1_MonitoringWells.mxd - areimer - 2/24/2021



Groundwater Monitoring Well with Hydrograph

Representative Well Hydrograph Used in Report Text

Colusa Subbasin

Horizontal Datum: North American Datum of 1983 (NAD 83), California State Plane Zone II, feet.

N

0 2.5 5

Scale in Miles

Figure 1

Groundwater Monitoring Wells with Hydrographs

Colusa GSA and Glenn GSA

Colusa Subbasin

Groundwater Sustainability Plan

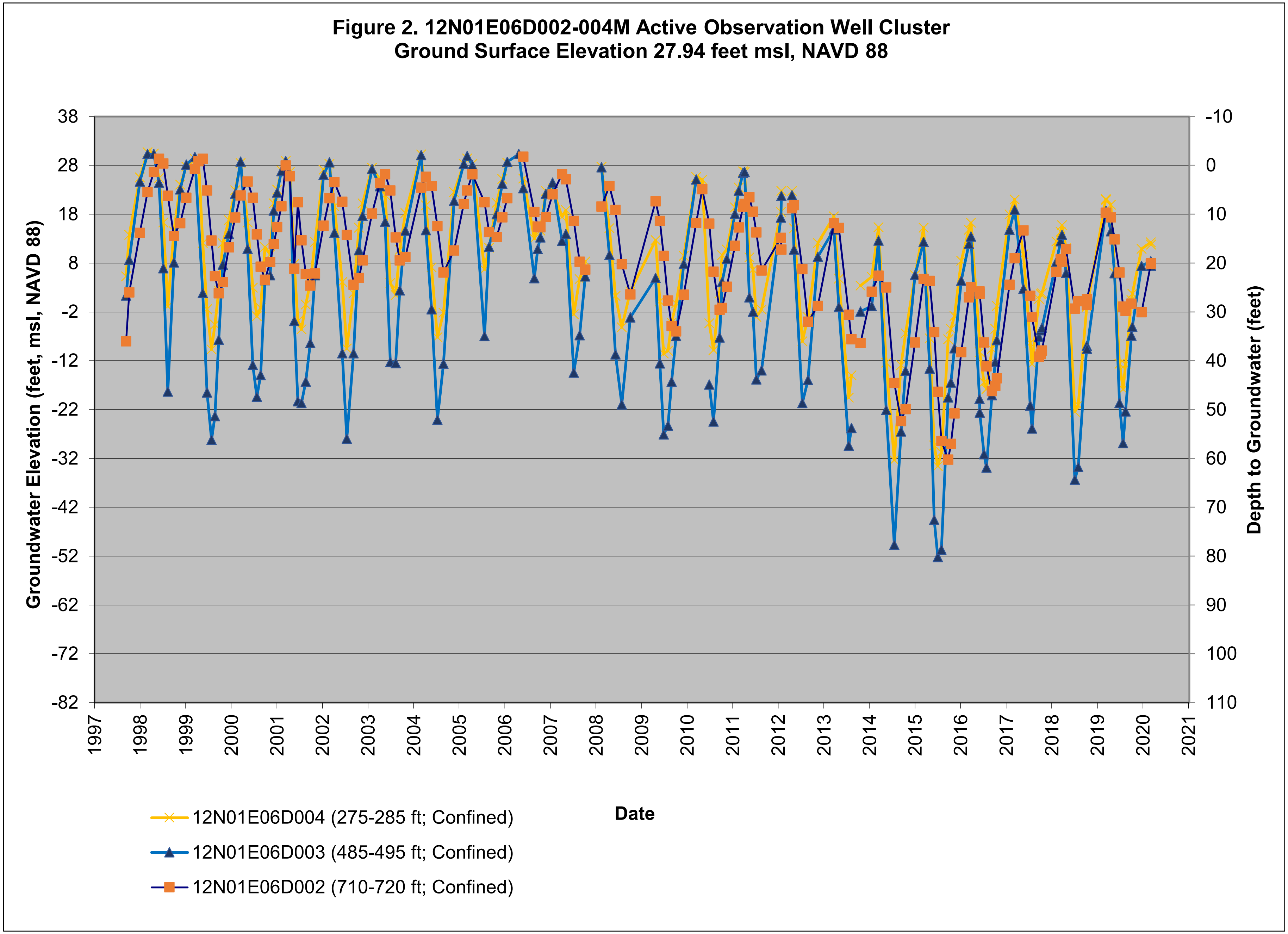


Figure 2. 12N01E06D002-004M Active Observation Well Cluster
Ground Surface Elevation 27.94 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
38
28
18
8
-2
-12
-22
-32
-42
-52
-62
-72
-82
-10
0
10
20
30
40
50
60
70
80
90
100
110
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
Date
12N01E06D004 (275-285 ft; Confined)
12N01E06D003 (485-495 ft; Confined)
12N01E06D002 (710-720 ft; Confined)

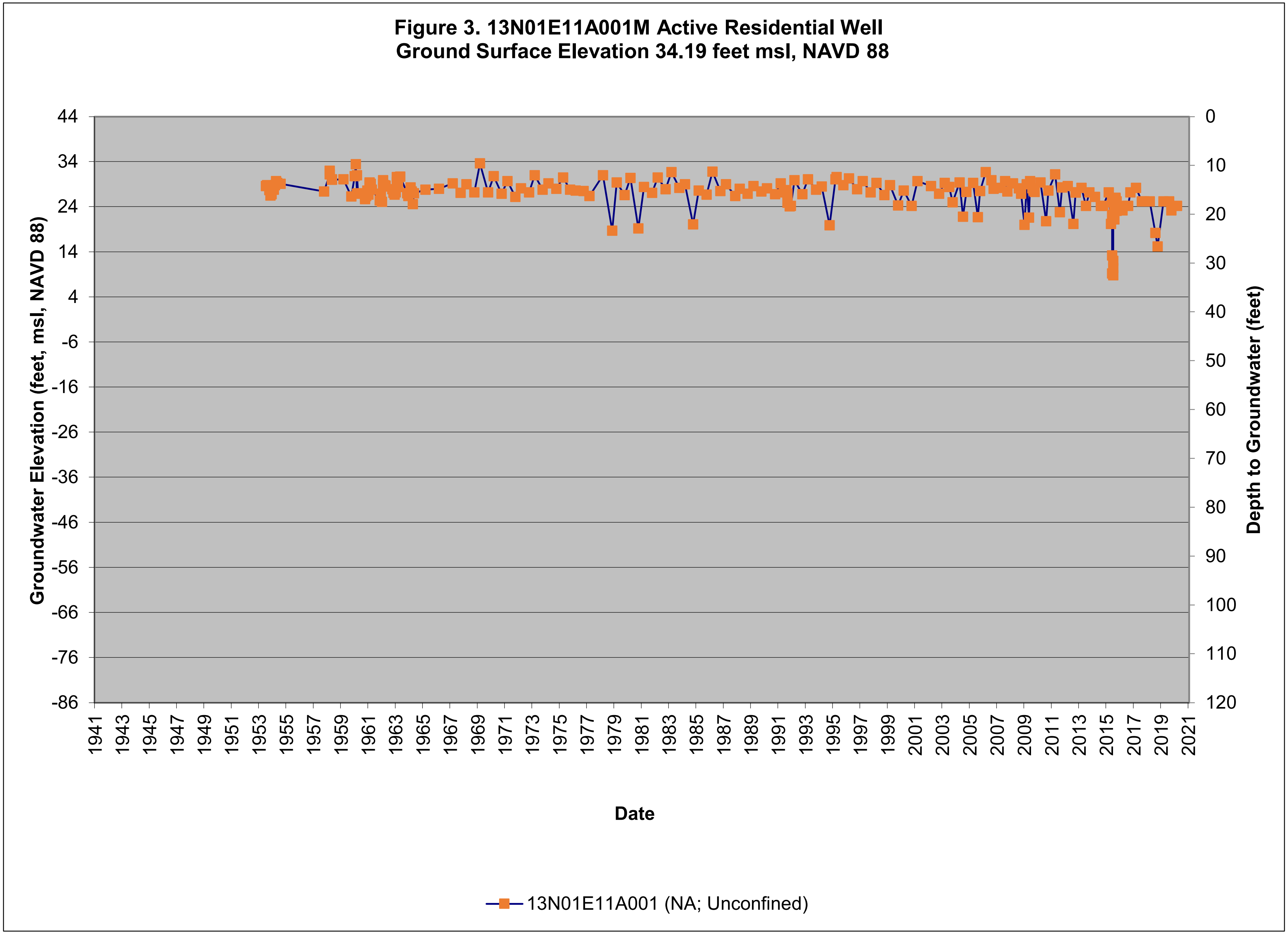


Figure 3. 13N01E11A001M Active Residential Well
Ground Surface Elevation 34.19 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
44
34
24
14
4
-6
-16
-26
-36
-46
-56
-66
-76
-86
0
10
20
30
40
50
60
70
80
90
100
110
120
1941
1943
1945
1947
1949
1951
1953
1955
1957
1959
1961
1963
1965
1967
1969
1971
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015
2017
2019
2021
Date
13N01E11A001 (NA; Unconfined)

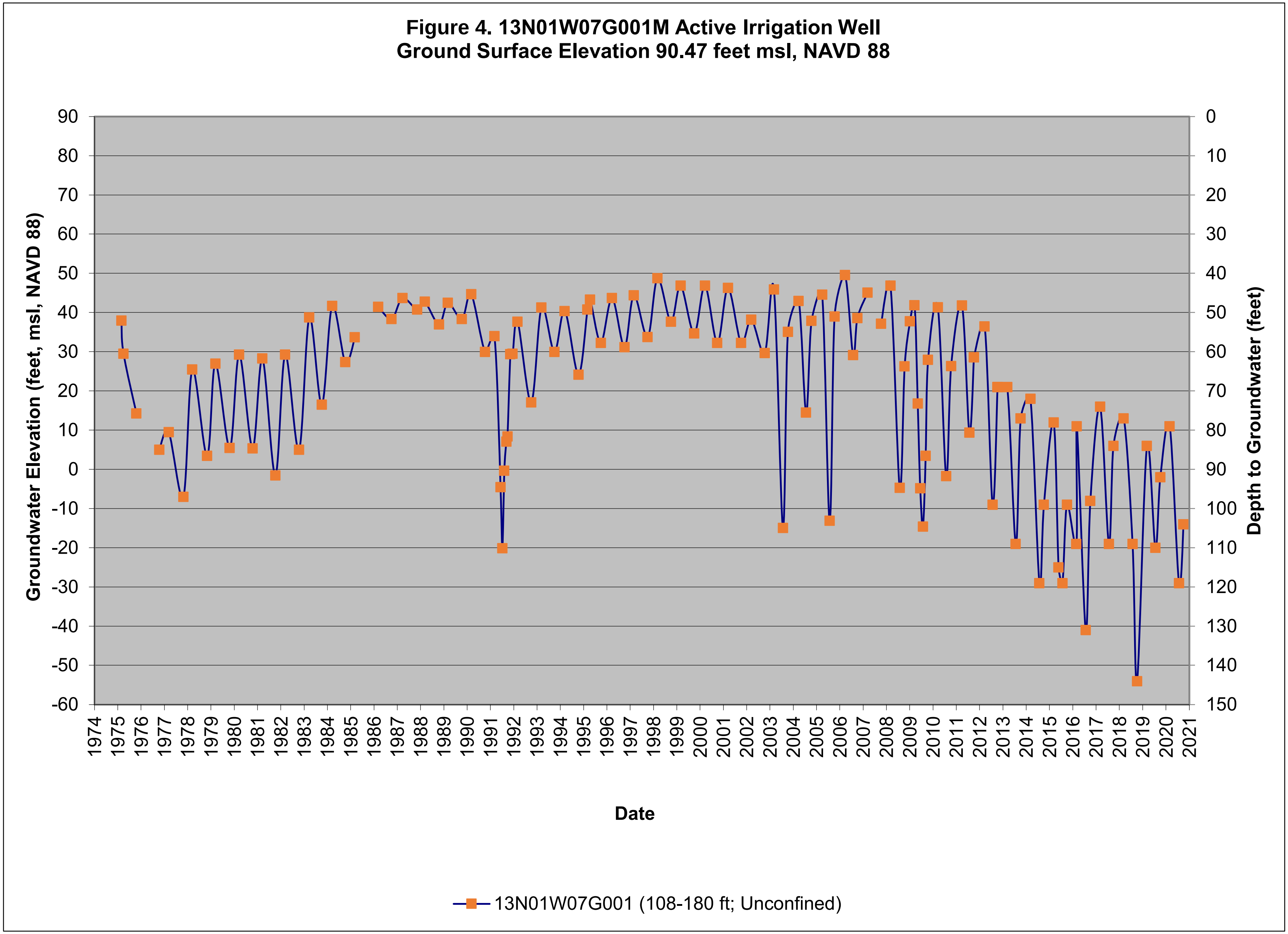


Figure 4. 13N01W07G001M Active Irrigation Well
Ground Surface Elevation 90.47 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
-50
-60
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021
Date
13N01W07G001 (108-180 ft; Unconfined)

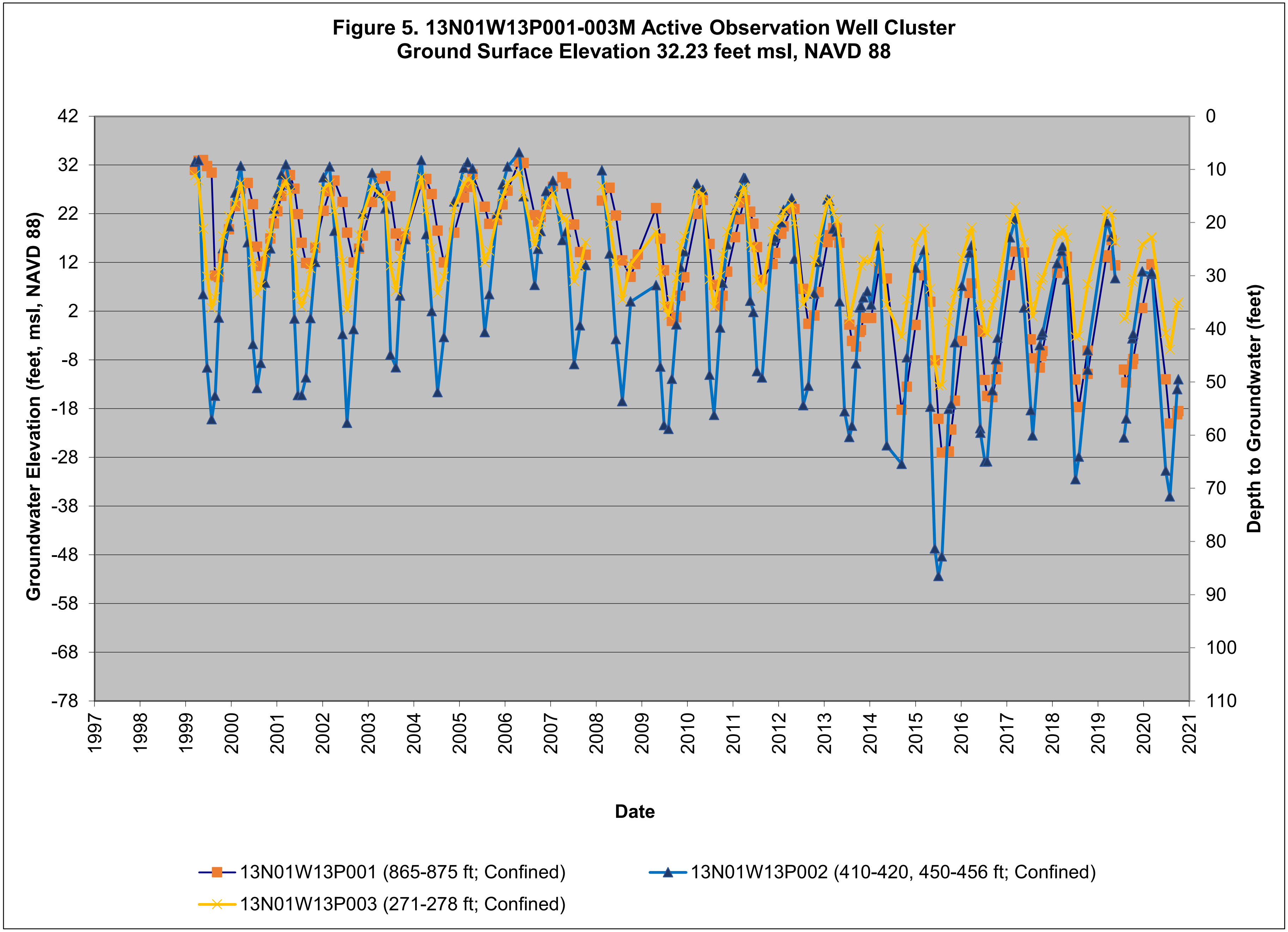
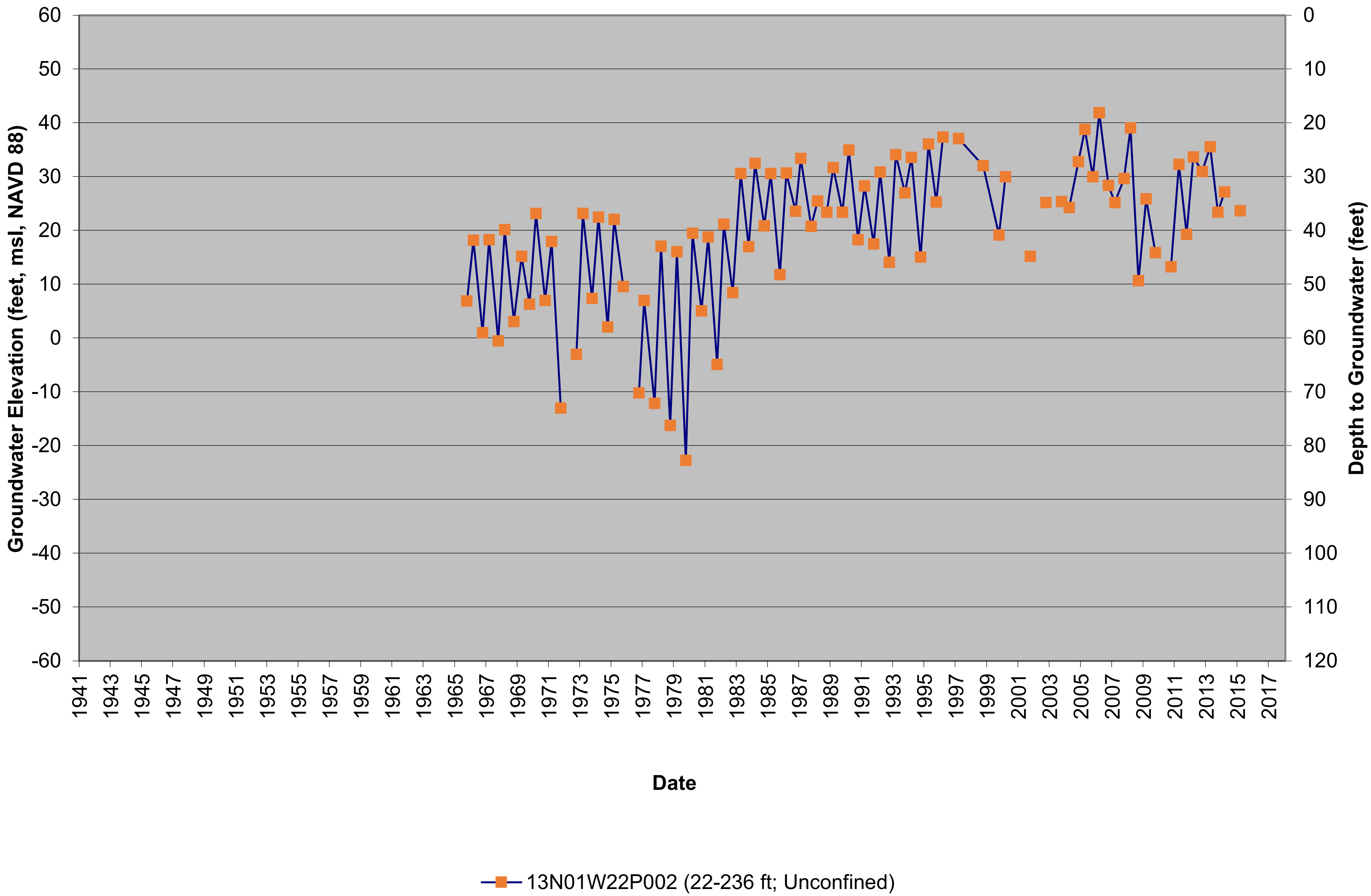


Figure 5. 13N01W13P001-003M Active Observation Well Cluster
Ground Surface Elevation 32.23 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
Date
42
32
22
12
2
-8
-18
-28
-38
-48
-58
-68
-78
0
10
20
30
40
50
60
70
80
90
100
110
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
13N01W13P001 (865-875 ft; Confined)
13N01W13P002 (410-420, 450-456 ft; Confined)
13N01W13P003 (271-278 ft; Confined)

Figure 6. 13N01W22P002M Active Irrigation Well
Ground Surface Elevation 60.46 feet msl, NAVD 88



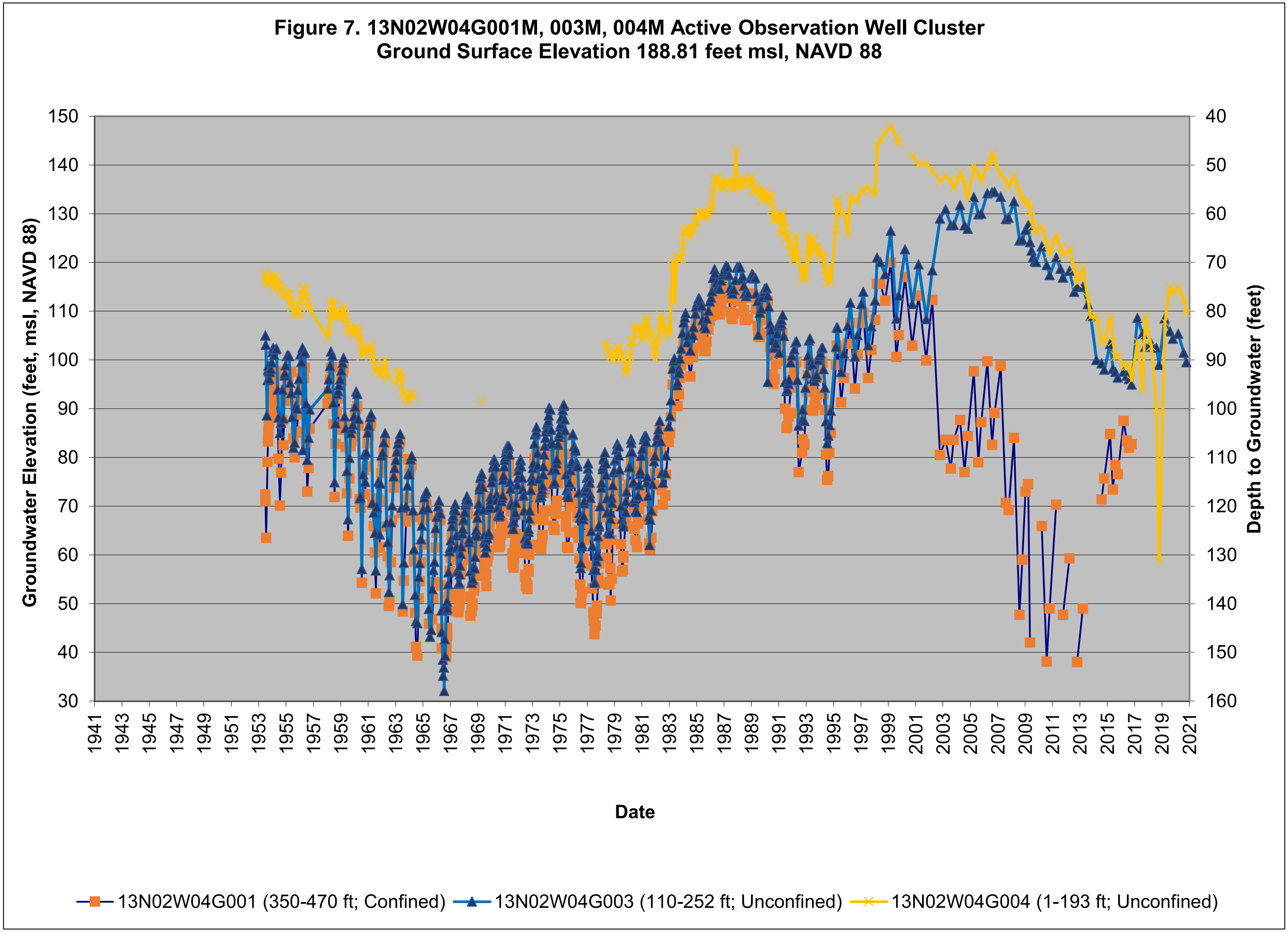


Figure 7. 13N02W04G001M, 003M, 004M Active Observation Well Cluster
Ground Surface Elevation 188.81 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
150
140
130
120
110
100
90
80
70
60
50
40
30
40
50
60
70
80
90
100
110
120
130
140
150
160
1941 1943 1945 1947 1949 1951 1953 1955 1957 1959 1961 1963 1965 1967 1969 1971 1973 1975 1977 1979 1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009 2011 2013 2015 2017 2019 2021
Date
13N02W04G001 (350-470 ft; Confined)
13N02W04G003 (110-252 ft; Unconfined)
13N02W04G004 (1-193 ft; Unconfined)

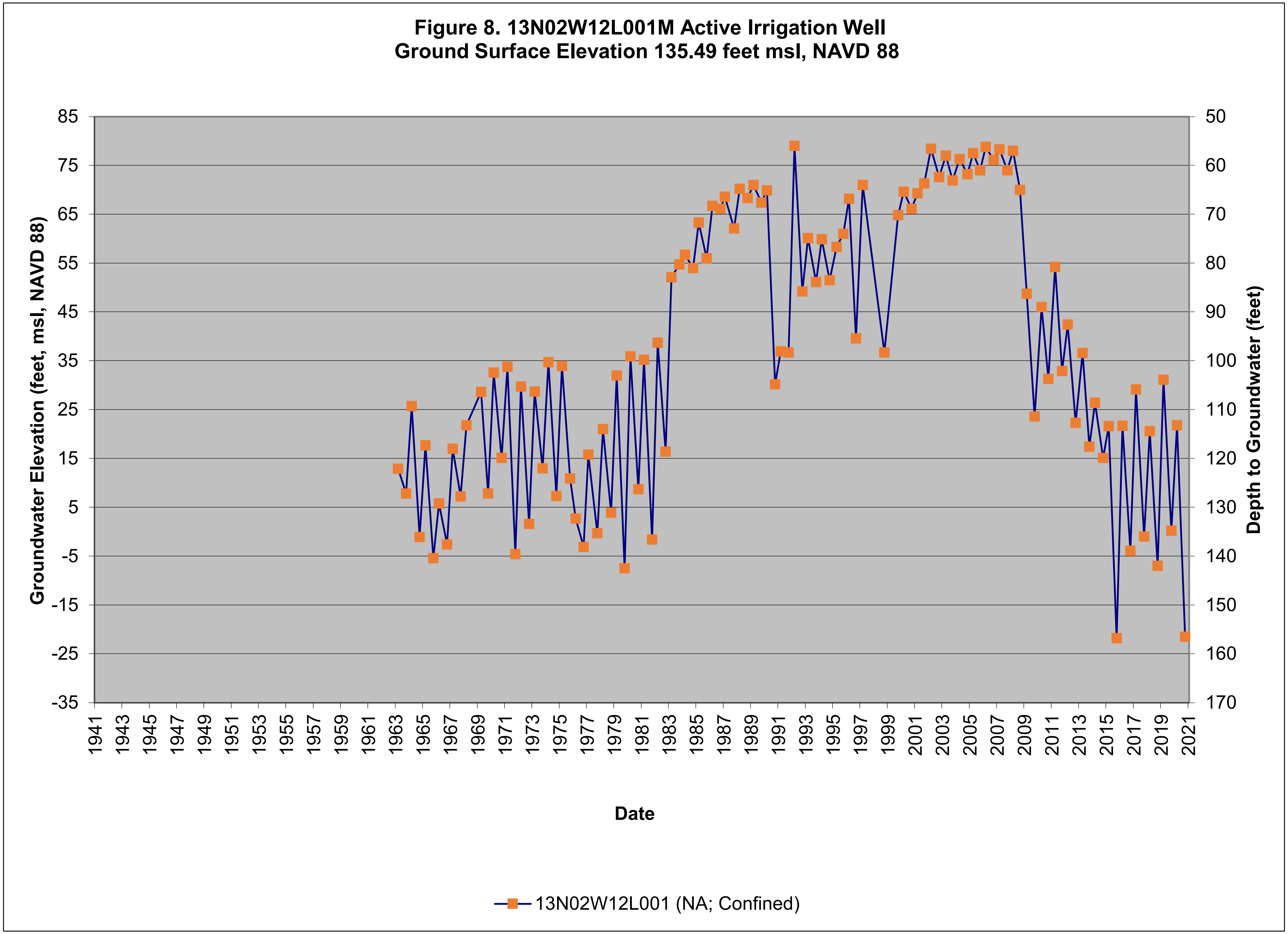


Figure 8. 13N02W12L001M Active Irrigation Well
Ground Surface Elevation 135.49 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
85
75
65
55
45
35
25
15
5
-5
-15
-25
-35
50
60
70
80
90
100
110
120
130
140
150
160
170
1941
1943
1945
1947
1949
1951
1953
1955
1957
1959
1961
1963
1965
1967
1969
1971
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015
2017
2019
2021
Date
13N02W12L001 (NA; Confined)

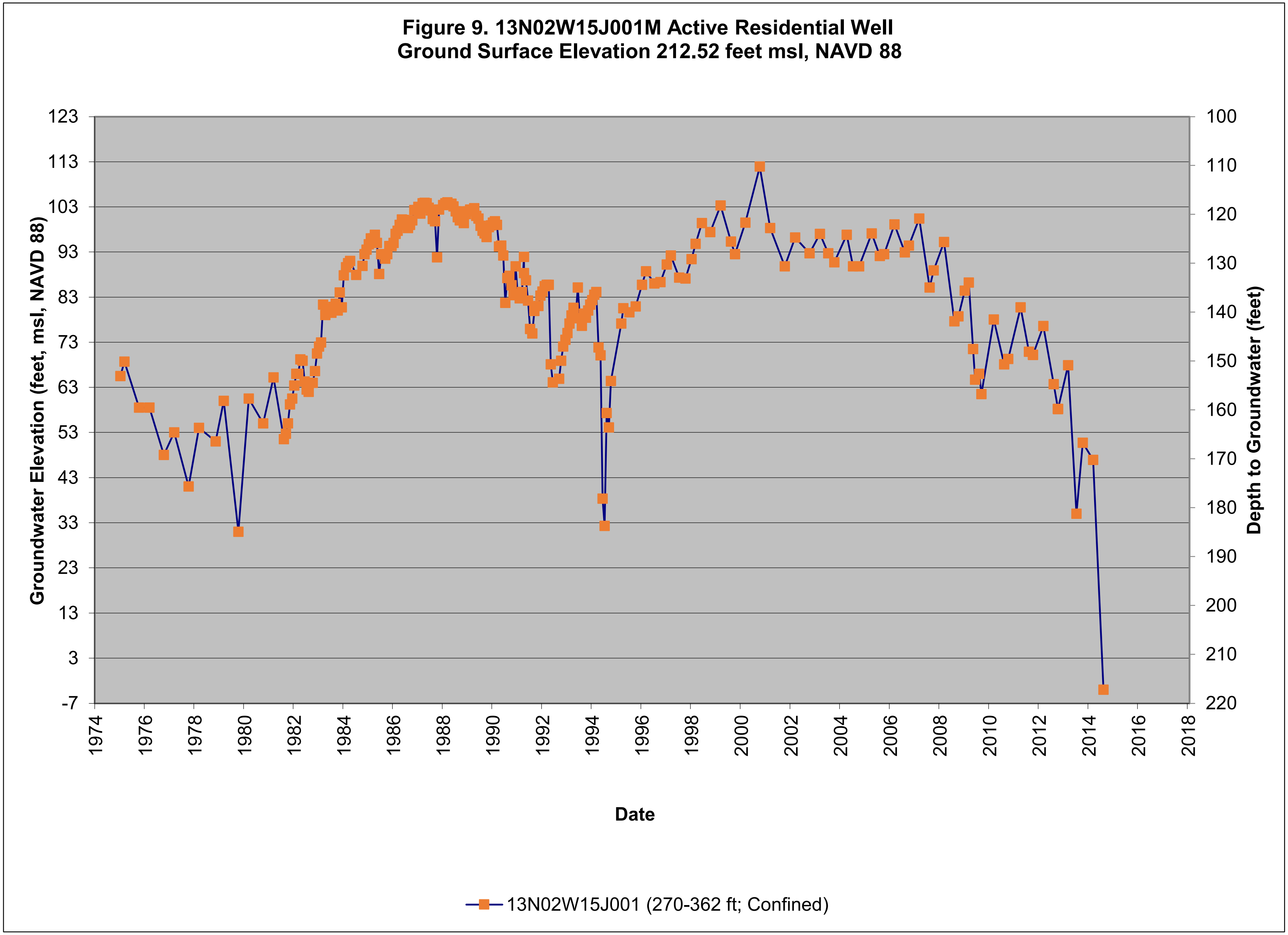


Figure 9. 13N02W15J001M Active Residential Well
Ground Surface Elevation 212.52 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
123
113
103
93
83
73
63
53
43
33
23
13
3
-7
100
110
120
130
140
150
160
170
180
190
200
210
220
1974
1976
1978
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
2016
2018
Date
13N02W15J001 (270-362 ft; Confined)

Figure 10. 13N02W20H002M Active Residential Well
Ground Surface Elevation 342.58 feet msl, NAVD 88

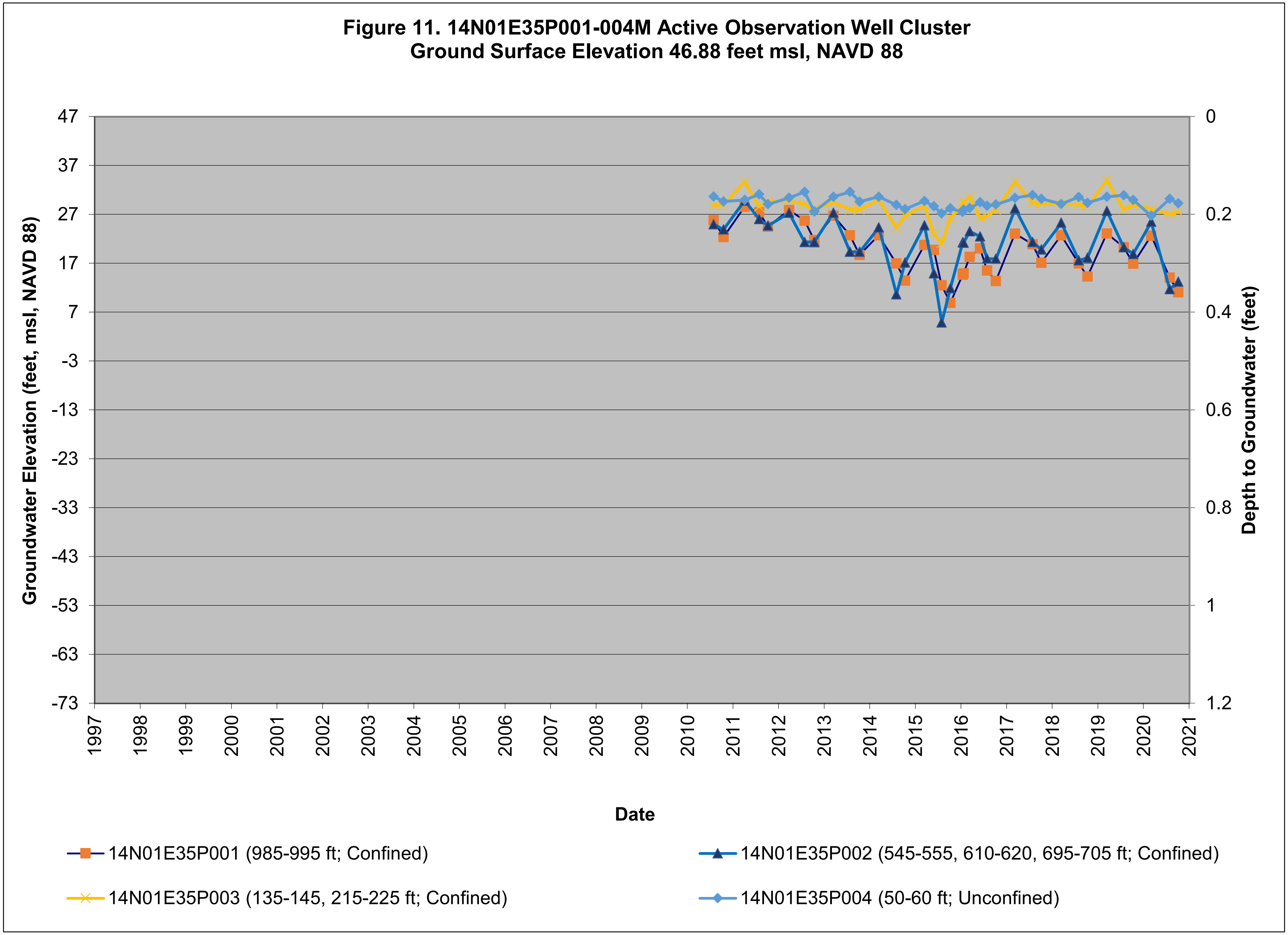


Figure 11. 14N01E35P001-004M Active Observation Well Cluster
Ground Surface Elevation 46.88 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
47
37
27
17
7
-3
-13
-23
-33
-43
-53
-63
-73
0
0.2
0.4
0.6
0.8
1
1.2
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
Date
14N01E35P001 (985-995 ft; Confined)
14N01E35P002 (545-555, 610-620, 695-705 ft; Confined)
14N01E35P003 (135-145, 215-225 ft; Confined)
14N01E35P004 (50-60 ft; Unconfined)

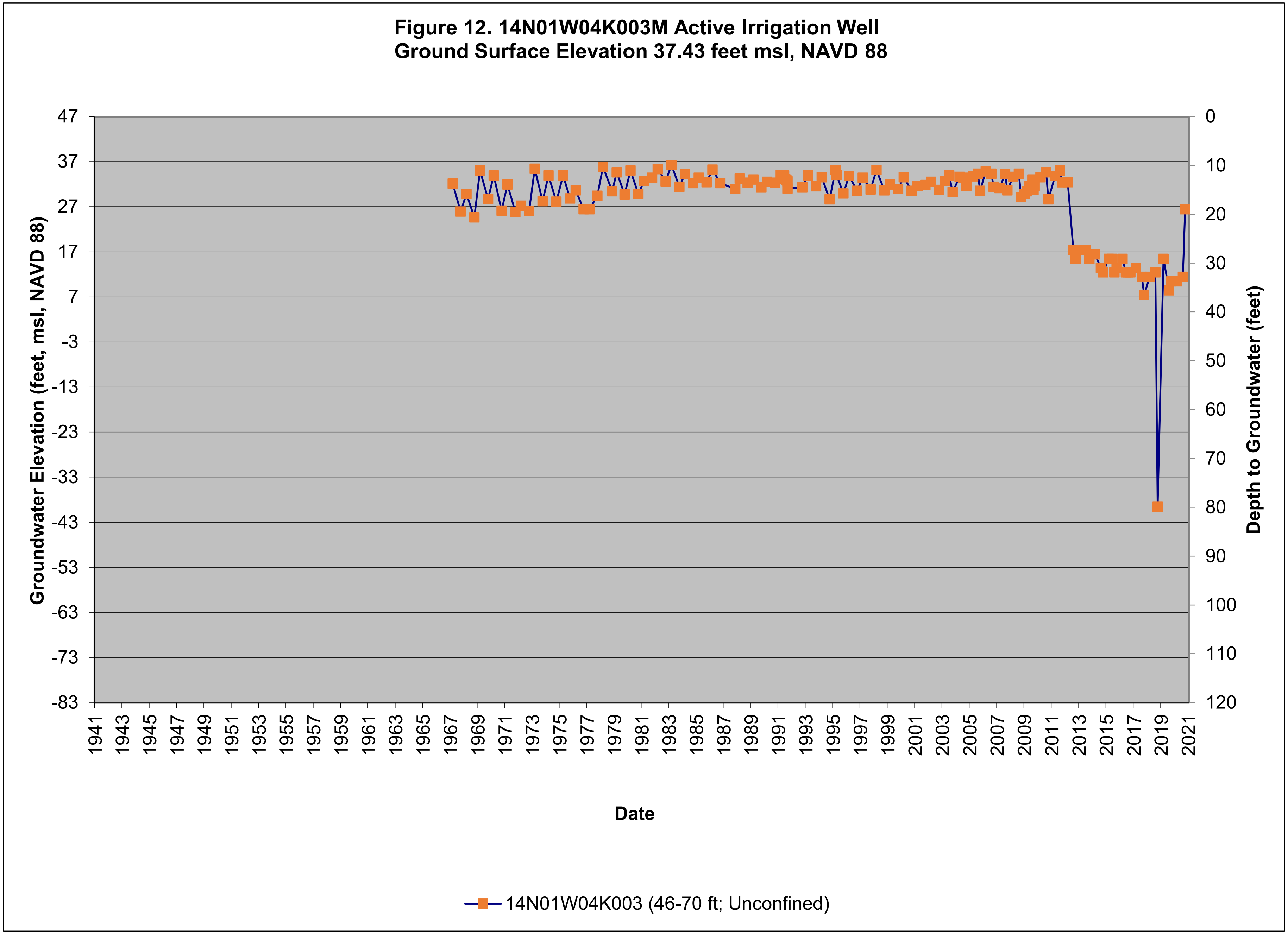


Figure 12. 14N01W04K003M Active Irrigation Well
Ground Surface Elevation 37.43 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
Date
14N01W04K003 (46-70 ft; Unconfined)

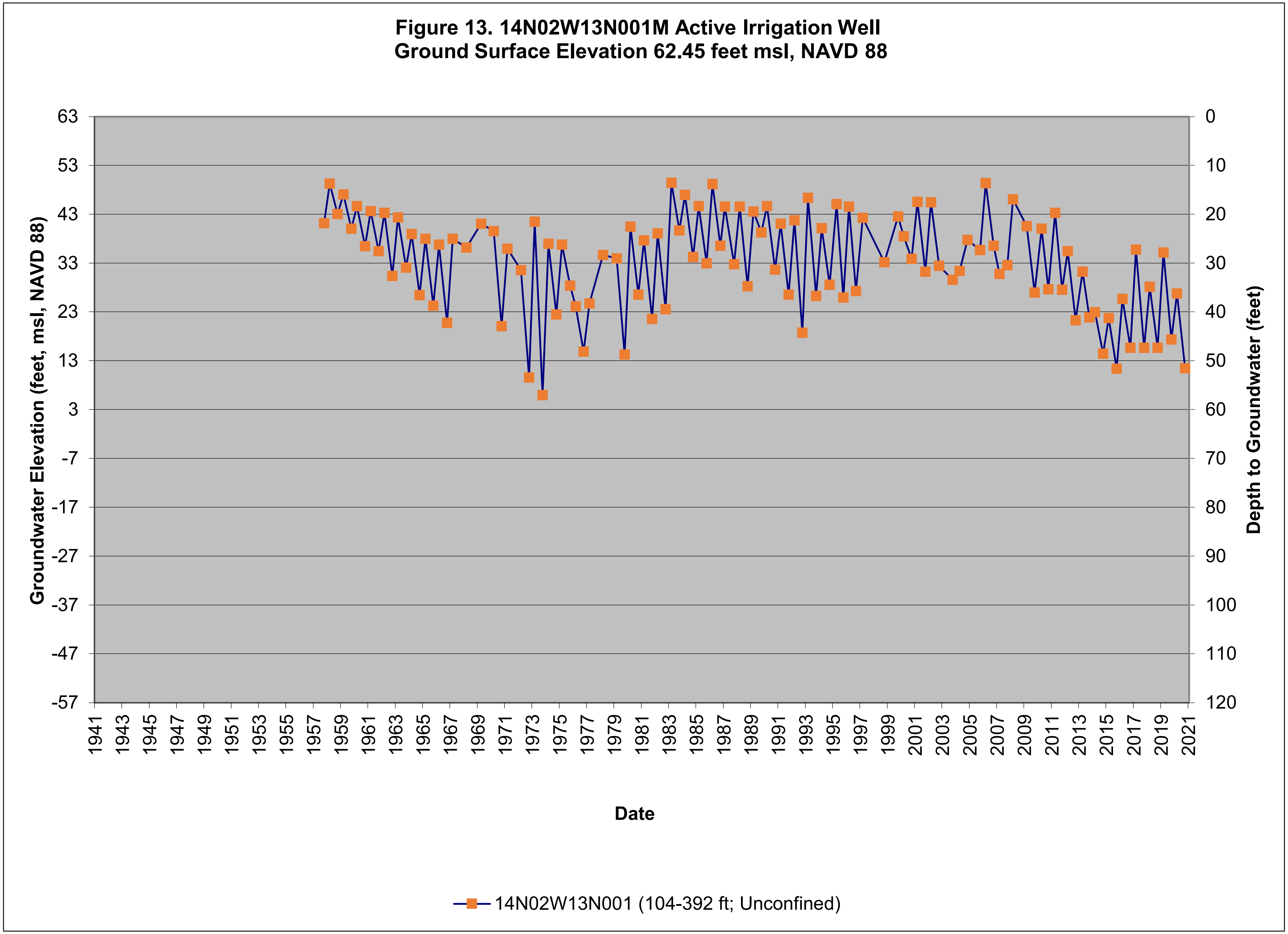


Figure 13. 14N02W13N001M Active Irrigation Well
Ground Surface Elevation 62.45 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
63
53
43
33
23
13
3
-7
-17
-27
-37
-47
-57
0
10
20
30
40
50
60
70
80
90
100
110
120
1941
1943
1945
1947
1949
1951
1953
1955
1957
1959
1961
1963
1965
1967
1969
1971
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015
2017
2019
2021
Date
14N02W13N001 (104-392 ft; Unconfined)

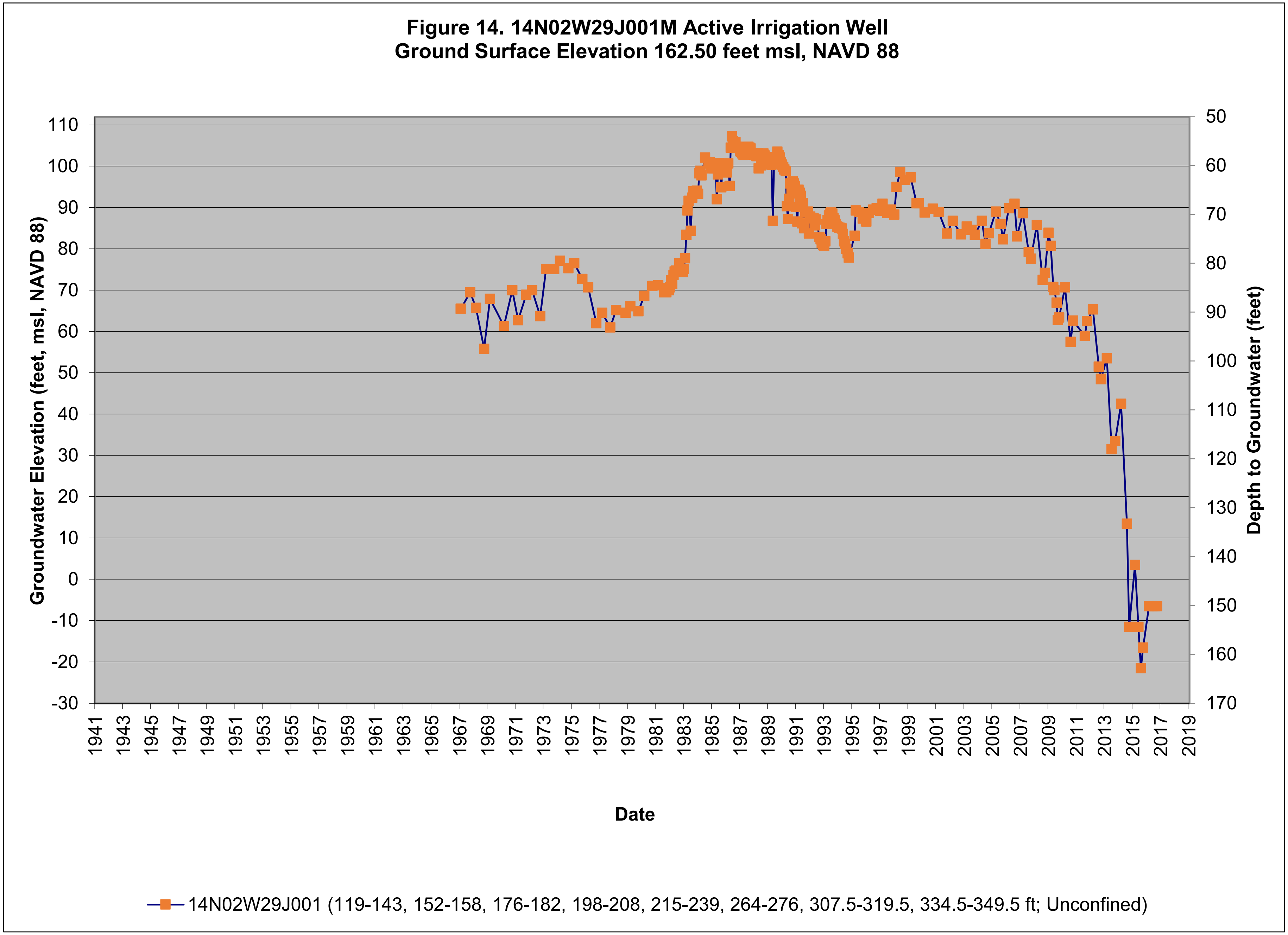


Figure 14. 14N02W29J001M Active Irrigation Well
Ground Surface Elevation 162.50 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
50
60
70
80
90
100
110
120
130
140
150
160
170
1941 1943 1945 1947 1949 1951 1953 1955 1957 1959 1961 1963 1965 1967 1969 1971 1973 1975 1977 1979 1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009 2011 2013 2015 2017 2019
Date
14N02W29J001 (119-143, 152-158, 176-182, 198-208, 215-239, 264-276, 307.5-319.5, 334.5-349.5 ft; Unconfined)

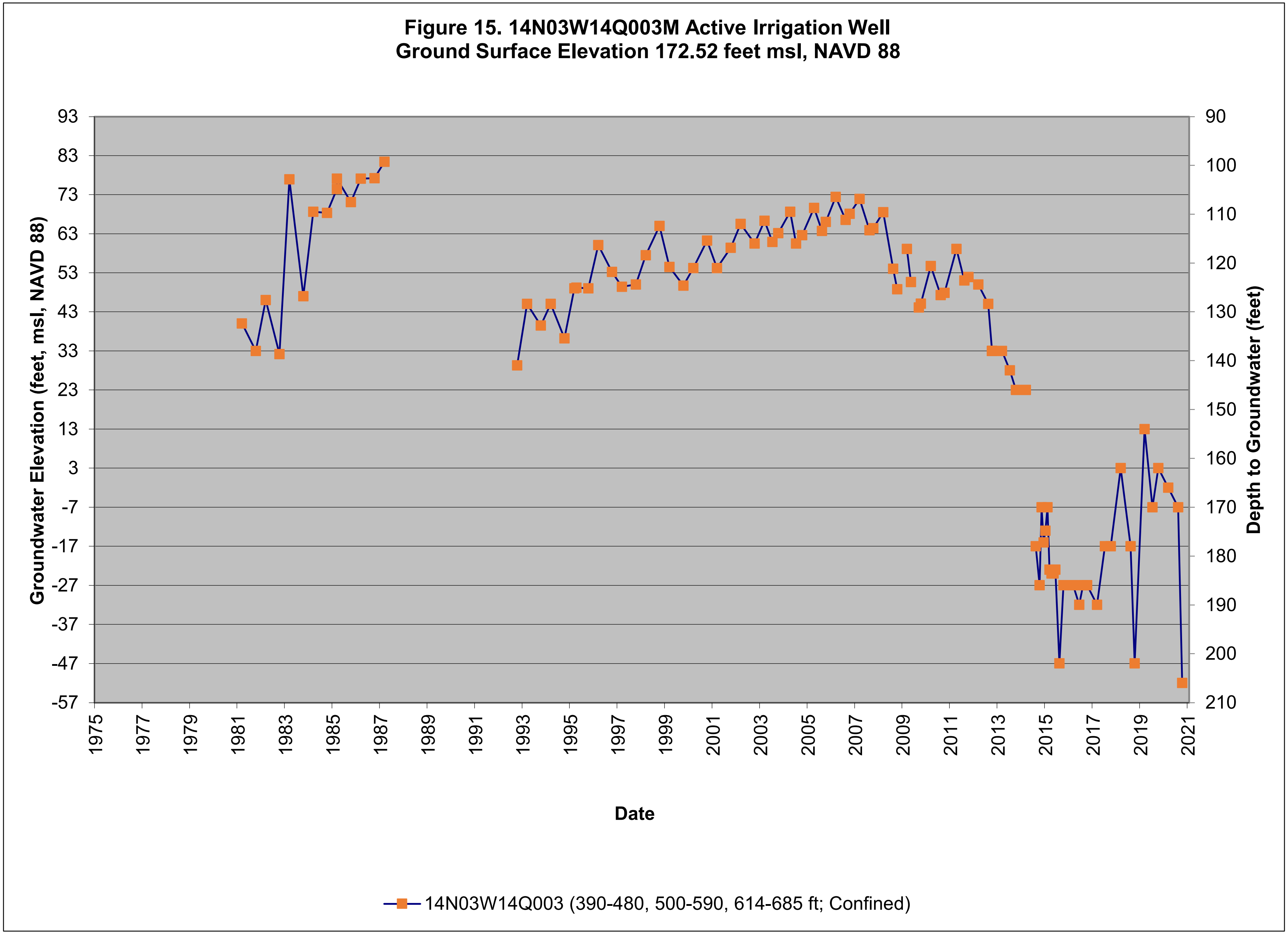


Figure 15. 14N03W14Q003M Active Irrigation Well
Ground Surface Elevation 172.52 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
93
83
73
63
53
43
33
23
13
3
-7
-17
-27
-37
-47
-57
90
100
110
120
130
140
150
160
170
180
190
200
210
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015
2017
2019
2021
Date
14N03W14Q003 (390-480, 500-590, 614-685 ft; Confined)

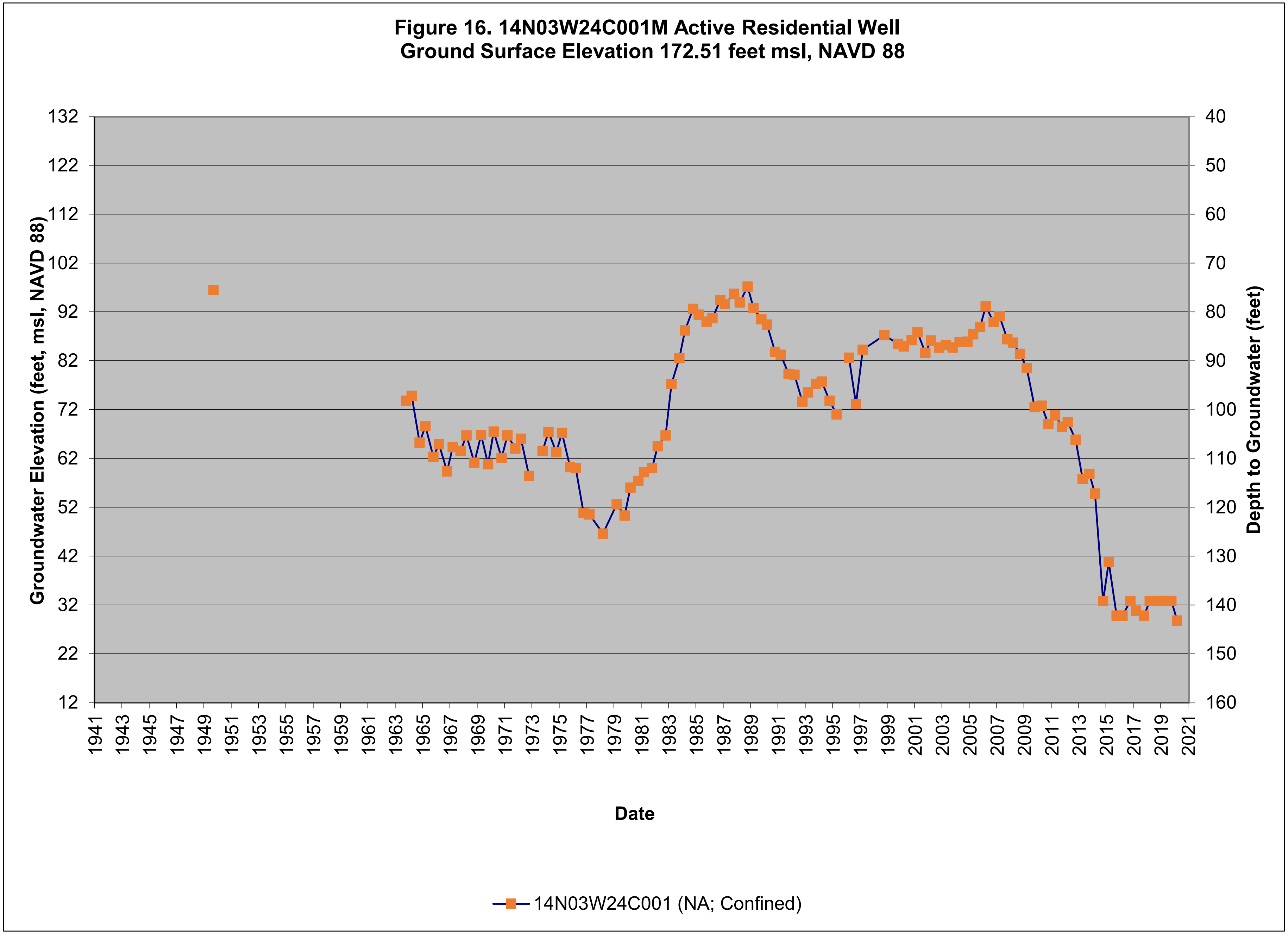


Figure 16. 14N03W24C001M Active Residential Well
Ground Surface Elevation 172.51 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
132
122
112
102
92
82
72
62
52
42
32
22
12
40
50
60
70
80
90
100
110
120
130
140
150
160
1941
1943
1945
1947
1949
1951
1953
1955
1957
1959
1961
1963
1965
1967
1969
1971
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015
2017
2019
2021
Date
14N03W24C001 (NA; Confined)

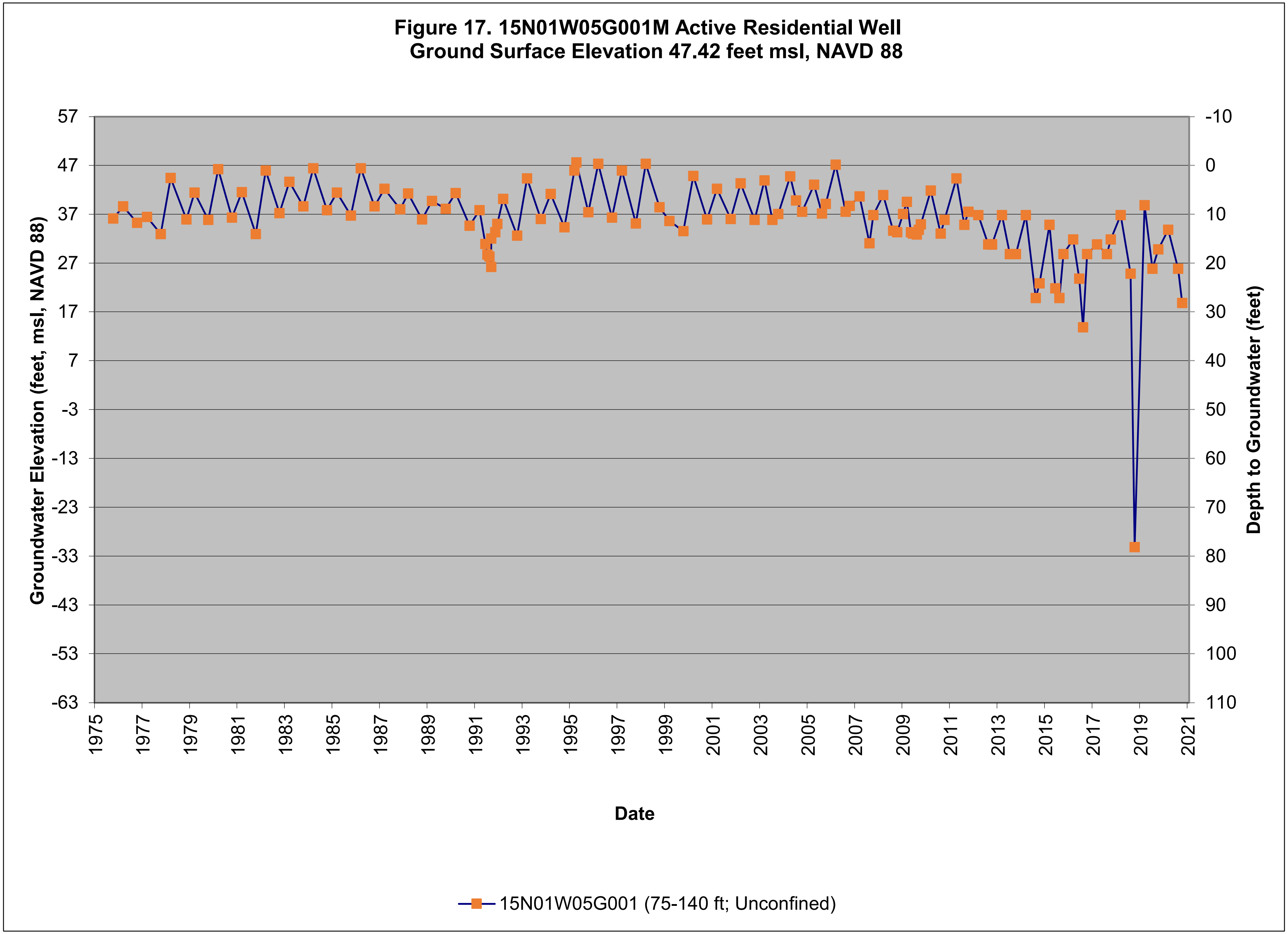
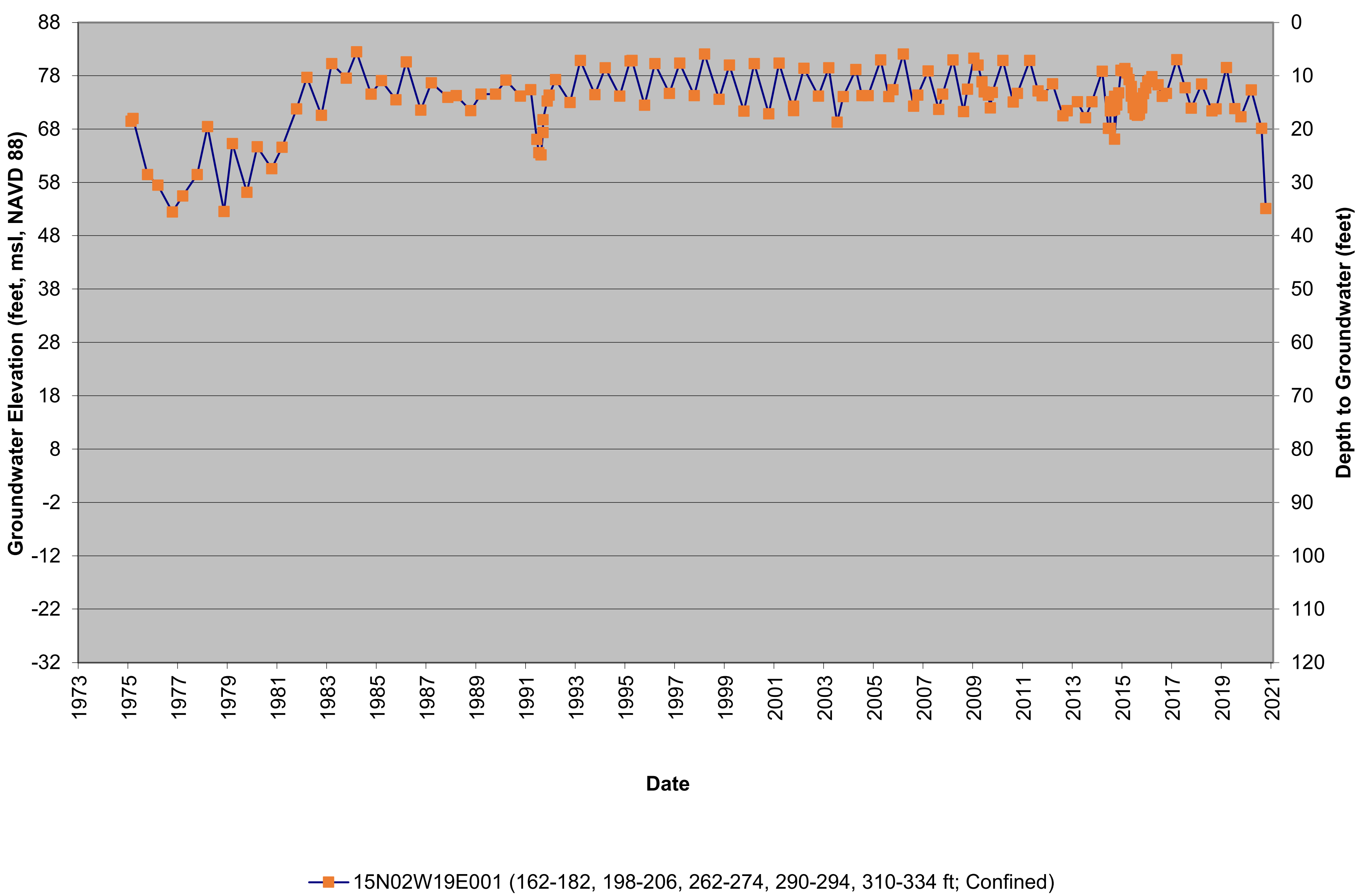


Figure 17. 15N01W05G001M Active Residential Well
Ground Surface Elevation 47.42 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
57
47
37
27
17
7
-3
-13
-23
-33
-43
-53
-63
-10
0
10
20
30
40
50
60
70
80
90
100
110
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015
2017
2019
2021
Date
15N01W05G001 (75-140 ft; Unconfined)

Figure 18. 15N02W19E001M Active Irrigation Well
Ground Surface Elevation 87.46 feet msl, NAVD 88



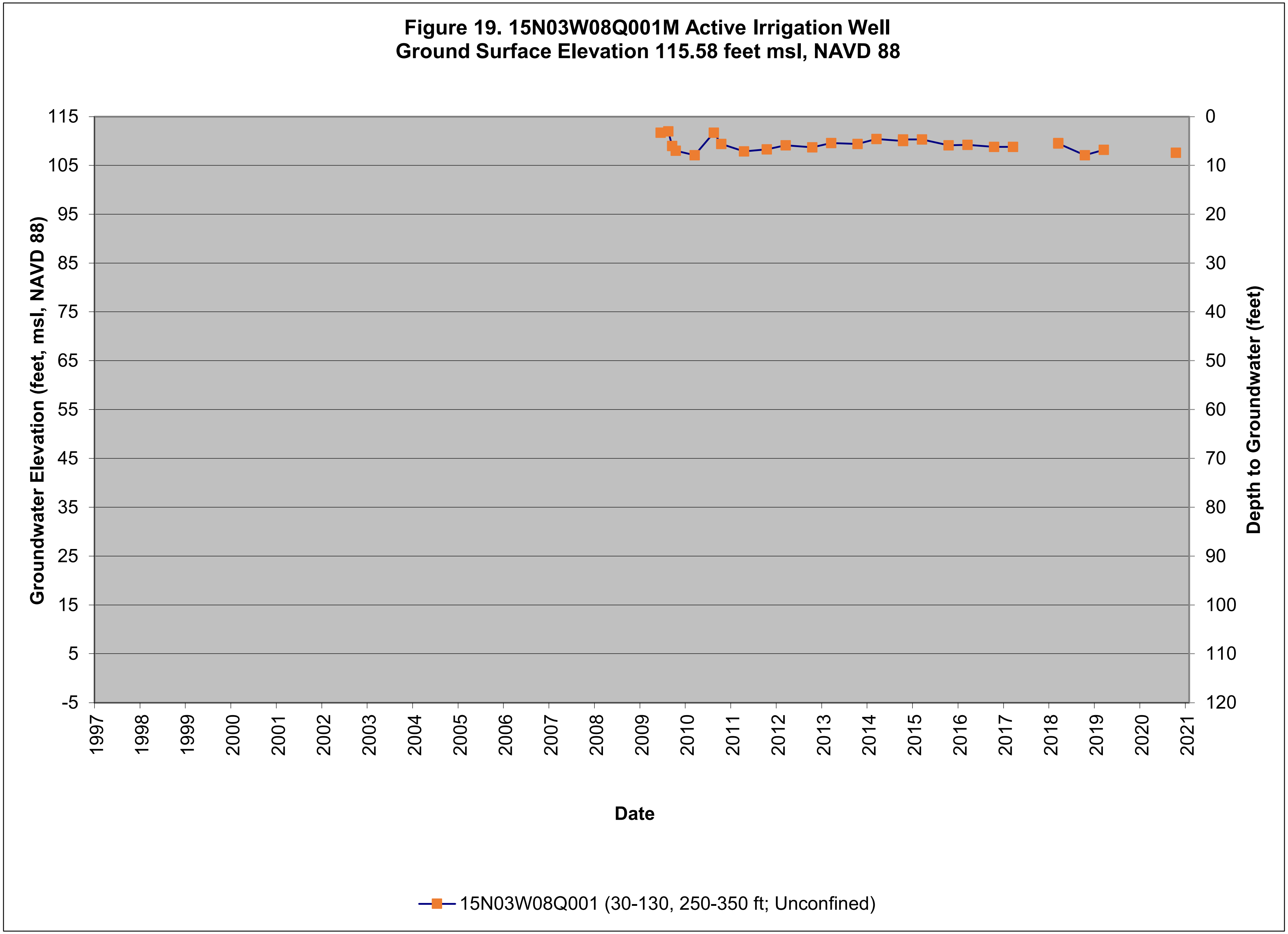
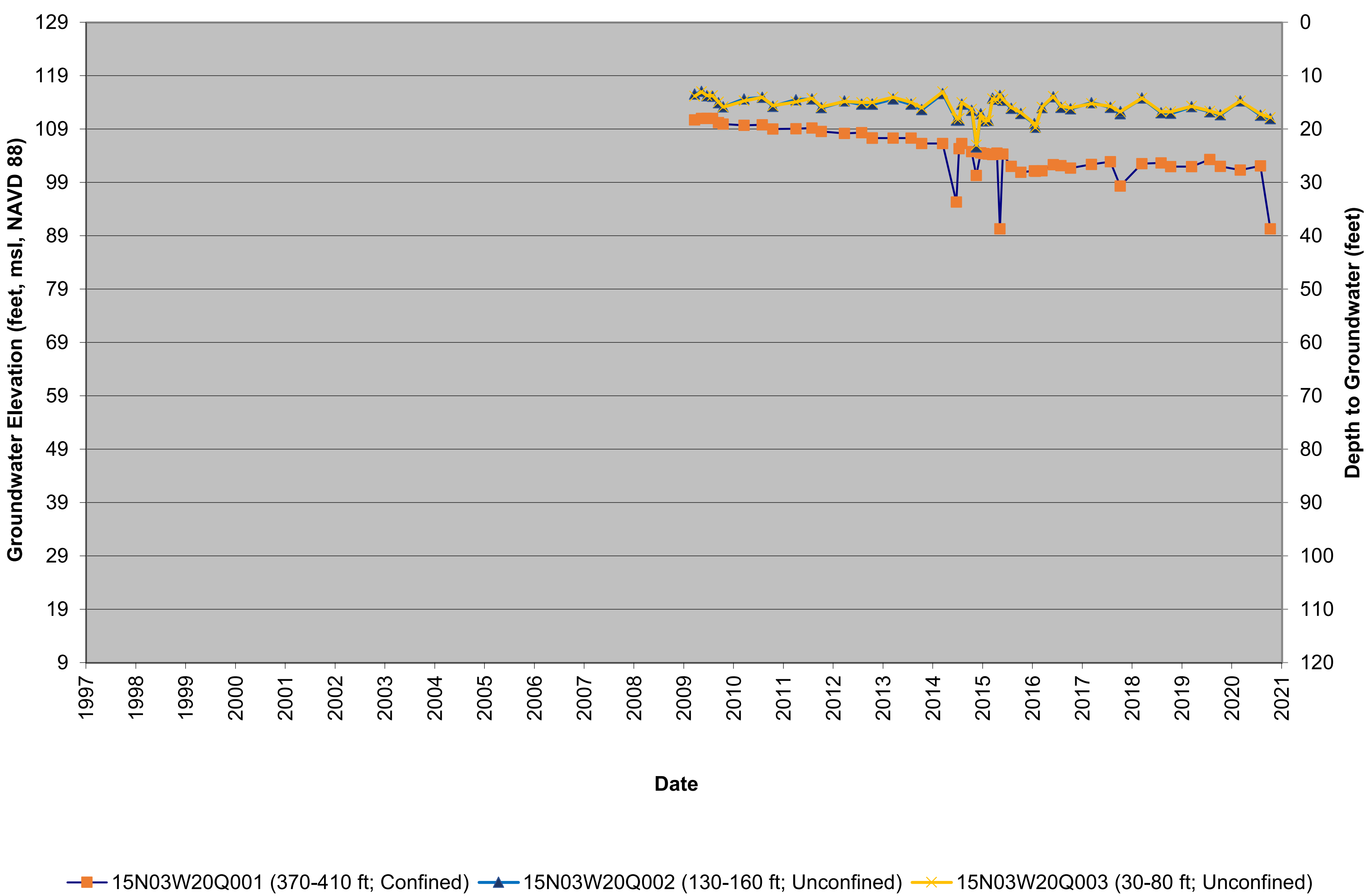


Figure 19. 15N03W08Q001M Active Irrigation Well
Ground Surface Elevation 115.58 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
115
105
95
85
75
65
55
45
35
25
15
5
-5
0
10
20
30
40
50
60
70
80
90
100
110
120
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
Date
15N03W08Q001 (30-130, 250-350 ft; Unconfined)

Figure 20. 15N03W20Q001-003M Active Observation Well Cluster
Ground Surface Elevation 128.56 feet msl, NAVD 88



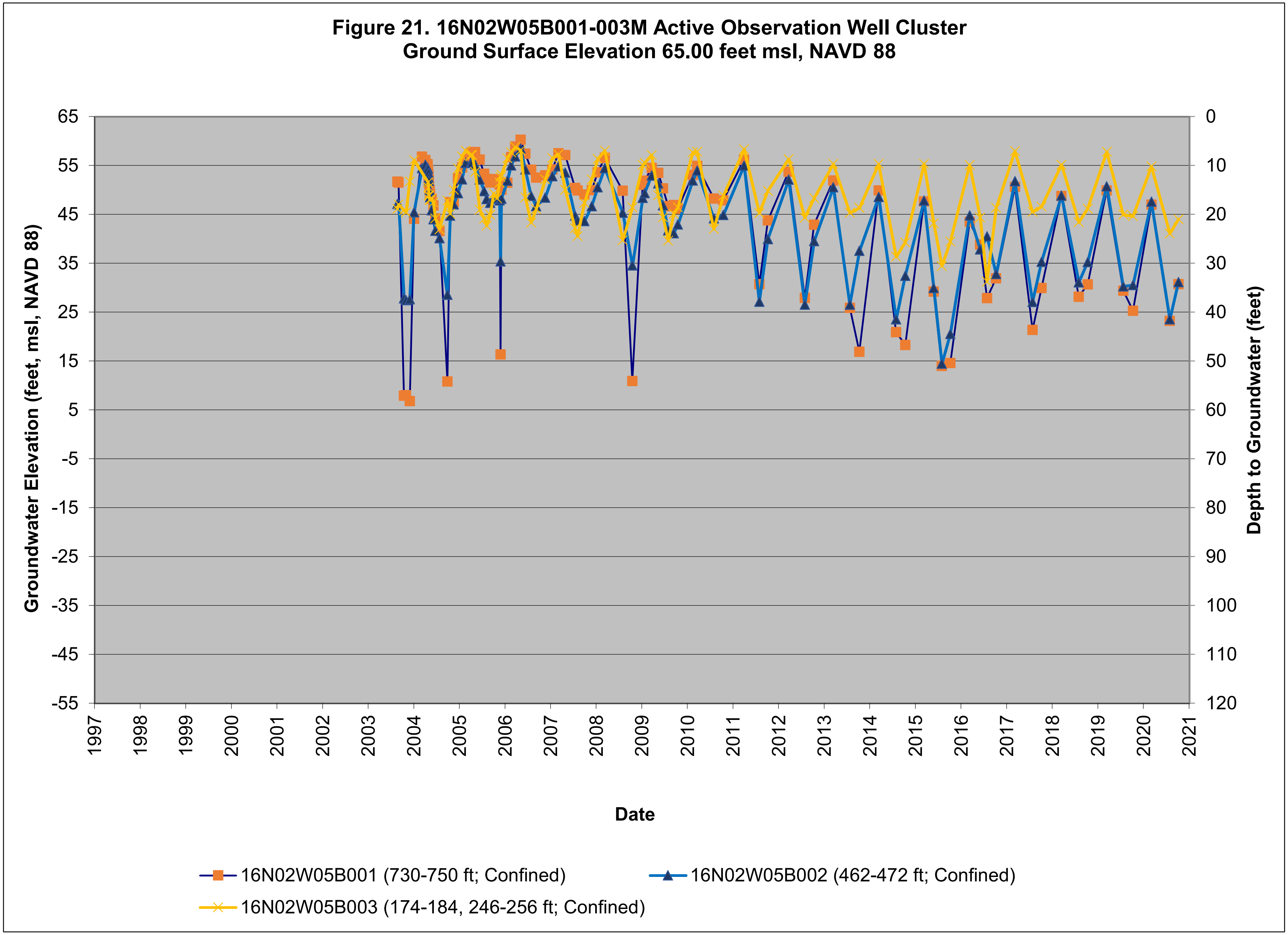


Figure 21. 16N02W05B001-003M Active Observation Well Cluster
Ground Surface Elevation 65.00 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
65
55
45
35
25
15
5
-5
-15
-25
-35
-45
-55
0
10
20
30
40
50
60
70
80
90
100
110
120
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
Date
16N02W05B001 (730-750 ft; Confined)
16N02W05B002 (462-472 ft; Confined)
16N02W05B003 (174-184, 246-256 ft; Confined)

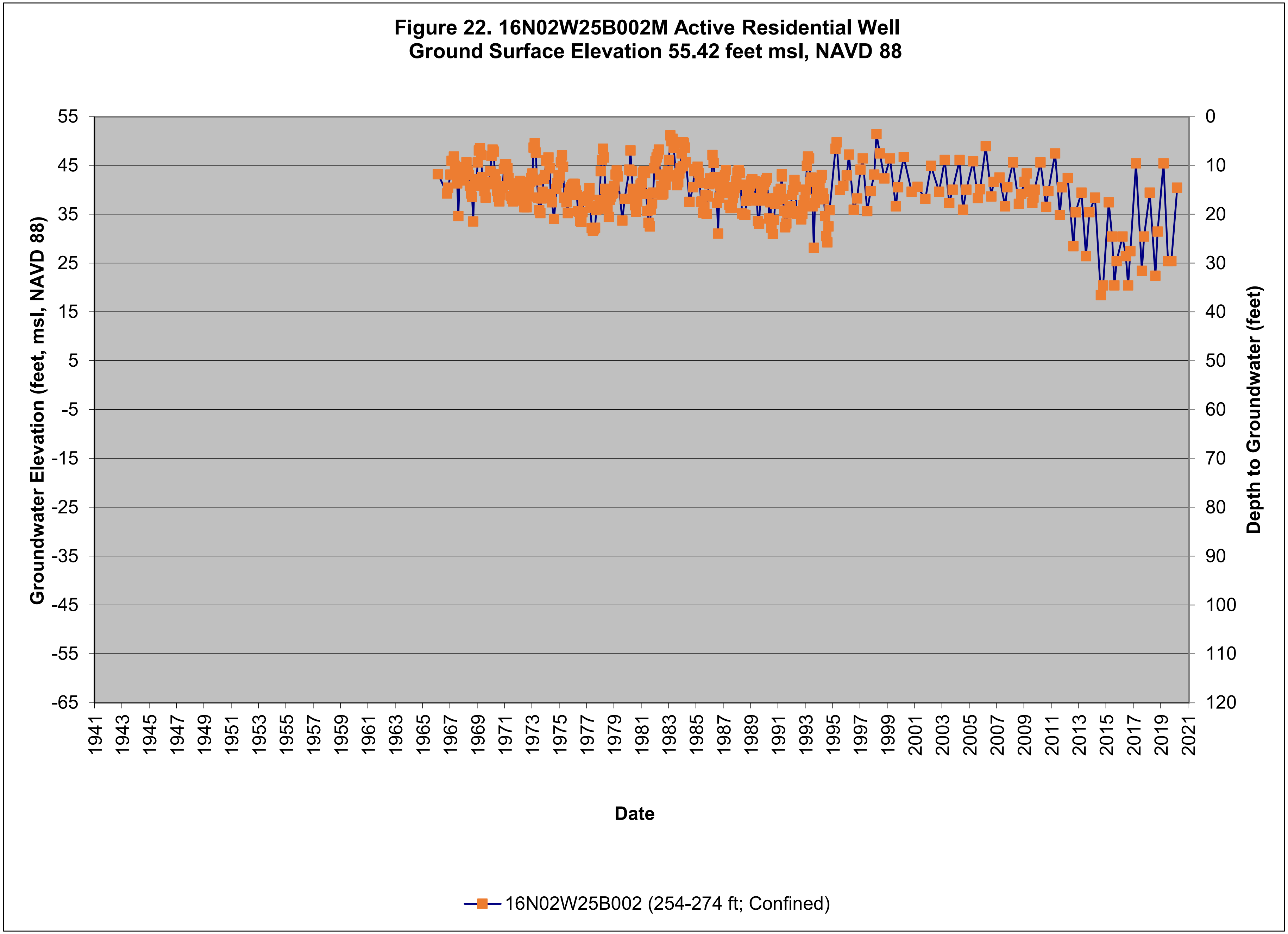


Figure 22. 16N02W25B002M Active Residential Well
Ground Surface Elevation 55.42 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
55
45
35
25
15
5
-5
-15
-25
-35
-45
-55
-65
0
10
20
30
40
50
60
70
80
90
100
110
120
1941
1943
1945
1947
1949
1951
1953
1955
1957
1959
1961
1963
1965
1967
1969
1971
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015
2017
2019
2021
Date
16N02W25B002 (254-274 ft; Confined)

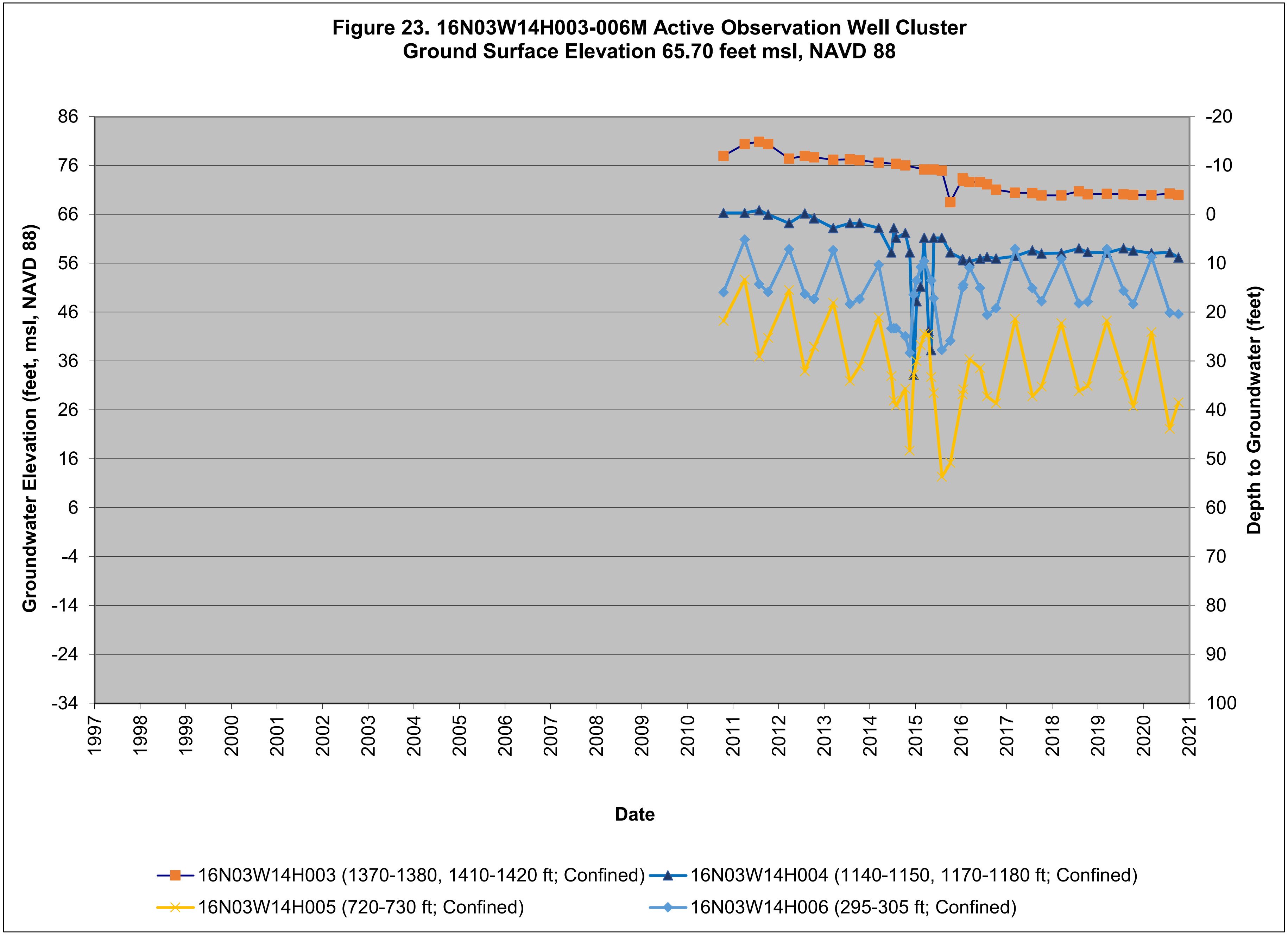


Figure 23. 16N03W14H003-006M Active Observation Well Cluster
Ground Surface Elevation 65.70 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
86
76
66
56
46
36
26
16
6
-4
-14
-24
-34
-20
-10
0
10
20
30
40
50
60
70
80
90
100
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
Date
16N03W14H003 (1370-1380, 1410-1420 ft; Confined)
16N03W14H004 (1140-1150, 1170-1180 ft; Confined)
16N03W14H005 (720-730 ft; Confined)
16N03W14H006 (295-305 ft; Confined)

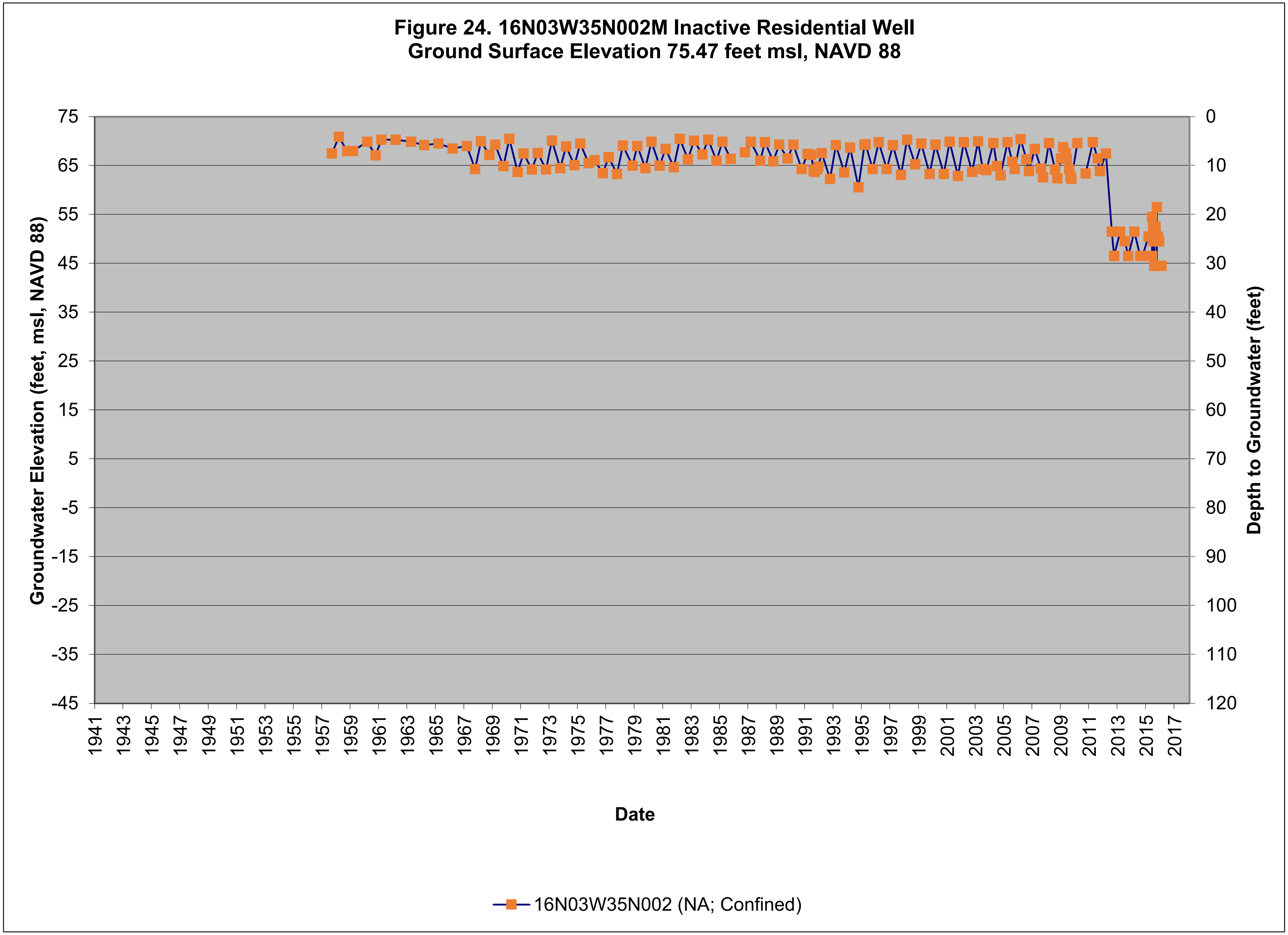


Figure 24. 16N03W35N002M Inactive Residential Well
Ground Surface Elevation 75.47 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
75
65
55
45
35
25
15
5
-5
-15
-25
-35
-45
0
10
20
30
40
50
60
70
80
90
100
110
120
1941
1943
1945
1947
1949
1951
1953
1955
1957
1959
1961
1963
1965
1967
1969
1971
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015
2017
Date
16N03W35N002 (NA; Confined)

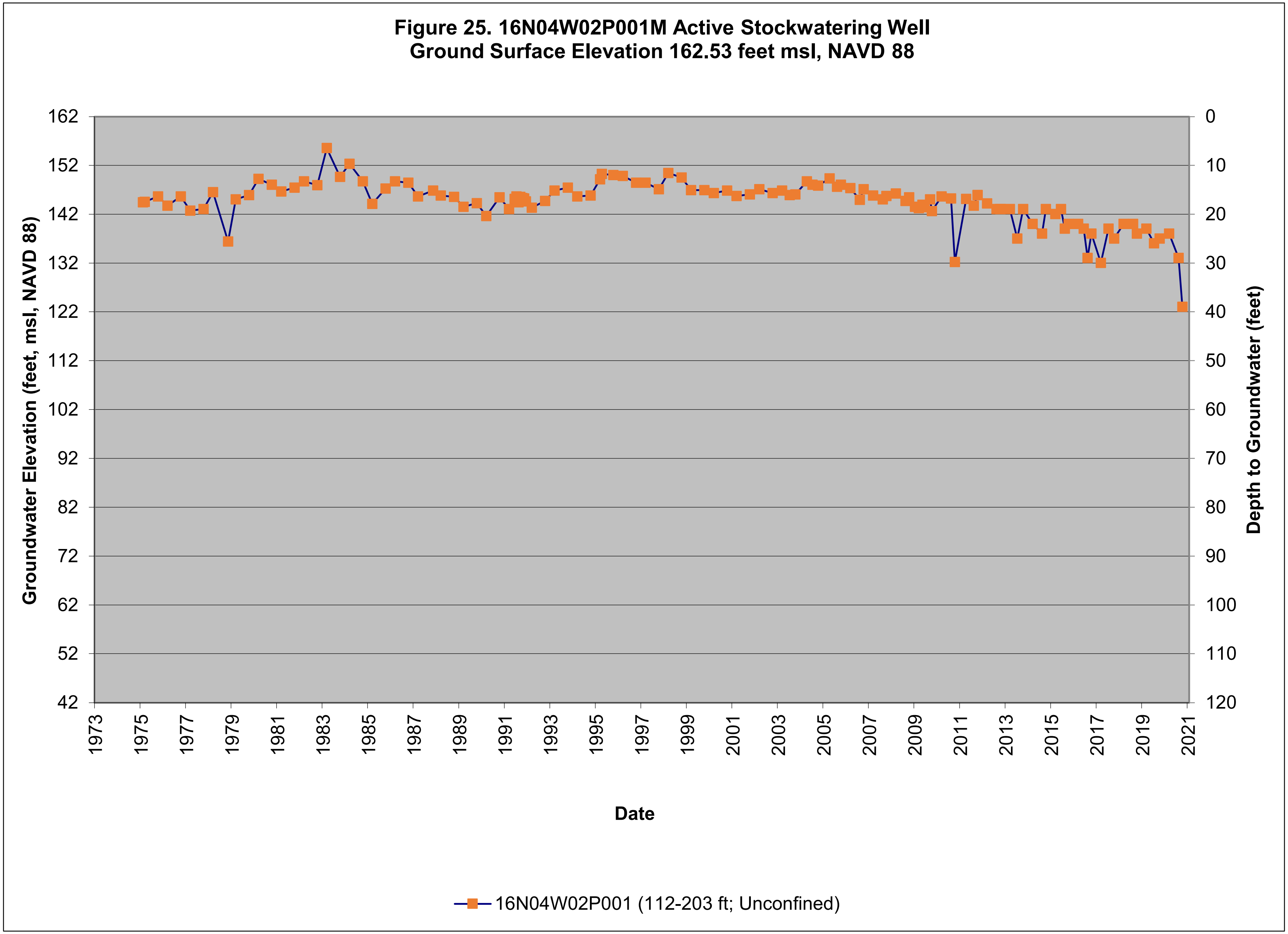


Figure 25. 16N04W02P001M Active Stockwatering Well
Ground Surface Elevation 162.53 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
162
152
142
132
122
112
102
92
82
72
62
52
42
0
10
20
30
40
50
60
70
80
90
100
110
120
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015
2017
2019
2021
Date
16N04W02P001 (112-203 ft; Unconfined)

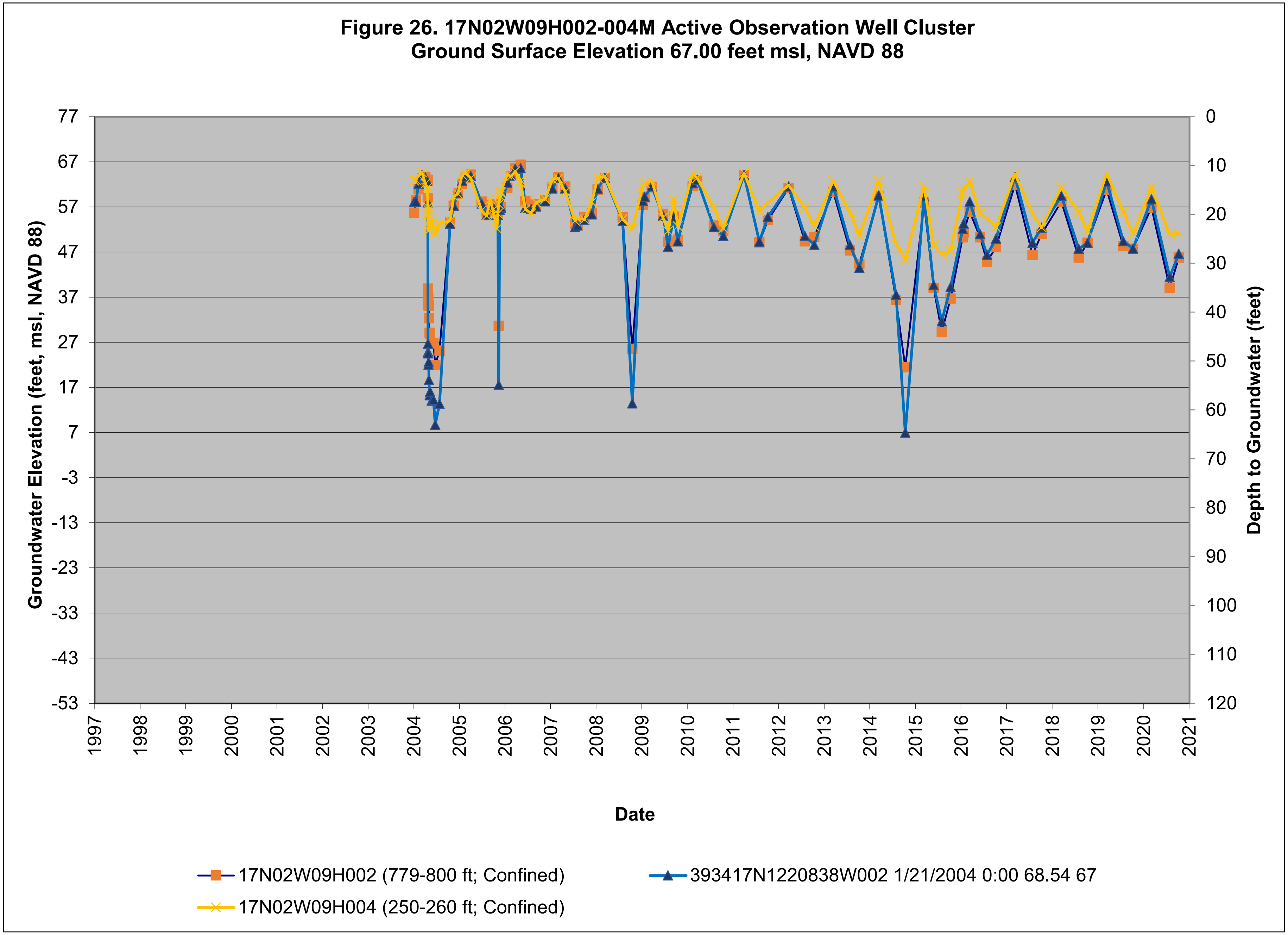


Figure 26. 17N02W09H002-004M Active Observation Well Cluster
Ground Surface Elevation 67.00 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
77
67
57
47
37
27
17
7
-3
-13
-23
-33
-43
-53
0
10
20
30
40
50
60
70
80
90
100
110
120
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
Date
17N02W09H002 (779-800 ft; Confined)
393417N1220838W002 1/21/2004 0:00 68.54 67
17N02W09H004 (250-260 ft; Confined)

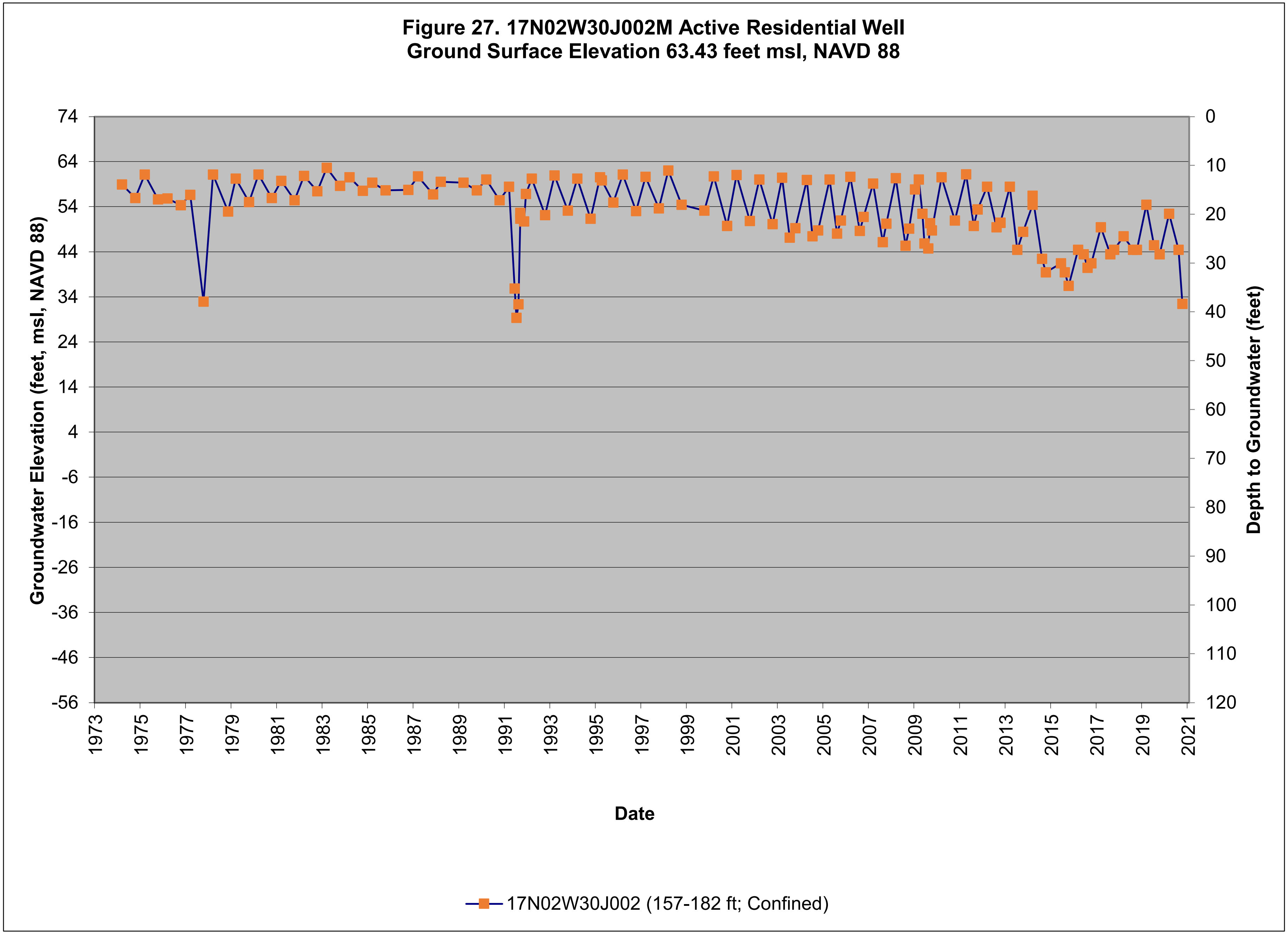
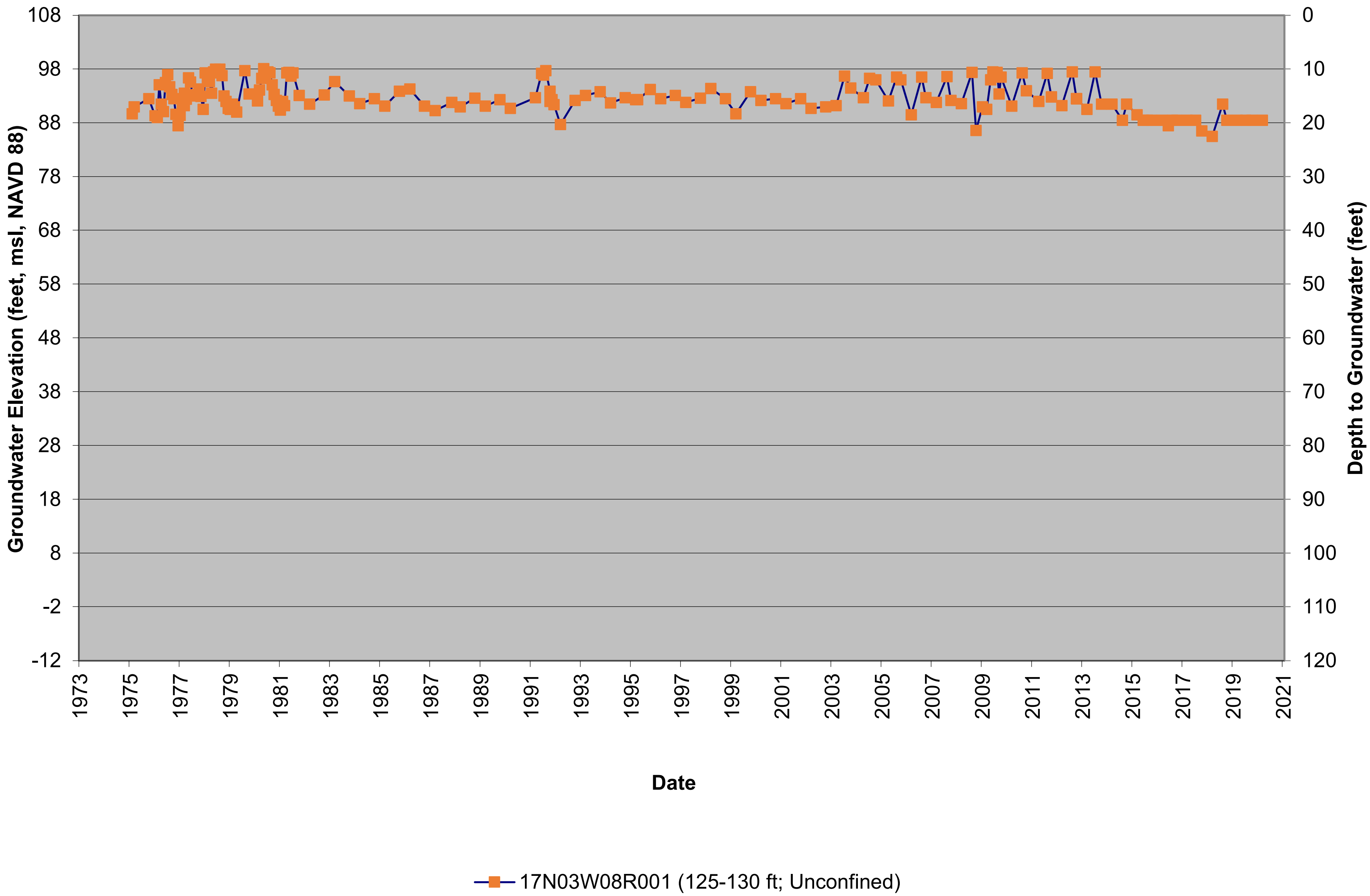


Figure 27. 17N02W30J002M Active Residential Well
Ground Surface Elevation 63.43 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
Date
74
64
54
44
34
24
14
4
-6
-16
-26
-36
-46
-56
0
10
20
30
40
50
60
70
80
90
100
110
120
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015
2017
2019
2021
17N02W30J002 (157-182 ft; Confined)

Figure 28. 17N03W08R001M Active Residential Well
Ground Surface Elevation 107.46 feet msl, NAVD 88



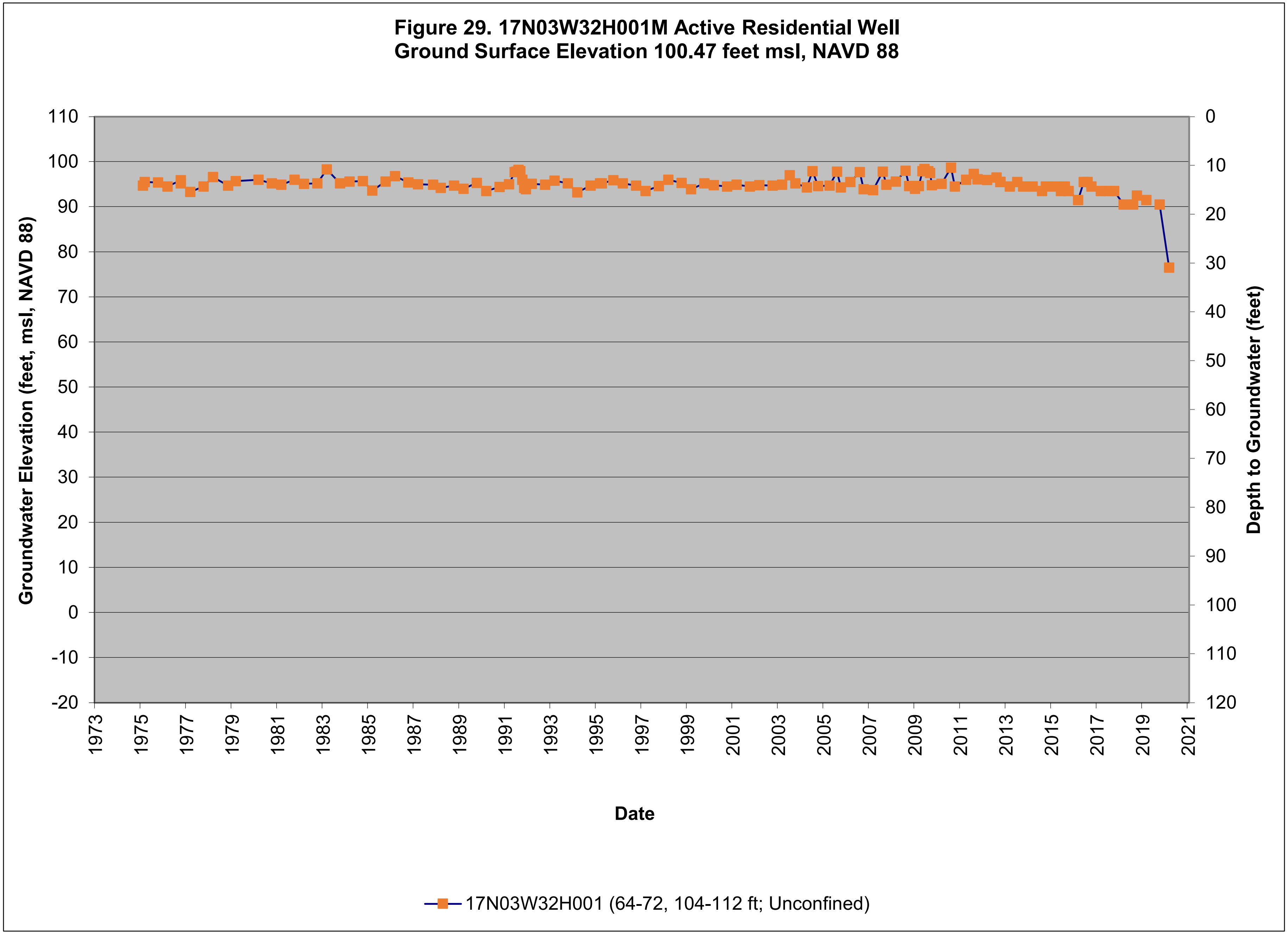


Figure 29. 17N03W32H001M Active Residential Well
Ground Surface Elevation 100.47 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
Depth to Groundwater (feet)
0
10
20
30
40
50
60
70
80
90
100
110
120
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015
2017
2019
2021
Date
17N03W32H001 (64-72, 104-112 ft; Unconfined)

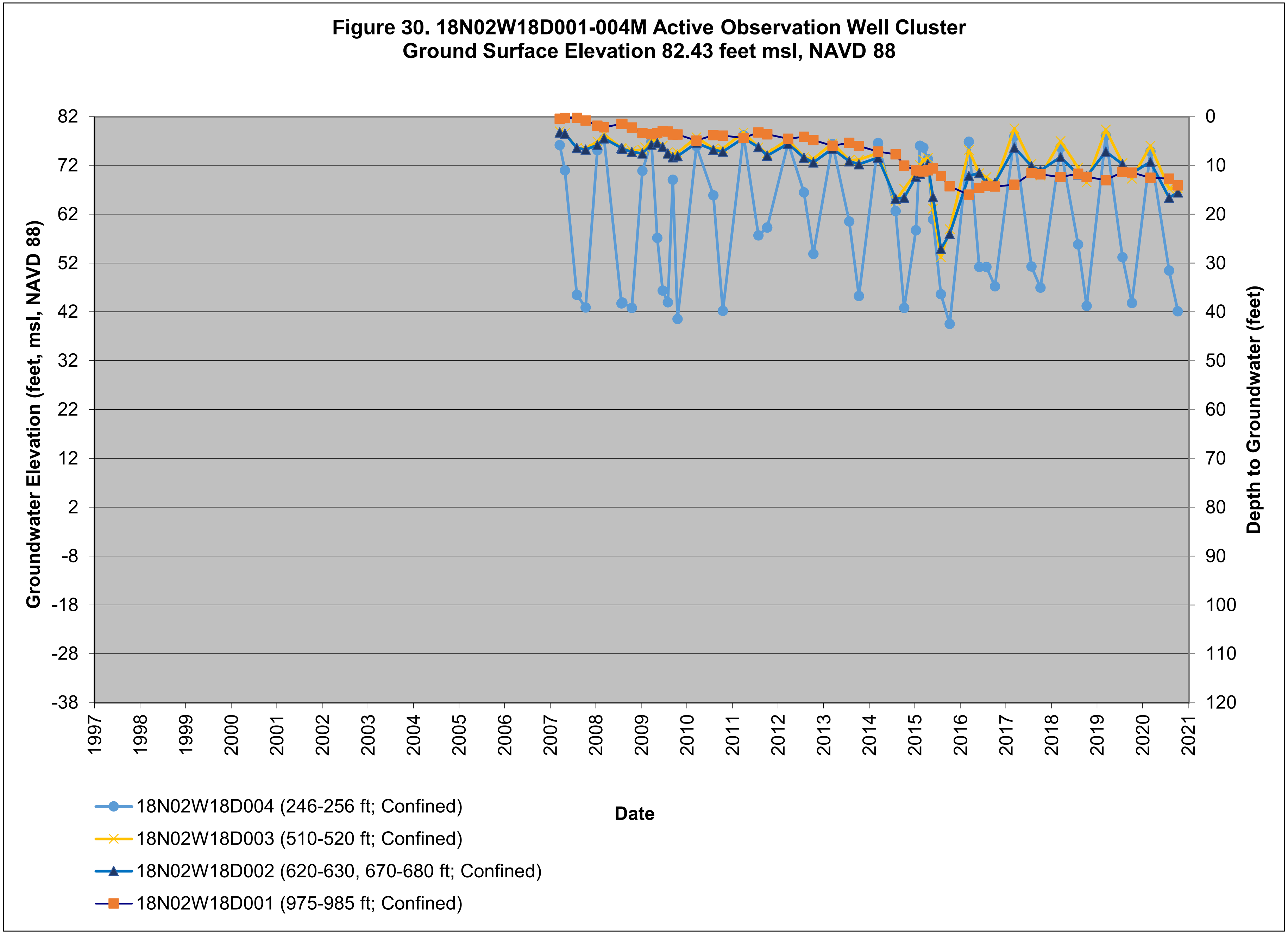


Figure 30. 18N02W18D001-004M Active Observation Well Cluster
Ground Surface Elevation 82.43 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
82
72
62
52
42
32
22
12
2
-8
-18
-28
-38
0
10
20
30
40
50
60
70
80
90
100
110
120
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
Date
18N02W18D004 (246-256 ft; Confined)
18N02W18D003 (510-520 ft; Confined)
18N02W18D002 (620-630, 670-680 ft; Confined)
18N02W18D001 (975-985 ft; Confined)

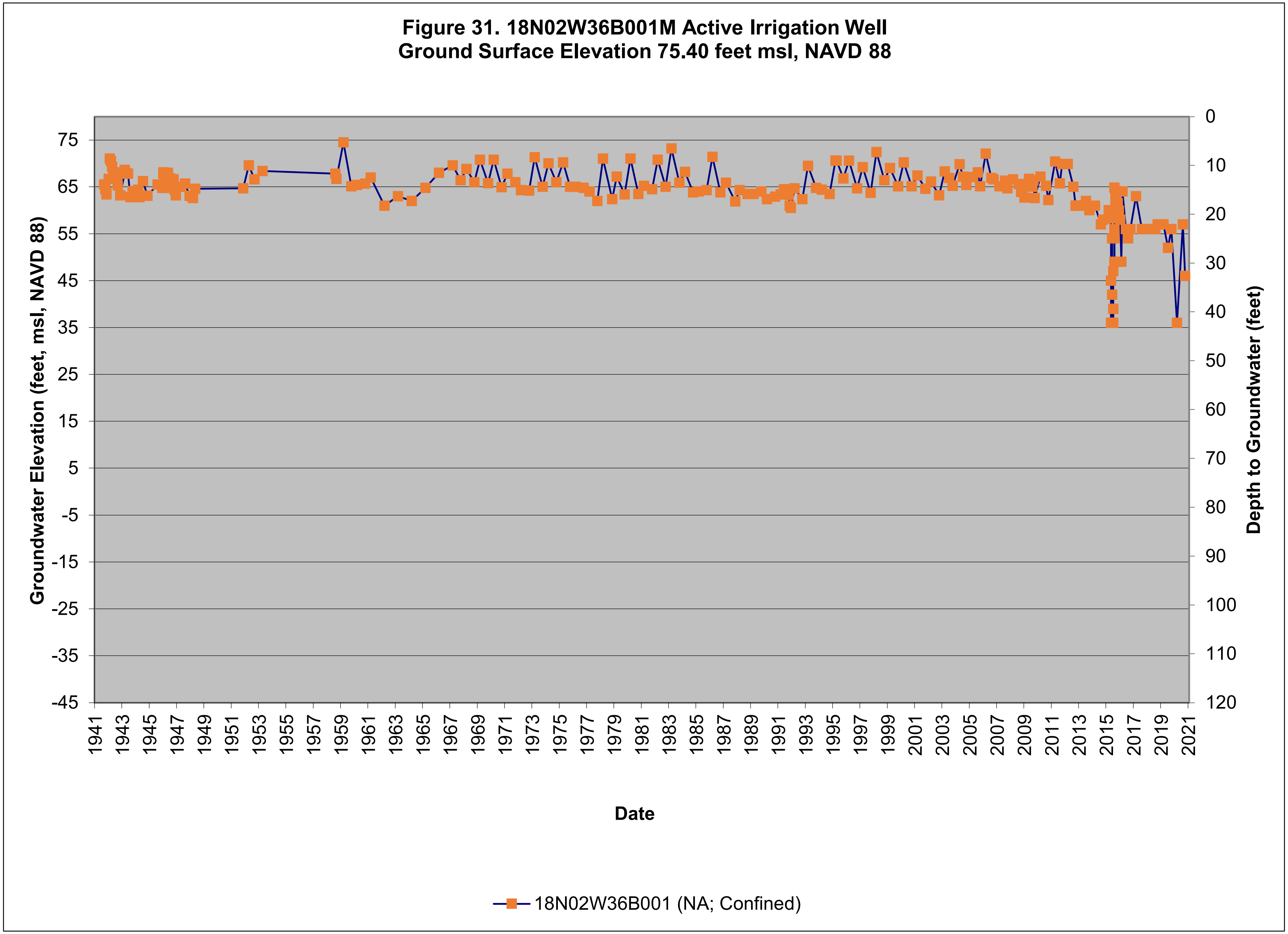
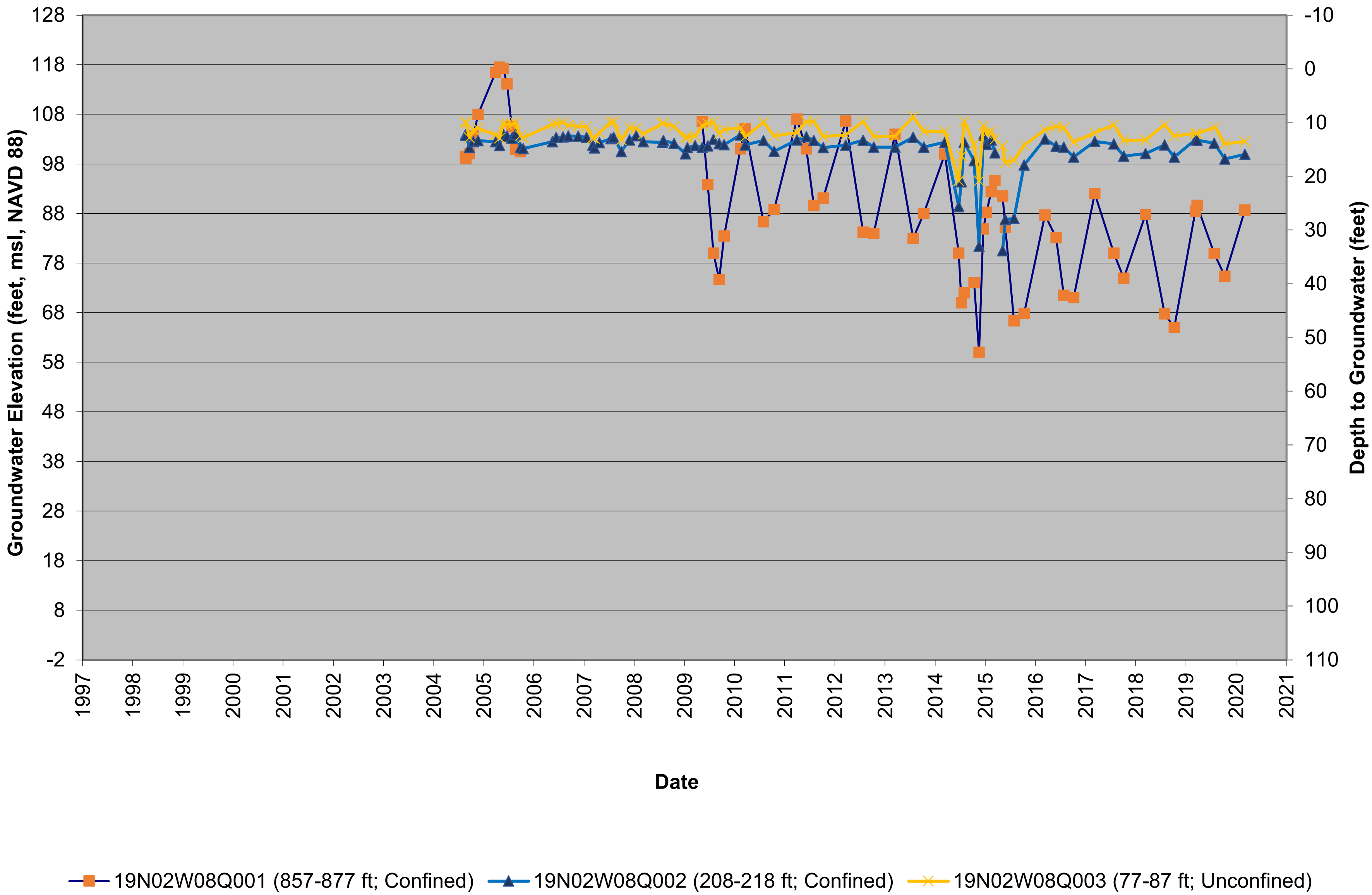


Figure 31. 18N02W36B001M Active Irrigation Well
Ground Surface Elevation 75.40 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
75
65
55
45
35
25
15
5
-5
-15
-25
-35
-45
Depth to Groundwater (feet)
0
10
20
30
40
50
60
70
80
90
100
110
120
1941
1943
1945
1947
1949
1951
1953
1955
1957
1959
1961
1963
1965
1967
1969
1971
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015
2017
2019
2021
Date
18N02W36B001 (NA; Confined)

Figure 32. 19N02W08Q001-003M Active Observation Well Cluster
Ground Surface Elevation 108.36 feet msl, NAVD 88



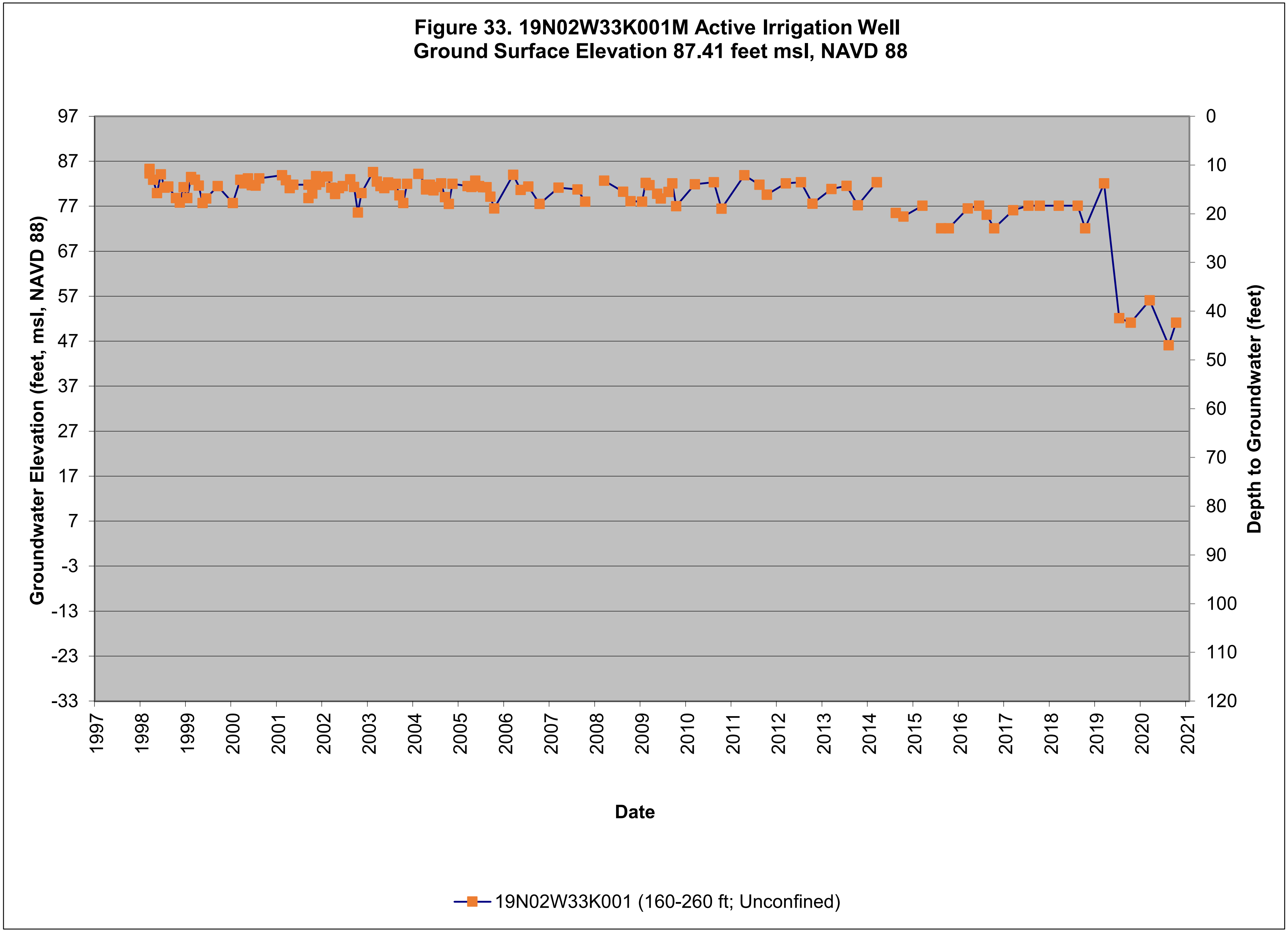


Figure 33. 19N02W33K001M Active Irrigation Well
Ground Surface Elevation 87.41 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
97
87
77
67
57
47
37
27
17
7
-3
-13
-23
-33
0
10
20
30
40
50
60
70
80
90
100
110
120
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
Date
19N02W33K001 (160-260 ft; Unconfined)

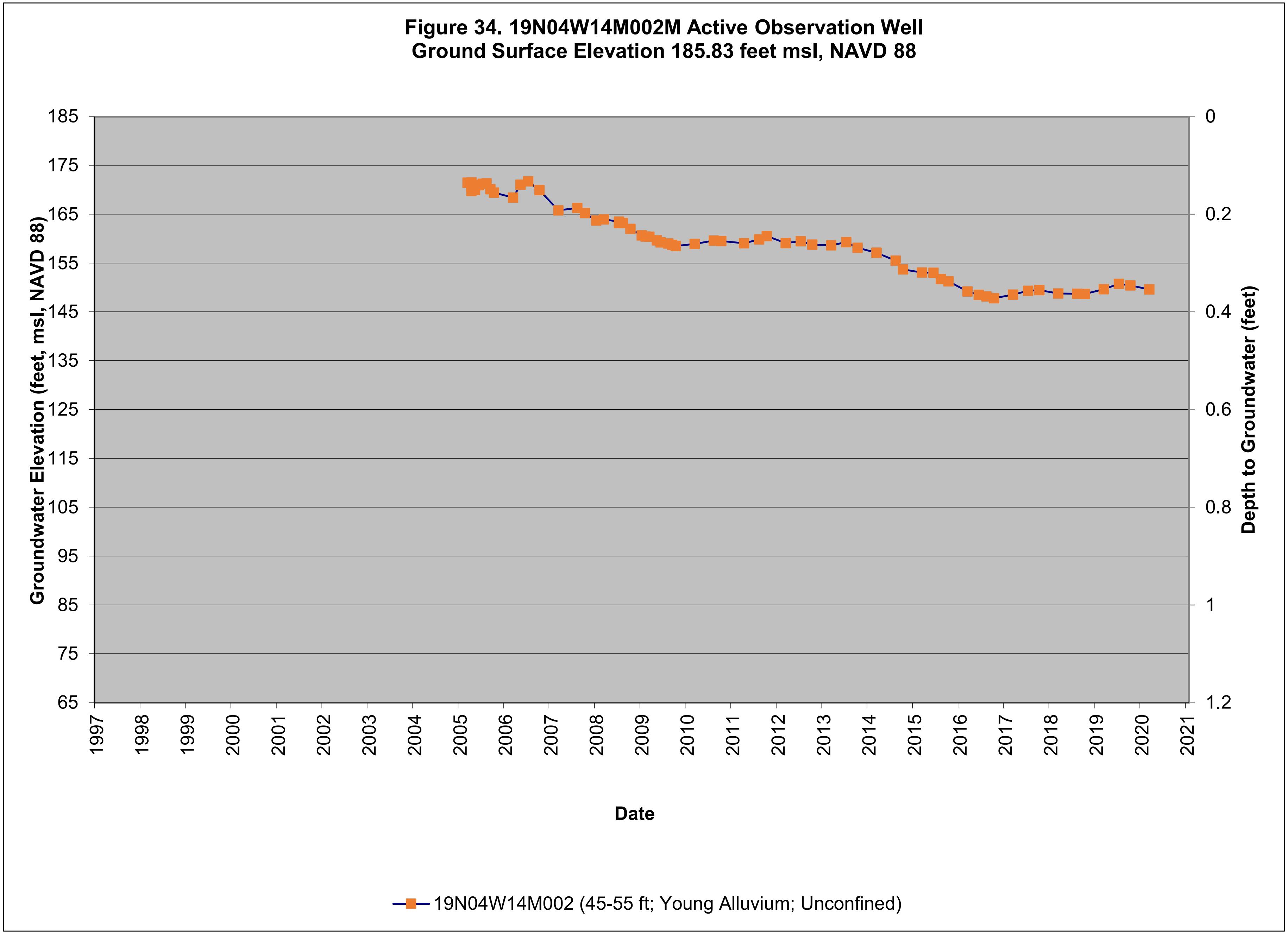


Figure 34. 19N04W14M002M Active Observation Well
Ground Surface Elevation 185.83 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
185
175
165
155
145
135
125
115
105
95
85
75
65
0
0.2
0.4
0.6
0.8
1
1.2
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
Date
19N04W14M002 (45-55 ft; Young Alluvium; Unconfined)

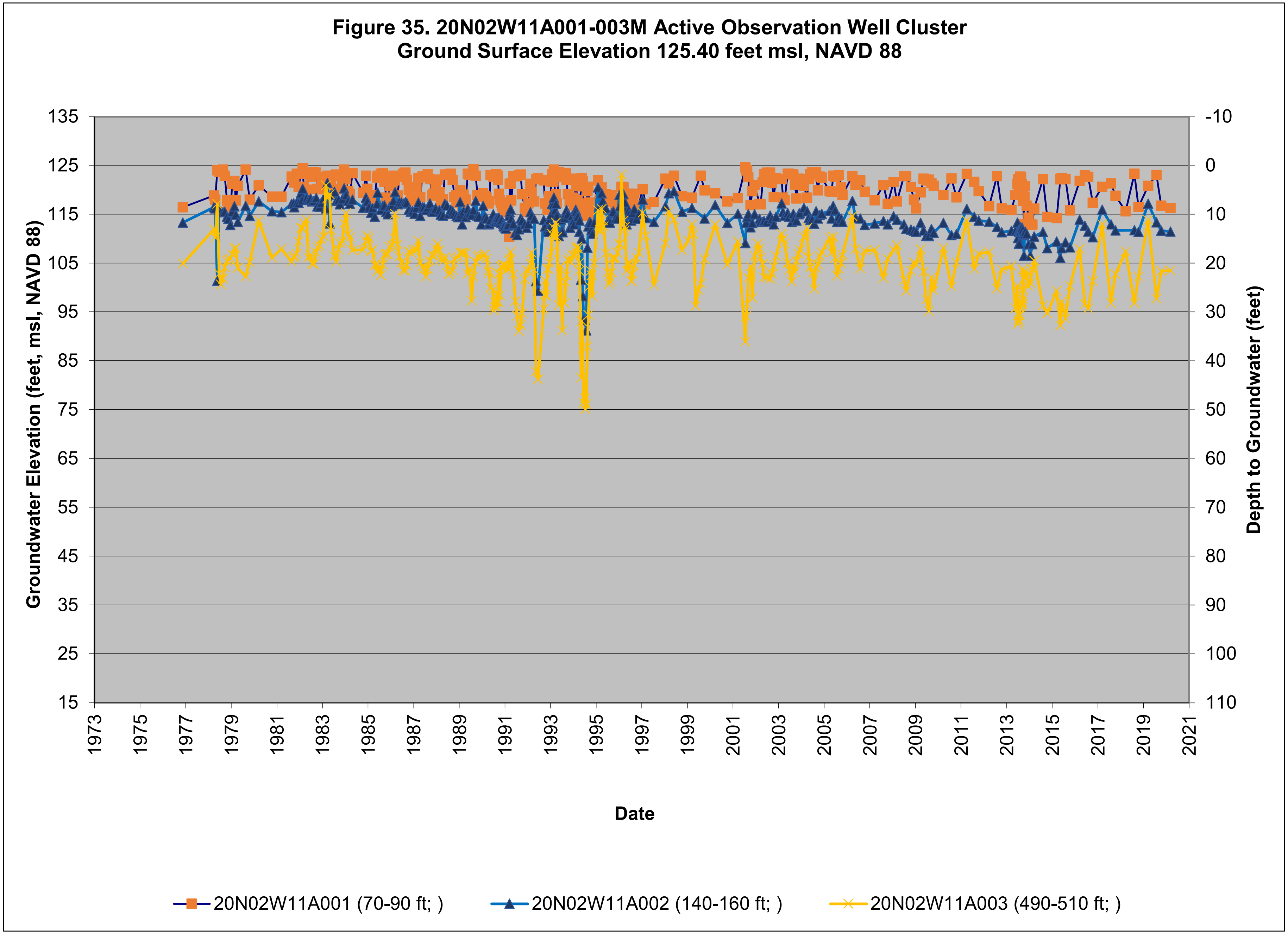


Figure 35. 20N02W11A001-003M Active Observation Well Cluster
Ground Surface Elevation 125.40 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
135
125
115
105
95
85
75
65
55
45
35
25
15
-10
0
10
20
30
40
50
60
70
80
90
100
110
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015
2017
2019
2021
Date
20N02W11A001 (70-90 ft;)
20N02W11A002 (140-160 ft;)
20N02W11A003 (490-510 ft;)

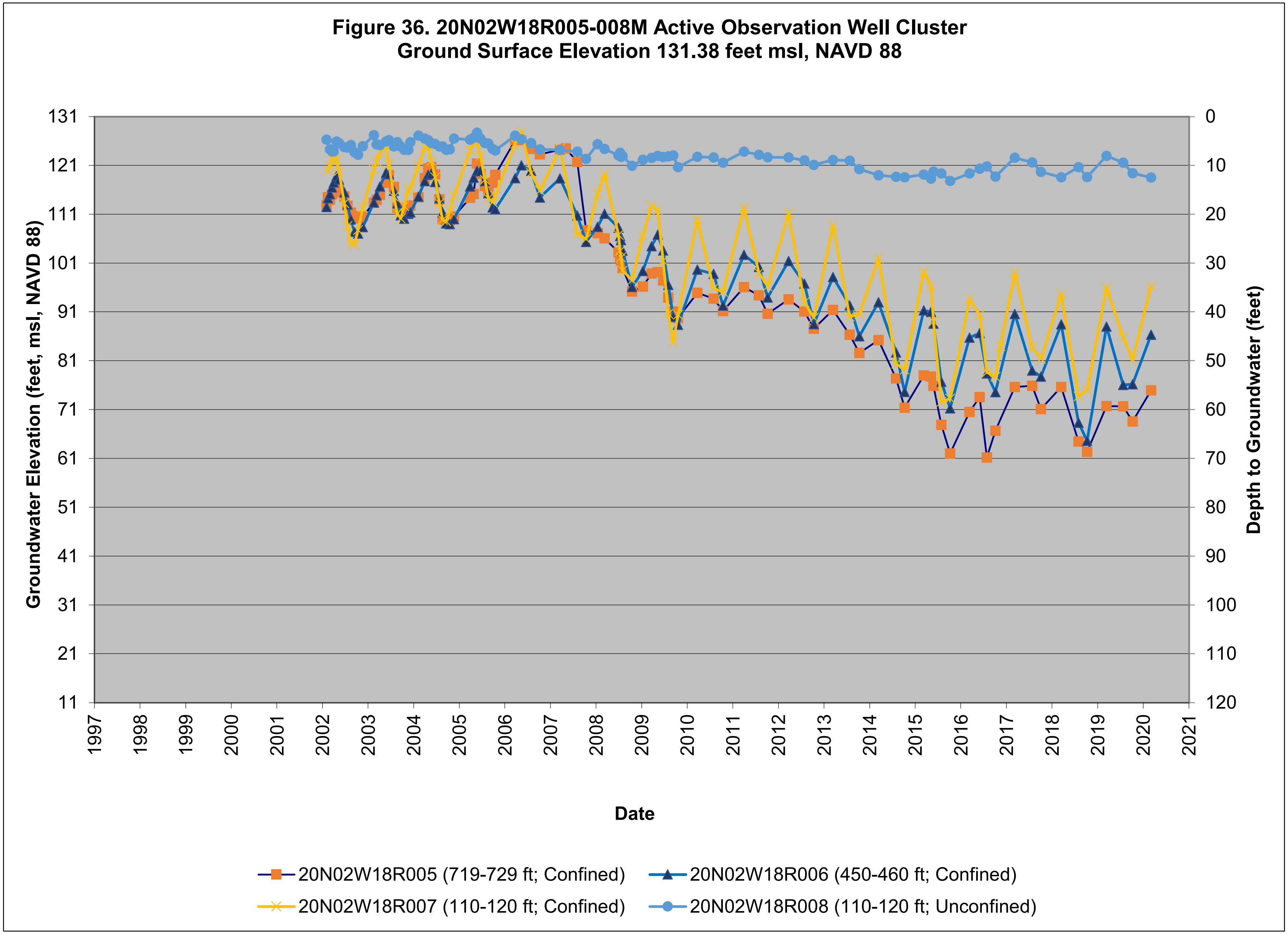


Figure 36. 20N02W18R005-008M Active Observation Well Cluster
Ground Surface Elevation 131.38 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
131
121
111
101
91
81
71
61
51
41
31
21
11
0
10
20
30
40
50
60
70
80
90
100
110
120
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
Date
20N02W18R005 (719-729 ft; Confined)
20N02W18R006 (450-460 ft; Confined)
20N02W18R007 (110-120 ft; Confined)
20N02W18R008 (110-120 ft; Unconfined)

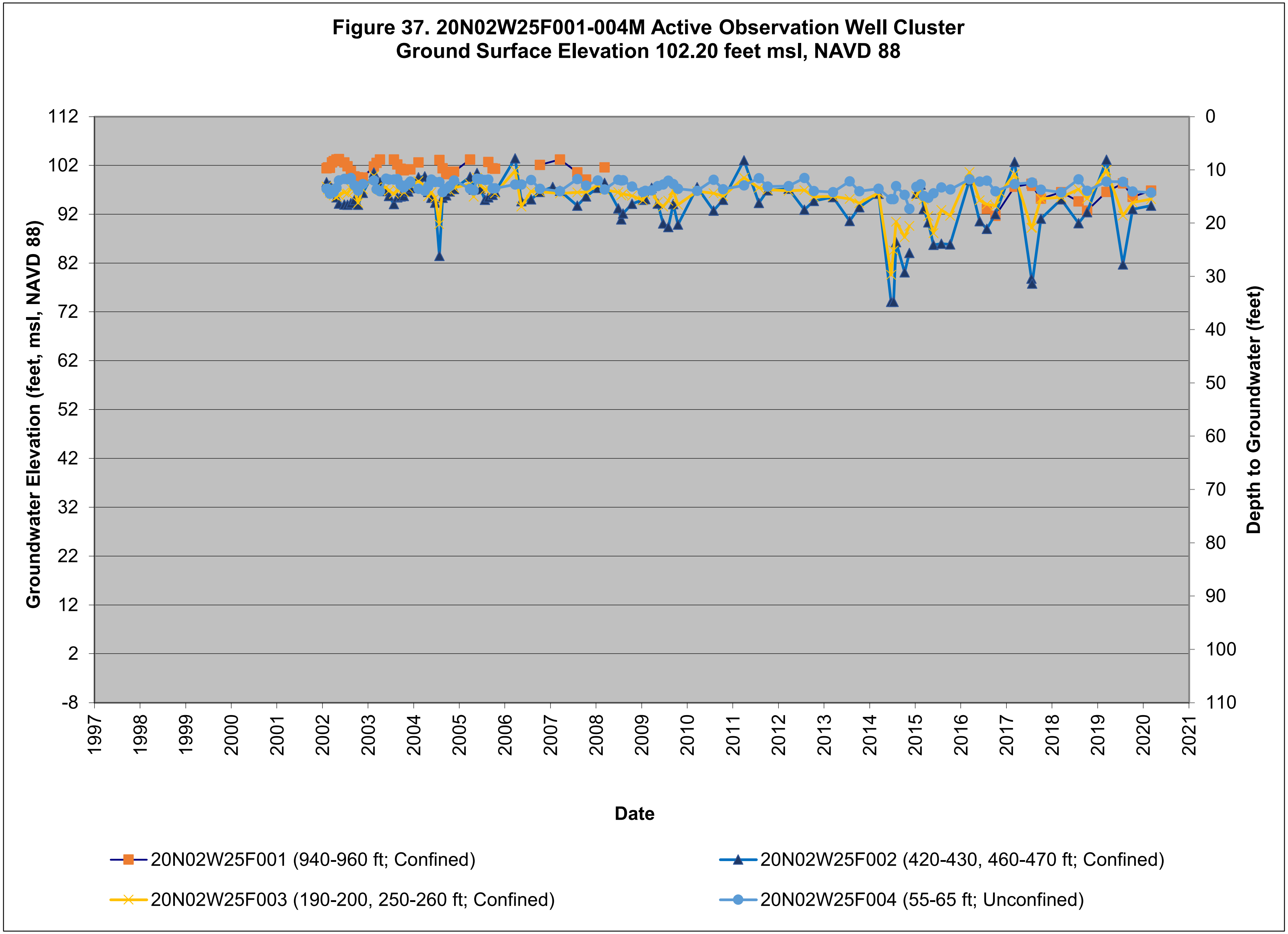


Figure 37. 20N02W25F001-004M Active Observation Well Cluster
Ground Surface Elevation 102.20 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
112
102
92
82
72
62
52
42
32
22
12
2
-8
0
10
20
30
40
50
60
70
80
90
100
110
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
Date
20N02W25F001 (940-960 ft; Confined)
20N02W25F002 (420-430, 460-470 ft; Confined)
20N02W25F003 (190-200, 250-260 ft; Confined)
20N02W25F004 (55-65 ft; Unconfined)

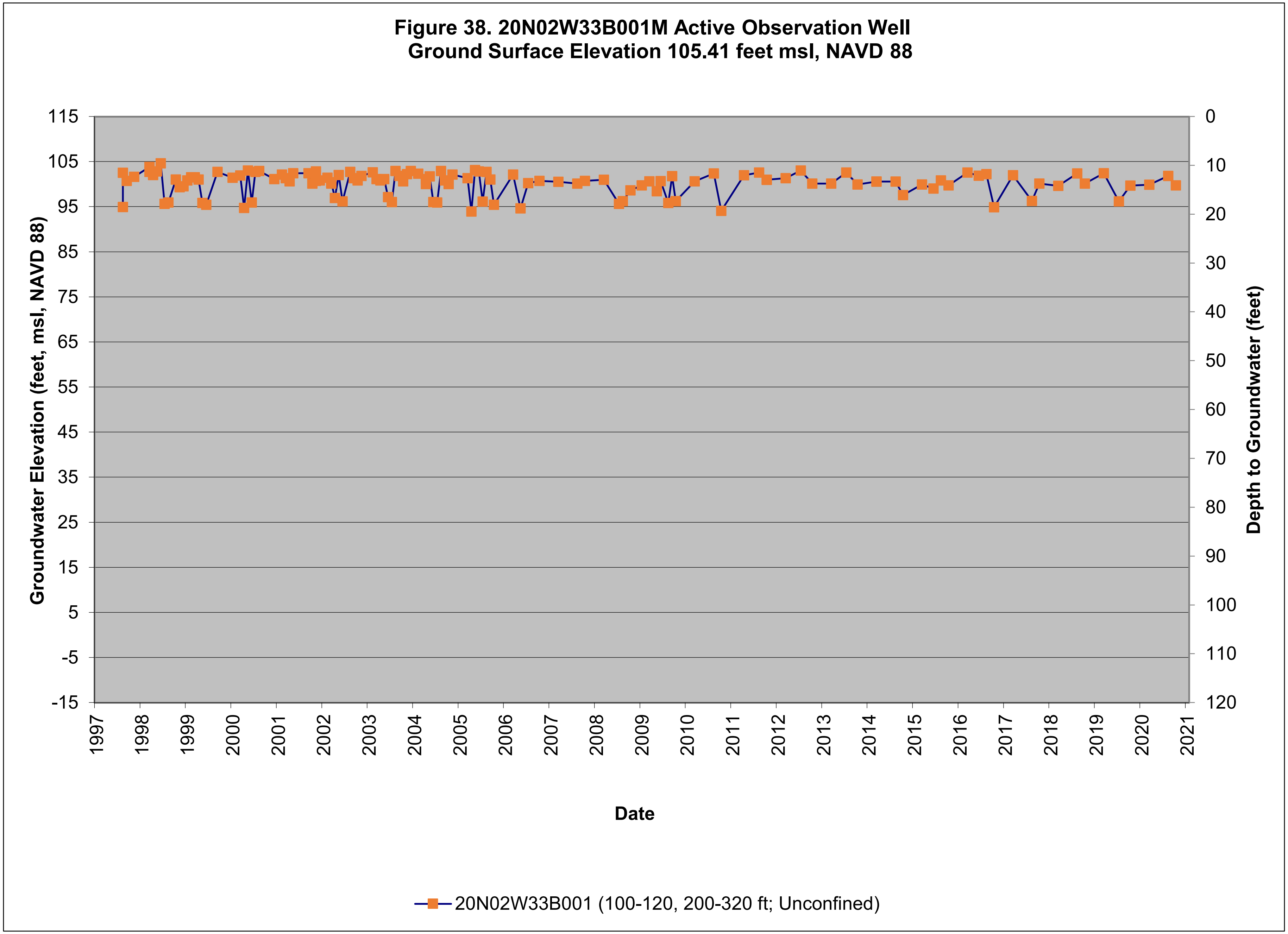


Figure 38. 20N02W33B001M Active Observation Well
Ground Surface Elevation 105.41 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
115
105
95
85
75
65
55
45
35
25
15
5
-5
-15
0
10
20
30
40
50
60
70
80
90
100
110
120
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
Date
20N02W33B001 (100-120, 200-320 ft; Unconfined)

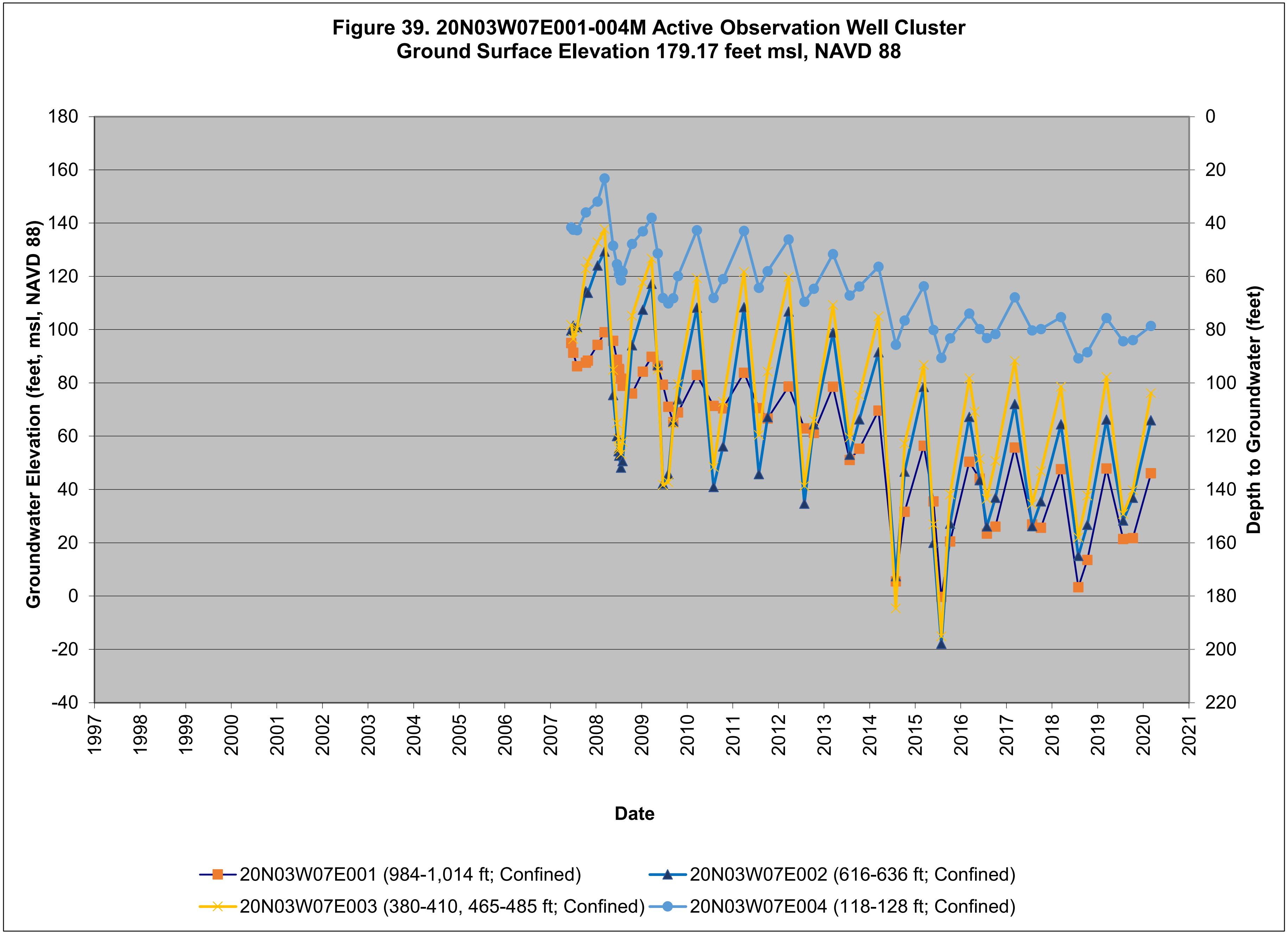


Figure 39. 20N03W07E001-004M Active Observation Well Cluster
Ground Surface Elevation 179.17 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
180
160
140
120
100
80
60
40
20
0
-20
-40
0
20
40
60
80
100
120
140
160
180
200
220
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
Date
20N03W07E001 (984-1,014 ft; Confined)
20N03W07E002 (616-636 ft; Confined)
20N03W07E003 (380-410, 465-485 ft; Confined)
20N03W07E004 (118-128 ft; Confined)

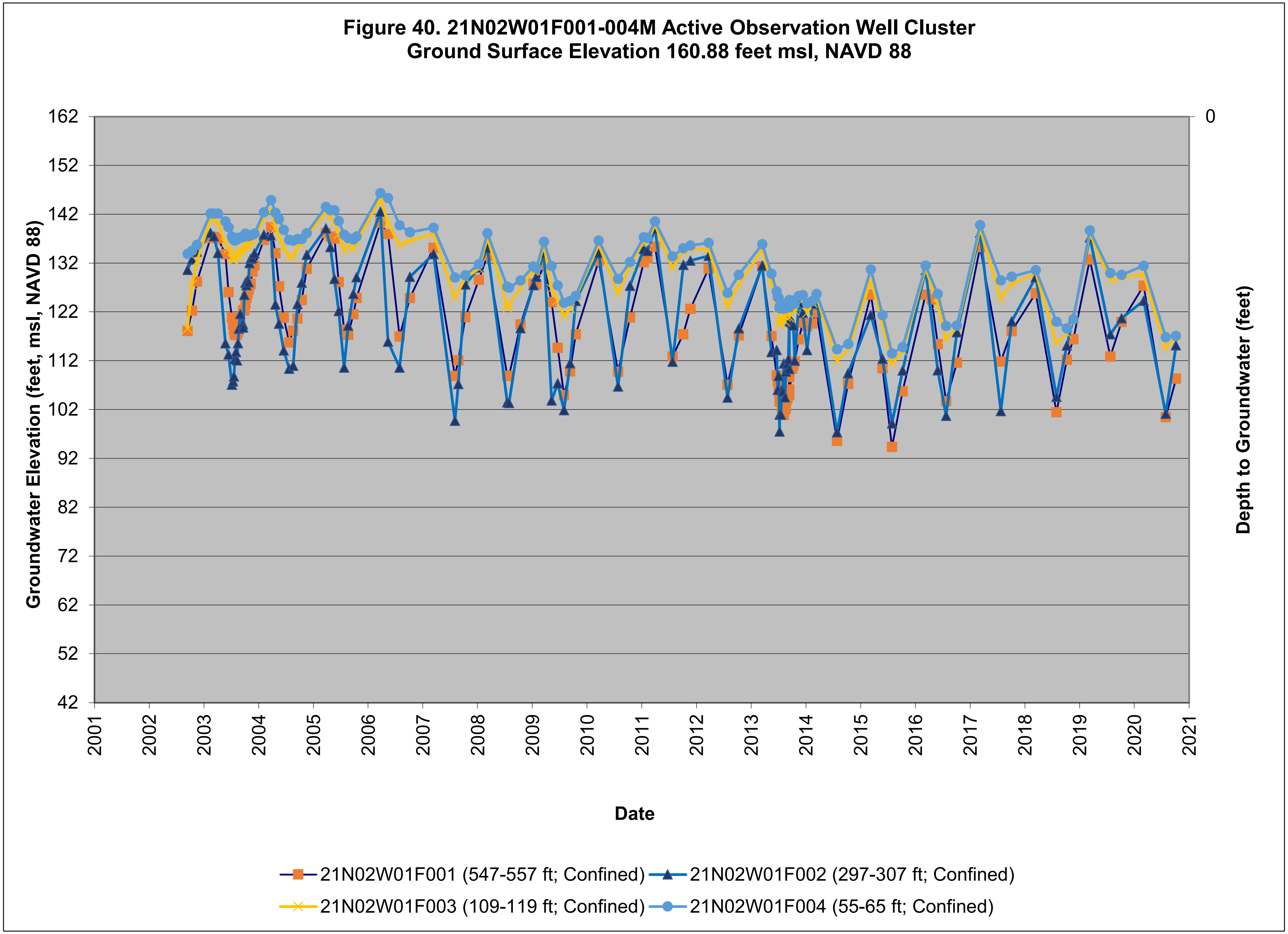


Figure 40. 21N02W01F001-004M Active Observation Well Cluster
Ground Surface Elevation 160.88 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
162
152
142
132
122
112
102
92
82
72
62
52
42
0
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
Date
21N02W01F001 (547-557 ft; Confined)
21N02W01F002 (297-307 ft; Confined)
21N02W01F003 (109-119 ft; Confined)
21N02W01F004 (55-65 ft; Confined)

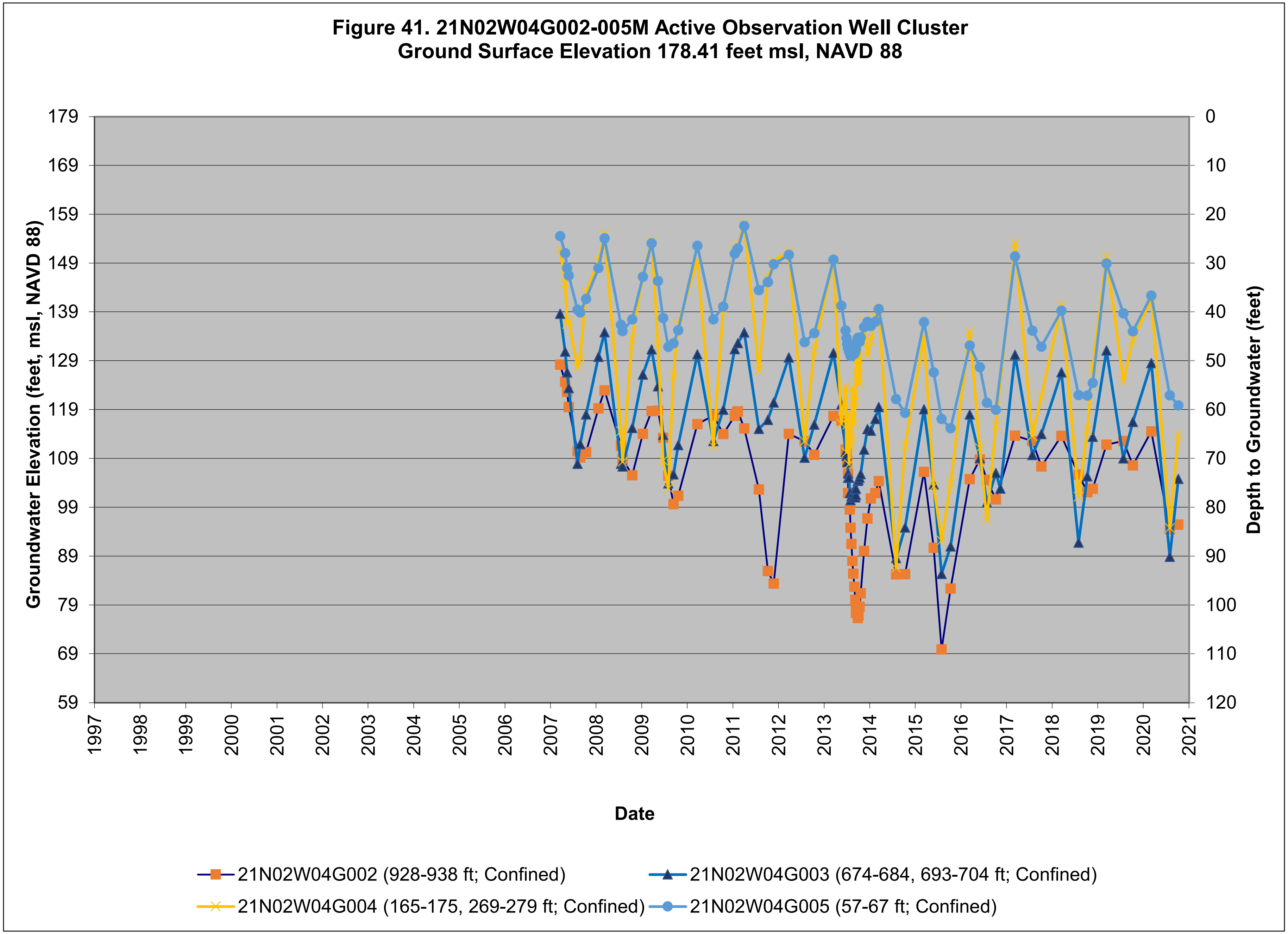


Figure 41. 21N02W04G002-005M Active Observation Well Cluster
Ground Surface Elevation 178.41 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
179
169
159
149
139
129
119
109
99
89
79
69
59
0
10
20
30
40
50
60
70
80
90
100
110
120
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
Date
21N02W04G002 (928-938 ft; Confined)
21N02W04G003 (674-684, 693-704 ft; Confined)
21N02W04G004 (165-175, 269-279 ft; Confined)
21N02W04G005 (57-67 ft; Confined)

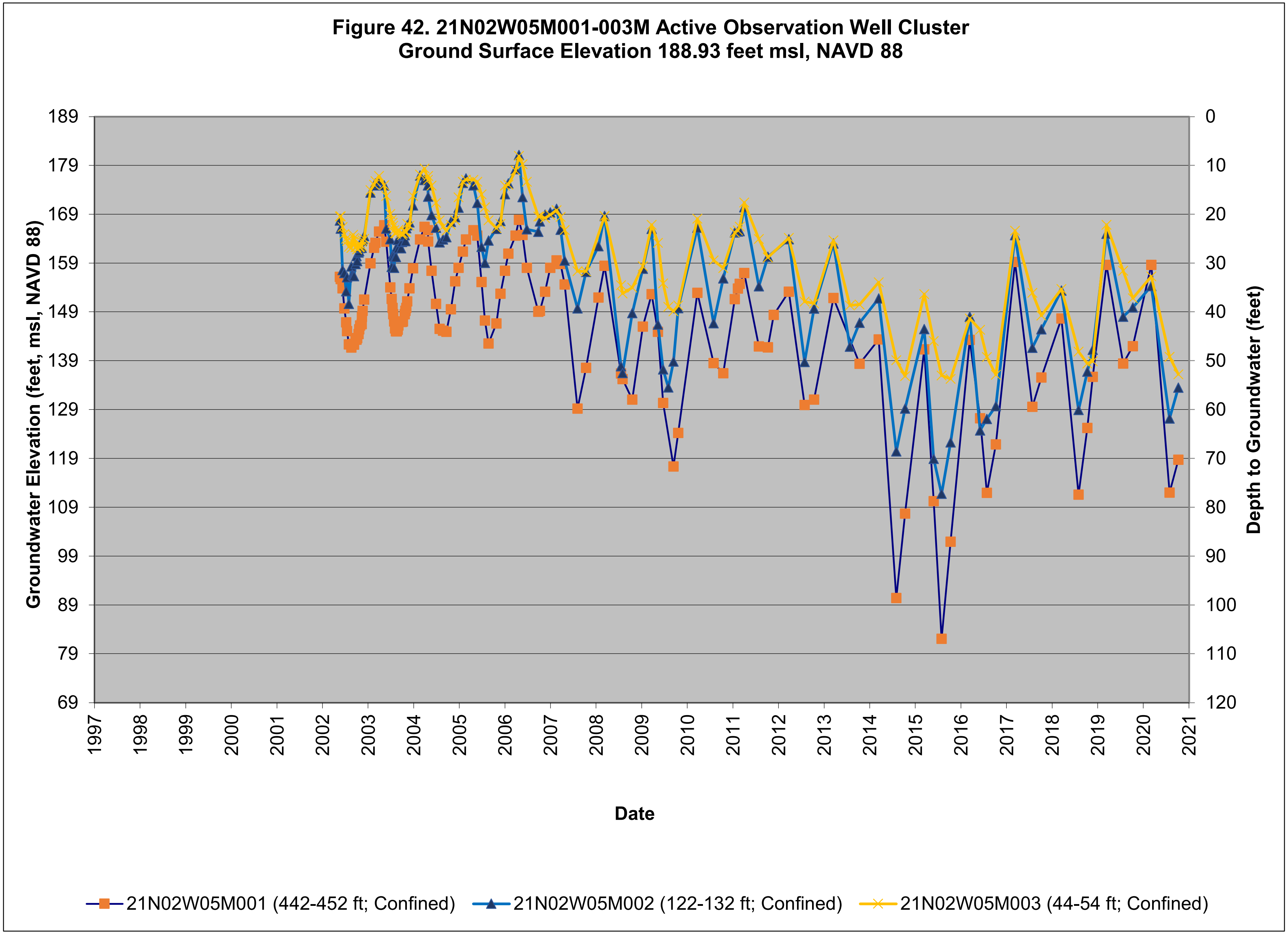


Figure 42. 21N02W05M001-003M Active Observation Well Cluster
Ground Surface Elevation 188.93 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
Date
189
179
169
159
149
139
129
119
109
99
89
79
69
0
10
20
30
40
50
60
70
80
90
100
110
120
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
21N02W05M001 (442-452 ft; Confined)
21N02W05M002 (122-132 ft; Confined)
21N02W05M003 (44-54 ft; Confined)

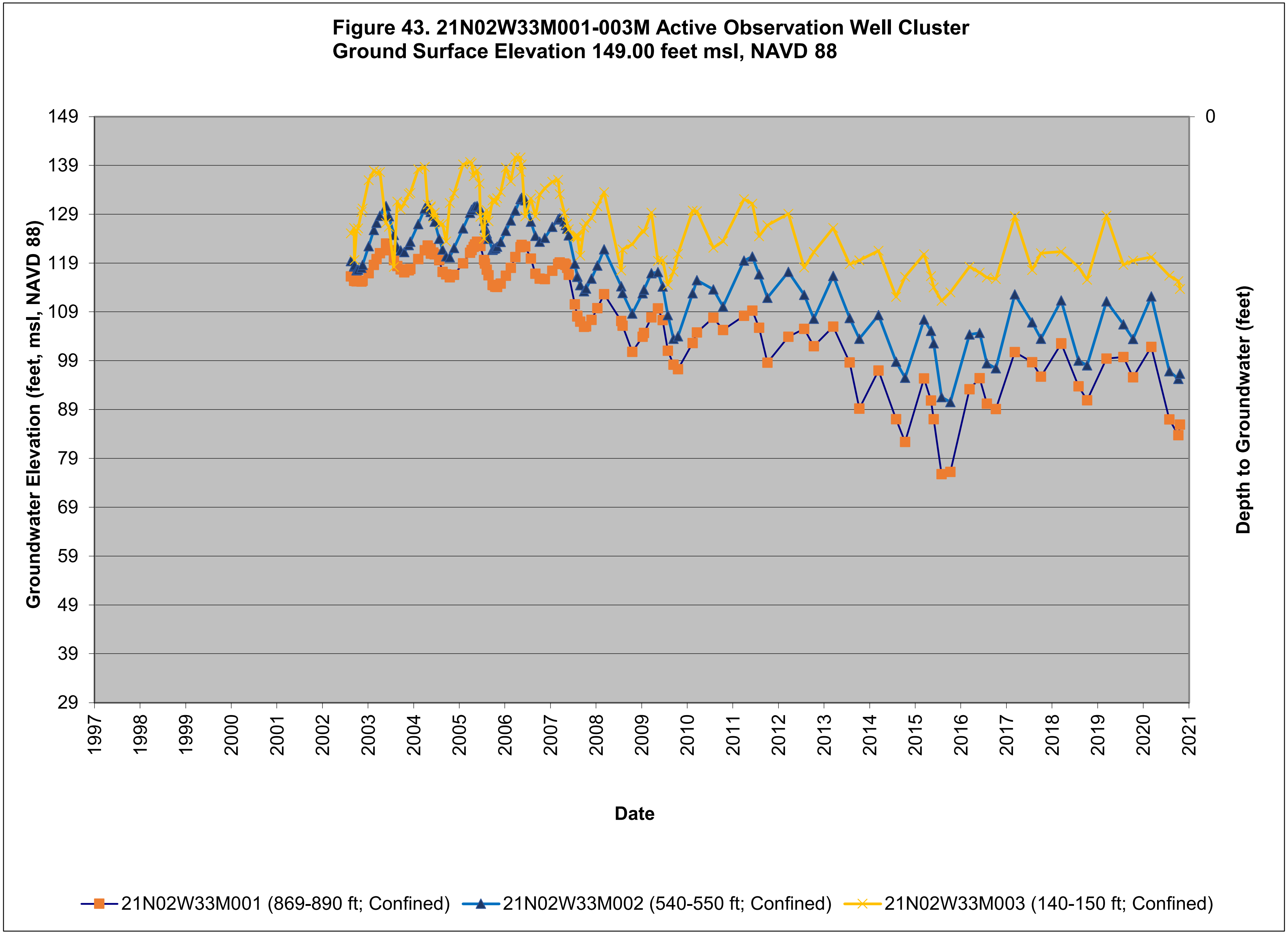


Figure 43. 21N02W33M001-003M Active Observation Well Cluster
Ground Surface Elevation 149.00 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
149
139
129
119
109
99
89
79
69
59
49
39
29
0
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
Date
21N02W33M001 (869-890 ft; Confined)
21N02W33M002 (540-550 ft; Confined)
21N02W33M003 (140-150 ft; Confined)

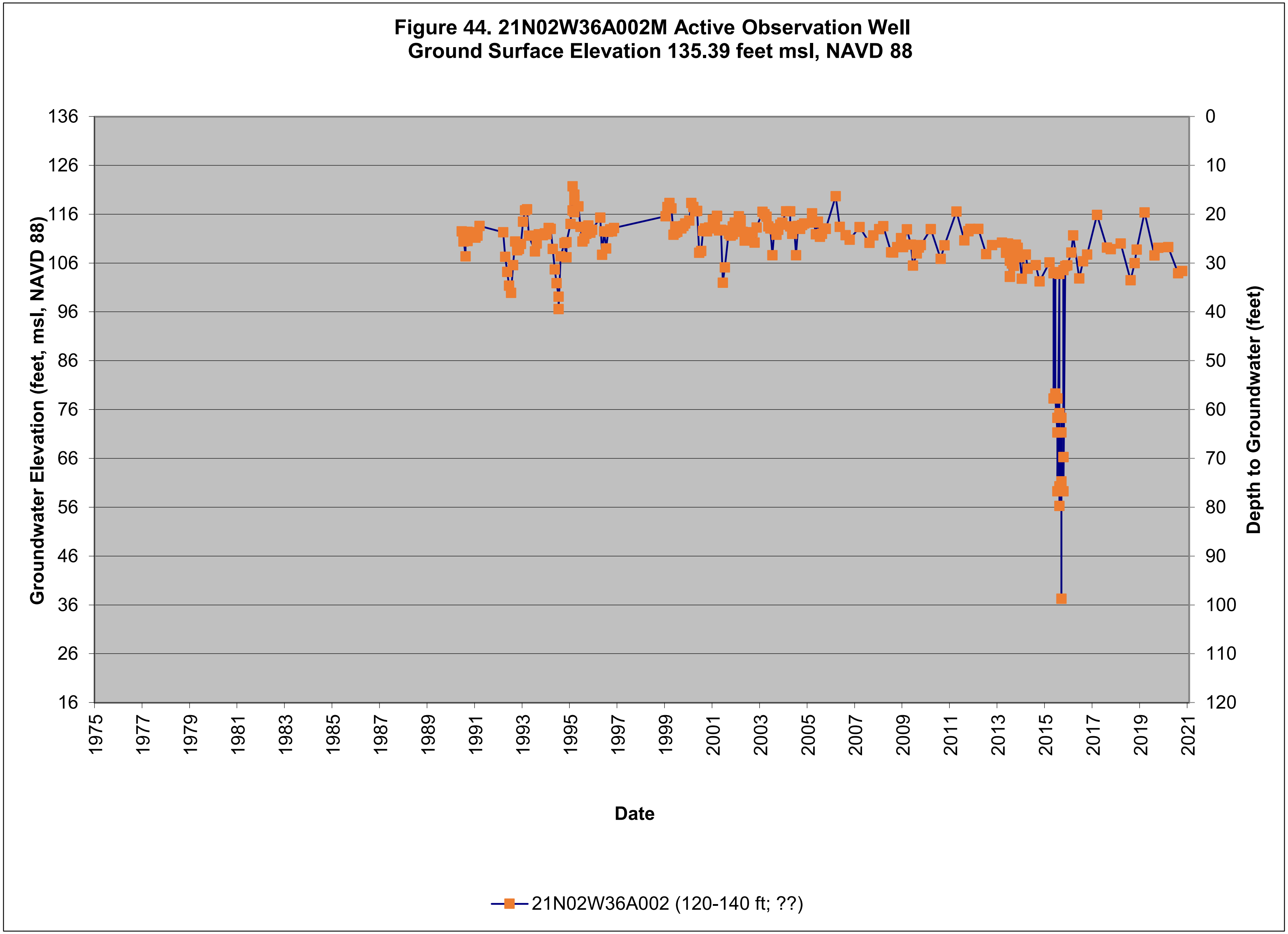


Figure 44. 21N02W36A002M Active Observation Well
Ground Surface Elevation 135.39 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
136
126
116
106
96
86
76
66
56
46
36
26
16
0
10
20
30
40
50
60
70
80
90
100
110
120
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015
2017
2019
2021
Date
21N02W36A002 (120-140 ft; ??)

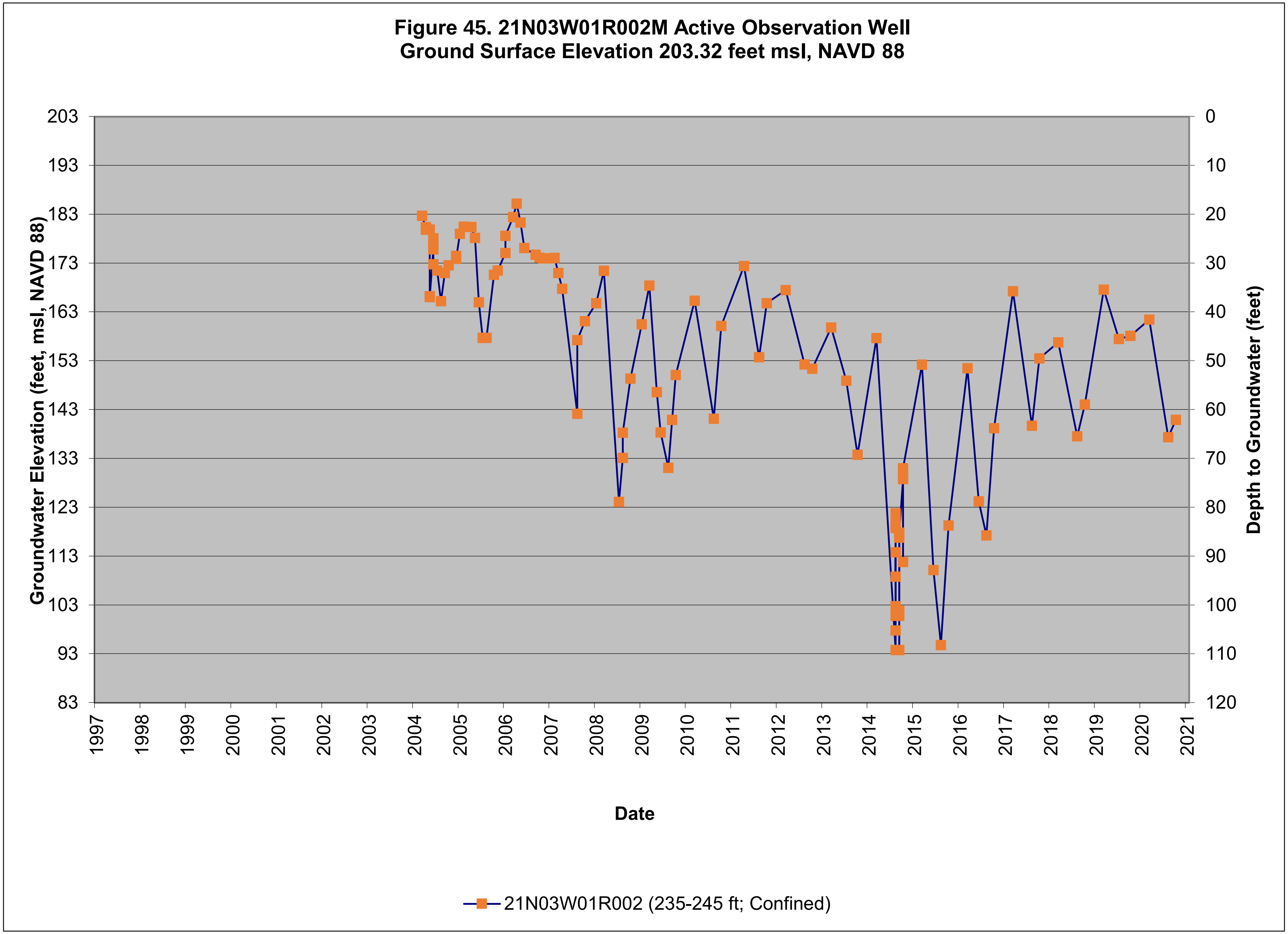
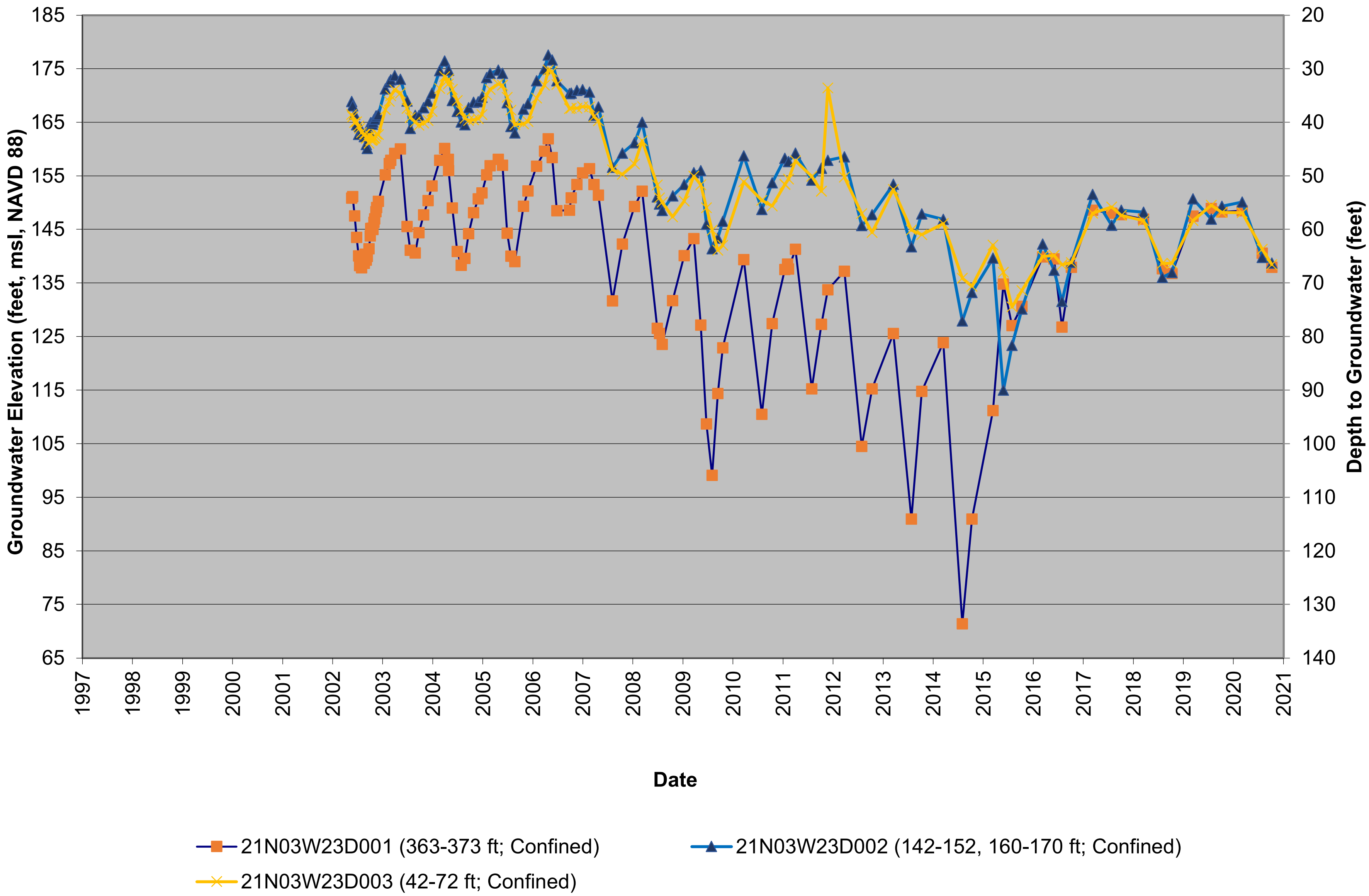


Figure 45. 21N03W01R002M Active Observation Well
Ground Surface Elevation 203.32 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
203
193
183
173
163
153
143
133
123
113
103
93
83
0
10
20
30
40
50
60
70
80
90
100
110
120
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
Date
21N03W01R002 (235-245 ft; Confined)

Figure 46. 21N03W23D001-003M Active Observation Well Cluster
Ground Surface Elevation 204.76 feet msl, NAVD 88



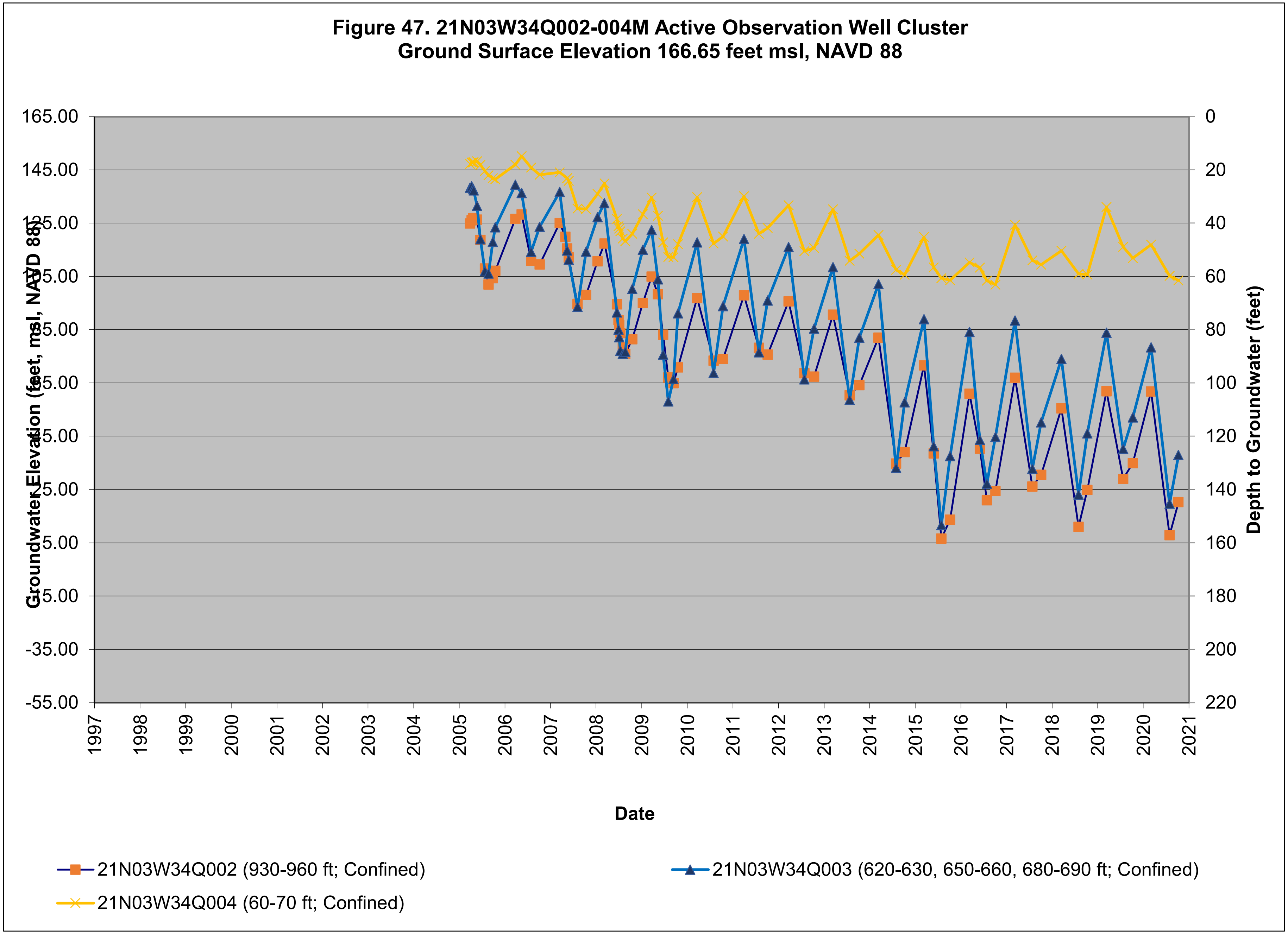


Figure 47. 21N03W34Q002-004M Active Observation Well Cluster
Ground Surface Elevation 166.65 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
165.00
145.00
-35.00
-55.00
0
20
40
60
80
100
120
140
160
180
200
220
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
Date
21N03W34Q002 (930-960 ft; Confined)
21N03W34Q003 (620-630, 650-660, 680-690 ft; Confined)
21N03W34Q004 (60-70 ft; Confined)

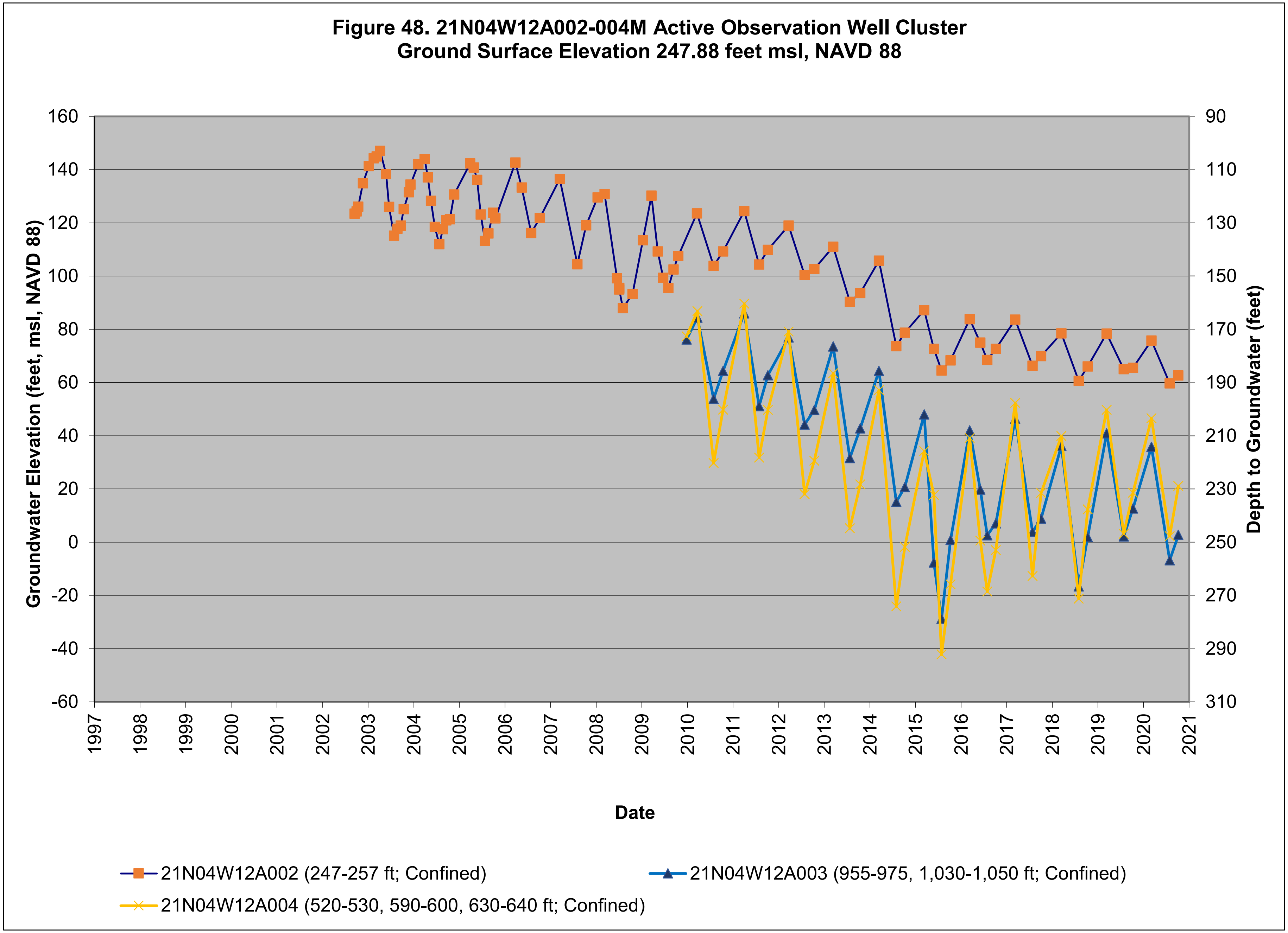


Figure 48. 21N04W12A002-004M Active Observation Well Cluster
Ground Surface Elevation 247.88 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
160
140
120
100
80
60
40
20
0
-20
-40
-60
90
110
130
150
170
190
210
230
250
270
290
310
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
Date
21N04W12A002 (247-257 ft; Confined)
21N04W12A003 (955-975, 1,030-1,050 ft; Confined)
21N04W12A004 (520-530, 590-600, 630-640 ft; Confined)

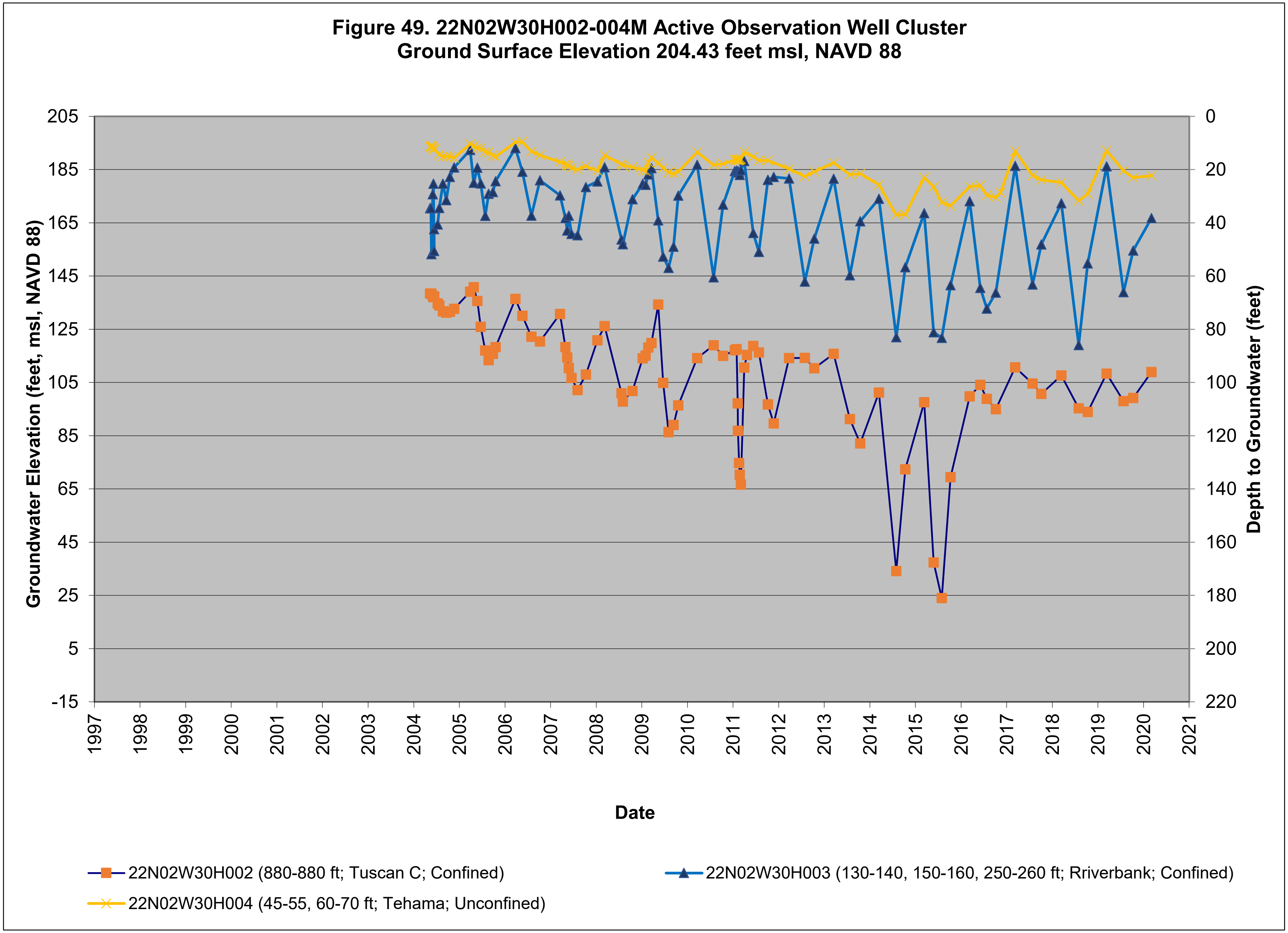


Figure 49. 22N02W30H002-004M Active Observation Well Cluster
Ground Surface Elevation 204.43 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
205
185
165
145
125
105
85
65
45
25
5
-15
0
20
40
60
80
100
120
140
160
180
200
220
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
Date
22N02W30H002 (880-880 ft; Tuscan C; Confined)
22N02W30H003 (130-140, 150-160, 250-260 ft; Rriverbank; Confined)
22N02W30H004 (45-55, 60-70 ft; Tehama; Unconfined)

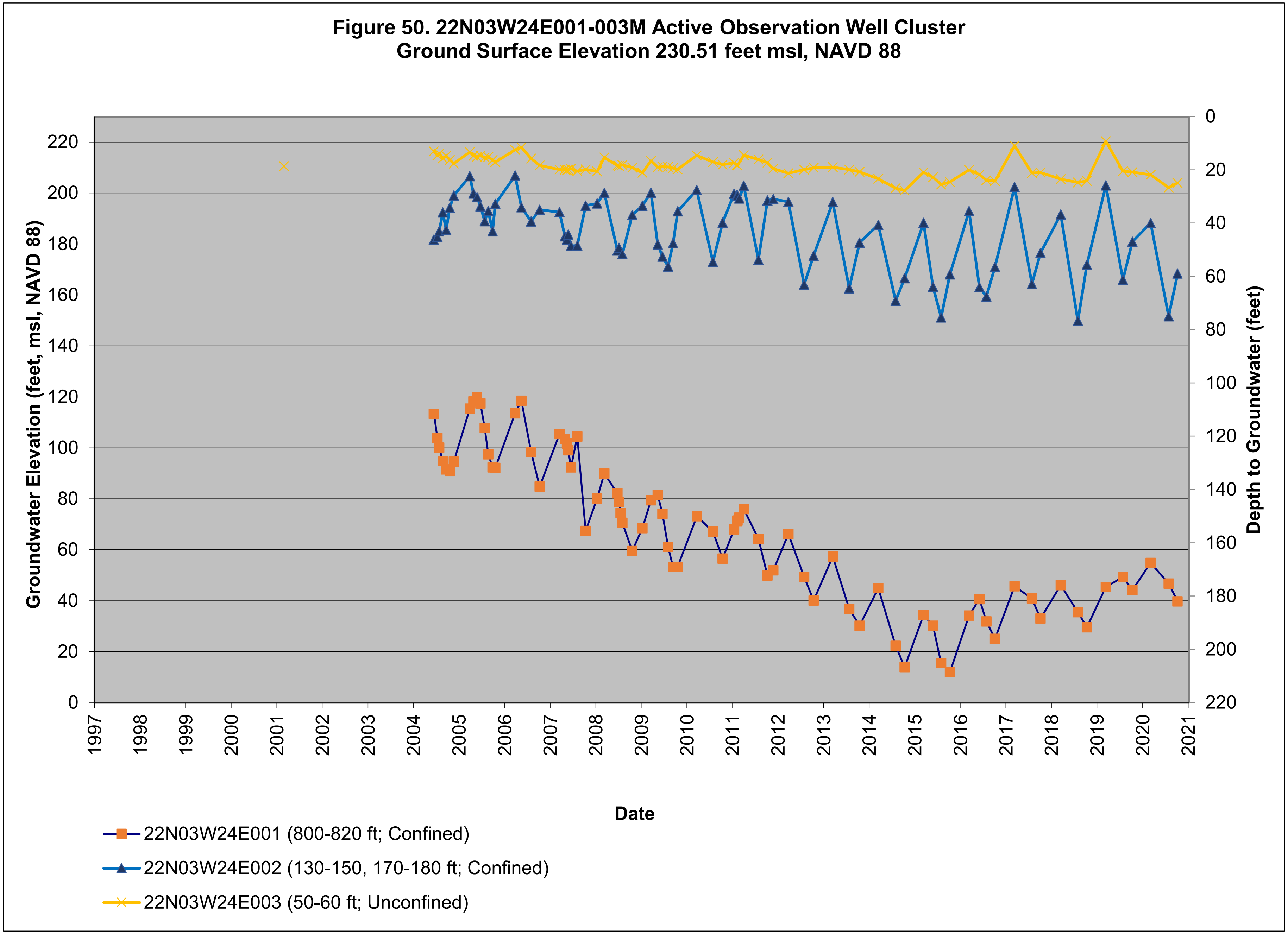
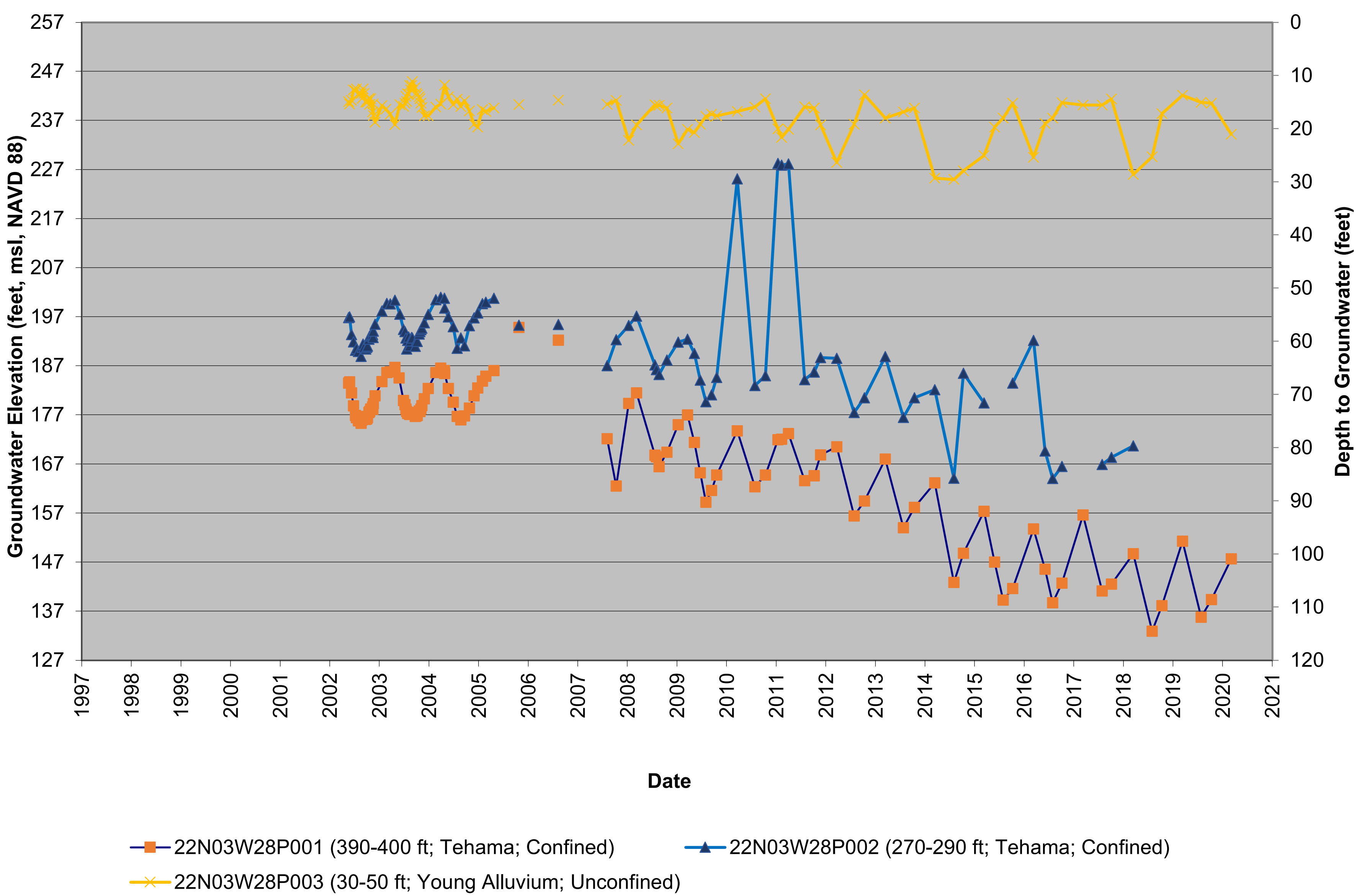


Figure 50. 22N03W24E001-003M Active Observation Well Cluster
Ground Surface Elevation 230.51 feet msl, NAVD 88
Groundwater Elevation (feet, msl, NAVD 88)
Depth to Groundwater (feet)
Date
0
20
40
60
80
100
120
140
160
180
200
220
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
22N03W24E001 (800-820 ft; Confined)
22N03W24E002 (130-150, 170-180 ft; Confined)
22N03W24E003 (50-60 ft; Unconfined)

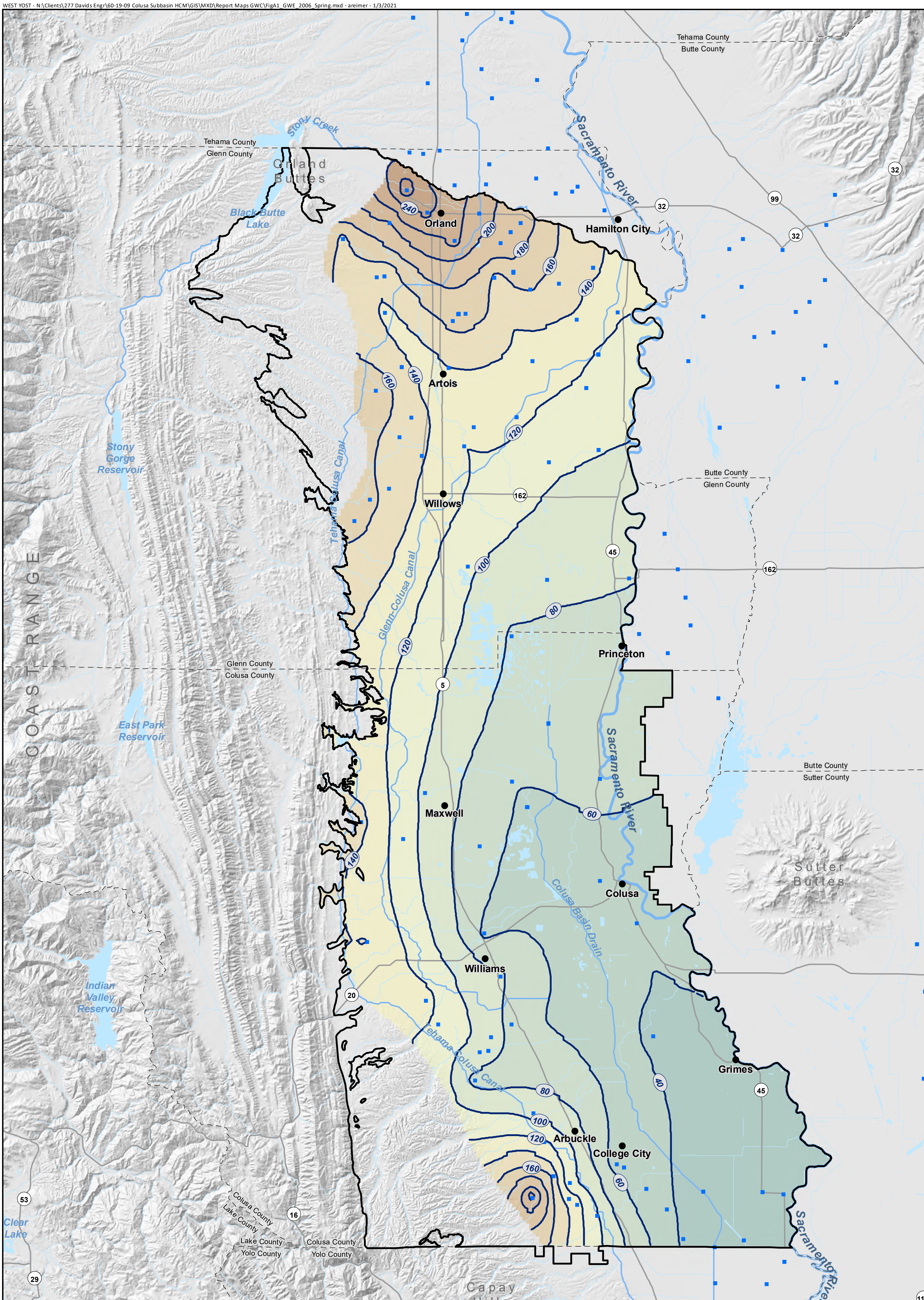
Figure 51. 22N03W28P001-003M Active Observation Well Cluster
Ground Surface Elevation 258.22 feet msl, NAVD 88



Appendix 3B

Historical Groundwater Elevation Contour Maps

WEST YOST - N:\Clients\277 Davids Engr\60-19-09 Colusa Subbasin HCM\GIS\MXD\Report Maps GWC\FigA1_GWE_2006_Spring.mxd - areimer - 1/3/2021



Groundwater Elevation (ft)

260 - 280	140 - 160	20 - 40
240 - 260	120 - 140	0 - 20
220 - 240	100 - 120	-20 - 0
200 - 220	80 - 100	-40 - -20
180 - 200	60 - 80	
160 - 180	40 - 60	

Well Used for Contouring

Groundwater Elevation Contour (20-Foot Interval)

Colusa Subbasin

Horizontal Datum: North American Datum of 1983 (NAD 83), California State Plane Zone II, feet.

Vertical Datum: North American Vertical Datum of 1988, feet (NAVD 88).

N

0 2.5 5

Scale in Miles

Figure 1

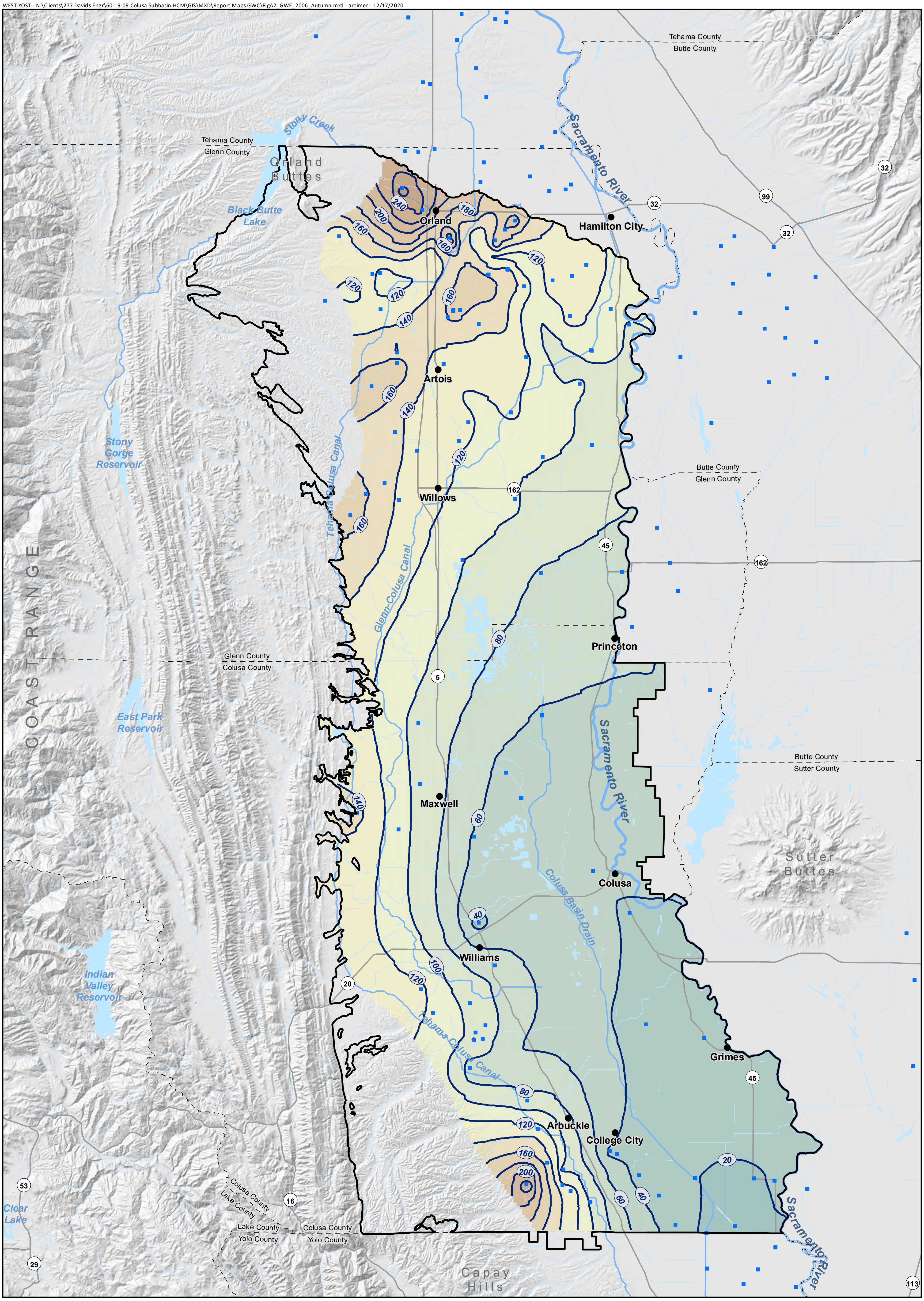
Groundwater Elevation Contours Spring 2006

Colusa GSA and Glenn GSA

Colusa Subbasin

Groundwater Sustainability Plan

WEST YOST - N:\Clients\277 Davids Engr\60-19-09 Colusa Subbasin HCM\GIS\MXD\Report Maps GWC\FigA2_GWE_2006_Autumn.mxd - areimer - 12/17/2020



Groundwater Elevation (ft)

- 260 - 280
- 240 - 260
- 220 - 240
- 200 - 220
- 180 - 200
- 160 - 180
- 140 - 160
- 120 - 140
- 100 - 120
- 80 - 100
- 60 - 80
- 40 - 60
- 20 - 40
- 0 - 20
- -20 - 0
- -40 - -20

- Well Used for Contouring
- Groundwater Elevation Contour (20-Foot Interval)
- Colusa Subbasin

Horizontal Datum: North American Datum of 1983 (NAD 83), California State Plane Zone II, feet.

Vertical Datum: North American Vertical Datum of 1988, feet (NAVD 88).

N

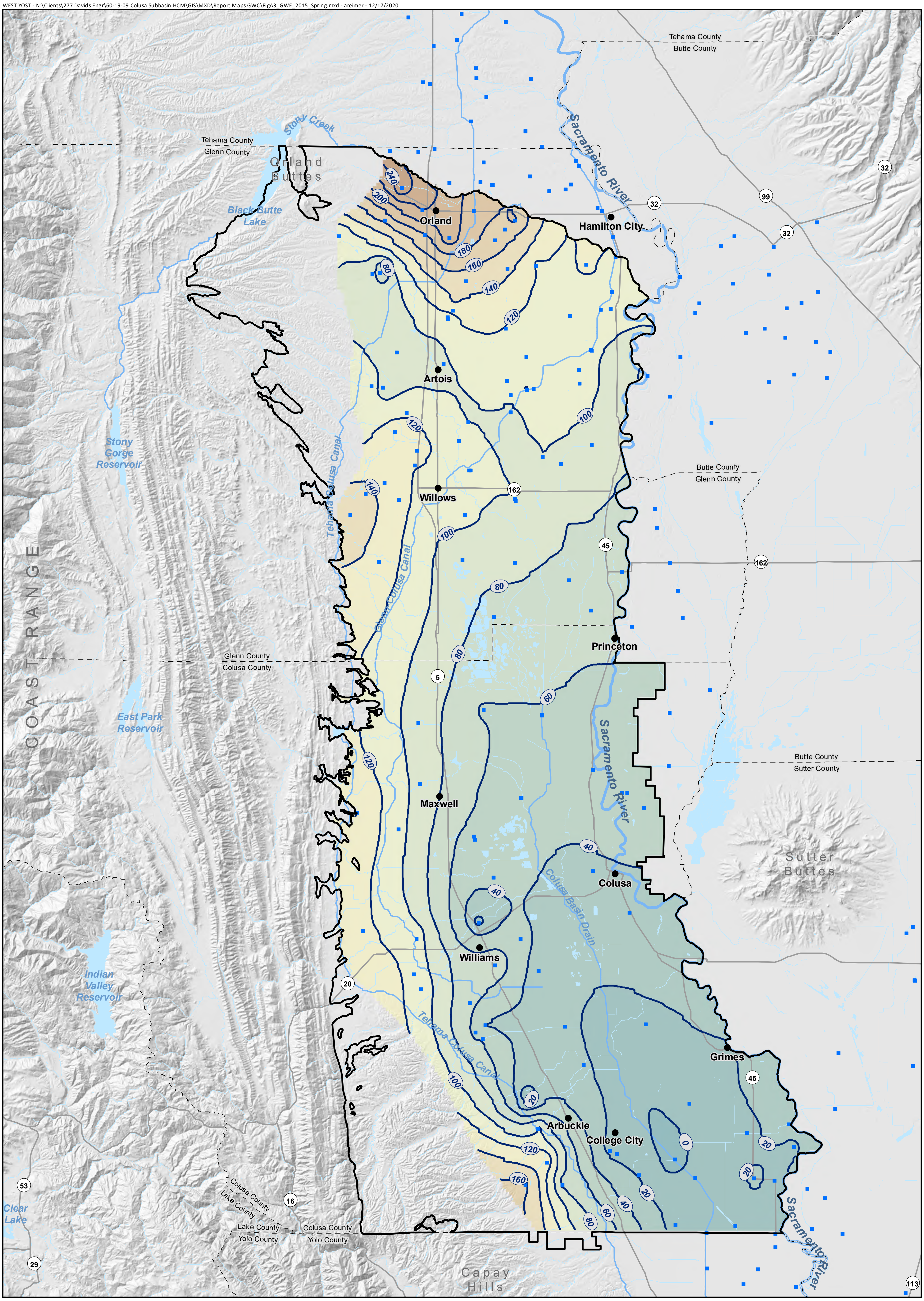
0 2.5 5
Scale in Miles

Figure 2

Groundwater Elevation Contours Fall 2006

Colusa GSA and Glenn GSA
Colusa Subbasin
Groundwater Sustainability Plan

WEST YOST - N:\Clients\277 Davids Engr\60-19-09 Colusa Subbasin HCM\GIS\MXD\Report Maps GWC\FigA3_GWE_2015_Spring.mxd - areimer - 12/17/2020



Groundwater Elevation (ft)

260 - 280	140 - 160	20 - 40
240 - 260	120 - 140	0 - 20
220 - 240	100 - 120	-20 - 0
200 - 220	80 - 100	-40 - -20
180 - 200	60 - 80	
160 - 180	40 - 60	

Well Used for Contouring

Groundwater Elevation Contour (20-Foot Interval)

Colusa Subbasin

Horizontal Datum: North American Datum of 1983 (NAD 83), California State Plane Zone II, feet.

Vertical Datum: North American Vertical Datum of 1988, feet (NAVD 88).

N

0 2.5 5

Scale in Miles

Figure 3

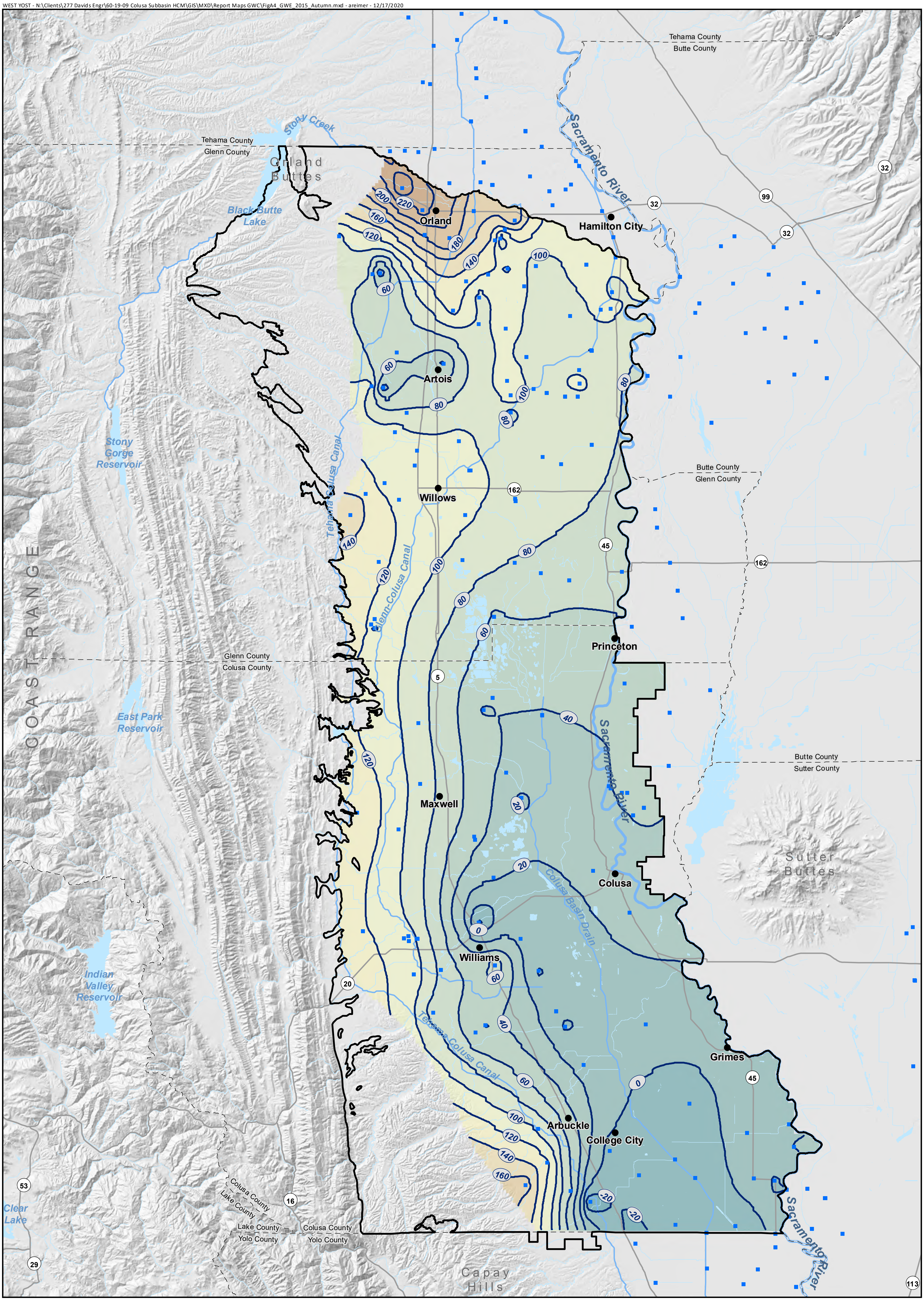
Groundwater Elevation Contours Spring 2015

Colusa GSA and Glenn GSA

Colusa Subbasin

Groundwater Sustainability Plan

WEST YOST - N:\Clients\277 Davids Engr\60-19-09 Colusa Subbasin HCM\GIS\MXD\Report Maps GWC\FigA4_GWE_2015_Autumn.mxd - areimer - 12/17/2020



Groundwater Elevation (ft)

260 - 280	140 - 160	20 - 40
240 - 260	120 - 140	0 - 20
220 - 240	100 - 120	-20 - 0
200 - 220	80 - 100	-40 - -20
180 - 200	60 - 80	
160 - 180	40 - 60	

Well Used for Contouring

Groundwater Elevation Contour (20-Foot Interval)

Colusa Subbasin

Horizontal Datum: North American Datum of 1983 (NAD 83), California State Plane Zone II, feet.

Vertical Datum: North American Vertical Datum of 1988, feet (NAVD 88).

0 2.5 5

Scale in Miles

Figure 4

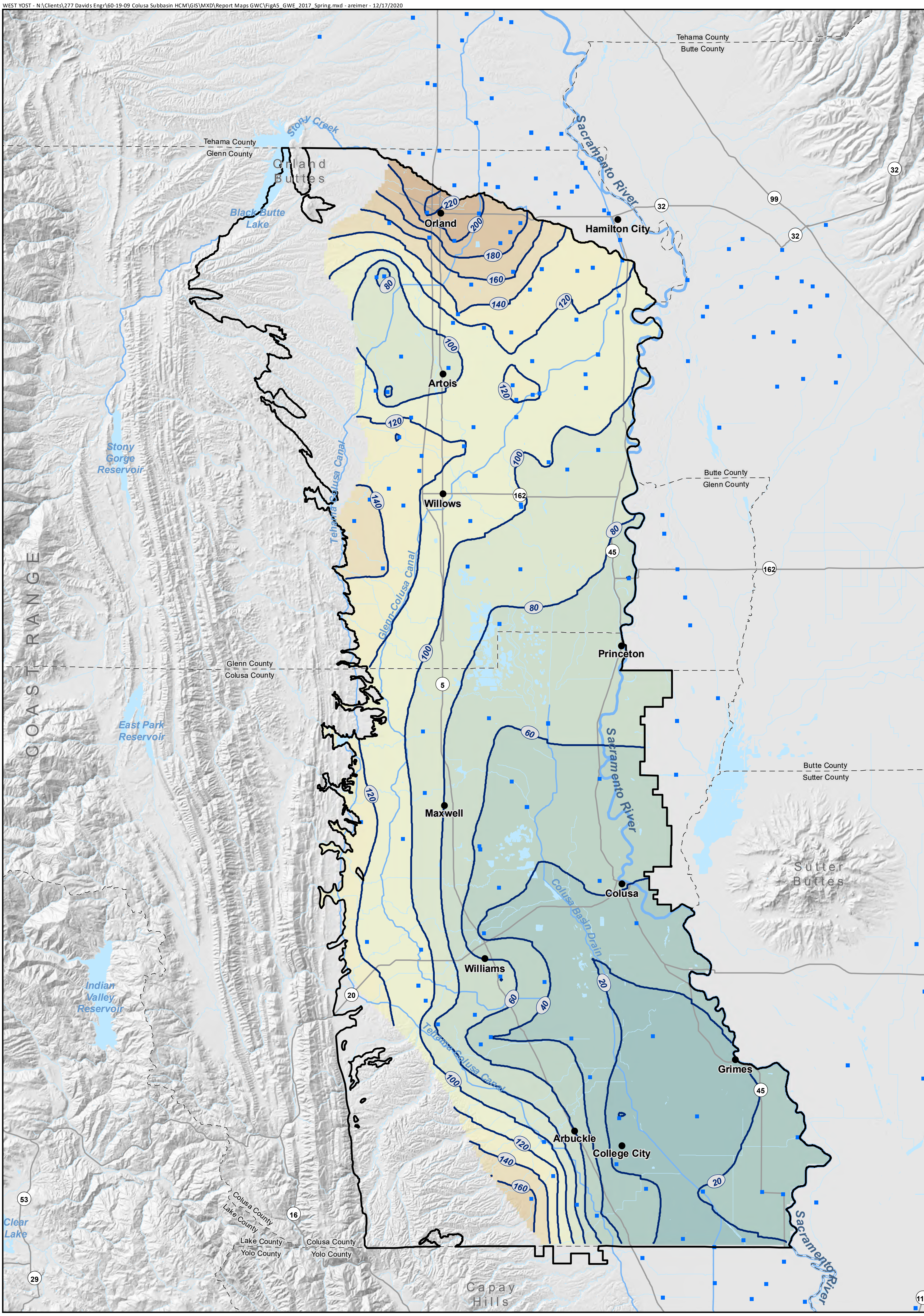
Groundwater Elevation Contours Fall 2015

Colusa GSA and Glenn GSA

Colusa Subbasin

Groundwater Sustainability Plan

WEST YOST - N:\Clients\277 Davids Engr\60-19-09 Colusa Subbasin HCM\GIS\MXD\Report Maps GWC\FigA5_GWE_2017_Spring.mxd - areimer - 12/17/2020



Groundwater Elevation (ft)

260 - 280	140 - 160	20 - 40
240 - 260	120 - 140	0 - 20
220 - 240	100 - 120	-20 - 0
200 - 220	80 - 100	-40 - -20
180 - 200	60 - 80	
160 - 180	40 - 60	

Well Used for Contouring

Groundwater Elevation Contour (20-Foot Interval)

Colusa Subbasin

Horizontal Datum: North American Datum of 1983 (NAD 83), California State Plane Zone II, feet.

Vertical Datum: North American Vertical Datum of 1988, feet (NAVD 88).

N

0 2.5 5

Scale in Miles

Figure 5

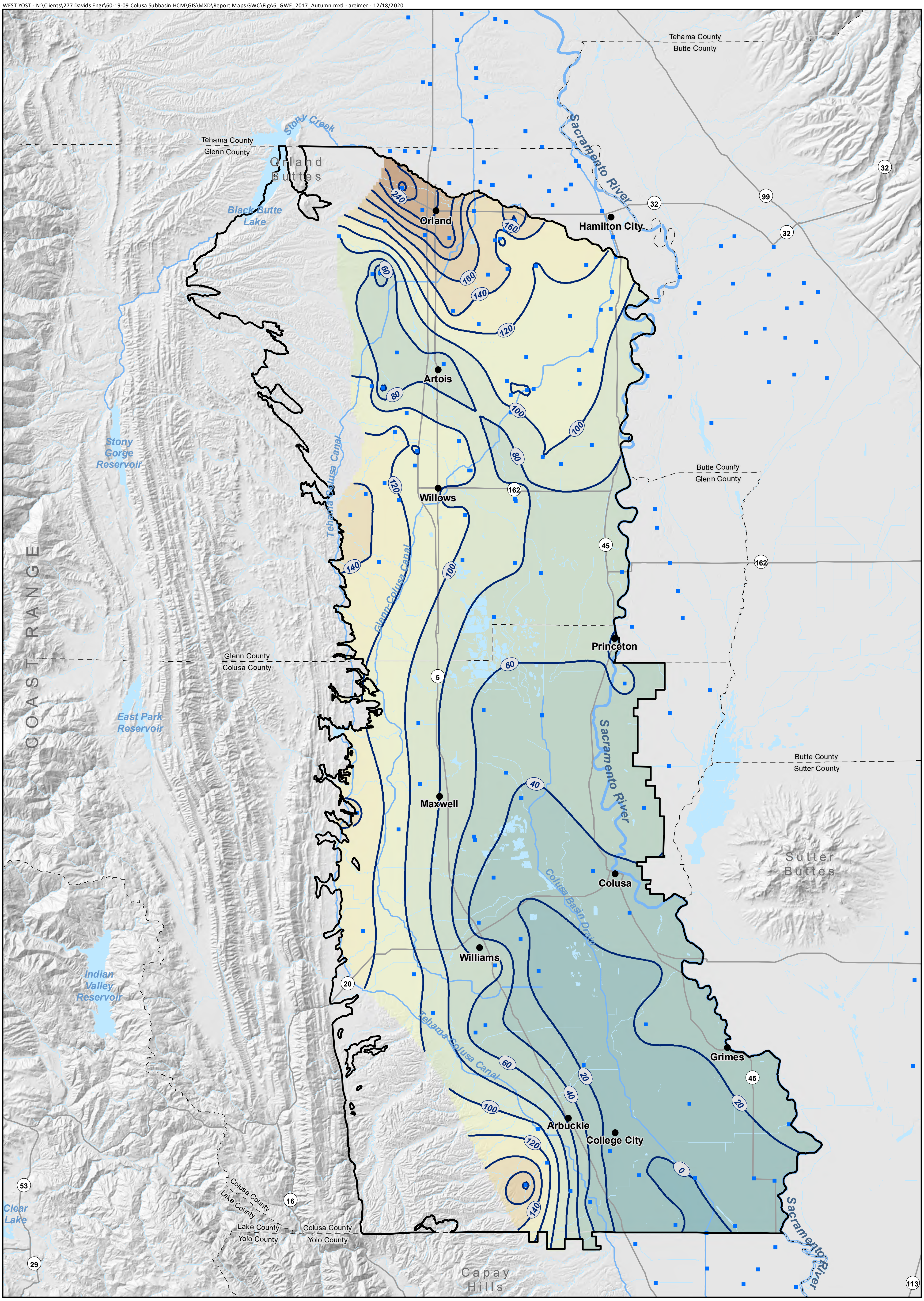
Groundwater Elevation Contours Spring 2017

Colusa GSA and Glenn GSA

Colusa Subbasin

Groundwater Sustainability Plan

WEST YOST - N:\Clients\277 Davids Engr\60-19-09 Colusa Subbasin HCM\GIS\MXD\Report Maps GWC\FigA6_GWE_2017_Autumn.mxd - areimer - 12/18/2020



Groundwater Elevation (ft)

260 - 280	140 - 160	20 - 40
240 - 260	120 - 140	0 - 20
220 - 240	100 - 120	-20 - 0
200 - 220	80 - 100	-40 - -20
180 - 200	60 - 80	
160 - 180	40 - 60	

Well Used for Contouring

Groundwater Elevation Contour (20-Foot Interval)

Colusa Subbasin

Horizontal Datum: North American Datum of 1983 (NAD 83), California State Plane Zone II, feet.

Vertical Datum: North American Vertical Datum of 1988, feet (NAVD 88).

N

0 2.5 5

Scale in Miles

Figure 6

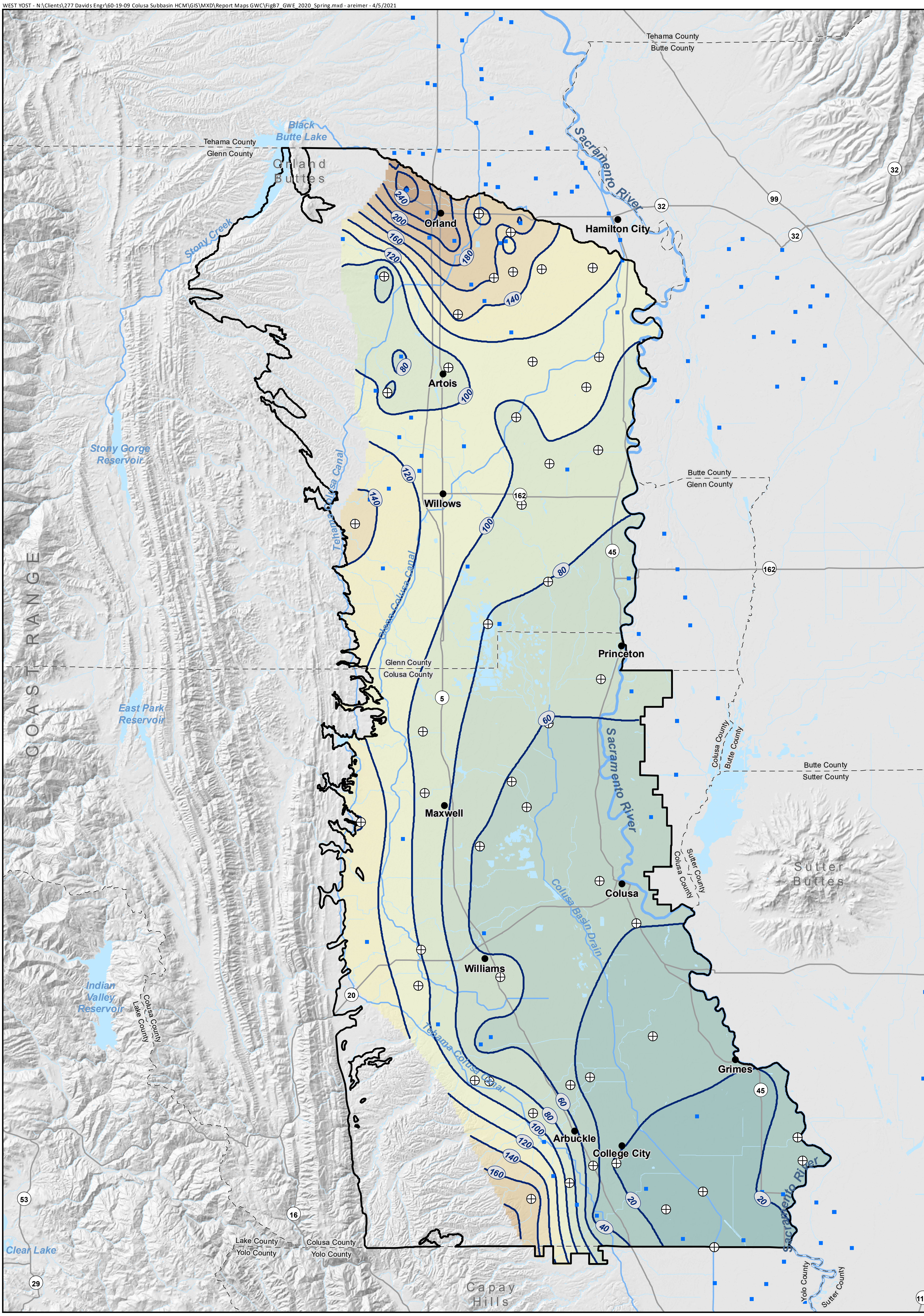
Groundwater Elevation Contours Fall 2017

Colusa GSA and Glenn GSA

Colusa Subbasin

Groundwater Sustainability Plan

WEST YOST - N:\Clients\277 Davids Engr\60-19-09 Colusa Subbasin HCM\GIS\MXD\Report Maps GWC\FigB7_GWE_2020_Spring.mxd - areimer - 4/5/2021



Groundwater Elevation (ft)

260 - 280	140 - 160	20 - 40
240 - 260	120 - 140	0 - 20
220 - 240	100 - 120	-20 - 0
200 - 220	80 - 100	-40 - -20
180 - 200	60 - 80	
160 - 180	40 - 60	

Well Used for Contouring
Monitoring Network Wells
Groundwater Elevation Contour (20-Foot Interval)
Colusa Subbasin

Horizontal Datum: North American Datum of 1983 (NAD 83), California State Plane Zone II, feet.

Vertical Datum: North American Vertical Datum of 1988, feet (NAVD 88).

0 2.5 5
Scale in Miles

Figure 7

Groundwater Elevation Contours Spring 2020

Colusa GSA and Glenn GSA
Colusa Subbasin
Groundwater Sustainability Plan

WEST YOST - N:\Clients\277 Davids Engr\60-19-09 Colusa Subbasin HCM\GIS\MXD\Report Maps GWC\FigB8_GWE_2020_Fall.mxd - areimer - 4/5/2021

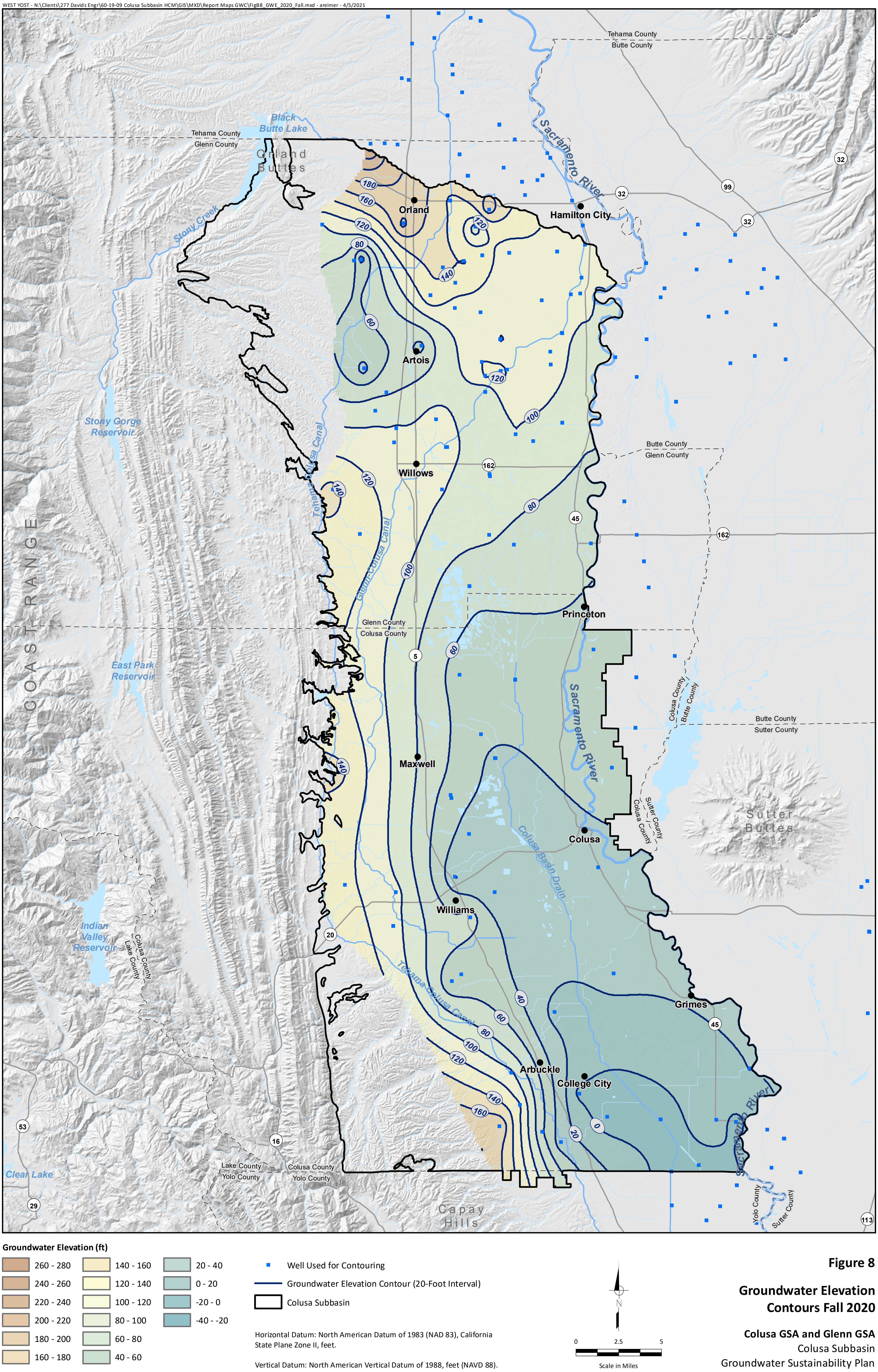


Figure 8

Groundwater Elevation Contours Fall 2020

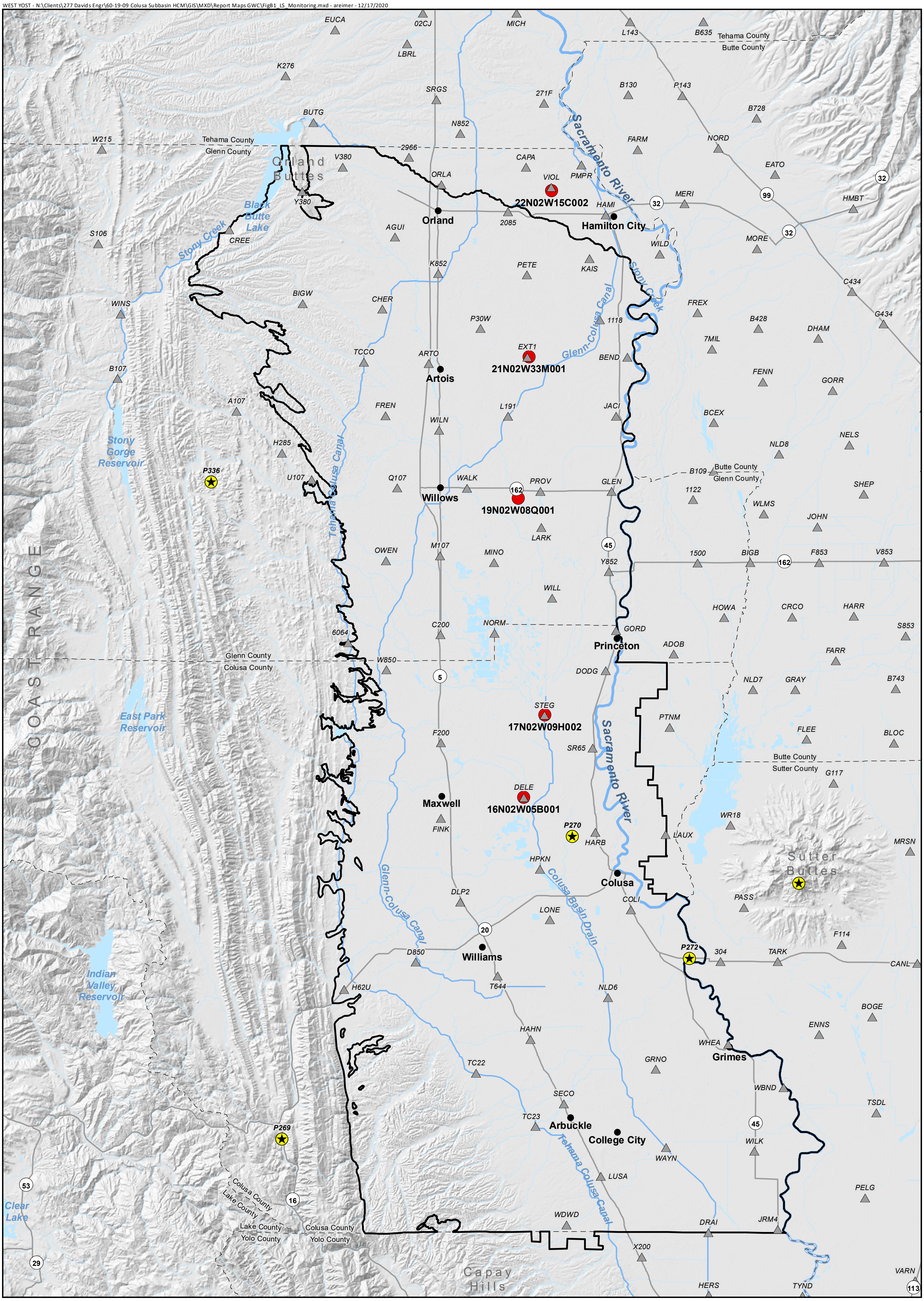
Colusa GSA and Glenn GSA

Colusa Subbasin

Groundwater Sustainability Plan

Appendix 3C

Extensometer Measurements



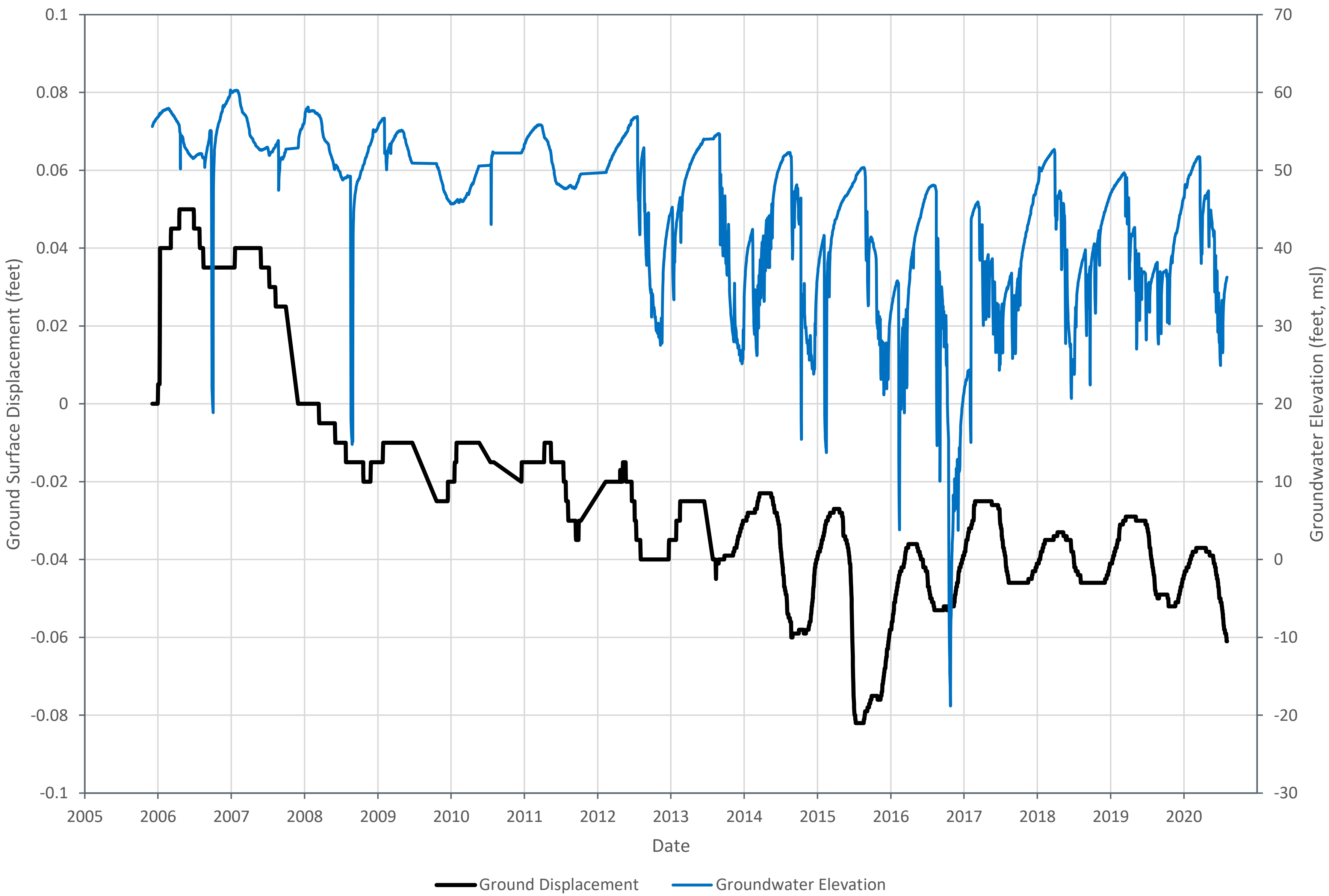
Horizontal Datum: North American Datum of 1983 (NAD 83), California State Plane Zone II, feet.

Figure 1

Land Subsidence Monitoring Networks

Colusa GSA and Glenn GSA
Colusa Subbasin
Groundwater Sustainability Plan

Figure 2. Extensometer Data for 16N02W05B001M



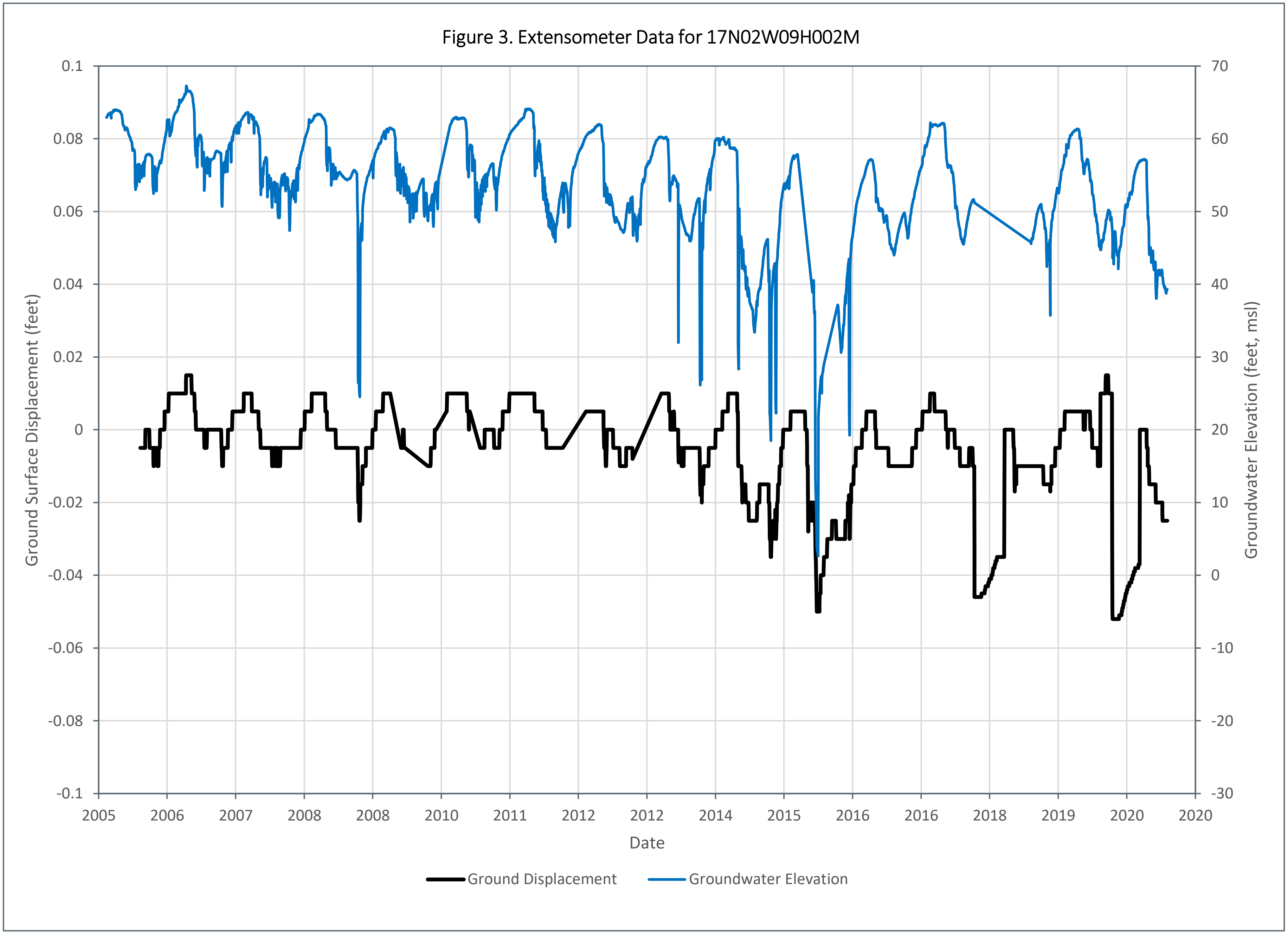


Figure 3. Extensometer Data for 17N02W09H002M
Ground Surface Displacement (feet)
Groundwater Elevation (feet, msl)
Date
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-0.08
-0.1
70
60
50
40
30
20
10
0
-10
-20
-30
2005
2006
2007
2008
2008
2010
2011
2012
2012
2014
2015
2016
2016
2018
2019
2020
2020
Ground Displacement
Groundwater Elevation

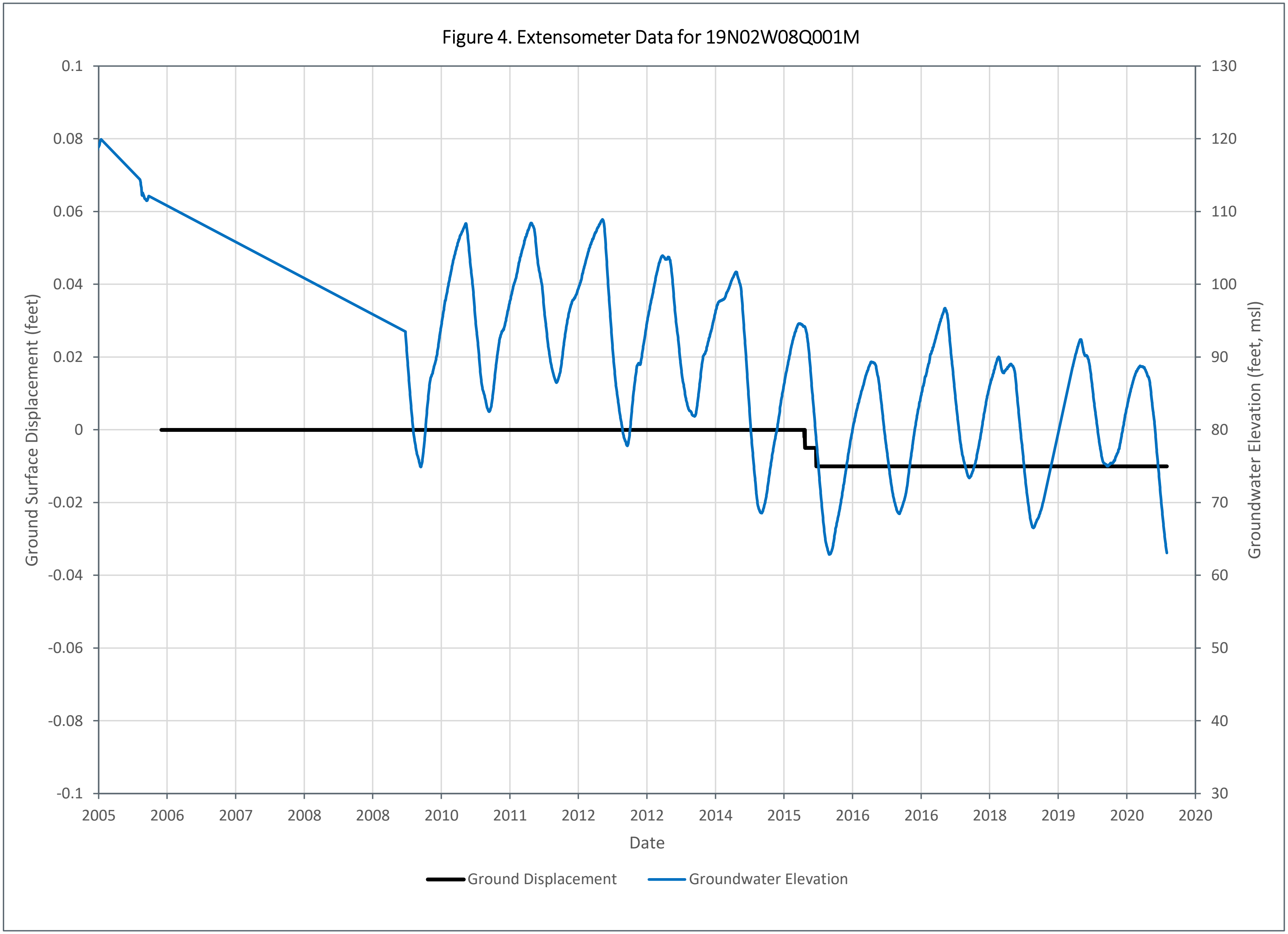
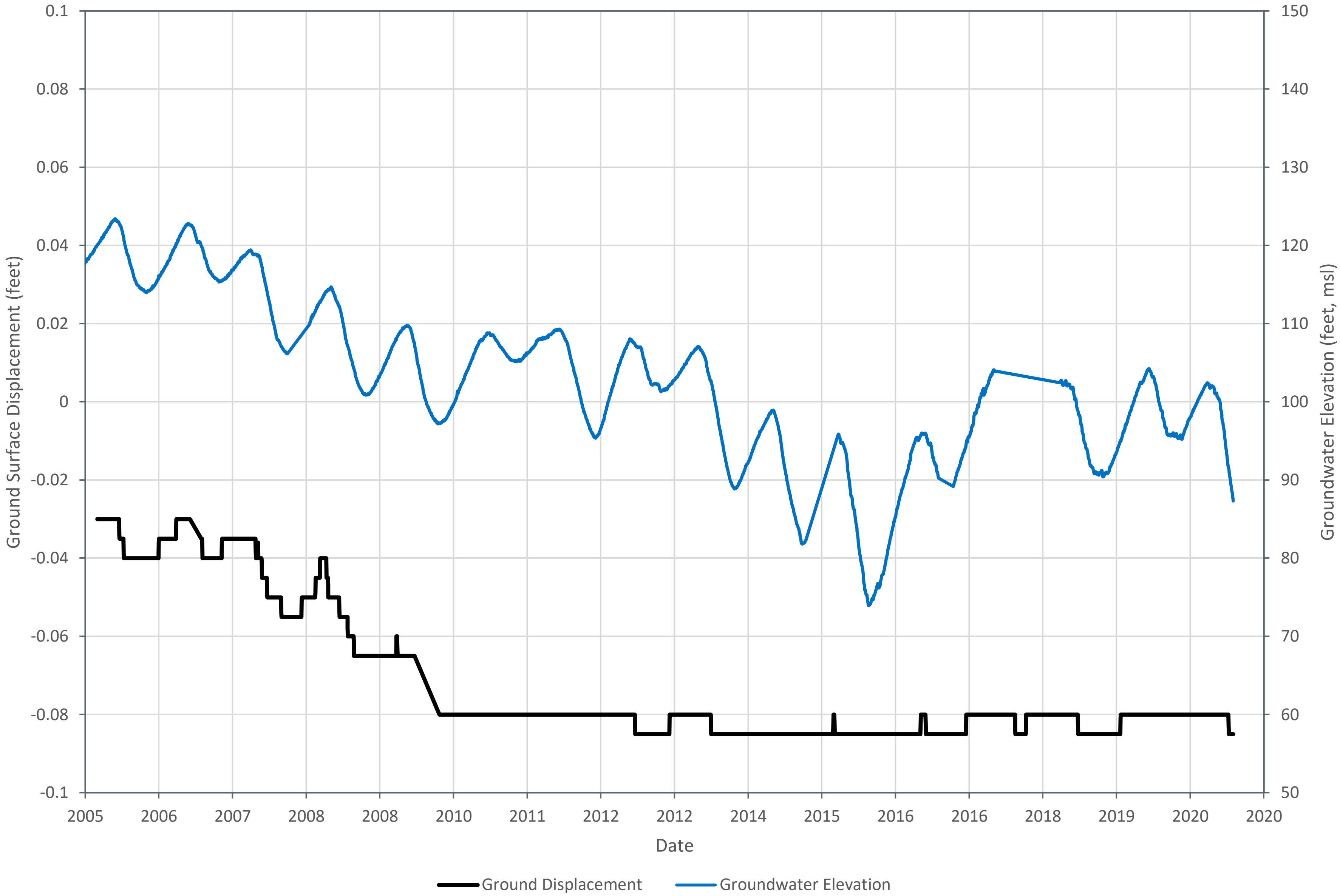


Figure 4. Extensometer Data for 19N02W08Q001M
Ground Surface Displacement (feet)
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-0.08
-0.1
Groundwater Elevation (feet, msl)
130
120
110
100
90
80
70
60
50
40
30
2005
2006
2007
2008
2008
2010
2011
2012
2012
2014
2015
2016
2016
2018
2019
2020
2020
Date
Ground Displacement
Groundwater Elevation

Figure 5. Extensometer Data for 21N02W33M001M



Appendix 3C

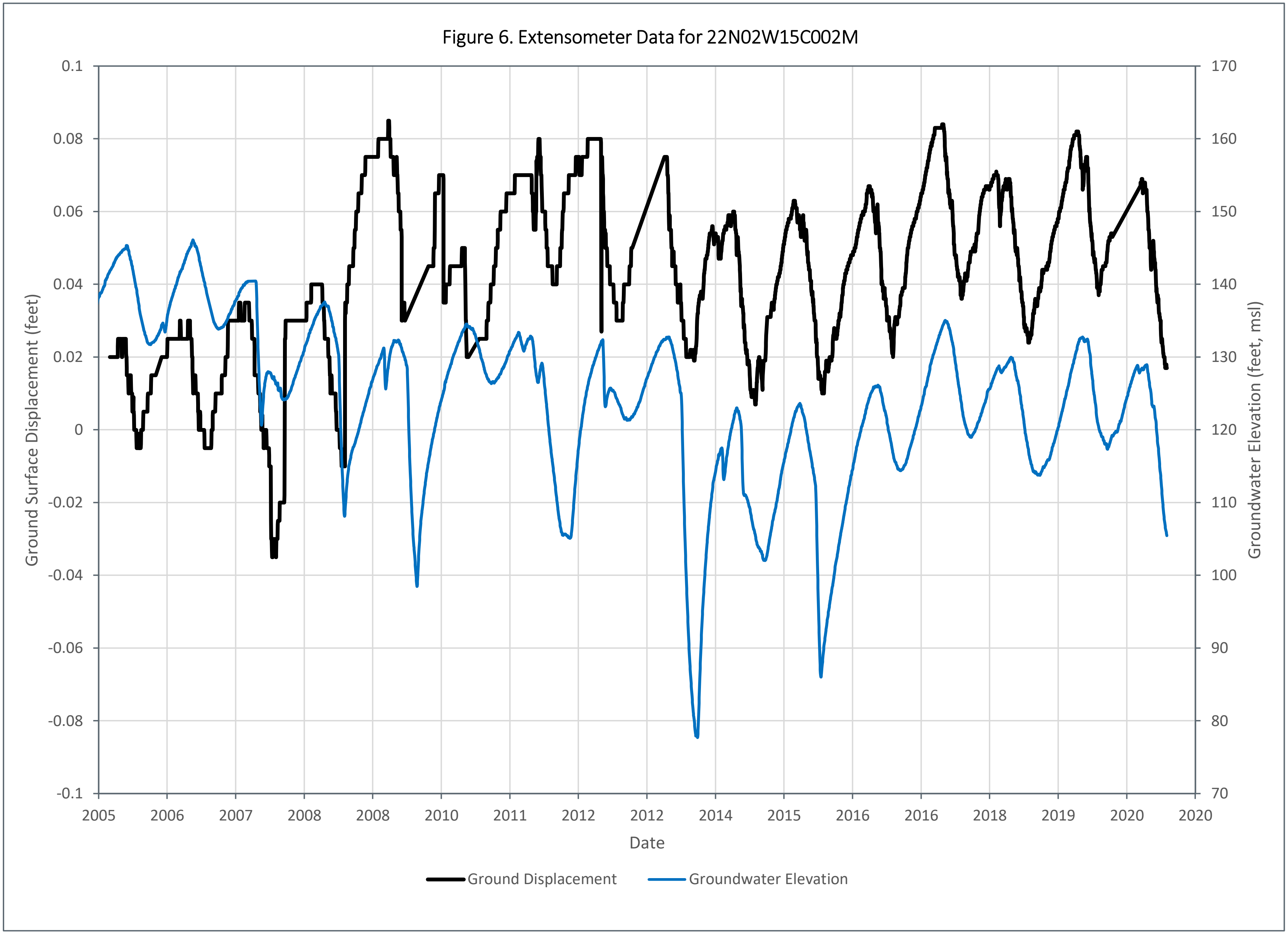


Figure 6. Extensometer Data for 22N02W15C002M
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-0.08
-0.1
170
160
150
140
130
120
110
100
90
80
70
Ground Surface Displacement (feet)
Groundwater Elevation (feet, msl)
2005
2006
2007
2008
2008
2010
2011
2012
2012
2014
2015
2016
2016
2018
2019
2020
2020
Date
Ground Displacement
Groundwater Elevation

Appendix 3D

Model Development and Calibration Technical Memorandum prepared by Woodard and Curran

TECHNICAL MEMORANDUM – C2VSimFG-Colusa Model Development and Calibration

TO: Colusa Groundwater Authority and Glenn Groundwater Authority

PREPARED BY: Sara Miller/Emily Honn (Woodard & Curran), Katherine Klug (Davids Engineering)

REVIEWED BY: Reza Namvar (Woodard & Curran), Grant Davids (Davids Engineering)

DATE: April 1, 2021

RE: C2VSimFG-Colusa Model Development and Calibration

---

1. INTRODUCTION

This technical memorandum documents the development and calibration of the C2VSimFG-Colusa model, an integrated hydrologic flow model for the Colusa Subbasin (Subbasin) that is used to support development of the Subbasin Groundwater Sustainability Plan (GSP). The C2VSimFG-Colusa model was adapted from the Fine Grid California Central Valley Groundwater-Surface Water Simulation Model (C2VSimFG).

Specifically, this technical memorandum focuses on model enhancements and calibrations that were made to characterize the historical water budget in the Colusa Subbasin. Other model runs for current and projected water budget scenarios were adapted from the historical C2VSimFG-Colusa model inputs described in this technical memorandum. Those water budget inputs, assumptions, and results are described in the Colusa Subbasin GSP.

The C2VSimFG-Colusa model is based on the C2VSimFG Beta2 model released May 2019, with updates and enhancements to better represent local conditions in the Colusa Subbasin. C2VSimFG-Colusa runs the entire C2VSimFG model; however, data updates and calibration efforts are focused only on the area within and immediately surrounding the Colusa Subbasin. The Subbasin plus a five-mile buffer was chosen as the calibration area for C2VSimFG-Colusa (Figure 1).

The following sections describe specific enhancements to the C2VSimFG Beta2 inputs that were made to better reflect local water supply and water use characteristics; specific calibrations of model inputs to match available streamflow data, groundwater level data, and local water budget results; sensitivity analyses of the C2VSimFG-Colusa model; and a summary of the historical water budget results from the refined and calibrated historical model.

2. REFINEMENTS AND ENHANCEMENTS TO C2VSIMFG BETA2

The C2VSimFG-Colusa model was refined from C2VSimFG Beta2 through enhancements to specific model inputs, assumptions, and parameters related to the surface water and groundwater systems. Davids Engineering and Woodard & Curran refined and calibrated the surface and groundwater system water budgets for the portion of the model domain within and five miles surrounding the Colusa Subbasin.

The C2VSimFG-Colusa model inputs have been updated using the best available data and science, including information from publicly available data sources, past water and groundwater management planning documents, and other local water budgets computed for areas of the Colusa Subbasin. Data and information about specific water agencies was used to quantify water supply and water use within the agency's service area, to the extent permitted by the resolution of the C2VSimFG-Colusa model element grid.

Specific enhancements made to C2VSimFG Beta2 include changes to the simulation period, initial groundwater elevation, groundwater pumping, land use, evapotranspiration, soil properties, irrigation operations and efficiency, urban demand, surface water diversions, streambed elevation, and aquifer parameters. These changes are described in the sections below. Other changes made to calibrate specific root zone, stream, and aquifer characteristics are discussed further in Section 3. Unless otherwise noted, other inputs to the C2VSimFG Beta2 model were generally used directly in the C2VSimFG-Colusa model.

2.1 Historical Simulation Period

C2VSimFG Beta2 operates on a monthly time step and was initialized to simulate the period of October 1973 through September 2015, corresponding to water years (WY) 1974-2015. Time series data is provided in the C2VSimFG Beta2 input files for WY 1921-2015.

The C2VSimFG-Colusa model historical simulation period was updated to begin in October 1985 (WY 1986), simulating WY 1986-2015. The revised historical simulation period was selected based on the availability of local data for the Colusa Subbasin, and to allow sufficient time for the initial model conditions to stabilize prior to the start of the historical water budget analysis period (WY 1990-2015). Selection of the historical water budget period is described in the GSP.

2.2 Initial Groundwater Elevation

Initial groundwater elevations in C2VSimFG-Colusa were updated to reflect the new historical simulation start date in Fall 1985. Groundwater elevations for Fall 1985 for each model node and each layer were first extracted from C2VSimFG-Beta2 and then portions of the Subbasin were updated with elevations developed using the DWR's WDL database. A raster was developed using 202 observations from Fall 1985, supplemented with Fall 1984 and Fall 1986 readings. The difference between this observed data and simulated Layer 1 groundwater levels was calculated. For those areas with differences greater than 25 feet, initial groundwater heads were adjusted to reflect historical data. The groundwater level initial conditions for C2VSimFG-Colusa representing October 1985 are shown in Figure 2.

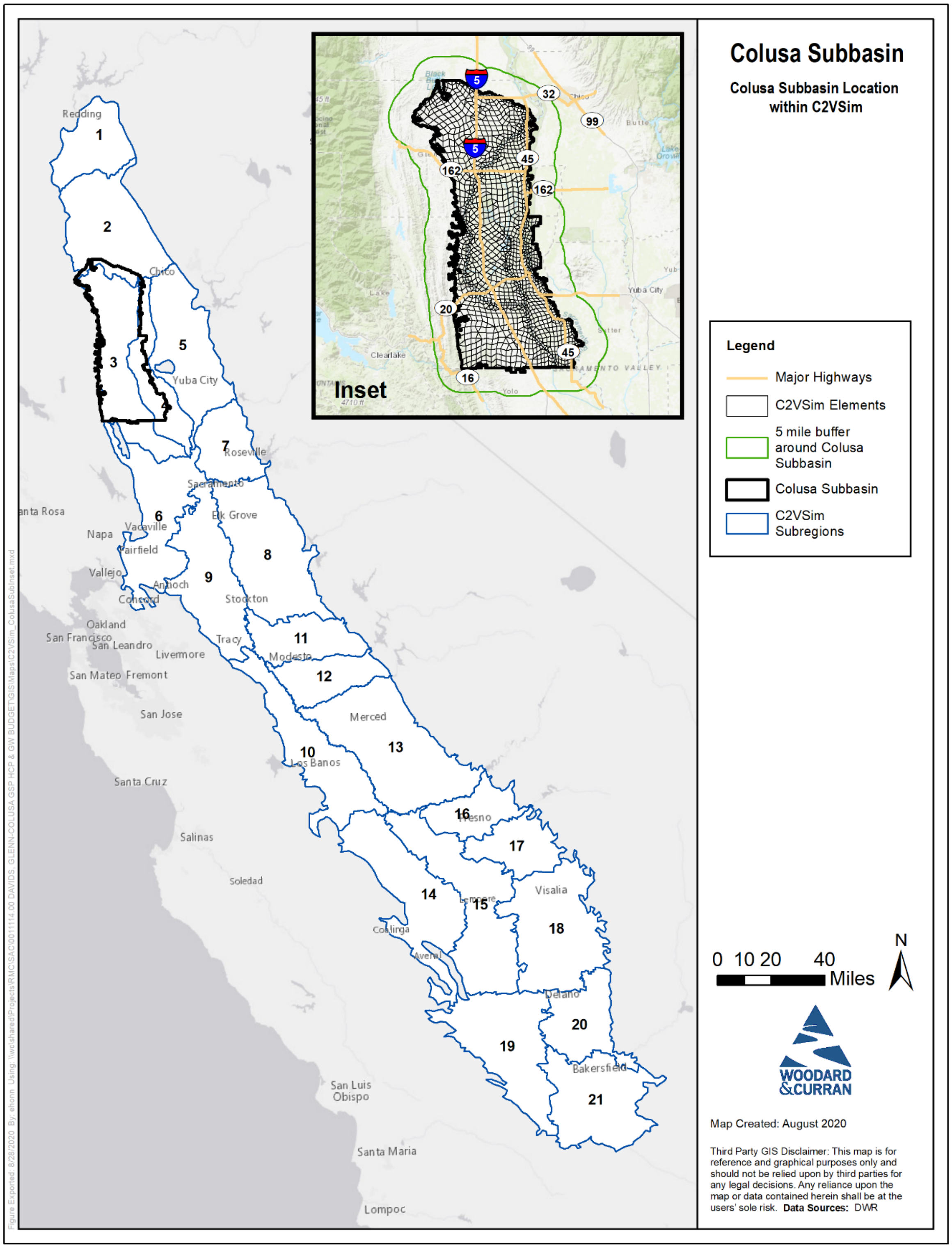


Figure 1: C2VSimFG and Location of Colusa Subbasin

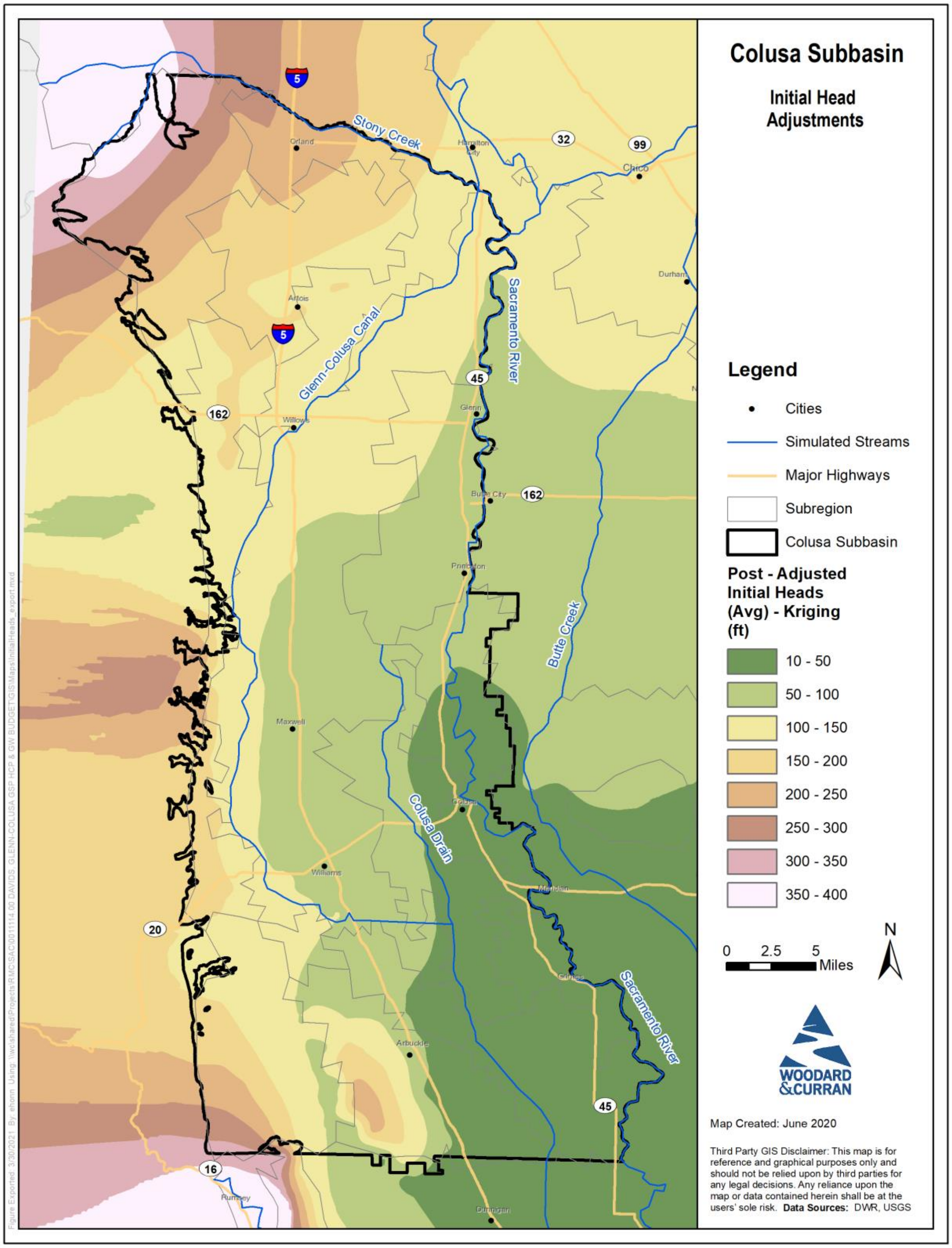


Figure 2: Initial Groundwater Elevation (Average of Layers 1-4)

2.3 Groundwater Pumping

Groundwater pumping in C2VSimFG-Colusa was refined by (1) specifying or refining groundwater pumping volumes in areas where data or other information on pumping was available, and by (2) assigning and refining virtual wells to simulate private groundwater pumping by agricultural and rural domestic well users based on demand in the model. The data sources and methods used to make these refinements are described below.

2.3.1 Specified or Refined Pumping

Groundwater pumping volumes in C2VSimFG-Colusa were specified or refined where possible based on groundwater pumping data reported by local water suppliers and based on other local information related to historical groundwater pumping.

Agricultural groundwater pumping previously enabled in C2VSimFG Beta2 for areas within the Sacramento, Delevan, and Colusa National Wildlife Refuges was turned off in C2VSimFG-Colusa, based on local information indicating that agricultural pumping does not occur within the bounds of these areas.

Urban groundwater pumping was refined for urban demand areas in the Colusa Subbasin based on pumping data reported by specific urban suppliers and public water systems (Table 2-1). Groundwater pumping by public water systems was summarized from Small Supplier Conservation Reports available through the California State Water Resources Control Board (SWRCB). Reports were available for the Cities of Colusa, Orland, and Williams and the Arbuckle and Maxwell Public Utility Districts. Groundwater pumping for use within the City of Willows was summarized from Urban Water Supplier Reports, also available through the SWRCB. . Available groundwater pumping data were combined with population data to refine the model inputs that define per capita water use. As a result, the groundwater pumping calculated by the C2VSimFG-Colusa model was refined to match pumping data in years when these data were available. Additional information about these procedures and urban inputs are described further in Section 2.7.

Table 2-1. Groundwater Pumping Data for Urban Suppliers and Public Water Systems

Supplier Name	Data Source	Reported Years (Partial or Complete)
Arbuckle Public Utility District	SWRCB Small Supplier Conservation Report (ID CA0610001)	2013, 2015, 2016
City Of Colusa	SWRCB Small Supplier Conservation Report (ID CA0610002)	2013, 2015, 2016
City Of Orland	SWRCB Small Supplier Conservation Report (ID CA1110001)	2013, 2015, 2016
City Of Williams	SWRCB Small Supplier Conservation Report (ID CA0610004)	2013, 2015, 2016
Maxwell Public Utility District	SWRCB Small Supplier Conservation Report (ID CA0610003)	2013, 2015, 2016
California Water Service Company Willows	SWRCB Urban Water Supplier Report (ID CA1110003)	2014-2019

2.3.2 Private Groundwater Pumping

Private groundwater pumping quantities on an individual well basis are largely unknown, though aggregate estimates for private pumping are often included in planning documents (e.g., AWMPs, UWMPs, groundwater management plans). Private pumping in C2VSimFG-Colusa was estimated on an element basis by assigning two virtual wells at the centroid of each model element. One well represents private agricultural pumping and one well represents rural residential pumping. The estimated pumping at these wells was calculated within C2VSimFG-Colusa as the additional volume of water necessary to meet agricultural and urban demand within that element, after distributing any other specified groundwater pumping and surface water deliveries. Figure 3 shows the total groundwater pumping in feet in each element in WY 2015.

The well screening interval or well depth was used to assign the model layers from which each simulated well extracts water. These assignments were made separately for the agricultural and rural residential wells in each element. Rural residential wells used a statistical analysis of typical perforation intervals developed for C2VSimFG. Agricultural wells were initially mainly assigned to pump from Layer 1, C2VSimFG's unconfined layer. Data provided by DWR and extracted from well completion reports was processed by Davids Engineering for updating agricultural pumping (Characterization of Groundwater Development in Colusa County and Evaluation of Potential Future Groundwater Demands TM by Davids Engineering, 2018). These data included information on well depths of irrigation wells drilled since 1970. These wells were mapped and assigned to C2VSimFG layers based on the total well depth (Figure 4 and Figure 5). Analysis of the north-western and south-western areas of the Subbasin revealed that most agricultural wells were pumping mainly from Layers 2 and 3. As a result, pumping in the majority of elements in these areas was edited so that 30% of groundwater pumping was from Layer 2 and 70% from Layer 3.

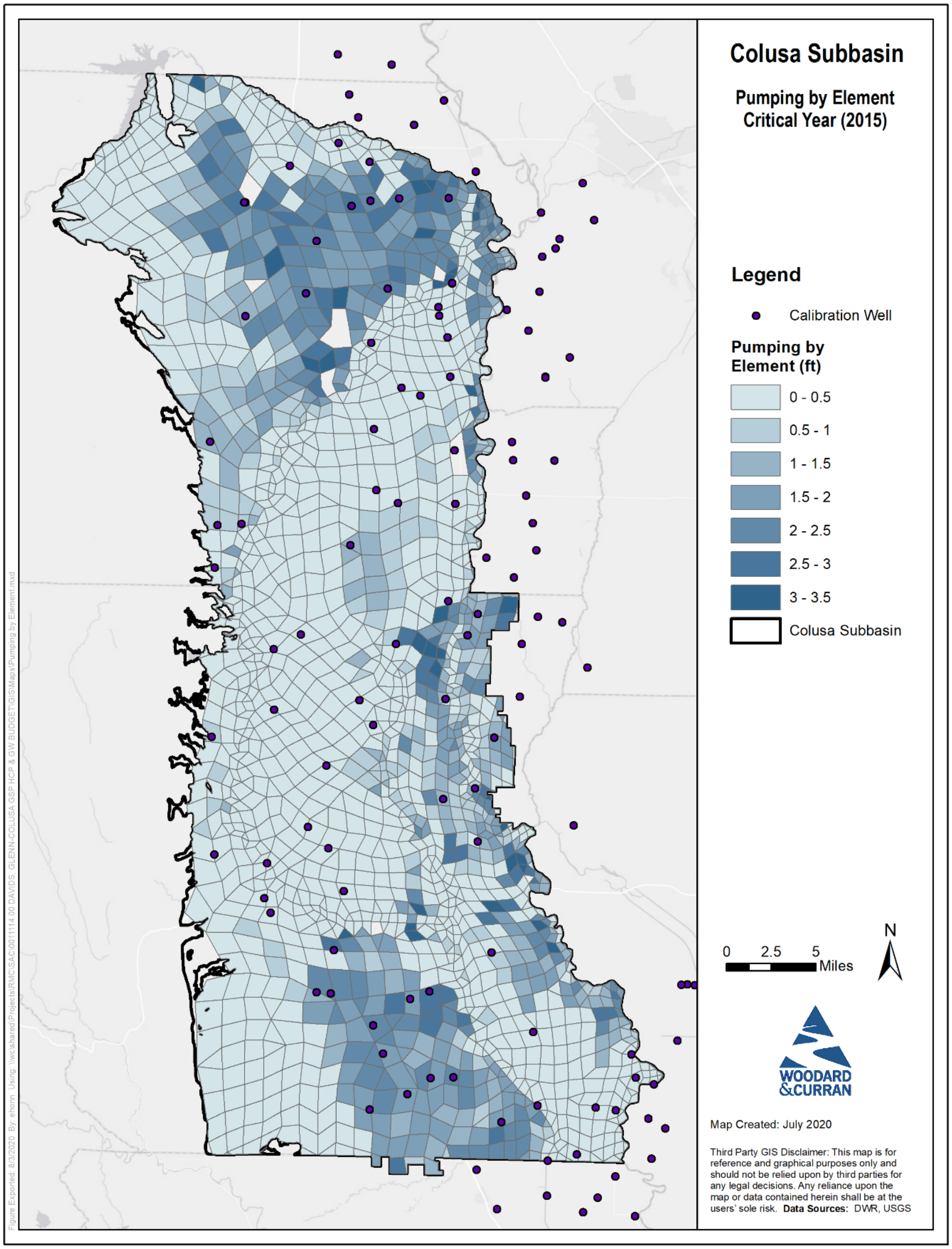


Figure 3: Element Pumping in Colusa Subbasin for WY 2015

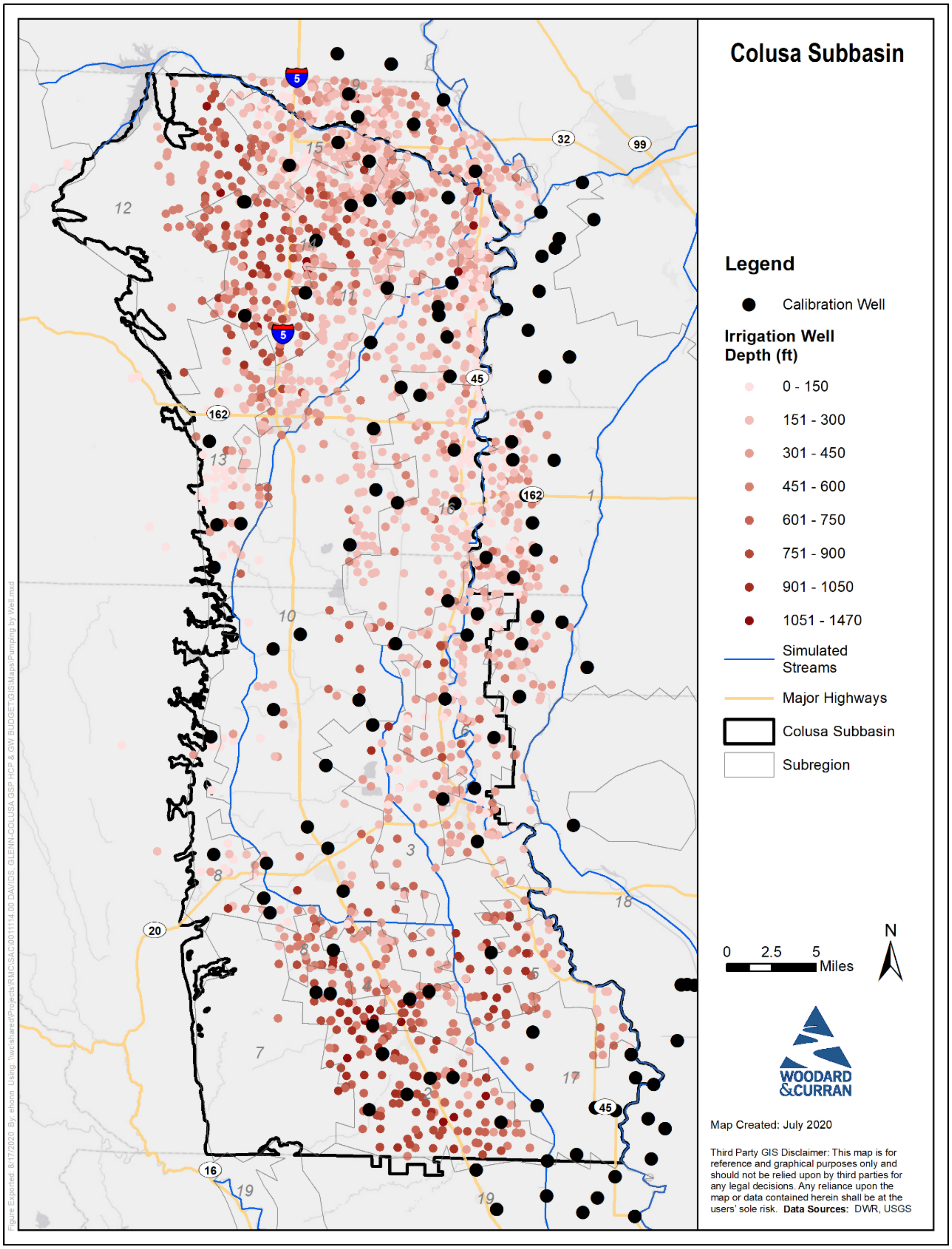


Figure 4: Irrigation Well Depths in Colusa Subbasin

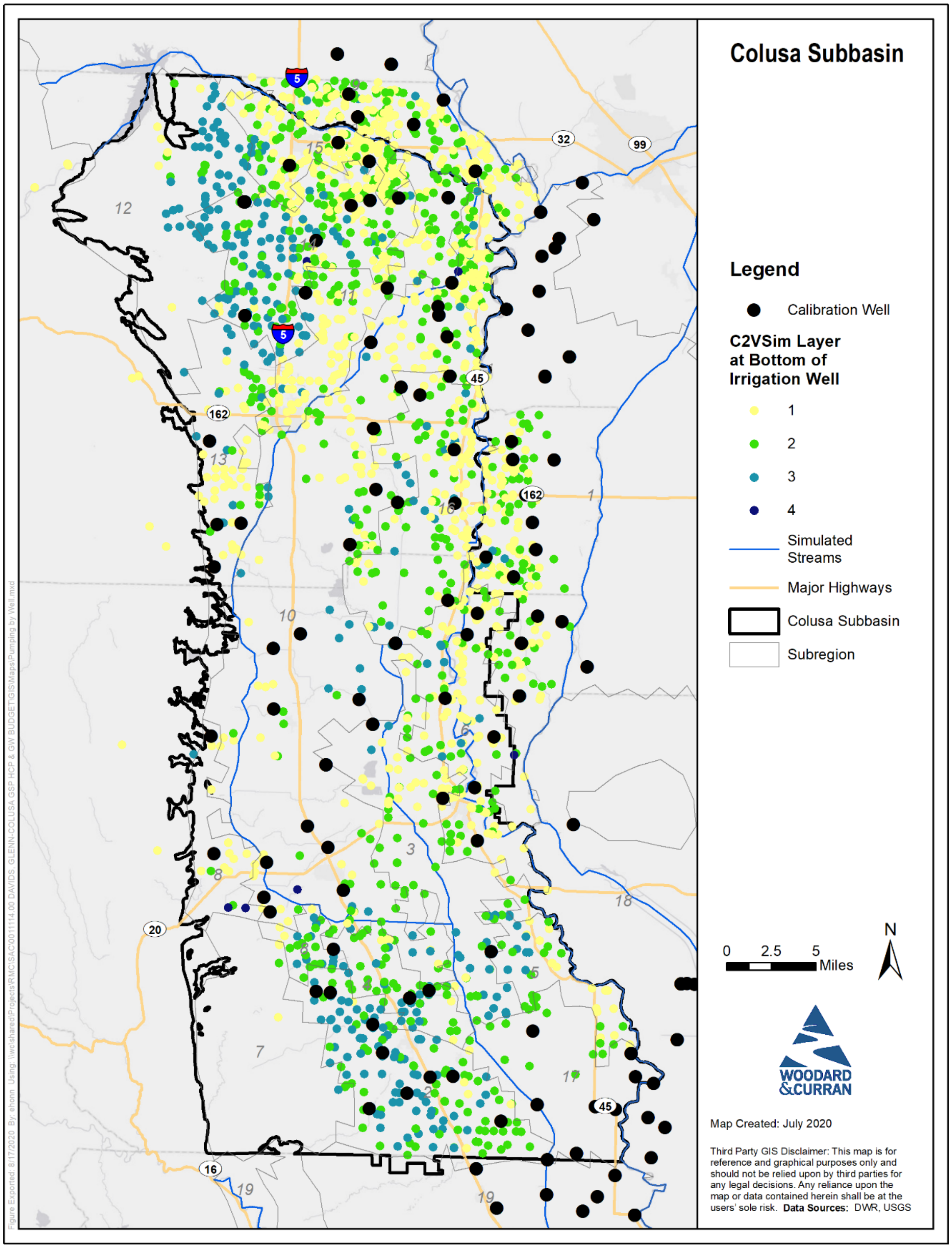


Figure 5: Irrigation Well Depths in Colusa Subbasin by Model Layer

2.4 Land Use

Annual land use in the Colusa Subbasin was estimated primarily based on spatially distributed land use information from DWR Land Use surveys in 1993, 1998, 2004, and 2009 and Land IQ[1] remote sensing-based land use identification in 2014. County Agricultural Commission land use areas were used to interpolate between years with available spatial land use information. The DWR LUEXINT Land Use Adjustment Preprocessor interpolation tool was implemented to create annual spatial cropping data sets in all years, compiling spatial land use data and creating estimates of spatial land use assignments in years when spatial data was unavailable. The spatial land use refinements were compared to the land use inputs to C2VSimFG Beta2, and were also reviewed by GSA representatives, Boards, and other local agencies to confirm the accuracy of annual patterns in crop acreage.

Land areas in the Colusa Subbasin were assigned to one of 29 land uses, and summarized under 22 land use classes. These land use classes are summarized by water use sector in Table 2-2. The area of each land use class was spatially assigned according to the percent area represented in each model element. Complete land use areas for the entire Colusa Subbasin are provided in the GSP.

Table 2-2. Land Use Classes by Water Use Sector.

Water Use Sector	C2VSimFG Land Use Class	C2VSimFG Land Use Code	Land Uses Included in Land Use Class
Agricultural (Nonponded and Ponded)	Alfalfa	AL	Alfalfa
	Almonds & Pistachios	AP	Almonds, Pistachios
	Citrus & Subtropical	CS	Citrus, Olives
	Corn	CN	Corn
	Cucurbits	CU	Melons
	Dry Beans	DB	Beans (Dry)
	Grain	GR	Grain
	Idle	ID	Idle
	Other Deciduous	OR	Misc Deciduous, Prunes
	Other Field	FL	Misc Field, Sudan, Sunflower
	Other Truck	TR	Misc Truck
	Pasture	PA	Pasture
	Rice with non-flooded decomposition	RICE_NFL	Rice with non-flooded decomposition
	Rice with no decomposition	RICE_NDC	Rice with no decomposition
	Safflower	SA	Safflower
	Tomato-Processing	TP	Tomatoes
	Vineyards	VI	Vineyards
	Walnuts	WN	Walnuts
Refuge	Seasonal refuges	REFUGE_SL	Wetlands
Native and Riparian Vegetation	Native	NV	Native
	Riparian	RV	Riparian, Water
Urban	Urban	UR	Urban, Semiagricultural

[1] Land IQ is a firm that was contracted by DWR to use remote sensing methodologies to identify crops in fields.

2.5 Evapotranspiration

Crop evapotranspiration (ET_c), or crop consumptive use, represents the volume of water that is lost to the atmosphere through both evaporation from the soil and transpiration from crop surfaces. A portion of the total water that crops and vegetation consume originates from precipitation (referred to as evapotranspiration of precipitation, or ET_{pr}) while other portions of ET_c may originate from applied water (referred to as evapotranspiration of applied water, or ET_{aw}).

C2VSimFG-Colusa computes a monthly root zone water budget, utilizing inputs of monthly ET_c together with other parameters that describe soil and land use characteristics in order to quantify all inflows and outflows through the root zone.[1] A root zone water budget is a generally accepted and widely used method to accurately and consistently track the portions of ET_c attributed to precipitation and applied water, respectively, as well as other water that is transmitted through the soil and plant surfaces (ASCE, 2016 and ASABE, 2007).

Monthly ET_c inputs for each crop and land use class in the Colusa Subbasin were adapted from the C2VSimFG Beta2 standard ET_c inputs. The C2VSimFG Beta2 inputs were first quality controlled and then adjusted to reflect local crop water use characteristics more accurately. Adjustments were determined through comparisons with local ET_c data and through discussion and consultation with selected local growers. Three main local ET_c data sources were compared to the C2VSimFG Beta2 inputs:

- METRIC Results (METRIC): Actual ET (ET_a) estimates were calculated using satellite imagery and the Mapping Evapotranspiration at High Resolution using Internalized Calibration (METRIC) (Allen, et al. 2007a) remotely-sensed surface energy balance model. METRIC ET_a estimates account for actual, observed conditions in the Colusa Subbasin that affect crop consumptive use, such as salinity, deficit irrigation, disease, fertilization, immature permanent crops, and crop canopy structure, and other factors. Studies by Bastiaanssen et al. (2005), Allen et al. (2007b, 2011), Thoreson et al. (2009), and others have found that when performed by an expert analyst, seasonal ET_a estimates by remotely-sensed surface energy balance models are expected to be within five percent of actual ET determined using other reliable methods. METRIC ET_a results are available for 2017 in the Sacramento Valley. Notably, METRIC results represent ET_a in a single, wet year (2017), rather than a multi-year average.

- Cal-SIMETAW Results (DWR): ET_c is computed in the California Simulation of Evapotranspiration of Applied Water (Cal-SIMETAW) model, and is publicly reported by the California Department of Water Resources (DWR) for 132 individual crops, 20 crop categories, and four land-use categories by county for use in the California Water Plan. Cal-SIMETAW is a daily, spatial crop water balance model that utilizes weather data, soil properties, crop coefficients, rooting depths, seepage, and other parameters to calculate ET_c and ET_{aw}. Monthly ET_c values were available from Cal-SIMETAW for 24 land use types in Glenn and Colusa Counties over the period spanning water years 2000-2015. The monthly ET_c values were averaged across both counties and all years for each land use type, and were summarized to average annual values for comparison.

- ITRC Results (Cal Poly): The Irrigation Training & Research Center (ITRC) at California Polytechnic State University, San Luis Obispo has compiled a database of typical ET_c rates for agricultural crop types across the various ETo Zones in California. These rates are publicly available online (http://itrc.org/etdata/index.html), and are offered for water budget and irrigation scheduling and design purposes. The ITRC provides typical

[1] The root zone is defined as "the upper portion of the soil where water extraction by plant roots occurs." (ASCE, 2016)

ET_c rates for various irrigation methods, two of which were considered for analyses in the Colusa Subbasin: surface irrigation systems and drip/micro irrigation systems. Across these irrigation systems, ITRC also summarizes ET_c for various relative precipitation conditions, with 1997 representing a “typical” year, 1998 representing a “wet” year, and 1999 representing a “dry” year.

ET_c values in C2VSimFG-Colusa were refined to provide for similar results among all crops represented in the model and described in the various ET_c data sources above. Sample comparisons of the average annual ET_c for major crops are shown in Figure 6.

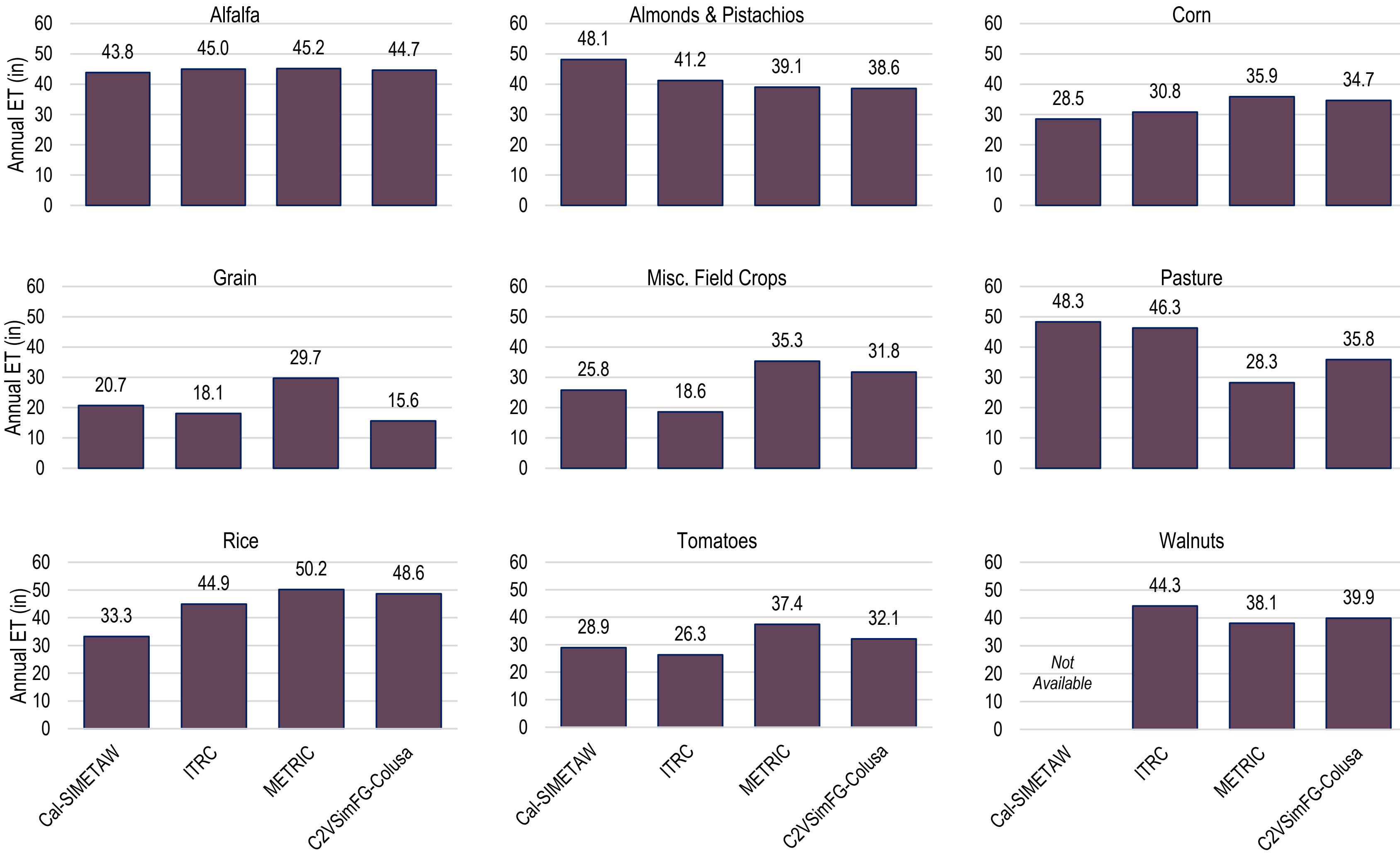


Figure 6. Average Annual* ET_c Comparison between Cal-SIMETAW, ITRC, METRIC, and C2VSimFG-Colusa for Major Irrigated Crops in the Colusa Subbasin (1990-2015 Average Annual Area Greater Than 10,000 acres).

**Average summary years vary, see text for description of years considered.*

2.6 Other Irrigation and Crop Inputs

2.6.1 Irrigation Period

The irrigation period identifies the months during which irrigation is available to a crop or land use class. A value of one designates a month during which IDC calculates applied water demand for the land use class and simulates irrigation events, as needed. A value of zero designates a non-irrigation month during which IDC does not compute applied water and does not simulate irrigation for the land use class. Different monthly designations can be defined for different land use classes, if necessary.

In C2VSimFG-Colusa, the irrigation period was defined through time series inputs corresponding to typical crop irrigation seasons in the Colusa Subbasin. The irrigation period was also refined for rice in select months in order to better match the timing of planting and application of water in the winter months, according to local agricultural practices.

2.6.2 Reuse and Return Flow

The return flow fraction determines the proportion of applied water that can leave the land use area as runoff, while the reuse fraction determines the proportion of applied water that is captured and reused for irrigation. A value of one for each indicates that all applied water can leave as runoff, but that all applied water is captured and reused for irrigation. A value of zero for each indicates that no applied water leaves the land use cell, and that no water is reused for irrigation.

In C2VSimFG-Colusa, irrigation water return flow fractions were converted to timeseries inputs for all crops, with decreasing values that reflect changes in local irrigation practices over time, leading to reductions in runoff (Figure 7). Irrigation reuse fractions were unchanged from C2VSimFG Beta2, with values of 0 set for all crops.

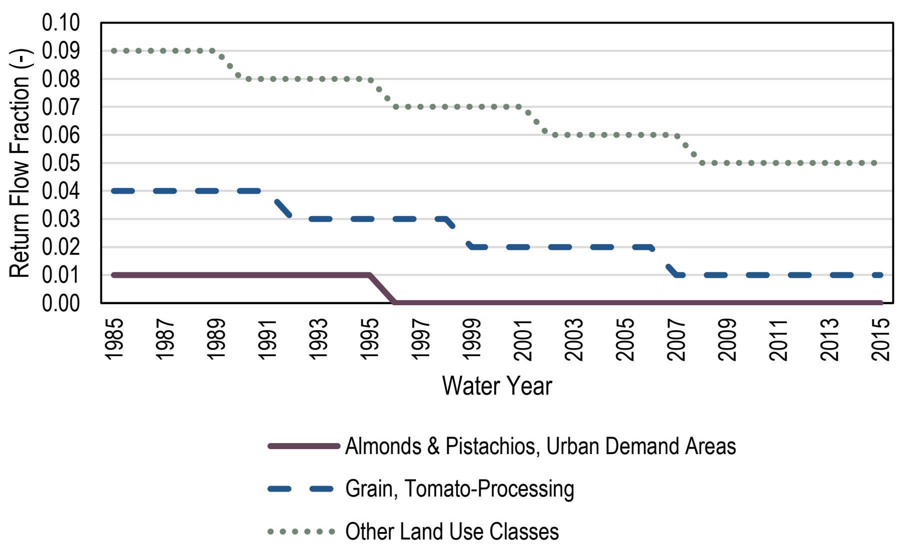


Figure 7. Return Flow Fractions in C2VSimFG-Colusa.

2.6.3 Ponded Crop Inputs

Ponding depth inputs to the model dictate the amount of water that is applied to ponded crops during irrigation. Monthly ponding depths for rice with non-flooded decomposition and rice with no decomposition were refined in C2VSimFG-Colusa to more accurately match early and late-season water application rates in the Colusa Subbasin in recent years (Table 2-3). Other ponding depths were unchanged from the standard C2VSimFG Beta2 inputs.

Table 2-3. Average Monthly Ponding Depths Updated in C2VSimFG-Colusa.

Month	Average Ponding Depth by Crop Type (ft; 1990-2015 Average)	
	Rice with Non-Flooded Decomposition	Rice with No Decomposition
1	0.15	0.00
2	0.02	0.00
3	0.00	0.00
4	0.01	0.02
5	0.34	0.35
6	0.38	0.38
7	0.35	0.35
8	0.25	0.25
9	0.01	0.03
10	0.09	0.00
11	0.32	0.00
12	0.26	0.00

2.7 Other Urban Inputs

Urban inputs to C2VSimFG-Colusa were updated from the standard inputs to C2VSimFG Beta2 to accommodate new, locally-defined urban demand areas. These new urban demand areas in the Colusa Subbasin were specified as subdivisions of larger urban demand areas in C2VSimFG Beta2, corresponding to specific urban subareas for which water supply and water use data were available. The new urban demand areas corresponded to:

- Arbuckle (Public Utility District service area)
- City of Colusa
- City of Orland
- City of Williams
- City of Willows (California Water Service Company Willows service area)
- Unincorporated urban areas in the Colusa Subbasin

Data sources used to describe these new urban demand areas include SWRCB Small Supplier Conservation Reports and Urban Water Supplier Reports, population data and estimates from the California Department of Finance, census data, and the Willows 2015 Urban Water Management Plan.

Key urban inputs that were identified or refined for these new urban demand areas are population, groundwater pumping, per capita water use, urban pervious area fractions, and urban indoor water use fractions. These inputs are described below.

2.7.1 Population

The population in each urban demand area was quantified based on population data and population estimates available from the California Department of Finance or from United States Census Bureau. Annual population estimates were available from the Department of Finance for the Cities of Colusa, Orland, Williams, and Willows, and for Colusa and Glenn Counties in 1989-2015. The population in the Community of Arbuckle was summarized from available Census Bureau data in 1990, 2000, and 2010. The population in Arbuckle in other years was estimated through linear interpolation. The population of unincorporated areas in each county was calculated as the total population in that county (adjusted to the area overlying the Subbasin), minus the population in each city or community overlying the Subbasin.

2.7.2 Groundwater Pumping

Groundwater pumping data for urban suppliers and public water systems in the Colusa Subbasin were available from the SWRCB, as described in Section 2.3.1.

2.7.3 Per Capita Water Use

Per capita water use for the new urban demand areas was estimated based on available urban population and total urban water use from water supplier data, where available. Average per capita water use and data sources for each urban demand area are identified in Table 2-4.

Per capita water use in Willows was calculated in 1995-2015 from California Department of Finance population data and water use data. Per capita water use in 1989-1994 was calculated as the 1999-2008 average, taken to approximate average conditions observed in the early 1990s.

Per capita water use in Colusa, Orland, Williams, Arbuckle, and unincorporated areas in the Colusa Subbasin was calculated from the per capita water use in Willows, adjusted upward to accommodate slight differences in typical water use in these areas.

Average per capita water use values range from 231 gallons per capita per day in Willows and Colusa, to 277 gallons per capita per day in Orland.

Table 2-4. Urban Per Capita Water Use for New Urban Demand Areas in Colusa Subbasin.

Urban Demand Area	Average Per Capita Water Use (Gallons per Capita Per Day, 1990-2015)	Source
Arbuckle	254	Adjusted from Willows per capita water use (annual adjustment factor 1.1)
City Of Colusa	231	Assumed equal to Willows per capita water use (annual adjustment factor 1.0)
City Of Orland	277	Adjusted from Willows per capita water use (annual adjustment factor 1.2)
City Of Williams	242	Adjusted from Willows per capita water use (annual adjustment factor 1.05)

Urban Demand Area	Average Per Capita Water Use (Gallons per Capita Per Day, 1990-2015)	Source
Willows	231	Department of Finance population data; gross water use data (1995-2015); estimated as 199-2008 average (1989-1994)
Unincorporated urban areas in the Colusa Subbasin	254	Adjusted from Willows per capita water use (annual adjustment factor 1.1)

2.7.4 Urban Pervious Area Fractions

The urban pervious area fraction input is used by the C2VSimFG-Colusa model to quantify evapotranspiration (ET) and runoff from urban areas. It is assumed that only pervious areas are available for ET, and that no ET occurs in impervious areas. It is also assumed that all precipitation that falls on impervious areas becomes runoff. The runoff and ET of pervious areas is defined in C2VSimFG Beta2 according to typical conditions in urban areas.

The pervious fractions in the C2VSimFG-Colusa urban demand areas were updated to monthly values ranging from 0.40 to 0.49 in cities and incorporated urban demand areas (indicating less pervious area, and more developed area), and to a value of 0.70 in unincorporated urban demand areas (indicating more pervious area, and less developed area than cities and incorporated urban areas). These values were estimated to reflect the proportion of 'built-up' and undeveloped areas within the respective urban demand areas, and are similar to the pervious fractions specified for other urban areas in C2VSimFG Beta2.

2.7.5 Indoor Use Fractions

C2VSimFG-Colusa parses the total volume of applied water in each urban demand area into the amount of water that is used indoors versus outdoors based on user-defined indoor use fractions. A monthly pattern of indoor use fractions was calculated based on the average monthly average ratio of estimated indoor to outdoor water use in each city or community in the Colusa Subbasin in 2013, compared to total groundwater pumping that year. The year 2013 was taken to be representative of a typical year. The indoor use fractions in Table 2-5 were used for all new urban demand areas.

Table 2-5. Urban Indoor Water Use Fractions for New Urban Demand Areas in Colusa Subbasin.

Month	Fraction of Total Urban Water Used Indoors
January	1.00
February	0.93
March	0.57
April	0.47
May	0.37
June	0.30
July	0.28
August	0.32
September	0.36
October	0.41
November	0.59
December	0.69

2.8 Diversions

Diversions are specified in C2VSimFG-Colusa to quantify the volume of water available for deliveries to specific land use areas in the Colusa Subbasin. The diversion specifications are also used by the model to quantify the volumes of nonrecoverable loss to the atmosphere through evaporation and recoverable loss to the GWS through seepage (infiltration of surface water).

Diversions that are used within the Colusa Subbasin are generally quantified based on outside data sources, including: delivery records reported by the United States Bureau of Reclamation (USBR), groundwater management or water planning documents developed by water agencies, and publicly available records maintained by the California State Water Resources Control Board (SWRCB) in the Electronic Water Rights Information Management System (eWRIMS). Data sources and updates to specific diversion volumes and specifications are described below.

Diversions of supply used outside the Subbasin are generally assumed to be equal to diversions data specified in C2VSimFG Beta2. Deliveries are generally calculated by C2VSimFG-Colusa as the water supply used to meet simulated crop water demands, after accounting for seepage and evaporation of the diverted supply.

Table 2-6 identifies new diversions added to C2VSimFG-Colusa, and Table 2-7 identifies diversions originally in C2VSimFG Beta2 that were changed in C2VSimFG-Colusa. Details about these added diversions and changes are described in the sections below.

Table 2-6. Diversions Added to C2VSimFG-Colusa.

Diversion ID	Description	Data Source	Average Volume in Historical Water Budget (AF per year, 1990-2015)
444	Orland Unit Water Users' Association (OUWUA) (South Canal only)	USBR delivery reports (1989-2015); estimated other years	60,011
445	Colusa County Water District (WD)	USBR delivery reports (1989-2015); estimated other years	50,967
446	Orland-Artois WD (OAWD)	USBR delivery reports (1989-2015); estimated other years	42,688
447	Glenn-Colusa ID (GCID) (Tehama-Colusa Canal)	USBR delivery reports (1989-2015); estimated zero other years (included in Div ID 458)	31,176
448	Westside WD	USBR delivery reports (1989-2015); estimated other years	30,038
449	Kanawha WD	USBR delivery reports (1989-2015); estimated other years	26,032
450	Glide WD	USBR delivery reports (1989-2015); estimated other years	11,422
451	La Grande WD	USBR delivery reports (1989-2015); estimated other years	4,307
452	Davis WD	USBR delivery reports (1989-2015); estimated other years	2,319
453	4-M WD	USBR delivery reports (1989-2015); estimated other years	1,947

Diversion ID	Description	Data Source	Average Volume in Historical Water Budget (AF per year, 1990-2015)
454	Holthouse WD	USBR delivery reports (1989-2015); estimated other years	1,059
455	Glenn Valley WD	USBR delivery reports (1989-2015); estimated other years	860
456	Cortina WD	USBR delivery reports (1989-2015); estimated other years	825
457	Myers-Marsh Mutual Water Company (MWC)	USBR delivery reports (1989-2015); estimated other years	192
458	GCID (Main Canal)	GCIDWIS and eWRIMS data when available (1989-2015); estimated other years	678,941
459	Reclamation District #108	USBR delivery reports (1989-2015); estimated other years	155,615
460	Princeton-Codora-Glenn ID	USBR delivery reports (1989-2015); estimated other years	60,285
461	Provident ID	USBR delivery reports (1989-2015); estimated other years	50,790
462	Sycamore MWC	USBR delivery reports (1989-2015); estimated other years	22,969
463	Maxwell ID	USBR delivery reports (1989-2015); estimated other years	7,796
464	Carter MWC	USBR delivery reports (1989-2015); estimated other years	1,320
465	Misc Sac River Riparian Diversions	USBR delivery reports (1989-2015); estimated other years	5,050
466	Misc Sac River Riparian Diversions	USBR delivery reports (1989-2015); estimated other years	8,205
467	Misc Sac River Riparian Diversions	USBR delivery reports (1989-2015); estimated other years	3,585
468	Andreotti, Arnold and Arthur, et al	USBR delivery reports (1989-2015); estimated other years	2,296

Table 2-7. Diversions in C2VSimFG Beta2 Revised for C2VSimFG-Colusa.

Diversion ID	Description in C2VSimFG Beta2	Revision in C2VSimFG-Colusa	Diversion ID Replacement
19	Black Butte Reservoir to South Canal for Ag (06_PA)	No longer used (replaced with specified USBR diversions)	444
31	Tehama-Colusa Canal to Kirkwood WD for Ag (04_PA2)	Revised to exclude TCC diversions in Colusa Subbasin and account only for TCC diversions outside Subbasin	445-457
32	T-C Canal Deliveries to 07N_PA: Glide WD, Holthouse WD (portion 65%) Kanawha WD, Orland-Artois WD	No longer used (replaced with specified USBR diversions)	445-457

Diversion ID	Description in C2VSimFG Beta2	Revision in C2VSimFG-Colusa	Diversion ID Replacement
33	T-C Canal Deliveries to 07S_PA: 4-M WD, Colusa County WD, Cortina WD, Davis WD, Dunnigan WD, Glenn Valley WD, Holthouse WD (portion 35%), La Grande WD, Myers-Marsh MWC, Westside WD	No longer used (replaced with specified USBR diversions)	445-457
34	T-C Canal Deliveries to 07S_PA: 4-M WD, Colusa County WD, Cortina WD, Davis WD, Dunnigan WD, Glenn Valley WD, Holthouse WD (portion 35%), La Grande WD, Myers-Marsh MWC, Westside WD	No longer used (replaced with specified USBR diversions)	445-457
36	Glenn-Colusa Canal to Glenn-Colusa ID (58%) for Ag (08N_SA2)	No longer used (replaced with specified diversions from GCIDWIS and eWRIMS data)	458
37	Glenn-Colusa Canal to Glenn-Colusa ID (42%) for Ag (08S_SA2)	No longer used (replaced with specified diversions from GCIDWIS and eWRIMS data)	458
116	Sacramento River RM 178 to Provident ID, Princeton-Cordua-Glenn ID and miscellaneous diverters for Ag (08N_SA1)	No longer used (replaced with specified USBR diversions)	460-468
117	Sacramento River RB diversions between Butte City and Wilkins Slough to Princeton-Cordora-Glenn ID, Green Valley Corporation (Formerly Cannell, F.), and Maxwell ID (5%) and miscellaneous settlement contractors for Ag (08N_SA1)	No longer used (replaced with specified USBR diversions)	460-468
118	Sacramento River RB diversions between Butte City and Wilkins Slough to Maxwell ID (95%), Odysseus Farms, Robert Ditch Irrigation Company, Colusa Irrigation Company, Mehrhof Susan M. (Formerly Swinford Tract Irrigation Company), and Sycamore Family Trust (Formerly Davis, Olive P. et al) and miscellaneous settlement contractors for Ag (08S_SA1)	No longer used (replaced with specified USBR diversions)	460-468
119	Sacramento River RM 146 miscellaneous non-CVP diversions for Ag (08S_NA1)	No longer used (replaced with specified USBR diversions)	460-468

Diversion ID	Description in C2VSimFG Beta2	Revision in C2VSimFG-Colusa	Diversion ID Replacement
122	Sacramento River RB diversions between Butte City and Wilkins Slough to miscellaneous non-CVP diverters for Ag (08S_NA2)	Revised to account only for River Garden Farms and misc. outside Colusa SB	N/A
124	Sacramento River RB diversions between Butte City and Wilkins Slough to Reclamation District 108 and miscellaneous diverters for Ag (08S_SA3)	No longer used (replaced with specified USBR diversions)	459
126	Sacramento River RB diversions between Wilkins Slough and Knights Landing to RD 108, River Garden Farms and miscellaneous CVP diverters for Ag (08S_SA3)	No longer used (replaced with specified USBR diversions)	459

2.8.1 Diversions by USBR Contractors and Diverters

New diversions were added to C2VSimFG-Colusa to specify the monthly USBR deliveries to individual CVP contractors and diverters within the Colusa Subbasin (Diversion IDs 444-468). While many diversions of CVP supplies were specified in C2VSimFG Beta2, the original model largely aggregated the diversion volumes and element groups across multiple diverters. The new diversions were specified to instead distinguish the diversion volume and distribution area for each of the major diverters.

Diversions data were initially downloaded from USBR for all diverters that receive water from the Tehama-Colusa Canal (TCC), the Sacramento River, and other CVP supplies. Monthly data were quality controlled and reviewed for consistency. Diversion locations were generally identified from eWRIMS, and were used to classify diverters as within, outside, or partly within the Colusa Subbasin.

New diversions were specified in C2VSimFG-Colusa for all diverters within or partly within the Subbasin that receive water from the TCC and other CVP supplies, and for all diverters within or partly within the Subbasin that divert more than 3,000 acre-feet (AF) from the Sacramento River each year. Smaller diverters that divert less than 3,000 AF from the Sacramento River each year were grouped in C2VSimFG-Colusa based on their location along the Sacramento River. A small number of diverters identified in the USBR data diverted from an unknown location. It was assumed that a diversion from the TCC to support “fish facilities” in an unknown location was not within the Subbasin, while thirteen smaller diversions from the Sacramento River were assumed to be located within the Subbasin. These smaller diversions range from less than 100 AF per year to 2,900 AF per year, on average, with a total average volume of approximately 17,000 AF per year.

For diverters entirely within the Colusa Subbasin, the volume of diversions from USBR was taken directly from USBR reports in years when data were available (1989-2015). For diverters partially within the Colusa Subbasin, the volume of diversions from USBR was prorated based on the relative area inside the Subbasin. Any diversions originally specified in C2VSimFG Beta2 that accounted for these same USBR deliveries were used to quantify the diversion volumes in years prior to 1989, either directly or prorated based on area (if the diverter is partly within the Colusa Subbasin). In 1989-2015, these original C2VSimFG Beta2 diversions were either set to zero volume (for diverters within the Colusa Subbasin), or revised to deliver a reduced volume prorated by area to only those the elements located outside the Subbasin.

The diversion specifications were updated for all new and revised USBR deliveries, as needed. Diversion locations were updated to the stream node closest to the point of diversion identified in eWRIMS, where available. Distribution and recharge element groups were revised to match the diverter's service area, if available, as well as all changes in how the diversions are distributed inside and outside the Colusa Subbasin, refined to exclude areas within or outside the subbasin, as needed. The recoverable and nonrecoverable loss fraction of each new USBR diversion was updated based on local water budget information, where available.

2.8.2 Other Diversions

Diversions to Glenn-Colusa Irrigation District (GCID) were updated with diversion data available from GCIDWIS (1989-2015), and with eWRIMS data to account for winter water use.

Diversions to Reclamation District 108 (RD108), Princeton-Codora-Glenn Irrigation District (PCGID), and Provident Irrigation District (PID) were specified with all available data from the Districts between water year 1989-2015. Estimates of winter water used within these Districts were also specified, assuming similarity to the winter water use observed in GCID.

The diversion element groups and recharge element groups were updated for all new diversions, reflecting the service area of each District to the extent permitted by the model element resolution.

3. MODEL CALIBRATION

3.1 Calibration Goals

The goals of model calibration are (1) to achieve a reasonable water budget for each component of the hydrologic cycle modeled (i.e., land and water use, stream flow, and groundwater) and (2) to maximize the agreement between a) simulated and observed groundwater levels at selected well locations and b) simulated and observed streamflow hydrographs at selected gaging stations. These objectives are achieved through verification of the model input data and adjustment of model parameters.

3.2 Calibration Approach

Model calibration begins after data analysis and input data file development are completed. The calibration effort can be broken down into subsets that align with packages within the Integrated Water Flow Model (IWFM) platform. IWFM is used for development of C2VSim-FG Colusa model. As an integrated groundwater model, the results of each part of the simulation are interrelated with the other parts. The model calibration can be considered a systematic process that includes the following activities:

- Calibration of water budgets to other local water budgets through adjustment of root zone parameters
- Calibration of simulated groundwater levels and stream flows to observed data
- Comparison of calibration performance with the calibration targets
- Completion of additional model refinements, as necessary

C2VSimFG-Colusa was calibrated to achieve agreement with other local water budget results, measured stream flows and groundwater elevations, and groundwater elevation contours. The major data sources used to check model results include measured groundwater levels and contours and observed streamflow data. Though the model simulation period is October 1985 through September 2015 (30 years) or water years 1986 through 2015, the model calibration focused on water years 1990 through 2015 (26 years) because land and water use data for the model area is more reliable in those years.

3.3 Water Budget Calibration

Numerous water agencies and organizations use and manage water resources in areas overlying the Colusa Subbasin. For many of these entities, developing local water budgets is an important means of tracking and reporting water supply and water use in their service area. Local water budgets have been developed and are publicly available through various water management planning documents, including Agricultural Water Management Plans (AWMPs), Urban Water Management Plans (UWMPs), USBR Water Management Plans (WMPs), and Groundwater Management Plans.

The historical C2VSimFG-Colusa water budget results were evaluated for consistency with other local water budgets in the Subbasin by reporting and comparing subarea water budgets from the C2VSimFG-Colusa model with these local water budgets. To facilitate these comparisons, the historical C2VSimFG-Colusa model was divided into 38 subareas, several of which represent the service areas of specific water agencies and organizations.

Major flow paths considered in the calibration process included surface water deliveries, groundwater pumping, evapotranspiration, and deep percolation. Sample comparisons of these four parameters are shown in Figure 8 through Figure 10 for GCID, OAWD, and OUWUA. Other flow paths reported in both the local water budgets and the C2VSimFG-Colusa water budget results were also compared, as available. Comparisons were made in subareas and years when local water budget results were available to ensure similarity between major inflows to and outflows from land surfaces. Other comparisons were also made to confirm the accuracy of diversions, and the seepage and evaporation of diversions in the subarea.

Across the entire Subbasin, a key parameter considered during the calibration process was the crop consumptive use fraction (CCUF). CCUF is a ratio of the consumptive use of applied water (also referred to as or evapotranspiration of applied water, or ET_{aw}) to the total volume of applied water. High CCUF values close to 1.0 generally indicate higher irrigation efficiency, while lower CCUF values generally indicate lower irrigation efficiency. Discussion with local water users and review of irrigation methods throughout the Colusa Subbasin over time suggest that irrigation efficiency has generally increased over time, leading to increasing CCUF values over the historical water budget period.

Root zone parameters were refined, as needed, through an iterative process to calibrate the C2VSimFG-Colusa subarea water budget results (1) for agreement with local water budget results, and (2) to provide for typical historical CCUF values and increasing CCUF values over the historical water budget period, reflecting trends toward higher irrigation efficiency in the Colusa Subbasin.

For most areas, calibrations were made by adjusting the target soil moisture (TSM) for each land use class in C2VSimFG-Colusa. The TSM specifies the irrigation target soil moisture as a fraction of field capacity, and is used by C2VSimFG-Colusa to compute irrigation depths for each land use in the model domain. When simulating an irrigation event, C2VSimFG-Colusa will apply water until the soil reaches the specified percent of field capacity. TSM fractions in the C2VSimFG-Colusa were refined through several iterations of adjustment and comparison against local water budgets (Figure 8 through Figure 10) and evaluation of local CCUF values. Average CCUF values for crops in the Colusa Subbasin range from 0.55 for rice, which is typically irrigated with higher volumes of water relative to demand, to values between 0.80 and 0.85 for almonds, pistachios, and grain crops.

TSM fractions in the calibrated model range from 0.9 to 1.0 (i.e., 90 to 100 percent of field capacity) for rice, to values generally between 0.76 and 1.00 (i.e., 76 to 100 percent of field capacity) for other nonponded crops. These values approximate soil moisture resulting from common irrigation practices in the Sacramento Valley.

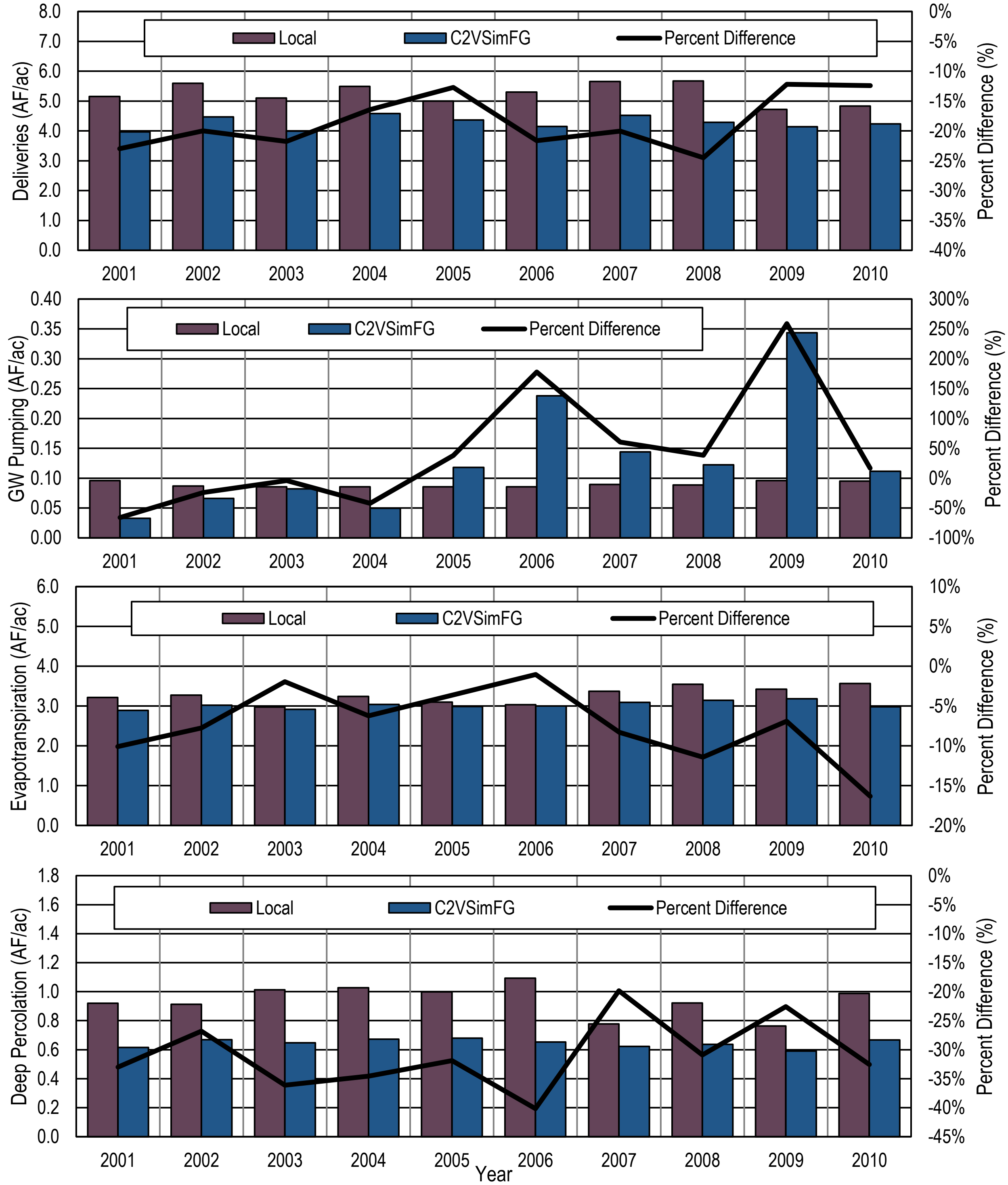


Figure 8. Comparison of Major Flow Paths from Local Water Budget and C2VSimFG-Colusa Results for the Glenn-Colusa Irrigation District.

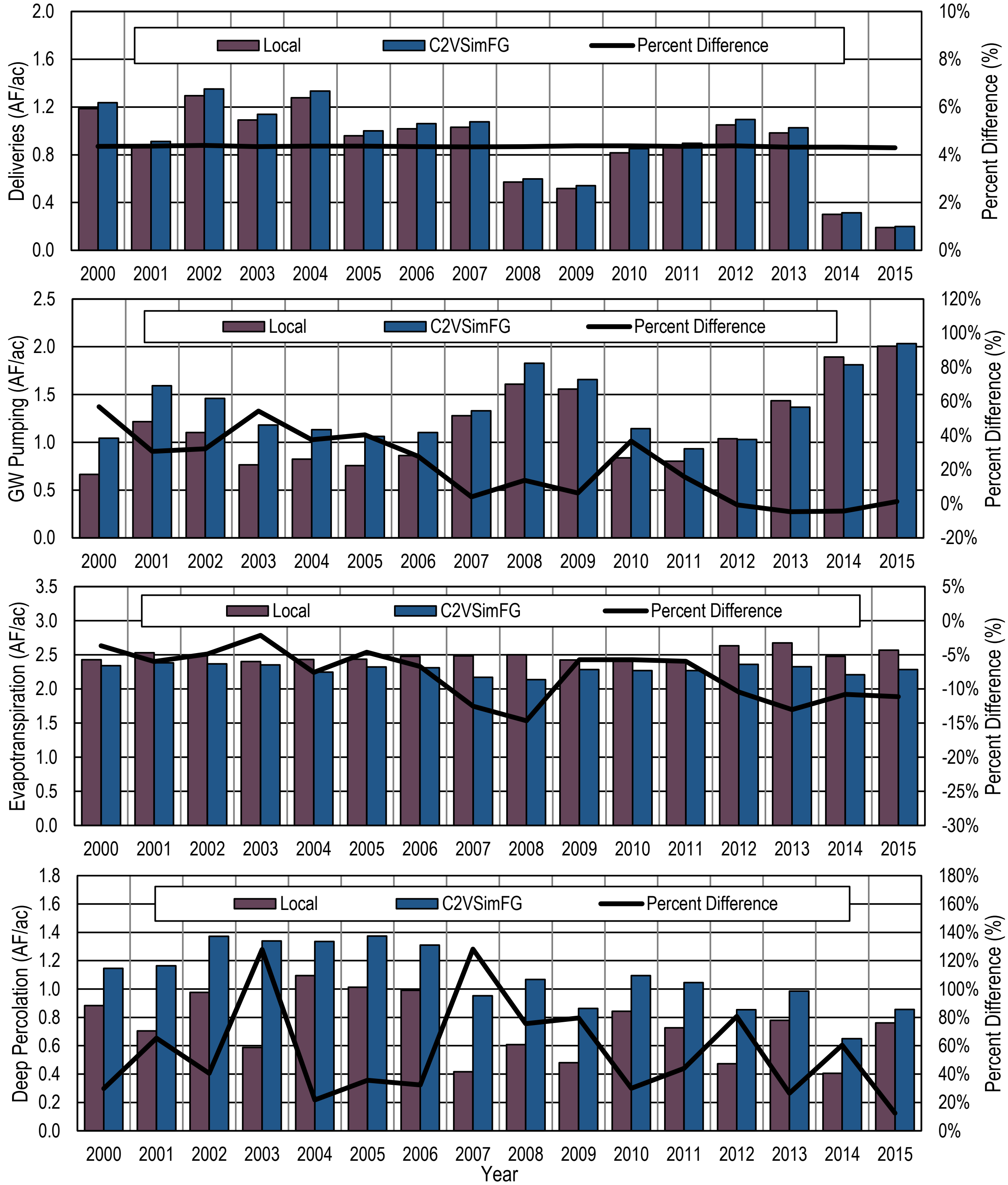


Figure 9. Comparison of Major Flow Paths from Local Water Budget and C2VSimFG-Colusa Results for the Orland-Artois Water District.

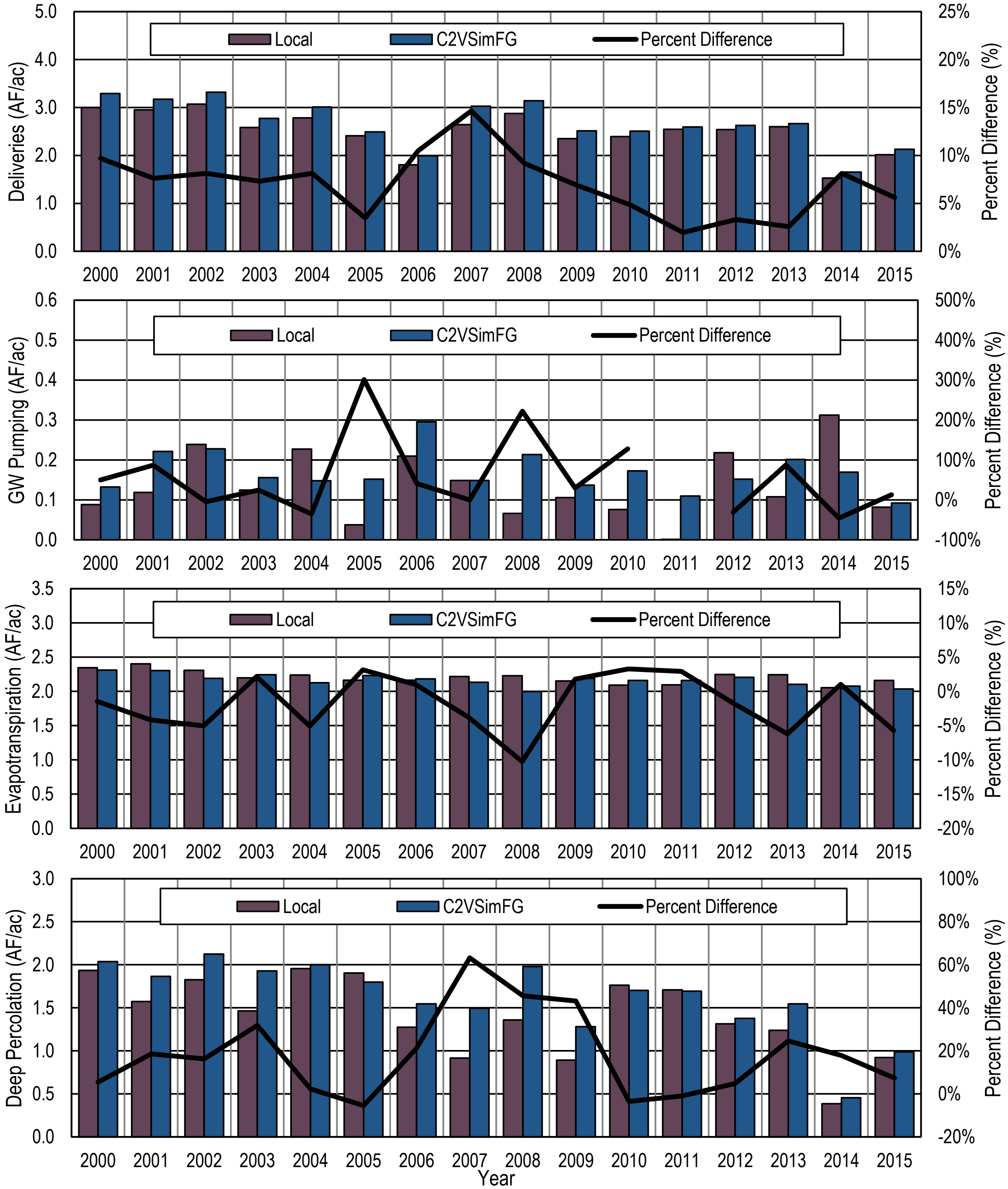


Figure 10. Comparison of Major Flow Paths from Local Water Budget and C2VSimFG-Colusa Results for the Orland Unit Water Users Association.

3.4 Streamflow Calibration

The major streams in the C2VSimFG-Colusa are Stony Creek, Sacramento River, Glenn-Colusa Canal, and Colusa Drain. Streamflow calibration is primarily performed by comparing the simulated streamflow at 6 locations with local data from 9 stream gages (Table 3-1 and Figure 11). Data for these gages came from the United States Geological Survey (USGS) and California Data Exchange Center (CDEC).

Table 3-1: Summary of C2VSimFG-Colusa Streamflow Calibration Gages

Stream	Stream Node	Agency	Gage Name	Period of Record
Stony Creek	3315	USGS	USGS 11388500: Stony Creek Near Hamilton City	January 1941 to September 1973
Sacramento River	3341	CDEC	CDEC ORD: Sacramento River at Ords Ferry	January 1984 to present
Sacramento River	3370	USGS	USGS 11389000: Sacramento River at Butte City, CA	October 1938 to June 1995
		CDEC	CDEC BTC: Sacramento River at Butte City	January 1998 to present
Sacramento River	3502	USGS	USGS 11389500: Sacramento River at Colusa, CA	April 1921 to present
		CDEC	CDEC COL: Sacramento River at Colusa	January 1984 to present
Sacramento River	3502	USGS	USGS 11390500: Sacramento River Below Wilkins Slough Near Grimes, CA	October 1938 to present
		CDEC	CDEC WLK: Sacramento River Below Wilkins Slough	January 1984 to present
Colusa Drain	3764	CDEC	CDEC CDR: Colusa Drain Near Hwy 20	November 1997 to present

Colusa Drain[1], as the major collector of excess irrigation flows or rice field runoff, was analyzed in the central portion of the Subbasin bounded by Glenn-Colusa Canal and Sacramento River. Most of the runoff in this region ends up flowing into Colusa Drain. Groundwater elevations in the vicinity of Colusa Drain are closely influenced by volume of runoff collected by Colusa Drain. It was necessary to increase shallow groundwater flow into the drain to lower the simulated groundwater levels to match the observed groundwater levels. This was achieved by adjusting the streambed conductance and elevation of Colusa Drain nodes in order to increase the capacity of flows into Colusa Drain. Simulated streamflows of Colusa Drain were compared to measured streamflows at CDEC CDR station in Colusa Drain.

Streamflow calibration included analysis of the streambed hydraulic conductivity and stream gain from or loss to the groundwater system. Simulated stream flows were compared with observed records and exceedance charts were also used to check the model performance when simulating high and low flows at each gage location. Calibration results for select stream gages (except Stony Creek due to lack of observation data) are included in Figure 12 through Figure 16.

[1] Also commonly referred to as the Colusa Basin Drain.

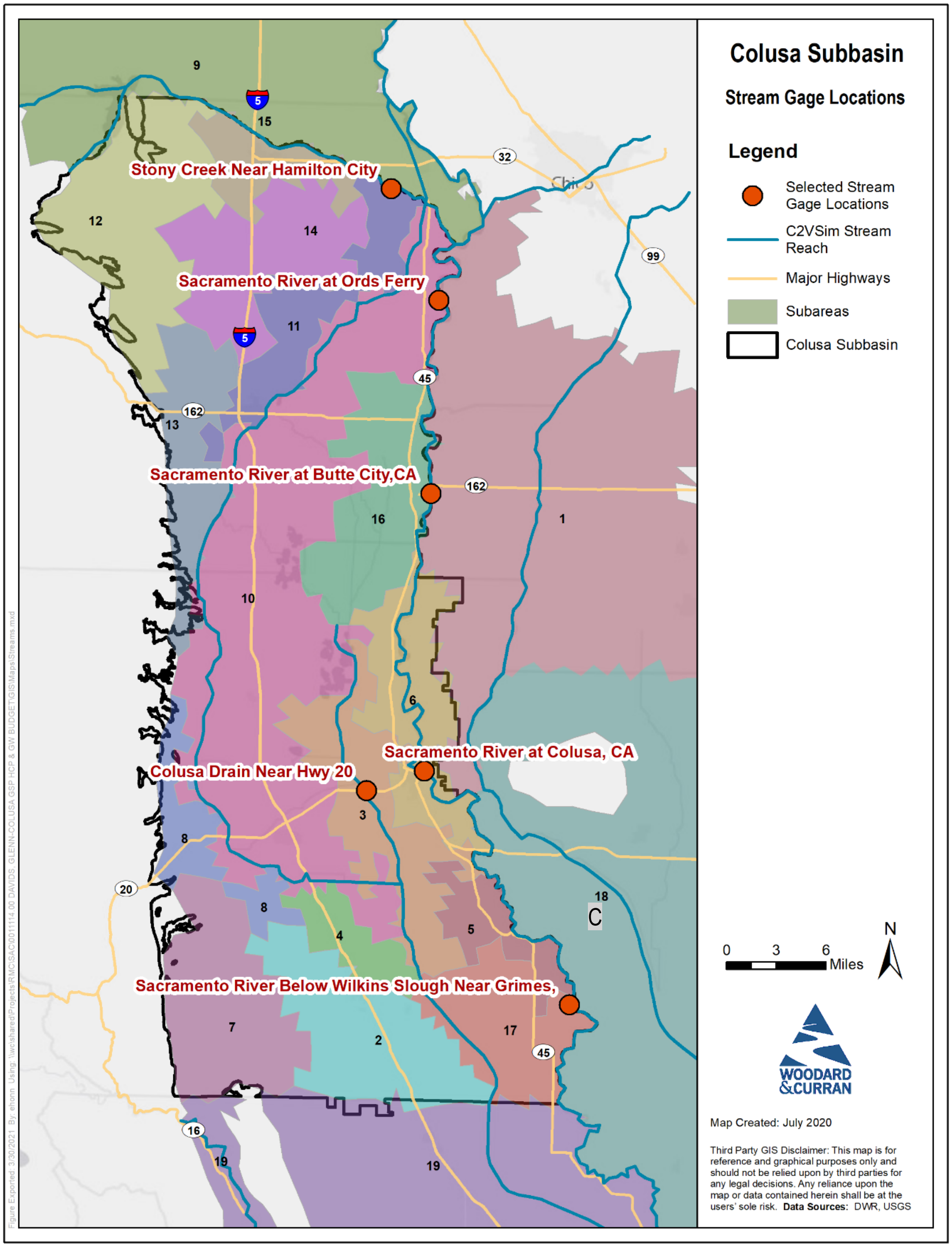


Figure 11: Calibration Stream Gage Locations

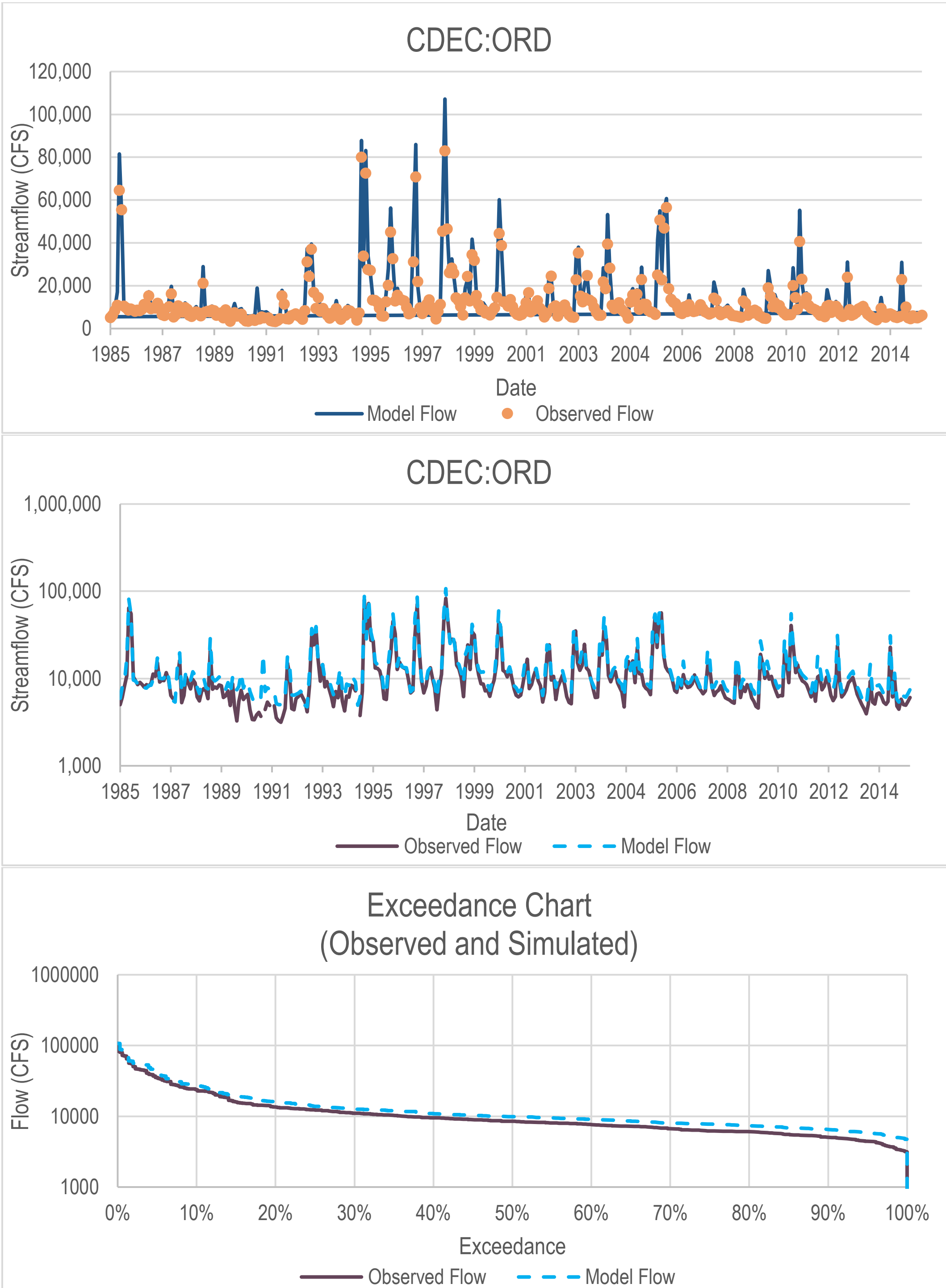


Figure 12: Streamflow Calibration for Sacramento River at Ords Ferry

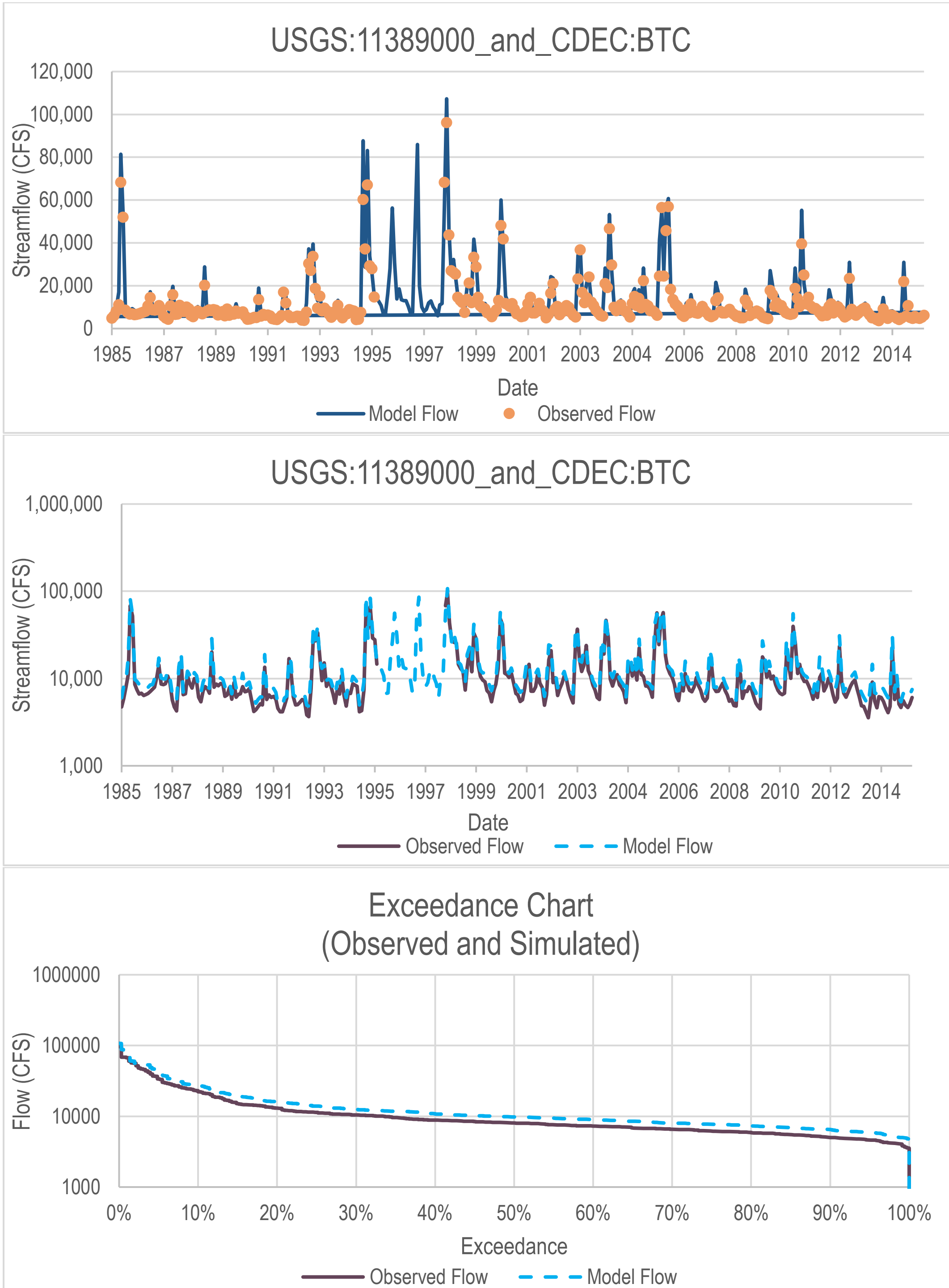


Figure 13: Streamflow Calibration for Sacramento River at Butte City

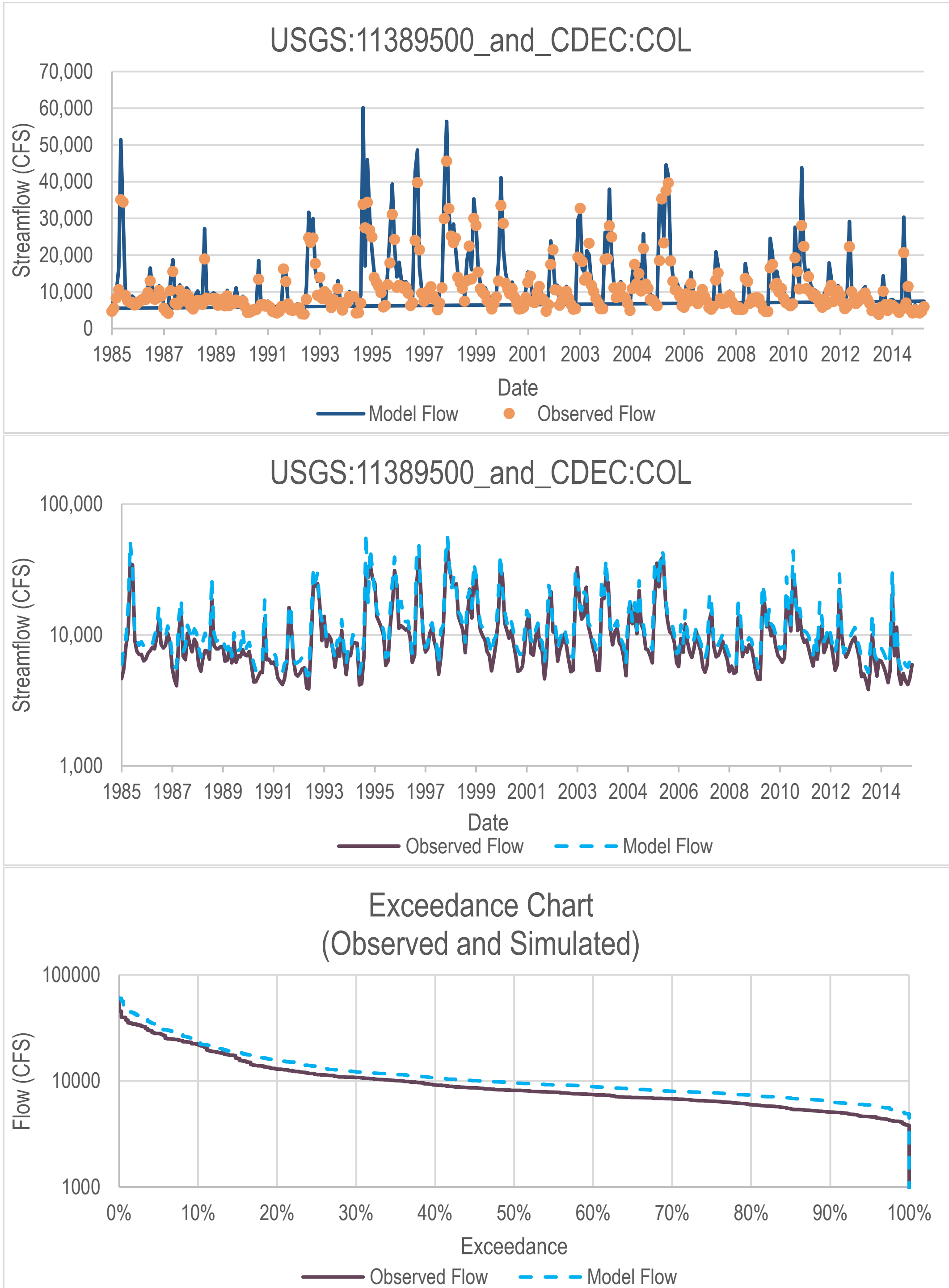


Figure 14: Streamflow Calibration for Sacramento River at Colusa

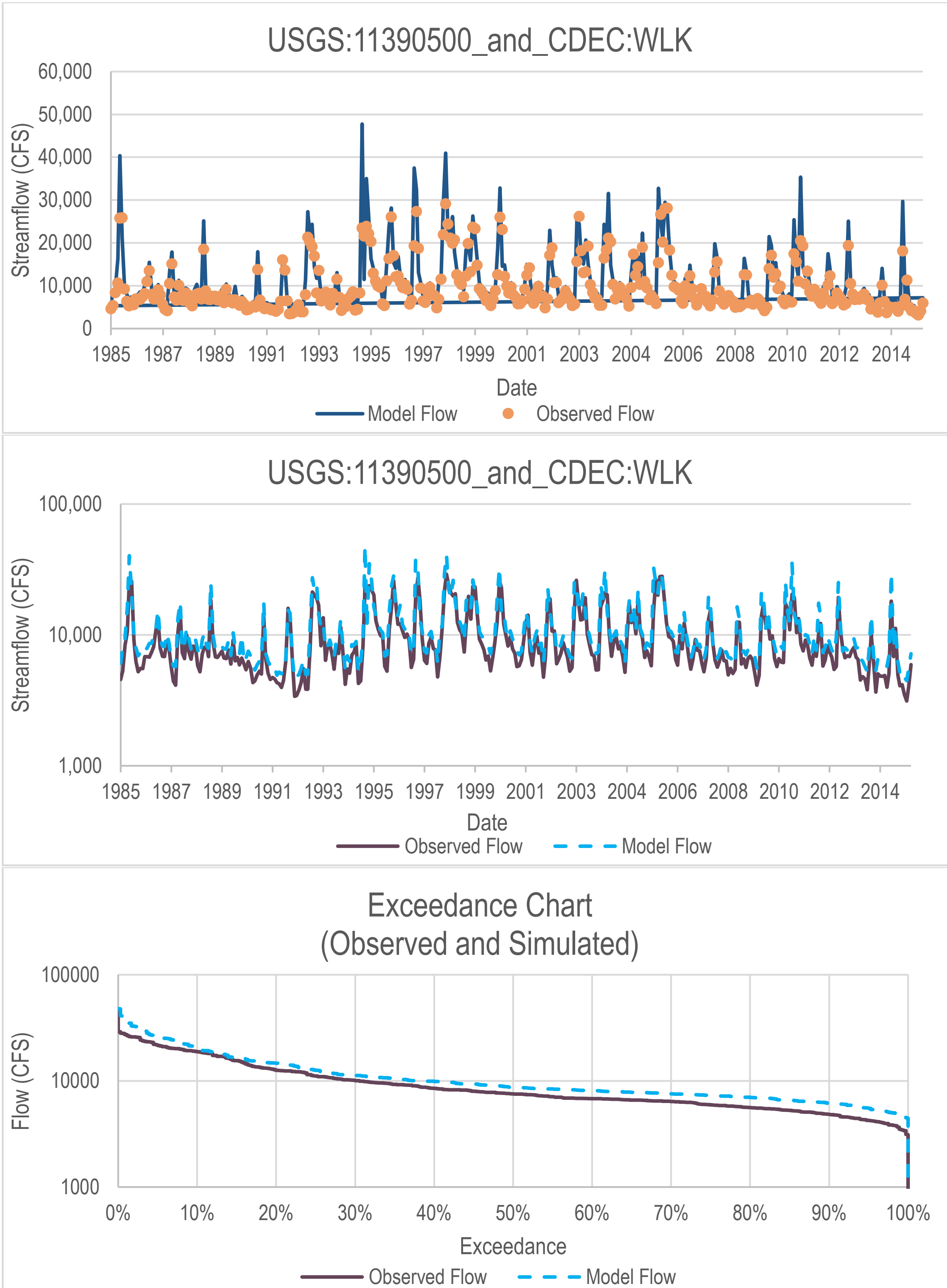


Figure 15: Streamflow Calibration for Sacramento River below Wilkins Slough

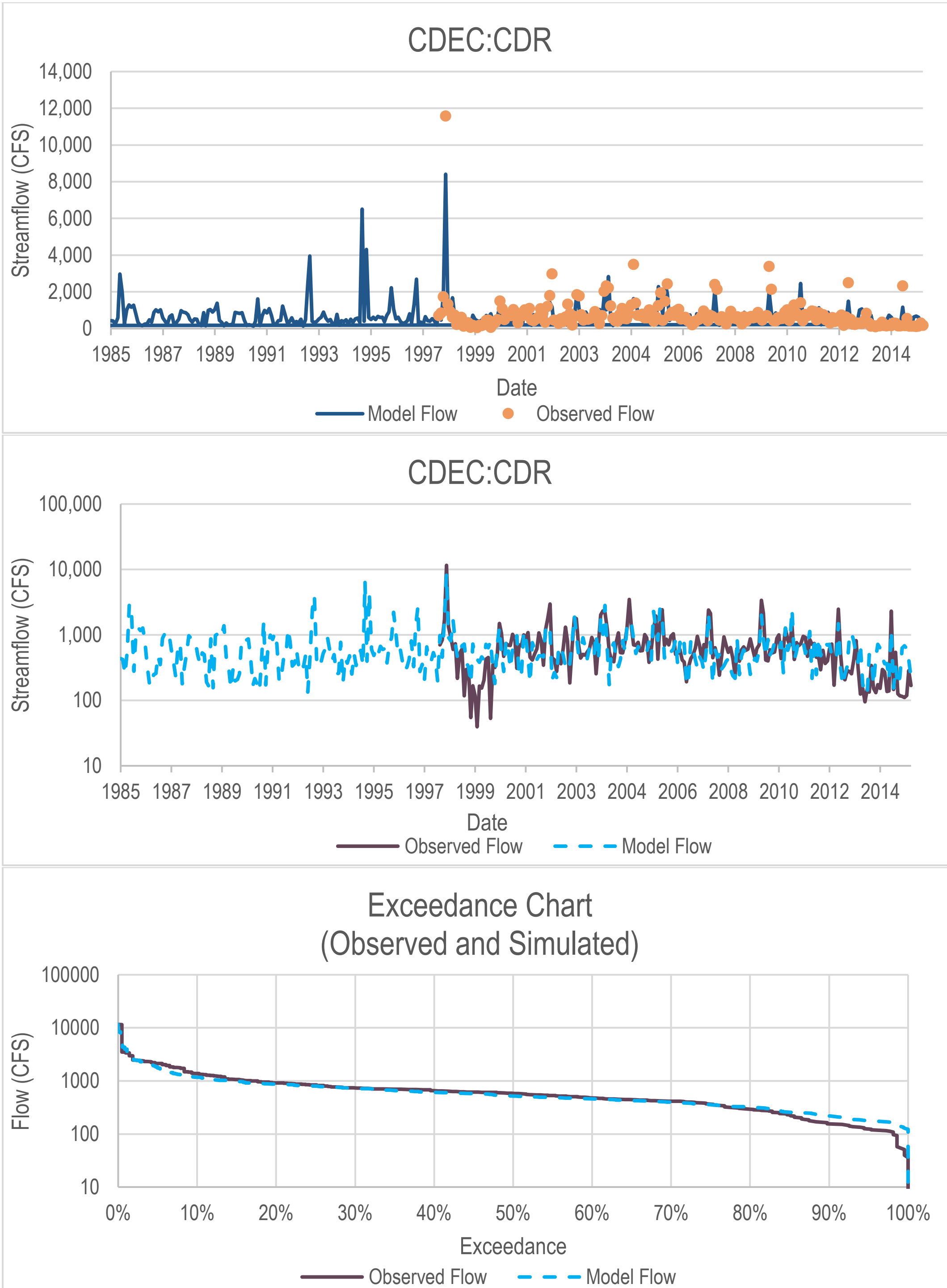


Figure 16: Streamflow Calibration for Colusa Drain near Highway 20

3.5 Groundwater Level Calibration

Like streamflow calibration, the goal of groundwater level calibration is to achieve reasonable agreement between the simulated and observed groundwater levels at the calibration wells. Within Colusa Subbasin and a five-mile buffer around the Subbasin, 740 wells were evaluated for developing groundwater observation locations to track calibration at both a regional and local scale. These wells came from DWR's California Statewide Groundwater Elevation Monitoring (CASGEM) Program and the groundwater level monitoring network for Colusa Subbasin. The calibration wells were filtered based on their period of observation records, availability of construction information (e.g., well depth and screen intervals), number of measurements between 1990 and 2015, number of spring measurements (assumed to be March, April, or May), spatial location, and active completions (for nested wells). Checks were also made on whether wells were included in Colusa Subbasin's groundwater level monitoring network, Butte Basin Groundwater Model's (BBGM) calibration wells, and C2VSimFG's calibration wells. An ultimate set of 252 wells were chosen that are representative of the long-term conditions of groundwater levels both at a local and regional scale in the area in and around the Colusa Subbasin. Calibration well locations are shown in Figure 17.

Calibration wells were assigned to a model layer based on the well top/bottom perforations or total well depth. C2VSimFG-Colusa's model layering was not altered and is described in C2VSimFG documentation. Of the 252 calibration wells, 134 were assigned to Layer 1 (unconfined aquifer), 70 to Layer 2, and 48 to Layer 3 which extends to the base of fresh water. Layer 4, which is saline water, extends down to the base of continental deposits and typically does not contain any wells.

Simulated groundwater levels were calibrated to observed levels through adjustments to model aquifer parameters including hydraulic conductivity, specific storage, and specific yield. The goal of groundwater level calibration is to achieve the maximum agreement between simulated and observed groundwater elevations at calibration wells while maintaining reasonable values for aquifer parameters. The groundwater level calibration was performed in two stages:

- The initial calibration effort was focused on the regional scale to verify hydrogeological assumptions made during model data development and confirm the accuracy of general groundwater flow directions. During this iteration, simulated groundwater elevation trends, flow directions, and groundwater gradients were compared to measured data. DWR's groundwater level contours for Fall 2015 and West Yost's draft contours for Spring 2006 and Spring 2015 were used to evaluate C2VSimFG-Colusa groundwater contours from matching time periods. Figure 18 through Figure 20 show the simulated C2VSimFG-Colusa groundwater elevation contours (developed using Layer 1 elevations at model nodes) compared to DWR contours for Fall 2015 and West Yost contours for Spring 2006 and Spring 2015. Fall 2015 also represents the end of simulation groundwater levels.
- The second stage of calibration of groundwater levels was to compare the simulated and observed groundwater levels at each calibration well. This comparison provides information on the overall model performance during the simulation period, focusing on the calibration period of water years 1990 through 2015. To minimize the effects of groundwater pumping on groundwater elevations, only spring groundwater levels (assumed to be March, April, or May) were used to calculate calibration statistics. The simulated groundwater elevations at the 252 calibration wells were compared with corresponding observed values for concurrence in long-term trends as well as spring water levels.

The results of the groundwater level calibration indicate that the C2VSimFG-Colusa reasonably simulates the long-term hydrologic responses under various hydrologic conditions in Colusa Subbasin. Calibration statistics are provided in Section 6. Figure 21 shows a selection of calibration wells with their resulting groundwater level hydrographs. Appendix A shows all calibration groundwater level hydrographs. Appendix B shows all nested well locations with their hydrographs plotted on the same plot.

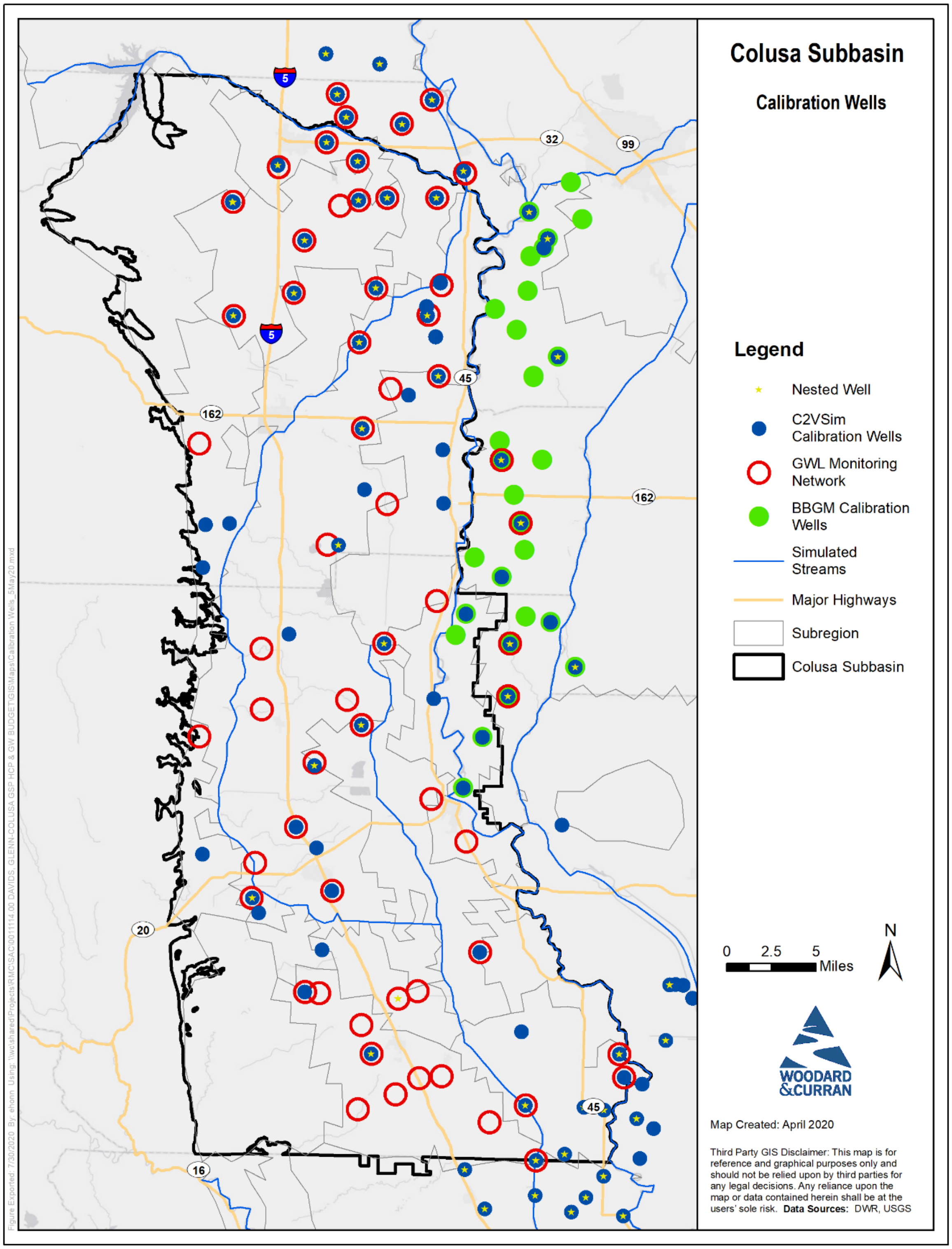


Figure 17: Groundwater Calibration Well Locations

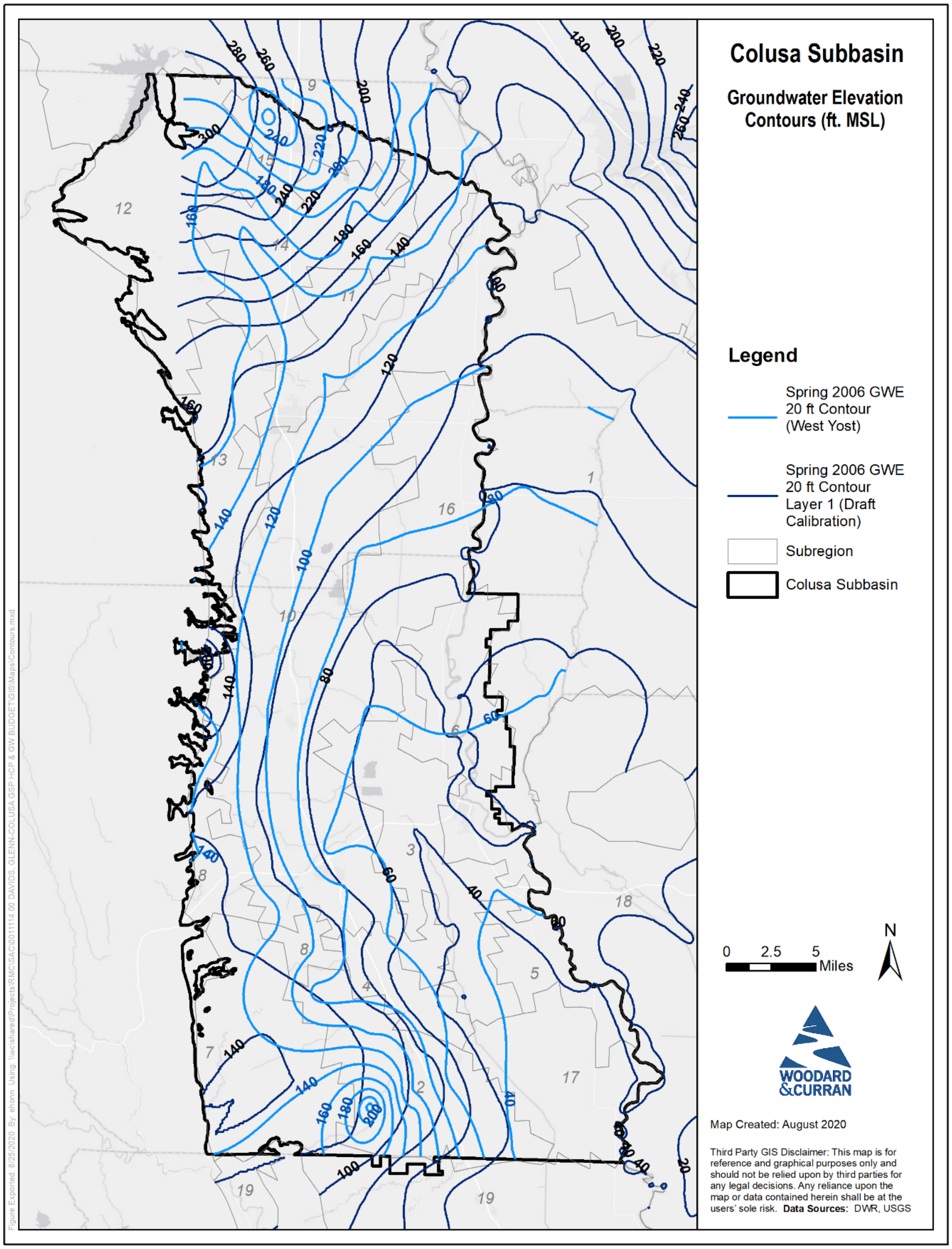


Figure 18: Spring 2006 Groundwater Elevation Contours Comparison

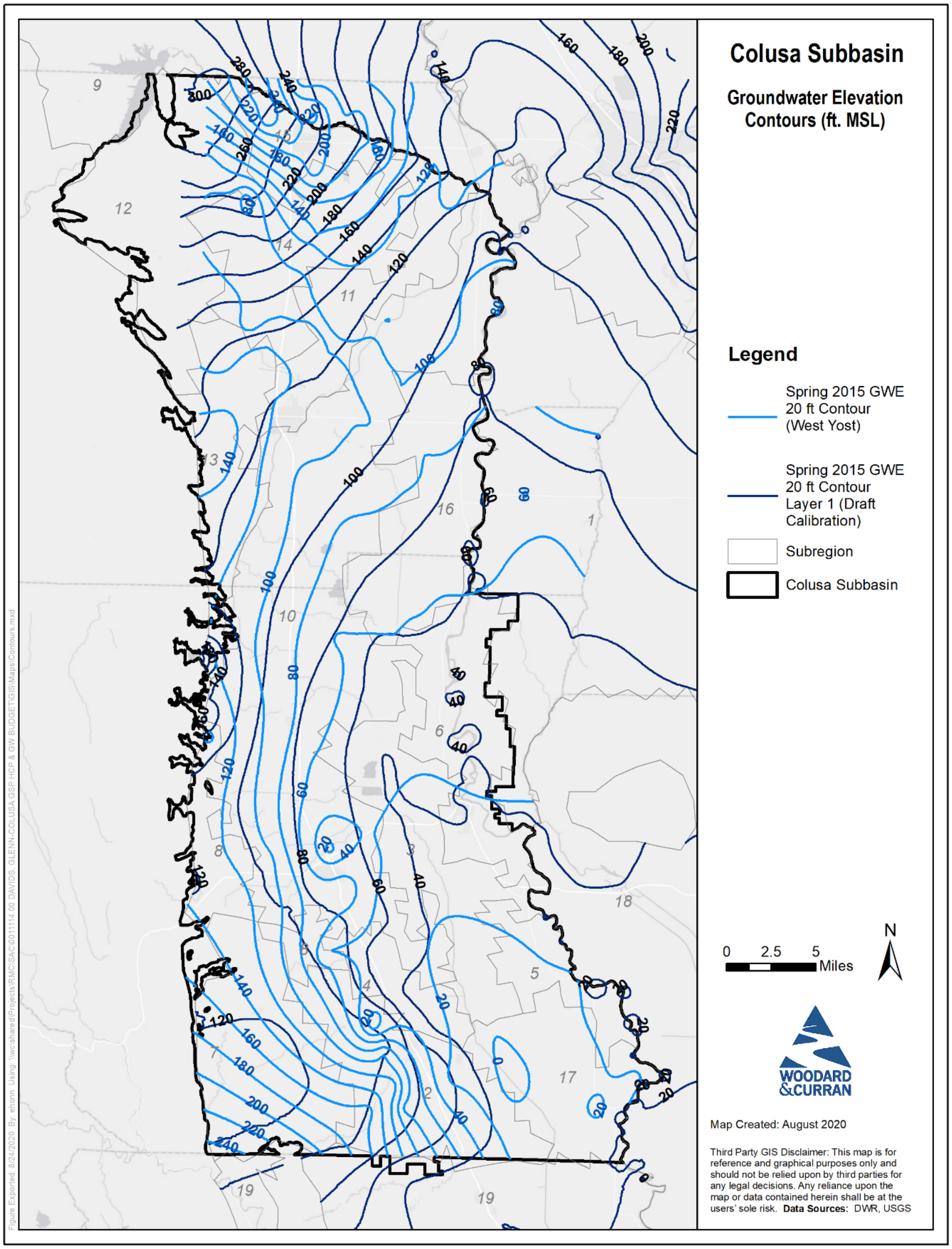


Figure 19: Spring 2015 Groundwater Elevation Contours Comparison

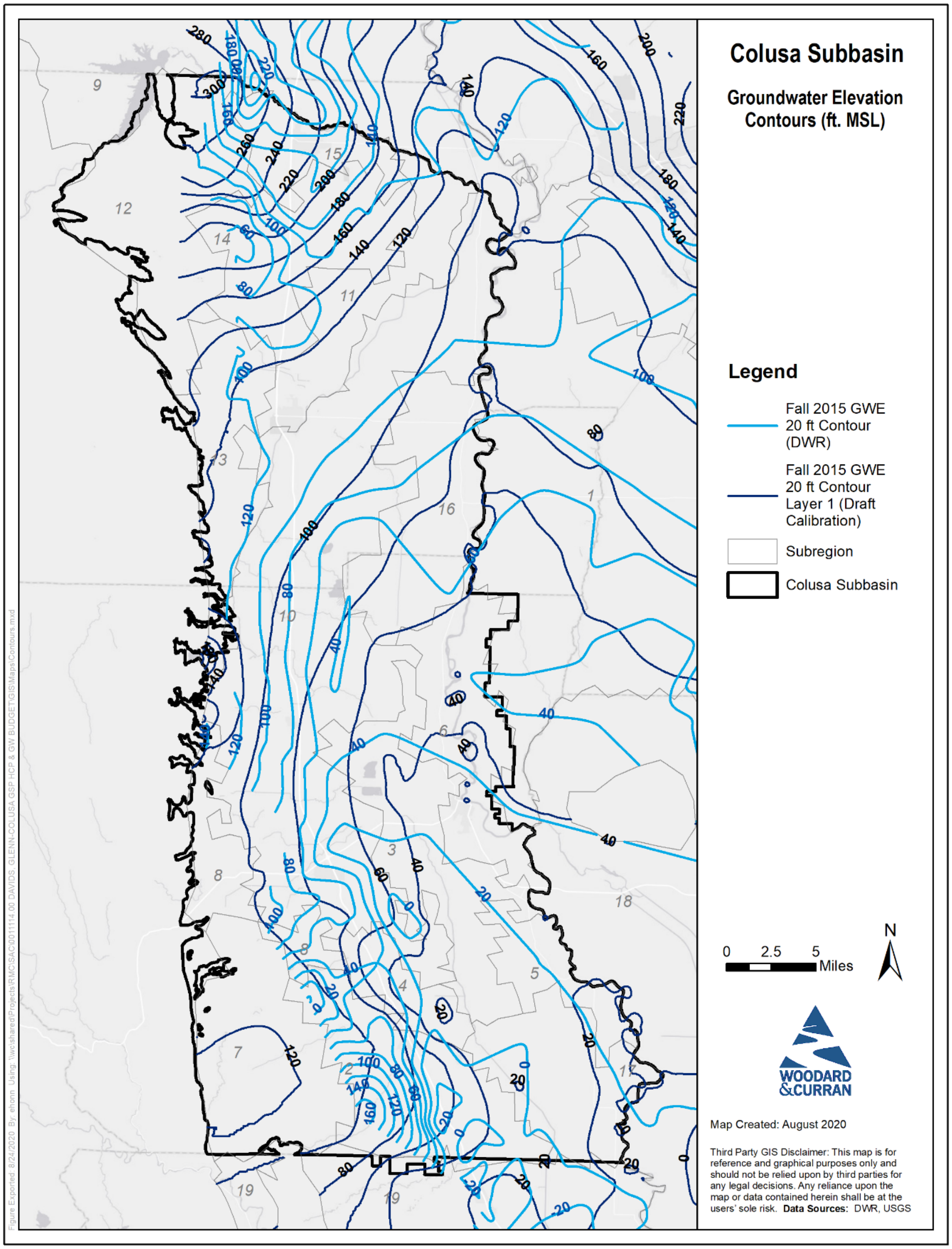


Figure 20: Fall 2015 Groundwater Elevation Contours Comparison

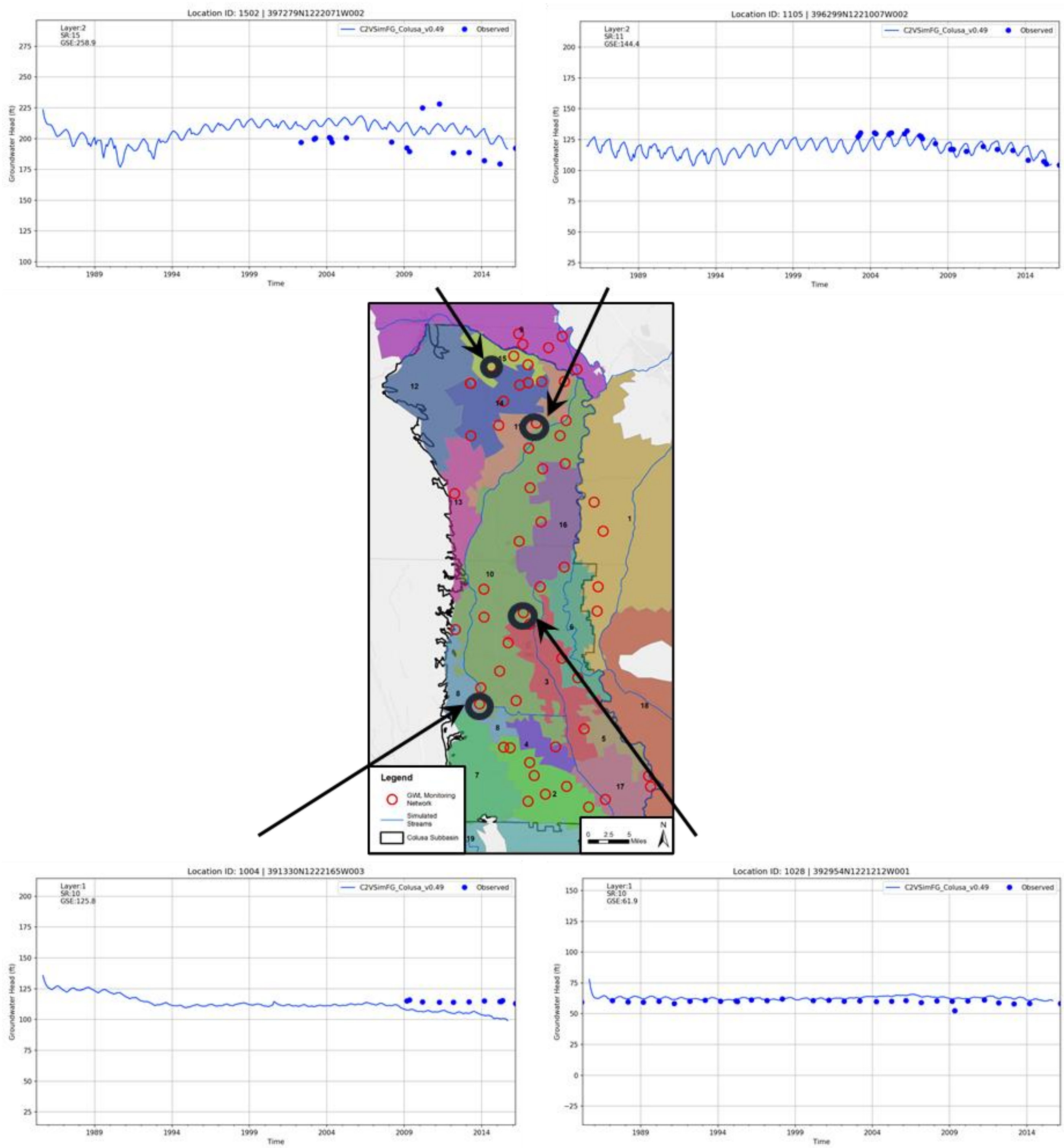


Figure 21: Selection of Groundwater Calibration Well Hydrographs

4. AQUIFER PARAMETERS AND DATA

C2VSimFG-Colusa uses a parametric grid that has been developed based on C2VSim Fine Grid (C2VSimCG) nodes and elements. The parametric grid nodes are spaced approximately 3.5 miles apart. Aquifer parameters are assigned to each parametric node and interpolated to the nearby C2VSimFG-Colusa groundwater nodes. Figure 22 shows the parametric grid nodes used to calibrate Colusa Subbasin. After regional calibration using the parametric grid, local calibration was made by changing aquifer parameters at each C2VSimFG-Colusa model node.

The initial aquifer parameters were from C2VSimFG Beta2 model. Through analysis of subregion water budgets and groundwater level hydrographs at the calibration wells, aquifer parameters were adjusted either model-wide or by node in particular areas. The parameters resulting from the calibration process are listed in Table 4-1.

Table 4-1: Range of Calibrated Aquifer Parameter Values

Layer	Horizontal Hydraulic Conductivity (ft/day)	Specific Storage (1/ft)	Specific Yield (-)	Aquifer Vertical Hydraulic Conductivity (ft/day)
1	1 - 218	1.00E-05 – 1.00E-04	0.06 - 0.11	0.02 – 0.69
2	2 - 215	1.00E-05 – 1.00E-04	0.06 - 0.11	0.02 – 0.67
3	2 - 127	9.00E-6 - 1.00E-04	0.06 - 0.11	0.02 – 0.48
4	5 - 49	1.00E-05 – 1.00E-04	0.06 - 0.11	0.14 – 1.05

The horizontal hydraulic conductivity in the C2VSimFG-Colusa varies across the horizontal direction and across model layers. The fully calibrated values for model layers 1 through 4 range from 1 ft/day to 218 ft/day, and the spatial distribution is represented in Figure 23 through Figure 26.

The aquifer vertical hydraulic conductivity facilitates the separation between the unconfined and confined aquifers within the C2VSimFG-Colusa and controls the flow of groundwater between the materials making up the different modeled aquifer layers. Analysis of the groundwater levels in each layer for calibration wells (i.e., nested calibration wells spanning multiple layers) determined that greater separation between layers was needed in some areas and resulted in a range of 0.02 ft/day to 1.05 ft/day across the model layers.

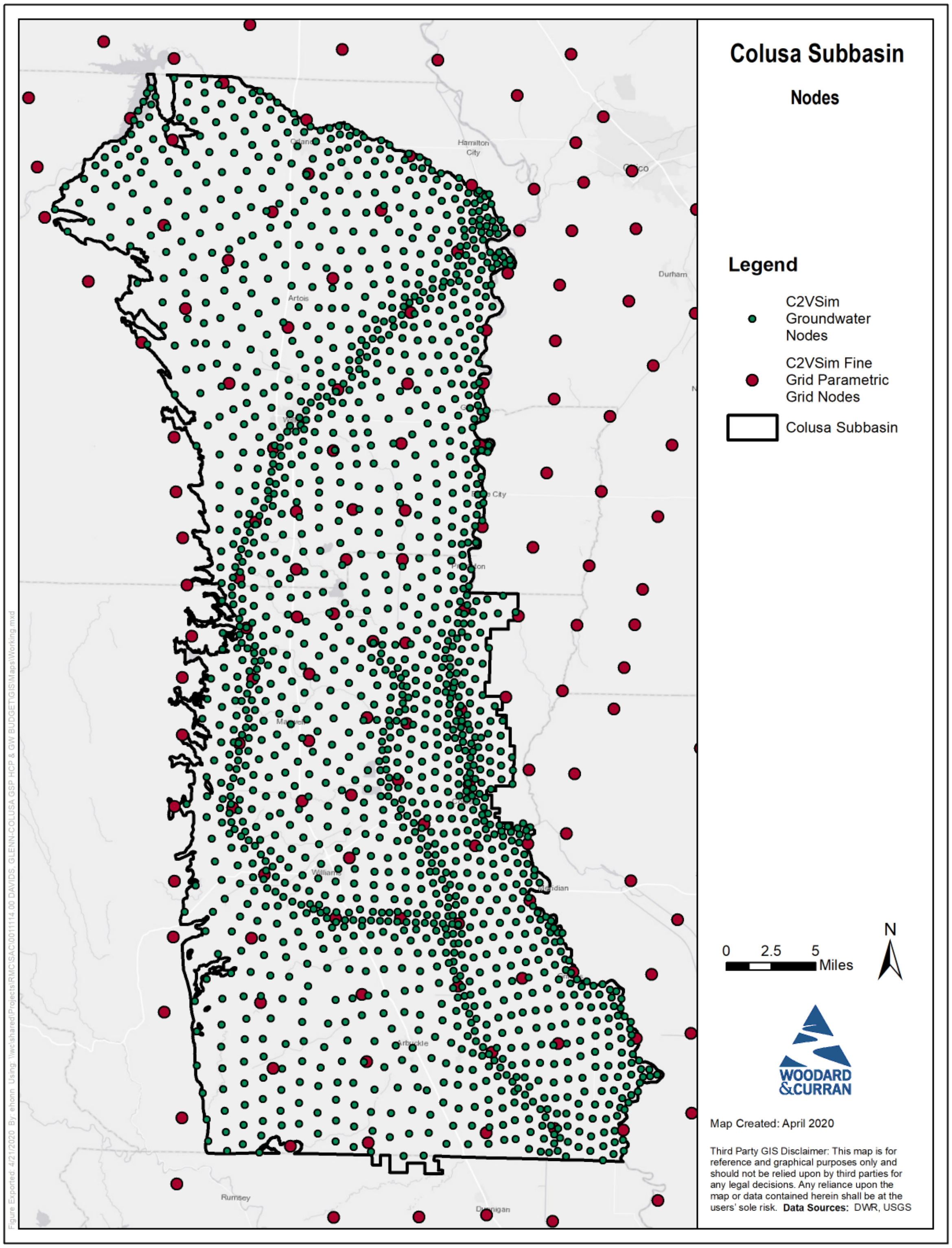


Figure 22: Parametric Grid Nodes within Colusa Subbasin and Five-Mile Buffer Area

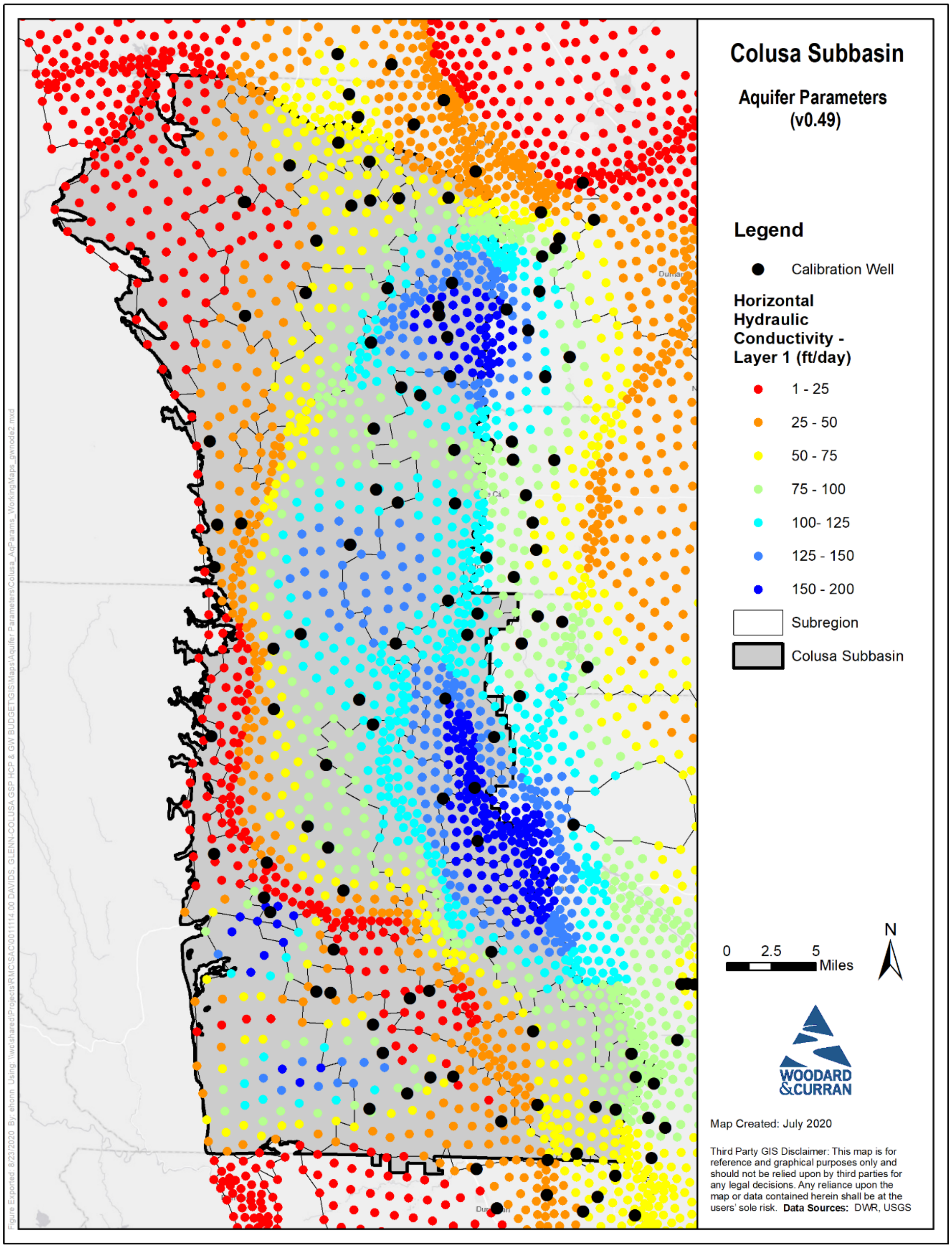


Figure 23: Calibrated Layer 1 Horizontal Hydraulic Conductivity (ft/day)

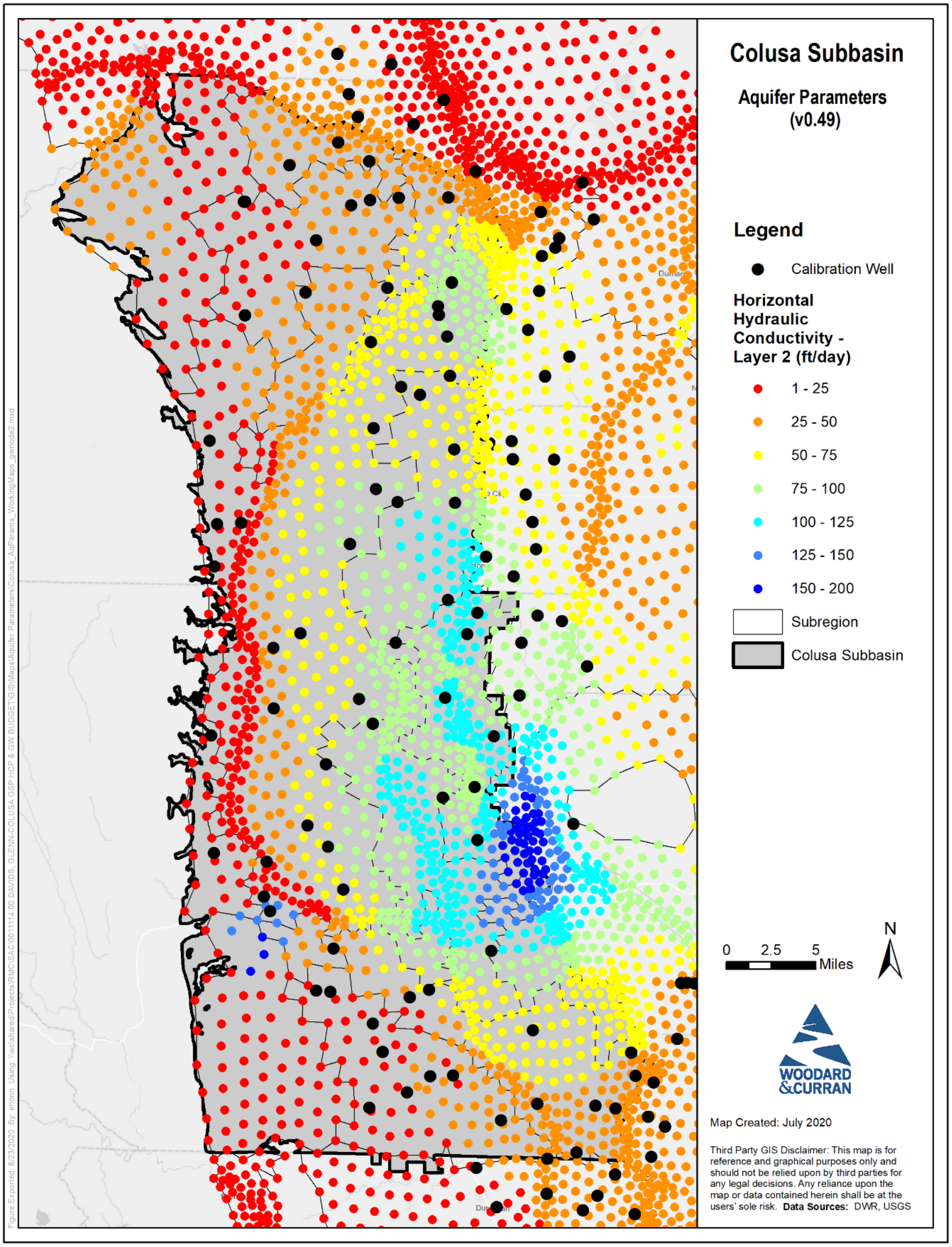


Figure 24: Calibrated Layer 2 Horizontal Hydraulic Conductivity (ft/day)

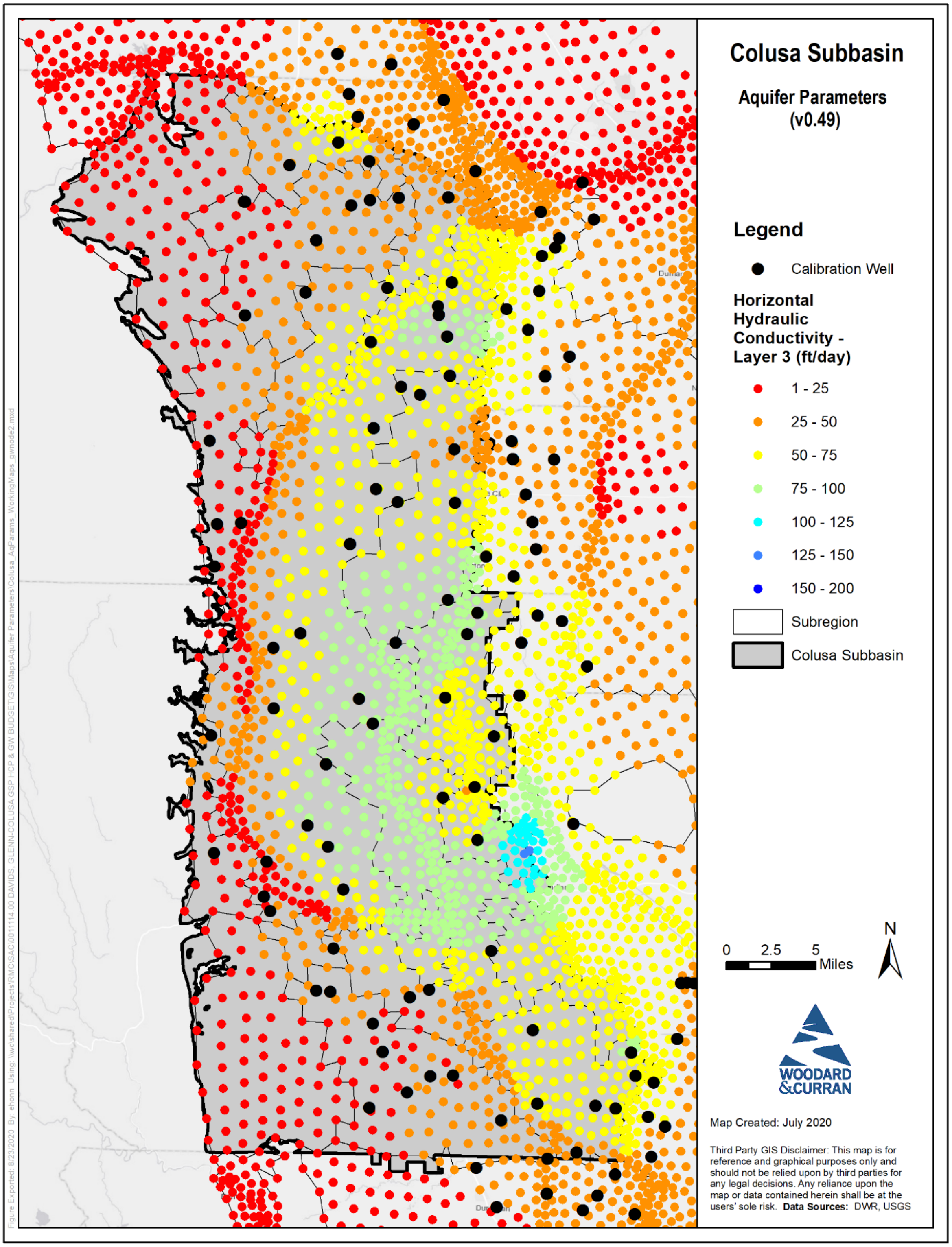


Figure 25: Calibrated Layer 3 Horizontal Hydraulic Conductivity (ft/day)

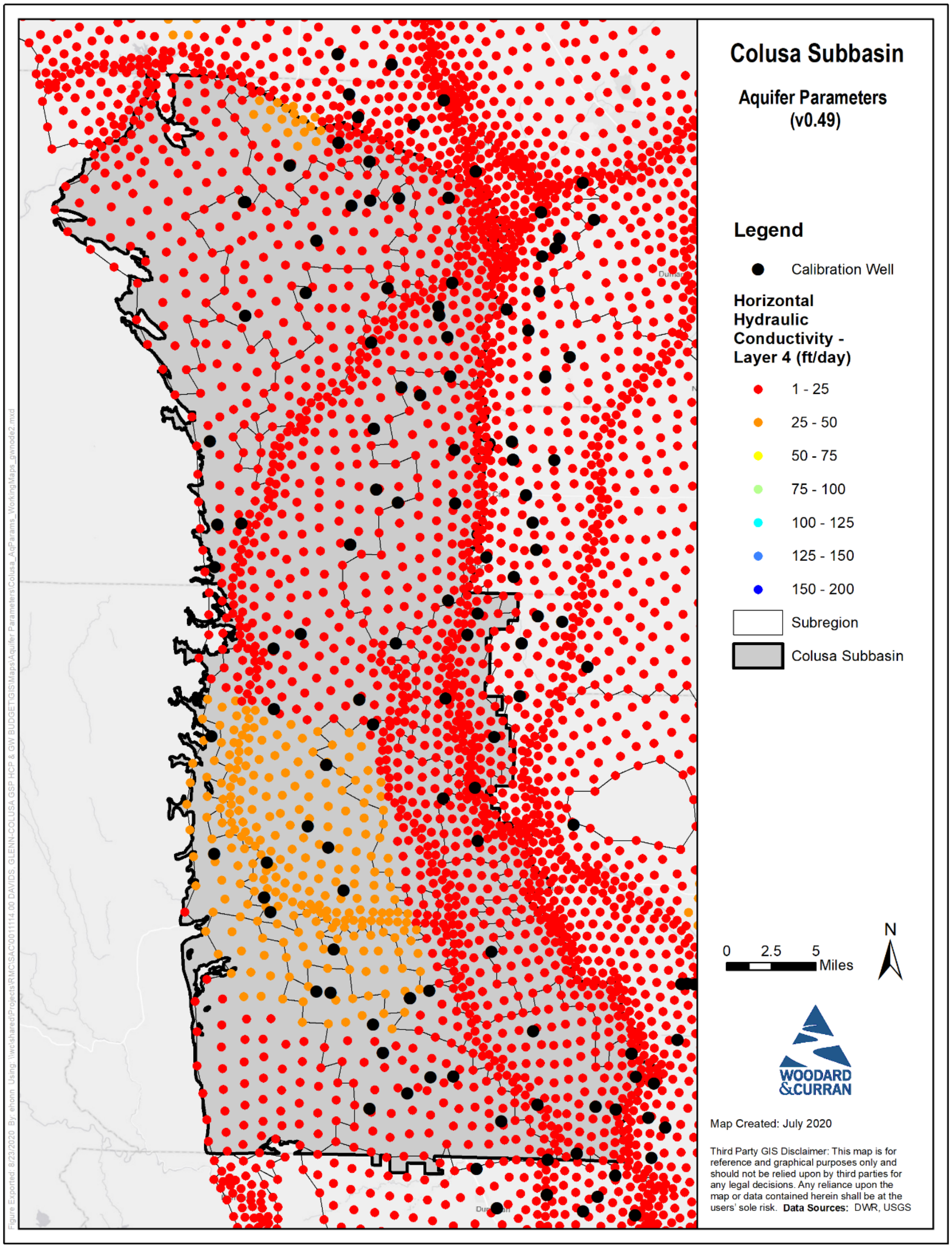


Figure 26: Calibrated Layer 4 Horizontal Hydraulic Conductivity (ft/day)

5. CALIBRATION TARGETS AND STATISTICS

The C2VSim-Colusa simulated groundwater levels were evaluated to meet the American Standard Testing Method (ASTM) standards. The "Standard Guide for Calibrating a Groundwater Flow Model Application" (ASTM D5981) states that "the acceptable residual should be a small fraction of the head difference between the highest and lowest heads across the site." The residual is defined as the simulated head minus the observed head. An analysis of all observed groundwater levels within the model area indicated the presence of 250+ feet of groundwater level changes in Colusa basin. Assuming 10 percent as the small fraction, the acceptable residual level would be about 25 feet. Calibration goals for the groundwater level residuals were set such that no more than 10 percent of the observed groundwater levels would exceed the acceptable residual level of 25 feet.

- 69% of observed groundwater levels are within +/- 10 feet of its respective simulated values
- 81% of observed groundwater levels are within +/- 15 feet of its respective simulated values
- 92% of observed groundwater levels are within +/- 25 feet of its respective simulated values

The residual histogram for the monitoring wells selected to be part of the calibration dataset for C2VSimFG-Colusa is shown in Figure 27. Additionally, a scatter plot of simulated versus observed values is shown in Figure 28.

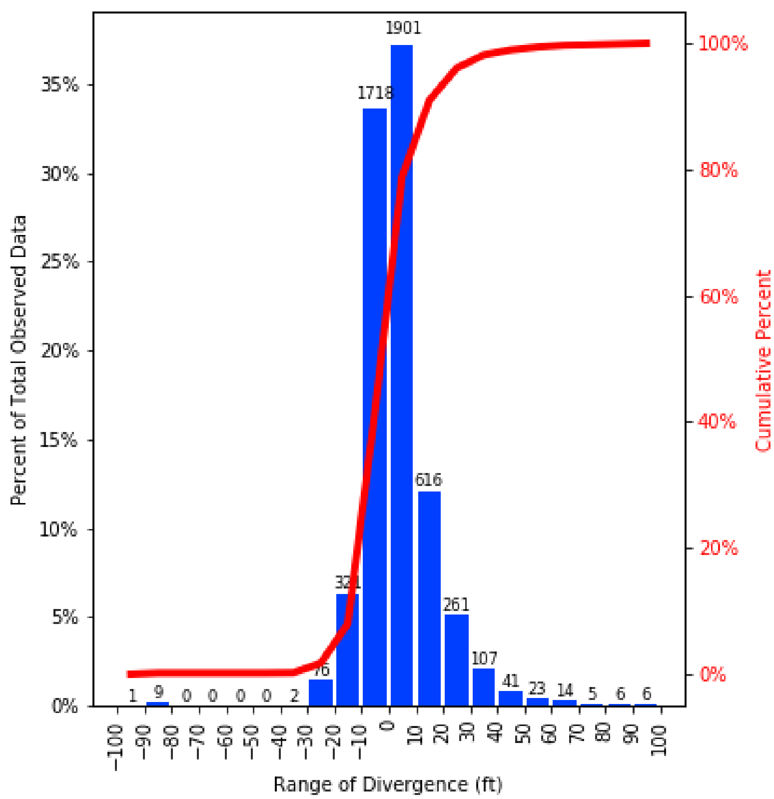


Figure 27: Residual Histogram of C2VSimFG-Colusa

Note: Observed water levels only for Spring (March-May) WY 1986-2015

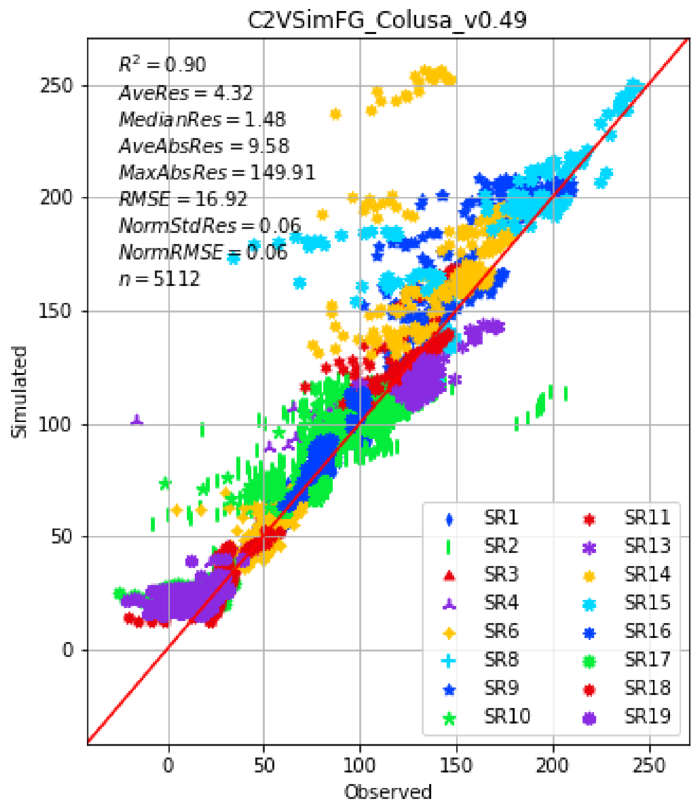


Figure 28: Scatter Plot of C2VSimFG-Colusa

Note: Statistics calculated using only observed water levels for Spring (March-May) WY 1986-2015

6. SENSITIVITY ANALYSIS

Sensitivity analysis is an important step in the model development process. It is defined as "the study of distribution of dependent variables (e.g., groundwater elevations in a groundwater model) in response to changes in the distribution of independent variables, initial conditions, boundary conditions, and physical parameters" (AWWA, 2001). In general, a sensitivity analysis of an integrated groundwater and surface water model is performed for the following purposes:

- To test the robustness and stability of the model by establishing tolerance within which the model parameters can vary without significantly changing the model results;
- To understand the impact of inaccuracies in input data on model results (e.g., how model results can change because of a 10% error in the estimation of agricultural pumping); and
- To develop an understanding of the relative sensitivity of the components of the hydrologic cycle and data, so that an effective data collection and monitoring plan can be developed.

A sensitivity analysis was performed using the C2VSimFG-Colusa to assess the sensitivity of model results to specific model parameters. Adjustments of aquifer parameters, and analyses of the resulting calibration well residuals, was performed across all calibration wells for various model runs. Analysis performed on parameters indicated that the model was fairly sensitive to horizontal hydraulic conductivity, specific yield, and less sensitive to the other parameters (Figure 29).

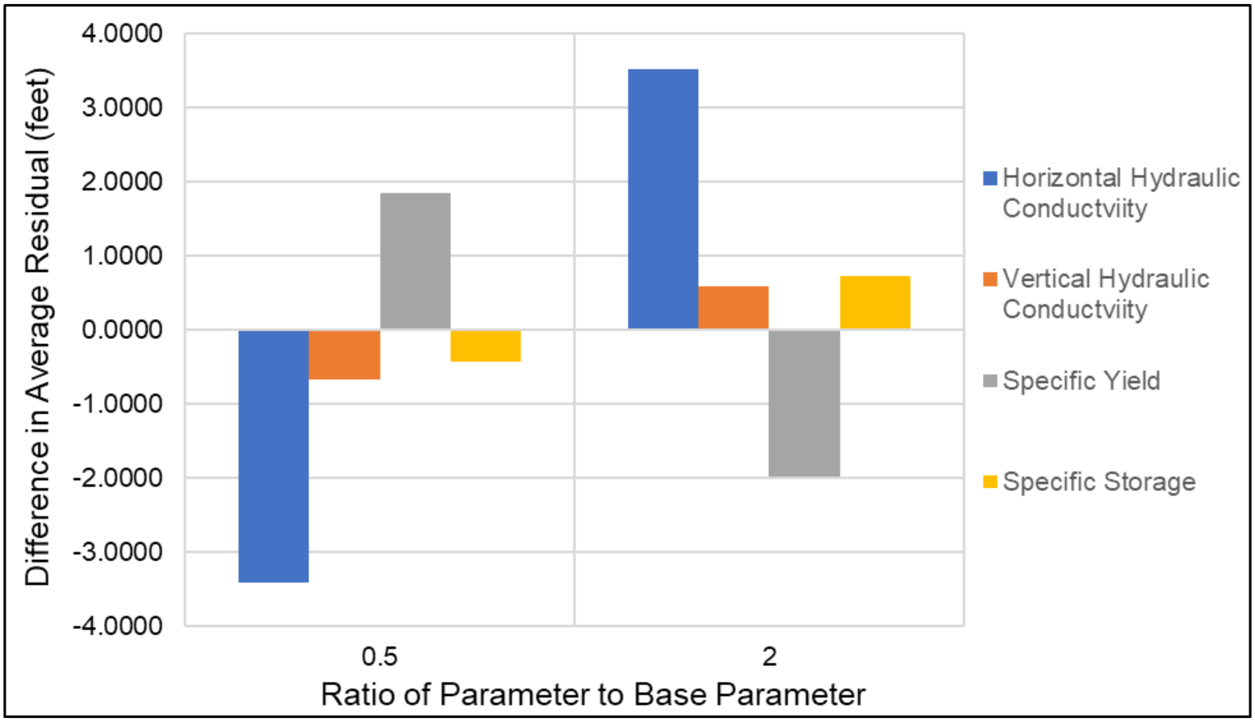


Figure 29: Difference in Calibration Well Residuals due to Changes in Aquifer Parameters

7. HISTORICAL WATER BUDGET RESULTS

Following all refinements, enhancements, and calibration procedures described in this technical memorandum, the C2VSimFG-Colusa model was used to quantify the historical water budget for the Colusa Subbasin. The historical water budget provides a foundation for understanding how the Subbasin has behaved historically, as well as insight into historical groundwater conditions (e.g. observed water levels) and insight into the sustainability of past groundwater management. In accordance with the GSP Regulations, the historical water budget covers a period of at least ten years (26-year period from 1990 to 2015).

A summary of the historical water budget results are presented below for the Subbasin land and surface water system (SWS), and for the Subbasin groundwater system (GWS). Additional information and discussion of the historical water budget is provided in the GSP, including an evaluation of the availability and reliability of historical surface water supplies per the GSP regulations. It is anticipated that the water budgets will be refined and updated over time as part of GSP implementation in the basin.

7.1 Historical Water Budget: Land and Surface Water System

Average annual inflows and outflows to and from the Colusa Subbasin land and surface water system were estimated to be nearly 13.83 million acre-feet (MAF) per year. Average annual values are shown in Figure 30 and Table 7-1.

Primary inflows to the land and SWS include surface water inflows (11,747 TAF/yr), precipitation (1,210 TAF/yr), groundwater pumping (502 TAF/yr), and stream gains from groundwater (i.e., stream accretions) (366 TAF/yr). Surface water inflows predominantly enter the Colusa Subbasin along the Sacramento River, where the river is wholly contained within the subbasin, flowing into the Subbasin south of the town of Princeton and out near of the City of Colusa. Additional surface water inflows occur through diversions from outside the Subbasin to land within the Subbasin (1,168 TAF/yr), and through overland runoff of precipitation from upslope small watersheds to the Subbasin (78 TAF/yr).

Primary outflows from the land and SWS include surface water outflows (11,302 TAF/yr), evapotranspiration (1,740 TAF/yr), deep percolation from land surfaces and small watersheds (441 TAF/yr), and seepage from streams, canals, and drains (345 TAF/yr). Surface water outflows include outflows along the Sacramento River, outflows to Sutter Bypass at Colusa Weir, drainage from the Colusa Basin Drain, overland runoff of precipitation and applied water to downslope lands, and other outflows to boundary streams. Evapotranspiration is primarily from agricultural lands, but also from managed wetlands, canal evaporation, native vegetation, and urban and industrial lands.

The average annual change in SWS storage is negligible compared to other inflows and outflows due to similar soil moisture content in the root zone, on average, across water years.

Figure 31 and Table 7-2 summarize the applied water computed by the C2VSimFG-Colusa model for the historical water budget period, according to the data sources and refinements describe in this technical memorandum. The total applied water includes surface water deliveries and groundwater pumping applied to all water use sectors in the Colusa Subbasin (agricultural, managed wetlands, and urban and industrial lands). Total surface water deliveries are computed based on the refined diversions data described above, averaging just over 1,260 TAF/yr (approximately 72 percent of the total applied water). Total groundwater pumping averages just over 500 TAF/yr (approximately 28 percent of the total applied water).

Figure 32 and Table 7-3 summarize the total groundwater recharge from the surface water system in the Colusa Subbasin. More than half of all groundwater recharge comes from deep percolation of applied water and precipitation on land surfaces, averaging 439 TAF/yr over the 1990-2015 historical water budget period (56 percent of total groundwater recharge). Other major contributors to groundwater recharge are stream seepage, and canal seepage. Stream seepage averaged 206 TAF/yr in 1990-2015 (26 percent of total groundwater recharge), while canal seepage averaged 139 TAF/yr over the same period (18 percent of total groundwater recharge). Percolation of runoff from small watersheds has contributed another 2 TAF/yr (less than one percent of total groundwater recharge).

Additional details describing the historical land and surface water system water budget are provided in the Colusa Subbasin GSP Appendix A.

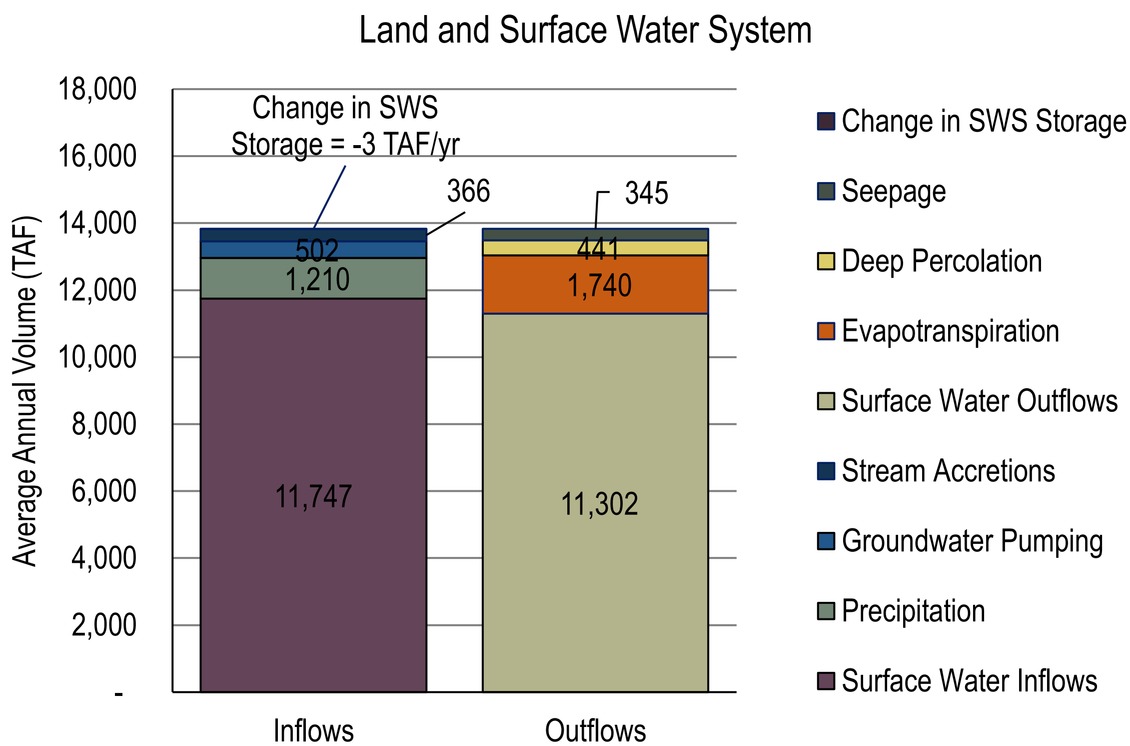


Figure 30: Historical Water Budget: Land and Surface Water System Summary.

Table 7-1. Historical Water Budget: Land and Surface Water System Summary.

Land and Surface Water System Flow Direction	Water Budget Component	Average Volume (TAF per year, 1990-2015)[1]
Inflows	Surface Water Inflows	11,747
	Precipitation	1,210
	Groundwater Pumping	502
	Stream Accretions	366
Total Inflows		***13,825***
Outflows	Surface Water Outflows	11,302
	Evapotranspiration	1,740
	Deep Percolation[2]	441
	Seepage[3]	345
Total Outflows		***13,828***
Change in SWS Storage (Inflows – Outflows)		***-3***

[1] Volumes rounded to 1,000 AF.
[2] Deep percolation includes deep percolation of applied water, deep percolation of precipitation, and small watershed percolation.
[3] Seepage includes stream, canal, and drain seepage to groundwater.

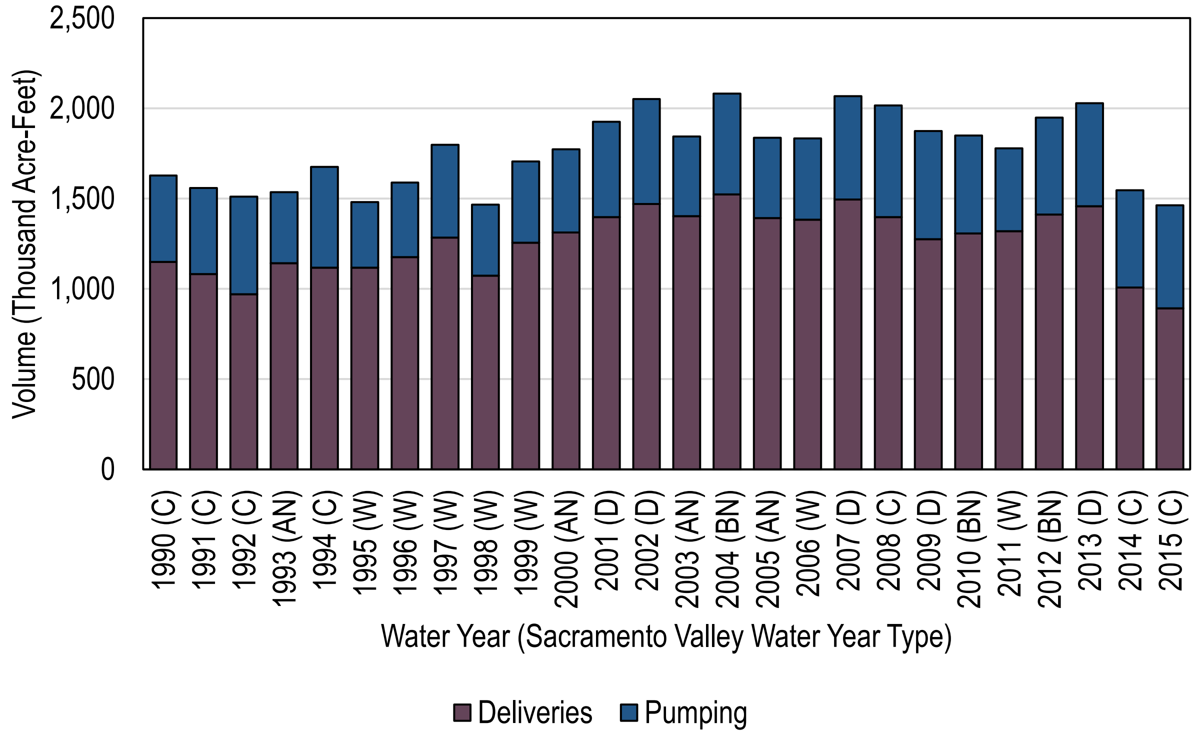


Figure 31. Historical Water Budget: Applied Water in All Water Use Sectors.

Table 7-2. Historical Water Budget: Average Annual Applied Water in All Water Use Sectors (TAF/yr, rounded).

Year Type	Number of Years	Surface Water Deliveries	Groundwater Pumping	Total Applied Water
W	7	1,230	435	1,664
AN	4	1,313	435	1,748
BN	3	1,414	546	1,960
D	5	1,419	570	1,990
C	7	1,088	540	1,628
Annual Average (1990-2015)	26	1,262	502	1,764

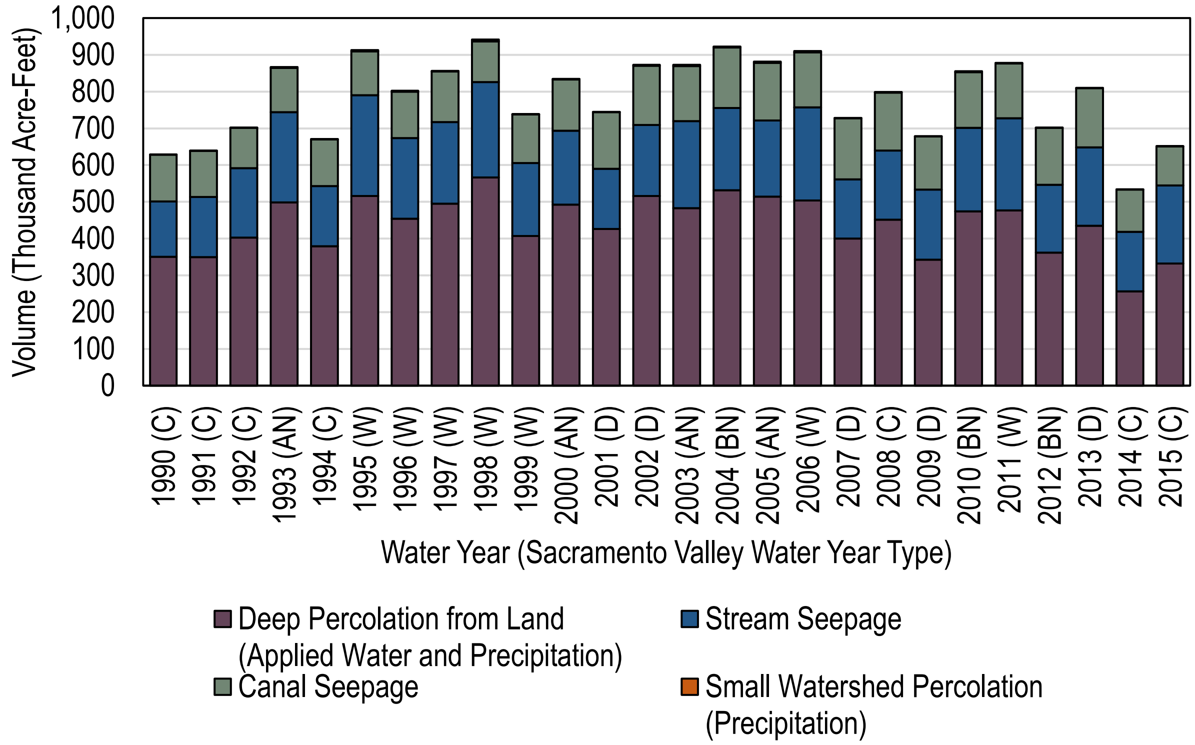


Figure 32. Historical Water Budget: Groundwater Recharge from the Land and Surface Water System.

Table 7-3. Historical Water Budget: Average Annual Groundwater Recharge from the Land and Surface Water System (TAF/yr, rounded).

Year Type	Number of Years	Deep Percolation: Deep Percolation from Land (From Applied Water and Precipitation)	Deep Percolation: Small Watershed Percolation (From Precipitation)	Seepage: Stream Seepage	Seepage: Canal and Drain Seepage	Total Groundwater Recharge
W	7	489	3	239	132	863
AN	4	497	3	222	142	864
BN	3	456	2	212	157	827
D	5	424	1	184	158	767
C	7	360	1	175	124	661
Annual Average (1990-2015)	26	439	2	206	139	786

7.2 Historical Water Budget: Groundwater System

Average annual inflows and outflows to and from the Colusa Subbasin groundwater system are shown in Figure 33 and Table 7-4.

Primary inflows to the GWS include deep percolation from land surfaces and small watersheds (441 TAF/yr), seepage from streams, canals, and drains (345 TAF/yr), and subsurface inflows from adjacent subbasins (200 TAF/yr).

Primary outflows from the GWS include groundwater pumping (502 TAF/yr), stream gains from groundwater (i.e., stream accretions) (366 TAF/yr), and subsurface outflows to adjacent subbasins (146 TAF/yr). On average, subsurface outflows of groundwater from the Colusa Subbasin exceed subsurface gains of groundwater to the Colusa Subbasin.

The average annual change in storage is -28 TAF/yr over the 1990-2015 historical water budget period. This indicates that on average more groundwater leaves the Colusa Subbasin than enters, resulting in an average net reduction in groundwater stored in the Subbasin. The majority of groundwater inflows and outflows are exchanged directly with the land and SWS overlying the Colusa Subbasin GWS. Figure 34 summarizes the annual change in storage and the cumulative change in storage in the Colusa Subbasin GWS over the historical water budget period.

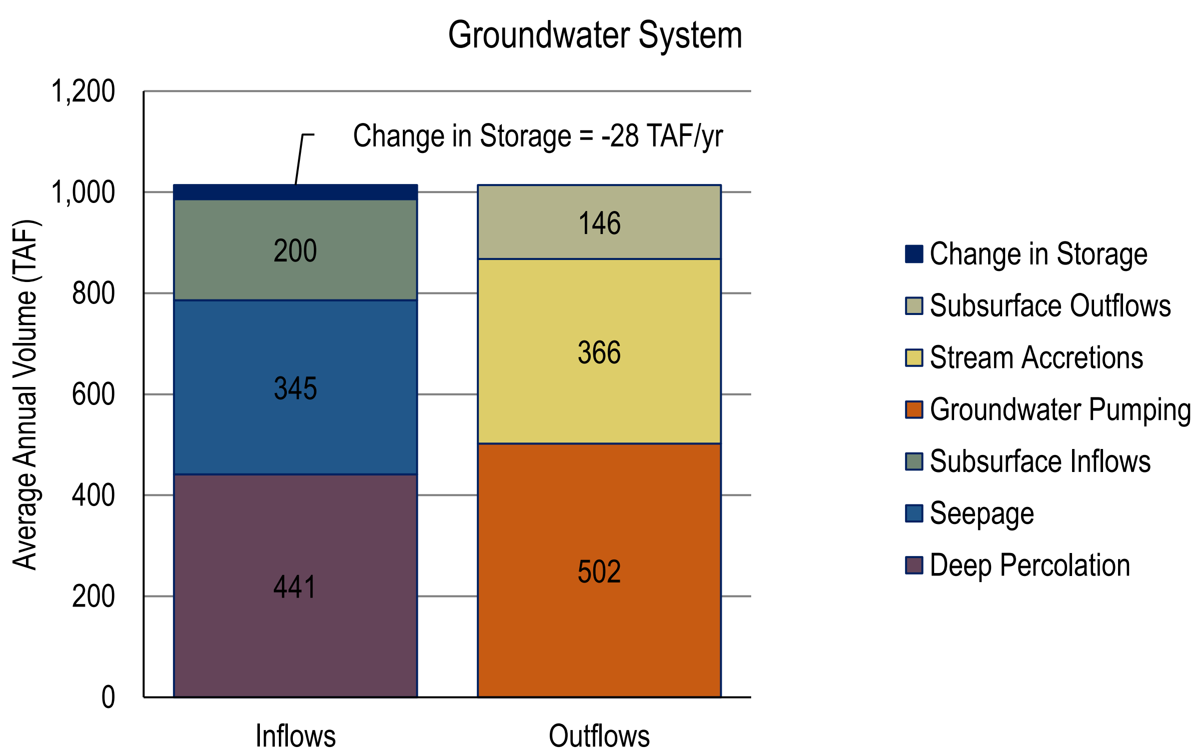


Figure 33. Historical Water Budget: Groundwater System Summary.

Table 7-4. Historical Water Budget: Groundwater System Summary.

Groundwater System Flow Direction	Water Budget Component	Average Volume (TAF per year, 1990-2015)[1]
Inflows	Deep Percolation[2]	441
	Seepage[3]	345
	Subsurface Inflows	200
Total Inflows		***986***
Outflows	Groundwater Pumping	502
	Stream Accretions	366
	Subsurface Outflows	146
Total Outflows		***1,014***
Change in Storage (Inflows – Outflows)		***-28***

[1] Volumes rounded to 1,000 AF.
[2] Deep percolation includes deep percolation of applied water, deep percolation of precipitation, and small watershed percolation.
[3] Seepage includes stream, canal, and drain seepage to groundwater.

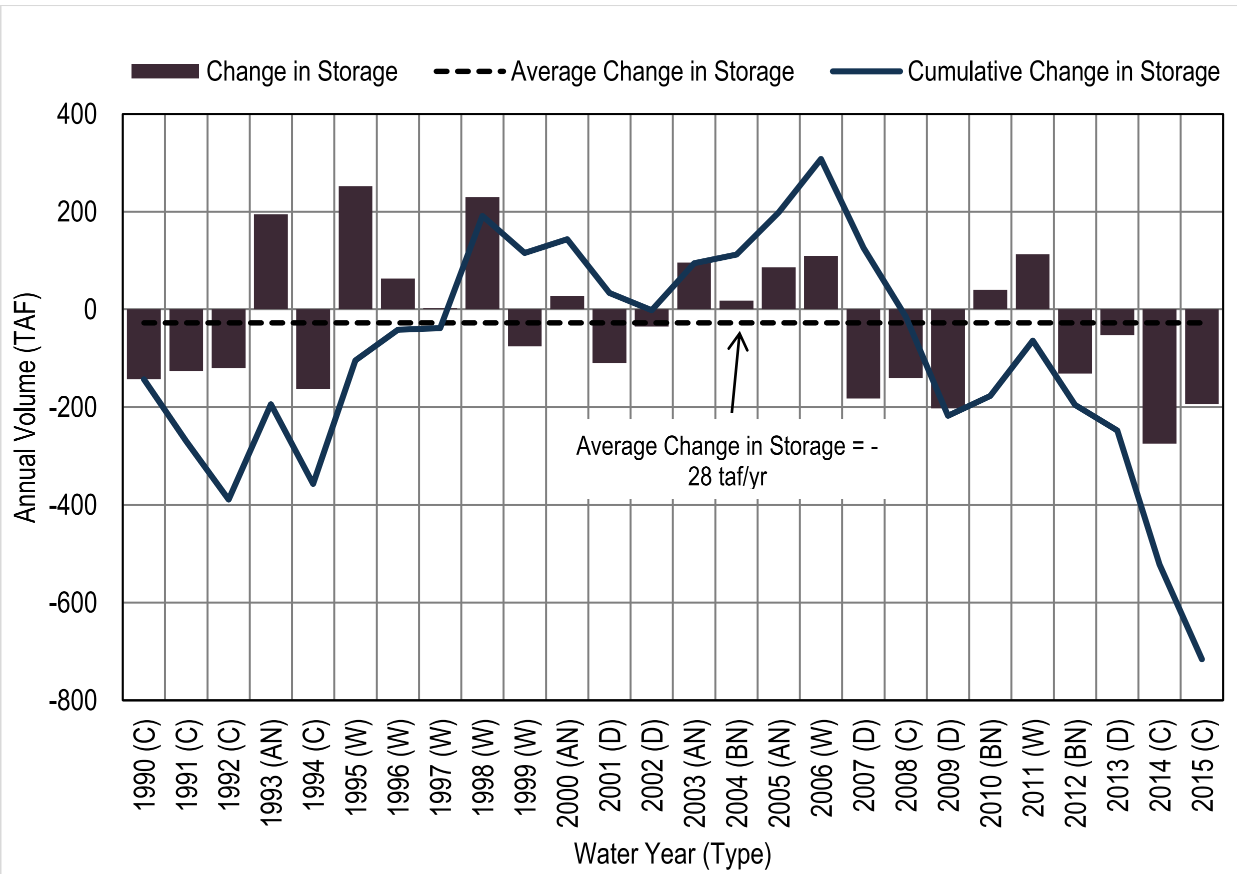


Figure 34. Historical Water Budget: Groundwater System Change in Storage.

8. SUMMARY AND FUTURE REFINEMENTS

The C2VSimFG-Colusa model is a well-calibrated regional integrated surface water and groundwater model that can be used effectively to analyze surface and groundwater conditions of the Colusa Subbasin. This model could be used adequately for evaluation of effectiveness and impacts of groundwater sustainability projects and management actions that are being developed as part of Groundwater Sustainability Plan (GSP) of the Colusa Basin.

C2VSimFG-Colusa model was developed based on DWR's C2VSimFG model for the entire Central Valley of California for a simulation period ending in 2015. The simulation period and model grid resolution and layers thicknesses of C2VSimFG were not changed in development of C2VSimFG-Colusa model. However, many local features and data such as land use and surface water delivery were updated for C2VSimFG-Colusa model. During development and calibration of C2VSimFG-Colusa model, several potential refinements were identified to may be included in future refinements to the model. These refinements may include:

- **Extension of time series data past WY 2015**. With the calibrated model, extending time series data (e.g., precipitation, land use, stream inflows, evapotranspiration, surface water diversions, urban demand, groundwater pumping) allows for use of more recent data and improved accuracy of the model for predicting near-term and future conditions in the Colusa groundwater subbasin.

- **Model layering**. Model layer thicknesses may be adjusted locally, primarily in the southwest and northwest areas of the model, to better represent local geologic conditions and potential faults in these areas.

- **Distribution of groundwater pumping between layers**. Model layer thicknesses may be refined such that distribution of groundwater pumping between model layers better matches groundwater extraction from different depth and layers of the aquifer.

- **Small watersheds**. The water coming from the foothills is simulated using small watersheds representing small streams and groundwater flowing into the western side of the Colusa Subbasin. These streams, mostly ephemeral, may need explicit representation and simulation in the model to better control recharge and flows from the foothills as some observed groundwater levels near the foothills show signs of recharge from nearby small streams.

- **Interbasin flows**. C2VSimFG-Colusa model is well calibrated along the eastern boundary of the basin and the five mile zone on the eastern side of this boundary. Quantification of Sacramento River recharge along the eastern boundary of the basin and subsurface groundwater underflow across this boundary into and out of Colusa, Butte and Vina basins will be useful in building consensus for management of groundwater by these neighboring basins.

- **Model Grid Resolution**. The observed groundwater level data show high spatial gradients in the northwestern and southwestern areas of the model. Model grid may be refined in these areas the simulate these local high groundwater gradients.

Appendix 3E

Historical Land and Surface Water System and Groundwater System Water Budget Tables

Table 3E-1. Historical Land and Surface Water System Water Budget, 1990 to 2015

Component	Water Year														
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Inflows															
Surface Water Inflows	7,165,843	6,480,396	6,638,674	13,269,887	7,403,760	21,507,109	14,925,862	15,746,226	23,329,324	13,920,996	14,179,083	8,831,837	10,162,491	13,742,120	14,325,951
Sacramento River Diversions	948,727	906,494	778,191	944,228	909,497	928,149	956,283	1,056,121	869,476	1,026,817	1,087,640	1,187,367	1,273,544	1,227,916	1,339,952
Stony Creek Diversions	89,430	89,720	94,900	75,480	104,470	80,060	102,250	107,340	67,870	100,940	106,440	109,350	113,110	89,230	108,420
Sacramento River Inflows	6,127,101	5,479,158	5,751,094	12,047,054	6,388,496	20,129,890	13,753,954	14,504,523	21,939,530	12,771,626	12,960,893	7,523,186	8,735,913	12,366,220	12,739,067
Other Inflows from Boundary Streams	586	5,024	14,489	203,124	1,296	369,010	113,374	78,242	452,448	21,614	24,110	11,934	39,923	58,754	138,512
Precipitation	698,765	900,162	1,120,879	1,786,232	903,912	2,276,873	1,491,532	1,355,938	2,393,636	902,086	1,163,312	988,061	1,084,757	1,355,424	1,220,093
Groundwater Pumping	477,946	476,926	539,945	393,531	557,477	362,526	412,959	514,321	392,869	450,073	461,713	528,115	581,766	440,968	558,363
Agricultural	443,714	441,621	505,894	361,336	526,586	331,856	378,951	476,909	357,502	410,484	418,967	484,785	539,579	398,241	515,509
Urban and Industrial	10,509	10,735	10,937	11,089	11,176	10,857	11,110	11,990	10,746	11,298	11,669	11,865	12,472	11,929	12,595
Managed Wetlands	23,724	24,570	23,114	21,107	19,715	19,813	22,899	25,422	24,620	28,291	31,078	31,465	29,716	30,798	30,259
Stream Gains from Groundwater	361,161	354,935	347,708	343,103	355,723	359,645	379,803	395,484	361,854	411,989	387,686	371,536	369,766	372,060	380,934
Total Inflow	**8,703,715**	**8,212,418**	**8,647,205**	**15,792,752**	**9,220,871**	**24,506,153**	**17,210,156**	**18,011,969**	**26,477,683**	**15,685,145**	**16,191,795**	**10,719,549**	**12,198,781**	**15,910,572**	**16,485,341**
Outflows															
Evapotranspiration	1,527,370	1,388,793	1,583,422	1,728,551	1,719,160	1,757,267	1,820,537	1,785,625	1,786,811	1,706,457	1,750,242	1,784,406	1,846,841	1,823,814	1,827,447
Agricultural	1,253,469	1,133,017	1,292,701	1,400,523	1,443,352	1,392,355	1,478,506	1,476,205	1,403,955	1,393,683	1,418,631	1,475,575	1,545,150	1,471,263	1,518,646
Urban and Industrial	16,796	16,488	17,738	17,449	16,812	19,873	18,514	18,719	21,316	19,827	21,212	19,741	17,686	21,793	17,932
Managed Wetlands	62,674	61,572	66,424	64,007	65,743	66,237	69,608	72,079	66,671	69,072	72,037	73,192	72,105	71,719	71,716
Native Vegetation	162,752	149,345	179,713	205,457	162,898	223,475	207,845	178,466	243,316	181,080	196,357	179,776	172,362	214,889	176,787
Canal Evaporation	31,679	28,372	26,847	41,115	30,355	55,328	46,064	40,157	51,554	42,796	42,006	36,122	39,538	44,151	42,366
Deep Percolation	350,785	350,448	403,716	501,067	379,765	519,628	457,292	497,153	571,681	408,780	494,897	427,772	517,682	486,386	534,833
Precipitation	134,061	130,465	170,086	260,064	150,969	278,224	218,722	200,022	310,164	159,467	188,007	145,891	170,567	192,840	179,280
Applied Surface Water	170,639	170,325	165,857	190,658	160,535	190,348	188,144	210,973	196,951	192,463	237,227	207,134	246,916	224,756	248,871
Applied Groundwater	46,085	49,658	67,774	50,346	68,260	51,056	50,426	86,158	64,566	56,851	69,663	74,746	100,199	68,791	106,682
Seepage	278,205	288,475	298,944	365,713	291,164	393,464	345,235	359,579	369,690	330,459	339,951	317,544	354,901	386,403	387,772
Streams	150,491	163,726	188,655	245,683	163,591	274,236	219,097	221,979	258,661	198,235	200,565	163,569	193,730	236,497	223,251
Canals and Drains	127,714	124,750	110,289	120,030	127,573	119,228	126,137	137,599	111,029	132,223	139,386	153,975	161,171	149,907	164,522
Surface Water Outflows	6,593,251	6,192,374	6,360,123	13,179,569	6,832,019	21,825,252	14,593,753	15,376,079	23,732,489	13,263,299	13,607,533	8,183,129	9,490,644	13,204,231	13,758,653
Precipitation Runoff	10,514	35,646	44,364	96,399	22,224	157,681	74,871	63,816	162,238	21,185	43,209	31,299	42,307	60,220	64,944
Operational Flows															
Applied Surface Water Return Flows	84,636	78,432	89,516	96,491	95,355	88,803	87,315	99,220	85,955	77,708	63,117	109,639	115,427	115,703	112,832
Applied Groundwater Return Flows	15,570	15,201	25,324	17,518	24,286	15,303	16,350	26,167	18,634	16,121	15,465	24,543	29,002	21,496	27,342
Sacramento River	6,028,803	5,410,632	5,640,834	10,820,783	6,284,591	14,951,836	11,958,688	11,592,836	16,314,482	11,973,231	10,756,896	7,325,174	8,293,239	11,435,929	11,115,273
Colusa Basin Drain	386,120	581,381	487,448	1,073,186	338,719	1,607,475	782,840	768,777	1,710,498	462,043	616,529	540,685	638,769	760,664	917,570
Colusa Weir to Sutter Bypass	0	0	30,620	1,064,648	0	4,993,091	1,626,437	2,760,115	5,415,790	642,359	2,039,886	63,710	299,549	767,629	1,461,327
Other Outflows to Boundary Streams[1]	67,608	71,081	42,017	10,544	66,844	11,064	47,252	65,147	24,890	70,652	72,431	88,079	72,350	42,590	59,365
Total Outflow	**8,749,612**	**8,220,091**	**8,646,205**	**15,774,900**	**9,222,107**	**24,495,611**	**17,216,816**	**18,018,436**	**26,460,672**	**15,708,995**	**16,192,624**	**10,712,851**	**12,210,068**	**15,900,835**	**16,508,705**
Change in Storage (Inflow - Outflow)	**-45,896**	**-7,673**	**1,000**	**17,853**	**-1,236**	**10,542**	**-6,660**	**-6,467**	**17,012**	**-23,850**	**-829**	**6,698**	**-11,287**	**9,737**	**-23,364**

Table 3E-1. Historical Land and Surface Water System Water Budget, 1990 to 2015, continued											
Component	Water Year										
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Inflows											
Surface Water Inflows	11,282,360	21,203,001	8,618,376	8,726,414	7,941,916	9,989,848	14,098,828	8,895,178	9,405,821	6,371,986	7,246,109
Sacramento River Diversions	1,248,729	1,222,261	1,324,904	1,223,655	1,106,723	1,146,353	1,165,323	1,252,911	1,296,136	850,042	702,073
Stony Creek Diversions	81,370	91,470	108,640	105,890	85,070	80,810	82,290	89,780	92,690	61,890	80,960
Sacramento River Inflows	9,829,151	19,666,083	7,182,835	7,386,917	6,749,337	8,705,010	12,773,588	7,550,495	8,010,692	5,459,493	6,459,857
Other Inflows from Boundary Streams	123,110	223,188	1,997	9,952	786	57,675	77,627	1,991	6,302	562	3,218
Precipitation	1,483,465	1,642,203	645,613	969,805	783,935	1,322,534	1,465,349	955,291	977,763	637,076	944,535
Groundwater Pumping	444,103	450,016	570,999	618,395	599,386	541,689	458,941	536,599	571,120	539,253	570,709
Agricultural	403,994	408,824	527,573	575,392	557,980	501,889	425,013	497,334	530,508	493,760	526,047
Urban and Industrial	12,536	12,443	13,018	12,667	11,935	10,244	9,359	9,992	10,812	9,145	7,590
Managed Wetlands	27,573	28,748	30,409	30,335	29,471	29,556	24,568	29,273	29,799	36,349	37,073
Stream Gains from Groundwater	386,026	383,206	390,025	368,814	338,378	329,322	357,795	358,015	349,361	336,765	352,745
Total Inflow	**13,595,954**	**23,678,426**	**10,225,013**	**10,683,427**	**9,663,615**	**12,183,393**	**16,380,912**	**10,745,083**	**11,304,065**	**7,885,081**	**9,114,097**
Outflows											
Evapotranspiration	1,870,571	1,878,738	1,750,765	1,780,707	1,825,272	1,838,050	1,814,196	1,821,305	1,803,856	1,513,007	1,500,657
Agricultural	1,489,390	1,493,575	1,492,126	1,516,539	1,547,275	1,507,320	1,453,183	1,521,011	1,536,256	1,276,516	1,249,376
Urban and Industrial	26,912	25,524	20,704	18,998	24,498	28,127	31,556	28,852	24,394	26,655	25,312
Managed Wetlands	69,637	69,417	71,594	70,516	71,421	65,833	67,160	68,069	68,878	70,190	69,616
Native Vegetation	241,160	232,476	127,254	140,010	146,082	197,695	211,958	162,235	135,865	112,849	130,948
Canal Evaporation	43,474	57,747	39,086	34,644	35,997	39,076	50,339	41,139	38,463	26,796	25,406
Deep Percolation	517,541	508,252	401,504	453,314	343,083	476,647	479,125	362,434	436,345	257,294	333,010
Precipitation	228,652	228,717	97,824	128,709	101,788	178,340	206,544	125,171	134,224	75,275	121,738
Applied Surface Water	206,796	200,859	218,858	222,677	169,184	198,939	191,397	166,391	217,662	140,443	156,844
Applied Groundwater	82,093	78,676	84,821	101,927	72,111	99,368	81,184	70,872	84,460	41,576	54,427
Seepage	364,172	402,427	326,985	345,389	335,742	378,617	399,343	339,860	374,027	276,350	318,924
Streams	207,009	253,379	160,723	187,991	190,554	227,109	250,219	184,695	212,971	161,670	212,321
Canals and Drains	157,163	149,048	166,261	157,398	145,188	151,508	149,124	155,165	161,055	114,680	106,603
Surface Water Outflows	10,834,750	20,888,786	7,748,339	8,113,030	7,150,369	9,490,116	13,691,869	8,227,428	8,690,801	5,846,430	6,973,708
Precipitation Runoff	57,353	86,926	14,660	47,435	25,853	58,030	73,104	32,650	37,344	14,289	42,567
Operational Flows											
Applied Surface Water Return Flows	122,940	102,929	107,309	99,013	87,828	96,549	114,461	108,089	115,325	72,033	68,864
Applied Groundwater Return Flows	26,265	21,551	25,164	26,776	22,546	26,676	25,146	22,744	25,248	14,661	15,233
Sacramento River	9,475,296	16,130,331	7,061,947	7,235,060	6,592,032	8,439,756	11,807,110	7,439,600	7,806,198	5,385,429	6,371,539
Colusa Basin Drain	851,470	1,148,448	428,152	601,460	332,745	704,199	829,571	557,333	576,354	295,562	440,304
Colusa Weir to Sutter Bypass	227,880	3,357,104	13,940	29,370	30,870	124,790	810,079	0	78,420	0	0
Other Outflows to Boundary Streams[1]	73,548	41,497	97,167	73,916	58,495	40,117	32,400	67,011	51,912	64,456	35,202
Total Outflow	**13,587,035**	**23,678,202**	**10,227,592**	**10,692,440**	**9,654,467**	**12,183,430**	**16,384,534**	**10,751,028**	**11,305,029**	**7,893,081**	**9,126,299**
Change in Storage (Inflow - Outflow)	**8,920**	**224**	**-2,580**	**-9,013**	**9,149**	**-37**	**-3,622**	**-5,945**	**-964**	**-7,999**	**-12,202**

Table 3E-2. Historical Groundwater System Water Budget, 1990 to 2015

Component	Water Year														
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Inflows															
Subsurface Water Inflows	201,406	200,087	199,599	198,729	206,109	199,167	192,310	200,117	188,933	191,711	193,979	194,506	198,449	192,506	199,804
Deep Percolation	350,785	350,448	403,716	501,067	379,765	519,628	457,292	497,153	571,681	408,780	494,897	427,772	517,682	486,386	534,833
Precipitation	134,061	130,465	170,086	260,064	150,969	278,224	218,722	200,022	310,164	159,467	188,007	145,891	170,567	192,840	179,280
Applied Surface Water	170,639	170,325	165,857	190,658	160,535	190,348	188,144	210,973	196,951	192,463	237,227	207,134	246,916	224,756	248,871
Applied Groundwater	46,085	49,658	67,774	50,346	68,260	51,056	50,426	86,158	64,566	56,851	69,663	74,746	100,199	68,791	106,682
Seepage	278,205	288,475	298,944	365,713	291,164	393,464	345,235	359,579	369,690	330,459	339,951	317,544	354,901	386,403	387,772
Streams	150,491	163,726	188,655	245,683	163,591	274,236	219,097	221,979	258,661	198,235	200,565	163,569	193,730	236,497	223,251
Canals and Drains	127,714	124,750	110,289	120,030	127,573	119,228	126,137	137,599	111,029	132,223	139,386	153,975	161,171	149,907	164,522
Total Inflow	**830,396**	**839,010**	**902,259**	**1,065,509**	**877,037**	**1,112,258**	**994,836**	**1,056,849**	**1,130,304**	**930,950**	**1,028,828**	**939,822**	**1,071,033**	**1,065,296**	**1,122,409**
Outflows															
Subsurface Water Outflows	134,554	132,989	134,397	133,887	126,746	137,942	139,170	143,789	145,751	144,457	151,840	149,682	154,730	156,308	165,200
Groundwater Pumping	477,946	476,926	539,945	393,531	557,477	362,526	412,959	514,321	392,869	450,073	461,713	528,115	581,766	440,968	558,363
Agricultural	443,714	441,621	505,894	361,336	526,586	331,856	378,951	476,909	357,502	410,484	418,967	484,785	539,579	398,241	515,509
Urban and Industrial	10,509	10,735	10,937	11,089	11,176	10,857	11,110	11,990	10,746	11,298	11,669	11,865	12,472	11,929	12,595
Managed Wetlands	23,724	24,570	23,114	21,107	19,715	19,813	22,899	25,422	24,620	28,291	31,078	31,465	29,716	30,798	30,259
Stream Gains from Groundwater	361,161	354,935	347,708	343,103	355,723	359,645	379,803	395,484	361,854	411,989	387,686	371,536	369,766	372,060	380,934
Total Outflow	**973,662**	**964,849**	**1,022,049**	**870,521**	**1,039,945**	**860,114**	**931,933**	**1,053,594**	**900,474**	**1,006,520**	**1,001,240**	**1,049,333**	**1,106,262**	**969,336**	**1,104,496**
Change in Storage (Inflow - Outflow)	**-143,265**	**-125,839**	**-119,790**	**194,988**	**-162,908**	**252,145**	**62,903**	**3,255**	**229,830**	**-75,570**	**27,588**	**-109,511**	**-35,229**	**95,961**	**17,913**

Table 3E-2. Historical Groundwater System Water Budget, 1990 to 2015, continued											
Component	Water Year										
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Inflows											
Subsurface Water Inflows	194,420	196,864	204,638	205,946	207,844	207,110	201,677	203,767	206,758	206,595	212,601
Deep Percolation	517,541	508,252	401,504	453,314	343,083	476,647	479,125	362,434	436,345	257,294	333,010
Precipitation	228,652	228,717	97,824	128,709	101,788	178,340	206,544	125,171	134,224	75,275	121,738
Applied Surface Water	206,796	200,859	218,858	222,677	169,184	198,939	191,397	166,391	217,662	140,443	156,844
Applied Groundwater	82,093	78,676	84,821	101,927	72,111	99,368	81,184	70,872	84,460	41,576	54,427
Seepage	364,172	402,427	326,985	345,389	335,742	378,617	399,343	339,860	374,027	276,350	318,924
Streams	207,009	253,379	160,723	187,991	190,554	227,109	250,219	184,695	212,971	161,670	212,321
Canals and Drains	157,163	149,048	166,261	157,398	145,188	151,508	149,124	155,165	161,055	114,680	106,603
Total Inflow	**1,076,133**	**1,107,542**	**933,127**	**1,004,649**	**886,668**	**1,062,374**	**1,080,146**	**906,061**	**1,017,130**	**740,239**	**864,534**
Outflows											
Subsurface Water Outflows	159,987	164,844	154,252	158,165	151,491	150,938	150,444	142,515	149,252	138,604	134,908
Groundwater Pumping	444,103	450,016	570,999	618,395	599,386	541,689	458,941	536,599	571,120	539,253	570,709
Agricultural	403,994	408,824	527,573	575,392	557,980	501,889	425,013	497,334	530,508	493,760	526,047
Urban and Industrial	12,536	12,443	13,018	12,667	11,935	10,244	9,359	9,992	10,812	9,145	7,590
Managed Wetlands	27,573	28,748	30,409	30,335	29,471	29,556	24,568	29,273	29,799	36,349	37,073
Stream Gains from Groundwater	386,026	383,206	390,025	368,814	338,378	329,322	357,795	358,015	349,361	336,765	352,745
Total Outflow	**990,116**	**998,065**	**1,115,276**	**1,145,374**	**1,089,255**	**1,021,949**	**967,180**	**1,037,129**	**1,069,733**	**1,014,623**	**1,058,362**
Change in Storage (Inflow - Outflow)	**86,017**	**109,477**	**-182,149**	**-140,725**	**-202,586**	**40,425**	**112,966**	**-131,068**	**-52,603**	**-274,384**	**-193,827**

Appendix 4A

Well Completion Reports for Groundwater Monitoring Network Wells

State of California
The Resources Agency
DEPARTMENT OF WATER RESOURCES

DRILL HOLE LOG

SHEET 1 of 6
HOLE NO. LCB-4
ELEV. 25 (topo) FEET
DEPTH 1020 FEET

PROJECT Lower Colusa Basin Conjunctive Use
DATE DRILLED 6/24-6/25/97
FEATURE Exploratory Boring
ATTITUDE Vertical
LOCATION 12N/01E-06D*
LOGGED BY F. Nasirian
CONTR. Eaton Drilling Co.
DRILL RIG Ingersoll-Rand TH-400
DEPTH TO WATER Not Determined

* Near the south east corner of the intersection of County Line Road and the Colusa Basin Drain

DEPTH (ELEV.)	LOG	FIELD CLASSIFICATION AND DESCRIPTION	SAMPLE NO.	MODE	REMARKS
0.0	CL	Holocene/Pleistocene Sediments 0.0-1020' 0.0-10.0' Clay (CL): Brown, medium plasticity, moist.			Drilled mostly with clear water, at times bentonite was added. The drill rods were 2-1/2" in diameter with a 4" collar at both ends. The collars would not allow any cuttings larger than 1/2 -3/4" size to come to the surface. Soils and geologic contacts were determined from logging the drill cuttings recovered from the shaker.
	GC	10.0-20.0' Clayey Gravel (GC): Brown, about 5-10% clay, fine to medium, gravel wet.			
20.0	SP	20.0-40.0' Sand (SP): Gray, less than 5% fines, fine to coarse grained sand.			
40.0	CL	40.0-70.0' Clay (CL): Brown, about 5-10% fine gravel, about 5-10% sand, moist			
60.0					
	CH	70.0-245.0' Clay (CH): Bluish-brown, high plasticity, moist.			
80.0					
100.0					
120.0					
140.0		140.0-160.0' Clay with about 10-15% fine to coarse grained sand.			
160.0					

DWR 885 (1) (Rev. 9-84)

DRILL HOLE LOG

HOLE NO. LCB-4

PROJECT & FEATURE Lower Colusa Basin Conjunctive Use

DEPTH (ELEV.)	LOG	FIELD CLASSIFICATION AND DESCRIPTION	SAMPLE NO.	MODE	REMARKS
160.0	CH	Holocene/Pleistocene Sediments 0.0-1020.0' (cont'd)			
180.0					
200.0		190.0-205.0' Bluish-gray, high plasticity. 205.0-230.0' Bluish-green, high plasticity.			
220.0	CH	230.-240.0' About 10-15% sand and fine gravel.			
240.0		245.0-280.0' Gravel (GP): Gray, less than 5% fines, about 10-15% fine to coarse grained sand, mostly fine gravel.			
260.0	GP				
280.0		280.0-320.0' Gravely Clay g(CL): Grayish-brown, 15-20% sand, 20-25% fine to medium gravel.			
300.0	g(CL)	300.0-310.0' Reddish brown			
320.0	SP	320.0-330.0' Sand (SP): Gray, fine to medium grained sand, about 5-10% fines. 330.0-355.0' Gravel (GP): Gray, about 5-10% sand, fine to coarse grained gravel.			
340.0	GP/ GW				
360.0	SP	355.0-360.0' Sand (SP): Gray, fine to medium grained.			

DRILL HOLE LOG

PROJECT & FEATURE Lower Colusa Basin Conjunctive Use

DEPTH (ELEV.)	LOG	FIELD CLASSIFICATION AND DESCRIPTION	SAMPLE NO.	MODE	REMARKS
360.0		Holocene/Pleistocene Sediments 0.0-1020.0' (cont'd)			
	CH	360.0-395.0' Clay (CH): Reddish-brown, high plasticity.			
380.0					Added bentonite to the mud.
400.0	GP	395.0-515.0' Poorly Graded Gravel (GP): Gray, about 10-15% fine to coarse sand grained, up to ½" in diameter.			
420.0					
440.0	GP				
460.0	GC	460.0-480.0' Clayey Gravel (GC): About 10-15% clay.			
480.0	GP	480.0-515.0' Mostly fine gravel.			
500.0	GP				
520.0	ML	515.0-530.0' Silt with about 5-10% fine gravel.			
540.0	GC	530.0-720.0' Clayey Gravel (GC): Gray, about 15-25% fines, mostly fine gravel.			
560.0					

DRILL HOLE LOG

PROJECT & FEATURE Lower Colusa Basin Conjunctive Use

DEPTH (ELEV.)	LOG	FIELD CLASSIFICATION AND DESCRIPTION	SAMPLE NO.	MODE	REMARKS
560.0		Holocene/Pleistocene Sediments 0.0-1020.0' (cont'd)			
	GC				
580.0					
600.0		600.0-620.0' Mostly fine to coarse grained sand.			
	GC				
620.0					
640.0					
		650.0-680.0' About 40-50% sand and gravel.			
660.0	GC/CL				
680.0					
700.0	GC	700.0-720.0' About 10-15% fines, gravel up to 3/4" in diameter.			
720.0		720.0-1,000.0' <u>Sandy Clay s(CL)</u>: Gray about 15-25% fine to medium grain sand, less than 5% fine gravel.			
	s(CL)				
740.0					
760.0					

State of California
The Resources Agency
DEPARTMENT OF WATER RESOURCES
DRILL HOLE LOG

SHEET 5 OF 6

HOLE NO. LCB-4

PROJECT & FEATURE Lower Colusa Basin Conjunctive Use

DEPTH (ELEV.)	LOG	FIELD CLASSIFICATION AND DESCRIPTION	SAMPLE NO.	MODE	REMARKS
760.0	s(CL)	Holocene/Pleistocene Sediments 0.0-1020.0' (cont'd)			
780.0	CL	780.0-800.0' Mostly lean clay less than 5% sand.			
800.0	s(CL)	810.0-820.0' About 25-30% sand, fine to medium grained.			
820.0					
840.0					
860.0		860.0-900.0' About 35-40% sand mostly fine to medium grained.			
880.0					
900.0	s(CL)	900.0-940.0' About 30-40% sand, mostly fine to medium grained.			
920.0					
940.0	CL	940.0-960.0' Mostly clay with almost no sand.			
960.0					

DWR 885 (2) (Rev. 9-84)

PROJECT & FEATURE Lower Colusa Basin Conjunctive Use

DEPTH (ELEV.)	LOG	FIELD CLASSIFICATION AND DESCRIPTION	SAMPLE NO.	MODE	REMARKS
960.0		Holocene/Pleistocene Sediments 0.0-1020.0' (cont'd)			
980.0	s(CL)	980.0-1020.0' Mostly clay with some sandy clay chips.			
1000.0					
1020.0		Hole bottomed @ 1020.0'			
1040.0					

Company:
EATON DRILLING COMPANY
Well #:
DWR RECLAMATION LCB-4

Date: 06-25-1997

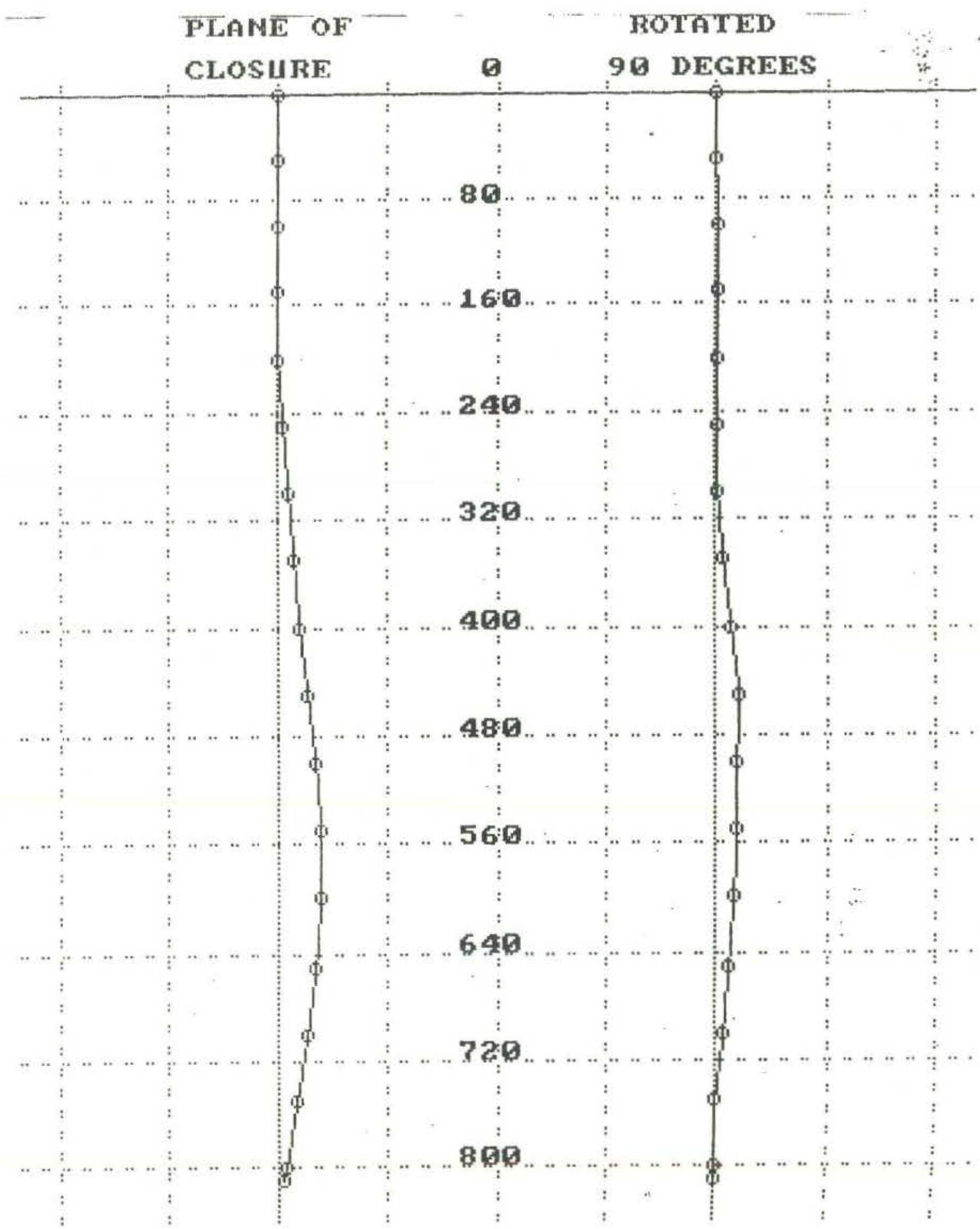
VERTICAL SECTION

Vert Scale = 80 Ft/Div
Horz Scale = 8 Ft/Div

CLOSURE

Distance: 0.55 FEET
Bearing: 255.7 DEGREES
T.V.D.: 809.95 FEET

Calc. Method:



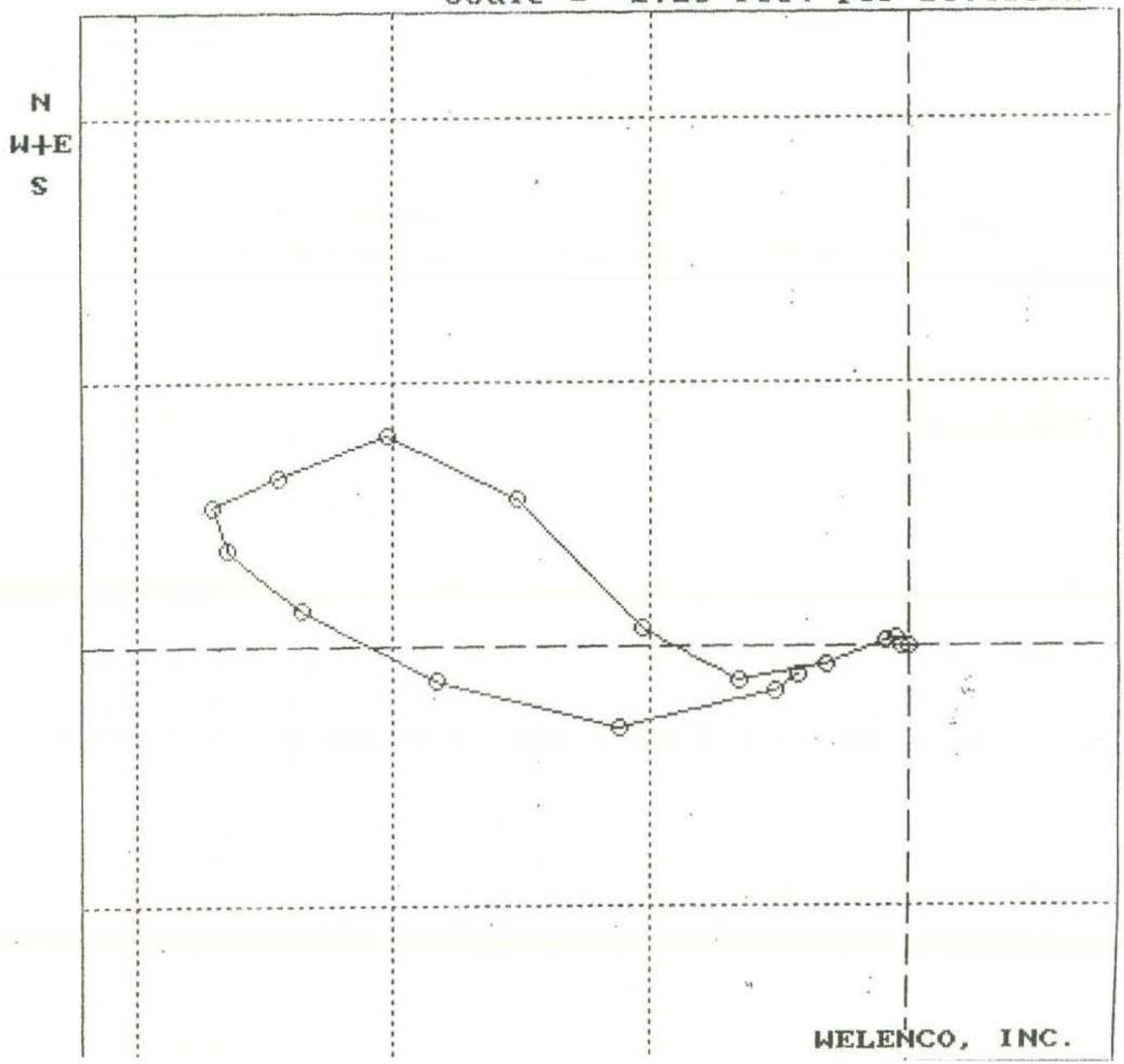
Company: EATON DRILLING COMPANY

PLAN VIEW

Well #: DWR RECLAMATION LCB-4

Date: 06-25-1997

Scale = 1.25 Feet per Division



CLOSURE

Distance: 0.55 FEET

Bearing: 255.7 DEGREES

T.V.D.: 809.95 FEET

Calc. Method
Balanced Tangential

****

>>>> Welenco, Inc.>>>>

DIRECTIONAL SURVEY

****

Date: 06-25-1997

Company : EATON DRILLING COMPANY
Well No : DWR RECLAMATION LCB-4
Field : DUNNIGAN
State : CALIFORNIA County: YOLO
Witnessed By: SMITH Rec. By: ROBERTI
Location : COLUSA BASIN DRAIN & COUNTY LINE RD.
Remarks :
OTHER SERVICES: ELOG

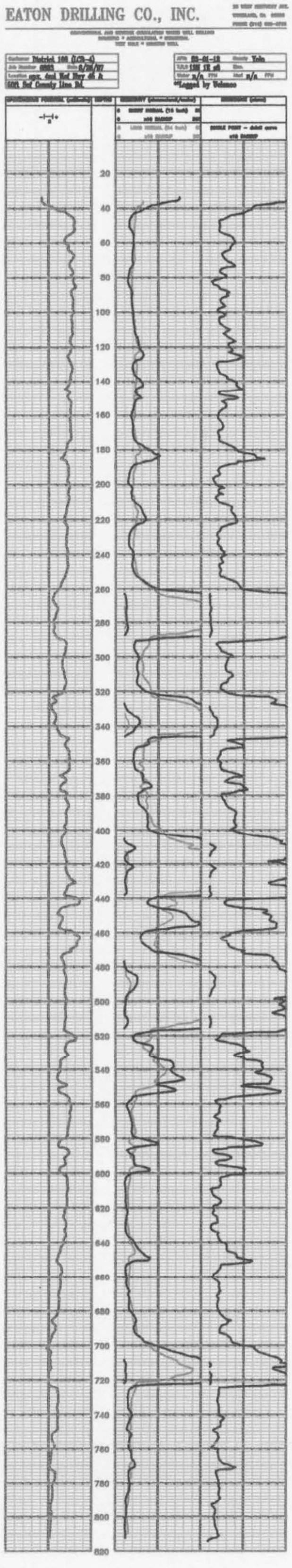
****

Measured Depth, Feet	Incli-nation, Degrees	Direc-tion, Degrees True	Course Deviation, Feet	True Vertical Depth, Feet	Closure Distance, Feet	Closure Bearing, Degrees True
0	0.0	0	0.00	0.00	0.00	0.0
50	0.0	210	0.00	50.00	0.00	32.0
100	0.1	268	0.04	100.00	0.04	268.0
150	0.1	30	0.09	150.00	0.07	298.0
200	0.2	236	0.13	200.00	0.12	281.6
250	0.5	254	0.31	250.00	0.41	257.9
300	0.5	267	0.44	300.00	0.84	259.2
350	0.8	316	0.57	349.99	1.29	273.7
400	1.2	315	0.87	399.99	2.02	290.4
450	0.6	253	0.79	449.98	2.71	291.6
500	0.7	246	0.57	499.98	3.15	284.7
550	0.1	257	0.35	549.97	3.43	281.1
600	0.5	148	0.26	599.97	3.33	278.1
650	0.6	113	0.48	649.97	2.95	273.5
700	1.1	121	0.74	699.96	2.29	265.8
750	1.1	86	0.96	749.95	1.45	254.7
800	0.7	64	0.79	799.95	0.68	251.6
810	0.9	48	0.14	809.95	0.55	255.7

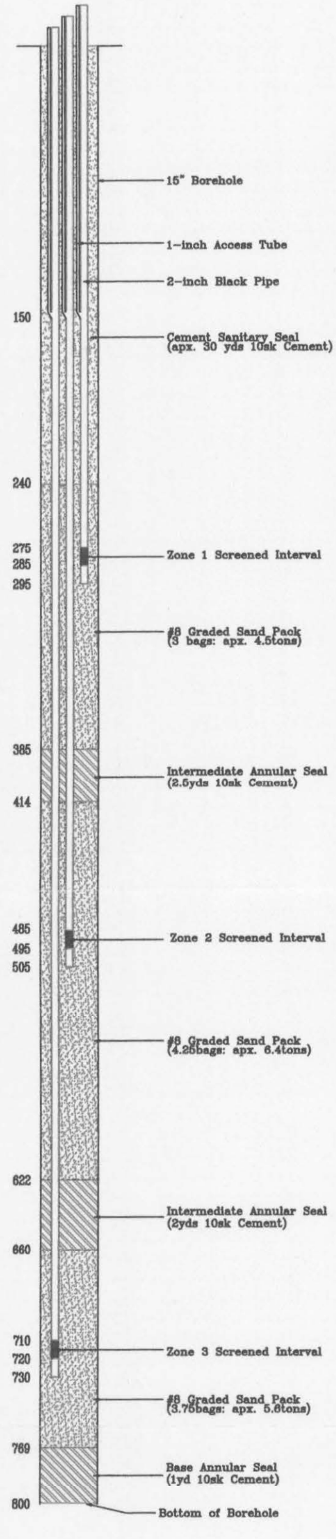
****

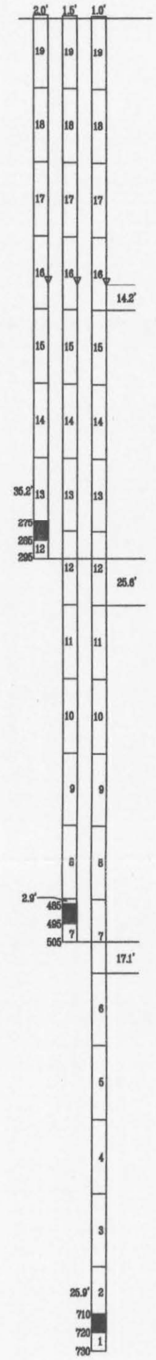
Equip.: L-16 Office: BFL Job No.: 28403
Calculation Method: Balanced Tangential

****



AS BUILT Well Profile
LCB-4 (6853 Mon)





welenco

LCB-4 ELECTRIC LOG

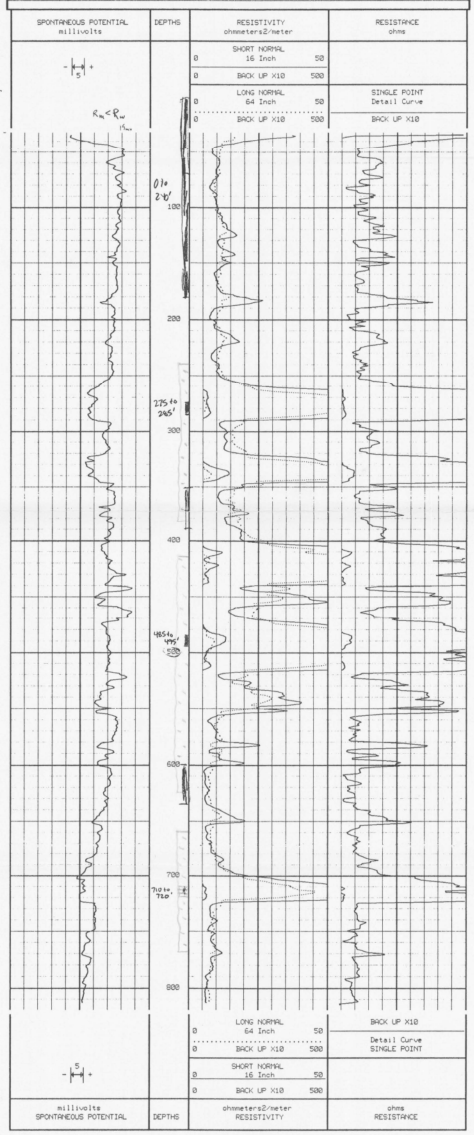
FILING NO. 6853	COMPANY EATON DRILLING COMPANY WELL DWR RECLAMATION LCB-4 FIELD DUNNIGAN COUNTY YOLO STATE CALIFORNIA		
JOB NO. 28403	LOCATION: COLUSA BASIN DRAIN AND COUNTY LINE ROAD SEC TWP RGE		OTHER SERV: DEVIATION
Permanent Datum: G.L. Elev: N/A			K.B.
Log Measured From G.L. 0 Ft Above Perm Datum			D.F.
Drilling Measured From G.L.			G.L.
Date	06-25-1997	- -	- -
Run No.	ONE		
Depth - Driller	1005'		
Depth - Logger	814'		
Btm. Log Inter.	813'		
Top Log Inter.	32'		
Casing-Driller	NONE at	at	at
Casing-Logger	N/A at	at	at
Bit Size	4.5"		
Type Fluid In Hole	BENTONITE		
Dens. / Visc.	N/A / N/A		
pH / Fluid Loss	N/A / N/A ml	ml	ml
Source of Sample	PIT		
Rm at Meas. Temp	14.3 at 75 F	at F	at F
Rmf at Meas. Temp	13.8 at 75 F	at F	at F
Rmc at Meas. Temp	N/A at F	at F	at F
Source: Rmf Rmc	MEAS		
Rm at BHT	N/A at F	at F	at F
Time Since Circ.	1 HOUR		
Max. Rec. Temp.	N/A F	F	F
Equip / Location	L-16 / BFL		
Recorded By	ROBERTI		
Witnessed By	SMITH		

Fold Here

This Heading and Log Conform To API RP 31 ...

Changes in Mud Type or Additional Samples				Scale Changes			
Date / Sample No.				Type Log	Depth	Scale Up Hole	Scale Down Hole
Depth-Driller							
Type Fluid in Hole							
Dens. / Visc.							
pH / Fluid Loss		ml	ml				
Source of Sample				Equipment Data			
Rm at Meas. Temp.	at F	at F		Run No.	Tool Type	PadType / Tool Pos	Other
Rmf at Meas. Temp.	at F	at F		ONE	ELECTRIC	FREE	T-101
Rmc at Meas. Temp.	at F	at F					
Source: Rmf / Rmc							
Rm at BHT	at F	at F					
Rmf at BHT	at F	at F					
Rmc at BHT	at F	at F					

REMARKS: WELL DRILLED BY: EATON DRILLING



FORM 115 INVESTIGATION

log # 2865

DIVISION OF WATER RESOURCES
DEPARTMENT OF PUBLIC WORKS
STATE OF CALIFORNIA

SHEET 1

U.S.B.R. NUMBER 13-1E-~~11B~~ 11H

WELL LOG

LOCAL DESIGNATION 31

Date Drilled Nov. 8, 1947

LOCATION 1500' S. 1200' W. of N. E. corner Colusa Co.

Colusa Co., Sacto. Valley Dist., Kirkville Quad. -1

OWNER

DATE COMPLETED

DIAMETER OF CASING 14" hole 8" csg Type Rotary

DRILLED BY Valley Drilling Co.

SOURCE OF INFORMATION Driller

INSPECTED WHILE DRILLING SEE FILE NO.

SURFACE ELEVATION 31 ft. 158' Depth

SKETCH

CONFIDENTIAL LOG
Water Code Sec. 13752

DEPTH	ELEVATION OF BOTTOM OF STRATUM	MATERIAL	THICKNESS FEET	% VOIDS	ABSOLUTE VOIDS FEET	TOTAL VOIDS FEET
0	22	Top soil & clay				
22	27	Gravel and sand				
27	136	Clay				
136	158	Gravel				

Plotted and Coded
As Well 13N/1E-11H30

FOR FIELD COPIES USE ALTERNATE LINES

LOG OBTAINED BY DATE

97588 9-32 15M CALIFORNIA STATE PRINTING OFFICE

LOG #2868

ORIGINAL
File Original, Duplicate and Triplicate with the
DIVISION OF WATER RESOURCES
P. O. BOX 1079
SACRAMENTO 5, CALIFORNIA

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF WATER RESOURCES

LOCATION NOT CHECKED
SHEET 1

Do Not Fill In
State Well No. 13N/1W-7
Other Well No.
Region

WATER WELL DRILLERS REPORT

(Sections 7076, 7077, 7078, Water Code)

Water Code Sec. 13752

(1) Driller:
Name Aulman and Aulman
Address 1309 Westwood Way
Woodland, Calif.
License No. 109370 Classification C-57

Owner:
Name
Address

(2) Proposed use or uses *(check)*:
Domestic ☐
Irrigation ☒
Domestic and Irrigation ☐
Municipal ☐
Industrial ☐
Test well ☐
Other

(3) Equipment used *(check)*:
Rotary ☒
Cable ☐
Dug well ☐
Other

(4) Type of work *(check)*:
New well ☒
Reconditioning of well ☐
Deepening existing well ☐

(5) Well log:
Total depth of well 180 ft.

Give details of formations penetrated, such as silt, peat, muck, sand, gravel, clay, shale, sandstone, hardpan, rock. Include size of gravel (diameter) and sand (fine, medium, coarse), color of material, structure (loose, packed, cemented, soft, hard, brittle).

Depth From Ground Surface		
Surface ft. to	28 ft.	Soil and clay
28	31	Loose medium blue gravel
31	39	Yellow sandy clay
39	54	Brittle yellow sandy clay
54	72	Yellow clay
72	78	Brittle yellow sandy clay
78	81	Loose fine blue gravel
81	84	Yellow clay
84	86	Loose fine blue gravel
86	116	Yellow clay
116	126	Sand and yellow sandy clay
126	143	Yellow clay
143	155	Brittle yellow sandy clay
155	165	Loose medium blue gravel
165	167	Hard sandstone formation
167	177	Loose medium blue gravel
177	180	Yellow clay

~~Plotted and Coded~~
~~As Well~~ 13N/1W.7G80

If additional space is required, continue on DWR Form No. 246—Supplement, and attach to respective report copies.

(6) Casing left in well:

LENGTH FT.	DIAMETER INCHES	SINGLE, DOUBLE, WELDED, OTHER	LBS. PER FOOT OR GAGE OF CASING	SEATING BELOW GROUND SURFACE, FT.
180	12	single	3/16 inch	180

Type and size of shoe or well ring None Welded joints ☒ Yes ☐ No

ORIGINAL
File Original, Duplicate and Triplicate with the
DIVISION OF WATER RESOURCES
P. O. BOX 1079
SACRAMENTO, CALIFORNIA

SHEET 2 2

#1052

Do Not Fill In
State Well No. 13N/1W 7G
Other Well No.
Region

WATER WELL DRILLERS REPORT

(Sections 7076, 7077, 7078, Water Code)

(7) Perforations:

Type of perforator used Factory
Perforated 108 ft. to 180 ft. Hole size 1½" x 3/16" No. of holes 70 per ft.

(8) Water levels:

Depth at which water first encountered 78 ft.
Depth to water before perforating 53 ft.
Depth to water after perforating 53 ft.
Note any change in water level while drilling None

(9) Well pumping test:

Date of test 6/7/51 By whom Wm. P. Wilson
Depth to water when test started 53 ft.
G.P.M. at beginning of test 550 G.P.M.
Drawdown from standing level 96 ft.
G.P.M. at completion of test 670 G.P.M.
Drawdown at completion of test 83 ft.
Length of time tested Approx. 10 hours
Temperature of water 65 degrees
Was gas present in water? ☐ Yes ☒ No

(10) General:

Was well gravel packed? Yes Size of rock 5/8 inch Thickness of pack 4 inch
Was a surface sanitary seal provided? None
Were any strata sealed against pollution? ☐ Yes ☒ No If yes, attach detailed description.
Strata sealed
Was analysis made of water? ☐ Yes ☒ No If yes, attach copy.
Was electric log made of well? ☐ Yes ☒ No If yes, attach copy.
If well abandoned, was it plugged and sealed?
Method of plugging and sealing

CONFIDENTIAL
Section 7076.1, Water Code

(11) Location: Land of N by Suggett, E by Simpson, S by Johnson, W by Doherty

North

		O	
		X	

1 MILE

Section No. 7
Township 13 N
Range 1 W
Base & Meridian
Show location of well in Section, thus (X)
Distances to section lines from well, (N) or S 2580 ft. and (E) or W 1450 ft.
Show location of nearest known well, thus (O)
Distance to nearest known well 2000 ft.

(12) Time of work:

Work started date 5/31/51 Completed date 6/8/51
Date of this report 6/9/51

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

[SIGNED] Aulman and Aulman
Well Driller
By V. Aulman

License No. 109870 Classification C-57
Dated July 1, 1950 to June 30, 1951 Incl. 19

Plotted and Coded
As Well 13N/1W-7G80

State of California
The Resources Agency
DEPARTMENT OF WATER RESOURCES

DRILL HOLE LOG

PROJECT	Lower Colusa Basin Conjunctive Use Invest.	HOLE NUMBER	LCB-1
FEATURE	Test Hole for Multi-Head Peizometer	DATE DRILLED	12/22 & 23 /98
LOCATION	White Rd.@ Colusa Basin Drainage Canal	LOGGED BY	Chuck Owens CRO
CONTRACTOR	Eaton Drilling Company	ATTITUDE	Vertical
DRILLER	Dwayne	DEPTH TO WATER	Unknown (~ 3 ft)
DRILL RIG	Direct Rotary, Ingersoll-Rand TH-400	HOLE DEPTH	1,000 ft
		ELEVATION	~50 ft MSL

DEPTH	USCS	FIELD CLASSIFICATION AND DESCRIPTION	SY
0	CL	0э-10э GRAVELLY LEAN CLAY w/ SAND: Gray; gravel (>15%) is fine (4 mm); sand >15%	3
20	GC	10э-20э CLAYEY GRAVEL w/ SAND: Brown; sand is coarse to fine ≥15%).	5
	CL	20э-30э LEAN CLAY: Brown	3
40 60	CL	30э-65э GRAVELLY LEAN CLAY w/ SAND: Brown; gravel is fine, angular to sub-angular quartz w/ a few clasts to 1½ээ sub-rounded volcanics; sand is coarse (>15%) → Probably thin interbeds	3
80	GP	65э-80э POORLY-GRADED GRAVEL: Gray; most gravel (~90%) is fine, but a few 1ээ clasts, all is sub-angular to sub-rounded quartz & volcanics → ***Minor Aquifer*** (70э-80э best)	15
100 120	GP-GC	80э-120э POORLY-GRADED GRAVEL w/CLAY: Brown; gravel is fine, sub-rounded to sub-angular (>5%)	5
140	GC	120э-150э CLAYEY GRAVEL: Brown → Many thin, silty interbeds?	5
160			

REMARKS

General:

- Drill bit diameter = 6 1/4ээ
- Drill rods 22э long, 2½э dia. with 4э collars at both ends, so clasts >1э prevented from reaching surface
- Mud rotary method, so all cuttings are saturated and moisture content not noted.
- Log is based on cuttings sampled from shaker about every 10э, but sampling not consistent, plus lag-time error renders elevations of contacts inaccurate – more so with increasing depth.
- USBR 5005 Unified Soil Classification System used.

Logging Problem:

The rotary drilling method mixes cuttings from thin beds together in a mud slurry with any sluffed materials, and the origination depth of samples from the shaker is uncertain due to irregular collection, lag time and manner cuttings are brought to the surface. Thus, thin beds are often not identifiable, contacts are incorrect or uncertain, and soil classification is obstructed.

State of California
The Resources Agency
DEPARTMENT OF WATER RESOURCES

DRILL HOLE LOG

Project & Feature: Lower Colusa Basin Conjunctive Use

Hole No. LCB-1

DEPTH	USCS	FIELD CLASSIFICATION and DESCRIPTION	SY	REMARKS
160	CL	150ɜ-260ɜ LEAN CLAY: Brown;		
180		190-210: gray, but similar materials		
200		→ Numerous thin, clay/silty interbeds	3	
220				
240				
260	SP	260ɜ-290ɜ POORLY-GRADED SAND: Brown; sand is coarse sub-angular to sub-rounded, mostly quartz; <5% clay/silt; <15% fine gravel		
280		→ ***Producing Zone*** (270ɜ-290ɜ best)	25	
300	GP	290ɜ-310ɜ POORLY-GRADED GRAVEL w/ SAND: Brown; sand is coarse (~40%); gravel is fine (~55%), all is sub-rounded to sub-angular	15	
320	CL/ SC	310ɜ-405ɜ LEAN CLAY w/ SAND & GRAVEL: Brown; sand is coarse and gravel is fine (variable 5-30%), all is sub-rounded & sub-angular		
		→ Numerous interbeds	5	
340		320ɜ-355ɜ: 30% fine gravel		
		355ɜ-375ɜ: ~50% coarse sand		
360				

State of California
The Resources Agency
DEPARTMENT OF WATER RESOURCES
DRILL HOLE LOG

Project & Feature: Lower Colusa Basin Conjunctive Use

Hole No. LCB-2

DEPTH	USCS	FIELD CLASSIFICATION and DESCRIPTION	SY	REMARKS
360 380 400	CL/ SC	(continued) 375-405ɜ: ~15% fine gravel, sub-angular & sub-rounded		
420	GW	405ɜ-425ɜ <u>WELL-GRADED GRAVEL w/ SAND</u>: Brown; most gravel is fine, but all sizes up to ½ɜɜ; sand is coarse (≥ 15% clay); <5% clay → ***Good Producing Zone***	20	
440	SC	425ɜ-445ɜ <u>SANDY CLAY</u>: Brown; sand is coarse (<5%); pebbles up to 1ɜɜ	5	
460	SP	445ɜ-470ɜ <u>POORLY-GRADED GRAVEL w/ SAND</u>: Brown; gravel is fine; sand is coarse; <10%. → ***Good Producing Zone***	20	
480	CL	470ɜ-490ɜ <u>SANDY LEAN CLAY</u>: Brown; sand is coarse, sub-angular & sub-rounded; ~5% subrounded pebbles	3	
500	SC	490ɜ-510ɜ <u>CLAYEY SAND w/ GRAVEL</u>: Brown; ~50% / 50% clay and sand/gravel	5	
520	SP	510ɜ-525ɜ <u>POORLY-GRADED SAND</u>: Brown; sand is coarse, sub-rounded to sub-angular; ~10-15% clay. → *Minor Aquifer*	20	
540	SC	525ɜ-555ɜ <u>SANDY LEAN CLAY w/ GRAVEL</u>: Brown; sand is coarse (30-50%); 5-15% fine gravel → Several sandy/clayey interbeds	5	
560				

State of California
The Resources Agency
DEPARTMENT OF WATER RESOURCES

DRILL HOLE LOG

Project & Feature: Lower Colusa Basin Conjunctive Use

Hole No. LCB-1

DEPTH	USCS	FIELD CLASSIFICATION and DESCRIPTION	SY	REMARKS
560 580 600	CL	555ɜ-605ɜ GRAVELLY LEAN CLAY w/ SAND: Gray; gravel is fine/pebble size; sand is coarse (~15%) → several coarse/fine interbeds	5	
	SC	605ɜ-620ɜ <u>SANDY LEAN CLAY w/ GRAVEL</u>: Gray → *Poor/Minor Aquifer*	10	
620 640 660 680 700	CL	620ɜ-720ɜ: <u>LEAN CLAY</u> – Gray; coarse sand & pebbles → several clayey/coarse interbeds 625ɜ-650ɜ: ~15-25% coarse sand 650ɜ-660ɜ: ~10% fine gravel, well-graded to ½" 690ɜ-720ɜ: ~5-15% fine gravel & coarse sand	3	
720	SC	720ɜ-730ɜ <u>CLAYEY SAND</u>: Gray-brown; Sand is coarse; <5% pebbles, all sub-angular and sub-rounded → *Poor/Minor Aquifer*	10	
740	CL	730ɜ-745ɜ <u>SANDY CLAY</u>: Gray-brown; Sand is coarse; <5% pebbles, all sub-angular and sub-rounded	3	
	SC	745ɜ-755ɜ <u>CLAYEY SAND</u>: Gray-brown; Sand is coarse; <5% pebbles, all sub-angular and sub-rounded → *Poor/Minor Aquifer*	10	
760				

State of California
The Resources Agency
DEPARTMENT OF WATER RESOURCES

DRILL HOLE LOG

Project & Feature: Lower Colusa Basin Conjunctive Use

Hole No. LCB-1

DEPTH	USCS	FIELD CLASSIFICATION and DESCRIPTION	SY	REMARKS
760 780 800 820	CL	755'-840' <u>SANDY LEAN CLAY</u>: Gray-brown; sand is coarse (~25%); <5% pebbles → Numerous clayey/coarse interbeds	3	
840 860 880	SP	840'-895' <u>POORLY-GRADED SAND</u>: Gray; sand is coarse sub-angular (<75%); >5% pebbles → <u>***Producing Zone***</u> 880-895': ~15% pebbles; 5% clay (w/ 75% coarse sand)	25	
900 920	SW	895'-930' <u>WELL-GRADED SAND</u>: Gray; sand is mostly coarse (~75%); ~5% pebbles; ~5% clay; other is medium sand → <u>***Producing Zone***</u>	25	
940	CL	930'-945' <u>SANDY LEAN CLAY</u>: Gray-brown; sand is coarse (~25%); <5% pebbles	3	
960		945'-960' <u>POORLY-GRADED SAND</u>: Gray; sand is coarse sub-angular (<75%); >5% pebbles → <u>***Aquifer***</u>	25	

State of California
The Resources Agency
DEPARTMENT OF WATER RESOURCES

DRILL HOLE LOG

Project & Feature: Lower Colusa Basin Conjunctive Use

Hole No. LCB-1

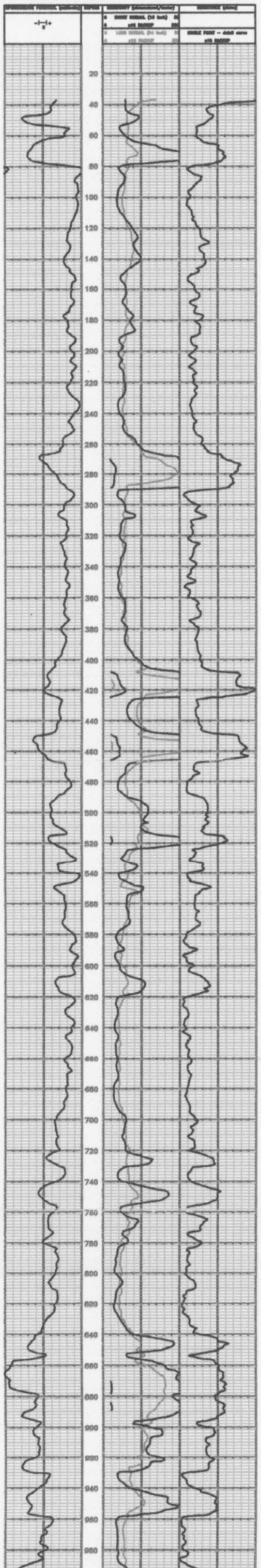
DEPTH	USCS	FIELD CLASSIFICATION and DESCRIPTION	SY	REMARKS
960		960з-1000з CLAYEY SAND: Gray-brown; sand is coarse, sub-angular (~75%); ~20% clay; ~5% pebbles		
980	SC		5	
1000		T.D. = 1,000з		

DIRECTIONAL SURVEY
Tabular Listing

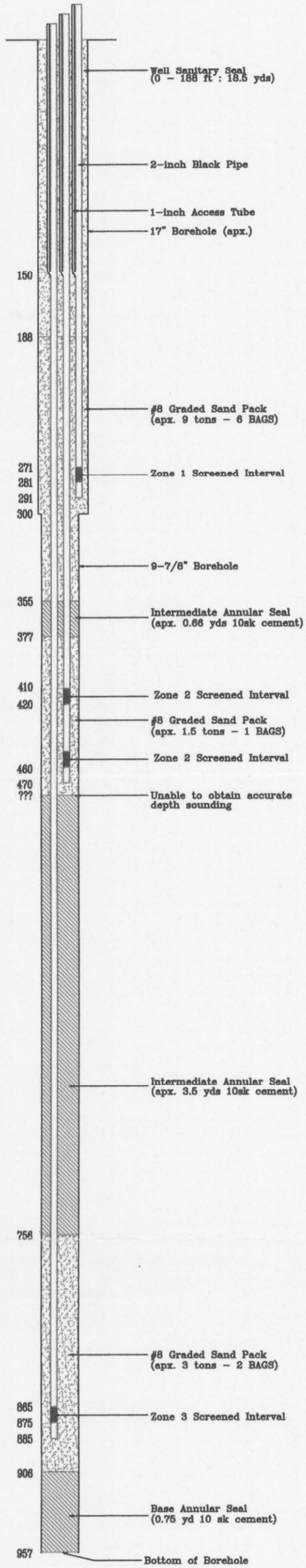
Measured Depth	Incli- nation	Direc- tion	Course Deviation	T.V. Depth	Distance	Bearing
0	0.0	241	0.00	0.00	0.00	0.0
20	0.0	170	0.00	20.00	0.00	0.0
40	0.0	349	0.00	40.00	0.00	0.0
60	0.0	348	0.00	60.00	0.00	0.0
80	0.1	48	0.02	80.00	0.02	48.0
100	0.1	50	0.03	100.00	0.05	48.7
120	0.1	53	0.03	120.00	0.09	49.8
140	0.1	50	0.03	140.00	0.12	50.3
160	0.0	32	0.02	160.00	0.14	50.2
180	0.1	200	0.02	180.00	0.12	54.3
200	0.1	257	0.03	200.00	0.09	56.2
220	0.1	258	0.03	220.00	0.06	44.6
240	0.1	249	0.03	240.00	0.04	17.3
260	0.1	308	0.03	260.00	0.04	334.2
280	0.1	280	0.03	280.00	0.07	316.8
300	0.1	250	0.03	300.00	0.10	301.1
320	0.1	242	0.03	320.00	0.12	287.4
340	0.2	284	0.05	340.00	0.17	282.5
360	0.2	290	0.07	360.00	0.24	283.8
380	0.0	34	0.03	380.00	0.27	284.6
400	0.0	36	0.00	400.00	0.27	284.6
420	0.0	45	0.00	420.00	0.27	284.6
440	0.4	280	0.07	440.00	0.34	283.7
460	0.1	246	0.09	460.00	0.43	281.6
480	0.4	263	0.09	480.00	0.51	278.0
•500	0.3	238	0.12	500.00	0.62	273.2
520	0.3	252	0.10	520.00	0.71	269.2
540	0.2	272	0.09	540.00	0.80	268.2
560	0.3	268	0.09	560.00	0.88	268.4
[illegible]	[illegible]	[illegible]	[illegible]	580.00	[illegible]	268.9
600	0.2	223	0.07	600.00	1.03	267.9
620	0.1	230	0.05	620.00	1.07	266.0
640	0.2	200	0.05	640.00	1.10	263.8
660	0.2	193	0.07	660.00	1.12	260.5
680	0.3	204	0.09	680.00	1.17	256.8
700	0.4	196	0.12	700.00	1.24	252.1
720	0.4	179	0.14	720.00	1.30	246.6
740	0.3	170	0.12	740.00	1.35	241.7
760	0.2	173	0.09	760.00	1.38	238.3
780	0.6	178	0.14	779.99	1.45	233.4
800	0.5	180	0.19	799.99	1.57	227.7
820	0.7	155	0.21	819.99	1.68	221.5
840	0.7	158	0.24	839.99	1.79	214.4
860	0.5	135	0.21	859.99	1.89	208.7
880	0.6	140	0.19	879.99	1.96	203.4
900	0.3	138	0.16	899.99	2.03	199.4
920	0.9	125	0.21	919.99	2.11	194.0
940	1.0	133	0.33	939.98	2.27	186.4
960	0.8	107	0.31	959.98	2.41	179.8
980	0.7	120	0.26	979.98	2.53	174.4
998	1.5	126	0.35	997.98	2.76	168.9

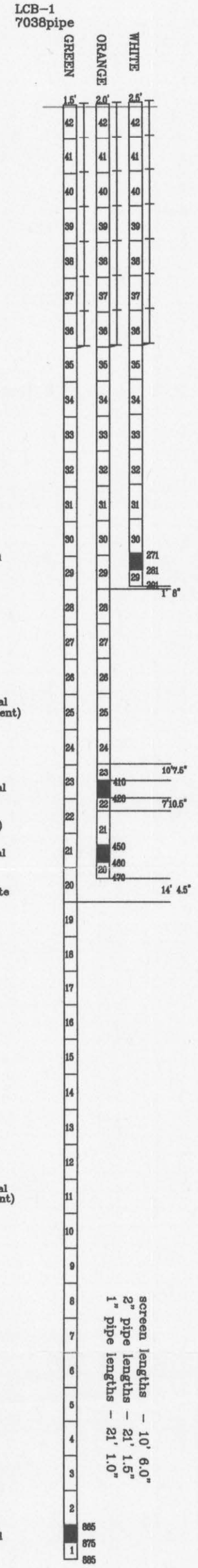
EATON DRILLING CO., INC.

Customer DWR (District 108)	API# 22-170-02 County Colusa
Job Number 7038 Date 12/23/96	T.R. 13N 1E s18
Location 50ft Nof White Rd. & 10ft Wof Poundstone Rd.	Water n/a Mud n/a



AS BUILT Well Profile
LCB-1 (7038 Mon)





welenco

ELECTRIC LOG

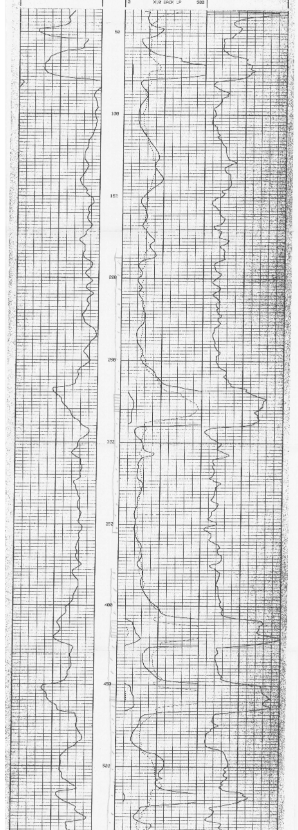
FILING NO.	COMPANY EATON DRILLING		
	WELL ICB-1		
	FIELD DUNNIGAN		
	COUNTY COLUSA STATE CALIFORNIA		
JOB NO. 29773	LOCATION: WHITE RD. AT COLUSA BASIN DRAINAGE CANAL SEC TWP RGE	OTHER SERV. LATERAL 6' DEVIATION	
Permanent Datum: GROUND LEVEL Elev: N/A		K.B.	
Log Measured From G.L. 0 Ft Above Perm Datum		D.F.	
Drilling Measured From G.L.		G.L.	
Date	12-23-1998		
Run No.	ONE		
Depth - Driller	1000'		
Depth - Logger	1003'		
Btm. Log Inter.	1000'		
Top Log Inter.	36'		
Casing-Driller	N/A at		
Casing-Logger	N/A at		
Bit Size	8 1/4"		
Type Fluid In Hole	BENTONITE		
Dens. / Visc.	N/A / N/A		
pH / Fluid Loss	N/A / N/A ml		
Source of Sample	CIRC.		
Rm at Meas. Temp	12.2 at 75 F		
Rmf at Meas. Temp	11.8 at 75 F		
Rmc at Meas. Temp	N/A at F		
Source: Rmf Rmc	MEAS		
Rm at BHT	N/A at F		
Time Since Circ.	2 HRS		
Max. Rec. Temp.	N/A F		
Equip / Location	1.8 / BFL		
Recorded By	DORINSKI		
Witnessed By	CHUCK OWENS		

Fold Here This Heading and Log Conform To API RP 31

Changes in Mud Type or Additional Samples				Scale Changes			
Date / Sample No.				Type Log	Depth	Scale Up Hole	Scale Down Hole
Depth-Driller							
Type Fluid in Hole							
Dens. / Visc.							
pH / Fluid Loss		ml	ml				
Source of Sample				Equipment Data			
Rm at Meas. Temp.	at F	at F		Run No.	Tool Type	Pad Type	Tool Pos / Other
Rmf at Meas. Temp.	at F	at F		ONE	ELECTRIC		FREE
Rmc at Meas. Temp.	at F	at F					
Source: Rmf / Rmc							
Rm at BHT	at F	at F					
Rmf at BHT	at F	at F					
Rmc at BHT	at F	at F					

REMARKS WELL DRILLED BY EATON DRILLING

SPONTANEOUS POTENTIAL millivolts	DEPTHS	RESISTIVITY ohms·m²/m	RESISTANCE ohms
- ⊢+⊣ + 5 mV		0 SHORT NORMAL 16 Inch 50	
		0 X10 BACK UP 500	
		0 LONG NORMAL 64 Inch 50	SINGLE POINT Detail Curve
		0 X10 BACK UP 500	



SPONTANEOUS POTENTIAL millivolts	DEPTHS	RESISTIVITY ohms·m²/m	RESISTANCE ohms
		0 X10 BACK UP 500	Detail Curve SINGLE POINT
5 mV ⊢+⊣		0 LONG NORMAL 64 INCH 50	
		0 X10 BACK UP 500	
		0 SHORT NORMAL 16 INCH 50	

welenco

6' LATERAL LOG

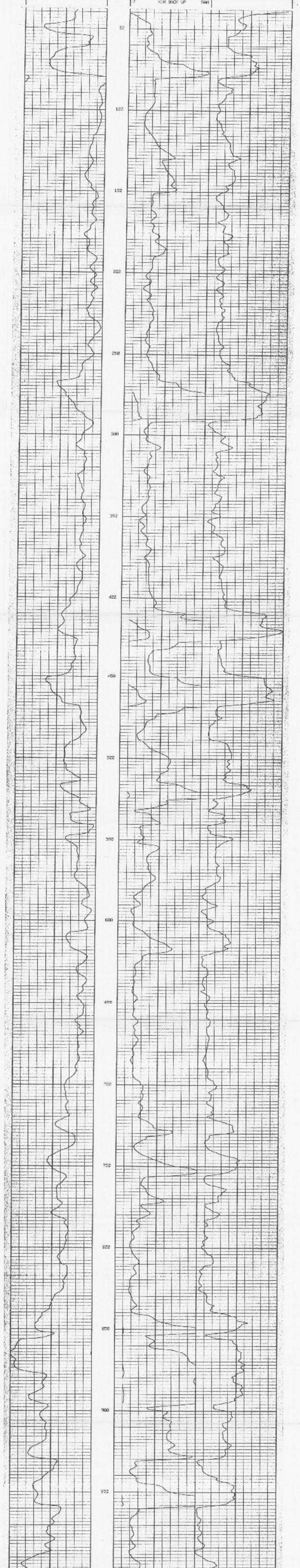
COMPANY EATON DRILLING
COUNTY COLUSA STATE CALIFORNIA
OTHER SERV: E-LOG DEVIATION
Permanent Datum: GROUND LEVEL

Field Here — This Heading and Log Conform To API RP 31

Changes in Mud Type or Additional Samples			Scale Changes			
Date / Sample No.			Type Log	Depth	Scale Up Hole	Scale Down Hole
Depth-Driller						
Type Fluid In Hole						
Dens. / Visc.						
ph / Fluid Loss	ml	ml				
Source of Sample			Equipment Data			
Rm at Meas. Temp.	at F	at F	Run No.	Tool Type	Pad Type	Tool Pos / Other
Rmf at Meas. Temp.	at F	at F	ONE	6' LATERAL		FREE
Rmc at Meas. Temp.	at F	at F				
Source: Rmf / Rmc						
Rm at BHT	at F	at F				
Rmf at BHT	at F	at F				
Rmc at BHT	at F	at F				

REMARKS: WELL DRILLED BY EATON DRILLING

SPONTANEOUS POTENTIAL millivolts	DEPTHS	RESISTIVITY ohmmeters2 /meter	RESISTANCE ohms
5 mV		0 — 50	
		0 — X10 BACK UP — 500	
		2 — LATERAL 6 Feet — 50	SINGLE POINT Detail Curve
		0 — X10 BACK UP — 500	



SPONTANEOUS POTENTIAL millivolts	DEPTHS	RESISTIVITY ohmmeters2/ meter	RESISTANCE Ohms
5 mV		2 — X10 BACK UP — 500	
		2 — LATERAL 6 Feet — 50	Detail Curve SINGLE POINT
		0 — X10 BACK UP — 500	
		0 — 50	

ORIGINAL
File Original, Duplicate and Triplicate with the REGIONAL WATER POLLUTION CONTROL BOARD No. 5
(Insert appropriate number)

WATER WELL DRILLERS REPORT
(Sections 7076, 7077, 7078, Water Code)

STATE OF CALIFORNIA

LOCATION NOT CHECKED

CONFIDENTIAL Water Code

Do Not Fill In
No 40376
State Well No.
Other Well No. 13N/1W-22P

(2) LOCATION OF WELL:
County Colusa Owner's number, if any—
R. F. D. or Street No. Near Southwest Corner of the Southeast 1/4 of the Southwest 1/4 of Section 22, Township 13 North, Range I West, M. D. B. & M., and being just off the Mumma Road Right of Way

(3) TYPE OF WORK (check):
New well ☒ Deepening ☐ Reconditioning ☐ Abandon ☐
If abandonment, describe material and procedure in Item 11.

(4) PROPOSED USE (check):
Domestic ☐ Industrial ☐ Municipal ☐
Irrigation ☒ Test Well ☐ Other ☐

(5) EQUIPMENT:
Rotary ☒
Cable ☐
Dug Well ☐

(6) CASING INSTALLED:
SINGLE ☒ DOUBLE ☐

From ft.	to ft.	Diam.	Gage or Wall	If gravel packed: Diameter of Bore	from ft.	to ft.
0	236	12"	3/16	22"	0	236

Type and size of shoe or well ring Point Size of gravel: 5/8"
Describe joint Collar and all ~~xxxxxx~~ welded

(7) PERFORATIONS:
Type of perforator used Factory Punched
Size of perforations 1-1/2" in., length, by 3/16" in.

From ft.	to ft.	Perf. per row	Rows per ft.
196	236	4	24

(8) CONSTRUCTION:
Was a surface sanitary seal provided? ☐ Yes ☒ No To what depth ft.
Were any strata sealed against pollution? ☐ Yes ☒ No If yes, note depth of strata
From ft. to ft.
Method of Sealing None

(9) WATER LEVELS:
Depth at which water was first found 112 ft.
Standing level before perforating 45 ft.
Standing level after perforating 45 ft.

(10) WELL TESTS:
Was a pump test made? ☒ Yes ☐ No If yes, by whom? W.P.Wilson
Yield: 1950 gal./min. with 79' T.H ft. draw down after 8 hrs.
Temperature of water ? Was a chemical analysis made? ☐ Yes ☒ No
Was electric log made of well? ☐ Yes ☒ No

(11) WELL LOG:
Total depth 236 ft. Depth of completed well 236 ft.
Formation: Describe by color, character, size of material, and structure.

ft. to	ft.	Formation
0	20	Soil
20	112	Clay
112	114	Brittle
114	117	Clay
117	122	Brittle Clay
122	138	Gravel
138	142	Clay
142	157	Brittle Sandy
157	160	Brit., some fine Grav.
160	165	Fine Gravel
165	177	Clay
177	181	Brittle
181	195	Sandy Brittle
195	232	Gravel
232	236	Clay

Well Pumped 1900 GPM at 79 ft lift
" " 1200 " " 53 " "

CONFIDENTIAL Section 7076, Water Code

Work started Dec. 26 1956, Completed Dec. 31 1956

WELL DRILLER'S STATEMENT:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Aulman & Aulman
(Person, firm, or corporation) (Typed or printed)
Address 1309 Westwood Way
Woodland, California
[SIGNED] A. E. Aulman
Well Driller
License No. 109870 Dated 8/1/56, 19

95689 3-54 50M QUIN SPO
DWR FORM NO. 246 (REV. 3-54)

13N-2W-2

13N/02W-12

Do Not Fill In

ORIGINAL
File with DWR

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

WATER WELL DRILLERS REPORT

№ 115408

State Well No.

Other Well No. CONFIDENTIAL LOG Water Code Sec. 13752

(1) OWNER: N A

(2) LOCATION OF WELL:
County Colusa Owner's number, if any
Township, Range, and Section T13-N, R-2W, Sec. 2
Distance from cities, roads, railroads, etc.

(3) TYPE OF WORK (check):
New Well ☒ Deepening ☐ Reconditioning ☐ Destroying ☐
If destruction, describe material and procedure in Item 11.

(4) PROPOSED USE (check):
Domestic ☐ Industrial ☐ Municipal ☐
Irrigation ☒ Test Well ☐ Other ☐

(5) EQUIPMENT:
Rotary ☒
Cable ☐
Other ☐

(6) CASING INSTALLED: NONE
STEEL: OTHER:
SINGLE ☐ DOUBLE ☐

If gravel packed

From ft.	To ft.	Diam.	Gage or Wall	Diameter of Bore	From ft.	To ft.

Size of shoe or well ring: Size of gravel:
Describe joint

(7) PERFORATIONS OR SCREEN: NONE
Type of perforation or name of screen

From ft.	To ft.	Perf. per row	Rows per ft.	Size in. x in.

(8) CONSTRUCTION: NONE
Was a surface sanitary seal provided? Yes ☐ No ☐ To what depth ft.
Were any strata sealed against pollution? Yes ☐ No ☐ If yes, note depth of strata
From ft. to ft.
From ft. to ft.
Method of sealing

(9) WATER LEVELS:
Depth at which water was first found, if known ft.
Standing level before perforating, if known ft.
Standing level after perforating and developing ft.

(10) WELL TESTS:
Was pump test made? Yes ☐ No ☒ If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
Temperature of water Was a chemical analysis made? Yes ☐ No ☒
Was electric log made of well? Yes ☐ No ☒ If yes, attach copy

(11) WELL LOG:
Total depth 778 ft. Depth of completed well ft.
Formation: Describe by color, character, size of material, and structure
ft. to ft.

TEST HOLE ONLY

From		To	Formation
0	-	6	Top soil
6	-	18	Gravel in clay
18	-	26	Loose gravel
26	-	34	Gravel in clay
34	-	45	Loose sand and gravel
45	-	76	Gravel in clay
76	-	92	Loose sand and gravel
92	-	182	Yellow clay
182	-	206	Loose sand and gravel
206	-	252	Gravel and clay mixed
252	-	264	Loose gravel and rocks
264	-	376	Hard blue clay
376	-	380	Cemented rock
380	-	386	Loose sand and gravel
386	-	418	Hard yellow clay
418	-	434	Layers, sand & blue clay
434	-	441	Hard blue clay
441	-	446	Sand and gravel
446	-	452	Blue clay
452	-	464	Sand and gravel
464	-	486	Soft yellow clay
486	-	504	Sand and gravel
504	-	532	Hard yellow clay
532	-	536	Broken shale and clay
536	-	544	Hard blue clay
544	-	559	Sand, gravel & shale
559	-	615	Hard blue clay
615	-	631	Broken shale and sand
631	-	646	Hard yellow clay
646	-	658	Gravel and broken shale
658	-	726	Hard yellow clay
726	-	778	Broken shale and clay

Work started 5-12- 19 74, Completed 5-28- 19 74

WELL DRILLER'S STATEMENT:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME E. E. LUHDORFF CO., INC.
(Person, firm, or corporation) (Typed or printed)

Address P. O. Box 1326
Woodland, California 95695

[SIGNED] (signature)
(Well Driller)

License No. 276625 Dated 7-10, 19 74

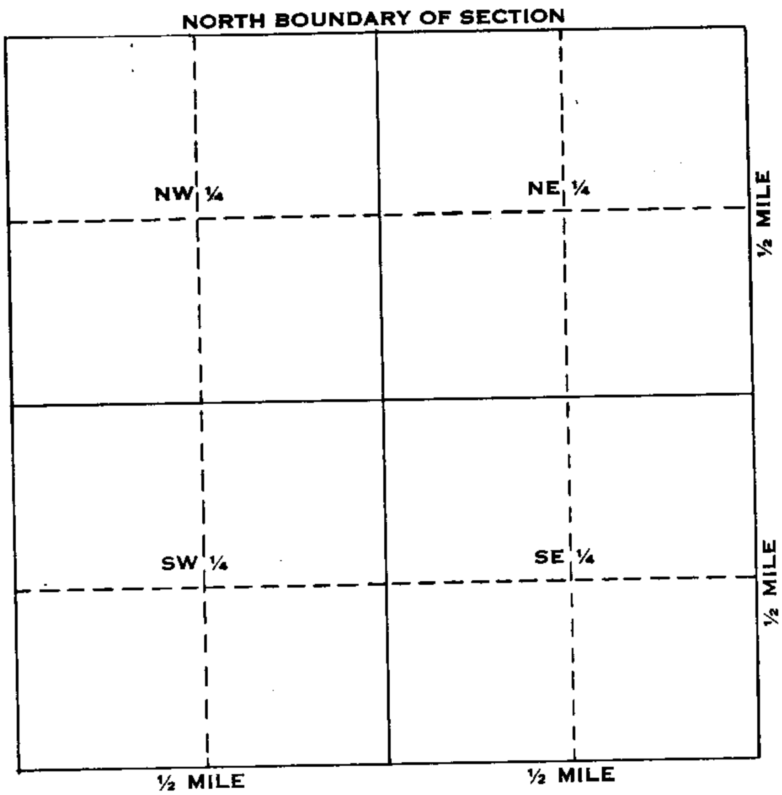
SKETCH LOCATION OF WELL ON REVERSE SIDE

CONFIDENTIAL LOG
Water Code Sec. 13752

DWR 188 (REV. 9-68)

67139-750 8-72 30M TRIP OSP

WELL LOCATION SKETCH

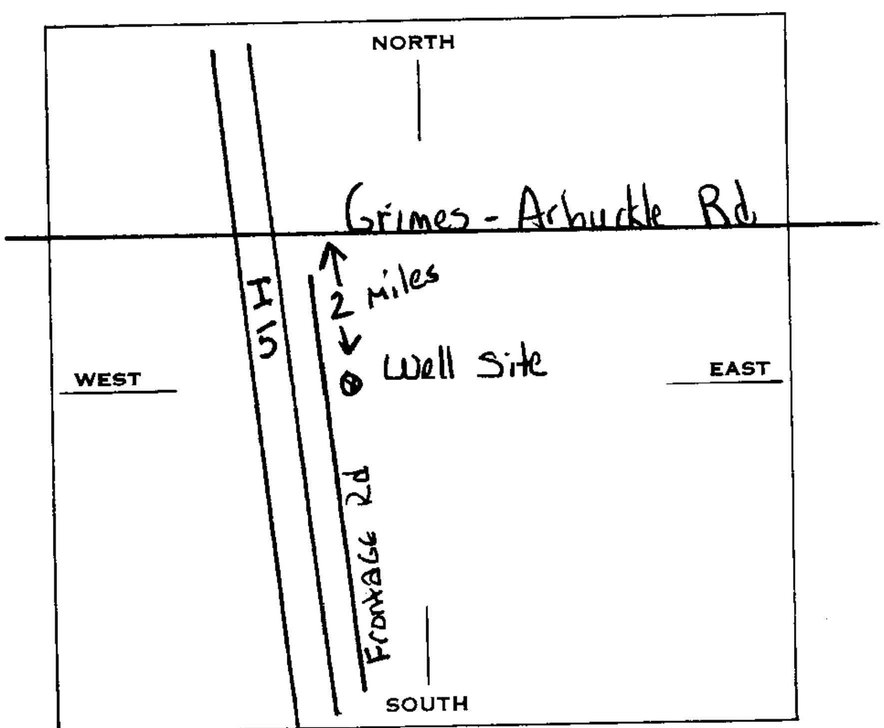


A. Location of well in sectionized areas.
Sketch roads, railroads, streams, or other features as necessary.

Township 13 N N/S

Range 2 W E/W

Section No. 2



B. Location of well in areas not sectionized.
Sketch roads, railroads, streams, or other features as necessary.
Indicate distances.

ORIGINAL
File Original, Duplicate and Triplicate with the
REGIONAL WATER POLLUTION
CONTROL BOARD No. 5

WATER WELL DRILLERS REPORT

(Sections 7076, 7077, 7078, Water Code)

STATE OF CALIFORNIA

LOCATION NOT CHECKED

Do Not Fill In
No 77457
State Well No.
Other Well No. 3N/2W-15

(15J)

(2) LOCATION OF WELL:

County Colusa Owner's number, if any--

R. F. D. or Street No.
1/2 mile north & 1/8 mile west
of SE corner in Sec. 15 Twp 13 NR2W

(3) TYPE OF WORK (check):

New well ☒ Deepening ☐ Reconditioning ☐ Abandon ☐

If abandonment, describe material and procedure in Item 11.

(4) PROPOSED USE (check):

Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(5) EQUIPMENT:

Rotary ☒
Cable ☐
Dug Well ☐

(6) CASING INSTALLED:

SINGLE ☒ DOUBLE ☐

From ft.	to ft.	Diam.	Gage or Wall
0	362	8"	.188

If gravel packed

Diameter of Bore	from ft.	to ft.
18"	0	362

Type and size of shoe or well ring

Size of gravel: Rerun pea gravel

Describe joint Butt welded

(7) PERFORATIONS:

Type of perforator used Machine cut at factory

Size of perforations 1/8 in., length, by 3 in.

From ft.	to ft.	Perf. per row	Rows per ft.
270	362		

(8) CONSTRUCTION:

Was a surface sanitary seal provided? ☐ Yes ☒ No To what depth ft.

Were any strata sealed against pollution? ☐ Yes ☒ No If yes, note depth of strata

From ft. to ft.

Method of Sealing

(9) WATER LEVELS:

Depth at which water was first found ft.

Standing level before perforating ft.

Standing level after perforating ft.

(10) WELL TESTS: m See over for test

Was a pump test made? ☒ Yes ☐ No If yes, by whom E.E.Luhdorff Co.

Yield: gal./min. with ft. draw down after hrs.

Temperature of water Was a chemical analysis made? ☐ Yes ☒ No

Was electric log made of well? ☐ Yes ☒ No

(11) WELL LOG:

Total depth 362 ft. Depth of completed well 362 ft.

Formation: *Describe by color, character, size of material, and structure.*

From ft.	to ft.		Formation
0	10	10'	Yellow clay & rocks
10	18	8	Sand & rocks
18	110	92	Yellow clay and rocks
110	118	8	Rocks and gravel
118	181	63	Yellow clay & rocks
181	196	15	Rocks, sand & gravel
196	245	49	Yellow clay & silt
245	249	4	Sand & gravel
249	270	21	Yellow clay & silt
270	291	21	Loose sand & gravel
291	310	19	Blue clay
310	314	4	Loose sand & gravel
314	342	28	Blue clay
342	359	17	Loose rock, gravel
359	362	3	Blue clay

CONFIDENTIAL Sec. 13751, Water Code

Work started Aug. 29 1963. Completed Sept. 9 1963

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME E. E. LUHDORFF
(Person, firm, or corporation) (Typed or printed)

Address West Main St.
Woodland, California

[SIGNED] E. E. Luhdorff
Well Driller

License No. 123211 Dated Sept. 23, 1963

DWR 188 (REV. 3-54)

Results of test:

350 GPM	@ 200' P.L.	
370	196	
190	191	
100	188	
4 minute return -	185'	

ORIGINAL
File with DWR
Page 1 of 1
Owner's Well No. 254895
Date Work Began 08/03/92 Ended 08/04/92
Local Permit Agency Colusa County Health Dept.
Permit No. 0323 Permit Date

RECEIVED
AUG 21 1992
D. W. R.

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. 423344

DWR USE ONLY — DO NOT FILL IN
13N02W20H M
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) X VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

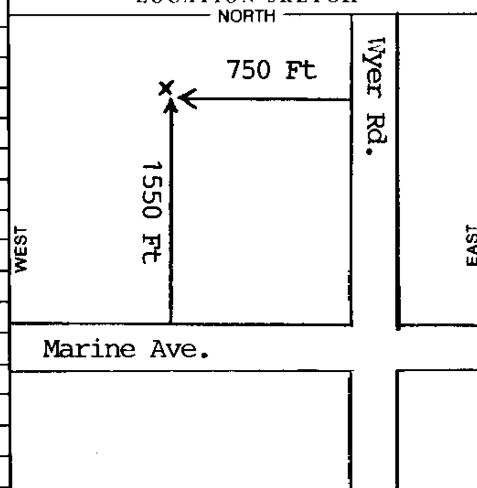
DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
0	3	Soil
3	16	Gravel
16	30	Clay
30	100	Clay with Streaks of Gravel
100	125	Clay
125	140	Sand & Gravel
140	185	Clay
185	196	Gravel & Sand
196	210	Clay
210	225	Gravel & Sand
225	240	Clay
240	252	Gravel & Sand
252	300	Clay
300	315	Gravel & Sand
315	320	Clay

TOTAL DEPTH OF BORING 320 (Feet)
TOTAL DEPTH OF COMPLETED WELL 320 (Feet)

WELL OWNER

Address 1550 Ft. North ot Marine Ave.
City 750 Ft. West of Wyer Road
County Colusa
APN Book 21 Page 130 Parcel 92
or Township 13 N Range 2 W Section 20 H
or Latitude ___ NORTH Longitude ___ WEST
DEG. MIN. SEC. DEG. MIN. SEC.

LOCATION SKETCH



Illustrate or Describe Distance of Well from Landmarks such as Roads, Buildings, Fences, Rivers, etc.
PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

X NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USE(S) (✓)

___ MONITORING
WATER SUPPLY
X Domestic
___ Public
___ Irrigation
___ Industrial
___ "TEST WELL"
___ CATHODIC PROTECTION
___ OTHER (Specify)

DRILLING METHOD Rotary FLUID Mud

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___
ESTIMATED YIELD* ___ (GPM) & TEST TYPE ___
TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)
* *May not be representative of a well's long-term yield.*

CASING(S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	200	9"	XX				F-480	5"	1/4"	
200	260	9"		XX			F-480	5"	1/4"	.032
260	300	9"	XX				F-480	5"	1/4"	
300	320	9"		XX			F-480	5"	1/4"	.032

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	25	X			
25	340				Pea Gravel 1/4"X1/2"

~~AUG 26 1992~~

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other ___
ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Vaca Drilling Co./ Del Crew Jr. 190
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

P. O. Box 759 Vacaville CA 95696
ADDRESS CITY STATE ZIP

Signed Delbert Crew Jr 8-10-92 532679
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 7-90
IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

RECEIVED

ORIGINAL
File with DWR MAY 06 2010
Page 1 of 4
Owner's Well No. 8454
Date Work Began 3/29/2010 , Ended 4/1/2010
Local Permit Agency Colusa County Health Dept
Permit No. 2010-018 Permit Date 3/17/2010

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet
No. E0109311
ABCD

DWR USE ONLY — DO NOT FILL IN
14N/01E-35
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD ROTARY FLUID MUD

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION Describe material, grain, size, color, etc.
0	5	Top soil
5	42	Brown clay with gravel streaks
42	70	Sand and gravel
70	210	Sand and gravel with brown clay streaks
210	230	Sand and gravel
230	980	Sandy blue clay
980	1000	Black sand with blue clay streaks
1000	1540	Sandy blue clay

TOTAL DEPTH OF BORING 1540 (Feet)
TOTAL DEPTH OF COMPLETED WELL 1015 (Feet)

WELL OWNER

WELL LOCATION

Address 225' W of Wilson Bend Rd & 840' S of
City Fruchtenicht CA
County COLUSA
APN Book 022 Page 130 Parcel 057
Township 14 N Range 1 E Section 35
Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH
WEST
EAST
SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___
ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___
TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)
*May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
Zone	1									
0	50	14	✓				PVC	2.5	SCH 80	
50	60	14		✓			PVC	2.5	SCH 80	.030
60	70	14	✓				PVC	2.5	SCH 80	
Zone	2									
0	135	14	✓				PVC	2.5	SCH 80	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	30	✓			Sand Slurry
30	40		✓		Bentonite Seal
40	71			✓	SRI#8 Sand
71	84		✓		Bentonite Seal
84	113			✓	SRI#8 Sand
113	123		✓		Bentonite Seal

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analysis
___ Other
ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.
NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
20 WEST KENTUCKY AVE — WOODLAND — CA — 95695
ADDRESS CITY STATE ZIP
Signed [signature] — 04/29/10 — C57 A HIC - 13378
WELL DRILLER/AUTHORIZED REPRESENTATIVE — DATE SIGNED — C-57 LICENSE NUMBER

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File with DWR

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. **E0109311**

DWR USE ONLY -- DO NOT FILL IN

STATE WELL NO./STATION NO.

LATITUDE | LONGITUDE

APN/TRS/OTHER

Owner's Well No. 8454

Date Work Began 3/29/2010, Ended 4/1/2010

Local Permit Agency Colusa County Health Dept

Permit No. 2010-018 Permit Date 3/17/2010

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD ROTARY FLUID MUD

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION Describe material, grain, size, color, etc.
0	5	Top soil
5	42	Brown clay with gravel streaks
42	70	Sand and gravel
70	210	Sand and gravel with brown clay streaks
210	230	Sand and gravel
230	980	Sandy blue clay
980	1000	Black sand with blue clay streaks
1000	1540	Sandy blue clay

TOTAL DEPTH OF BORING 1540 (Feet)

TOTAL DEPTH OF COMPLETED WELL 1015 (Feet)

WELL LOCATION

Address 225' Wof Wilson Bend Rd & 840' Sof

City Fruchtenicht CA

County COLUSA

APN Book 022 Page 130 Parcel 057

Township 14 N Range 1 E Section 35

Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH

WEST

EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.**

ACTIVITY (✓)

✓ NEW WELL

MODIFICATION/REPAIR
- ___ Deepen
- ___ Other (Specify)

___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
- ___ Domestic ___ Public
- ___ Irrigation ___ Industrial

MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
135	145	14		✓			PVC	2.5	SCH 80	.030
145	215	14	✓				PVC	2.5	SCH 80	
215	225	14		✓			PVC	2.5	SCH 80	.030
225	245	14	✓				PVC	2.5	SCH 80	
Zone	3									
0	545	14/10	✓				PVC	2.5	SCH 80	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
123	250			✓	SRI#8 Sand
250	275		✓		Bentonite Seal
275	525			✓	SRI#8 Sand
525	529		✓		Bentonite Seal
529	736			✓	SRI#8 Sand
736	747		✓		Bentonite Seal

ATTACHMENTS (✓)

- ___ Geologic Log
- ___ Well Construction Diagram
- ___ Geophysical Log(s)
- ___ Soil/Water Chemical Analysis
- ___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

20 WEST KENTUCKY AVE WOODLAND CA 95695
ADDRESS CITY STATE ZIP

Signed Mark Dawson 04/29/10 C57 A HIC - 13378
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

ORIGINAL
File with DWR

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. E0109311

DWR USE ONLY -- DO NOT FILL IN

STATE WELL NO./ STATION NO.

LATITUDE | LONGITUDE

APN/TRS/OTHER

Owner's Well No. 8454

Date Work Began 3/29/2010, Ended 4/1/2010

Local Permit Agency Colusa County Health Dept

Permit No. 2010-018 Permit Date 3/17/2010

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD ROTARY FLUID MUD

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION Describe material, grain, size, color, etc.
0	5	Top soil
5	42	Brown clay with gravel streaks
42	70	Sand and gravel
70	210	Sand and gravel with brown clay streaks
210	230	Sand and gravel
230	980	Sandy blue clay
980	1000	Black sand with blue clay streaks
1000	1540	Sandy blue clay

TOTAL DEPTH OF BORING 1540 (Feet)

TOTAL DEPTH OF COMPLETED WELL 1015 (Feet)

WELL LOCATION

Address 225' Wof Wilson Bend Rd & 840' Sof

City Fruchtenicht CA

County COLUSA

APN Book 022 Page 130 Parcel 057

Township 14 N Range 1 E Section 35

Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH

WEST

EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL

MODIFICATION/REPAIR
- ___ Deepen
- ___ Other (Specify)

___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
- ___ Domestic ___ Public
- ___ Irrigation ___ Industrial

MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

* *May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
545	555	10-3/4		✓			PVC	2.5	SCH 80	.030
555	610	10-3/4	✓				PVC	2.5	SCH 80	
610	620	10-3/4		✓			PVC	2.5	SCH 80	.030
620	695	10-3/4	✓				PVC	2.5	SCH 80	
695	705	10-3/4		✓			PVC	2.5	SCH 80	.030
705	736	10-3/4	✓				PVC	2.5	SCH 80	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
747	932			✓	SRI#8 Sand
932	937		✓		Bentonite Seal
937	1039			✓	SRI#8 Sand
1039	1049		✓		Bentonite Seal
1049	1060			✓	Native Fill
1060	1440	✓			Sand Slurry

ATTACHMENTS (✓)

- ___ Geologic Log
- ___ Well Construction Diagram
- ___ Geophysical Log(s)
- ___ Soil/Water Chemical Analysis
- ___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

20 WEST KENTUCKY AVE — WOODLAND — CA — 95695
ADDRESS — CITY — STATE — ZIP

Signed Mark Damion
WELL DRILLER/AUTHORIZED REPRESENTATIVE

04/29/10
DATE SIGNED

C57 A HIC - 13378
C-57 LICENSE NUMBER

ORIGINAL
File with DWR

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet
No. **E0109311**

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./ STATION NO.
LATITUDE | LONGITUDE
APN/TRS/OTHER

Owner's Well No. 8454
Date Work Began 3/29/2010, Ended 4/1/2010
Local Permit Agency Colusa County Health Dept
Permit No. 2010-018 Permit Date 3/17/2010

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD ROTARY FLUID MUD

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain, size, color, etc.*
0	5	Top soil
5	42	Brown clay with gravel streaks
42	70	Sand and gravel
70	210	Sand and gravel with brown clay streaks
210	230	Sand and gravel
230	980	Sandy blue clay
980	1000	Black sand with blue clay streaks
1000	1540	Sandy blue clay

TOTAL DEPTH OF BORING 1540 (Feet)
TOTAL DEPTH OF COMPLETED WELL 1015 (Feet)

WELL LOCATION

Address 225' Wof Wilson Bend Rd & 840' Sof
City Fruchtenicht CA
County COLUSA
APN Book 022 Page 130 Parcel 057
Township 14 N Range 1 E Section 35
Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH
WEST
EAST
SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___
ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___
TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)
May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
Zone	4									
0	985	14/10/8	✓				PVC	2.5	SCH 80	
985	995	8-3/4		✓			PVC	2.5	SCH 80	.030
995	1015	8-3/4	✓				PVC	2.5	SCH 80	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
1440	1540			✓	Native Fill

ATTACHMENTS (✓)

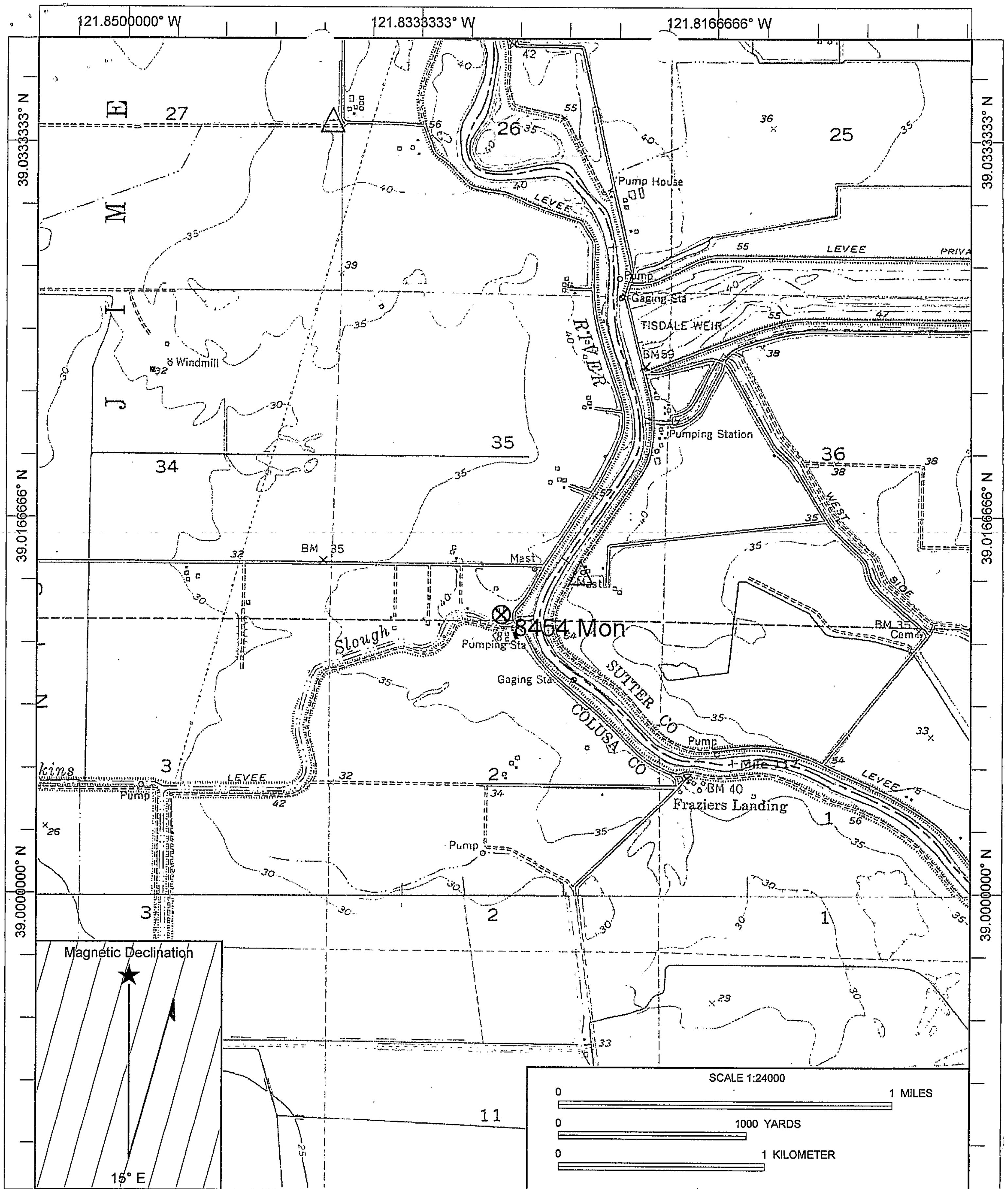
___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analysis
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.
NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
20 WEST KENTUCKY AVE WOODLAND CA 95695
ADDRESS CITY STATE ZIP
Signed Mark Damion 04/29/10 C57 A HIC - 13378
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM



Name: TISDALE WEIR
Date: 3/16/2010
Scale: 1 inch equals 2000 feet

Caption: DWR (RD 108) - Job# 8454 Mon
APN: 022-130-057
T14N R1E s35

?S-CAL-T1
May 1948

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES BRANCH

May Be 4K3 JUL 13 1946
Probably 15 4K3 Sbauss

No. 14/ 1W - 4K1

Other Nos. Map 53

WELL LOG

We have NO Record of 4K1

State California County Colusa Subarea Grimes

Owner Glenn Morris

Location 2400 feet north, 2150 feet west of S^{E} corner (USBR)

Drilled by Aulman Address

Date 5-1942 Casing diam. 16 Land-surf. alt. 34

Source of data Driller (USBR)

(Enter type of well, perforations, yield, and drawdown at end of log)

Correlation	Material	Thickness (feet)	Depth (feet)
	Surface soil	7	7
	Clay, gray	29	36
	Clay, sandy	6	42
	Sandy	4	46
	~~////~~Gravel	$20\frac{1}{2}$	$66\frac{1}{2}$
	~~//////~~ Clay, soft	$3\frac{1}{2}$	70
	Clay, tough	3	73
	Perforated 46-70'		
	1300 GPM		
	Redwood plug		
	Rotary		
	7.3 feet to water level		

Record by [illegible] Date

STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

JUL 13 19— State No. 14N/1W-4K3

WELL DATA

BRANCH NORTHERN

Owner ERNEST SACHREITER | State No. 14N/1W-4K3
Address | Other No.
Tenant
Address

Type of Well: Hydrograph ☐ Key ☐ Index ☐ ~~Semi~~annual ☒

Location: County COLUSA Basin COLUSA CO. No. 5-21.04

U.S.G.S. Quad. GRIMES Quad. No. 5-195C 545C

NW ¼ SE ¼ Section 4, Twp. 14N, Rge. 1W MD SB H Base & Meridian

Description 1.40 MI. W/o DRY SLOUGH RD. ON SACHREITER RD, THENCE 50' S/o ℄ OF SACHREITER RD.

Reference Point description T. O. C. UNDER P.B., N. SIDE

which is @ ft. above/below land surface. Ground Elevation 35.0 ft.

Reference Point Elev. 35.0 ft. Determined from USGS QUAD

Well: Use IRRIG Condition Depth 73 ft.

Casing, size 16 in., perforations 46' to 70' See log attached

Measurements By: DWR ☒ USGS ☐ USBR ☐ County ☐ Irr. Dist. ☐ Water Dist. ☐ Cons. Dist. ☐

Chief Aquifer: Name Depth to Top Aq. Depth to Bot. Aq.

Type of Material Perm. Rating Thickness

Gravel Packed? Yes ☐ No ☐ Depth to Top Gr. Depth to Bot. Gr.

Supp. Aquifer Depth to Top Aq. Depth to Bot. Aq.

Driller Aulman

Date drilled 1942 Log, filed ✓ USBR log open (1) confidential (2)

Equipment: Pump, type TURBINE make PEERLESS

Serial No. J31847 Size of discharge pipe 10 in.

Power, Kind ELEC. Make G. E.

H. P. 25 Motor Serial No. NHJ6918274

Elec. Meter No. 80233 Transformer No.

Yield G.P.M. Pumping level ft.

Water Analysis: Min. (1) San. (2) H.M. (3)

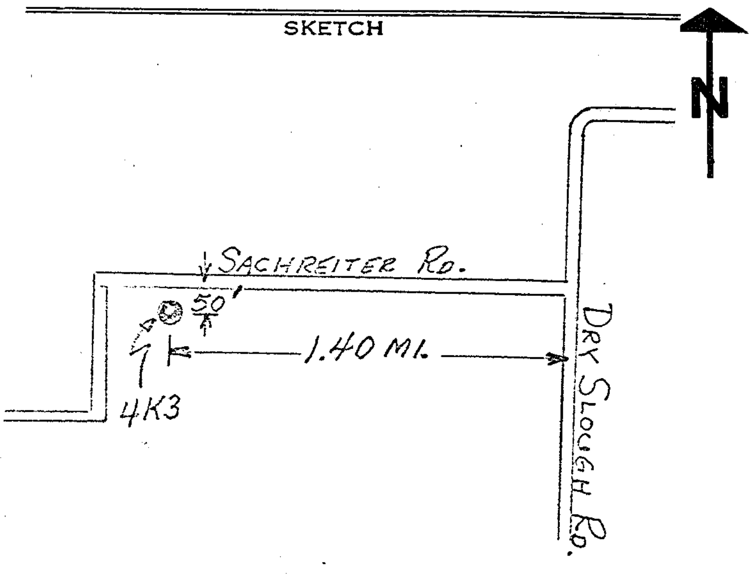
Water Levels available: Yes (1) No

Period of Record: Begin End

Collecting Agency:

Prod. Rec. (1) Pump Test (2) Yield (3)

SKETCH



REMARKS

Recorded by: S.H. ADAMS FROM FIELD CK.
Date 4-3-67

DWR 429

USGS-CAL-T1
May 1948

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES BRANCH

No. 14/2W - ~~13N1~~

Other Nos. BR 14-2W-13

WELL LOG

CONFIDENTIAL LOG
Water Code Sec. 13752

State California County Colusa Subarea Arbuckle

Owner 3027

Location 1380 ft. north and 375 ft. east of SW corner (USGS)

Drilled by Cooper & Son Address

Date Sept. 1947 Casing diam. 14" Land-surf. alt. 60'

Source of data ~~XMX~~ BR

(Enter type of well, perforations, yield, and drawdown at end of log)

Correlation	Material	Thickness (feet)	Depth (feet)
	Soil	5	5
	Clay, yellow	15	20
	Sand and fine gravel	3	23
	Clay, yellow	8	31
	Clay, sandy brittle	14	45
	Clay, yellow	77	122
	Clay, blue	10	132
	Gravel	35	167
	Clay, sandy yellow	137	297
	Gravel	22	319
	Clay, blue	7	325
	Gravel	12	338
	Clay, sandy yellow	19	357
	Gravel	28	385
	Clay, blue	7	392
	112' of 3/16" x 14" casing		
	260' of 3/16" x 12" casing		
	Perf. 104 - 392		
	Rotary type drill		
	Irrigation		
	CONFIDENTIAL LOG Water Code Sec. 13752		
	Plotted and Coded		
	As Well 14N/2W-13N1		

3

Record by Date Sheet of

State of California
Well Completion Report
Form DWR 188 Complete 3/19/2020
WCR2020-003773

Owner's Well Number ______ Date Work Began 07/08/2019 Date Work Ended 08/07/2019

Local Permit Agency Colusa County Environmental Health

Secondary Permit Agency ______ Permit Number WP 1189 Permit Date 07/01/2019

Well Owner (must remain confidential pursuant to Water Code 13752)

Name ARUILL FARMS, LLC,

Mailing Address Hahn Road

City Arbuckle State CA Zip 95912

Planned Use and Activity

Activity New Well

Planned Use Monitoring

Well Location

Address 0 Hahn RD

City Arbuckle Zip 95912 County Colusa

Latitude 39 Deg. 3 Min. 14.44 Sec. N Longitude -122 Deg. 3 Min. 39.28 Sec. W

Dec. Lat. 39.0540111 Dec. Long. -122.0609111

Vertical Datum NAVD88 Horizontal Datum WGS84

Location Accuracy 5 Ft Location Determination Method GPS

APN 018-180-037-000

Township 14 N

Range 02 W

Section 22

Baseline Meridian Mount Diablo

Ground Surface Elevation 84

Elevation Accuracy Unknown

Elevation Determination Method Surveyed

Borehole Information

Orientation Vertical Specify ______

Drilling Method Reverse Circulation Drilling Fluid Bentonite

Total Depth of Boring 1200 Feet

Total Depth of Completed Well 1050 Feet

Water Level and Yield of Completed Well

Depth to first water ______ (Feet below surface)

Depth to Static Water Level ______ (Feet) Date Measured ______

Estimated Yield* ______ (GPM) Test Type ______

Test Length ______ (Hours) Total Drawdown ______ (feet)

*May not be representative of a well's long term yield.

Geologic Log - USCS/ASTM D2488

Depth from Surface Feet to Feet		Soil Class	Soil Color	Soil Description
0	20	SW Well-graded SAND	Dusky yellow 5Y 6/4	Well-graded sand with gravel. About 55% fine sand; about 20% coarse sand; about 20% gravel; about 5% fines with low plasticity; moist, bulk sample dusky yellow 5Y 6/4; coarseness increases with depth
20	40	CL Lean inorganic CLAY with low plasticity	Yellowish brown 10YR 5/4	Lean Clay with Sand. About 75% fines with low to medium plasticity; about 25% medium sand; moist, bulk sample moderate yellowish brown 10YR 5/4
40	90	CL Lean inorganic CLAY with low plasticity	Yellowish brown 10YR 5/4	Lean Clay. Fines with medium plasticity; trace fine sand; moderate yellowish brown 10YR 5/4, dark gray streaks increase with depth
90	110	GC Clayey GRAVEL	Light olive gray 5Y	Clayey Gravel. 60% hard, subangular gravel; about 40% low to non-plastic clay; moist, bulk sample multi-colored dark gray N3 and light olive gray 5Y 6/1; gravel increases and clay decreases with depth
110	160	CH Fat inorganic clay with moderate to high plasticity	Moderate yellowish brown 10YR 5/4	Fat Clay. Fines with medium to high plasticity; trace fine sand; moist, moderate yellowish brown 10 YR 5/4
160	170	GW Well-graded GRAVEL	Light olive gray 5Y 6/1	Well-graded gravel with Sand. About 70% hard, subangular, multi-colored and dark gray N3 gravel; about 15% coarse sand; about 15% fine sand; dry, bulk sample light olive gray 5Y 6/1
170	280	CH Fat inorganic clay with moderate to high plasticity	Moderate yellowish brown 10YR 5/4	Fat Clay. Fines with high plasticity; moist, moderate yellowish brown 10 YR 5/4

280	300	GW Well-graded GRAVEL	Dark gray N3 and Medium dark gray N4	Well-Graded Gravel w/Sand.75% hard, subangular, multi-colored gray and white gravel; about 15% coarse sand; about 10% medium sand; dry, bulk sample multi-colored, dark gray N3, and medium dark gray N4
300	380	CH Fat inorganic clay with moderate to high plasticity	Light olive gray 5Y 5/2	Fat Clay. Fines with high plasticity; intermittent trace fine sand; moist to saturated, light olive gray 5Y 5/2
380	400	CH Fat inorganic clay with moderate to high plasticity	Dusky yellow green 5GY 5/2	Fat Clay w/Sand. 80% fines with high plasticity; about 10% coarse sand; about 10% medium sand; moist, bulk sample dusky yellow green 5GY 5/2
400	570	CH Fat inorganic clay with moderate to high plasticity	streaks of grayish blue green 5BG 5/2 and dusky yellow green 5GY 5/2	Fat Clay. Fines with high plasticity; moist, grayish olive 10Y 4/2; trace silt from about 500-520'; trace sand from about 550-580'; streaks of grayish blue green 5BG 5/2 and dusky yellow green 5GY 5/2
570	640	SW Well-graded SAND	multi-colored, gray and white	Well-Graded Sand w/gravel. 45% subrounded coarse sand; 35% medium sand;15% hard, subrounded gravel; about 5% fine sand; bulk sample multi-colored, gray and white; coarseness increases with depth
640	780	CH Fat inorganic clay with moderate to high plasticity	light olive gray 5Y 6/1, color change at 730-780' to dark greenish gray 5GY 4/1	Fat Clay. Fines with high plasticity, light olive gray 5Y 6/1, color change at 730-780' to dark greenish gray 5GY 4/1; trace fine sand; moist
780	890	SW Well-graded SAND	Multi-colored, white, gray, and light brown	Well-Graded Sand with Gravel. About 50% medium sand; about 25% coarse sand; about 15% hard, subrounded gravel, multi-colored, white and gray; about 10% fine sand; bulk sample multi-colored, white, gra
890	920	CL Lean inorganic CLAY with low plasticity	Light olive gray 5Y 6/1 and yellowish gray 5Y 8/1	Lean Clay. Fines with medium plasticity; moist, light olive gray 5Y 6/1 and yellowish gray 5Y 8/1; trace sand.
920	950	SW Well-graded SAND	multi-colored, gray and white	Well-Graded Sand w/Gravel. About 35% coarse sand, multi-colored gray and white; about 35% medium sand; about 20% hard, subangular gravel, multi-colored, gray and white; about 10% fine sand; dry
950	1000	CL Lean inorganic CLAY with low plasticity	light blue gray 5Y 6/1	Sandy Lean Clay. About 70% nonplastic fines; about 20% medium sand; about 10% coarse sand; moist, bulk sample light blue gray 5Y 6/1
1000	1020	SW Well-graded SAND	multi-colored, brown, white, and gray	Well-Graded Sand. About 60% hard, medium to coarse sand; about 40% fine sand; bulk sample multi-colored, brown, white, and gray
1020	1040	SW Well-graded SAND	multi-colored, gray, black, and white	Well-Graded Sand. About 50% medium sand; about 35% fine sand; about 15% hard, coarse sand; moist, bulk sample multi-colored, gray, black, and white
1040	1050	CL Lean inorganic CLAY with low plasticity	pale olive 10 6/2	Lean Clay with Sand. About 80% fines with low plasticity; about 20% medium sand; moist, bulk sample pale olive 10 6/2
1050	1080	SW Well-graded SAND	multi-colored, gray and white	Well-Graded Sand. About 35% medium sand; about 35% fine sand; about 10% hard gravel; about 20% hard coarse sand; moist, bulk sample multi-colored, gray and white
1080	1140	SW Well-graded SAND	multi-colored, white, gray, and light brown	Well-Graded Sand. About 50% medium sand; about 30% fine sand; about 10% hard, subangular gravel; about 10% subangular coarse sand; moist, bulk sample multi-colored, white, gray, and light brown
1140	1200	SW Well-graded SAND	multi-colored, light gray, and white	Well-Graded Sand w/Gravel. About 35% medium sand; about 35% fine sand; about 15% hard, subangular gravel; about 15% coarse sand; bulk sample multi-colored, light gray, and white

Casings

Casing #	Depth from Surface Feet to Feet		Casing Type	Material	Casings Specificatons	Wall Thickness (inches)	Outside Diameter (inches)	Screen Type	Slot Size if any (inches)	Description
1	0	1020	Blank	PVC	OD: 2.375 in. | Thickness: 0.218 in.	0.218	2.375			
1	1020	1030	Screen	PVC	OD: 2.375 in. | Thickness: 0.218 in.	0.218	2.375	Milled Slots	0.02	
1	1030	1050	Blank	PVC	OD: 2.375 in. | Thickness: 0.218 in.	0.218	2.375			
2	0	860	Blank	PVC	OD: 2.375 in. | Thickness: 0.218 in.	0.218	2.375			
2	860	870	Screen	PVC	OD: 2.375 in. | Thickness: 0.218 in.	0.218	2.375	Milled Slots	0.02	
2	870	920	Blank	PVC	OD: 2.375 in. | Thickness: 0.218 in.	0.218	2.375			
2	920	930	Screen	PVC	OD: 2.375 in. | Thickness: 0.218 in.	0.218	2.375	Milled Slots	0.02	
2	930	950	Blank	PVC	OD: 2.375 in. | Thickness: 0.218 in.	0.218	2.375			
3	0	580	Blank	PVC	OD: 2.375 in. | Thickness: 0.218 in.	0.218	2.375			
3	580	590	Screen	PVC	OD: 2.375 in. | Thickness: 0.218 in.	0.218	2.375	Milled Slots	0.02	
3	590	610	Blank	PVC	OD: 2.375 in. | Thickness: 0.218 in.	0.218	2.375			
4	0	290	Blank	PVC	OD: 2.375 in. | Thickness: 0.218 in.	0.218	2.375			
4	290	300	Screen	PVC	OD: 2.375 in. | Thickness: 0.218 in.	0.218	2.375	Milled Slots	0.02	
4	300	320	Blank	PVC	OD: 2.375 in. | Thickness: 0.218 in.	0.218	2.375			

Annular Material

Depth from Surface Feet to Feet		Fill	Fill Type Details	Filter Pack Size	Description
0	246	Bentonite	Non Hydrated Bentonite		
246	329	Filter Pack	Other Gravel Pack	8	sand
329	508	Bentonite	Non Hydrated Bentonite		
508	650	Filter Pack	Other Gravel Pack	8	sand
650	781	Bentonite	Non Hydrated Bentonite		
781	961	Filter Pack	Other Gravel Pack	8	sand
961	1007	Bentonite	Non Hydrated Bentonite		
1007	1080	Filter Pack	Other Gravel Pack	8	sand
1080	1200	Other Fill	See description.		native fill

Other Observations:

Borehole Specifications

Depth from Surface Feet to Feet		Borehole Diameter (inches)
0	1200	14.75

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name: CASCADE DRILLING LP
Person, Firm or Corporation

PO BOX 1184	Woodinville	WA	90872
Address	City	State	Zip

Signed

electronic signature received	03/19/2020	1058336
C-57 Licensed Water Well Contractor	Date Signed	C-57 License Number

Attachments

25547_elog_view.bmp - Geophysical Log

DWR Use Only

CSG #	State Well Number	Site Code	Local Well Number

			N					W

Latitude Deg/Min/Sec **Longitude Deg/Min/Sec**

TRS:

APN:

ORIGINAL
File Original, Duplicate and Triplicate with the REGIONAL WATER POLLUTION CONTROL BOARD No. 5
(Insert appropriate number)

WATER WELL DRILLERS REPORT
(Sections 7076, 7077, 7078, Water Code)

STATE OF CALIFORNIA

LOCATION NOT CHECKED

Do Not Fill In
No. 44455

State Well No.
Other Well No. 14N/2W-29J1
Plotted and Coded

N
A

(2) LOCATION OF WELL:
County Colusa 7 Owner's number, if any—
R. F. D. or Street No. N.E. corner of S.E. 1/4 of Sec. 29 T 14 N, R 2 W.

(3) TYPE OF WORK (check):
New well ☒ Deepening ☐ Reconditioning ☐ Abandon ☐
If abandonment, describe material and procedure in Item 11.

(4) PROPOSED USE (check):
Domestic ☐ Industrial ☐ Municipal ☐
Irrigation ☒ Test Well ☐ Other ☐

(5) EQUIPMENT:
Rotary ☒
Cable ☐
Dug Well ☐

(6) CASING INSTALLED:
SINGLE ☒ DOUBLE ☐

From ft.	to ft.	Diam.	Gage or Wall
0	412	12	3/16

If gravel packed

Diameter of Bore	from ft.	to ft.

Type and size of shoe or well ring
Size of gravel: 3/4x 1/2"
Describe joint Butt Welded

(7) PERFORATIONS:
Type of perforator used Machine cut at factory
Size of perforations 3/16 in., length, by 3 in.

From ft.	to ft.	Perf. per row	Rows per ft.
~~119~~	~~143~~		
~~152~~	~~158~~		
~~176~~	~~182~~		
~~198~~	~~208~~		
~~215~~	~~239~~		
~~262~~	~~276~~		
~~307.5~~	~~319.5~~		
~~334.5~~	~~349.50~~		

338 to 412

(8) CONSTRUCTION:
Was a surface sanitary seal provided? ☐ Yes ☒ No To what depth ft.
Were any strata sealed against pollution? ☐ Yes ☒ No If yes, note depth of strata
From ft. to ft.
Method of Sealing

(9) WATER LEVELS:
Depth at which water was first found ft.
Standing level before perforating ft.
Standing level after perforating ft.

(10) WELL TESTS: See back of page
Was a pump test made? ☒ Yes ☐ No If yes, by whom? E. E. Luhdorff
Yield: gal./min. with ft. draw down after hrs.
Temperature of water Was a chemical analysis made? ☐ Yes ☒ No
Was electric log made of well? ☐ Yes ☒ No

(11) WELL LOG: As Well 14N/2W-29J1
Total depth ft. Depth of completed well 412 ft.
Formation: Describe by color, character, size of material, and structure.

From ft.	to ft.	Thickness	Formation
0	8	8'	Top soil
8	21	13'	Dry gravel
21	36	15'	Yellow clay
36	58	22'	Dry gravel
58	65	7'	Yellow clay
65	74	9'	Loose gravel
74	110	36'	Yellow clay
110	115	5'	Loose gravel
115	124	9'	Yellow clay
124	138	14'	Rocks & gravel
138	153	15'	Yellow clay
153	156	3'	Loose gravel
156	177	21'	Yellow clay
177	181	4'	Loose gravel
181	201	20'	Yellow clay
201	204	3'	Rocks & gravel
204	220	16'	Yellow clay
220	222	2'	Rocks & gravel
222	228	6'	Yellow clay
228	238	10'	Rocks & gravel
238	269	31'	Yellow clay
269	274	5'	Rocks & gravel
274	312	38'	Yellow clay
312	318	6'	Rocks & gravel
318	336	18'	Yellow clay
336	339	3'	Rocks & gravel
339	346	7'	Yellow clay
346	348	2'	Loose gravel
348	398	50'	Yellow clay
398	409	11'	Rocks & gravel
409	623	214'	Blue clay
623	626	3'	Rocks & gravel
626	640	14'	Blue clay
640	649	9'	Loose gravel
649	674	25'	Blue clay
674	680	6'	Rocks & gravel
680	852	172'	Blue clay
852	857	5'	Rocks & gravel
857	882	25'	Blue clay
882	884	2'	Loose gravel
884	916	32'	Blue clay
916	920	4'	Rocks & gravel
920	924	4'	Blue clay

CONFIDENTIAL Section 7076.1 Water Code

Work started 6-8 1956. Completed 6-22-56 19

WELL DRILLER'S STATEMENT:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
NAME E. E. LUHDORFF
(Person, firm, or corporation) (Typed or printed)
Address P. O. Box 326, West Main St.
Woodland, California
[SIGNED] E. E. Luhdorff
Well Driller
License No. 123211 Dated Oct. 22, 1953

#44455

Report No. 196

Owner_

Pump No.

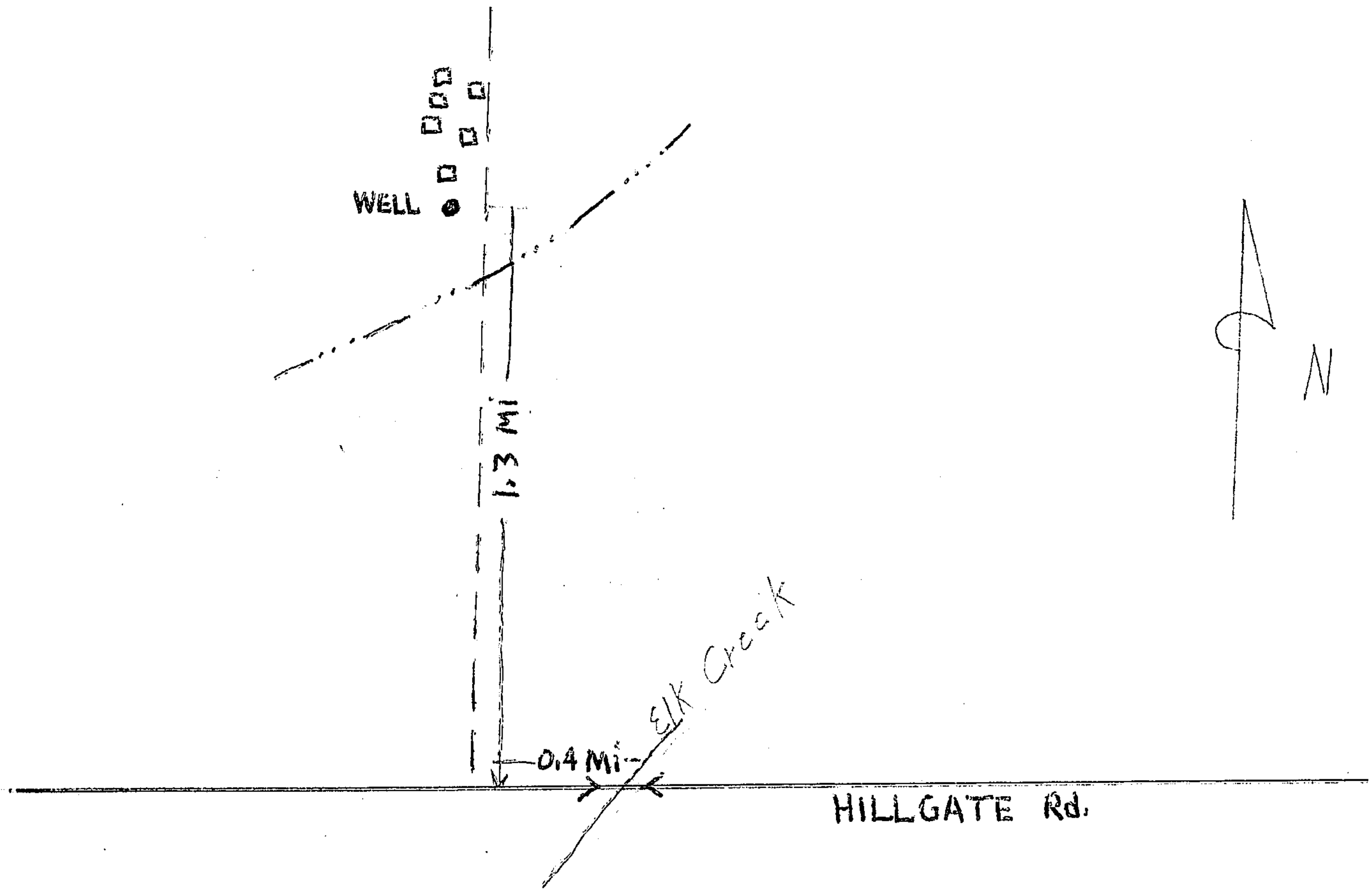
Meter No. 62656

Region 5 ; County COLUSA

Township 14N Range 2W , Section 29J1 , ____ B&M.

____ ft. north, ____ ft. west from southeast corner of Section.

SKETCH



DESCRIPTION OR REMARKS

Checked by E. Gaughen(?) Date 7-21-58

#44455

Report No.
Owner H. CHART
Pump No. 6265
Meter No.

Results of Well Test as follows:

Water level 77'

Pumping level	**200'**	**G.P.M.**	**1125**
" "	**190'**	"	**1050**
" "	**180'**	"	**960**
" "	**162'**	"	**850**
" "	**151'**	"	**760**

3 minute return 105'

RECEIVED
OCT 1956

14N/3W-14

ORIGINAL

File with DWR

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
WATER WELL DRILLERS REPORT

Do not fill in

No. 20032

State Well No. CONFIDENTIAL LOG

Other Well No. Water Code Sec. 13752

Notice of Intent No.

Local Permit No. or Date

(1) ...

Address

City

(2) LOCATION OF WELL (See instructions):

County Colusa Owner's Well Number 6T-214 W-3225

Well address if different from above

Township Range Section

Distance from cities, roads, railroads, fences, etc. Hahn-Cortina Sch. Rd. - 1 mi. W 50' N

WELL LOCATION SKETCH

(3) TYPE OF WORK:

New Well [X] Deepening [ ]
Reconstruction [ ]
Reconditioning [ ]
Horizontal Well [ ]
Destruction [ ] (Describe destruction materials and procedures in Item 12)

(4) PROPOSED USE:

Domestic [ ]
Irrigation [X]
Industrial [ ]
Test Well [ ]
Stock [ ]
Municipal [ ]
Other [ ]

(5) EQUIPMENT:

Rotary [ ] Reverse [X]
Cable [ ] Air [ ]
Other [ ] Bucket [ ]

(6) GRAVEL PACK:

Yes [X] No [ ] Size pea grav.
Diameter of bore 24"
Packed from 0- to 704 ft.

(7) CASING INSTALLED:

Steel [X] Plastic [ ] Concrete [ ]

From ft.	To ft.	Dia. in.	Gage or Wall
0-	685	16"	ODx.250

(8) PERFORATIONS:

Type of perforation or size of screen

From ft.	To ft.	Slot size
390-	480	
500-	590	
614-	685	

(9) WELL SEAL:

Was surface sanitary seal provided? Yes [ ] No [ ] If yes, to depth ft.
Were strata sealed against pollution? Yes [ ] No [ ] Interval ft.
Method of sealing

(10) WATER LEVELS:

Depth of first water, if known ft.
Standing level after well completion ft.

(11) WELL TESTS:

Was well test made? Yes [ ] No [ ] If yes, by whom?
Type of test Pump [ ] Bailer [ ] Air lift [ ]
Depth to water at start of test ft. At end of test ft
Discharge gal/min after hours Water temperature
Chemical analysis made? Yes [ ] No [ ] If yes, by whom?
Was electric log made? Yes [X] No [ ] If yes, attach copy to this report

(12) WELL LOG: Total depth 704 ft. Depth of completed well 685 ft.

from ft. to ft.	Formation (Describe by color, character, size or material)
0- 10	top soil
10- 16	clay
16- 26	gravel
26- 28	clay
28- 38	gravel
38- 56	clay
56- 64	gravel
64- 68	clay
68- 80	gravel
80- 82	clay
82- 98	gravel
98-102	clay
102-110	sand
110-124	sandy clay
124-156	clay
156-172	sand
172-182	clay
182-190	sandy clay
190-195	clay
195-203	sand
203-214	clay
214-220	sand
220-226	clay
226-242	sand
242-265	clay
265-275	sand
275-392	clay and sandy clay
392-398	sand
398-521	clay and sandy clay
521-536	gravel
536-548	clay
548-555	sand
555-564	clay
564-581	gravel
581-624	clay
624-636	gravel
636-645	clay
645-663	gravel
663-670	clay
670-678	sand
678-704	clay

Work started 19 Completed 7--18 1977

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

SIGNED F. M. Eaton (Well Driller)

NAME Eaton Drilling Co. Inc. (Person, firm, or corporation) (Typed or printed)

Address 20 Kentucky (P. O. Box 975)

City Woodland, California Zip 95695

License No. 133783C57 Date of this report 7-18-1977

DO NOT FILE WITH DWR — CONFIDENTIAL — NOT FOR PUBLIC USE — WATER CODE SEC. 13752

DWR 188 (REV. 7-76) IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM 43816-950 7-76 50M QUAD OSP

14N, 3W-24

ORIGINAL
File with DWR

Notice of Intent No.
Local Permit No. or Date

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
WATER WELL DRILLERS REPORT

Do not fill in
No. 072290
State Well No.
Other Well No.

(2) **LOCATION OF WELL** (See instructions):
County Colusa Owner's Well Number W-3649
Well address if different from above
Township 14N Range 3W Section Sec. 24
Distance from cities, roads, railroads, fences, etc. Hahn-Cortina School Rds: 400' W 100' S

WELL LOCATION SKETCH

(3) **TYPE OF WORK:**
New Well ☒ Deepening ☐
Reconstruction ☐
Reconditioning ☐
Horizontal Well ☐
Destruction ☐ (Describe destruction materials and procedures in Item 12)

(4) **PROPOSED USE:**
Domestic ☒
Irrigation ☐
Industrial ☐
Test Well ☐
Stock ☐
Municipal ☐
Other ☐

(5) **EQUIPMENT:**
Rotary ☐ Reverse ☒
Cable ☐ Air ☐
Other ☐ Bucket ☐

(6) **GRAVEL PACK:**
Yes ☒ No ☐ Size Pea gra.
Diameter of bore 16"
Packed from 0 to 312 ft.

(7) **CASING INSTALLED:**
Steel ☒ Plastic ☐ Concrete ☐

From ft.	To ft.	Dia. in.	Gage or Wall
0	312	8 5/8 OD x.188	

(8) **PERFORATIONS:**
Type of perforation or size of screen

From ft.	To ft.	Slot size
292-	312	8 rows x.125 mesh

(9) **WELL SEAL:**
Was surface sanitary seal provided? Yes ☐ No ☐ If yes, to depth ft.
Were strata sealed against pollution? Yes ☐ No ☐ Interval ft.
Method of sealing

(10) **WATER LEVELS:**
Depth of first water, if known ft.
Standing level after well completion ft.

(11) **WELL TESTS:**
Was well test made? Yes ☐ No ☐ If yes, by whom?
Type of test Pump ☐ Bailer ☐ Air lift ☐
Depth to water at start of test ft. At end of test ft
Discharge gal/min after hours Water temperature
Chemical analysis made? Yes ☐ No ☐ If yes, by whom?
Was electric log made? Yes ☒ No ☐ If yes, attach copy to this report
big hole

(12) **WELL LOG:** Total depth 320 ft. Depth of completed well 312 ft.

from ft. to ft.	Formation (Describe by color, character, size or material)
0- 4	top soil
4- 20	gravel
20- 34	clay
34- 80	sand and gravel
80-204	stratas of clay
-	stratas of gravel
204-214	gravel
214-266	clay and sandy clay
266-274	gravel
274-284	sandy clay
284-288	sand
288-294	clay
294-310	gravel
310-320	clay and sandy clay

Work started 19 Completed 4-10-81 19

WELL DRILLER'S STATEMENT:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

SIGNED (Well Driller)

NAME Eaton Drilling Co. Inc.
(Person, firm, or corporation) (Typed or printed)
Address P. O. Box 975 (20 W. Kentucky)
City Woodland, California Zip 95695
License No. 133783C57 Date of this report 4-21, 1981

DWR 188 (REV. 7-76) IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File with DWR
CONFIDENTIAL LOG
Water Code Sec. 13752

WATER WELL DRILLERS REPORT

(Sections 7079, 7080, 7081, 7082, Water Code)

THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

Misc
Do Not Fill In

Nº 12982

CONFIDENTIAL LOG
Water Code Sec. 13752

State Well No.
Other Well No. 15N/1W-56

(1) OWNER:
Name Colusa County Airport
Address Colusa Calif.

(2) LOCATION OF WELL:
County Colusa Owner's number, if any
Township, Range, and Section
Distance from cities, roads, railroads, etc.

(3) TYPE OF WORK (check):
New Well ☑ Deepening ☐ Reconditioning ☐ Destroying ☐
If destruction, describe material and procedure in Item 11.

(4) PROPOSED USE (check):
Domestic ☑ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(5) EQUIPMENT:
Rotary ☐
Cable ☑
Other ☐

(6) CASING INSTALLED:
STEEL: OTHER:
SINGLE ☑ DOUBLE ☐

If gravel packed

From ft.	To ft.	Diam.	Gage or Wall	Diameter of Bore	From ft.	To ft.
0	75	8"	B/W			

Size of shoe or well ring: 24 x 8" Size of gravel:
Describe joint B/W

(7) PERFORATIONS OR SCREEN:
Type of perforation or name of screen

From ft.	To ft.	Perf. per row	Rows per ft.	Size in. x in.

(8) CONSTRUCTION:
Was a surface sanitary seal provided? Yes ☑ No ☐ To what depth ft.
Were any strata sealed against pollution? Yes ☐ No ☐ If yes, note depth of strata
From 0 ft. to 75 ft.
From ft. to ft.
Method of sealing Clay

(9) WATER LEVELS:
Depth at which water was first found, if known 20 ft.
Standing level before perforating, if known ft.
Standing level after perforating and developing 20 ft.

(10) WELL TESTS:
Was pump test made? Yes ☐ No ☑ If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
Temperature of water Was a chemical analysis made? Yes ☐ No ☑
Was electric log made of well? Yes ☐ No ☑ If yes, attach copy

(11) WELL LOG:
Total depth 140 ft. Depth of completed well 140 ft.
Formation: *Describe by color, character, size of material, and structure*

From ft.	To ft.	Formation
0	10	Top Soil
10	20	Sandy muck
20	30	Clay
30	50	Gravel & sand
50	55	yellow clay
55	72	Sand & Gravel
72	135	Blue Clay
135	140	Black Sand

This Well is located at the Airport in Colusa.

~~Plotted and Coded~~
As Well 15N/1W-5G80

Work started 8/19 1971, Completed 8/20 1971

WELL DRILLER'S STATEMENT:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Beeman & Son Pump Co.
(Person, firm, or corporation) (Typed or printed)
Address 470 N. Geo Wash. Blvd.
Yuba City Calif.
[SIGNED] J. D. Beeman
(Well Driller)
License No. 196093 Dated 9/24, 1971

SKETCH LOCATION OF WELL ON REVERSE SIDE

56391-950 10-65 50M TRIP ① △ OSP

#12982

WATER WELL DRILLERS REPORT

FIELD WORK SHEET

Report No. 12982

Owner Colusa County Airport

Pump No. –

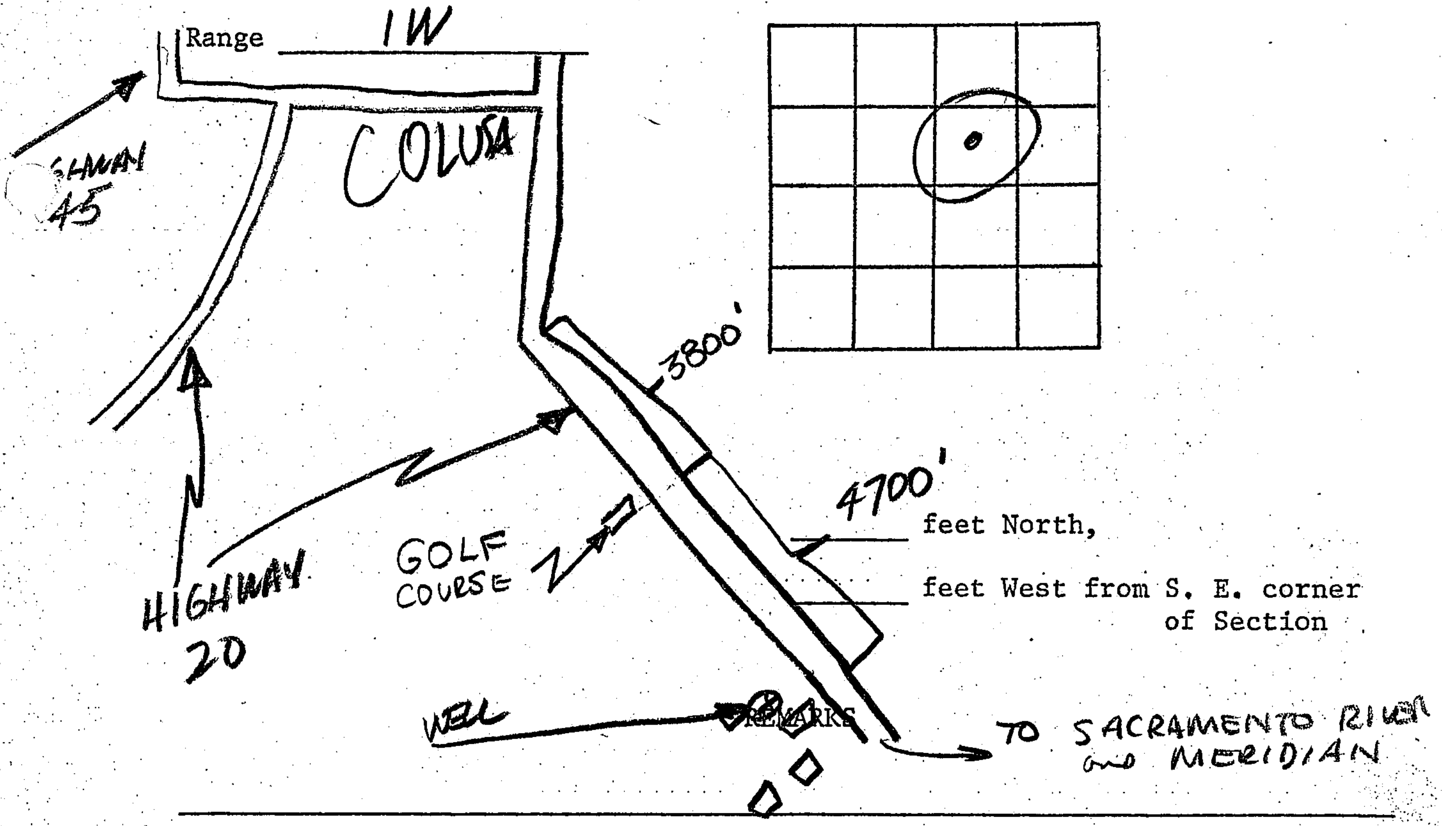
Meter No. –

LOCATION

Section 5G

Township 15N

Range 1W



feet North,

feet West from S. E. corner of Section

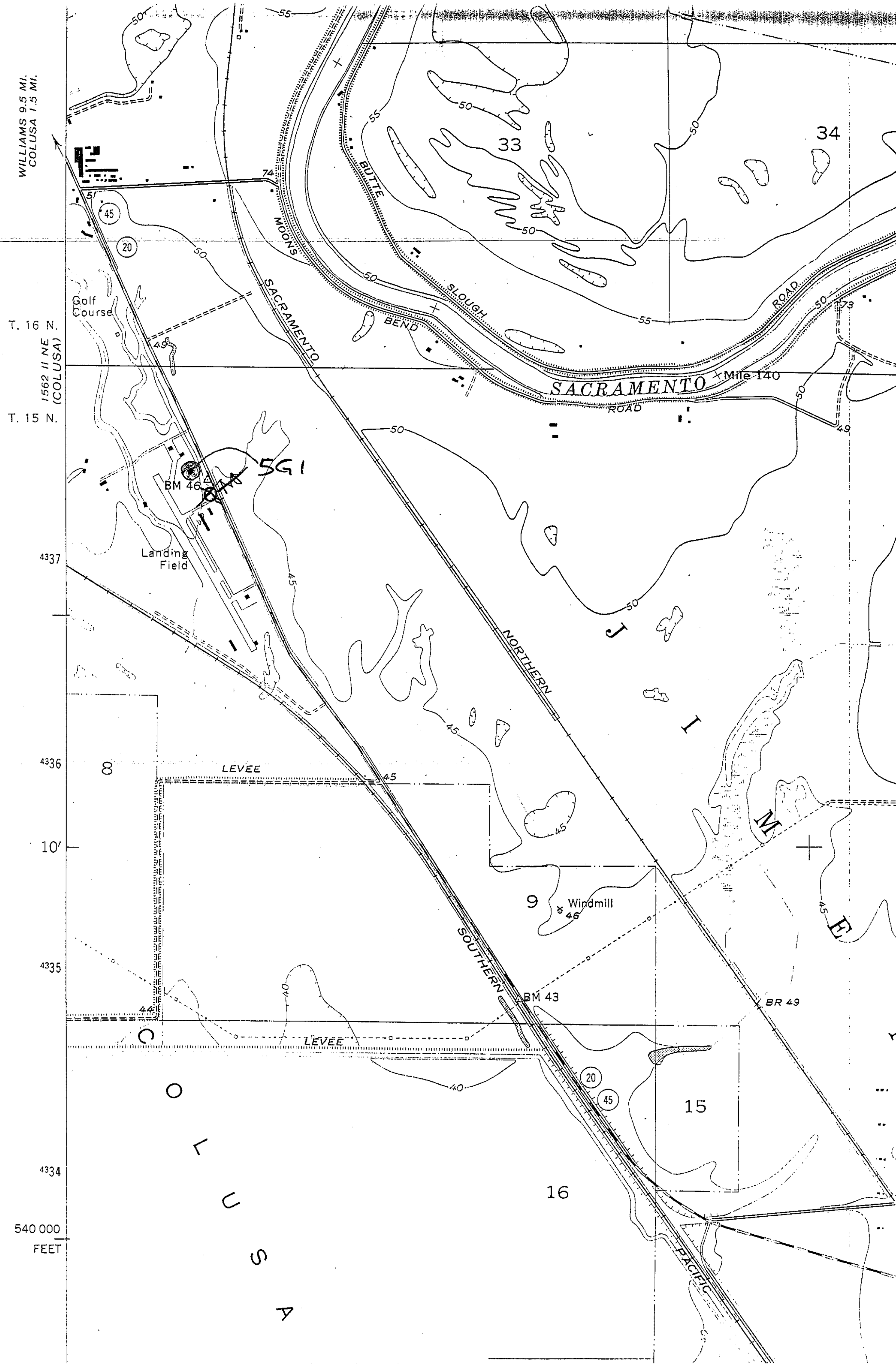
REMARKS

location not confirmed by owner - well, I think is behind trailer at north gate of airport

Field Checked by

8-13-74

Date



WILLIAMS 9.5 MI.
COLUSA 1.5 MI.
Golf Course
T. 16 N.
1562 II NE (COLUSA)
T. 15 N.
BM 46
5G1
Landing Field
4337
4336
10′
4335
4334
540 000 FEET
8
9
15
16
33
34
LEVEE
Windmill
BM 43
BR 49
BUTTE
MOONS
SLOUGH
BEND
SACRAMENTO
NORTHERN
SOUTHERN
PACIFIC
ROAD
Mile 140
COLUSA
JIMENO
20
45

JUL 1 4 1994 15N-1W-5G1 State No.

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

WELL DATA

DISTRICT Northern

Owner Colusa Co. Airport
Address Colusa 2915 Hwy. 20 - COLUSA
Tenant Caretaker: Connor Davis
Address

State No. 15N/1W-5G1
Other No.

Type of Well: Hydrograph ☐ Key ☐ Index ☐ Semiannual ☐

Location: County Colusa Basin Colusa No.
U.S.G.S. Quad. Meridian Quad. No. 545 b
¼ ¼ Section , Twp. , Rge. MD SB Base & Meridian

Description @ the Colusa Co. Airport. SE/of Colusa on State HWY 20 about 1 mile. Well is inside an aluminum clad P.H. 100' S/o HWY & 300' W/o gas pumps

Reference Point description Hole T.O.C.

which is ~~1.0~~ 1.4 [1] ft. above/below land surface. Ground Elevation 45.0 ft.
Reference Point Elev. ~~46.0~~ 46.4 ft. Determined from Quad
Well: Use Industrial - Dom. Condition Depth 140 ft.
Casing, size 8 in., perforations 0-75 CSG, open hole to 140

Measurements By: DWR ☐ USGS ☐ USBR ☐ County ☐ Irr. Dist. ☐ Water Dist. ☐ Cons. Dist. ☐
Chief Aquifer: Name Depth to Top Aq. Depth to Bot. Aq.
Type of Material Perm. Rating Thickness
Gravel Packed? Yes ☐ No ☐ Depth to Top Gr. Depth to Bot. Gr.
Supp. Aquifer Depth to Top Aq. Depth to Bot. Aq.
Driller Beamer & Son Pump Co.
Date drilled 8/20/71 Log, filed # 12982 open (1) confidential (2) 12982
Equipment: Pump, type Sub make
Serial No. Size of discharge pipe in.
Power, Kind Make
H. P. Motor Serial No.
Elec. Meter No. Transformer No.
Yield G.P.M. Pumping level ft.

Water Analysis: Min. (1) San. (2) H.M. (3)
Water Levels available: Yes (1) ✓ No
Period of Record: Begin 10-21-75 End ACTIVE
Collecting Agency:
Prod. Rec. (1) Pump Test (2) Yield (3)

SKETCH

N

REMARKS

[1] ON 11-28-01 I SURVEYED IN A ACCURATE ELEV. TO THE R.P. FROM USGS B.M. . THE R.P. WELL CASING HAD BEEN EXTENDED IN FALL of 2000. NO ACCURATE RECORD of THE EXTENSION WAS MADE SO I DID THIS. EWH

WELL MEASUREMENT QUALIFICATION
By: ~~P. LORENS~~ E. Pearson Reg. No. 3666 Date 6/11/92
Qualification ~~COMPOSITE~~ Semi-Confined
Confidence Level DEFINITE
Water Body: FLOODPLAIN DEPOSITS & older Basin Deposits

Recorded by: S. Bonomini
Date June 1989

DWR 429 (Rev. 4/70)

ORIGINAL -
File Original, Duplicate and Triplicate with the
REGIONAL WATER POLLUTION
CONTROL BOARD No. 5
(Insert appropriate number)

WATER WELL DRILLERS REPORT

(Sections 7076, 7077, 7078, Water Code)

STATE OF CALIFORNIA

LOCATION NOT CHECKED
Do Not Fill In
No 71038
State Well No.
Other Well No. 15N/2W-19

(1)
Na
Ad

(2) LOCATION OF WELL: Lives on Abele Road
County Colusa   Owner's number, if any—
R. F. D. or Street No. 30 feet East from Husted road a short way south from Crawford road in the Northwest 1/4 of Section 19, Township 15 North, Range 2 West, M.D.B. & M.

(3) TYPE OF WORK (check):
New well ☒ Deepening ☐ Reconditioning ☐ Abandon ☐
If abandonment, describe material and procedure in Item 11.

(4) PROPOSED USE (check):
Domestic ☐ Industrial ☐ Municipal ☐
Irrigation ☒ Test Well ☐ Other ☐

(5) EQUIPMENT:
Rotary ☒
Cable ☐
Dug Well ☐

(6) CASING INSTALLED:
SINGLE ☒ DOUBLE ☐

From ft.	to ft.	Diam.	Gage or Wall	Diameter of Bore	from ft.	to ft.
0	334	14"	3/16	24"	0	334
0	12	24"	"	28"	0	12

The 24 inch cemented in from 12 ft to surface

If gravel packed
Type and size of shoe or well ring Point   Size of gravel: 5/8"
Describe joint all joints welded

(7) PERFORATIONS:
Type of perforator used Factory punched double / standard
Size of perforations 1-1/2" in., length, by 3/16 in.

From ft.	to ft.	Perf. per row	Rows per ft.
162	174	4 per ft	29
174	182	4 " "	29
198	206	4 " "	29
262	274	4 " "	29
290	294	4 " "	29

(8) CONSTRUCTION:
Was a surface sanitary seal provided? ☒ Yes ☐ No To what depth from surface to 12 ft.
Were any strata sealed against pollution? ☐ Yes ☒ No If yes, note depth of strata
From ft. to ft.
Method of Sealing Cement

(9) WATER LEVELS:
Depth at which water was first found 6 ft.
Standing level before perforating 16 ft.
Standing level after perforating 16 ft.

(10) WELL TESTS:
Was a pump test made? ☒ Yes ☐ No If yes, by whom? W.P.Wilson&Sons
Yield: See 11 gal./min. with ft. draw down after ? hrs.
Temperature of water ? Was a chemical analysis made? ☐ Yes ☒ No
Was electric log made of well? ☐ Yes ☒ No

(11) WELL LOG:
Total depth 334 ft. Depth of completed well 334 ft.
Formation: Describe by color, character, size of material, and structure.

CONFIDENTIAL LOG Water Code Sec. 13752

ft.	to ft.	Formation
0	3	Soil
3	9	Sand and water
9	31	Clay
31	36	Gravel
36	44	Clay
44	48	Sand
48	61	Sandy clay
61	62	Gravel
62	161	Clay
161	168	Brittle
168	181	Gravel
181	198	Clay
198	206	Sand, some fine gravel
206	261	Clay
261	264	Sand
264	271	Clay
271	273	Clay with fine gravel
273	291	Clay
291	294	Brittle with fine gravel
294	311	Clay
311	329	Gravel

~~Plotted and Coded~~
As Well 15N/2W-19E80

CONFIDENTIAL Section 7076.1, Water Code

Yield of well:

2750 GPM 90.5 feet
2115 " 85.0 "
1950 " 82.0 "
3 minute comeback ~~82~~ 54 feet

Perforations continued:

310 ft to 314 ft 4 per ft 29 rows
314 " " 334 " 4 " " 29 "

Work started May 3 1962 Completed May 16 1962

WELL DRILLER'S STATEMENT:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Aulman & Aulman (Person, firm, or corporation) (Typed or printed)
Address 1309 Westwood Way
Woodland, Calif.
[SIGNED] A Aulman
Well Driller
License No. 109870 Dated 7/1/61, 19

WATER WELL DRILLERS REPORT

FIELD WORK SHEET

Report No. 71038

Owner

Pump No. 1275316

Meter No. NONE

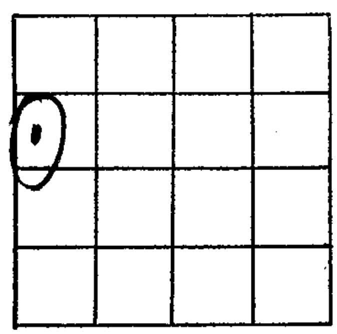
LOCATION

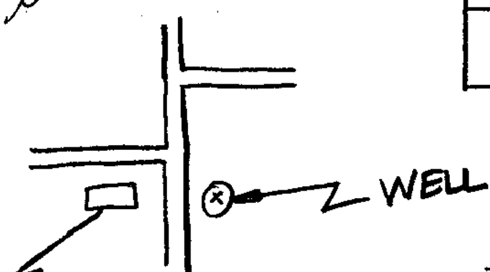
Section 19E

Township 15N

Range 2W

see attached for location





______ feet North,

______ feet West from S. E. corner of Section

REMARKS

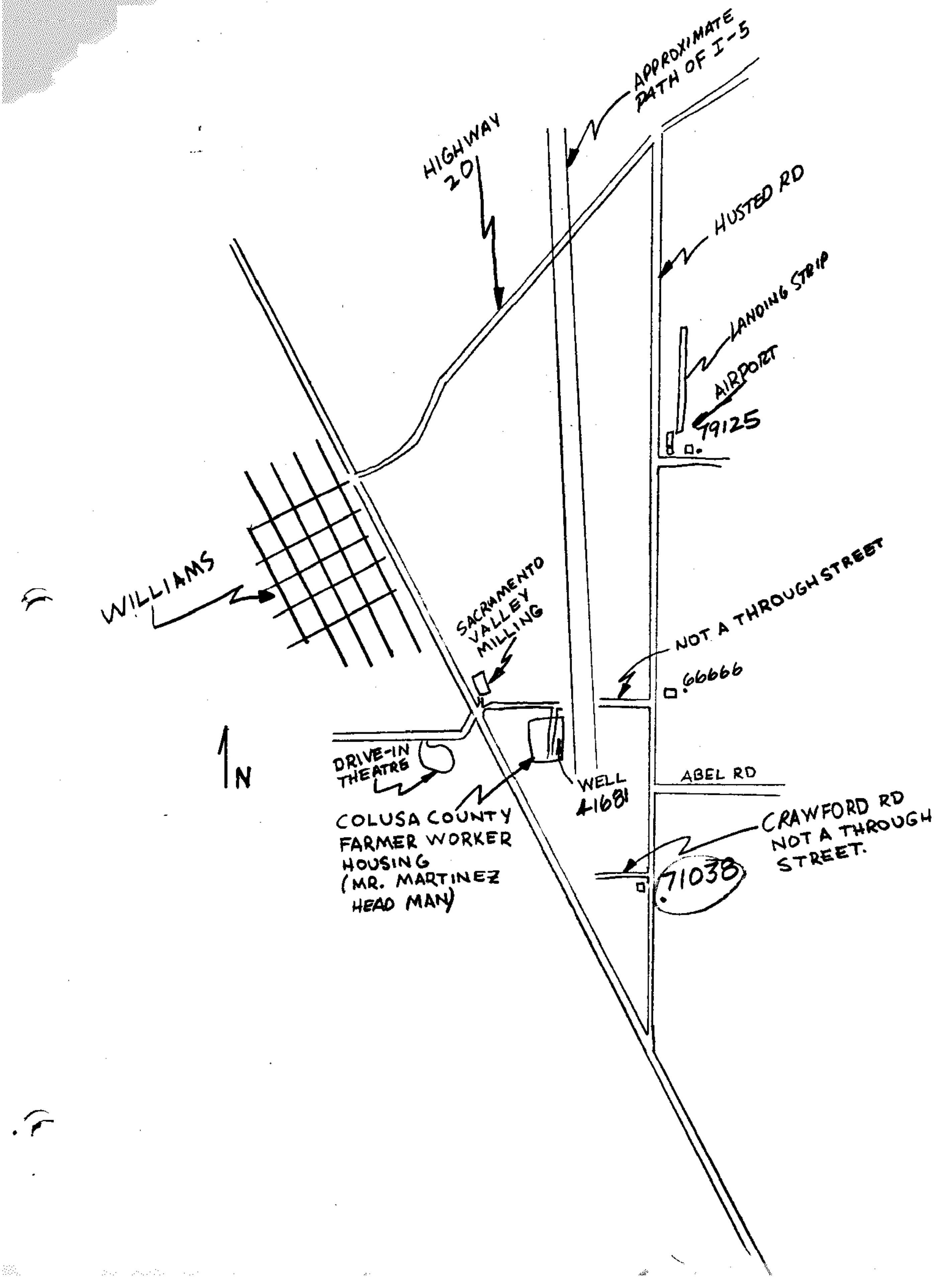
measurable by small hole on north side - no PG&E meter number - maybe not being used

Sam

Field Checked by

8-15-74

Date



APPROXIMATE PATH OF I-5
HIGHWAY 20
HUSTED RD
LANDING STRIP
AIRPORT
79125
WILLIAMS
SACRAMENTO VALLEY MILLING
NOT A THROUGH STREET
66666
N
DRIVE-IN THEATRE
WELL 41681
ABEL RD
COLUSA COUNTY FARMER WORKER HOUSING (MR. MARTINEZ HEAD MAN)
CRAWFORD RD NOT A THROUGH STREET.
71038

~~ORIGINAL~~
File with DWR

Page 1 of 1

Owner's Well No. 6256

Date Work Began 11/30/92 Ended 12/03/92

Local Permit Agency COLUSA CO ENVIRONMENTAL HEALTH

Permit No. ______ Permit Date 11/12/92

RECEIVED MAR 05 1993 D.W.R.

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. 492125

DWR USE ONLY — DO NOT FILL IN

15N/03W-08M

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) X VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DEPTH TO FIRST WATER ______ (Ft.) BELOW SURFACE

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
0	10	TOP SOIL
10	30	CLAY
30	85	GRAVEL
85	88	CLAY, SOME SAND
88	130	SMALL SANDY GRAVEL
130	250	CLAY
250	350	SAND, MOSTLY CLAY

TOTAL DEPTH OF BORING 360 (Feet)

TOTAL DEPTH OF COMPLETED WELL 350 (Feet)

WELL OWNER

WELL LOCATION

Address .5 MI W OF E CAMP RD & HWY 20

City 35' E OF CANAL

County COLUSA

APN Book 16 Page 060 Parcel 23

or Township 15N Range 03W Section 08

or Latitude ___ NORTH Longitude ___ WEST (DEG. MIN. SEC.)

LOCATION SKETCH

NORTH / WEST / EAST / SOUTH

Illustrate or Describe Distance of Well from Landmarks such as Roads, Buildings, Fences, Rivers, etc.
PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

X NEW WELL

MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)

___ DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

PLANNED USE(S) (✓)

___ MONITORING

WATER SUPPLY
___ Domestic
___ Public
X Irrigation
___ Industrial

___ "TEST WELL"

___ CATHODIC PROTECTION

___ OTHER (Specify)

DRILLING METHOD REVERSE FLUID WATER

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH OF STATIC WATER LEVEL ______ (Ft.) & DATE MEASURED ______

ESTIMATED YIELD* ______ (GPM) & TEST TYPE ______

TEST LENGTH ______ (Hrs.) TOTAL DRAWDOWN ______ (Ft.)

* *May not be representative of a well's long-term yield.*

CASING(S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	140	28"	X				ASTM-135	12-3/4	.250	
140	250	22"	X				ASTM-135	10-3/4	.250	
250	350	22"		X			HOUSTON CULT	10-3/4		0.050
0	30						T & C	2"		
30	130	28"		X			HOUSTON CULT	16"		0.050

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	20	X			SAND SLURRY
20	150			X	6X16 SAND PACK
150	210			X	GRAVEL
210	360			X	6X16 SAND PACK

MAR 13 1993

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other ______

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME EATON DRILLING COMPANY, INC. 24
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

20 W. Kentucky Ave. Woodland CA 95695
ADDRESS CITY STATE ZIP

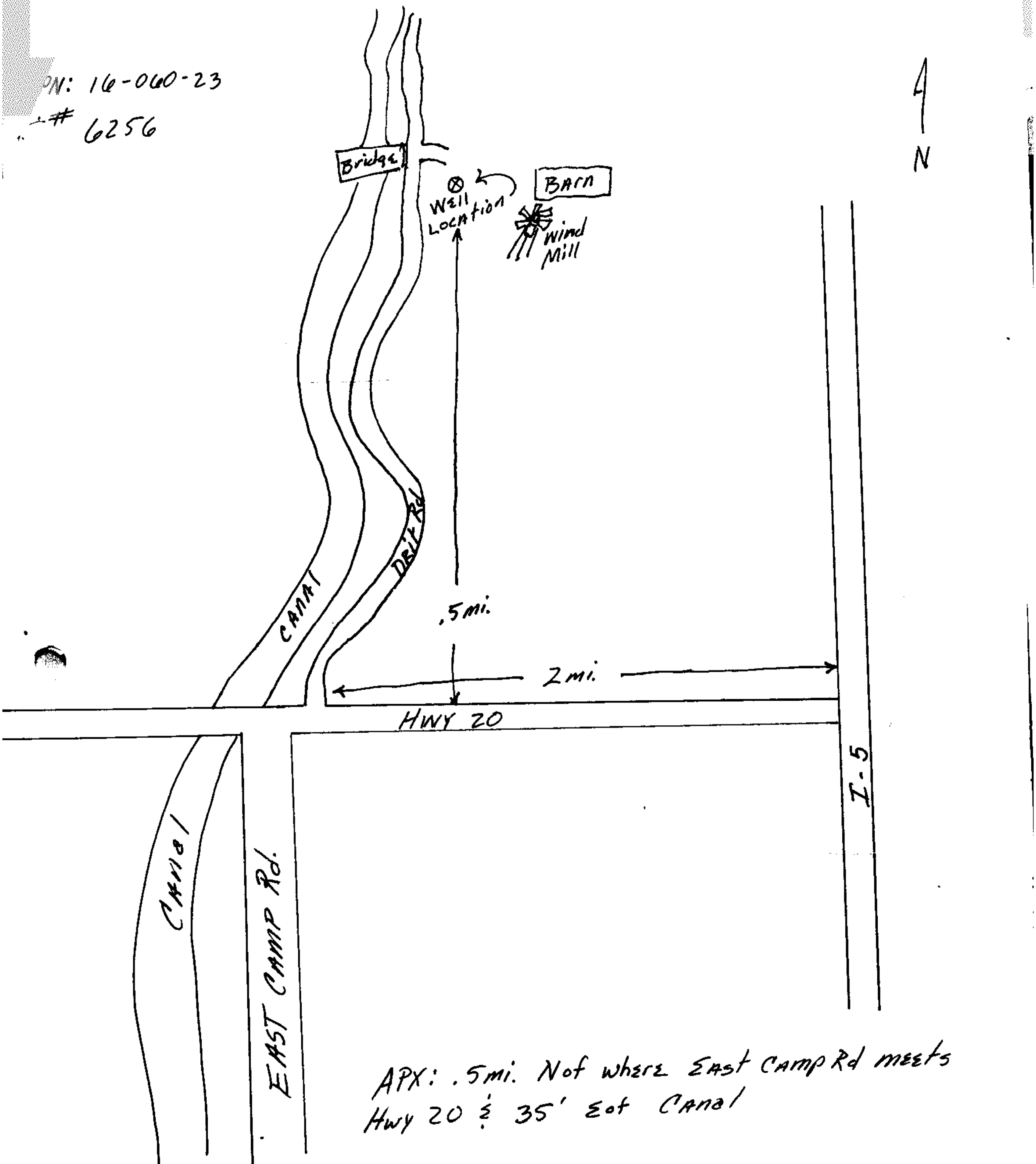
Signed Jim Eaton 03/04/93 133783C57
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 7-90

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

N: 16-060-23

6256



APX: .5mi. N of where East Camp Rd meets Hwy 20 & 35' E of Canal

ORIGINAL
File with DWR

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

DWR USE ONLY — DO NOT FILL IN
15N / 03W -20
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

Owner's Well No. 15 N03W20Q001M No. 802508A
Date Work Began 2-9-09 Ended 2-25-09
Local Permit Agency Colusa County
Permit No. ______ Permit Date ______

GEOLOGIC LOG

ORIENTATION (✓) ___ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD ______ FLUID ______

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION (Describe material, grain size, color, etc.)
		Silt yellow brown ML 10yr 5/4
0	12	100% Silt
12	22	Clay Yellow Brn. CL 10yr 6/6
22	34	Silt Yell Brn ML 10yr 6/6
34	40	Sand w Gravel SW 10yr 6/2
40	44	Clayey Gravel GC 10yr 6/2
44	60	Silt Yellow Brn ML 10yr 5/4
60	68	Clay Yellow Brn CL 10yr 5/4
68	74	Gravel w Sand GW 10yr 5/2
74	81	Clay Yellow Brn CL 10yr 6/6
81	94	Silt w Gravel ML 10yr 5/4
94	110	Clay Yell Brn 10Yr 5/4 CL
110	115	Clay Yell Org 10Yr 6/6
115	123	Silt Yell Org ML 10YR 6/6
123	140	Clay Yell Brn CL 10YR 6/4
140	145	Silty Gravel w Sand GM 10YR
145	160	Silt Yell Brn ML 10YR 5/4
160	172	Silt Yell Brn ML 10YR 6/2
172	180	Silt Yell Brn ML 10YR 5/4
180	185	Clay Brn CL 10YR 4/4
185	193	Silt Olive Gray ML 5YR 4/1
193	216	Clay Green Gray CL 5GY 4/1
216	220	Silt Green Gray ML 5GY 4/1
220	235	Clay Olive Gray CL 5Y 4/1
235	250	Silt Olive Gray ML 5YR 6/1
250	253	Sand Green Gray SW 5GY 4/1
253	274	Silt bright Green ML 5/4
274	280	Silt Green Gray ML 5GY 4/1
280	380	Silt Green Gray ML 5GY 4/1

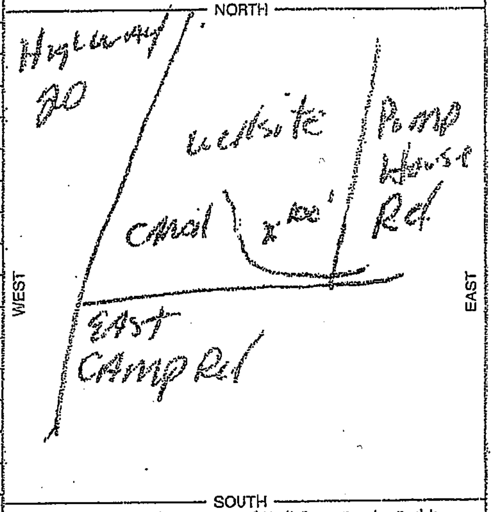
TOTAL DEPTH OF BORING 620 (Feet)
TOTAL DEPTH OF COMPLETED WELL 420 (Feet)

WELL LOCATION

Address East Camp & Pump House Rds
City Williams
County Colusa
APN Book 15N Page ______ Parcel ______
Township 15N Range 03W Section 20
Latitude ___ NORTH DEG. MIN. SEC. Longitude ___ WEST DEG. MIN. SEC.

LOCATION SKETCH

NORTH



WEST EAST SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

X NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING X
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ______ (Ft.) BELOW SURFACE C 17.93
DEPTH OF STATIC WATER LEVEL A 16.04 B 15.69 (Ft.) & DATE MEASURED ______
ESTIMATED YIELD * 5 (GPM) & TEST TYPE Air lift
TEST LENGTH 2 (Hrs.) TOTAL DRAWDOWN N/A (Ft.)
** May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	180	12								
180	425	9 7/8								
425	620	6 1/2								
0	30		X				Sch 80 PVC	2.5	80	
30	80			X			"	"	"	020
80	90		X				"	"	"	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	25	✓	✓		
25	29		✓		
29	82				#3 Sand
82	117		✓		Grout
117	121		✓		Chip
121	180				#3 Sand

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other
ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME WDC Exploration
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

PO Box 141 Zamora CA 95698
ADDRESS CITY STATE ZIP

Signed [signature] WELL DRILLER/AUTHORIZED REPRESENTATIVE
4-7-09 DATE SIGNED
283326 C-57 LICENSE NUMBER

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File with DWR

Page ___ of ___

Owner's Well No. ___

Date Work Began ___ . Ended ___

Local Permit Agency ___

Permit No. ___ Permit Date ___

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. 802510

DWR USE ONLY — DO NOT FILL IN

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ___ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD ___ FLUID ___

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION Describe material, grain size, color, etc.
380	390	Gravel Green Blk 5GY 2/1
390	402	Silt Green Gray ML 5GY 4/1
402	409	Gravel Green Blk GP 5GY 2/1
409	420	Silt Blue Gray ML 5G 4/1
420	448	Silt Blue Gray ML 5B 5/1
448	452	Sand Blue Gray SP 5B 7/1
452	460	Silt Blue Gray ML 5B 5/1
460	480	Silt " " " "
480	505	Silt Blue Gray ML 5B 5/1
505	520	Silt Green Gray ML 5GY 6/1
520	532	Silt Green Gray ML 5G 6/1
532	540	Silt Green Gray ML 5G 4/1
540	560	Silt Green " ML 5G 6/1
560	570	Silt Blue " ML 5B 5/1
570	580	Silt Blue " ML 5B 5/1
580	600	Silt Green " ML 5GY 6/1
600	620	Silt Green " ML 5GY 6/1

TOTAL DEPTH OF BORING 620 (Feet)

TOTAL DEPTH OF COMPLETED WELL 420 (Feet)

WELL OWNER

Name ___

Mailing Address ___

CITY ___ STATE ___ ZIP ___

WELL LOCATION

Address ___

City ___

County ___

APN Book ___ Page ___ Parcel ___

Township ___ Range ___ Section ___

Latitude ___ NORTH DEG. MIN. SEC. Longitude ___ WEST DEG. MIN. SEC.

LOCATION SKETCH

NORTH

WEST

EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

___ NEW WELL

MODIFICATION/REPAIR

___ Deepen

___ Other (Specify)

___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY

___ Domestic ___ Public

___ Irrigation ___ Industrial

MONITORING ___

TEST WELL ___

CATHODIC PROTECTION ___

HEAT EXCHANGE ___

DIRECT PUSH ___

INJECTION ___

VAPOR EXTRACTION ___

SPARGING ___

REMEDIATION ___

OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

* *May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	130		✓				PVC	2.5	Sch 80	
130	160			✓			PVC	2.5	Sch 80	.020
160	170		✓				PVC	2.5	Sch 80	
0	370		✓				PVC	2.5	Sch 80	
370	410			✓			PVC	2.5	Sch 80	.020
410	420		✓				PVC	2.5	Sch 80	.020

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
180	358		✓		Grout
358	360		✓		Chips
360	424				#3 Sand
424	620	✓	✓		

4
2

ATTACHMENTS (✓)

___ Geologic Log

✓ Well Construction Diagram

___ Geophysical Log(s)

___ Soil/Water Chemical Analyses

___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME WDC Exploration
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

PO Box 1141 Zamora CA 95698
ADDRESS CITY STATE ZIP

Signed [signature] 4-17-07 233326
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

DUPLICATE
Driller's Copy

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. 726832 A, B, C

DWR USE ONLY — DO NOT FILL IN

16N/02W-05

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

Owner's Well No. 7546

Date Work Began 6/9/2003, Ended 6/17/2003

Local Permit Agency COLUSA COUNTY HEALTH DEPT

Permit No. 2003-77 Permit Date 6/3/2003

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD REVERSE FLUID WATER

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION Describe material, grain, size, color, etc.
0	18	OLIVE/BROWN CLAY
18	24	YELLOW/BROWN SILT
24	40	YELLOW/BROWN CLAY
40	66	ORANGE/BROWN CLAY
66	106	YELLOW/BROWN CLAY
106	126	OLIVE/GRAY CLAY
126	170	OLIVE/GRAY CLAY W/SML GRAVEL STREAKS
170	187	WELL GRADED GRAVEL
187	226	YELLOW/BROWN CLAY
226	236	OLIVE/GRAY CLAY
236	260	WELL GRADED GRAVEL W/COBBLE STREAKS
260	306	YELLOW/GRAY CLAY
306	320	OLIVE/GRAY CLAY
320	340	GRN/GRY CLY AND SND W/SML GRVL STRKS
340	346	POORLY GRADED SAND
346	366	GREEN/GRAY CLAY
366	386	GREEN/GRAY CLAY WITH SAND STREAKS
386	426	GREEN/GRAY CLAY AND SAND
426	446	OLIVE/GRAY CLAY AND SAND
446	456	OLIVE/BROWN CLAY AND SAND
456	476	POORLY GRADED GRAVEL WITH SILT
476	486	BLUE/GRAY CLAY
486	534	OLIVE/BROWN CLAY
534	542	WELL GRADED GRAVEL WITH SAND
542	606	YELLOW/GRAY CLAY
606	618	GREEN/GRAY CLAY WITH SAND
618	640	WELL GRADED GRAVEL WITH SAND
640	650	CLAY
650	664	WELL GRADED GRAVEL WITH SAND
664	668	CLAY

TOTAL DEPTH OF BORING 986 (Feet)

TOTAL DEPTH OF COMPLETED WELL 813 (Feet)

WELL OWNER

WELL LOCATION

Address 30 FT S OF MAXWELL RD & .6 MI E OF 4 MILE RD

City CA

County COLUSA

APN Book 030 Page 910 Parcel 010

Township 16 N Range 2 W Section 5

Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH

e-log on file

WEST EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL

MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)

___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial

MONITORING ___
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ✓
EXTENSOMETE

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

** May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	18	36			✓		BLK STEEL	24		
ZONE	1									
0.0	174.1	36/18	✓				PVC	2.5	SCH 80	
~~174.1~~	~~183.7~~	~~18~~		✓			SS WR WR	2.5		0.020
~~183.7~~	~~245.8~~	~~18~~	✓				PVC	2.5	SCH 80	
~~245.8~~	~~255.4~~	~~18~~		✓			~~SS WR WR~~	~~2.5~~		~~0.020~~

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	18				SAND SLURRY
0	117		✓		HALIBURTON
117	301			✓	#8 GRD SAND
301	433		✓		HALIBURTON
433	535			✓	#8 GRD SAND
535	673		✓		HALIBURTON

AUG 12 2003

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analysis
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

20 W. KENTUCKY AVE. WOODLAND CA 95695
ADDRESS CITY STATE ZIP

Signed [signature] WELL DRILLER/AUTHORIZED REPRESENTATIVE

07/11/03 DATE SIGNED

C57 A HIC - 133783 C-57 LICENSE NUMBER

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

DUPLICATE
Driller's Copy

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet
No. 726832

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

Owner's Well No. 7546
Date Work Began 6/9/2003, **Ended** 6/17/2003
Local Permit Agency COLUSA COUNTY HEALTH DEPT.
Permit No. 2003-77 **Permit Date** 6/3/2003

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD REVERSE FLUID WATER

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION Describe material, grain, size, color, etc.
668	688	WELL GRADED GRAVEL WITH SAND
688	706	GREEN/GRAY CLAY
706	720	GREEN/GRAY CLAY WITH FINE SAND
720	747	POORLY GRADED GRAVEL WITH SAND
747	766	WELL GRADED GRAVEL W/COARSE SAND
766	826	GRAY/GREEN CLAY W/FINE SAND AND SILT
826	846	OLIVE/BROWN CLAY
846	860	GRAY/GREEN CLAY WITH SILT
860	875	POORLY GRADED GRAVEL
875	906	GRAY CLAY W/FINE SAND AND SILT STREAKS
906	946	GRY/BLK CLY W/FINE SAND AND SILT STRKS
946	986	BLU/GRY CLY W/FINE SAND AND SILT STRKS

TOTAL DEPTH OF BORING 986 (Feet)
TOTAL DEPTH OF COMPLETED WELL 813 (Feet)

WELL OWNER

WELL LOCATION

Address 30 FT S OF MAXWELL RD & .6 MI E OF 4 MILE RD
City CA
County COLUSA
APN Book 030 Page 910 Parcel 010
Township 16 N Range 2 W Section 5
Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH / WEST / EAST / SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING ___
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ✓ EXTENSOMETE

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___
ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___
TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)
*May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
255.4	276.6	18	✓				PVC	2.5	SCH 80	
ZONE	2									
0.0	730.0	36/18	✓				BLK STEEL	4		
~~730.0~~	~~750.0~~	18		✓			MILLSLOT	4		0.060
~~750.0~~	~~813.0~~	18	✓				BLK STEEL	4		
~~ZONE~~	~~3~~									

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
673	797			✓	#8 GRD SAND
797	986	✓			SAND SLURRY

AUG 12 2003

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analysis
___ Other ___
ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.
NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
20 W. KENTUCKY AVE. WOODLAND CA 95695
ADDRESS CITY STATE ZIP
Signed ___ WELL DRILLER/AUTHORIZED REPRESENTATIVE 07/11/03 DATE SIGNED C57 A HIC - 133783 C-57 LICENSE NUMBER

DWR 188 REV. 11-97 IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

DUPLICATE
Driller's Copy
Page 3 of 6

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. 726832

Owner's Well No. 7546

Date Work Began 6/9/2003, Ended 6/17/2003

Local Permit Agency COLUSA COUNTY HEALTH DEPT.

Permit No. 2003-77 Permit Date 6/3/2003

DWR USE ONLY — DO NOT FILL IN

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD REVERSE FLUID WATER

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain, size, color, etc.*
0	18	OLIVE/BROWN CLAY
18	24	YELLOW/BROWN SILT
24	40	YELLOW/BROWN CLAY
40	66	ORANGE/BROWN CLAY
66	106	YELLOW/BROWN CLAY
106	126	OLIVE/GRAY CLAY
126	170	OLIVE/GRAY CLAY W/SML GRAVEL STREAKS
170	187	WELL GRADED GRAVEL
187	226	YELLOW/BROWN CLAY
226	236	OLIVE/GRAY CLAY
236	260	WELL GRADED GRAVEL W/COBBLE STREAKS
260	306	YELLOW/GRAY CLAY
306	320	OLIVE/GRAY CLAY
320	340	GRN/GRY CLY AND SND W/SML GRVL STRKS
340	346	POORLY GRADED SAND
346	366	GREEN/GRAY CLAY
366	386	GREEN/GRAY CLAY WITH SAND STREAKS
386	426	GREEN/GRAY CLAY AND SAND
426	446	OLIVE/GRAY CLAY AND SAND
446	456	OLIVE/BROWN CLAY AND SAND
456	476	POORLY GRADED GRAVEL WITH SILT
476	486	BLUE/GRAY CLAY
486	534	OLIVE/BROWN CLAY
534	542	WELL GRADED GRAVEL WITH SAND
542	606	YELLOW/GRAY CLAY
606	618	GREEN/GRAY CLAY WITH SAND
618	640	WELL GRADED GRAVEL WITH SAND
640	650	CLAY
650	664	WELL GRADED GRAVEL WITH SAND
664	668	CLAY

TOTAL DEPTH OF BORING 986 (Feet)

TOTAL DEPTH OF COMPLETED WELL 813 (Feet)

WELL LOCATION

Address 30 FT S OF MAXWELL RD & .6 MI E OF 4 MILE RD

City CA

County COLUSA

APN Book 030 Page 910 Parcel 010

Township 16 N Range 2 W Section 5

Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH

WEST

EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL

MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)

___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial

MONITORING ___
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ✓ EXTENSOMETE

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

** May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0.0	462.4	36/18	✓				PVC	2.5	SCH 80	
462.4	473.4	18		✓			SS WR WR	2.5		0.020
473.4	494.6	18	✓				PVC	2.5	SCH 80	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	18	✓			SAND SLURRY
0	117		✓		HALIBURTON
117	301			✓	#8 GRD SAND
301	433		✓		HALIBURTON
433	535			✓	#8 GRD SAND
535	673		✓		HALIBURTON

AUG 12 2003

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analysis
___ Other

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

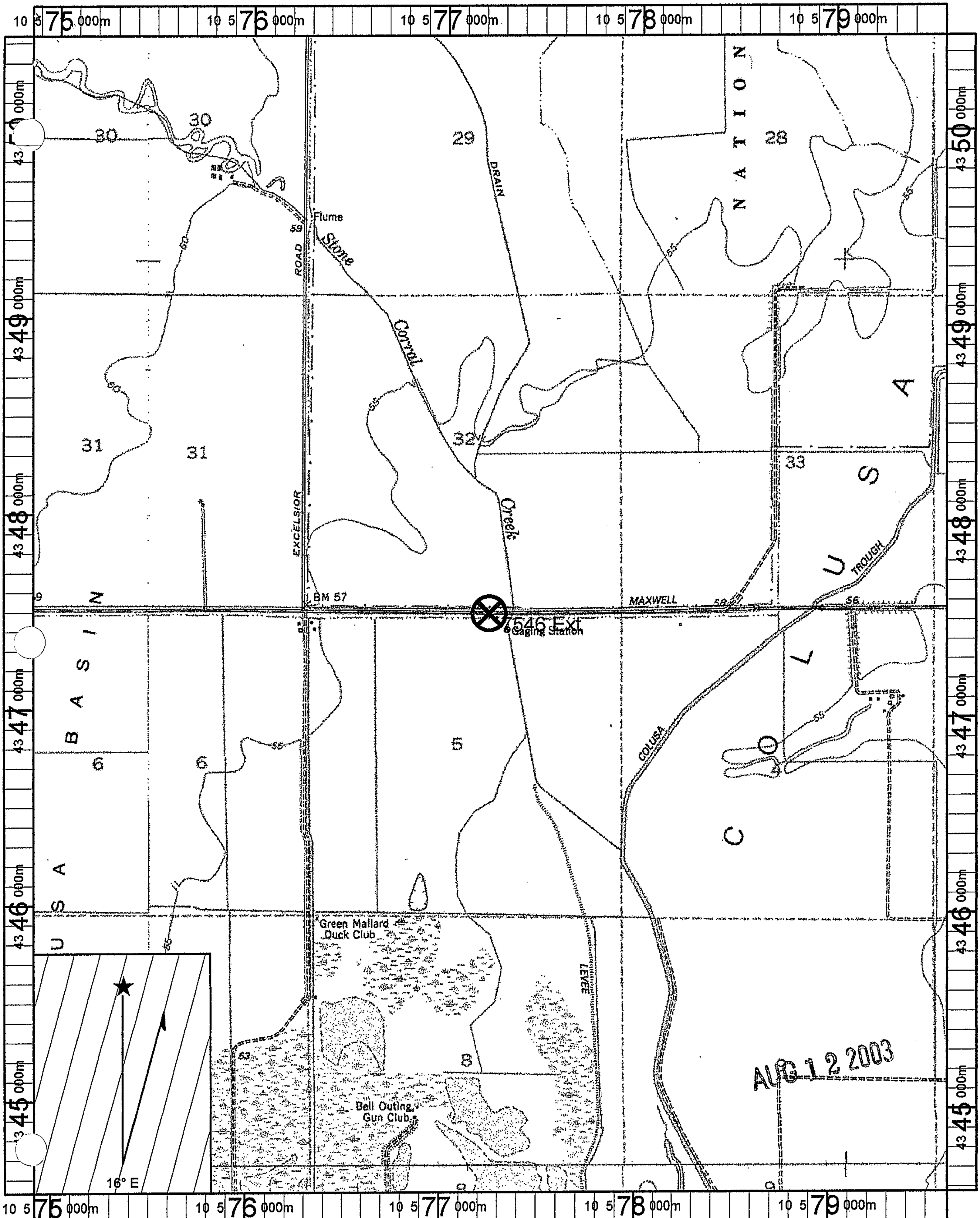
NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

20 W. KENTUCKY AVE WOODLAND CA 95695
ADDRESS CITY STATE ZIP

Signed ___ 07/11/03 C57 A HIC - 133783
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM



10 575 000m
10 576 000m
10 577 000m
10 578 000m
10 579 000m
43 50 000m
43 49 000m
43 48 000m
43 47 000m
43 46 000m
43 45 000m
30
29
28
31
32
33
6
5
8
Flume
Stone
Corral
Creek
DRAIN
ROAD
EXCELSIOR
BM 57
MAXWELL
TROUGH
COLUSA
LEVEE
7546 Ext
Gaging Station
Green Mallard Duck Club
Bell Outing Gun Club
C O L U S A
N A T I O N
U S A B A S I N
16° E
AUG 1 2 2003

[redacted]

16N/2W-25B2

Date June 17, 1965

Rig No. ....

NE Grussenmeyer

Driller in Charge Clarence Dobbin

Location 3/4 mi west Colusa

Depth of Hole 274 feet. Size 8" Water Level ....

th of Casing 274 feet.

FORMATION: (State every Stratum and Condition)

n	0	feet to	54	feet	84 - gravel
om	84	feet to	96	feet	hard gravely Clay
om	96	feet to	212	feet	brown clay
rom	212	feet to	270	feet	blue clay
rom	270	feet to	274	feet	coarse gravel
From		feet to		feet	Bottom
From		feet to		feet	
From		feet to		feet	

Remarks:

Owner Says This well is perforated at the Bottom 20' only. Barrett

2-Mile Rd Well

16N/03W-14H003-6M

ORIGINAL
File with DWR

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. E0116237

ABCD

Owner's Well No. 8469

Date Work Began 8/16/2010, Ended 8/27/2010

Local Permit Agency Colusa County Health Dept

Permit No. WP0000085 Permit Date 8/10/2010

DWR USE ONLY — DO NOT FILL IN

16N/03W-14

STATE WELL NO./STATION NO.

LATITUDE | LONGITUDE

APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD ROTARY FLUID MUD

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION Describe material, grain, size, color, etc.
0	5	Top soil
5	660	Sandy brown clay with small gravel streaks
660	1130	Sandy blue clay with sand streaks
1130	1230	Sand and gravel
1230	1350	Sandy blue clay
1350	1440	Black sand with gravel
1440	1500	Blue clay

TOTAL DEPTH OF BORING 1500 (Feet)

TOTAL DEPTH OF COMPLETED WELL 1440 (Feet)

WELL OWNER

WELL LOCATION

Address 30' Wof 2 Mile Rd & 1.6 Mi Nof

City Lurline Ave CA

County COLUSA

APN Book 014 Page 210 Parcel 005

Township 16 N Range 3 W Section 14

Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH

WEST

EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL

MODIFICATION/REPAIR
- ___ Deepen
- ___ Other (Specify)

___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
- ___ Domestic ___ Public
- ___ Irrigation ___ Industrial

MONITORING ✓

TEST WELL ___

CATHODIC PROTECTION ___

HEAT EXCHANGE ___

DIRECT PUSH ___

INJECTION ___

VAPOR EXTRACTION ___

SPARGING ___

REMEDIATION ___

OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
Zone	1									
0	295	14	✓				PVC	2.5	SCH 80	
295	305	14		✓			PVC	2.5	SCH 80	.035
305	315	14	✓				PVC	2.5	SCH 80	
Zone	2									
0	720	14	✓				PVC	2.5	SCH 80	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	169	✓			Sand Slurry
169	252			✓	SRI#8 Sand
252	270		✓		Bentonite Seal
270	378			✓	SRI#8 Sand
378	383		✓		Bentonite Seal
383	475			✓	SRI#8 Sand

ATTACHMENTS (✓)

- ___ Geologic Log
- ___ Well Construction Diagram
- ___ Geophysical Log(s)
- ___ Soil/Water Chemical Analysis
- ___ Other

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

20 W. Kentucky Ave. Woodland CA 95695
ADDRESS CITY STATE ZIP

Signed [signature] 09/01/10 C57 A 133783
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File with DWR
Page 2 of 4

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet
No. E0116237

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./ STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

Owner's Well No. 8469
Date Work Began 8/16/2010, Ended 8/27/2010
Local Permit Agency Colusa County Health Dept
Permit No. WP0000085 Permit Date 8/10/2010

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD ROTARY FLUID MUD

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION Describe material, grain, size, color, etc.
0	5	Top soil
5	660	Sandy brown clay with small gravel streaks
660	1130	Sandy blue clay with sand streaks
1130	1230	Sand and gravel
1230	1350	Sandy blue clay
1350	1440	Black sand with gravel
1440	1500	Blue clay

TOTAL DEPTH OF BORING 1500 (Feet)
TOTAL DEPTH OF COMPLETED WELL 1440 (Feet)

WELL OWNER

WELL LOCATION

Address 30' Wof 2 Mile Rd & 1.6 Mi Nof
City Lurline Ave CA
County COLUSA
APN Book 014 Page 210 Parcel 005
Township 16 N Range 3 W Section 14
Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH
WEST
EAST
SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___
ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___
TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)
*May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
720	730	14		✓			PVC	2.5	SCH 80	.035
730	740	14	✓				PVC	2.5	SCH 80	
Zone	3									
0	1140	10	✓				PVC	2.5	SCH 80	
1140	1150	10		✓			PVC	2.5	SCH 80	.035
1150	1170	10	✓				PVC	2.5	SCH 80	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
475	515		✓		Bentonite Seal
515	700			✓	SRI#8 Sand
700	710		✓		Bentonite Seal
710	775			✓	SRI#8 Sand
775	800		✓		Bentonite Seal
800	904			✓	SRI#8 Sand

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analysis
___ Other ___
ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.
NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
20 W. Kentucky Ave Woodland CA 95695
ADDRESS CITY STATE ZIP
Signed [signature] 09/01/10 C57 A 133783
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11-97
IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File with DWR
Page 3 of 4

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. E0116237

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./ STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

Owner's Well No. 8469
Date Work Began 8/16/2010, Ended 8/27/2010
Local Permit Agency Colusa County Health Dept
Permit No. WP0000085 Permit Date 8/10/2010

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD ROTARY FLUID MUD

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain, size, color, etc.*
0	5	Top soil
5	660	Sandy brown clay with small gravel streaks
660	1130	Sandy blue clay with sand streaks
1130	1230	Sand and gravel
1230	1350	Sandy blue clay
1350	1440	Black sand with gravel
1440	1500	Blue clay

TOTAL DEPTH OF BORING 1500 (Feet)
TOTAL DEPTH OF COMPLETED WELL 1440 (Feet)

WELL OWNER

Address 30' Wof 2 Mile Rd & 1.6 Mi Nof
City Lurline Ave CA
County COLUSA
APN Book 014 Page 210 Parcel 005
Township 16 N Range 3 W Section 14
Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH
WEST
EAST
SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL
MODIFICATION/REPAIR
— Deepen
— Other (Specify)
— DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
— Domestic — Public
— Irrigation — Industrial
MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___
ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___
TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)
May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
1170	1180	10		✓			PVC	2.5	SCH 80	.035
1180	1200	10	✓				PVC	2.5	SCH 80	
Zone	4									
0	1370	8.75	✓				PVC	2.5	SCH 80	
~~1370~~	~~1380~~	~~8.75~~		✓			PVC	2.5	SCH 80	.035
~~1380~~	~~1410~~	~~8.75~~	✓				~~PVC~~	~~2.5~~	~~SCH 80~~	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
904	922		✓		Bentonite Seal
922	1005			✓	SRI#8 Sand
1005	1026		✓		Bentonite Seal
1026	1078			✓	SRI#8 Sand
1078	1106		✓		Bentonite Seal
~~1106~~	~~1236~~			✓	~~SRI#8 Sand~~

ATTACHMENTS (✓)

— Geologic Log
— Well Construction Diagram
— Geophysical Log(s)
— Soil/Water Chemical Analysis
— Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.
NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
20 W. Kentucky Ave. Woodland CA 95695
ADDRESS CITY STATE ZIP
Signed [signature] 09/01/10 C57 A 133783
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File with DWR

Page 4 of 4

Owner's Well No. 8469

Date Work Began 8/16/2010, Ended 8/27/2010

Local Permit Agency Colusa County Health Dept

Permit No. WP0000085 Permit Date 8/10/2010

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. E0116237

DWR USE ONLY — DO NOT FILL IN

STATE WELL NO./ STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD ROTARY FLUID MUD

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain, size, color, etc.*
0	5	Top soil
5	660	Sandy brown clay with small gravel streaks
660	1130	Sandy blue clay with sand streaks
1130	1230	Sand and gravel
1230	1350	Sandy blue clay
1350	1440	Black sand with gravel
1440	1500	Blue clay

TOTAL DEPTH OF BORING 1500 (Feet)

TOTAL DEPTH OF COMPLETED WELL 1440 (Feet)

WELL OWNER

Address 30' Wof 2 Mile Rd & 1.6 Mi Nof

City Lurline Ave CA

County COLUSA

APN Book 014 Page 210 Parcel 005

Township 16 N Range 3 W Section 14

Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH

WEST

EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.**

ACTIVITY (✓)

✓ NEW WELL

MODIFICATION/REPAIR
— Deepen
— Other (Specify)

— DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
— Domestic — Public
— Irrigation — Industrial

MONITORING ✓
TEST WELL —
CATHODIC PROTECTION —
HEAT EXCHANGE —
DIRECT PUSH —
INJECTION —
VAPOR EXTRACTION —
SPARGING —
REMEDIATION —
OTHER (SPECIFY) —

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
1410	1420	8.75		✓			PVC	2.5	SCH 80	.035
1420	1440	8.75	✓				PVC	2.5	SCH 80	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
1236	1261		✓		Bentonite Seal
1261	1295			✓	SRI#8 Sand
1295	1322		✓		Bentonite Seal
1322	1481			✓	SRI#8 Sand
1481	1488		✓		Bentonite Seal
1488	1500			✓	Native Fill

ATTACHMENTS (✓)

— Geologic Log
— Well Construction Diagram
— Geophysical Log(s)
— Soil/Water Chemical Analysis
— Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

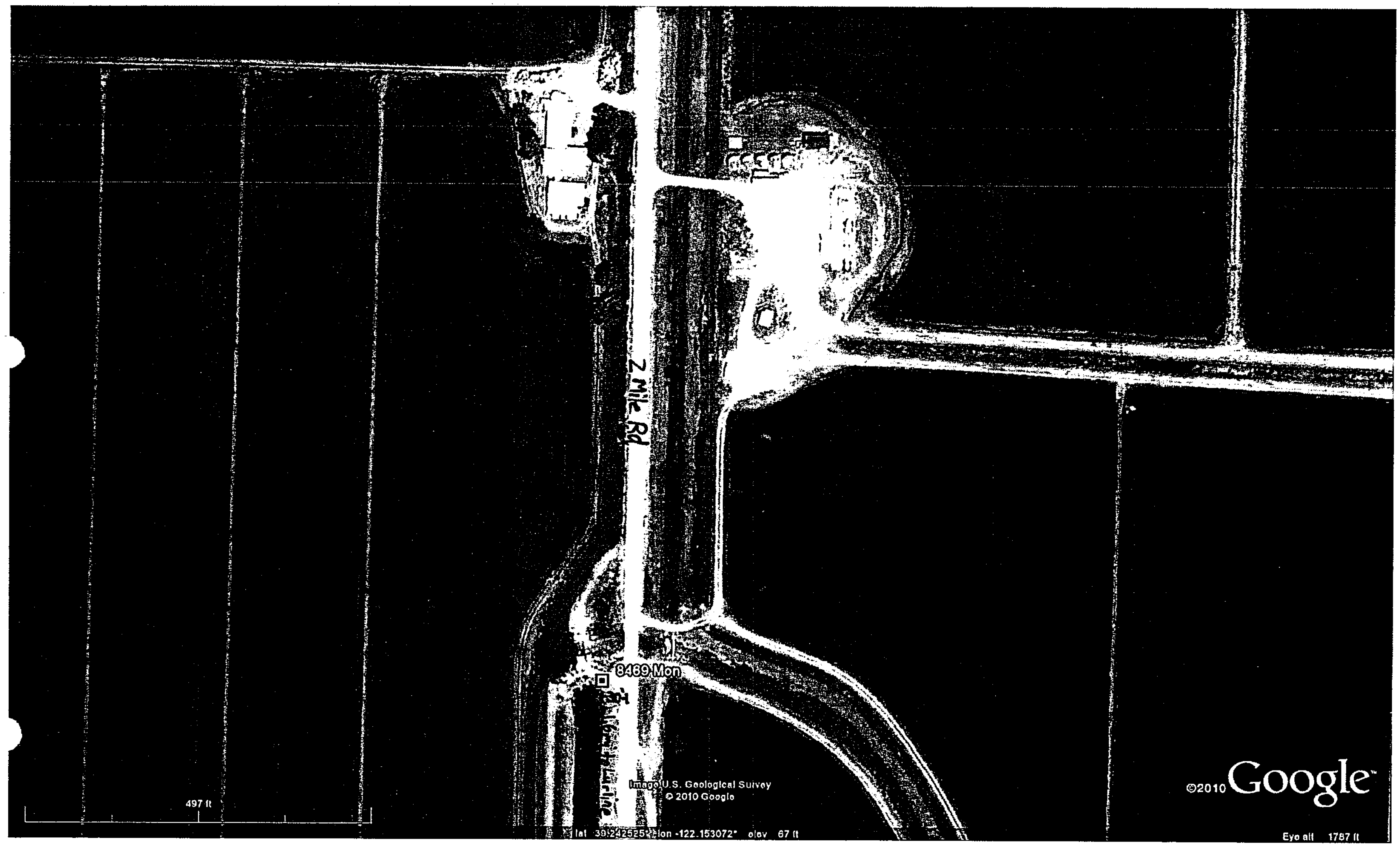
NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

20 W. Kentucky Ave Woodland CA 95695
ADDRESS CITY STATE ZIP

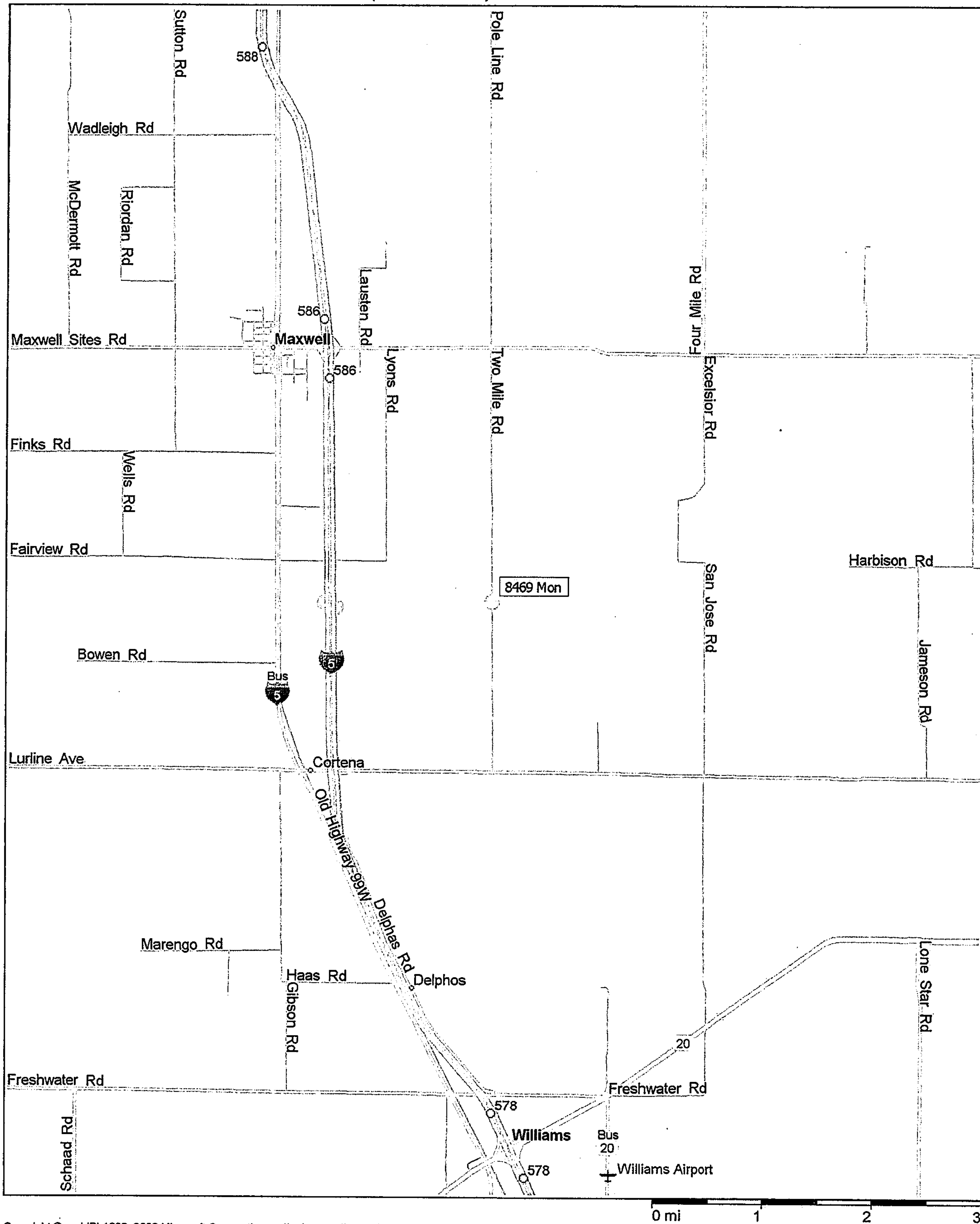
Signed [signature] 09/01/10 C57 A 133783
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

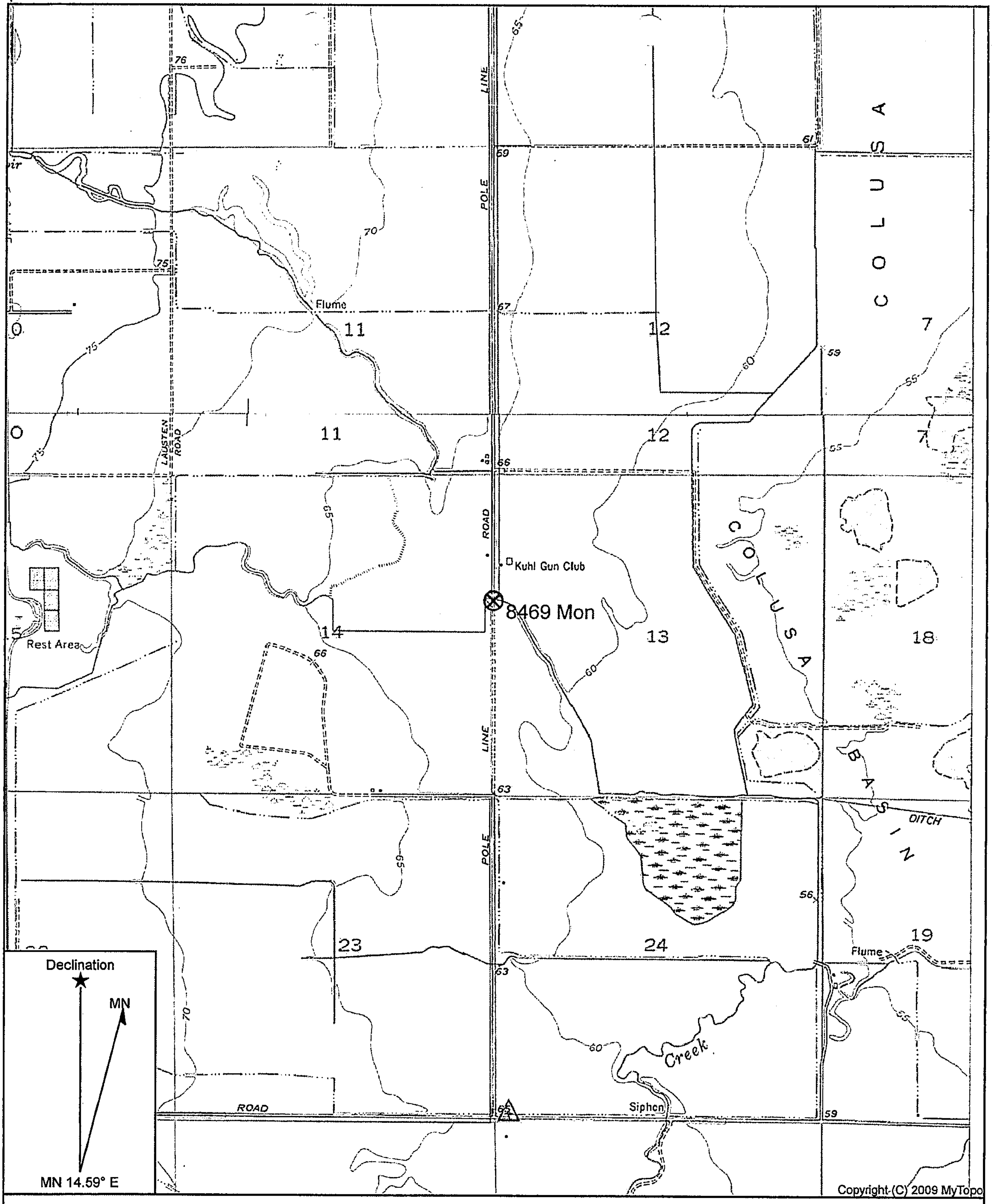
DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM


2 Mile Rd
8469 Mon
Image U.S. Geological Survey
© 2010 Google
497 ft
lat 39.242525° lon -122.153072° elev 67 ft
©2010 Google
Eye alt 1787 ft

DWR (2 Mile Rd) - Job# 8469 Mon





Name: WILLIAMS
Date: 08/09/10
Scale: 1 inch = 2,000 ft.

Location: 039.2415200° N 122.1535400° W
DWR (2 Mile Rd) - Job# 8469 Mon
APN: 014-210-004
T16N R3W s14

LOCATION NOT CHECKED

ORIGINAL
File Original, Duplicate and Triplicate with the
REGIONAL WATER POLLUTION
CONTROL BOARD No. 5
(Insert appropriate number)

WATER WELL DRILLERS REPORT

(Sections 7076, 7077, 7078, Water Code)

STATE OF CALIFORNIA

Do Not Fill In
No 77484
State Well No. 2P
Other Well No. 16/4 8

(1) OW
Name
Address

(2) LOCATION OF WELL:
County Colusa Co. Owner's number, if any—
R. F. D. or Street No.
Sec. 11, TWP 16 N, R 4 W
300' west of Mills Orchard Rd.

(3) TYPE OF WORK (check):
New well [X] Deepening [ ] Reconditioning [ ] Abandon [ ]
If abandonment, describe material and procedure in Item 11.

(4) PROPOSED USE (check):
Domestic [ ] Industrial [ ] Municipal [ ]
Irrigation [ ] Test Well [ ] Other [X] (stock)

(5) EQUIPMENT:
Rotary [X]
Cable [ ]
Dug Well [ ]

(6) CASING INSTALLED:
SINGLE [X] DOUBLE [ ]

From ft.	to ft.	Diam.	Gage or Wall
0	203	8-5/8	.188

If gravel packed

Diameter of Bore	from ft.	to ft.
18"	0	203

Type and size of shoe or well ring
Size of gravel: Pea gravel
Describe joint Welded

(7) PERFORATIONS:
Type of perforator used Machine cut at factory
Size of perforations 1/8 in., length, by 3 in.

From ft.	to ft.	Perf. per row	Rows per ft.
112	203		

(8) CONSTRUCTION:
Was a surface sanitary seal provided? [ ] Yes [X] No To what depth ft.
Were any strata sealed against pollution? [ ] Yes [X] No If yes, note depth of strata
From ft. to ft.
Method of Sealing

(9) WATER LEVELS:
Depth at which water was first found ft.
Standing level before perforating ft.
Standing level after perforating ft.

(10) WELL TESTS: See back of page
Was a pump test made? [X] Yes [ ] No If yes, by whom? E.E.Luhdorff Co.
Yield: gal./min. with ft. draw down after hrs.
Temperature of water Was a chemical analysis made? [ ] Yes [X] No
Was electric log made of well? [ ] Yes [X] No

(11) WELL LOG:
Total depth 203 ft. Depth of completed well 203 ft.
Formation: *Describe by color, character, size of material, and structure.*

ft.	to ft.		
0	2	2'	Top soil
2	9	7'	Yellow clay
9	15	6'	Sand, pea gravel & shale
15	75	60'	Yellow clay
75	102	27'	Yellow clay, gravel and shale
102	112	10'	Brown shale
112	117	5'	Sand,pea gravel,shale
117	131	14'	Yellow clay
131	146	15'	Sand,pea gravel,shale
146	203	57'	Sand rock & pea gravel

CONFIDENTIAL LOG
Water Code Sec. 13752

CONFIDENTIAL
Section 7076, Water Code

Plotted and Coded
As Well 16N/4W-2P80

Work started 12-4 1963, Completed 12-12 1963

WELL DRILLER'S STATEMENT:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME E. E. LUHDORFF
(Person, firm, or corporation) (Typed or printed)
Address WEST MAIN STREET
WOODLAND, CALIFORNIA

[SIGNED] E. E. Luhdorff
Well Driller

License No. 123211 Dated Jan. 13, 1964

57025 6-57 50M QUIN SPO DWR 188 (REV. 3-54)

Results of Test as follows:

Static level 20'

125 GPM	@	96'	Pumping level
150 "	@	116'	" "
187 "	@	150'	" "

ATER WELL DRILLERS REPORT

(Sections 7076, 7077, 7078, Water Code)

STATE OF CALIFORNIA

LOCATION NOT CHECKED

Do Not Fill In

№ 77484

State Well No. 2P

Other Well No. 16 N/4 W 8

Address

(2) LOCATION OF WELL:

County Colusa Co. Owner's number, if any—

R. F. D. or Street No.

Sec. 11, TWP 16 N, R 4 W
300' west of Mills Orchard Rd.

(3) TYPE OF WORK (check):

New well ☒ Deepening ☐ Reconditioning ☐ Abandon ☐

If abandonment, describe material and procedure in Item 11.

(4) PROPOSED USE (check):

Domestic ☐ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☒ (stock)

(5) EQUIPMENT:

Rotary ☒
Cable ☐
Dug Well ☐

(6) CASING INSTALLED:

SINGLE ☒ DOUBLE ☐

From ft.	to ft.	Diam.	Gage or Wall
0	203	8-5/8	.188

If gravel packed

Diameter of Bore	from ft.	to ft.
18"	0	203

Type and size of shoe or well ring

Size of gravel: Pea gravel

Describe joint Welded

(7) PERFORATIONS:

Type of perforator used Machine cut at factory

Size of perforations 1/8 in., length, by 3 in.

From ft.	to ft.	Perf. per row	Rows per ft.
112	203		

(8) CONSTRUCTION:

Was a surface sanitary seal provided? ☐ Yes ☒ No To what depth ft.

Were any strata sealed against pollution? ☐ Yes ☒ No If yes, note depth of strata

From ft. to ft.

Method of Sealing

(9) WATER LEVELS:

Depth at which water was first found ft.

Standing level before perforating ft.

Standing level after perforating ft.

(10) WELL TESTS: See back of page

Was a pump test made? ☒ Yes ☐ No If yes, by whom? E.E.Luhdorff Co.

Yield: gal./min. with ft. draw down after hrs.

Temperature of water Was a chemical analysis made? ☐ Yes ☒ No

Was electric log made of well? ☐ Yes ☒ No

(11) WELL LOG:

Total depth 203 ft. Depth of completed well 203 ft.

Formation: *Describe by color, character, size of material, and structure.*

From ft.	to ft.		Formation
0	2	2'	Top soil
2	9	7'	Yellow clay
9	15	6'	Sand, pea gravel & shale
15	75	60'	Yellow clay
75	102	27'	Yellow clay, gravel and shale
102	112	10'	Brown shale
112	117	5'	Sand,pea gravel,shale
117	131	14'	Yellow clay
131	146	15'	Sand,pea gravel,shale
146	203	57'	Sand rock & pea gravel

CONFIDENTIAL LOG
Water Code Sec. 13752

CONFIDENTIAL
Section 7076, Water Code

Plotted and Coded

As Well 16N/4W-2P80

Work started 12-4 1963, Completed 12-12 1963

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME E. E. LUHDORFF
(Person, firm, or corporation) (Typed or printed)

Address WEST MAIN STREET
WOODLAND, CALIFORNIA

[SIGNED] E. E. Luhdorff
Well Driller

License No. 123211 Dated Jan. 13, 1964

57025 6-57 50M QUIN SPO DWR 188 (REV. 3-54)

TION NOT CHECKE
Not Fill In
77484 2P
16/4 8

203 ft.
cture.
l
clay
ea gravel & shale
clay
clay, gravel
le
hale
a gravel, shale
clay
a gravel, shale
ck & pea gravel

ENTIAL LOG
de Sec. 13752

F I D E N T I A L
Code

12-12 19 63

report is true to the best of

(Typed or printed)

IA

13, 19 64

WATER WELL DRILLERS REPORT

FIELD WORK SHEET

Report No. 77484

Owner _

Pump No. SCB

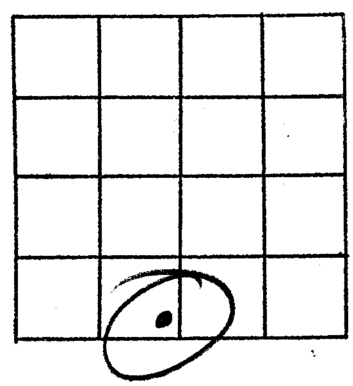
Meter No. 3T6731

LOCATION

Section 2P

Township 16N

Range 4W



see attached sheet for well location

_______ feet North,

_______ feet West from S. E. corner of Section

REMARKS

measurable

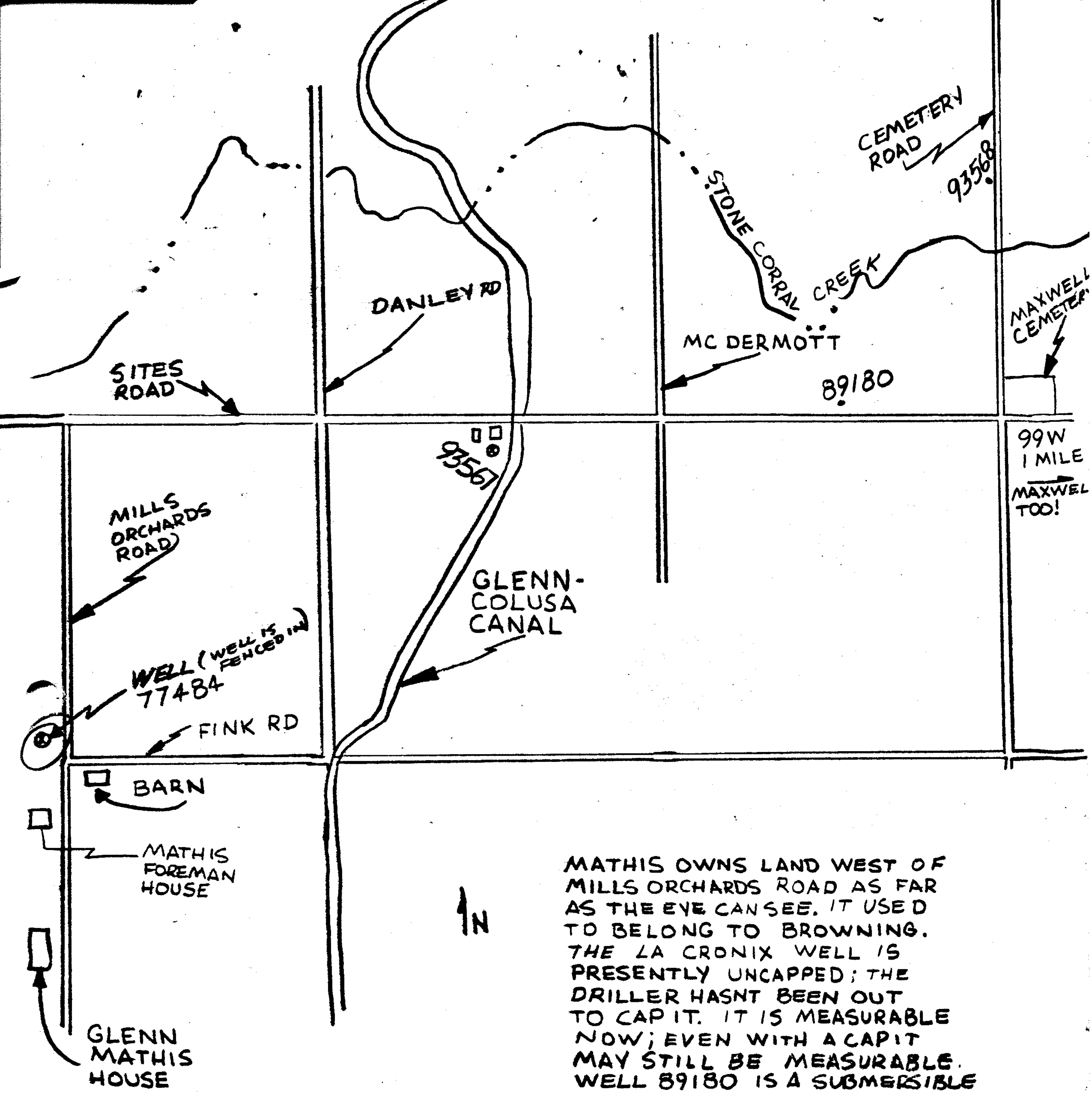
Sam
Field Checked by

8-14-74
Date

Was electric log made of well? ☐ Yes ☒ No

57025 6-57 50M QUIN △ SPO

DWR 188 (REV. 3-54)



MATHIS OWNS LAND WEST OF MILLS ORCHARDS ROAD AS FAR AS THE EYE CAN SEE. IT USED TO BELONG TO BROWNING. THE LA CRONIX WELL IS PRESENTLY UNCAPPED; THE DRILLER HASNT BEEN OUT TO CAP IT. IT IS MEASURABLE NOW; EVEN WITH A CAP IT MAY STILL BE MEASURABLE. WELL 89180 IS A SUBMERSIBLE LOCATED BEHIND THE LARGE BRICK HOUSE SURROUNDED BY RICE FIELDS.

Sam
Field Checked by

8-14-74
Date

(Typed or printed)

IA

13, 19 64

Was electric log made of well? ☐ Yes ☒ No

ORIGINAL
File with DWR

OCT 07 2003

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. 726866 A,B,C

DWR USE ONLY — DO NOT FILL IN

17N/02W-09M

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

Owner's Well No. 7548

Date Work Began 9/12/2003, Ended 9/22/2003

Local Permit Agency COLUSA COUNTY HEALTH DEPT

Permit No. 2003-78 Permit Date 6/3/2003

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD REVERSE FLUID WATER

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION Describe material, grain, size, color, etc.
0	25	OLIVE GRAY CLAY
25	38	GRAVEL AND SAND
38	61	YELLOW BROWN CLAY
61	76	SAND
76	231	BROWN CLAY
231	272	GRAVEL
272	320	BROWN SAND
320	334	GRAVEL
334	406	OLIVE GRAY CLAY
406	426	YELLOW BROWN CLAY
426	441	OLIVE GRAY CLAY
441	470	SAND
470	496	GRAVEL
496	506	BROWN SAND
506	526	OLIVE GRAY CLAY
526	544	GRAVEL
544	618	OLIVE GRAY CLAY
618	661	GRAVEL WITH SAND
661	688	OLIVE GRAY CLAY
688	736	GRAVEL AND SAND
736	746	DARK GRAY CLAY
746	752	GRAVEL
752	775	GREENISH BLACK CLAY
775	785	SAND
785	801	GRAVEL AND SAND
801	822	BLACK AND GRAY SAND
822	836	GREENISH GRAY CLAY
836	846	SAND
846	866	GREENISH GRAY CLAY
866	880	CLAYEY GRAVEL WITH SAND

TOTAL DEPTH OF BORING 940 (Feet)

TOTAL DEPTH OF COMPLETED WELL 863 (Feet)

WELL OWNER

WELL LOCATION

Address NOF PACKER RD & WOF HWY 45

City CA

County COLUSA

APN Book 012 Page 160 Parcel 170

Township 17 N Range 2 W Section 9

Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH

E-Log w/ 429

WEST EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL

MODIFICATION/REPAIR
- ___ Deepen
- ___ Other (Specify)

___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
- ___ Domestic ___ Public
- ___ Irrigation ___ Industrial

MONITORING ___
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ✓
EXTENSOMETE

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
ZONE	1									
0	250	36/18	✓				PVC	2-1/2	SCH 80	
250	260	18		✓			PVC	2-1/2		.02
260	280	18	✓				PVC	2-1/2	SCH 80	
ZONE	2									
0	779	36/18	✓				ASTM-135	4		

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	20	✓			SAND SLURRY
0	190		✓		BENTONITE/LI
190	302			✓	#8 GRD SAND
302	438		✓		BENTONITE/LI
438	578			✓	#8 GRD SAND
578	749		✓		BENTONITE/LI

ATTACHMENTS (✓)

- ___ Geologic Log
- ___ Well Construction Diagram
- ___ Geophysical Log(s)
- ___ Soil/Water Chemical Analysis
- ___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

JAN 02 2004

NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

20 W. KENTUCKY AVE. WOODLAND CA 95695
ADDRESS CITY STATE ZIP

Signed Mark Dawson
WELL DRILLER/AUTHORIZED REPRESENTATIVE

09/29/03 DATE SIGNED

C57 A HIC - 133783 C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File with DWR
Page 2 of 6

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet
No. 726866

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./STATION NO.
LATITUDE | LONGITUDE
APN/TRS/OTHER

Owner's Well No. 7548
Date Work Began 9/12/2003, **Ended** 9/22/2003
Local Permit Agency COLUSA COUNTY HEALTH DEPT
Permit No. 2003-78 **Permit Date** 6/3/2003

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD REVERSE FLUID WATER

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION Describe material, grain, size, color, etc.
880	899	GRAY BROWN SAND
899	940	OLIVE GRAY CLAY

TOTAL DEPTH OF BORING 940 (Feet)
TOTAL DEPTH OF COMPLETED WELL 863 (Feet)

WELL OWNER

WELL LOCATION

Address NOF PACKER RD & WOF HWY 45
City CA
County COLUSA
APN Book 012 Page 160 Parcel 170
Township 17 N Range 2 W Section 9
Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH
WEST
EAST
SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)
WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING ___
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ✓
EXTENSOMETE

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___
ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___
TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)
May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
779	800	18		✓			MILL SLOT	4		.060
800	863	18	✓				ASTM-135	4		
ZONE	3									
~~0~~	~~460~~	~~36/18~~	✓				PVC	2-1/2	SCH 80	
~~460~~	~~470~~	~~18~~		✓			PVC	2-1/2		.020
~~470~~	~~510~~	~~18~~	✓				PVC	2-1/2	SCH 80	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
749	806			✓	#8 GRD SAND
806	940	✓			SAND SLURRY

JAN 22 2004

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analysis
___ Other ___
ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.
NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
20 W. KENTUCKY AVE. WOODLAND CA 95695
ADDRESS CITY STATE ZIP
Signed Mark Damion 09/29/03 C57 A HIC - 133783
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11-97 IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File with DWR

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet
No. 726866

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

Owner's Well No. 7548
Date Work Began 9/12/2003, Ended 9/22/2003
Local Permit Agency COLUSA COUNTY HEALTH DEPT
Permit No. 2003-78 Permit Date 6/3/2003

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD REVERSE FLUID WATER

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION Describe material, grain, size, color, etc.
0	25	OLIVE GRAY CLAY
25	38	GRAVEL AND SAND
38	61	YELLOW BROWN CLAY
61	76	SAND
76	231	BROWN CLAY
231	272	GRAVEL
272	320	BROWN SAND
320	334	GRAVEL
334	406	OLIVE GRAY CLAY
406	426	YELLOW BROWN CLAY
426	441	OLIVE GRAY CLAY
441	470	SAND
470	496	GRAVEL
496	506	BROWN SAND
506	526	OLIVE GRAY CLAY
526	544	GRAVEL
544	618	OLIVE GRAY CLAY
618	661	GRAVEL WITH SAND
661	688	OLIVE GRAY CLAY
688	736	GRAVEL AND SAND
736	746	DARK GRAY CLAY
746	752	GRAVEL
752	775	GREENISH BLACK CLAY
775	785	SAND
785	801	GRAVEL AND SAND
801	822	BLACK AND GRAY SAND
822	836	GREENISH GRAY CLAY
836	846	SAND
846	866	GREENISH GRAY CLAY
866	880	CLAYEY GRAVEL WITH SAND

TOTAL DEPTH OF BORING 940 (Feet)
TOTAL DEPTH OF COMPLETED WELL 863 (Feet)

WELL OWNER

WELL LOCATION

Address NOF PACKER RD & WOF HWY 45
City CA
County COLUSA
APN Book 012 Page 160 Parcel 170
Township 17 N Range 2 W Section 9
Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH
WEST EAST
SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING ___
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ✓
EXTENSOMETE

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___
ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___
TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)
* *May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
510	520	18		✓			PVC	2-1/2		.020
520	540	18	✓				PVC	2-1/2	SCH 80	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	20	✓			SAND SLURRY
0	190		✓		BENTONITE/LI
190	302			✓	#8 GRD SAND
302	438		✓		BENTONITE/LI
438	578			✓	#8 GRD SAND
578	749		✓		BENTONITE/LI

ATTACHMENTS (✓)

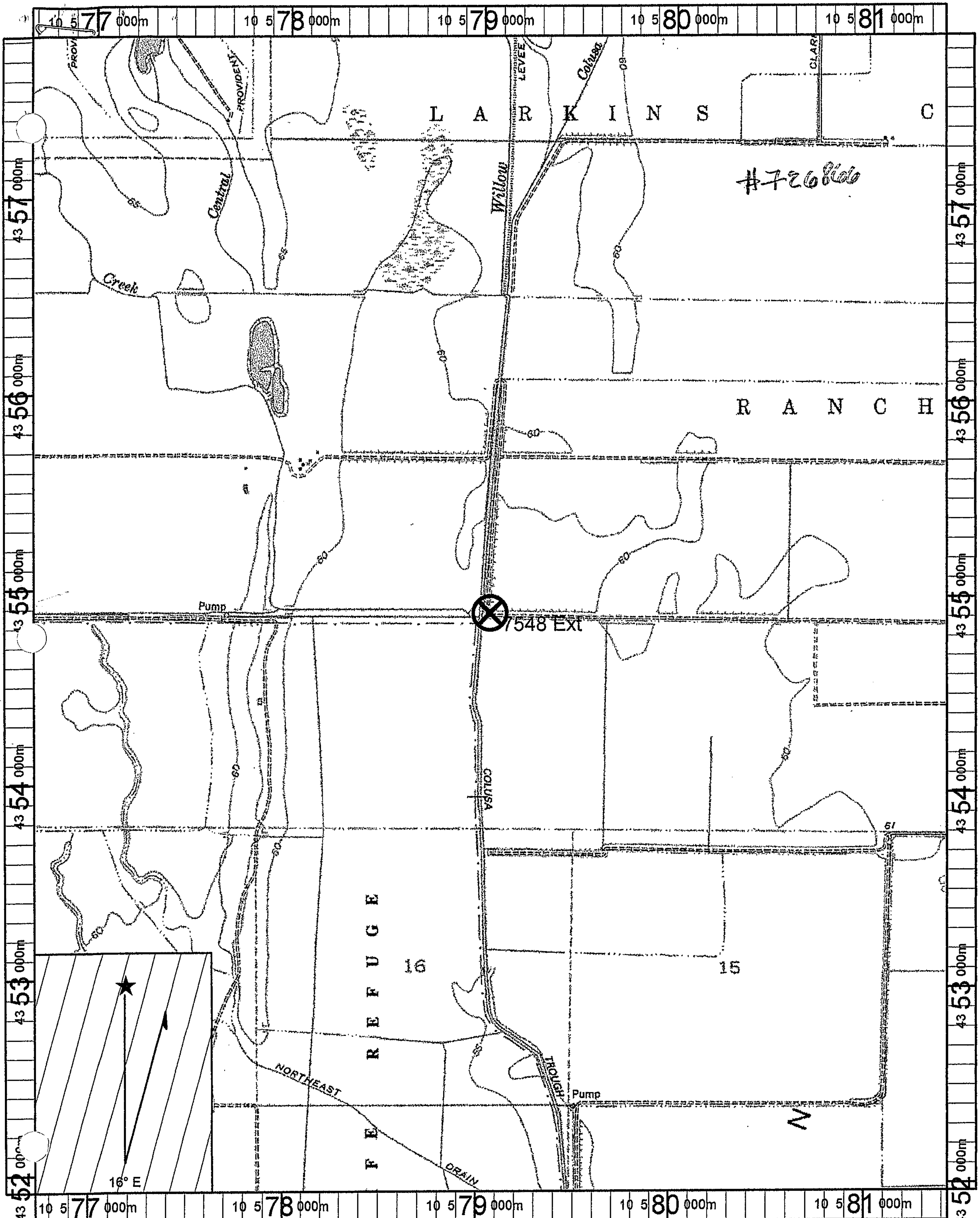
___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analysis
___ Other ___
ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.
NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
20 W. KENTUCKY AVE. WOODLAND CA 95695
ADDRESS CITY STATE ZIP
Signed ___ WELL DRILLER/AUTHORIZED REPRESENTATIVE
09/29/03 DATE SIGNED
C57 A HIC - 133783 C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM



10 577 000m
10 578 000m
10 579 000m
10 580 000m
10 581 000m
43 57 000m
43 56 000m
43 55 000m
43 54 000m
43 53 000m
43 52 000m
L A R K I N S C
R A N C H
#726866
Willow
Colusa
LEVEE
PROVIDENT
Central
Creek
Pump
7548 Ext
COLUSA
R E F U G E
16
15
NORTHEAST
DRAIN
TROUGH
Pump
N
16° E

ORIGINAL
File Original, Duplicate and Triplicate with the
REGIONAL WATER POLLUTION
CONTROL BOARD No. 5
(Insert appropriate number)

WATER WELL DRILLERS REPORT
(Sections 7076, 7077, 7078, Water Code)

STATE OF CALIFORNIA

LOCATION NOT CHECKED
Do Not Fill In
Nº 57983
State Well No.
Other Well No. 17/2

(2) LOCATION OF WELL:
County Colusa Owner's number, if any— Well #1
R. F. D. or Street No. R.F.D.
3 miles east & 1 mile north of
Maxwell, Calif.

(3) TYPE OF WORK (*check*):
New well ☒ Deepening ☐ Reconditioning ☐ Abandon ☐
If abandonment, describe material and procedure in Item 11.

(4) PROPOSED USE (*check*):
Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(5) EQUIPMENT:
Rotary ☐
Cable ☒
Dug Well ☐

(6) CASING INSTALLED:
SINGLE ☒ DOUBLE ☐

From ft.	to ft.	Diam.	Gage or Wall
0	159	6	3/16

If gravel packed

Diameter of Bore	from ft.	to ft.

Type and size of shoe or well ring 3/8x4x6
Size of gravel:
Describe joint welded

(7) PERFORATIONS:
Type of perforator used torch
Size of perforations 1/4 in., length, by 15 in.
From 157 ft. to 159 ft. Perf. per row Rows per ft.

(8) CONSTRUCTION:
Was a surface sanitary seal provided? ☐ Yes ☒ No To what depth ft.
Were any strata sealed against pollution? ☐ Yes ☒ No If yes, note depth of strata
From ft. to ft.
Method of Sealing

(9) WATER LEVELS:
Depth at which water was first found 20 ft.
Standing level before perforating ft.
Standing level after perforating ft.

(10) WELL TESTS:
Was a pump test made? ☐ Yes ☒ No If yes, by whom?
Yield: gal./min. with ft. draw down after hrs.
Temperature of water Was a chemical analysis made? ☐ Yes ☒ No
Was electric log made of well? ☐ Yes ☒ No

(11) WELL LOG:
Total depth 182 ft. Depth of completed well 182 ft.

Formation: *Describe by color, character, size of material, and structure.*

ft.	to ft.	
0	39	yellow clay
39	60	sand
60	177	yellow clay
177	181	sand
181		gravel

CONFIDENTIAL
Section 7076.1, Water Code

~~Plotted and Coded~~ (1974)
~~As Well~~ 17N/2W-30K80

~~Plotted and Coded~~ (1973)
As Well 17N/3W-36A80

Work started 4/5/ 1960 Completed 4/8/ 1960

WELL DRILLER'S STATEMENT:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME L.C. Parkison Drilling Co.
(Person, firm, or corporation) (Typed or printed)
Address ~~XXX~~ Box 324
Butte City, California
[SIGNED] Virginia Parkison Owner
Well Driller
License No. 188522 Dated 6/30, 1960

DWR 188 (REV. 5-58)

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

State No. 17N-2W-30J2

WELL DATA

BRANCH

Owner
Address
Tenant
Address

State No.
Other No.

Type of Well: Hydrograph [ ] Key [ ] Index [ ] Semiannual [ ] G.W.M.P.

Location: County Colusa Basin Colusa No. 5-21.04

U.S.G.S. Quad. Maxwell 7½ Quad. No. 178 d

¼ ¼ Section , Twp. , Rge. MD SB H Base & Meridian

Description 4 mi. E/o maxwell on Maxwell Colusa Rd. To Four Mile Rd. N on 4 mile Rd 1 1/4 mi. To Ranch Rd west. N/w on Ranch Rd. approx. 1/4 mi. To Ranch Headquarters. well is in P.H. E/o Barn.

Reference Point description Sample Tap on EAST side of P.H.

which is ft. above/below land surface. Ground Elevation ft.

Reference Point Elev. ft. Determined from

Well: Use Domi Condition Depth 182 ft.

Casing, size 6 in., perforations 157' To 159'
Cased To 159'

Measurements By: DWR [ ] USGS [ ] USBR [ ] County [ ] Irr. Dist. [ ] Water Dist. [ ] Cons. Dist. [ ]

Chief Aquifer: Name Depth to Top Aq. Depth to Bot. Aq.

Type of Material Perm. Rating Thickness

Gravel Packed? Yes [ ] No [X] Depth to Top Gr. Depth to Bot. Gr.

Supp. Aquifer Depth to Top Aq. Depth to Bot. Aq.

Driller L.C. Parkinson Drilling Co. Butte City

Date drilled 4-8-60 Log, filed open (1) confidential (2) 57983

Equipment: Pump, type Subm. make Barnes

Serial No. Size of discharge pipe 2 in.

Power, Kind Elec. Make

H. P. 2 Motor Serial No. 436T200-10

Elec. Meter No. 69036 Transformer No.

Yield G.P.M. Pumping level ft.

Water Analysis: Min. (1) San. (2) H.M. (3)

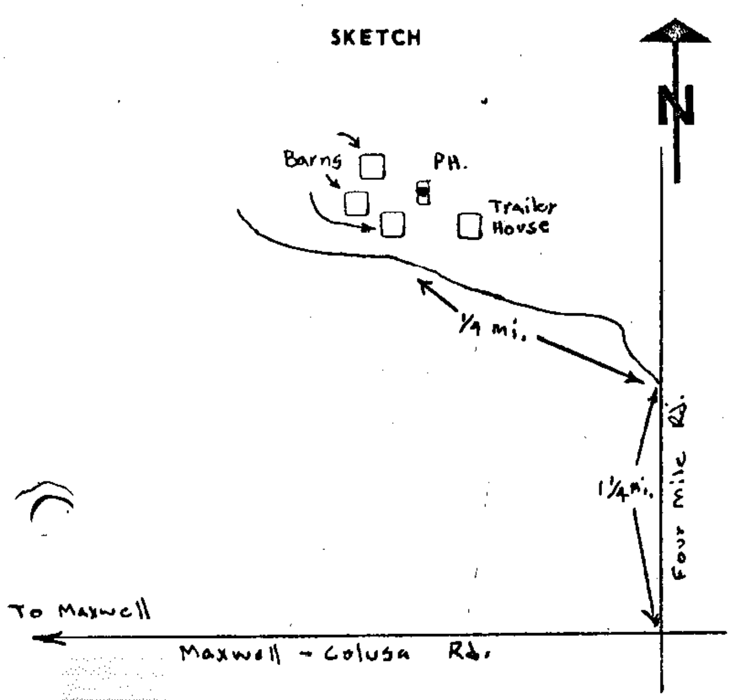
Water Levels available: Yes (1) No

Period of Record: Begin End

Collecting Agency:

Prod. Rec. (1) Pump Test (2) Yield (3)

SKETCH



REMARKS

Recorded by:
Date

ORIGINAL
File with DWR

WATER WELL DRILLERS REPORT

(Sections 7079, 7080, 7081, 7082, Water Code)

THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

Do Not Fill In

No. 49451

State Well No.

Other Well No. 17N/3W-81

(2) LOCATION OF WELL:

County Colusa Owner's number, if any

Township, Range, and Section T17N R3W S8

Distance from cities, roads, railroads, etc. 200' North of Lenahan Rd.

(3) TYPE OF WORK (check):

New Well [x] Deepening [ ] Reconditioning [ ] Destroying [ ]

If destruction, describe material and procedure in Item 11.

(4) PROPOSED USE (check):

Domestic [x] Industrial [ ] Municipal [ ]
Irrigation [ ] Test Well [ ] Other [ ]

(5) EQUIPMENT:

Rotary [ ]
Cable [x]
Other [ ]

(6) CASING INSTALLED:

STEEL: OTHER:
SINGLE [x] DOUBLE [ ]

From ft.	To ft.	Diam.	Gage or Wall	If gravel packed: Diameter of Bore	From ft.	To ft.
0	130	6"	.188			

Size of shoe or well ring: homemade Size of gravel:

Describe joint welded

(7) PERFORATIONS OR SCREEN:

Type of perforation or name of screen torch

From ft.	To ft.	Perf. per row	Rows per ft.	Size in. x in.
125	130		4	4x¼

(8) CONSTRUCTION:

Was a surface sanitary seal provided? Yes [ ] No [x] To what depth ft.

Were any strata sealed against pollution? Yes [ ] No [ ] If yes, note depth of strata

From ft. to ft.

From ft. to ft.

Method of sealing blank casing

(9) WATER LEVELS:

Depth at which water was first found, if known 20 ft.

Standing level before perforating, if known ft.

Standing level after perforating and developing 20 ft.

(10) WELL TESTS:

Was pump test made? Yes [ ] No [x] If yes, by whom?

Yield: gal./min. with ft. drawdown after hrs.

Temperature of water Was a chemical analysis made? Yes [ ] No [ ]

Was electric log made of well? Yes [ ] No [x] If yes, attach copy

(11) WELL LOG:

Total depth ft. Depth of completed well 151 ft.

Formation: Describe by color, character, size of material, and structure

ft.	to	ft.	
0'	to	6'	Top Soil
6'	to	14'	Yellow Clay
14'	to	30'	Sand Yellow Clay
30'	to	50'	Yellow Clay
50'	to	60'	Red Clay
60'	to	82'	Sand Yellow Clay
82'	to	87'	Red Clay
87'	to	94'	Sand Red Clay
94'	to	140'	Red Clay
140'	to	147'	Sand Red Clay
147'	to	151'	Sand & Gravel

CONFIDENTIAL LOG
Water Code Sec. 13752

~~Plotted and Coded and Field located~~
As Well 17N/3W-8R81

~~Plotted and Coded~~
As Well 17N/3W-8Q80

Work started 3-24 19 72, Completed 3-29 19 72

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Squier Drilling & Pump Service
(Person, firm, or corporation) (Typed or printed)

Address P.O. Box 56
Butte City, California 95920

[SIGNED] [signature]
(Well Driller)

License No. 215570 Dated April 3, 19 72

SKETCH LOCATION OF WELL ON REVERSE SIDE

WATER WELL DRILLERS REPORT

FIELD WORK SHEET

Report No. 49451 /

Owner

Pump No. SUB

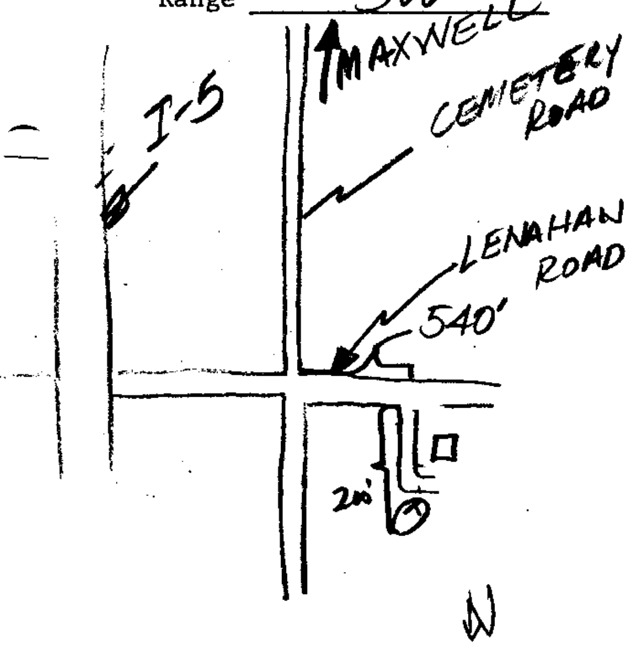
Meter No. —

LOCATION

Section 8R

Township 17N

Range 3W



________ feet North,

________ feet West from S. E. corner of Section

REMARKS

well is 540 west of Cemetery & Lenahan

measurable and 200' north of Lenahan

Sam

Field Checked by

8-12-74

Date

17N/3W-32H

ORIGINAL
File with DWR

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
WATER WELL DRILLERS REPORT

Do Not Fill In
No. 93568
State Well No. CONFIDENTIAL LOG
Other Well No. Water Code Sec. 13752

(2) LOCATION OF WELL:
County Colusa Owner's number, if any
Township, Range, and Section
Distance from cities, roads, railroads, etc. 2 mi W. + 3/4 mi N. of Maxwell on Cemetary Road

(3) TYPE OF WORK (check):
New Well ☑ Deepening ☐ Reconditioning ☐ Destroying ☐
If destruction, describe material and procedure in Item 11.

(4) PROPOSED USE (check):
Domestic ☑ Industrial ☐ Municipal ☐
Irrigation ☑ Test Well ☐ Other ☐

(5) EQUIPMENT:
Rotary ☑
Cable ☐
Other ☐

(6) CASING INSTALLED:
STEEL: SINGLE ☑ DOUBLE ☐ OTHER:

If gravel packed

From ft.	To ft.	Diam.	Gage or Wall	Diameter of Bore	From ft.	To ft.
0	112	6 5/8	10 Ga	12	0	140

Size of shoe or well ring: Size of gravel: 3/4
Describe joint Butt Weld

(7) PERFORATIONS OR SCREEN:
Type of perforation or name of screen 3/16 x 1 1/2 Punched

From ft.	To ft.	Perf. per row	Rows per ft.	Size in. x in.
68	72		8	3/16 x 1 1/2
104	112			

(8) CONSTRUCTION:
Was a surface sanitary seal provided? Yes ☑ No ☐ To what depth 40 ft.
Were any strata sealed against pollution? Yes ☑ No ☐ If yes, note depth of strata
From 0 ft. to 40 ft.
From ft. to ft.
Method of sealing Cement

(9) WATER LEVELS:
Depth at which water was first found, if known ft.
Standing level before perforating, if known ft.
Standing level after perforating and developing 8 ft.

(10) WELL TESTS: Air jetted approx 200 GPM.
Was pump test made? Yes ☑ No ☐ If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
Temperature of water 68 Was a chemical analysis made? Yes ☐ No ☑
Was electric log made of well? Yes ☐ No ☑ If yes, attach copy

(11) WELL LOG:
Total depth 140 ft. Depth of completed well 112 ft.
Formation: Describe by color, character, size of material, and structure

ft.	to ft.	
0	18	Yellow Clay
18	32	Sand + Gravel
32	70	Yellow Clay
70	71	Sand + Gravel
71	105	Yellow Clay
105	108	Sandy Clay + Gravel
108	112	Yellow Clay
112	140	Blue Clay

CONFIDENTIAL LOG
Water Code Sec. 13752

~~Plotted and Coded~~
As Well 17N/3W-32H80

Work started 3/29 1974, Completed 3/29 1974

WELL DRILLER'S STATEMENT:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

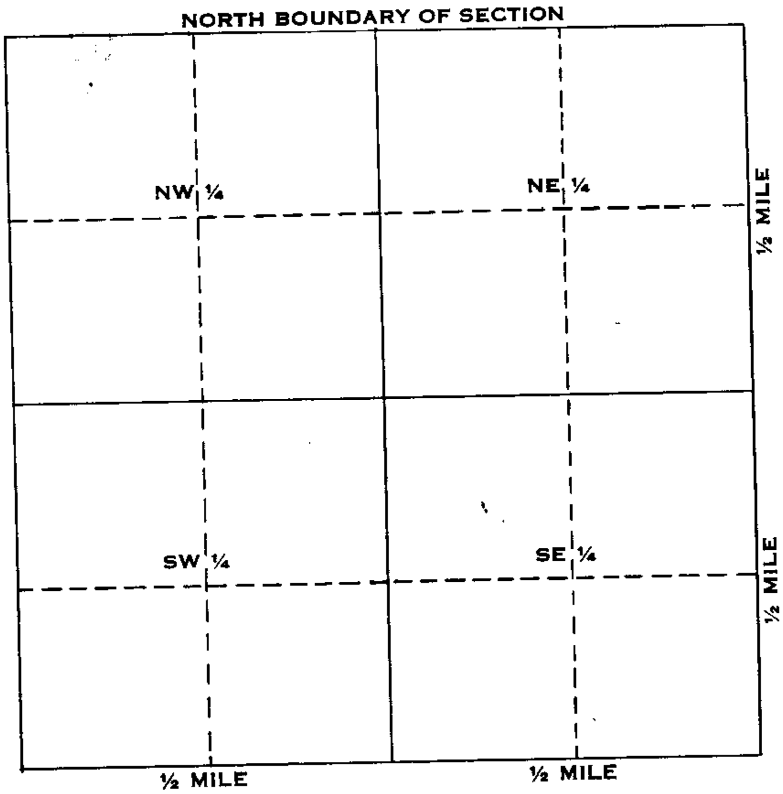
NAME Western Well Drilling Co -
(Person, firm, or corporation) (Typed or printed)
Address PO Box 470 Willows
[SIGNED] Ralph J Smith
(Well Driller)
License No. 195165 Dated 8/6, 1974

SKETCH LOCATION OF WELL ON REVERSE SIDE

DWR 188 (REV. 9-68)

25179-950 9-68 50M TRIP OSP

WELL LOCATION SKETCH

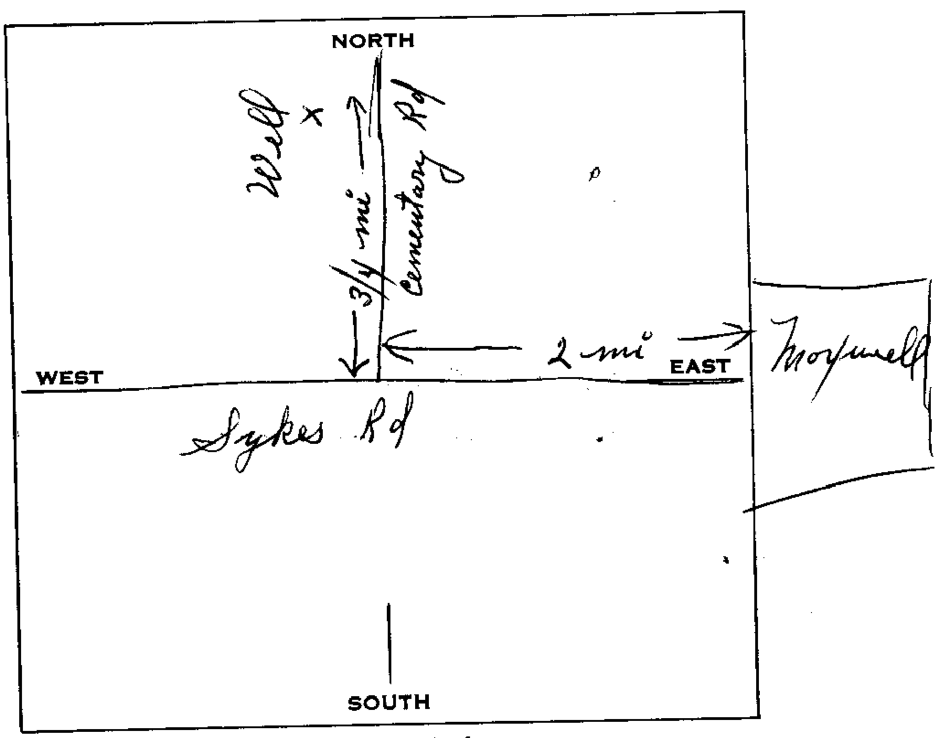


Township ______________ N/S

Range ______________ E/W

Section No. ______________

A. Location of well in sectionized areas.
Sketch roads, railroads, streams, or other features as necessary.



B. Location of well in areas not sectionized.
Sketch roads, railroads, streams, or other features as necessary.
Indicate distances.

WATER WELL DRILLERS REPORT

FIELD WORK SHEET

Report No. 93568

Owner

Pump No. SUB

Meter No.

1100 by Bnge

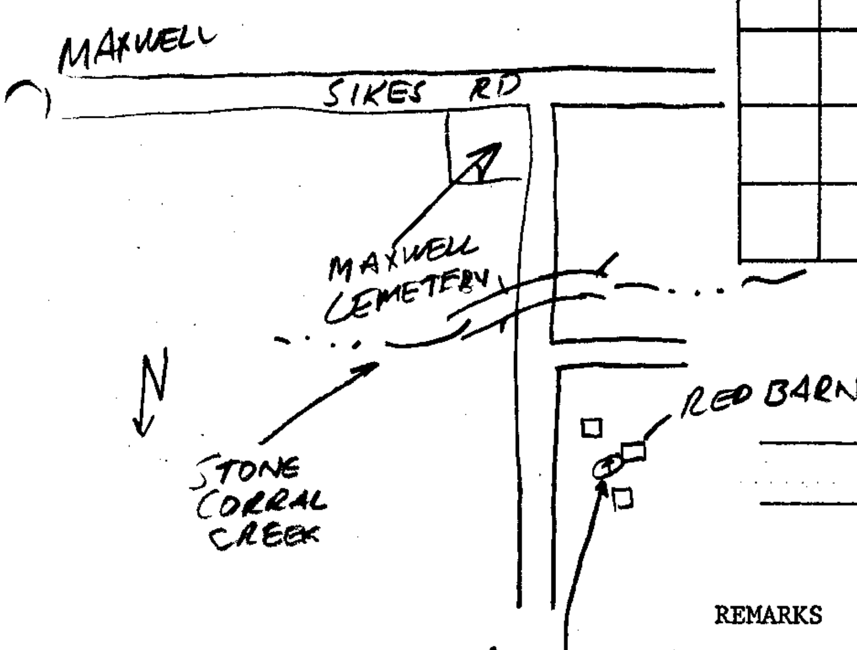
see attached for more location

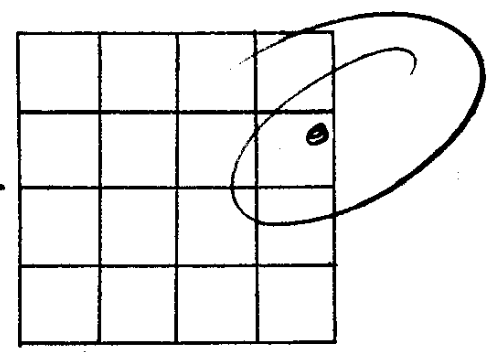
LOCATION

Section 32H

Township 17N

Range 3W





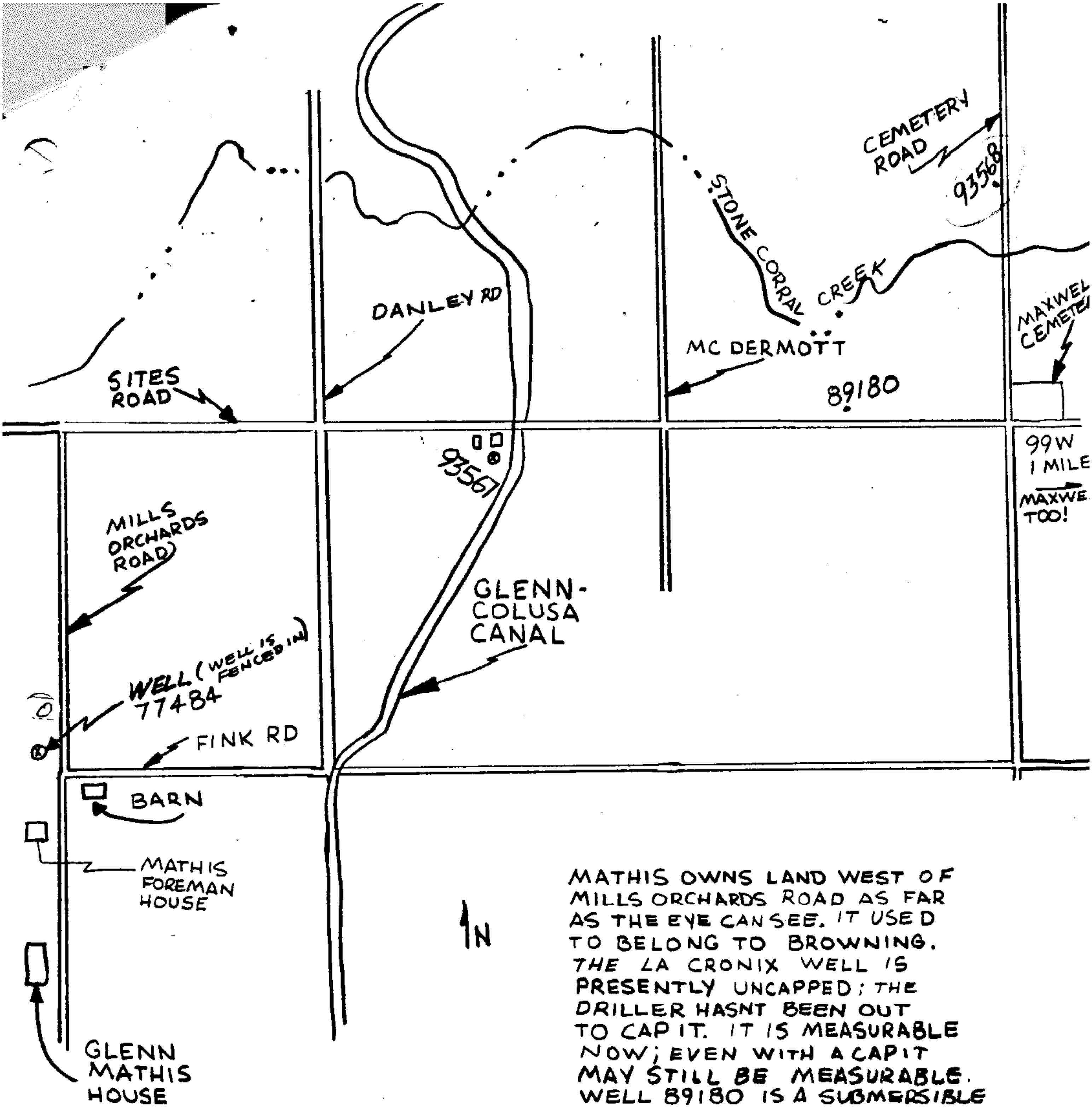
_____ feet North,

_____ feet West from S. E. corner of Section

REMARKS

measurable - the well is on the west side of tin shed (which east of red barn

Sam
Field Checked by
8-12-74



MATHIS OWNS LAND WEST OF MILLS ORCHARDS ROAD AS FAR AS THE EYE CAN SEE. IT USED TO BELONG TO BROWNING. THE LA CRONIX WELL IS PRESENTLY UNCAPPED; THE DRILLER HASNT BEEN OUT TO CAP IT. IT IS MEASURABLE NOW; EVEN WITH A CAP IT MAY STILL BE MEASURABLE. WELL 89180 IS A SUBMERSIBLE LOCATED BEHIND THE LARGE BRICK HOUSE SURROUNDED BY RICE FIELDS.

ORIGINAL
File with DWR

Page 1 of 12

Owner's Well No. 7986

Date Work Began 9/5/2006, Ended 9/14/2006

Local Permit Agency GLENN COUNTY HEALTH DEPT

Permit No. MW 247-06 Permit Date 6/15/2006

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. E045412

DWR USE ONLY -- DO NOT FILL IN
18W/02W-18
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD ROTARY FLUID MUD

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION Describe material, grain, size, color, etc.
0	20	DARK BROWN CLAY
20	100	SILTY ORANGE BROWN CLAY
100	170	SILTY YELLOW BROWN CLAY WITH FINE SAND
170	210	TAN CLAY WITH MINIMUM SAND
210	280	BROWN TAN CLAY WITH COARSE SAND
280	400	BROWN TAN CLAY WITH SAND
400	520	SOFT YELLOW BROWN CLAY WITH COARSE
		SAND
520	700	SAND AND GRAVEL WITH BRITTLE YELLOW
		BROWN CLAY
700	710	BLUE CLAY WITH SAND AND GRAVEL
710	720	SOFT YELLOW BROWN CLAY WITH SAND
		AND GRAVEL
720	760	SOFT BLUE GRAY CLAY WITH SAND AND
		GRAVEL
760	800	SOFT YELLOW CLAY WITH SAND
800	850	SOFT YELLOW CLAY WITH BRITTLE GRAY
		CLAY AND SAND
850	1025	BRITTLE GRAY BROWN CLAY WITH SAND
		AND GRAVEL
1025	1040	COARSE SAND
1040	1195	BRITTLE GRAY BROWN CLAY WITH SAND
		AND GRAVEL STREAKS

TOTAL DEPTH OF BORING 1200 (Feet)

TOTAL DEPTH OF COMPLETED WELL 1000 (Feet)

WELL LOCATION

Address .93 MI NOF RD 68 & 525' EOF NORMAN RD

City CA

County GLENN

APN Book 013 Page 280 Parcel 001

Township 18 N Range 2 W Section 18

Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH / WEST / EAST / SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL

MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)

___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial

MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

*May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
ZONE	1									
0	246	14	✓				PVC F480	2.5	SCH 80	
246	256	14		✓			PVC F480	2.5	SCH 80	.030
256	266	14	✓				PVC F480	2.5	SCH 80	
ZONE	2									
0	510	14	✓				PVC F480	2.5	SCH 80	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	130	✓			SAND SLURRY
130	134		✓		BENTONITE S
134	223			✓	SRI#8 SAND
223	235		✓		BENTONITE S
235	280			✓	SRI#8 SAND
280	290		✓		BENTONITE S

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analysis
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

20 WEST KENTUCKY AVE WOODLAND CA 95695
ADDRESS CITY STATE ZIP

Signed Mark Damon
WELL DRILLER/AUTHORIZED REPRESENTATIVE

10/05/06
DATE SIGNED

C57 A HIC - 133783
C-57 LICENSE NUMBER

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File with DWR

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. **E045412**

Owner's Well No. 7986

Date Work Began 9/5/2006, Ended 9/14/2006

Local Permit Agency GLENN COUNTY HEALTH DEPT

Permit No. MW 247-06 Permit Date 6/15/2006

DWR USE ONLY — DO NOT FILL IN

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD ROTARY FLUID MUD

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain, size, color, etc.*
0	20	DARK BROWN CLAY
20	100	SILTY ORANGE BROWN CLAY
100	170	SILTY YELLOW BROWN CLAY WITH FINE SAND
170	210	TAN CLAY WITH MINIMUM SAND
210	280	BROWN TAN CLAY WITH COARSE SAND
280	400	BROWN TAN CLAY WITH SAND
400	520	SOFT YELLOW BROWN CLAY WITH COARSE
		SAND
520	700	SAND AND GRAVEL WITH BRITTLE YELLOW
		BROWN CLAY
700	710	BLUE CLAY WITH SAND AND GRAVEL
710	720	SOFT YELLOW BROWN CLAY WITH SAND
		AND GRAVEL
720	760	SOFT BLUE GRAY CLAY WITH SAND AND
		GRAVEL
760	800	SOFT YELLOW CLAY WITH SAND
800	850	SOFT YELLOW CLAY WITH BRITTLE GRAY
		CLAY AND SAND
850	1025	BRITTLE GRAY BROWN CLAY WITH SAND
		AND GRAVEL
1025	1040	COARSE SAND
1040	1195	BRITTLE GRAY BROWN CLAY WITH SAND
		AND GRAVEL STREAKS

TOTAL DEPTH OF BORING 1200 (Feet)

TOTAL DEPTH OF COMPLETED WELL 1000 (Feet)

WELL LOCATION

Address .93 MI NOF RD 68 & 525' EOF NORMAN RD

City CA

County GLENN

APN Book 013 Page 280 Parcel 001

Township 18 N Range 2 W Section 18

Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH

WEST EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL

MODIFICATION/REPAIR
- ___ Deepen
- ___ Other (Specify)

___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
- ___ Domestic ___ Public
- ___ Irrigation ___ Industrial

MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
510	520	14		✓			PVC F480	2.5	SCH 80	.030
520	530	14	✓				PVC F480	2.5	SCH 80	
ZONE	3									
0	620	14	✓				PVC F480	2.5	SCH 80	
620	630	14		✓			PVC F480	2.5	SCH 80	.030
630	670	14	✓				PVC F480	2.5	SCH 80	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
290	488			✓	SRI#8 SAND
488	500		✓		BENTONITE S
500	543			✓	SRI#8 SAND
543	553		✓		BENTONITE S
553	598			✓	SRI#8 SAND
598	608		✓		BENTONITE S

ATTACHMENTS (✓)

- ___ Geologic Log
- ___ Well Construction Diagram
- ___ Geophysical Log(s)
- ___ Soil/Water Chemical Analysis
- ___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

20 WEST KENTUCKY AVE WOODLAND CA 95695
ADDRESS CITY STATE ZIP

Signed [signature] 10/05/06 C57 A HIC - 133783
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File with DWR

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. E045412

DWR USE ONLY — DO NOT FILL IN

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

Owner's Well No. 7986

Date Work Began 9/5/2006, Ended 9/14/2006

Local Permit Agency GLENN COUNTY HEALTH DEPT

Permit No. MW 247-06 Permit Date 6/15/2006

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD ROTARY FLUID MUD

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION Describe material, grain, size, color, etc.
0	20	DARK BROWN CLAY
20	100	SILTY ORANGE BROWN CLAY
100	170	SILTY YELLOW BROWN CLAY WITH FINE SAND
170	210	TAN CLAY WITH MINIMUM SAND
210	280	BROWN TAN CLAY WITH COARSE SAND
280	400	BROWN TAN CLAY WITH SAND
400	520	SOFT YELLOW BROWN CLAY WITH COARSE
		SAND
520	700	SAND AND GRAVEL WITH BRITTLE YELLOW
		BROWN CLAY
700	710	BLUE CLAY WITH SAND AND GRAVEL
710	720	SOFT YELLOW BROWN CLAY WITH SAND
		AND GRAVEL
720	760	SOFT BLUE GRAY CLAY WITH SAND AND
		GRAVEL
760	800	SOFT YELLOW CLAY WITH SAND
800	850	SOFT YELLOW CLAY WITH BRITTLE GRAY
		CLAY AND SAND
850	1025	BRITTLE GRAY BROWN CLAY WITH SAND
		AND GRAVEL
1025	1040	COARSE SAND
1040	1195	BRITTLE GRAY BROWN CLAY WITH SAND
		AND GRAVEL STREAKS

TOTAL DEPTH OF BORING 1200 (Feet)

TOTAL DEPTH OF COMPLETED WELL 1000 (Feet)

WELL LOCATION

Address .93 MI NOF RD 68 & 525' EOF NORMAN RD

City CA

County GLENN

APN Book 013 Page 280 Parcel 001

Township 18 N Range 2 W Section 18

Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH / WEST / EAST / SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL

MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)

___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial

MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
670	680	14		✓			PVC F480	2.5	SCH 80	.030
680	700	14	✓				PVC F480	2.5	SCH 80	
ZONE	4									
~~0~~	~~975~~	~~14/8-3/4~~	~~✓~~				~~PVC F480~~	~~2.5~~	~~SCH 80~~	
~~975~~	~~985~~	~~8-3/4~~		~~✓~~			~~PVC F480~~	~~2.5~~	~~SCH 80~~	~~.030~~
~~985~~	~~1000~~	~~8-3/4~~	~~✓~~				~~PVC F480~~	~~2.5~~	~~SCH 80~~	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
608	693			✓	SRI#8 SAND
693	716		✓		BENTONITE S
716	930			✓	SRI#8 SAND
930	944		✓		BENTONITE S
~~944~~	~~996~~			~~✓~~	~~SRI#8 SAND~~
~~996~~	~~1002~~		~~✓~~		~~BENTONITE S~~

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analysis
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

20 WEST KENTUCKY AVE WOODLAND CA 95695
ADDRESS CITY STATE ZIP

Signed Mark Dawson
WELL DRILLER/AUTHORIZED REPRESENTATIVE

10/05/06
DATE SIGNED

C57 A HIC - 133783
C-57 LICENSE NUMBER

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File with DWR

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. **E045412**

DWR USE ONLY -- DO NOT FILL IN

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

Owner's Well No. 7986

Date Work Began 9/5/2006, Ended 9/14/2006

Local Permit Agency GLENN COUNTY HEALTH DEPT

Permit No. MW 247-06 Permit Date 6/15/2006

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD ROTARY FLUID MUD

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION Describe material, grain, size, color, etc.
0	20	DARK BROWN CLAY
20	100	SILTY ORANGE BROWN CLAY
100	170	SILTY YELLOW BROWN CLAY WITH FINE SAND
170	210	TAN CLAY WITH MINIMUM SAND
210	280	BROWN TAN CLAY WITH COARSE SAND
280	400	BROWN TAN CLAY WITH SAND
400	520	SOFT YELLOW BROWN CLAY WITH COARSE
		SAND
520	700	SAND AND GRAVEL WITH BRITTLE YELLOW
		BROWN CLAY
700	710	BLUE CLAY WITH SAND AND GRAVEL
710	720	SOFT YELLOW BROWN CLAY WITH SAND
		AND GRAVEL
720	760	SOFT BLUE GRAY CLAY WITH SAND AND
		GRAVEL
760	800	SOFT YELLOW CLAY WITH SAND
800	850	SOFT YELLOW CLAY WITH BRITTLE GRAY
		CLAY AND SAND
850	1025	BRITTLE GRAY BROWN CLAY WITH SAND
		AND GRAVEL
1025	1040	COARSE SAND
1040	1195	BRITTLE GRAY BROWN CLAY WITH SAND
		AND GRAVEL STREAKS

TOTAL DEPTH OF BORING 1200 (Feet)

TOTAL DEPTH OF COMPLETED WELL 1000 (Feet)

WELL LOCATION

Address .93 MI NOF RD 68 & 525' EOF NORMAN RD

City CA

County GLENN

APN Book 013 Page 280 Parcel 001

Township 18 N Range 2 W Section 18

Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH / WEST / EAST / SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL

MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)

___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial

MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
ZONE	1									
0	246	14	✓				PVC F480	2.5	SCH 80	
246	256	14		✓			PVC F480	2.5	SCH 80	.030
256	266	14	✓				PVC F480	2.5	SCH 80	
ZONE	2									
0	510	14	✓				PVC F480	2.5	SCH 80	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
1002	1200			✓	NATIVE FILL

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analysis
___ Other

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

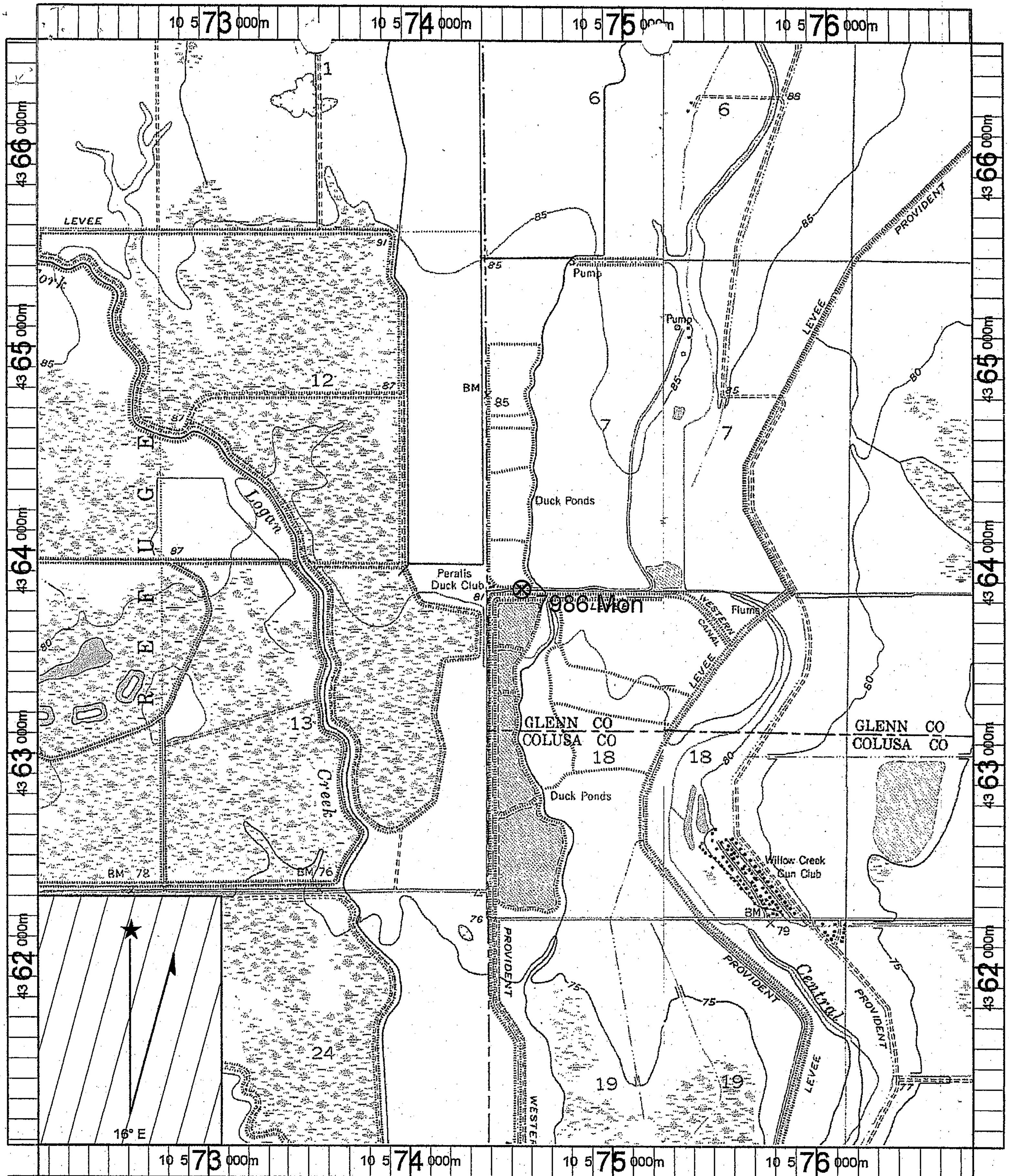
I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

20 WEST KENTUCKY AVE — WOODLAND — CA — 95695
ADDRESS CITY STATE ZIP

Signed [signature] WELL DRILLER/AUTHORIZED REPRESENTATIVE — 10/05/06 DATE SIGNED — C57 A HIC - 133783 C-57 LICENSE NUMBER

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM



Name: LOGANDALE
Date: 6/12/2006
Scale: 1 inch equals 2000 feet

Caption: DWR (GCID) - Job# 7986 Mon
APN: 013-280-001 (103 acres)
T18N R2W s18

18N/02W-36M

ORIGINAL
File with DWR

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
WATER WELL DRILLERS REPORT

Do not fill in
No. 177869
State Well No.
Other Well No.

Notice of Intent No.
Local Permit No. or Date

(2) LOCATION OF WELL (See instructions):
County Colusa Owner's Well Number
Well address if different from above
Township 18 N Range 2 W Section 36
Distance from cities, roads, railroads, fences, etc.
Extreme Notheast corner of Secion 36

WELL LOCATION SKETCH

(3) TYPE OF WORK:
New Well ☒ Deepening ☐
Reconstruction ☐
Reconditioning ☐
Horizontal Well ☐
Destruction ☐ (Describe destruction materials and procedures in Item 12)

(4) PROPOSED USE:
Domestic ☐
Irrigation ☒
Industrial ☐
Test Well ☐
Stock ☐
Municipal ☐
Other ☐

(5) EQUIPMENT:
Rotary ☐ Reverse ☐
Cable ☒ Air ☐
Other ☐ Bucket ☐

(6) GRAVEL PACK:
Yes ☐ No ☒ Size
Diameter of bore
Packed from ___ to ___ ft.

(7) CASING INSTALLED:
Steel ☒ Plastic ☐ Concrete ☐

(8) PERFORATIONS:
Type of perforation or size of screen

From ft.	To ft.	Dia. in.	Gage or Wall	From ft.	To ft.	Slot size
0	234	18	1/4	88	128	1/4" mills Knife
230	410	16	8-GA	195	225	1/4" mills Knife
				240	340	1/4" mills Knife

(9) WELL SEAL:
Was surface sanitary seal provided? Yes ☐ No ☒ If yes, to depth ___ ft.
Were strata sealed against pollution? Yes ☒ No ☐ Interval ___ ft.
Method of sealing Clay Seal

(10) WATER LEVELS:
Depth of first water, if known 40 ft.
Standing level after well completion 38 ft.

(11) WELL TESTS:
Was well test made? Yes ☒ No ☐ If yes, by whom? Valley Pump
Type of test Pump ☒ Bailer ☐ Air lift ☐
Depth to water at start of test 38 ft. At end of test 36 ft
Discharge 3400 gal/min after 90 hours Water temperature
Chemical analysis made? Yes ☐ No ☒ If yes, by whom?
Was electric log made? Yes ☐ No ☒ If yes, attach copy to this report

(12) WELL LOG: Total depth 455 ft. Depth of completed well 455 ft.

from ft.	to ft.	Formation (Describe by color, character, size or material)
0	9	top Sail
9	38	Brown Clay
38	41	Gravel
41	88	Brown Clay
88	127	Sand & Gravel
127	196	Blue Clay
196	224	River Rock
224	268	Blue Clay
268	310	Sand & Gravel
310	446	Blue Clay
446	455	Shale & Gravel

DEC 3 1985

Work started JAN 2 1985 Completed JAN 16 1985

WELL DRILLER'S STATEMENT: 00281
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
SIGNED (Well Driller)
NAME Valley Pump & motor Works Inc (Person, firm, or corporation) (Typed or printed)
Address 470 No. Geo. Wash Blvd
City Yuba City CA Zip 95991
License No. 256384 Date of this report MAY 16, 1985

DWR 188 (REV. 7-76) IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

OCT 1 6 2004

ORIGINAL
File with DWR

Page 1 of 6

Owner's Well No. 7679

Date Work Began 7/19/2004, Ended 7/23/2004

Local Permit Agency GLENN COUNTY HEALTH DEPT

Permit No. MW 206-04 Permit Date 5/3/2004

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. 726952A B

DWR USE ONLY — DO NOT FILL IN

19N/02W-08

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD REVERSE FLUID WATER

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain, size, color, etc.*
0	68	TAN BROWN CLAY
68	92	SAND AND GRAVEL
92	160	TAN BROWN CLAY
160	202	TAN BROWN SILTY CLAY
202	226	GRAVEL AND SAND
226	240	BLUE CLAY
240	260	TAN BROWN CLAY
260	298	TAN BROWN SILTY CLAY WITH SAND
298	374	TAN BROWN CLAY WITH SAND
374	462	TAN BROWN SILTY CLAY WITH SAND
462	468	GRAVEL
468	556	TAN BROWN CLAY WITH SILTY SAND
556	600	TAN BROWN SILTY CLAY
600	638	SANDSTONE AND CLAYEY SAND
638	776	TAN BROWN SILTY CLAY
776	796	GRAVEL
796	822	LIGHT TAN CLAY
822	826	SANDSTONE
826	856	LIGHT TAN CLAY WITH FINE SAND
856	882	GRAVEL
882	936	TAN BROWN SILTY,CLAYEY FINE SAND
936	965	GRAVEL AND SAND WITH BLUE TAN SILTY
		CLAY
965	1000	BLUE SILTY SANDY CLAY

TOTAL DEPTH OF BORING 1000 (Feet)

TOTAL DEPTH OF COMPLETED WELL 939.7 (Feet)

WELL LOCATION

Address SOF HWY 162 & EOF C/R R

City CA

County GLENN

APN Book 016 Page 210 Parcel 012

Township 19 N Range 2 W Section 8

Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH / WEST / EAST / SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.**

ACTIVITY (✓)

✓ NEW WELL

MODIFICATION/REPAIR
- ___ Deepen
- ___ Other (Specify)

___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
- ___ Domestic ___ Public
- ___ Irrigation ___ Industrial

MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

** May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
ZONE	1									
0	77	24/18	✓				PVC C200	2.5	SCH 80	
77	87	18		✓			PVC C200	2.5	SCH 80	.030
87	97	18	✓				PVC C200	2.5	SCH 80	
ZONE	2									
0	208	24/18	✓				PVC C200	2.5	SCH 80	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	59	✓			SAND SLURRY
0	136			✓	SRI#8 SAND
136	171		✓		BENTONITE S
171	265			✓	SRI#8 SAND
265	829		✓		BENTONITE S
829	910			✓	SRI#8 SAND

MAY 04 2005

ATTACHMENTS (✓)

- ___ Geologic Log
- ___ Well Construction Diagram
- ___ Geophysical Log(s)
- ___ Soil/Water Chemical Analysis
- ___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

20 W. KENTUCKY AVE. WOODLAND CA 95695
ADDRESS CITY STATE ZIP

Signed [signature] 09/16/04 C57 A HIC - 133783
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File with DWR

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. 726952

DWR USE ONLY — DO NOT FILL IN

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

Owner's Well No. 7679

Date Work Began 7/19/2004, Ended 7/23/2004

Local Permit Agency GLENN COUNTY HEALTH DEPT

Permit No. MW 206-04 Permit Date 5/3/2004

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD REVERSE FLUID WATER

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION Describe material, grain, size, color, etc.
0	68	TAN BROWN CLAY
68	92	SAND AND GRAVEL
92	160	TAN BROWN CLAY
160	202	TAN BROWN SILTY CLAY
202	226	GRAVEL AND SAND
226	240	BLUE CLAY
240	260	TAN BROWN CLAY
260	298	TAN BROWN SILTY CLAY WITH SAND
298	374	TAN BROWN CLAY WITH SAND
374	462	TAN BROWN SILTY CLAY WITH SAND
462	468	GRAVEL
468	556	TAN BROWN CLAY WITH SILTY SAND
556	600	TAN BROWN SILTY CLAY
600	638	SANDSTONE AND CLAYEY SAND
638	776	TAN BROWN SILTY CLAY
776	796	GRAVEL
796	822	LIGHT TAN CLAY
822	826	SANDSTONE
826	856	LIGHT TAN CLAY WITH FINE SAND
856	882	GRAVEL
882	936	TAN BROWN SILTY,CLAYEY FINE SAND
936	965	GRAVEL AND SAND WITH BLUE TAN SILTY CLAY
965	1000	BLUE SILTY SANDY CLAY

TOTAL DEPTH OF BORING 1000 (Feet)

TOTAL DEPTH OF COMPLETED WELL 939.7 (Feet)

WELL LOCATION

Address SOF HWY 162 & EOF C/R R

City CA

County GLENN

APN Book 016 Page 210 Parcel 012

Township 19 N Range 2 W Section 8

Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH

WEST EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.**

ACTIVITY (✓)

✓ NEW WELL

MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)

___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial

MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
208	218	18		✓			PVC C200	2.5	SCH 80	.030
218	228	18	✓				PVC C200	2.5	SCH 80	
ZONE	3									
0	290.6	24/18	✓				ASTM-135	4	.312	
290.6	299.9	18					COMP SEC			
299.9	720.9	18	✓				ASTM-135	4	.312	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
910	1000	✓			SAND SLURRY

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analysis
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

20 W. KENTUCKY AVE. WOODLAND CA 95695
ADDRESS CITY STATE ZIP

Signed Mark Damian
WELL DRILLER/AUTHORIZED REPRESENTATIVE

09/16/04
DATE SIGNED

C57 A HIC - 133783
C-57 LICENSE NUMBER

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File with DWR

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. 726952

Owner's Well No. 7679

Date Work Began 7/19/2004, Ended 7/23/2004

Local Permit Agency GLENN COUNTY HEALTH DEPT

Permit No. MW 206-04 Permit Date 5/3/2004

DWR USE ONLY — DO NOT FILL IN

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD REVERSE FLUID WATER

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION Describe material, grain, size, color, etc.
0	68	TAN BROWN CLAY
68	92	SAND AND GRAVEL
92	160	TAN BROWN CLAY
160	202	TAN BROWN SILTY CLAY
202	226	GRAVEL AND SAND
226	240	BLUE CLAY
240	260	TAN BROWN CLAY
260	298	TAN BROWN SILTY CLAY WITH SAND
298	374	TAN BROWN CLAY WITH SAND
374	462	TAN BROWN SILTY CLAY WITH SAND
462	468	GRAVEL
468	556	TAN BROWN CLAY WITH SILTY SAND
556	600	TAN BROWN SILTY CLAY
600	638	SANDSTONE AND CLAYEY SAND
638	776	TAN BROWN SILTY CLAY
776	796	GRAVEL
796	822	LIGHT TAN CLAY
822	826	SANDSTONE
826	856	LIGHT TAN CLAY WITH FINE SAND
856	882	GRAVEL
882	936	TAN BROWN SILTY,CLAYEY FINE SAND
936	965	GRAVEL AND SAND WITH BLUE TAN SILTY
		CLAY
965	1000	BLUE SILTY SANDY CLAY

TOTAL DEPTH OF BORING 1000 (Feet)

TOTAL DEPTH OF COMPLETED WELL 939.7 (Feet)

WELL LOCATION

Address SOF HWY 162 & EOF C/R R

City CA

County GLENN

APN Book 016 Page 210 Parcel 012

Township 19 N Range 2 W Section 8

Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH

WEST EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.**

ACTIVITY (✓)

✓ NEW WELL

MODIFICATION/REPAIR
- ___ Deepen
- ___ Other (Specify)

___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
- ___ Domestic ___ Public
- ___ Irrigation ___ Industrial

MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
720.9	730.2	18					COMP SEC			
730.2	856.6	18	✓				ASTM-135	4	.312	
856.6	876.6	18		✓			DBL MILLSL	4	.312	.060
876.6	939.7	18	✓				ASTM-135	4	.312	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	59	✓			SAND SLURRY
0	136			✓	SRI#8 SAND
136	171		✓		BENTONITE S
171	265			✓	SRI#8 SAND
265	829		✓		BENTONITE S
829	910			✓	SRI#8 SAND

ATTACHMENTS (✓)
- ___ Geologic Log
- ___ Well Construction Diagram
- ___ Geophysical Log(s)
- ___ Soil/Water Chemical Analysis
- ___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

20 W. KENTUCKY AVE. WOODLAND CA 95695
ADDRESS CITY STATE ZIP

Signed Mark Damion 09/16/04 C57 A HIC - 133783
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File with DWR

RECEIVED
DEC 20 1994
D.W.R.

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. 581475

DWR USE ONLY — DO NOT FILL IN
19N/02W-32M
STATE WELL NO./STATION NO.
LATITUDE | LONGITUDE
APN/TRS/OTHER

Page ____ of ____
Owner's Well No. ____
Date Work Began 11/7/94 Ended 11/11/94
Local Permit Agency Glenn County Environmental Health
Permit No. 59698 Permit Date 10/17/94

GEOLOGIC LOG

ORIENTATION (✓) X VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DEPTH TO FIRST WATER ____ (Ft.) BELOW SURFACE

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION (Describe material, grain size, color, etc.)
0	7	Clay
7	17	Gravel
17	25	Clay
25	33	Gravel
33	44	Clay
44	46	Gravel
46	120	Clay
120	124	Small gravel
124	160	Clay
160	190	Gravel, cobblestones
190	197	Clay
197	251	Gravel, cobblestones
251	265	Clay
265	270	Gravel
270	274	Small gravel
274	300	Clay

TOTAL DEPTH OF BORING 300 (Feet)
TOTAL DEPTH OF COMPLETED WELL 260 (Feet)

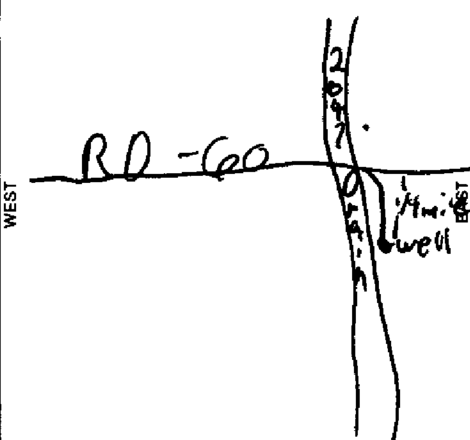
WELL OWNER

WELL LOCATION

Address 3/4 - 1 mi. West of SS on ~~64~~ 60
City 4 Corners
County Glenn
APN Book 13 Page 22 Parcel 0 - 018
Township ____ Range ____ Section ____
Latitude ____ DEG. MIN. SEC. NORTH Longitude ____ DEG. MIN. SEC. WEST

LOCATION SKETCH

NORTH



WEST | EAST
SOUTH

Illustrate or Describe Distance of Well from Landmarks such as Roads, Buildings, Fences, Rivers, etc.
PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

X NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USE(S) (✓)

___ MONITORING
WATER SUPPLY
___ Domestic
___ Public
X Irrigation
___ Industrial
___ "TEST WELL"
___ CATHODIC PROTECTION
___ OTHER (Specify)

DRILLING METHOD Reverse Rotary FLUID Water

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH OF STATIC WATER LEVEL 4 (Ft.) & DATE MEASURED 12-7-94
ESTIMATED YIELD* 5000 (GPM) & TEST TYPE turbine
TEST LENGTH 10 (Hrs.) TOTAL DRAWDOWN 70 (Ft.)
* *May not be representative of a well's long-term yield.*

CASING(S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL/GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	100	28	x				steel	20	.250	
100	160	28	x				steel	16	.250	
160	260	28		x			steel	16		.080

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	35	x			
35	260				3/8" grave

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other ____
ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Sullivan Drilling 1768
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

P.O. Box 1448 Corning CA 96021
ADDRESS CITY STATE ZIP

Signed Charlie Sullivan 12/14/94 656504
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 7-90

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

~~ORIGINAL~~ MAY 31 2005
File with DWR
Page 1 of 1

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet
No. 816220

DWR USE ONLY — DO NOT FILL IN
19N/04W-14
STATE WELL NO./STATION NO.
LATITUDE | LONGITUDE
APN/TRS/OTHER

Owner's Well No. 7821
Date Work Began 3/15/2005, Ended 3/17/2005
Local Permit Agency GLENN COUNTY HEALTH DEPT
Permit No. MW226-05 Permit Date 2/15/2005

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD ROTARY FLUID MUD

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain, size, color, etc.*
0	9	TOP SOIL
9	20	SANDY CLAY
20	30	YELLOW CLAY
30	42	LOOSE SAND AND GRAVEL
42	64	SANDY BROWN CLAY
64	70	YELLOW CLAY
70	400	BLUE CLAY WITH SAND
400	425	SAND WITH BLUE CLAY
425	494	BLUE CLAY WITH SAND
494	502	TIGHT SAND WITH SMALL GRVEL
502	750	BLUE CLAY WITH BRITTLE CLAY STREAKS
750	758	SAND WITH BLUE CLAY
758	863	SILTY BLUE CLAY WITH SAND
863	1010	BLUE/PURPLE CLAY WITH HARD CLAY STREAK

TOTAL DEPTH OF BORING 366 (Feet)
TOTAL DEPTH OF COMPLETED WELL 65 (Feet)

WELL LOCATION

Address .35 MI WOF ROAD BB & 1.5 MI SOF HWY 162
City CA
County GLENN
APN Book 018 Page 030 Parcel 032
Township 19 N Range 4 W Section 14
Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH
WEST
EAST
SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___
ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___
TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)
May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	45	8	✓				PVC ASTM	2-1/2	F480	
45	55	8		✓			PVC ASTM	2-1/2	F480	.030
55	65	8	✓				PVC ASTM	2-1/2	F480	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	21.5	✓			SAND SLURRY
21.5	25		✓		BENTONITE C
25	147			✓	SRI#8 SAND
147	160		✓		BENTONITE C
160	209			✓	SRI#8 SAND
209	366	✓			SAND SLURRY

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analysis
___ Other ___
ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.
NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
20 W. KENTUCKY AVE. WOODLAND CA 95695
ADDRESS CITY STATE ZIP
Signed Mark Damion 05/12/05 C57 A HIC - 133783
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11-97 IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

20N/2W-11A1

REGION

COUNTY Glenn

NEAR

DEPARTMENT OF WATER RESOURCES

Log# 3669

BASIN

STATE NO. 20N/2W 11A2

OTHER NOS. A3

SCF 5

WELL LOG

LOCATION 1,050' West and 5,200' North of SW corner, NE¼, NE¼ of Sec. 11, T20N R2W

DRILLED BY CalTrans for DWR ADDRESS P. O. Box 607, Red Bluff, CA 96080

DRILLING METHOD Rotary GRAVEL PACKED 0-700' DATE COMPLETED 9-2-76

SIZE OF hole 4¾" TO 70' & 4½" TO 700' DATE STARTED 8-30-76

PERFORATIONS A1 @ 70-90', A2 @ 140-160', A3 @ 490-510 SIZE 1½" PVC PIPES

WATER LEVEL BEFORE PERFORATING AFTER

TEST DATA: DISCHARGE G. P. M. DRAWDOWN FT. HOURS RUN

OTHER DATA AVAILABLE: WATER LEVEL RECORD ANALYSIS

SURFACE ELEV. 120' DATUM MSL SOURCE OF INFORMATION Geologist

DEPTH	ELEV. OF BOTTOM OF STRATUM	MATERIAL	THICKNESS	SP. YIELD %
0-3'		soil	3'	
3-70		yellow clay with some gravel	67	
70-92		medium-small gravel	22	
92-109		graveley brown clay	11	
109-160		medium-small gravel with thin beds of fine gravel	51	
160-258		sandy brown clay	98	
258-283		coarse sand with medium-small gravel	25	
283-303		brown sandy clay	20	
303-335		fine sand beds (thin) with brown clay	32	
335-350		coarse sand and medium-small gravel with brown clay	15	
350-388		brown clay with medium sand	38	
388-398		fine sand	10	
398-405		fine sand with brown clay	8	
405-412		fine sand	7	
412-438		fine sand with brown clay	26	
438-450		fine-coarse sand	12	
450-456		brown silty clay	6	
456-480		fine-coarse sand	24	
480-515		medium-small gravel beds (1' thick) in medium sands	35	
515-526		brown silty clay with sand	11	
526-578		fine-medium sand with brown clay	52	
578-592		medium coarse sand with small gravel	14	
592-598		sandy brown clay	6	
598-608		medium-small gravel with thin sandy brown clay beds	10	
608-624		medium coarse gravel with coarse sand	16	

FOR FIELD COPIES USE ALTERNATE LINES

LOG OBTAINED BY Jorge Martinez DATE 10-4-76 SHEET 1 OF 2

Log # 3669

Stony Creek Fan

DEPARTMENT OF WATER RESOURCES

Number 20N/2W-11A MD

WELL LOG

LOCAL DESIGNATION SCF 5

DEPTH	ELEVATION OF BOTTOM OF STRATUM	MATERIAL	THICKNESS FEET	% VOIDS	ABSOLUTE VOIDS FEET	TOTAL VOIDS FEET
624-638'		fine sand with layers of brown clay	14'			
638-700		blue silty clay with fine sand	32			

FOR FIELD COPIES USE ALTERNATE LINES

20N/02W-18

ORIGINAL
File with DWR

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. 801448A,B,C,D

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./STATION NO.: 20N02W18R(5-7)M
LATITUDE: QUADRUPLE — WELL — LONGITUDE: COMPLETION
APN/TRS/OTHER

Page ____ of ____
Owner's Well No. G-1
Date Work Began 10/3/01, Ended 1/23/02
Local Permit Agency Glenn Co
Permit No. MW 120-01 Permit Date ________

GEOLOGIC LOG

ORIENTATION (✓) ___ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD Rotary FLUID Mud

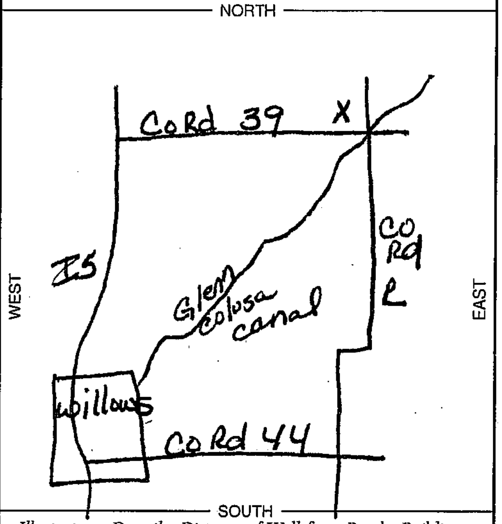
DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION (Describe material, grain size, color, etc.)
0	70	Brown to tan Clay
70	80	Coarse Sand
80	130	Blue Grey Clay
130	180	Sand & gravel
180	290	Light Brown Clay
290	295	Sand
295	445	Brown to tan Clay
445	451	Sand
451	490	Brown Clay
490	500	Sand
500	515	Yellow to tan Clay
515	525	Sand
525	575	Yellow Clay
575	580	Sand
580	630	Yellow to tan Clay
630	655	Sand
655	695	Yellow to tan Clay
695	705	Silt/Tuff Deposit
705	750	Yellow to tan Clay
750	805	Brown siltstone w/Tuff Fragments
805	822	Green/Grey Siltstone
822	840	Lt. Grey Clay
840	905	Brown Siltstone with Clay
905	940	Sand w/Basalt Chips
940	950	Blue/Grey Clay
950	977	Volcanic Sands
977	1020	Lt Green to Yellow Clay

TOTAL DEPTH OF BORING 1020 (Feet)
TOTAL DEPTH OF COMPLETED WELL 1000 (Feet)

WELL LOCATION

Address Co. Rd R + Co. Rd 39
City Glenn
County Glenn
APN Book 019 Page 220 Parcel 011
Township ______ Range ______ Section ______
Latitude ___ DEG. ___ MIN. ___ SEC. NORTH Longitude ___ DEG. ___ MIN. ___ SEC. WEST

LOCATION SKETCH



Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

X NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING X
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ______ (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL ______ (Ft.) & DATE MEASURED ______
ESTIMATED YIELD * ______ (GPM) & TEST TYPE ______
TEST LENGTH ______ (Hrs.) TOTAL DRAWDOWN ______ (Ft.)
** May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft. to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
Please see attach. Log									

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft. to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)

APR 2 4 2002

ATTACHMENTS (✓)

___ Geologic Log
X Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other
ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Spectrum Exploration
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
ADDRESS P.O. Box 471 CITY Zamora STATE Ca ZIP 95698
Signed Charlie Borchers (WELL DRILLER/AUTHORIZED REPRESENTATIVE) DATE SIGNED 3/18/02 C-57 LICENSE NUMBER 512268

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

Department of Water Resources
G-[illegible]
10/15/01 – 01/23/02

#801448

Casing

Deep Well

A

Ft. to Ft.	Borehole Dia.	Type	Material Grade	Internal Dia	Gauge	Slot Size
1000 – 980		Blank	Steel	2"	Sch 40	
980 – 970		Screen	Steel	2"	Sch 40	.020
970 – 930		Blank	Steel	2"	Sch 40	
930 – 920		Screen	Steel	2"	Sch 40	.020
920 - +6"		Blank	Steel	2"	Sch 40	

#2 Well

B

Ft. to Ft.	Borehole Dia.	Type	Material Grade	Internal Dia	Gauge	Slot Size
675 – 655		Blank	Steel	2"	Sch 40	
655 – 635		Screen	Steel	2"	Sch 40	.020
635 - +1		Blank	Steel	2"	Sch 40	

Middle Well

C

Ft. to Ft.	Borehole Dia.	Type	Material Grade	Internal Dia	Gauge	Slot Size
545 – 525		Blank	Steel	2"	Sch 40	
526 – 515		Screen	Steel	2"	Sch 40	.020
515 – 460		Blank	Steel	2"	Sch 40	
460 – 450		Screen	Steel	2"	Sch 40	.020
450 - +2.5		Blank	Steel	2"	Sch 40	

Shallow Well

D

Ft. to Ft.	Borehole Dia.	Type	Material Grade	Internal Dia	Gauge	Slot Size
201 – 180		Blank	Steel	2"	Sch 40	
180 – 170		Screen	Steel	2"	Sch 40	.020
170 – 150		Blank	Steel	2"	Sch 40	
150 – 140		Screen	Steel	2"	Sch 40	.020
140 - +2		Blank	Steel	2"	Sch 40	

Annular Material

Ft. to Ft.	Type
100 – 925	#8 Sand
925 – 917	#60 Sand
917 – 902	Hot Batch Grout
902 – 513	Cement Grout
531 – 403	#8 Sand
403 – 393	#60 Sand
393 – 283	Cement Grout
283 – 171	#8 Sand
171 – 163	#60 Sand
163 – 101	Cement Grout
101 – 35	# 8 Sand
35 – 31	#60 Sand
31 – Surface	Cement Grout

ORIGINAL
File with DWR

Page ____ of ____

Owner's Well No. G-2

Date Work Began 10/3/01, Ended 1/23/02

Local Permit Agency Glenn Co

Permit No. MW121-01 Permit Date 10/1/01

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. 782025A,B,C,D

20N/02W-25

DWR USE ONLY — DO NOT FILL IN

20N 02W 25F(1-4) M

STATE WELL NO./STATION NO.

QUADRANGLE [illegible]

LATITUDE LONGITUDE

APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ____ VERTICAL ____ HORIZONTAL ____ ANGLE ____ (SPECIFY)

DRILLING METHOD ____ FLUID ____

DEPTH FROM SURFACE Ft. to Ft.		DESCRIPTION *Describe material, grain size, color, etc.*
0	20	Sand
20	60	Lt. Brown Clay
60	80	Sands & Gravels
80	190	Brown Clay
190	200	Coarse Sand
260	250	Brown Clay
250	260	Sand
260	410	Blue/Grey Clay
410	440	Sand
440	450	Blue/Grey Clay
450	480	Sand
480	510	Blue/Grey Clay
510	520	Sand & Gravel
520	930	Blue/Grey Clay
930	960	Sand
960	1000	Blue/Grey Clay

TOTAL DEPTH OF BORING 1000 (Feet)

TOTAL DEPTH OF COMPLETED WELL 980 (Feet)

WELL OWNER

WELL LOCATION

Address 7954 Co Rd 44

City Glenn

County Glenn

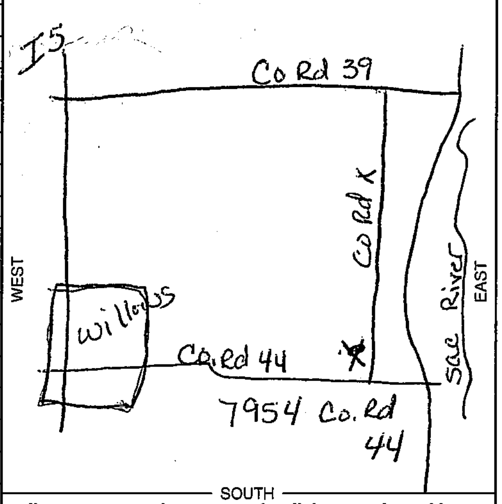
APN Book 019 Page 110 Parcel 025-9

Township ____ Range ____ Section ____

Latitude ____ NORTH DEG. MIN. SEC. Longitude ____ WEST DEG. MIN. SEC.

LOCATION SKETCH

NORTH



WEST EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

X NEW WELL

MODIFICATION/REPAIR
____ Deepen
____ Other (Specify)

____ DESTROY (*Describe Procedures and Materials Under "GEOLOGIC LOG"*)

PLANNED USES (✓)

WATER SUPPLY
____ Domestic ____ Public
____ Irrigation ____ Industrial

MONITORING X
TEST WELL ____
CATHODIC PROTECTION ____
HEAT EXCHANGE ____
DIRECT PUSH ____
INJECTION ____
VAPOR EXTRACTION ____
SPARGING ____
REMEDIATION ____
OTHER (SPECIFY) ____

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ____ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ____ (Ft.) & DATE MEASURED ____

ESTIMATED YIELD * ____ (GPM) & TEST TYPE Airlift

TEST LENGTH 7 (Hrs.) TOTAL DRAWDOWN ____ (Ft.)

* *May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft. to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
Please see attach Log									

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft. to Ft.	TYPE CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
→				

DEC 24 2002

ATTACHMENTS (✓)

____ Geologic Log
____ Well Construction Diagram
____ Geophysical Log(s)
____ Soil/Water Chemical Analyses
____ Other

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Spectrum Exploration Inc
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

P.O. Box 471 Zamora Ca 95698
ADDRESS CITY STATE ZIP

Signed Charline Borchers 3/16/03 512268
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

#782025

Casing

Deep Well

A

Ft. to Ft.	Borehole Dia.	Type	Material Grade	Internal Dia	Gauge	Slot Size
980 - 960		Blank	Steel	2”	Sch 40	
960 – 940		Screen	Steel	2”	Sch 40	.020
940 – +6”		Blank	Steel	2”	Sch 40	

#2 Well

B

Ft. to Ft.	Borehole Dia.	Type	Material Grade	Internal Dia	Gauge	Slot Size
490 – 470		Blank	Steel	2”	Sch 40	
470 – 460		Screen	Steel	2”	Sch 40	.020
460 – 430		Blank	Steel	2”	Sch 40	
430 – 420		Screen	Steel	2”	Sch 40	.020
420 - +1		Blank	Steel	2”	Sch 40	

Middle Well

C

Ft. to Ft.	Borehole Dia.	Type	Material Grade	Internal Dia	Gauge	Slot Size
280 – 260		Blank	Steel	2”	Sch 40	
260 – 250		Screen	Steel	2”	Sch 40	.020
250 – 200		Blank	Steel	2”	Sch 40	
200 – 190		Screen	Steel	2”	Sch 40	.020
190 - +2.5		Blank	Steel	2”	Sch 40	

Shallow Well

D

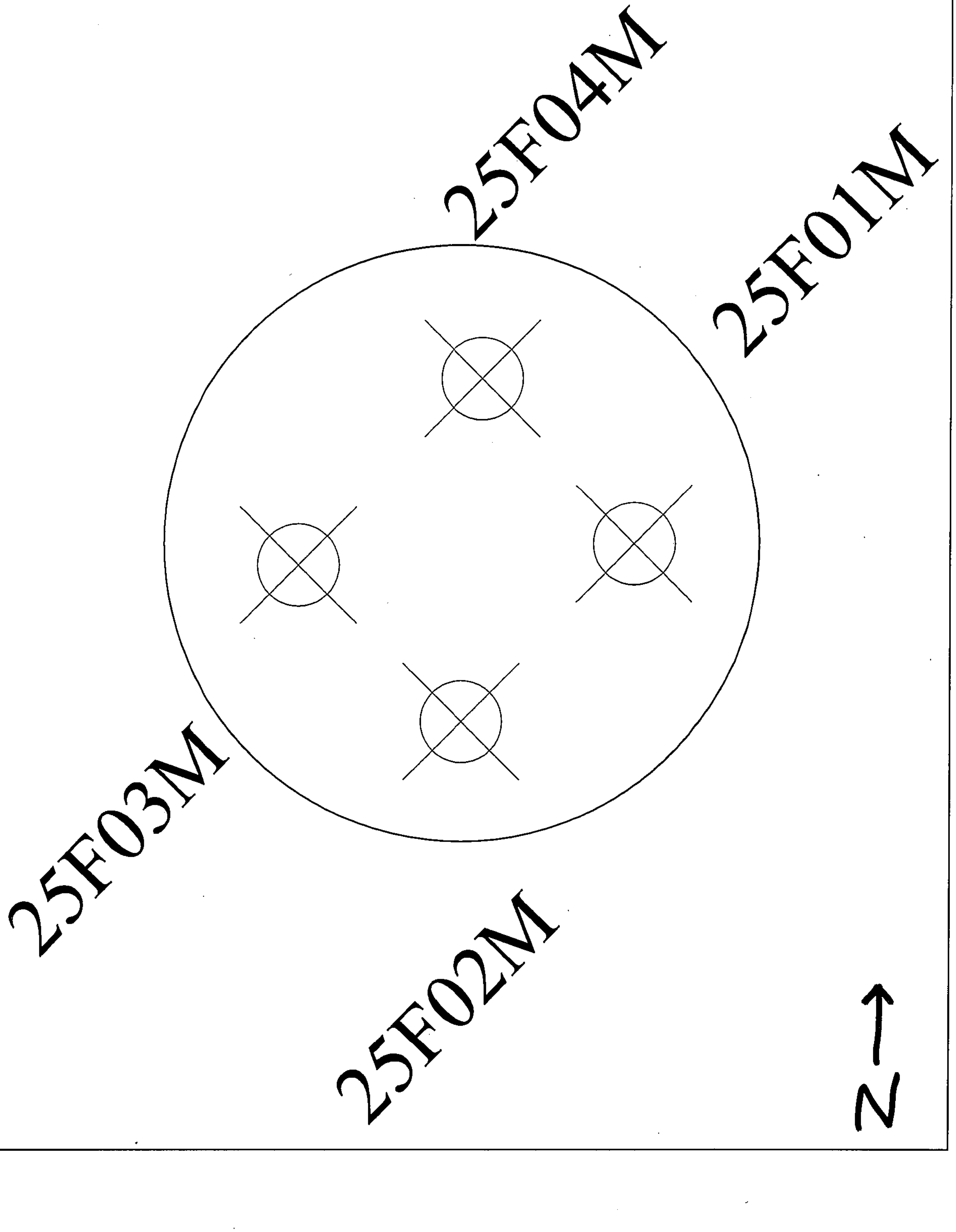
Ft. to Ft.	Borehole Dia.	Type	Material Grade	Internal Dia	Gauge	Slot Size
85 – 65		Blank	Steel	2”	Sch 40	
65 – 55		Screen	Steel	2”	Sch 40	.020
55 - +2		Blank	Steel	2”	Sch 40	

Annular Material

Ft. to Ft.	Type
985 - 925	#8 Sand
925 - 500	Cement Grout
500 - 400	#8 Sand
400 – 285	Cement Grout
285 – 170	#8 Sand
170 – 85	Cement Grout
85 – 45	#8 Sand
45 – Surface	Cement Grout

#782025

20N02W-Mirande Farms (G-2)



#782025

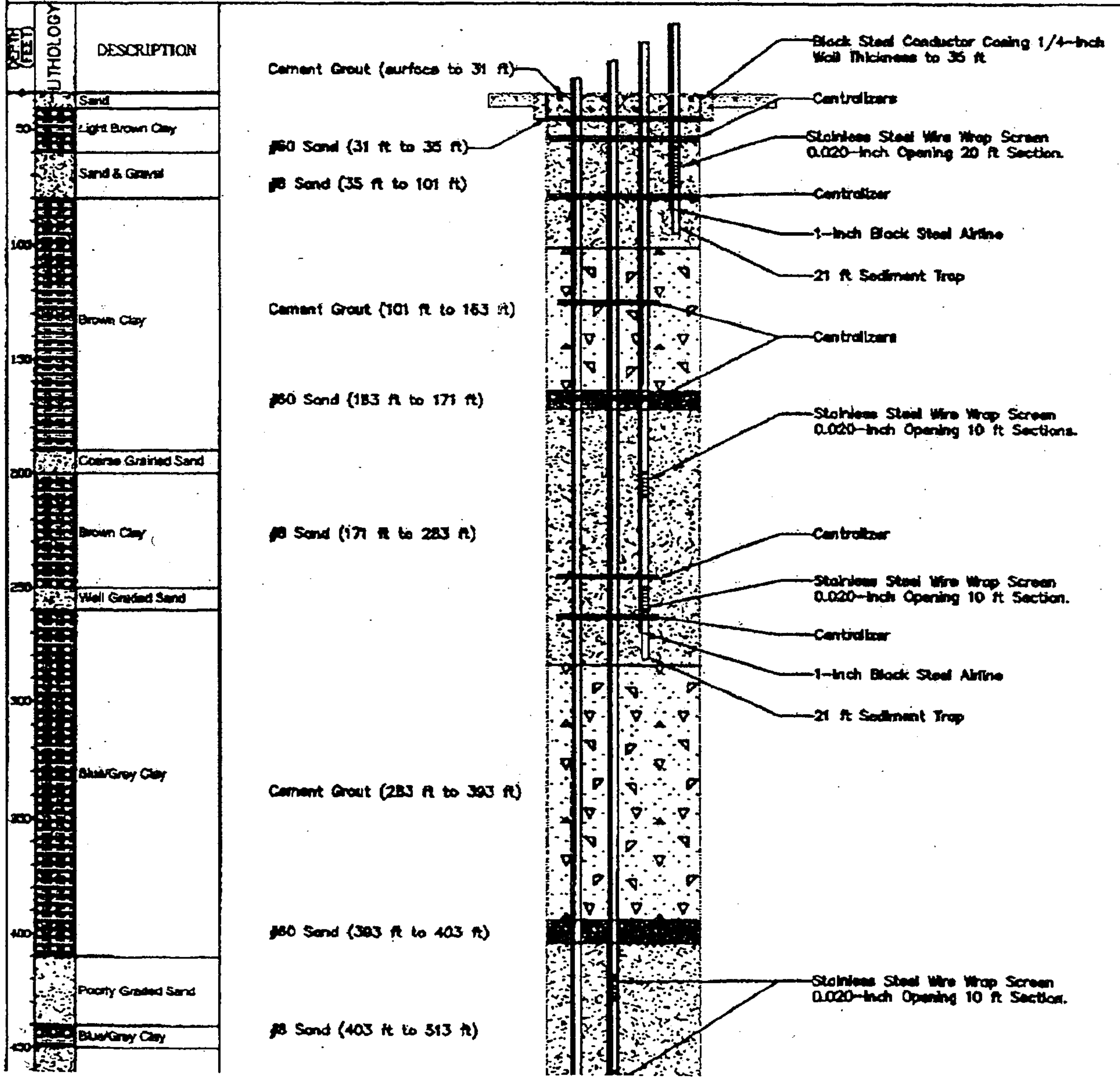
STATE OF CALIFORNIA - RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT

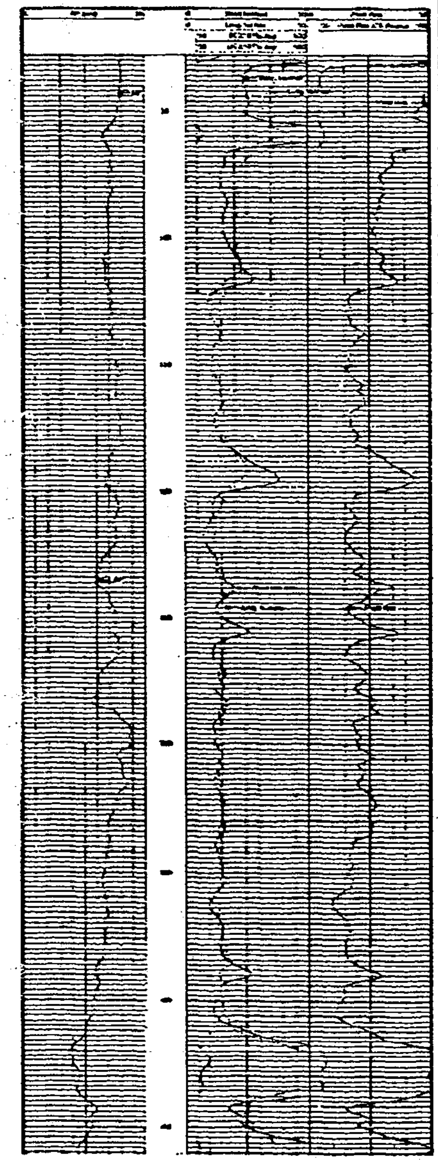
FEATURE Quadruple Completion Monitoring Well HOLE NUMBER G2 Miranda Farms LOCATION Glenn County, County Rd 44 and County Rd X. UTM COORDINATES UTM 10 S 0583104, 4379316

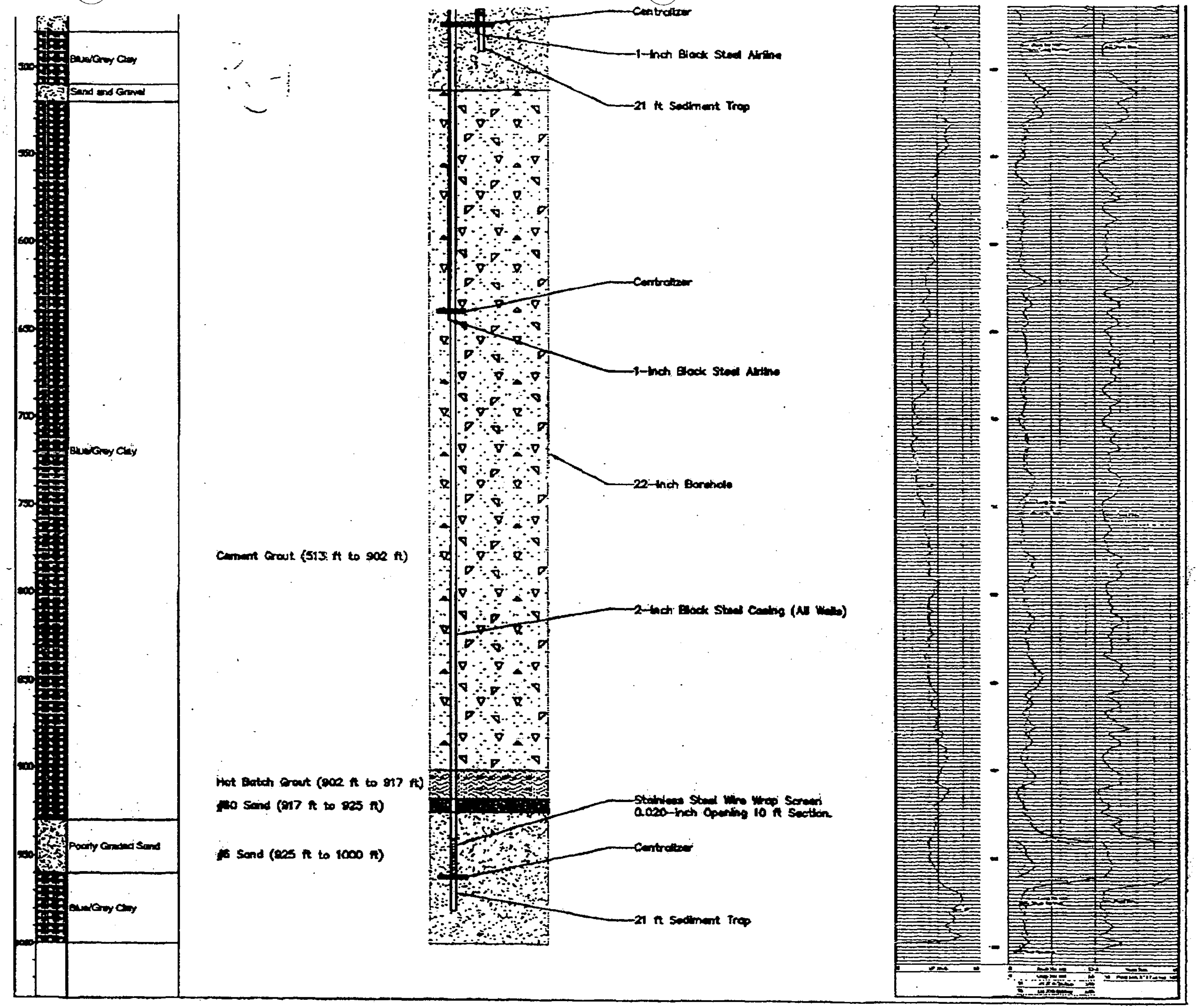
TYPE OF HOLE Reverse Mud Rotary TYPE OF RIG Homemade TOTAL DEPTH 1000 ft DATE STARTED 10/15/01 DATE COMPLETED 01/23/02

CONTRACTOR Spectrum Exploration Inc. DRILL FOREMAN Sandy & Dan DRILL HELPER(S) Kenney ect. NUMBER OF COMPLETIONS 4

INSPECTED BY K. Slaton & D. Spangler PROJECT Butte/Glenn Drilling 2001 COMMENTS 9.5 inch test hole drilled 10/15/01 to 10/19/01 well construction from 12/13/01 to 01/23/02







500
550
600
650
700
750
800
850
900
950
1000
Blue/Grey Clay
Sand and Gravel
Blue/Grey Clay
Poorly Graded Sand
Blue/Grey Clay
Cement Grout (513 ft to 902 ft)
Hot Batch Grout (902 ft to 917 ft)
#60 Sand (917 ft to 925 ft)
#6 Sand (925 ft to 1000 ft)
Centralizer
1-Inch Black Steel Airline
21 ft Sediment Trap
Centralizer
1-Inch Black Steel Airline
22-Inch Borehole
2-Inch Black Steel Casing (All Wells)
Stainless Steel Wire Wrap Screen
0.020-Inch Opening 10 ft Section.
Centralizer
21 ft Sediment Trap

#782025

REGION ______

COUNTY Glenn

NEAR ______

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

WELL LOG

BASIN 5-21.02

DWR NO. 20N/2W-33B MD B & M

OTHER NOS SCF-6

3686

LOCATION 1 mile west from intersection of "Rd V" and "Rd 46"; and 2200' north of intersection of "Rd 46" and irrigation road west of Lewis home west side of road

DRILLED BY Caltrans for DWR ADDRESS Northern Division, Red Bluff, Ca.

DRILLING METHOD Rotary GRAVEL PACKED yes DATE COMPLETED 8/15/77 – 8/23/77

SIZE OF CASING DEPTH $10\frac{5}{8}$" hole; 3" casing 0-20'; 6" casing 0-320' STRUCK WATER AT 74'

PERFORATIONS 100'-120' ; 200-320' SIZE 6" casing NO. ______

WATER LEVEL BEFORE PERFORATING ______ AFTER ______

TEST DATA: DISCHARGE G. P. M. ______ DRAWDOWN FT. ______ HOURS RUN ______

OTHER DATA AVAILABLE: WATER LEVEL RECORD ______ ANALYSIS ______

SURFACE ELEV. 103' DATUM MSL SOURCE OF INFORMATION Geologist

DEPTH	ELEV. OF BOTTOM OF STRATUM	MATERIAL	THICKNESS	SP. YIELD %
0-8'		Sandy brown soil	8'	
8-15'		Brown clay	7'	
15-20'		Pea Gravel lense	5'	
20-42'		Sandy brownish-yellow clay w/minor gravel	22'	
42-46'		Brown clay, very little fine sand	4'	
46-70'		Sandy brown clay	24'	
70-84'		Coarse sand and pea gravel w/minor brown clay	14'	
84-86'		Brown clay	2'	
86-92'		Coarse sand and pea gravel	6'	
92-98'		Brown silty clay	6'	
98-120'		Coarse sand and pea gravel	22'	
120-144'		Sandy clay (red-brown, green-brown, and buff-brown)	24'	
144-160'		Silty clay (red-brown and green-brown)	16'	
160-170'		Pea gravel	10'	
170-188'		Silty clay w/minor fine sand (green-black and green-brown)	18'	
188-198'		Greenish-brown clay	10'	
198'-218'		Red-brown and green-brown clayey sand w/minor pea gravel lenses	20'	
218-223'		Greenish brown clay	5'	
223-236'		Greenish brown clayey sand	13'	
236-240'		Pea Gravel	4'	
240-260'		Whiteish-tan clayey sand w/minor gravel lenses	20'	
260-261'		Pea Gravel	1'	
261-268'		Whiteish-tan clayey sand	7'	
268'-282'		Pea gravel and coarse sand	14'	

FOR FIELD COPIES USE ALTERNATE LINES

OBTAINED BY Peter Stroud DATE 9/19/77 SHEET 1 OF 2

263

FORM 263A
INVESTIGATION

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

SHEET 2

NUMBER SCF-6

WELL LOG

LOCAL DESIGNATION

DEPTH	ELEVATION OF BOTTOM OF STRATUM	MATERIAL	THICKNESS FEET	% VOIDS	ABSOLUTE VOIDS FEET	TOTAL VOIDS FEET
282-288'		Silty buff clay	6'			
288-310'		Pea gravel and coarse sand	22'			
310-326'		Brown clayey gravel (no water)	16'			
		* Note: There is a 10' section of drill pipe at the bottom of this hole.				

FOR FIELD COPIES USE ALTERNATE LINES

APPLIED GEOLOGICAL ENGINEERING, INC.

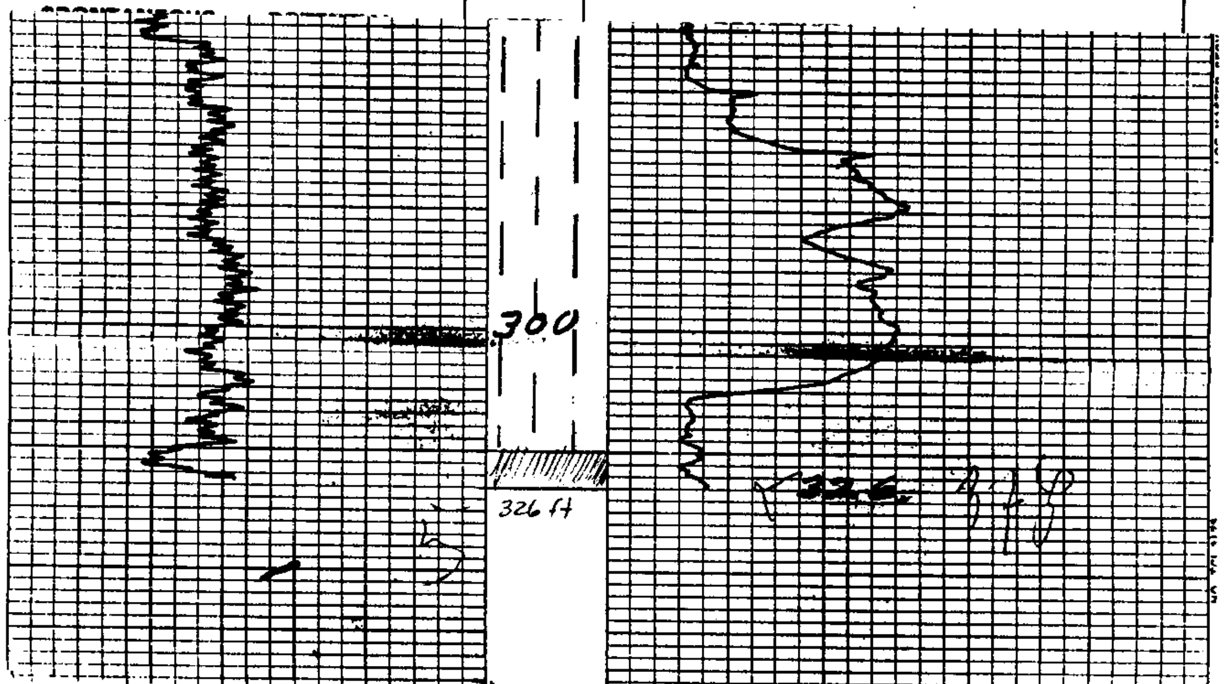
ELECTRICAL WELL LOG

8065 CALLISON RD.
NEWCASTLE, CA 95658
(916) 663-2696

Company: CALIFORNIA STATE DIVISION OF WATER RESOUARCE Red Bluff, Dist. Test Hole No. SCF-6

County: Glenn State: Ca. Elevation: 120 Location: Sec. 33, T20N, R2 W.

	Run No. 1	Run No. 2	MUD	Run No. 1	Run No. 2
Date	Aug. 24, 1977		Nature	Natural + Bentonite	
First Reading	10		Density		
Last Reading	326		Viscosity	40 + @ °F	@ °F
Footage Logged	316		Resistivity	40 @ 72 °F	@ °F
Bottom (Driller)	325		Res. @ BHT	@ °F	@ °F
Casing (From Log)	-		pH		
Casing (Driller)	-		Circ. Temp.		
Casing Size	-		B.H. Temp		
Bit Size:	10				
Bit Size:					
			Logged by	Paulsen	
			Witnessed by	Lorens, Pearson	



ORIGINAL
File with DWR

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. E057712

DWR USE ONLY — DO NOT FILL IN

20N/03W-7

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

Owner's Well No. 8123

Date Work Began 6/4/2007, Ended 6/18/2007

Local Permit Agency GLENN COUNTY HEALTH DEPT

Permit No. MW 280-07 Permit Date 5/31/2007

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD ROTARY FLUID MUD

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain, size, color, etc.*
0	10	TOP SOIL
10	40	BROWN CLAY WITH SAND AND GRAVEL
40	130	YELLOW BROWN CLAY WITH SAND STREAKS
130	140	SAND AND GRAVEL
140	250	YELLOW BROWN CLAY WITH SAND STREAKS
250	260	SAND AND GRAVEL
260	310	YELLOW BROWN CLAY WITH SAND STREAKS
310	465	YELLOW BROWN CLAY WITH SAND AND GRAVEL
465	485	SAND AND GRAVEL WITH BLUE CLAY
485	500	SAND AND GRAVEL
500	530	BLUE CLAY WITH SAND
530	625	BLUE AND YELLOW CLAY MIX WITH SAND AND GRAVEL STREAKS
625	700	SAND AND GRAVEL WITH YELLOW AND BLUE CLAY MIX
700	865	YELLOW BROWN AND BLUE CLAY MIX WITH SAND AND GRAVEL
865	1000	GRAY CLAY WITH SAND AND GRAVEL STREAK
1000	1050	SAND AND GRAVEL
1050	1200	SAND AND GRAVEL WITH BLUE GRAY CLAY
1200	1300	YELLOW ORANGE CLAY WITH SAND AND GRAVEL STREAKS
1300	1395	SOFT YELLOW GRAY CLAY WITH SAND AND GRAVEL
1395	1400	HARD ROCK

TOTAL DEPTH OF BORING 1400 (Feet)

TOTAL DEPTH OF COMPLETED WELL 1034 (Feet)

WELL OWNER

WELL LOCATION

Address 50' EOF RD D & .46 MI SOF RD 35

City CA

County GLENN

APN Book 020 Page 210 Parcel 008

Township 20 N Range 3 W Section 7

Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH

WEST

EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.**

ACTIVITY (✓)

✓ NEW WELL

MODIFICATION/REPAIR
- ___ Deepen
- ___ Other (Specify)

___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
- ___ Domestic ___ Public
- ___ Irrigation ___ Industrial

MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
ZONE	1									
0	118	16	✓				PVC	2.5	SCH 80	
118	128	16		✓			PVC	2.5	SCH 80	.030
128	138	16	✓				PVC	2.5	SCH 80	
ZONE	2									
0	380	16/14	✓				PVC	2.5	SCH 80	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	84	✓			SAND SLURRY
84	95		✓		BENTONITE C
95	160			✓	SRI#8 SAND
160	176		✓		BENTONITE C
176	318			✓	SRI#8 SAND
318	352		✓		BENTONITE C

ATTACHMENTS (✓)

- ___ Geologic Log
- ___ Well Construction Diagram
- ___ Geophysical Log(s)
- ___ Soil/Water Chemical Analysis
- ___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

20 WEST KENTUCKY AVE — WOODLAND — CA — 95695
ADDRESS CITY STATE ZIP

Signed Mark Damon
WELL DRILLER/AUTHORIZED REPRESENTATIVE

07/06/07 DATE SIGNED

C57 A HIC - 133783 C-57 LICENSE NUMBER

ORIGINAL
File with DWR
Page 1 of 2

OCT 17 2002

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. 726740, A

DWR USE ONLY — DO NOT FILL IN
21N/02W-01M
STATE WELL NO./STATION NO.
LATITUDE | LONGITUDE
APN/TRS/OTHER

Owner's Well No. 7448-1
Date Work Began 8/26/2002, Ended 9/6/2002
Local Permit Agency GLENN CNTY HEALTH DEPT
Permit No. MW-139-02 Permit Date 8/21/2002

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD ROTARY FLUID MUD

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION Describe material, grain, size, color, etc.
0	10	WELL GRADED SAND W/SILT AND FINE GRVL
10	20	WELL GRADED SAND WITH FINE GRAVEL
20	50	POORLY GRADED SAND AND GRAVEL
50	60	POORLY GRADED SND AND GRVL W/TAN CLY
60	70	POORLY GRADED SAND WITH GRAVEL
70	80	POORLY GRADED GRAVEL
80	100	GRAY/BROWN CLAY WITH SAND AND GRAVEL
100	110	POORLY GRADED SAND
110	120	POORLY GRADED SAND WITH FINE GRAVEL
120	150	POORLY GRADED GRAVEL
150	160	GRAVEL AND SAND W/YELLOW STICKY CLAY
160	190	YELLOW CLAY WITH GRAVEL AND SAND
190	200	POORLY GRADED GRAVEL W/SAND AND CLAY
200	230	YELLOW CLAY WITH SAND AND GRAVEL
230	240	YELLOW SILTY CLAY
240	250	YELLOW SILTY CLAY W/SAND AND GRAVEL
250	260	SMALL GRAVEL WITH SAND AND SILTY CLAY
260	270	POORLY GRADED GRAVEL WITH SAND
270	280	POORLY GRADED GRAVEL
280	300	GRAVEL
300	310	GRAVEL WITH FINE SAND
310	340	GRAVEL
340	350	TUSCAN ROCK WITH GRAVEL AND SAND
350	370	TUSCAN ROCK W/SANDSTONE, QUARTZ,
		OTHER METAMORPHICS, TUFF, BASALT, SAND
370	380	COARSE SAND
380	450	TUSCAN AND METAMORPHIC RCK W/SND, CLY
450	460	SILTSTONE WITH GRAVEL, QUARTZ, RED
		CHERT, AND VOLCANICS
460	555	MIXED COLORED CLAY WITH GRAVEL

TOTAL DEPTH OF BORING 600 (Feet)
TOTAL DEPTH OF COMPLETED WELL 578 (Feet)

WELL LOCATION

Address .25 MI SOF C/R 24 & .75 MI EOF C/R V V
City CA
County GLENN
APN Book 037 Page 360 Parcel 060
Township ~~22 N~~ 21N Range 2 W Section ~~15~~ 01
Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH / WEST / EAST / SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___
ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___
TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)
May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
ZONE	1									
0	232	12					ACCESS TB	1		
0	547	12/8	✓				SCH 40	2		
547	557	8		✓			SS SCREE	2		.030
557	578	8	✓				SCH 40	2		
ZONE	2									

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	220	✓			SAND SLURRY
220	230		✓		CHIPS
230	385			✓	#8 GRD SAND
385	505	✓			SAND SLURRY
505	600			✓	#8 GRD SAND

OCT 22 2002

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analysis
___ Other
ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.
NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
20 W. KENTUCKY WOODLAND CA 95695
ADDRESS CITY STATE ZIP
Signed ___ 10/03/02 133783-C57A
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11-97
IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File with DWR

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. **726740**

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./STATION NO.
LATITUDE / LONGITUDE
APN/TRS/OTHER

Owner's Well No. 7448-1
Date Work Began 8/26/2002, Ended 9/6/2002
Local Permit Agency GLENN CNTY HEALTH DEPT.
Permit No. MW-139-02 Permit Date 8/21/2002

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD ROTARY FLUID MUD

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain, size, color, etc.*
555	575	GRAVEL
575	605	MIXED COLORED CLAY W/SAND AND GRAVEL

TOTAL DEPTH OF BORING 600 (Feet)
TOTAL DEPTH OF COMPLETED WELL 578 (Feet)

WELL LOCATION

Address .25 MI SOF C/R 24 & .75 MI EOF C/R V V
City CA
County GLENN
APN Book 037 Page 360 Parcel 060
Township 22 N Range 2 W Section 15
Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH
WEST
EAST
SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___
ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___
TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)
May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	230	12					ACCESS TB	1		
0	297	12	✓				SCH 40	2		
297	307	12		✓			SS SCREE	2		.030
307	318	12	✓				SCH 40	2		

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	220	✓			SAND SLURRY
220	230		✓		CHIPS
230	385			✓	#8 GRD SAND
385	505	✓			SAND SLURRY
505	600			✓	#8 GRD SAND

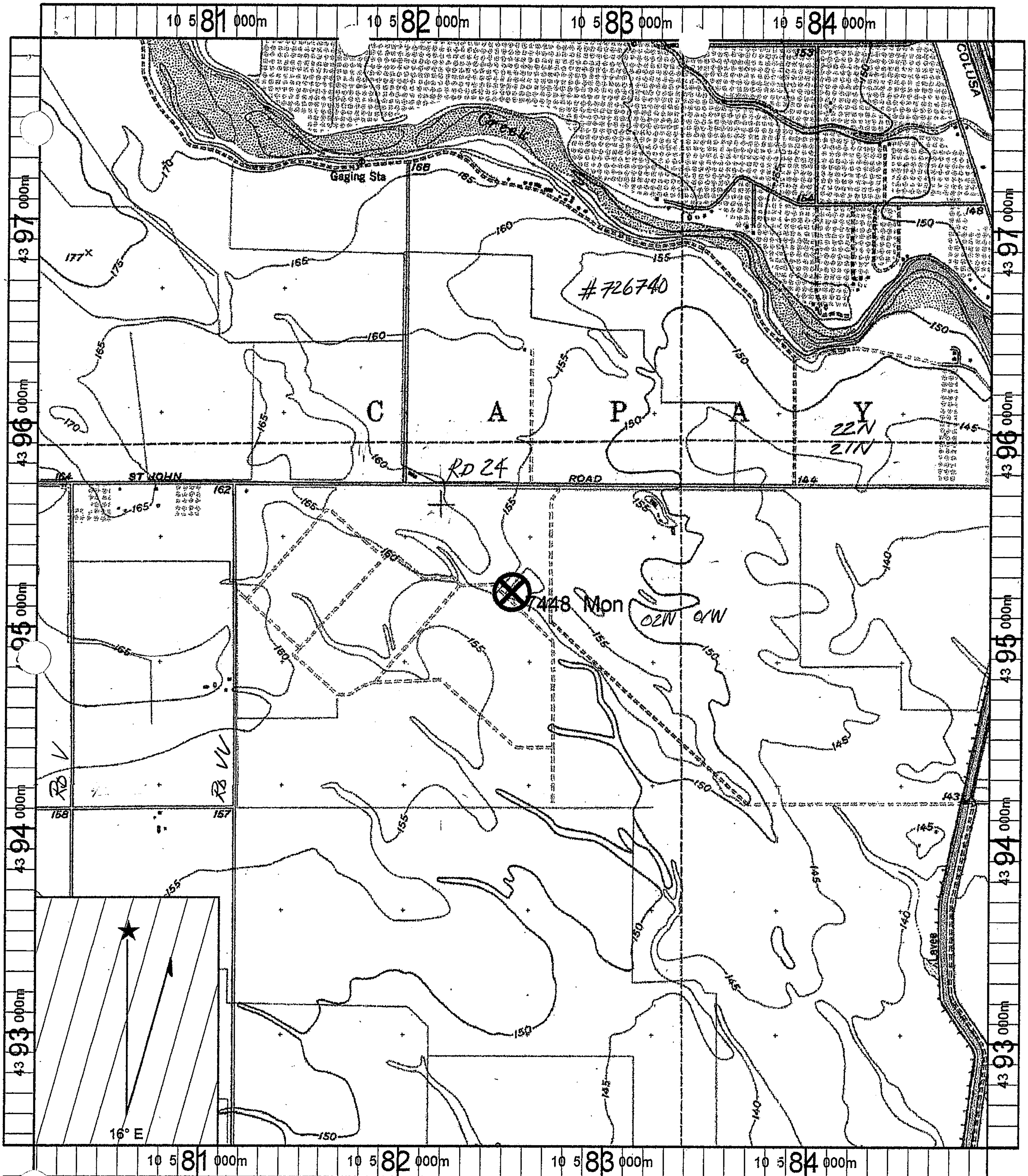
ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analysis
___ Other ___
ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.
NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
20 W. KENTUCKY WOODLAND CA 95695
ADDRESS CITY STATE ZIP
Signed [signature] 10/03/02 133783-C57A
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM



Name: HAMILTON CITY
Date: 8/15/2002
Scale: 1 inch equals 2000 feet

Caption: Glenn Co. (St. Johns Farms)
Job# 7448 Mon
APN: 037-360-06

ORIGINAL
File with DWR

Page 1 of 2

Owner's Well No. 7448-2

Date Work Began 8/26/2002 Ended 9/6/2002

Local Permit Agency GLENN CNTY HEALTH DEPT

Permit No. MW-139-02 Permit Date 8/21/2002

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. 726741

DWR USE ONLY — DO NOT FILL IN

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL HORIZONTAL ANGLE (SPECIFY)

DRILLING METHOD ROTARY FLUID MUD

DEPTH FROM SURFACE Ft. to Ft.		DESCRIPTION Describe material, grain size, color, etc.
0	10	WELL GRADED SAND W/SILT AND FINE GRVL
10	20	WELL GRADED SAND WITH FINE GRAVEL
20	50	POORLY GRADED SAND AND GRAVEL
50	60	POORLY GRADED SND AND GRVL W/TAN CLY
60	70	POORLY GRADED SAND WITH GRAVEL
70	80	POORLY GRADED GRAVEL
80	100	GRAY/BROWN CLAY WITH SAND AND GRAVEL
100	110	POORLY GRADED SAND
110	120	POORLY GRADED SAND WITH FINE GRAVEL
120	150	POORLY GRADED GRAVEL
150	160	GRAVEL AND SAND W/YELLOW STICKY CLAY
160	190	YELLOW CLAY WITH GRAVEL AND SAND
190	200	POORLY GRADED GRAVEL W/SAND AND CLAY
200	230	YELLOW CLAY WITH SAND AND GRAVEL
230	240	YELLOW SILTY CLAY
240	250	YELLOW SILTY CLAY W/SAND AND GRAVEL
250	260	SMALL GRAVEL WITH SAND AND SILTY CLAY
260	270	POORLY GRADED GRAVEL WITH SAND
270	280	POORLY GRADED GRAVEL
280	300	GRAVEL
300	310	GRAVEL WITH FINE SAND
310	340	GRAVEL
340	350	TUSCAN ROCK WITH GRAVEL AND SAND
350	370	TUSCAN ROCK W/SANDSTONE, QUARTZ, OTHER METAMORPHICS, TUFF, BASALT, SAND
370	380	COARSE SAND
380	450	TUSCAN AND METAMORPHIC RCK W/SND, CLY
450	460	SILTSTONE WITH GRAVEL, QUARTZ, RED CHERT, AND VOLCANICS
460	565	MIXED COLORED CLAY WITH GRAVEL

TOTAL DEPTH OF BORING 125 (Feet)

TOTAL DEPTH OF COMPLETED WELL 124 (Feet)

WELL LOCATION

Address 25 MI SOF C/R 24 & .75 MI EOF C/R V V

City CA

County GLENN

APN Book 037 Page 360 Parcel 050

Township 22 N Range 2 W Section 35

Latitude DEG. MIN. SEC. Longitude DEG. MIN. SEC.

LOCATION SKETCH

NORTH WEST EAST SOUTH

Illustrate or describe distance of well from roads, buildings, fences, rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL

MODIFICATION/REPAIR
Deepen
Other (Specify)

DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
Domestic Public
Irrigation Industrial

MONITORING ✓

TEST WELL

CATHODIC PROTECTION

HEAT EXCHANGE

DIRECT PUSH

INJECTION

VAPOR EXTRACTION

SPARGING

REMEDIATION

OTHER (SPECIFY)

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL (Ft.) & DATE MEASURED

ESTIMATED YIELD * (GPM) & TEST TYPE

TEST LENGTH (Hrs.) TOTAL DRAWDOWN (Ft.)

* May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft. to Ft.		BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
ZONE	1									
0	55	15					ACCESS TB	1		
0	109	15	✓				SCH 40	2		
109	119	15		✓			SS SCREE	2		030
119	124	15	✓				SCH 40	2		
ZONE	2									

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft. to Ft.		CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	46	✓			SAND SLURRY
46	80			✓	#8 GRD SAND
80	100		✓		CHIPS
100	119			✓	#6 GRD SAND
119	125		✓		CHIPS

ATTACHMENTS (✓)

Geologic Log

Well Construction Diagram

Geophysical Log(s)

Soil/Water Chemical Analyses

Other

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

20 W. KENTUCKY WOODLAND CA 95695
ADDRESS CITY STATE ZIP

Signed [signature] 10/03/02 133783 C57A
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11/97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File with DWR

Page 2 of 2

Owner's Well No. 7448-2

Date Work Began 8-26/2002 Ended 9/6/2002

Local Permit Agency GLENN CNTY HEALTH DEPT

Permit No. MW-139-02 Permit Date 8/21/2002

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. 726741

DWR USE ONLY — DO NOT FILL IN

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL HORIZONTAL ANGLE (SPECIFY)

DRILLING METHOD ROTARY FLUID MUD

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION
555	575	GRAVEL
575	605	MIXED COLORED CLAY W/SAND AND GRAVEL

TOTAL DEPTH OF BORING 125 (Feet)

TOTAL DEPTH OF COMPLETED WELL 124 (Feet)

WELL LOCATION

Address .25 MI SOF C/R 24 & .75 MI EOF C/R V V

City CA

County GLENN

APN Book 037 Page 360 Parcel 060

Township 22 N Range 2 W Section 15

Latitude DEG. MIN. SEC. Longitude DEG. MIN. SEC.

LOCATION SKETCH

NORTH — WEST — EAST — SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL

MODIFICATION/REPAIR

Deepen

Other (Specify)

DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY

Domestic Public

Irrigation Industrial

MONITORING ✓

TEST WELL

CATHODIC PROTECTION

HEAT EXCHANGE

DIRECT PUSH

INJECTION

VAPOR EXTRACTION

SPARGING

REMEDIATION

OTHER (SPECIFY)

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL (Ft.) & DATE MEASURED

ESTIMATED YIELD (GPM) & TEST TYPE

TEST LENGTH (Hrs.) TOTAL DRAWDOWN (Ft.)

May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	55	15					ACCESS TB.	1		
0	55	15	✓				SCH 40	2		
55	65	15		✓			SS SCREE	2		.030
65	75	15	✓				SCH 40	2		

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	46	✓			SAND SLURRY
46	80			✓	#8 GRD SAND
80	100		✓		CHIPS
100	119			✓	#8 GRD SAND
119	125		✓		CHIPS

ATTACHMENTS (✓)

Geologic Log

Well Construction Diagram

Geophysical Log(s)

Soil/Water Chemical Analyses

Other

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME EATON DRILLING CO

(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

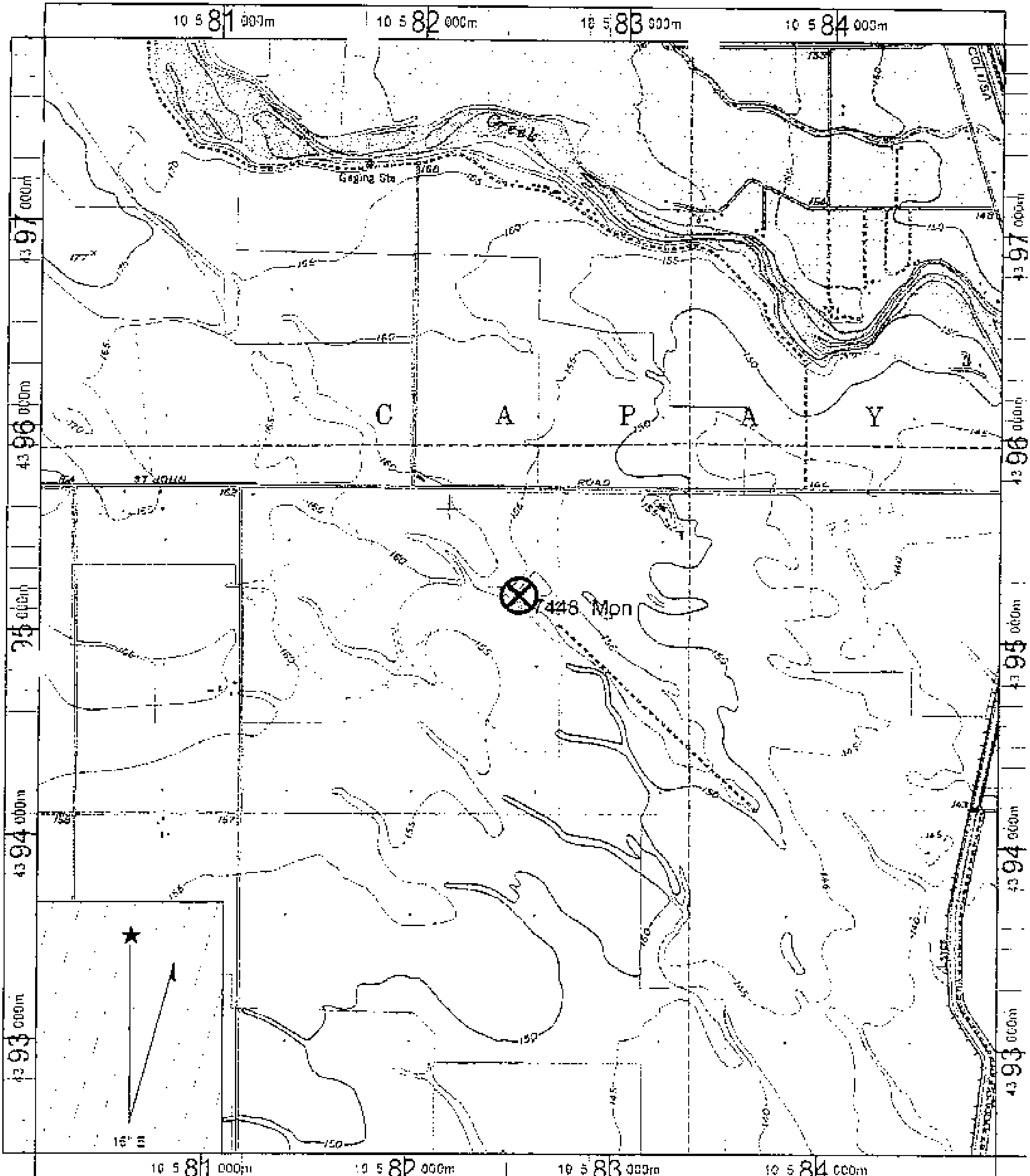
20 W. KENTUCKY WOODLAND CA 95695

ADDRESS CITY STATE ZIP

Signed [signature] 10/03/02 133793-C57A

WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11/97 IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM



Name: HAMILTON CITY
Date: 8/15/2002
Scale: 1 inch equals 2000 feet

Caption: Glenn Co. (St. Johns Farms)
Job# 7448 Mon
APN: 037-360-06

ORIGINAL
File with DWR

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. E044112

DWR USE ONLY — DO NOT FILL IN

STATE WELL NO./ STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

Owner's Well No. 7987

Date Work Began 7/12/2006, Ended 7/28/2006

Local Permit Agency GLENN COUNTY HEALTH DEPT

Permit No. MW248-06 Permit Date 6/14/2006

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD ROTARY FLUID MUD

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION Describe material, grain, size, color, etc.
0	3	TOP SOIL
3	20	SAND AND GRAVEL
20	110	3/4" GRAVEL WITH YELLOW BROWN CLAY
110	150	YELLOW BROWN CLAY
150	290	YELLOW BROWN CLAY WITH SAND AND GRAVEL
290	330	LOOSE GRAVEL WITH SAND
330	460	SOFT GRAY CLAY WITH SAND AND GRAVEL
460	500	BRITTLE YELLOW AND GRAY CLAY MIX WITH COARSE SAND
500	620	BRITTLE YELLOW CLAY WITH SAND AND GRAVEL
620	920	BRITTLE GRAY CLAY WITH SAND AND GRAVEL
920	1200	SOFT SILTY GRAY CLAY WITH SAND STREAKS

TOTAL DEPTH OF BORING 1200 (Feet)

TOTAL DEPTH OF COMPLETED WELL 948 (Feet)

WELL LOCATION

Address .5 MI SOF RD 24 & .67 MI EOF RD S

City CA

County GLENN

APN Book 023 Page 220 Parcel 005

Township 21 N Range 2 W Section ~~4~~ 18

Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH

WEST EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.**

ACTIVITY (✓)

✓ NEW WELL

MODIFICATION/REPAIR
- ___ Deepen
- ___ Other (Specify)

___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial

MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

* *May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
ZONE	1									
+2.5	57	14	✓				PVC F480	2.5	SCH 80	
57	67	14		✓			PVC F480	2.5	SCH 80	.030
67	77	14	✓				PVC F480	2.5	SCH 80	
ZONE	2									
+2	165	14	✓				PVC F480	2.5	SCH 80	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)

Next Page

ATTACHMENTS (✓)

- ___ Geologic Log
- ___ Well Construction Diagram
- ___ Geophysical Log(s)
- ___ Soil/Water Chemical Analysis
- ___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

20 WEST KENTUCKY AVE WOODLAND CA 95695
ADDRESS CITY STATE ZIP

Signed Mark V Dawson 09/05/06 C57 A HIC - 133783
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File with DWR

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. E044112

DWR USE ONLY -- DO NOT FILL IN

STATE WELL NO./ STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

Owner's Well No. 7987

Date Work Began 7/12/2006, Ended 7/28/2006

Local Permit Agency GLENN COUNTY HEALTH DEPT

Permit No. MW248-06 Permit Date 6/14/2006

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD ROTARY FLUID MUD

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain, size, color, etc.*
0	3	TOP SOIL
3	20	SAND AND GRAVEL
20	110	3/4" GRAVEL WITH YELLOW BROWN CLAY
110	150	YELLOW BROWN CLAY
150	290	YELLOW BROWN CLAY WITH SAND AND GRAVEL
290	330	LOOSE GRAVEL WITH SAND
330	460	SOFT GRAY CLAY WITH SAND AND GRAVEL
460	500	BRITTLE YELLOW AND GRAY CLAY MIX WITH COARSE SAND
500	620	BRITTLE YELLOW CLAY WITH SAND AND GRAVEL
620	920	BRITTLE GRAY CLAY WITH SAND AND GRAVEL
920	1200	SOFT SILTY GRAY CLAY WITH SAND STREAKS

TOTAL DEPTH OF BORING 1200 (Feet)

TOTAL DEPTH OF COMPLETED WELL 948 (Feet)

WELL LOCATION

Address .5 MI SOF RD 24 & .67 MI EOF RD S

City CA

County GLENN

APN Book 023 Page 220 Parcel 005

Township 21 N Range 2 W Section 4

Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH

WEST EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.**

ACTIVITY (✓)

✓ NEW WELL

MODIFICATION/REPAIR
- ___ Deepen
- ___ Other (Specify)

___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial

MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

* *May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
165	175	14		✓			PVC F480	2.5	SCH 80	.030
175	269	14	✓				PVC F480	2.5	SCH 80	
269	279	14		✓			PVC F480	2.5	SCH 80	.030
279	289	14	✓				PVC F480	2.5	SCH 80	
ZONE	3									
+1.5	673.5	14	✓				PVC F480	2.5	SCH 80	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	41	✓			SAND SLURRY
41	45		✓		BENTONITE C
45	99			✓	SRI#8 SAND
99	104		✓		BENTONITE C
104	130			✓	SRI#8 SAND
130	135		✓		BENTONITE C

ATTACHMENTS (✓)

- ___ Geologic Log
- ___ Well Construction Diagram
- ___ Geophysical Log(s)
- ___ Soil/Water Chemical Analysis
- ___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

20 WEST KENTUCKY AVE WOODLAND CA 95695
ADDRESS CITY STATE ZIP

Signed [signature] 09/05/06 C57 A HIC - 133783
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File with DWR

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. **E044112**

DWR USE ONLY — DO NOT FILL IN

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

Owner's Well No. 7987

Date Work Began 7/12/2006, Ended 7/28/2006

Local Permit Agency GLENN COUNTY HEALTH DEPT

Permit No. MW248-06 Permit Date 6/14/2006

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD ROTARY FLUID MUD

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION Describe material, grain, size, color, etc.
0	3	TOP SOIL
3	20	SAND AND GRAVEL
20	110	3/4" GRAVEL WITH YELLOW BROWN CLAY
110	150	YELLOW BROWN CLAY
150	290	YELLOW BROWN CLAY WITH SAND AND GRAVEL
290	330	LOOSE GRAVEL WITH SAND
330	460	SOFT GRAY CLAY WITH SAND AND GRAVEL
460	500	BRITTLE YELLOW AND GRAY CLAY MIX WITH COARSE SAND
500	620	BRITTLE YELLOW CLAY WITH SAND AND GRAVEL
620	920	BRITTLE GRAY CLAY WITH SAND AND GRAVEL
920	1200	SOFT SILTY GRAY CLAY WITH SAND STREAKS

TOTAL DEPTH OF BORING 1200 (Feet)

TOTAL DEPTH OF COMPLETED WELL 948 (Feet)

WELL LOCATION

Address .5 MI SOF RD 24 & .67 MI EOF RD S

City CA

County GLENN

APN Book 023 Page 220 Parcel 005

Township 21 N Range 2 W Section 4

Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH

WEST

EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.**

ACTIVITY (✓)

✓ NEW WELL

MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)

___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial

MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
673.5	683.5	14		✓			PVC F480	2.5	SCH 80	.030
683.5	693.5	14	✓				PVC F480	2.5	SCH 80	
693.5	703.5	14		✓			PVC F480	2.5	SCH 80	.030
~~703.5~~	~~713.5~~	~~14~~	✓				PVC F480	2.5	SCH 80	
ZONE	4									
~~+1~~	~~928~~	~~14/8-3/4~~	✓				~~PVC F480~~	~~2.5~~	~~SCH 80~~	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
135	327			✓	SRI#8 SAND
327	335		✓		BENTONITE C
335	647	✓			SAND SLURRY
647	653		✓		BENTONITE C
653	715			✓	SRI#8 SAND
~~715~~	~~736~~		✓		~~BENTONITE C~~

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analysis
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

20 WEST KENTUCKY AVE WOODLAND CA 95695
ADDRESS CITY STATE ZIP

Signed Mark Damion 09/05/06 C57 A HIC - 133783
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File with DWR

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. **E044112**

DWR USE ONLY — DO NOT FILL IN

STATE WELL NO./ STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

Owner's Well No. 7987

Date Work Began 7/12/2006, Ended 7/28/2006

Local Permit Agency GLENN COUNTY HEALTH DEPT

Permit No. MW248-06 Permit Date 6/14/2006

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD ROTARY FLUID MUD

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain, size, color, etc.*
0	3	TOP SOIL
3	20	SAND AND GRAVEL
20	110	3/4" GRAVEL WITH YELLOW BROWN CLAY
110	150	YELLOW BROWN CLAY
150	290	YELLOW BROWN CLAY WITH SAND AND GRAVEL
290	330	LOOSE GRAVEL WITH SAND
330	460	SOFT GRAY CLAY WITH SAND AND GRAVEL
460	500	BRITTLE YELLOW AND GRAY CLAY MIX WITH COARSE SAND
500	620	BRITTLE YELLOW CLAY WITH SAND AND GRAVEL
620	920	BRITTLE GRAY CLAY WITH SAND AND GRAVEL
920	1200	SOFT SILTY GRAY CLAY WITH SAND STREAKS

TOTAL DEPTH OF BORING 1200 (Feet)

TOTAL DEPTH OF COMPLETED WELL 948 (Feet)

WELL LOCATION

Address .5 MI SOF RD 24 & .67 MI EOF RD S

City CA

County GLENN

APN Book 023 Page 220 Parcel 005

Township 21 N Range 2 W Section 4

Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH

WEST

EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.**

ACTIVITY (✓)

✓ NEW WELL

MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)

___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial

MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
928	938	8-3/4		✓			PVC F480	2.5	SCH 80	.030
938	948	8-3/4	✓				PVC F480	2.5	SCH 80	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
736	902	✓			SAND SLURRY
902	914		✓		BENTONITE C
914	964			✓	SRI#8 SAND
964	977		✓		BENTONITE C
977	1200			✓	NATIVE FILL

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analysis
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

20 WEST KENTUCKY AVE WOODLAND CA 95695
ADDRESS CITY STATE ZIP

Signed Mark Dawson 09/05/06 C57 A HIC - 133783
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File with DWR

WELL COMPLETION REPORT

No. 801406

Owner's Well No. Well 3

Glenn

Date Work Ended 9/12/02

GEOLOGIC LOG

Rotary Mud

DESCRIPTION

From	To	Description
0	20	Grey Sand w/minor amounts of Silt/gravel
20	30	Sand & Gravel
30	40	med. to Coarse Sand w/minor amounts gravel
40	45	Clay
45	58	gravelly Sand
58	94	Tan Silty Clay
94	98	clayey gravel
98	122	Tan clay
122	132	gravel
132	139	Tan clay
139	149	Sandy, gravelly clay
149	169	Tan Clay
169	176	clayey gravel
176	192	Tan clay
192	202	gravel
202	227	Tan Clay
227	232	Clayey Sand & gravel
232	292	Lt. yellow-Brown clay
292	304	Sandy gravel
304	316	Lt yellow-Brown Clay
316	342	Gravel & Sand with Clay
342	344	Sand
344	366	Clayey Sand
366	428	Lt. yellow Brown Clay
428	434	Sand
434	442	Lt. yellow-Brown Clay
442	452	Gravel
452	518	Lt yellow Brown Clay
518	520	Sandy gravel

* Triple Completion well 1-deep 2-moderate 3-Shallow

520

4603

WELL LOCATION

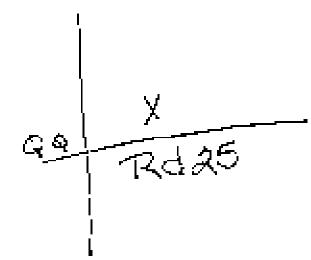
Rd 25 & QQ

Glenn

Glenn

023 020 028

LOCATION SKETCH



ACTIVITY

X

PLANNED USES

X

WATER LEVEL & YIELD OF COMPLETED WELL

CASING(S)

*Comp	From - To	Blank	Screen	Material	Diameter	Gauge or Wall Thickness	Slot Size
1.	473, 442, 452, Surface	X		Steel	2"	Sch 40	—
	452 442		X	S.S.	2"		0.02"
2.	153, 122, 132, Surface	X		Steel	2"	Sch 40	—
	132 122		X	S.S.	2"		0.02
3	75, 44 54, Surface	X		Steel	2"	Sch 40	—
	54 44		X	S.S.	2"		0.02

ANNULAR MATERIAL

From	To		Type	Description
490	423			#8 Sand
423	161	X		
161	105			#8 Sand
105	73	X		
73	34			#8 Sand
34	0	X		

ATTACHMENTS

CERTIFICATION STATEMENT

Spectrum Exploration

P.O. Box 471 Zamora CA 95698

Charlise Bachus 11/25/02 562268

Casing

Deep Well

Ft. to Ft.	Borehole Dia.	Type	Material Grade	Internal Dia	Gauge	Slot Size
473 - 452		Blank	Steel	2"	Sch 40	
452 – 442		Screen	Steel	2"	Sch 40	.020
442 – –		Blank	Steel	2"	Sch 40	
463 – –		Blank	Steel	1"	Sch 40	

Middle Well

Ft. to Ft.	Borehole Dia.	Type	Material Grade	Internal Dia	Gauge	Slot Size
153 – 132		Blank	Steel	2"	Sch 40	
132 – 122		Screen	Steel	2"	Sch 40	.020
122 – –		Blank	Steel	2"	Sch 40	
143 – –		Blank	Steel	1"	Sch 40	

Shallow Well

Ft. to Ft.	Borehole Dia.	Type	Material Grade	Internal Dia	Gauge	Slot Size
75 – 54		Blank	Steel	2"	Sch 40	
54 - 44		Screen	Steel	2"	Sch 40	.020
44 - -		Blank	Steel	2"	Sch 40	
65 - -		Blank	Steel	1"	Sch 40	

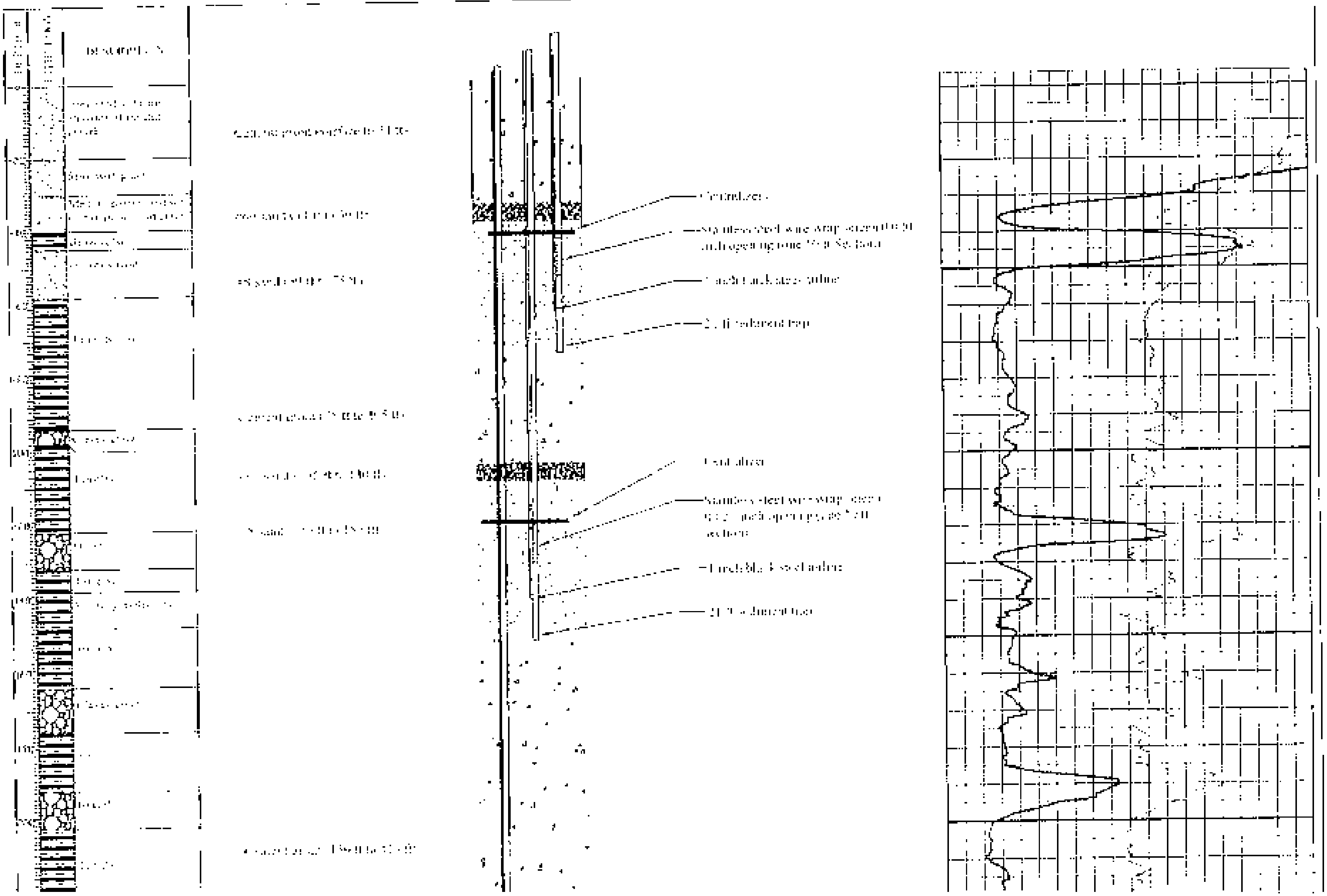
Annular Material

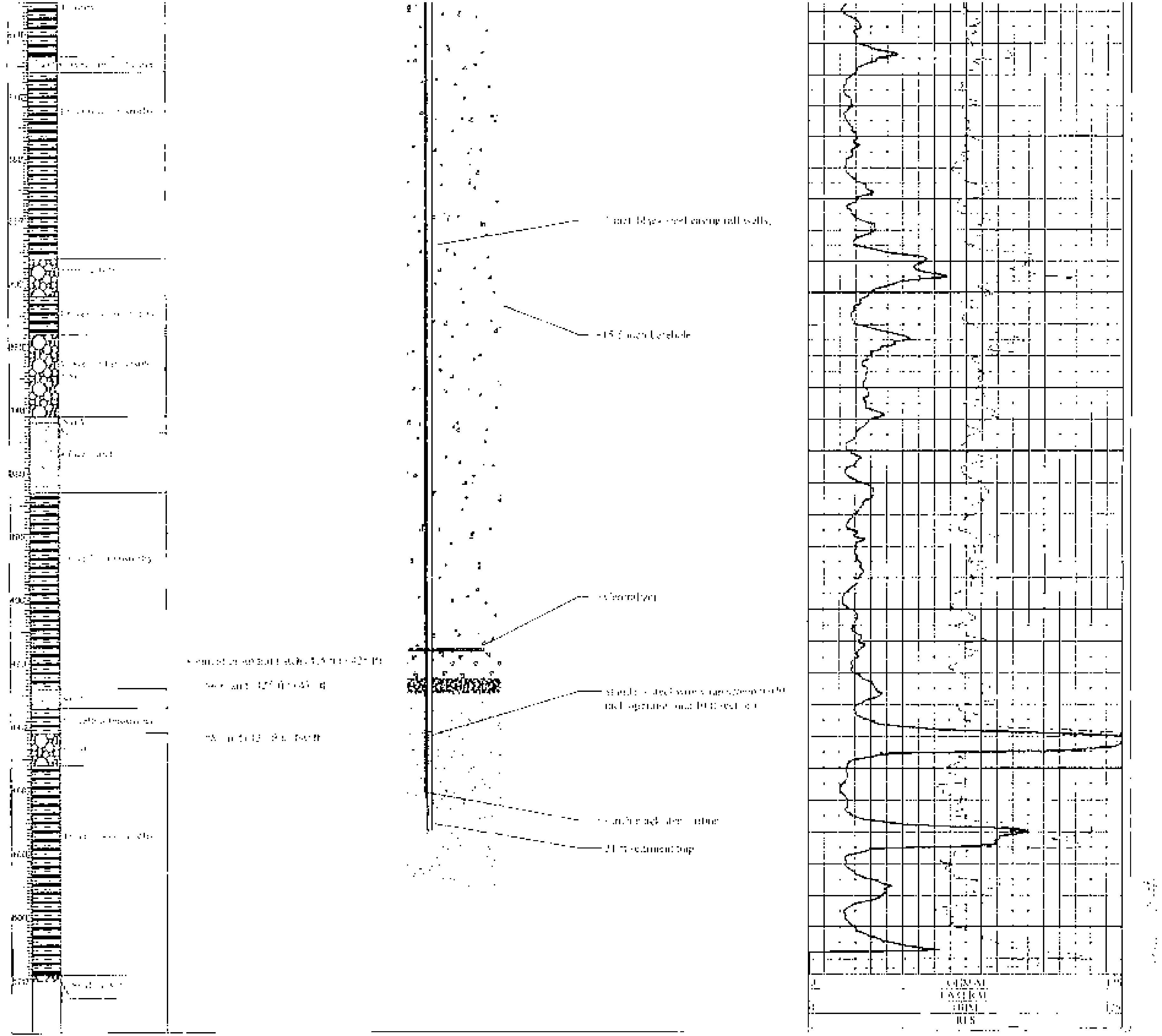
Ft. to Ft.	Type

STATE OF CALIFORNIA – RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT

STATE WELL NUMBERS: [illegible] Deep Zone
[illegible] Middle Zone
[illegible] Shallow Zone

PROJECT	[illegible]	TYPE OF AUGER	[illegible]	NUMBER OF COMPLETIONS	3	CONTRACTOR	[illegible]
DRAFTED BY	[illegible]	TOTAL DEPTH	[illegible]	TYPE OF HOLE	[illegible]	DRILL FOREMAN	[illegible]
LOCATION	[illegible]	WATER LEVEL	[illegible]	TYPE OF BIT	[illegible]	INSPECTED BY	[illegible]
UTM COORDINATES	[illegible]	DATE COMPLETED	[illegible]	COMMENTS	[illegible]		





ORIGINAL
File with DWR
Page 1 of 3

AUG 08 2002

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. 726724 ~~A B C~~ ABC

DWR USE ONLY — DO NOT FILL IN
2/N/02W-33M
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

Owner's Well No. 7450
Date Work Began 7/11/2002, Ended 7/19/2002
Local Permit Agency GLENN COUNTY HEALTH DEPT
Permit No. MW134-02 Permit Date 6/25/2002

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD REVERSE FLUID WATER

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION Describe material, grain, size, color, etc.
0	20	BROWN/YELLOW CLAY
20	36	STICKY BROWN/YELLOW CLAY
36	48	PALE OLIVE CLAY
48	60	DARK YELLOW/BROWN CLAY
60	80	SUBANGULAR TO ROUNDED GRAVEL
80	100	SILTY SANDY CLAY
100	133	SILTY SANDY CLAY WITH ROUNDED GRAVEL
133	160	POORLY GRADED, ROUNDED TO
		SUBROUNDED GRAVEL
160	190	DUSKY YELLOW/BROWN SILTY CLAY
190	209	DUSKY YELLOW/BROWN SILTY CLAY WITH
		SIL AND SAND
209	229	MEDIUM BROWN/YELLOW CLAY
229	240	POORLY SORTED GRAVEL WITH VERY
		COARSE SAND
240	250	GRAVEL
250	260	YELLOW/BROWN CLAY
260	270	BLUE/GREEN CLAY
270	280	GRAVELLY CLAY
280	290	BLUE/GREEN CLAY AND GRAVELLY SAND
290	310	BLUE/GREEN CLAY
310	320	GRAVEL AND CLAY
320	330	BLUE/GREEN SILTY CLAY
330	340	CLAY AND GRAVEL
340	430	BLUE/GREEN CLAY
430	469	BLUE/GREEN CLAY WITH GRAVEL AND SAND
469	529	GREEN/BLUE CLAY
529	549	GRAVEL AND SAND
549	589	VERY STICKY BLUE/GREEN CLAY WITH FINE SA
589	689	BLUE/GREEN CLAY WITH COARSE SAND

TOTAL DEPTH OF BORING 1020 (Feet)
TOTAL DEPTH OF COMPLETED WELL 974.2 (Feet)

WELL LOCATION

Address 4 MI N OF C/R 33 & W OF C/R S
City CA
County GLENN
APN Book 023 Page 190 Parcel 010
Township 21 N Range 2 W Section 33
Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH
WEST EAST
SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ✓ EXTENSOMETE

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___
ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___
TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)
** May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
MON	1									
0	161.1	36/18					ACCESS TB	1	SCH 40	
0	140	36/18	✓				BLCK PIPE	2	SCH 40	
140	150	18		✓			STL STEEL	2		.020
150	171.1	18	✓				BLCK PIPE	2	SCH 40	
A MON	2									

ANNULAR MATERIAL

AUG 1 2002

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	40	✓			SAND SLURRY
0	95.5		✓		HALLIBURTON
95.5	210			✓	#8 GRD SAND
210	507.5		✓		HALLIBURTON
507.5	577			✓	#8 GRD SAND
577	796		✓		HALLIBURTON

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analysis
___ Other ___
ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.
NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
20 W. KENTUCKY WOODLAND CA 95695
ADDRESS CITY STATE ZIP
Signed [signature] 08/07/02 133783-C57A
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File with DWR
Page 2 of 3

AUG 08 2002

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet
No. **726724**

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./STATION NO.
LATITUDE / LONGITUDE
APN/TRS/OTHER

Owner's Well No. 7450
Date Work Began 7/11/2002, Ended 7/19/2002
Local Permit Agency GLENN COUNTY HEALTH DEPT.
Permit No. MW134-02 Permit Date 6/25/2002

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD REVERSE FLUID WATER

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain, size, color, etc.*
689	705	GRAVEL
705	780	BLUE/GREEN CLAY
780	790	POORLY SORTED GRAVEL AND COARSE SAND
790	850	BLUE/GREEN CLAY
850	870	POORLY SORTED SUBANGULAR TO ROUNDED GRAVEL
870	940	POORLY SORTED GRAVEL WITH PYRITE
940	960	GRAY CEMENTED SILTY CLAY
960	980	DARK GRAY SILT TO FINE SAND
980	1000	GRAY/BLUE CLAY WITH FINE SAND
1000	1020	SAND AND GRAVEL

TOTAL DEPTH OF BORING 1020 (Feet)
TOTAL DEPTH OF COMPLETED WELL 974.2 (Feet)

WELL LOCATION

Address .4 MI N OF C/R 33 & W OF C/R S
City CA
County GLENN
APN Book 023 Page 190 Parcel 010
Township 21 N Range 2 W Section 33
Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH
WEST
EAST
SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ✓ EXTENSOMETE

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___
ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___
TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)
May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	328	36/18					ACCESS TB	1	SCH 40	
0	540	36/18	✓				BLCK PIPE	2	SCH 40	
540	550	18		✓			STL STEEL	2		.020
550	571.1	18	✓				BLCK PIPE	2	SCH 40	
B EXT	1									
0	869	36/18	✓				BLCK PIPE	4	SCH 40	

ANNULAR MATERIAL

AUG 1 2002

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
796	929.3			✓	#8 GRD SAND
929.3	1020		✓		25% LIME

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analysis
___ Other ___
ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.
NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
20 W. KENTUCKY — ADDRESS; WOODLAND — CITY; CA — STATE; 95695 — ZIP
Signed Mark Dawson — WELL DRILLER/AUTHORIZED REPRESENTATIVE
08/07/02 — DATE SIGNED
133783-C57A — C-57 LICENSE NUMBER

AUG 08 2002

ORIGINAL
File with DWR

Page 3 of 3

Owner's Well No. 7450

Date Work Began 7/11/2002, Ended 7/19/2002

Local Permit Agency GLENN COUNTY HEALTH DEPT.

Permit No. MW134-02 Permit Date 6/25/2002

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. **726724**

DWR USE ONLY -- DO NOT FILL IN

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD REVERSE FLUID WATER

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain, size, color, etc.*
0	20	BROWN/YELLOW CLAY
20	36	STICKY BROWN/YELLOW CLAY
36	48	PALE OLIVE CLAY
48	60	DARK YELLOW/BROWN CLAY
60	80	SUBANGULAR TO ROUNDED GRAVEL
80	100	SILTY SANDY CLAY
100	133	SILTY SANDY CLAY WITH ROUNDED GRAVEL
133	160	POORLY GRADED, ROUNDED TO
		SUBROUNDED GRAVEL
160	190	DUSKY YELLOW/BROWN SILTY CLAY
190	209	DUSKY YELLOW/BROWN SILTY CLAY WITH
		SIL AND SAND
209	229	MEDIUM BROWN/YELLOW CLAY
229	240	POORLY SORTED GRAVEL WITH VERY
		COARSE SAND
240	250	GRAVEL
250	260	YELLOW/BROWN CLAY
260	270	BLUE/GREEN CLAY
270	280	GRAVELLY CLAY
280	290	BLUE/GREEN CLAY AND GRAVELLY SAND
290	310	BLUE/GREEN CLAY
310	320	GRAVEL AND CLAY
320	330	BLUE/GREEN SILTY CLAY
330	340	CLAY AND GRAVEL
340	430	BLUE/GREEN CLAY
430	469	BLUE/GREEN CLAY WITH GRAVEL AND SAND
469	529	GREEN/BLUE CLAY
529	549	GRAVEL AND SAND
549	589	VERY STICKY BLUE/GREEN CLAY WITH FINE SA
589	689	BLUE/GREEN CLAY WITH COARSE SAND

TOTAL DEPTH OF BORING 1020 (Feet)

TOTAL DEPTH OF COMPLETED WELL 974.2 (Feet)

WELL LOCATION

Address .4 MI N OF C/R 33 & W OF C/R S

City CA

County GLENN

APN Book 023 Page 190 Parcel 010

Township 21 N Range 2 W Section 33

Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH

WEST EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL

MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)

___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial

MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ✓ EXTENSOMETE

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
869	890	18		✓			MILLSLOT	4		
890	974.2	18	✓				BLCK PIPE	4	SCH 40	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	40	✓			SAND SLURRY
0	95.5		✓		HALLIBURTON
95.5	210			✓	#8 GRD SAND
210	507.5		✓		HALLIBURTON
507.5	577			✓	#8 GRD SAND
577	796		✓		HALLIBURTON

AUG

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analysis
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

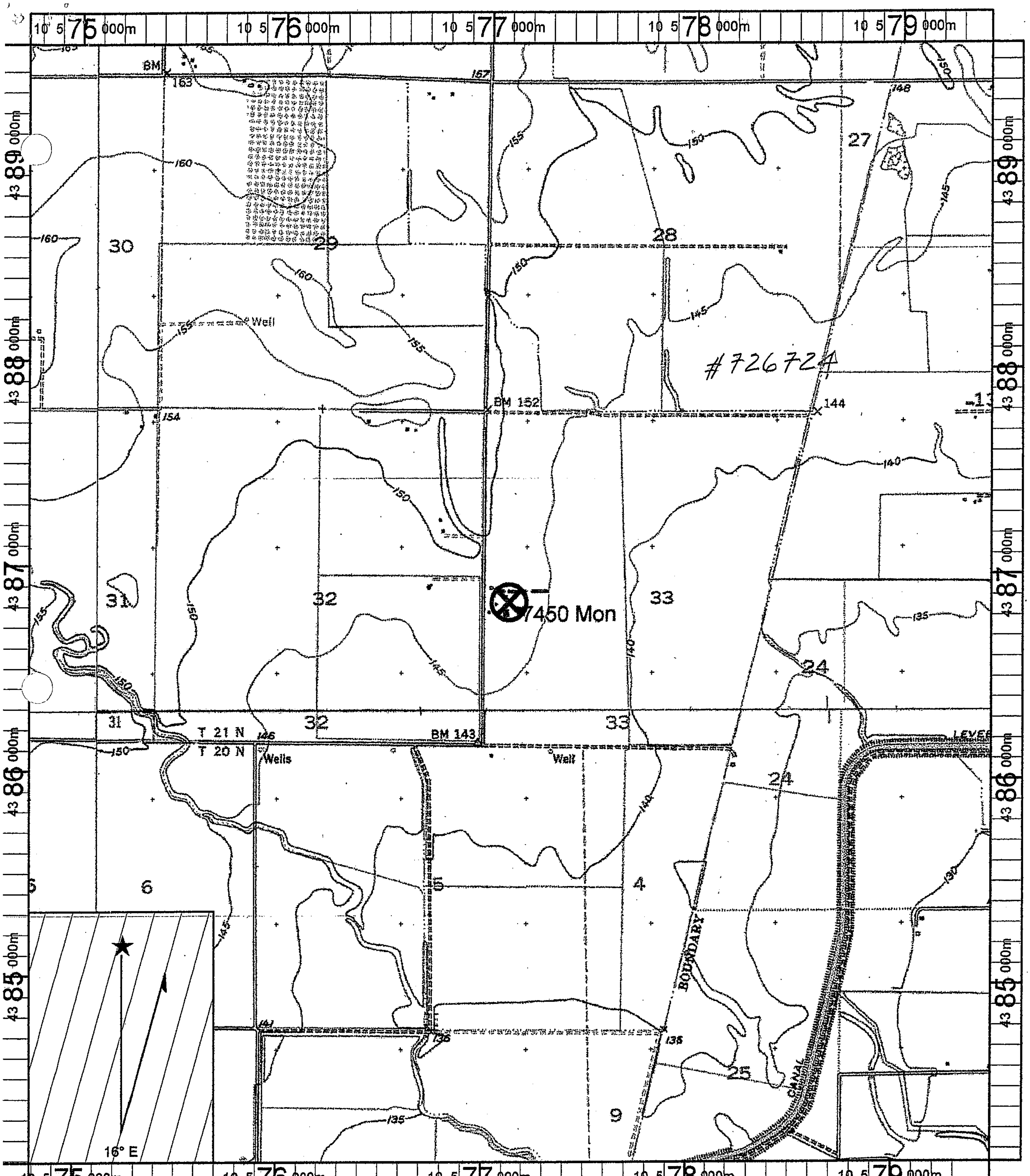
NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

20 W. KENTUCKY — WOODLAND — CA — 95695
ADDRESS — CITY — STATE — ZIP

Signed [signature] WELL DRILLER/AUTHORIZED REPRESENTATIVE — 08/07/02 DATE SIGNED — 133783-C57A C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM



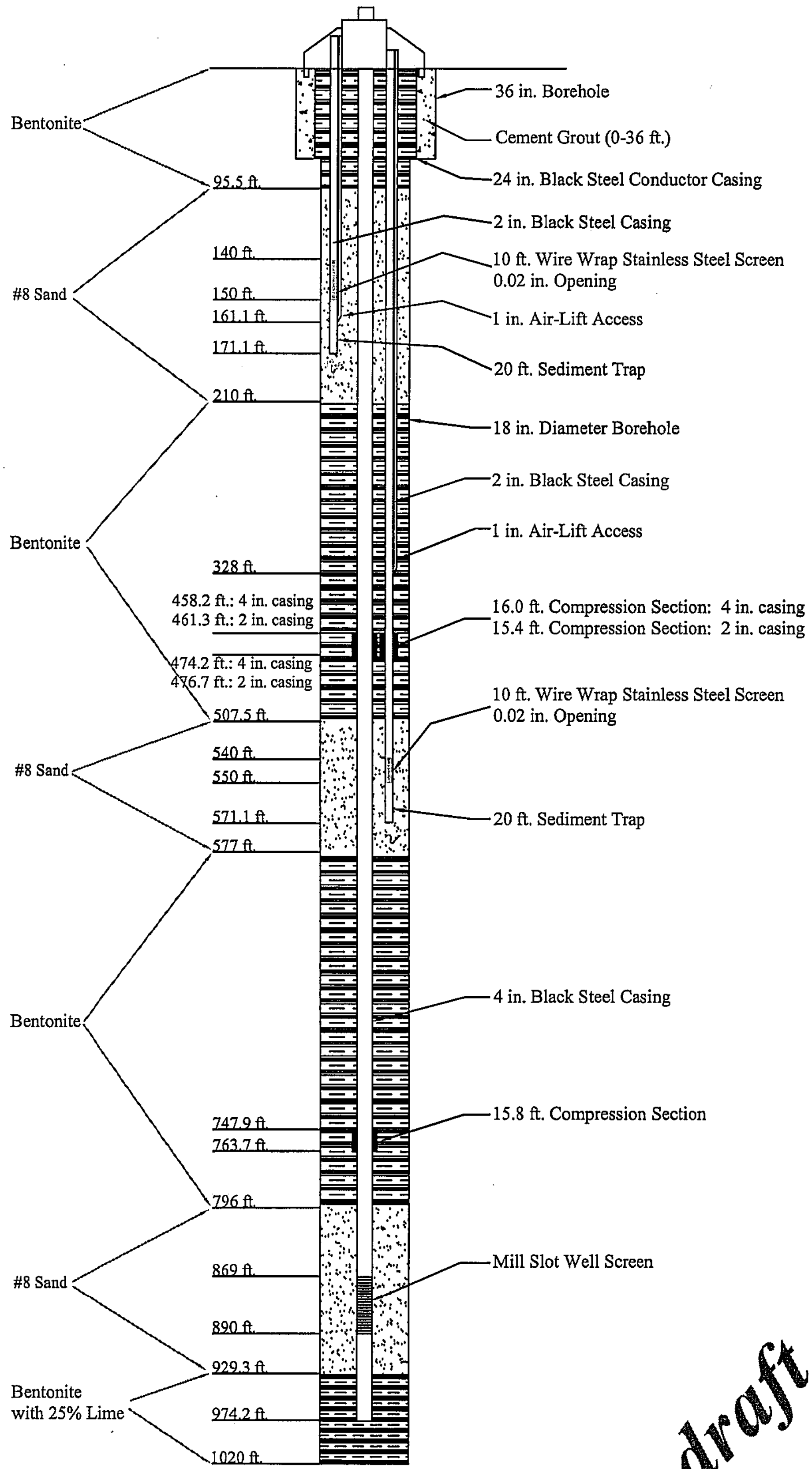
ne: HAMILTON CITY
ate: 8/7/2002
Scale: 1 inch equals 2000 feet

Location: 10 577107 E 4386837 N
Caption: Glenn County
Job# 7450 Mon
APN: 23-19-1

STATE OF CALIFORNIA - RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT

PROJECT	Glenn County AB 303 Monitoring Well Project	HOLE NUMBER	GC_AB 303-1	NUMBER OF COMPLETIONS	3	CONTRACTOR	Eaton Drilling
FEATURE	Extensometer/Triple Completion Monitoring Well	TOTAL DEPTH	1020 ft	TYPE OF HOLE	Reverse Rotary	DRILL FOREMAN	Gary Frost
LOCATION	Glenn County, County Road S and County Road 30	DATE STARTED	7/12/02	TYPE OF RIG		INSPECTED BY	Staton, McManus & Lawrence
UTM COORDINATES	577199, 4387045 NAD 83	DATE COMPLETED	7/24/02	COMMENTS	Test hole drilled to 1020 ft.; well completed to 974.2 ft.		

#726724



draft

4

21N/02W-36M

ORIGINAL
File with DWR

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
WATER WELL DRILLERS REPORT

Do not fill in

No. 315494

...e of Intent No. ______

Local Permit No. or Date B5768

State Well No. ______

Other Well No. 90215-1

(12) WELL LOG: Total depth 155 ft. Completed depth 145 ft.

from ft.	to ft.	Formation (Describe by color, character, size or material)
0	15	Brn sandy clay
15	25	Brn sandy clay and gravel
25	34	Grey clay and sand
34	40	Clay
40	55	Clay sand and gravel
55	68	Gravel
68	130	Gravel and clay
130	155	Gravel

(2) LOCATION OF WELL (See instructions): 47

County Glenn Owner's Well Number DMW-2

Well address if different from above ______

Township 21N Range 2W Section 36

Distance from cities, roads, railroads, fences, etc.

APN#: 23-08-041

See Attached

WELL LOCATION SKETCH

(3) TYPE OF WORK:
New Well [X] Deepening [ ]
Reconstruction [ ]
Reconditioning [ ]
Horizontal Well [ ]
Destruction [ ] (Describe destruction materials and procedures in Item 12)

(4) PROPOSED USE:
Domestic [ ]
Irrigation [ ]
Industrial [ ]
Test Well [ ]
Municipal [ ]
Other [X]
(Describe) Monitoring

(5) EQUIPMENT:
Rotary [XX] Reverse [ ]
Cable [ ] Air [ ]
Other [ ] Bucket [ ]

(6) GRAVEL PACK: Monterey
Yes [X] No [ ] Size 6 x 12
Diameter of bore 12
Packed from 110 to 155 ft.

(7) CASING INSTALLED:
Steel [X] Plastic [ ] Concrete [ ]

(8) PERFORATIONS:
Type of perforation or size of screen

From ft.	To ft.	Dia. in.	Gage or Wall	From ft.	To ft.	Slot size
0	120	6	3/16	120	140	.050
140	145	6	3/16			

(9) WELL SEAL:
Was surface sanitary seal provided? Yes [X] No [ ] If yes, to depth 110 ft.
Were strata sealed against pollution? Yes [ ] No [ ] Interval ______ ft.
Method of sealing ______

(10) WATER LEVELS:
Depth of first water, if known ______ ft.
Standing level after well completion ______ ft.

(11) WELL TESTS:
Was well test made? Yes [ ] No [X] If yes, by whom? ______
Type of test Pump [ ] Bailer [ ] Air lift [ ]
Depth to water at start of test ______ ft. At end of test ______ ft.
Discharge ______ gal/min after ______ hours Water temperature ______
Chemical analysis made? Yes [ ] No [X] If yes, by whom? ______
Was electric log made Yes [ ] No [X] If yes, attach copy to this report

Work started 3-22 1989 Completed 3-24 1989

WELL DRILLER'S STATEMENT: 153

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signed [signature] (Well Driller)

NAME Maggiora Bros. Drilling, Inc. (Person, firm, or corporation) (Typed or printed)

Address 595 Airport Blvd.

City Watsonville, CA ZIP 95076

License No. 249957 Date of this report 6-30-89

CONFIDENTIAL

NOT FOR PUBLIC USE
WATER CODE SEC. 13752

DWR 188 (REV. 12-86) IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM 86 96355

ORIGINAL
File with DWR

MAR 0 2 2004

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet
No. 726894

DWR USE ONLY — DO NOT FILL IN
21N/03W-01M
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

Page 1 of 1
Owner's Well No. 7617 MON
Date Work Began 12/10/2003, Ended 12/17/2003
Local Permit Agency GLENN COUNTY HEALTH DEPT.
Permit No. MW 188-03 Permit Date 12/16/2003

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD ROTARY FLUID MUD

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain, size, color, etc.*
0	2	TOPSOIL
2	70	SAND AND GRAVEL
70	82	YELLOW BROWN CLAY W/SAND AND GRAVEL
82	100	SAND AND GRAVEL
100	190	YELLOW BRWN CLY W/SND AND GRVL STRKS
190	230	BLUE CLAY W/SAND AND GRAVEL STREAKS
230	254	SAND AND GRAVEL
254	324	BLUE CLAY WITH SAND
324	340	SAND AND GRAVEL
340	780	BLUE CLAY W/SAND AND GRAVEL STREAKS
780	800	BLACK SAND AND GRAVEL
800	808	DARK GRAY BRITTLE CLAY
808	830	BLACK SAND AND GRAVEL
830	894	BRITTLE DARK GRAY CLAY WITH SAND
894	920	BLACK SAND AND GRAVEL
920	1038	LIGHT GRAY CLAY W/SAND AND GRVL STRKS
1038	1066	BLACK SAND WITH SMALL GRAVEL
1066	1100	LIGHT GRAY CLAY WITH SAND STREAKS

TOTAL DEPTH OF BORING 1530 (Feet)
TOTAL DEPTH OF COMPLETED WELL 255 (Feet)

WELL LOCATION

Address 50 FT N OF C/R 25 & 3.5 MI E OF I-5
City CA
County GLENN
APN Book 024 Page 020 Parcel 015
Township 21 N Range 3 W Section 1
Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH
WEST EAST
SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)
✓ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)
WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___
ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___
TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)
May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	235	6-5/8	✓				PVC	2	SCH 40	
235	245	6-5/8		✓			PVC	2	SCH 40	.030
245	255	6-5/8	✓				PVC	2	SCH 40	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	204	✓			SAND SLURRY
204	263			✓	#8 GRD SAND
263	271		✓		CHIPS
271	360			✓	#8 GRD SAND
360	1530	✓			SAND SLURRY

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analysis
___ Other
ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.
NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
20 W. KENTUCKY AVE WOODLAND CA 95695
ADDRESS CITY STATE ZIP
Signed [signature] 12/18/03 C57 A HIC - 133783
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File with DWR

Page ___ of ___

Owner's Well No. WELL A

Date Work Began 3/20/02, Ended 3/29/02

Local Permit Agency Glenn Co Health Dept.

Permit No. ______ Permit Date 3/12/02

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. 801404A,B,C

21N/03W-23

DWR USE ONLY — DO NOT FILL IN

21N03W23D(1-3)M

STATE WELL NO./STATION NO.

TRIPLE COMPLETION WELL

LATITUDE | LONGITUDE

APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ___ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD Rotary FLUID Mud

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION Describe material, grain size, color, etc.
0	20	med. to Coarse Sand
20	30	gravel
30	38	gravel w/fine to coarse Sand
38	39	gravel and Sand
39	40	Clay
40	60	gravel with fine to Coarse Sand
60	70	gravel & Sand
70	80	gravel w/ med. Sand & Clay
80	140	Lt Brown to Tan Clay w/ gravel
140	150	Sand w/gravel & Clay
150	160	Gravel & Med. to Coarse Sand
160	170	gravel & Tan to Brown Clay
170	180	Tan/Brown Clay w/gravel
180	190	Clay & Gravel w/ med. Sand
190	220	Gravel w/ tan to Brown Clay
220	320	Clay w/minor amounts of gravel
320	330	gravel w/tan/Brown Clay Slightly gravelly
330	340	Gravel w/ Tan/Brown Clay
340	360	Clay
360	370	gravel w/minor amounts of clay & Sand
370	460	Clay w/minor amounts of gravel
460	500	Clay w/minor amounts of Sand & gravel

* This well was constructed w/3 completions
1=deep 2=moderate 3=Shallow
393.5' 191.5' 93.5'

TOTAL DEPTH OF BORING 420 (Feet) 420'

TOTAL DEPTH OF COMPLETED WELL 393.5 (Feet)

WELL LOCATION

Address Co Road M

City Artois

County Glenn

APN Book 024 Page 050 Parcel 014-9

Township ______ Range ______ Section ______

Latitude ___ NORTH (DEG. MIN. SEC.) Longitude ___ WEST (DEG. MIN. SEC.)

LOCATION SKETCH

NORTH

Rd M

X

Co. Rd 30

WEST | EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

X NEW WELL

MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)

___ DESTROY (*Describe Procedures and Materials Under "GEOLOGIC LOG"*)

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial

MONITORING X
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ______ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ______ (Ft.) & DATE MEASURED ______

ESTIMATED YIELD * ______ (GPM) & TEST TYPE ______

TEST LENGTH ______ (Hrs.) TOTAL DRAWDOWN ______ (Ft.)

* *May not be representative of a well's long-term yield.*

CASING (S)

Comp	DEPTH FROM SURFACE Ft. to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
1.	393, 363 / 373, Surface		X				Steel	2"	Sch40	—
	373 / 363			X			SS.	2"		0.020
2.	191, 142 / 160-152, 142, 0		X				Steel	2"	Sch40	
	170, 152 / 160, 142			X			S.S.	2"		0.020
3	93, 42 / 72, Surface		X				Steel	2"	Sch40	
	72 / 42			X			S.S.	2"		0.020

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
420	339				#8 Sand
339	200	✓			
200	127				#8 Sand
127	84	✓			
84	33				#8 Sand
33	0	✓			

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Spectrum Exploration Inc
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

P.O. Box 471 Zamora CA 95698
ADDRESS CITY STATE ZIP

Signed Charlisse Borchers 4/18/02 512268
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DEC 04 2002

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

Department of Water Resources
Van Tol Deep

801404

Casing

Deep Well

A

Ft. to Ft.	Borehole Dia.	Type	Material Grade	Internal Dia	Gauge	Slot Size
393.5- 373		Blank	Steel	2"	Sch 40	
373 – 363		Screen	Steel	2"	Sch 40	.020
363 – +1'		Blank	Steel	2"	Sch 40	

Middle Well

B

Ft. to Ft.	Borehole Dia.	Type	Material Grade	Internal Dia	Gauge	Slot Size
191.5 – 170		Blank	Steel	2"	Sch 40	
170 – 160		Screen	Steel	2"	Sch 40	.020
160 – 152		Blank	Steel	2"	Sch 40	
152 – 142		Screen	Steel	2"	Sch 40	.020
142 - +1.5'		Blank	Steel	2"	Sch 40	

Shallow Well

C

Ft. to Ft.	Borehole Dia.	Type	Material Grade	Internal Dia	Gauge	Slot Size
93.5 – 72		Blank	Steel	2"	Sch 40	
72 – 42		Screen	Steel	2"	Sch 40	.020
42 - +2		Blank	Steel	2"	Sch 40	

Annular Material

Ft. to Ft.	Type
393.5 - 353	#8 Sand
353 – 345	#60 Sand
345 - Surface	Cement Grout

801404

STATE OF CALIFORNIA - RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
NORTHERN DISTRICT

STATE WELL NUMBERS: 21N03W23D01M-Deep Zone
21N03W23D02M-Middle Zone
21N03W23D03M-Shallow Zone

PROJECT	Stony Creek Recharge Pilot Project	HOLE NUMBER	Well A - Van Tol Site	NUMBER OF COMPLETIONS	3	CONTRACTOR	Spectrum Exploration, Inc.
FEATURE	Triple Completion Monitoring Well	TOTAL DEPTH	420 ft	TYPE OF HOLE	Direct Rotary	DRILL FOREMAN	Randy Criner
LOCATION	Glenn County, County Rd 27 and County Rd M	DATE STARTED	3/20/02	TYPE OF RIG	Ingersoll Rand	INSPECTED BY	Kelly Staton
UTM COORDINATES	UTM 10 NAD 83 570561, 4391143	DATE COMPLETED	3/29/02	COMMENTS	Test hole drilled to 500 ft.; well completed to 393 ft.		

DEPTH (ft.)	DESCRIPTION
0	Poorly graded medium sand, sub-angular to sub-rounded
20	Poorly graded gravel with fine to med. sand of metam. origin, sub-angular to sub-rounded clasts
	Gravel and sand
40	Clay
	Gravel with fine to coarse-grained sand
60	Gravel and fine to coarse-grained sand
	Gravel with minor amount of clay and sand
80	
100	Lt. brown to tan clay with gravel and sand
120	
140	Sand with gravel and clay
	Gravel and medium to coarse sand
160	Gravel and tan to brown clay
	Tan/brown clay with gravel
180	Tan/brown clay with gravel and med. sand
200	Gravel with tan to brown clay
220	

Cement grout (gs to 32 ft)

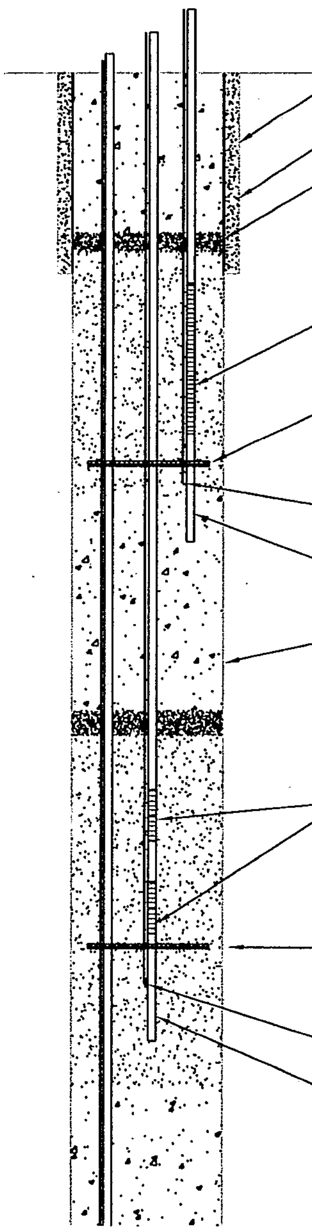
#60 sand (32 ft to 36 ft)

#8 sand (36 ft to 84 ft)

Cement grout (84 ft to 127 ft)

#60 sand (127 ft to 132 ft)

#8 sand (132 ft to 200 ft)



Upper borehole reamed out to 16 inch diameter and 40 ft. depth

Sanitary grout seal to 40 ft. depth

Black steel conductor casing $\frac{1}{4}$ inch wall thickness to 40 ft.

Stainless steel wire wrap screen 0.020 inch opening (three 10 ft. sections).

Centralizer

1 inch black steel airline

21 ft sediment trap

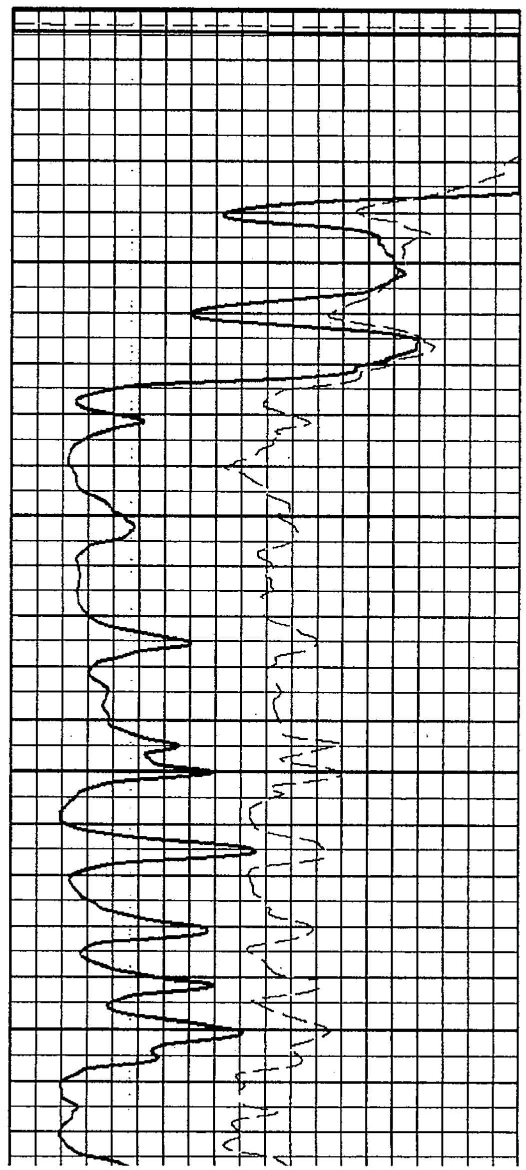
Borehole reamed to 15.5 inch diameter from 40 ft. to 420 ft.

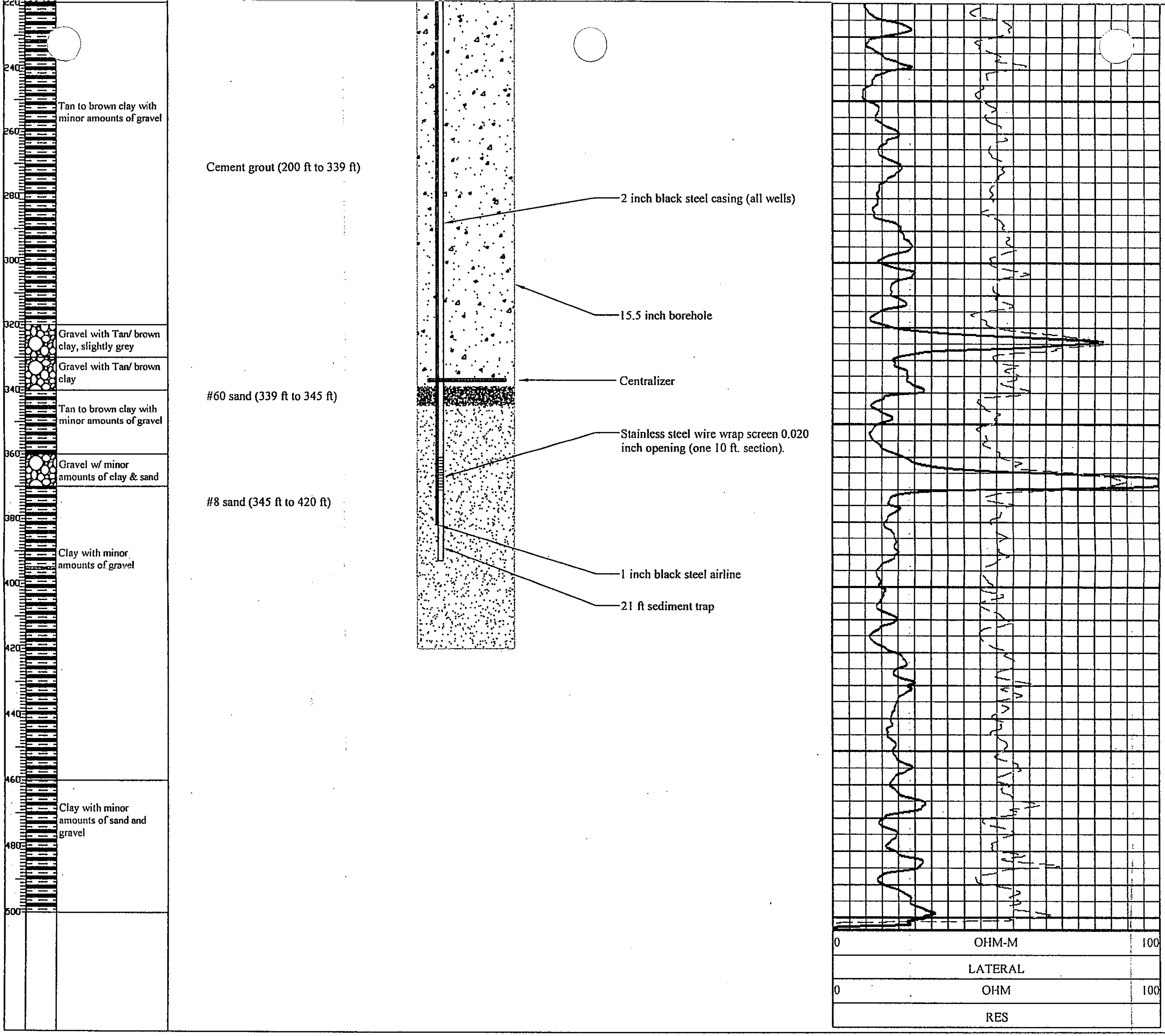
Stainless steel wire wrap screen 0.020 inch opening (two 10 ft. sections).

Centralizer

1 inch black steel airline

21 ft sediment trap





240
260
280
300
320
340
360
380
400
420
440
460
480
500
Tan to brown clay with minor amounts of gravel
Gravel with Tan/ brown clay, slightly grey
Gravel with Tan/ brown clay
Tan to brown clay with minor amounts of gravel
Gravel w/ minor amounts of clay & sand
Clay with minor amounts of gravel
Clay with minor amounts of sand and gravel
Cement grout (200 ft to 339 ft)
#60 sand (339 ft to 345 ft)
#8 sand (345 ft to 420 ft)
2 inch black steel casing (all wells)
15.5 inch borehole
Centralizer
Stainless steel wire wrap screen 0.020 inch opening (one 10 ft. section).
1 inch black steel airline
21 ft sediment trap
0 OHM-M 100
LATERAL
0 OHM 100
RES

#801404

ORIGINAL
File with DWR MAY 3 1 2005

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. **816224**

DWR USE ONLY — DO NOT FILL IN

21N/03W-34

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

Owner's Well No. 7786

Date Work Began 3/7/2005, Ended 3/14/2005

Local Permit Agency GLENN COUNTY HEALTH DEPT

Permit No. IRW280-04 Permit Date 11/4/2004

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD ROTARY FLUID MUD

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION Describe material, grain, size, color, etc.
0	6	TOPSOIL
6	24	SAND AND SMALL GRAVEL
24	33	TAN CLAY
33	45	SANDY BROWN CLAY WITH SAND AND GRAVE
		STREAKS
45	90	SAND AND GRAVEL WITH BROWN CLAY STREA
90	145	SANDY YELLOW CLAY
145	152	SAND AND GRAVEL
152	210	SANDY YELLOW CLAY
210	333	TAN CLAY WITH SAND
333	342	SAND AND SMALL GRAVEL
342	400	TAN CLAY WITH SAND
400	440	TAN CLAY WITH SAND AND GRAVEL STREAKS
440	580	TAN CLAY WITH SAND
580	585	SAND AND GRAVEL
585	620	TAN CLAY WITH SAND
620	635	SAND AND GRAVEL
635	650	SANDY TAN CLAY
650	656	SAND AND GRAVEL
656	678	SANDY TAN CLAY
678	688	SAND AND GRAVEL
688	750	SANDY TAN CLAY
750	860	TAN CLAY
860	960	SANDY TAN CLAY WITH SAND AND GRAVEL
		STREAKS
960	1100	BROWN CLAY WITH HARD CLAY STREAKS
1100	1140	BLUE CLAY WITH SAND
1140	1170	SAND WITH BLUE CLAY STREAKS
1170	1200	BLUE CLAY WITH BRITTLE CLAY STREAKS

TOTAL DEPTH OF BORING 1020 (Feet)

TOTAL DEPTH OF COMPLETED WELL 980 (Feet)

WELL LOCATION

Address 1 MI NOF RD 33 & .4 MI WOF DETOUR RD

City CA

County GLENN

APN Book 024 Page 130 Parcel 009

Township 21 N Range 3 W Section 34

Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH / WEST / EAST / SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.**

ACTIVITY (✓)

✓ NEW WELL

MODIFICATION/REPAIR
- ___ Deepen
- ___ Other (Specify)

___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
- ___ Domestic ___ Public
- ___ Irrigation ___ Industrial

MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
ZONE	1									
0	60	12	✓				PVC F-480	2.5	SCH 80	
60	70	12		✓			PVC F-480	2.5	SCH 80	.030
70	80	12	✓				PVC F-480	2.5	SCH 80	
ZONE	2									
0	620	12/10	✓				PVC F-480	2.5	SCH 80	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	40	✓			SAND SLURRY
40	45		✓		BENTONITE C
45	100			✓	SRI#8 SAND
100	105		✓		BENTONITE C
105	135	✓			SAND SLURRY
135	560			✓	GRAVEL FILL

ATTACHMENTS (✓)

- ___ Geologic Log
- ___ Well Construction Diagram
- ___ Geophysical Log(s)
- ___ Soil/Water Chemical Analysis
- ___ Other

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

20 W. KENTUCKY AVE. WOODLAND CA 95695
ADDRESS CITY STATE ZIP

Signed Mark Damon 05/23/05 C57 A HIC - 133783
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File with DWR

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. 816224

DWR USE ONLY --- DO NOT FILL IN

21N/03W-34

STATE WELL NO./STATION NO.

LATITUDE | LONGITUDE

APN/TRS/OTHER

Owner's Well No. 7786

Date Work Began 3/7/2005, Ended 3/14/2005

Local Permit Agency GLENN COUNTY HEALTH DEPT

Permit No. IRW280-04 Permit Date 11/4/2004

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD ROTARY FLUID MUD

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain, size, color, etc.*
0	6	TOPSOIL
6	24	SAND AND SMALL GRAVEL
24	33	TAN CLAY
33	45	SANDY BROWN CLAY WITH SAND AND GRAVE
		STREAKS
45	90	SAND AND GRAVEL WITH BROWN CLAY STREA
90	145	SANDY YELLOW CLAY
145	152	SAND AND GRAVEL
152	210	SANDY YELLOW CLAY
210	333	TAN CLAY WITH SAND
333	342	SAND AND SMALL GRAVEL
342	400	TAN CLAY WITH SAND
400	440	TAN CLAY WITH SAND AND GRAVEL STREAKS
440	580	TAN CLAY WITH SAND
580	585	SAND AND GRAVEL
585	620	TAN CLAY WITH SAND
620	635	SAND AND GRAVEL
635	650	SANDY TAN CLAY
650	656	SAND AND GRAVEL
656	678	SANDY TAN CLAY
678	688	SAND AND GRAVEL
688	750	SANDY TAN CLAY
750	860	TAN CLAY
860	960	SANDY TAN CLAY WITH SAND AND GRAVEL
		STREAKS
960	1100	BROWN CLAY WITH HARD CLAY STREAKS
1100	1140	BLUE CLAY WITH SAND
1140	1170	SAND WITH BLUE CLAY STREAKS
1170	1200	BLUE CLAY WITH BRITTLE CLAY STREAKS

TOTAL DEPTH OF BORING 1020 (Feet)

TOTAL DEPTH OF COMPLETED WELL 980 (Feet)

WELL LOCATION

Address 1 MI NOF RD 33 & .4 MI WOF DETOUR RD

City CA

County GLENN

APN Book 024 Page 130 Parcel 009

Township 21 N Range 3 W Section 34

Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH

WEST

EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.**

ACTIVITY (✓)

✓ NEW WELL

MODIFICATION/REPAIR
- ___ Deepen
- ___ Other (Specify)

___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
- ___ Domestic ___ Public
- ___ Irrigation ___ Industrial

MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
620	630	10		✓			PVC F-480	2.5	SCH 80	.030
630	650	10	✓				PVC F-480	2.5	SCH 80	
650	660	10		✓			PVC F-480	2.5	SCH 80	.030
660	680	10	✓				PVC F-480	2.5	SCH 80	
680	690	10		✓			PVC F-480	2.5	SCH 80	.030
690	710	10	✓				PVC F-480	2.5	SCH 80	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
560	590	✓			SAND SLURRY
590	720			✓	SRI#8 SAND
720	900	✓			SAND SLURRY
900	1020			✓	SRI#8 SAND

ATTACHMENTS (✓)

- ___ Geologic Log
- ___ Well Construction Diagram
- ___ Geophysical Log(s)
- ___ Soil/Water Chemical Analysis
- ___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

20 W. KENTUCKY AVE. WOODLAND CA 95695
ADDRESS CITY STATE ZIP

Signed Mark Damion 05/23/05 C57 A HIC - 133783
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File with DWR
Page 3 of 6

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet
No. **816224**

DWR USE ONLY — DO NOT FILL IN
21N/03W-34
STATE WELL NO./ STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

Owner's Well No. 7786
Date Work Began 3/7/2005, Ended 3/14/2005
Local Permit Agency GLENN COUNTY HEALTH DEPT
Permit No. IRW280-04 Permit Date 11/4/2004

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD ROTARY FLUID MUD

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION (Describe material, grain, size, color, etc.)
0	6	TOPSOIL
6	24	SAND AND SMALL GRAVEL
24	33	TAN CLAY
33	45	SANDY BROWN CLAY WITH SAND AND GRAVE
		STREAKS
45	90	SAND AND GRAVEL WITH BROWN CLAY STREA
90	145	SANDY YELLOW CLAY
145	152	SAND AND GRAVEL
152	210	SANDY YELLOW CLAY
210	333	TAN CLAY WITH SAND
333	342	SAND AND SMALL GRAVEL
342	400	TAN CLAY WITH SAND
400	440	TAN CLAY WITH SAND AND GRAVEL STREAKS
440	580	TAN CLAY WITH SAND
580	585	SAND AND GRAVEL
585	620	TAN CLAY WITH SAND
620	635	SAND AND GRAVEL
635	650	SANDY TAN CLAY
650	656	SAND AND GRAVEL
656	678	SANDY TAN CLAY
678	688	SAND AND GRAVEL
688	750	SANDY TAN CLAY
750	860	TAN CLAY
860	960	SANDY TAN CLAY WITH SAND AND GRAVEL
		STREAKS
960	1100	BROWN CLAY WITH HARD CLAY STREAKS
1100	1140	BLUE CLAY WITH SAND
1140	1170	SAND WITH BLUE CLAY STREAKS
1170	1200	BLUE CLAY WITH BRITTLE CLAY STREAKS

TOTAL DEPTH OF BORING 1020 (Feet)
TOTAL DEPTH OF COMPLETED WELL 980 (Feet)

WELL LOCATION

Address .1 MI NOF RD 33 & .4 MI WOF DETOUR RD
City CA
County GLENN
APN Book 024 Page 130 Parcel 009
Township 21 N Range 3 W Section 34
Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH
WEST
EAST
SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.**

ACTIVITY (✓)

✓ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___
ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___
TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft)
** May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
ZONE	3									
0	930	12/10	✓				PVC F-480	2.5	SCH 80	
930	960	10		✓			PVC F-480	2.5	SCH 80	.030
960	980	10	✓				PVC F-480	2.5	SCH 80	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	40	✓			SAND SLURRY
40	45		✓		BENTONITE C
45	100			✓	SRI#8 SAND
100	105		✓		BENTONITE C
105	135	✓			SAND SLURRY
135	560			✓	GRAVEL FILL

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analysis
___ Other
ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.
NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
20 W. KENTUCKY AVE. WOODLAND CA 95695
ADDRESS CITY STATE ZIP
Signed Mark Damion 05/23/05 C57 A HIC - 133783
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11-97
IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File with DWR
Page 1 of 2

OCT 17 2002

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet
No. 726739, A

DWR USE ONLY — DO NOT FILL IN
21N/04W-12 M
STATE WELL NO./STATION NO.
LATITUDE | LONGITUDE
APN/TRS/OTHER

Owner's Well No. 7449
Date Work Began 8/19/2002, Ended 8/23/2002
Local Permit Agency GLENN CNTY HEALTH DEPT
Permit No. MW133-02 Permit Date 6/25/2002

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD ROTARY FLUID MUD

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain, size, color, etc.*
0	10	WELL GRADED SAND AND GRAVEL
10	20	LIGHT BROWN CLAY
20	30	LIGHT BROWN CLAY W/FINE SAND AND GRVL
30	40	WELL GRADED GRVL W/SND AND LT BRN CLY
40	50	WELL GRADED SND AND GRVL W/SOME CLY
50	60	LIGHT BROWN CLAY WITH SAND AND GRAVEL
60	70	BROWN CLAY WITH SAND AND GRAVEL
70	80	TAN CLAY
80	100	BROWN CLAY
100	110	LIGHT BROWN CLAY
110	120	LIGHT BROWN CLY W/SAND, GRAVEL, SILT
120	130	LT BRN CLY W/FINE SILTSTONE, SAND, GRVL
130	140	LT BROWN CLAY W/FINE SAND AND GRAVEL
140	160	LT BRN CLAY W/SAND, GRAVEL, SILTSTONE
160	170	SAND WITH LIGHT BROWN CLAY
170	190	SILSTONE WITH TAN CLAY AND SAND
190	200	FINE SAND WITH COARSE SAND AND TAN CLY
200	220	LT BRN CLAY W/SILTSTONE, SAND, GRAVEL
220	230	WELL GRADED SAND WITH CLAY
230	250	POORLY GRADED SAND AND GRAVEL
250	260	PPORLY GRADED SAND WITH FINE GRAVEL
260	270	POORLY GRADED SAND WITH CLAY
270	280	WELL GRADED SND W/FINE GRVL, TAN CLAY
280	300	SILSTONE WITH SAND
300	310	SILT WITH SAND AND GRAVEL
310	320	POORLY GRADED SAND WITH CLAY
320	340	WELL GRADED SAND WITH FINE GRAVEL
340	350	WELL GRADED SAND W/SILSTONE, TAN CLAY
350	360	SILT WITH SAND, GRAVEL, AND CLAY
360	400	GRAVEL WITH SILTSTONE

TOTAL DEPTH OF BORING 640 (Feet)
TOTAL DEPTH OF COMPLETED WELL 629 (Feet)

WELL LOCATION

Address SOF C/R 25 & EOF C/R D
City CA
County GLENN
APN Book 024 Page 200 Parcel 210
Township 21 N Range 4 W Section 12
Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH
WEST
EAST
SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)
✓ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)
WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___
ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___
TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)
May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
ZONE	1									
0	240	12-1/4					ACCESS TB	1		
0	247	12-1/4	✓				SCH 40	2		
247	257	12-1/4		✓			STL STEEL	2		.030
257	278	12-1/4	✓				SCH 40	2		
ZONE	2									

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	208	✓			SAND SLURRY
208	219		✓		CHIPS
219	323			✓	#8 GRD SAND
323	548	✓			SAND SLURRY
548	559		✓		CHIPS
559	640			✓	#8 GRD SAND

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analysis
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

OCT 22 2002

NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
20 W. KENTUCKY — WOODLAND — CA — 95695
ADDRESS — CITY — STATE — ZIP
Signed ___ WELL DRILLER/AUTHORIZED REPRESENTATIVE
10/01/02 DATE SIGNED
133783-C57A C-57 LICENSE NUMBER

DWR 188 REV. 11-97
IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File with DWR

Page 2 of 2

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. 726739

DWR USE ONLY — DO NOT FILL IN

STATE WELL NO./STATION NO.

LATITUDE | LONGITUDE

APN/TRS/OTHER

Owner's Well No. 7449

Date Work Began 8/19/2002, Ended 8/23/2002

Local Permit Agency GLENN CNTY HEALTH DEPT

Permit No. MW133-02 Permit Date 6/25/2002

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD ROTARY FLUID MUD

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION Describe material, grain, size, color, etc.
400	510	SILTSTONE, SAND WITH GRAVELS
510	530	COARSE SAND
530	540	GRAVEL
540	550	GRAVEL WITH COARSE SAND
550	560	SILTSTONE WITH GRAVEL AND SAND
560	570	COARSE SAND
570	580	MEDIUM GRAINED SAND
580	640	COARSE SAND AND GRAVEL

TOTAL DEPTH OF BORING 640 (Feet)

TOTAL DEPTH OF COMPLETED WELL 629 (Feet)

WELL LOCATION

Address SOF C/R 25 & EOF C/R D

City CA

County GLENN

APN Book 024 Page 200 Parcel 210

Township 21 N Range 4 W Section 12

Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH

WEST

EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL

MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)

___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial

MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

* *May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	240	12-1/4					ACCESS TB	1		
0	598	12-1/4	✓				SCH 40	2		
598	608	12-1/4		✓			STL STEEL	2		.030
608	629	12-1/4	✓				SCH 40	2		

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	208	✓			SAND SLURRY
208	219		✓		CHIPS
219	323			✓	#8 GRD SAND
323	548	✓			SAND SLURRY
548	559		✓		CHIPS
559	640			✓	#8 GRD SAND

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analysis
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

20 W. KENTUCKY — WOODLAND — CA — 95695
ADDRESS — CITY — STATE — ZIP

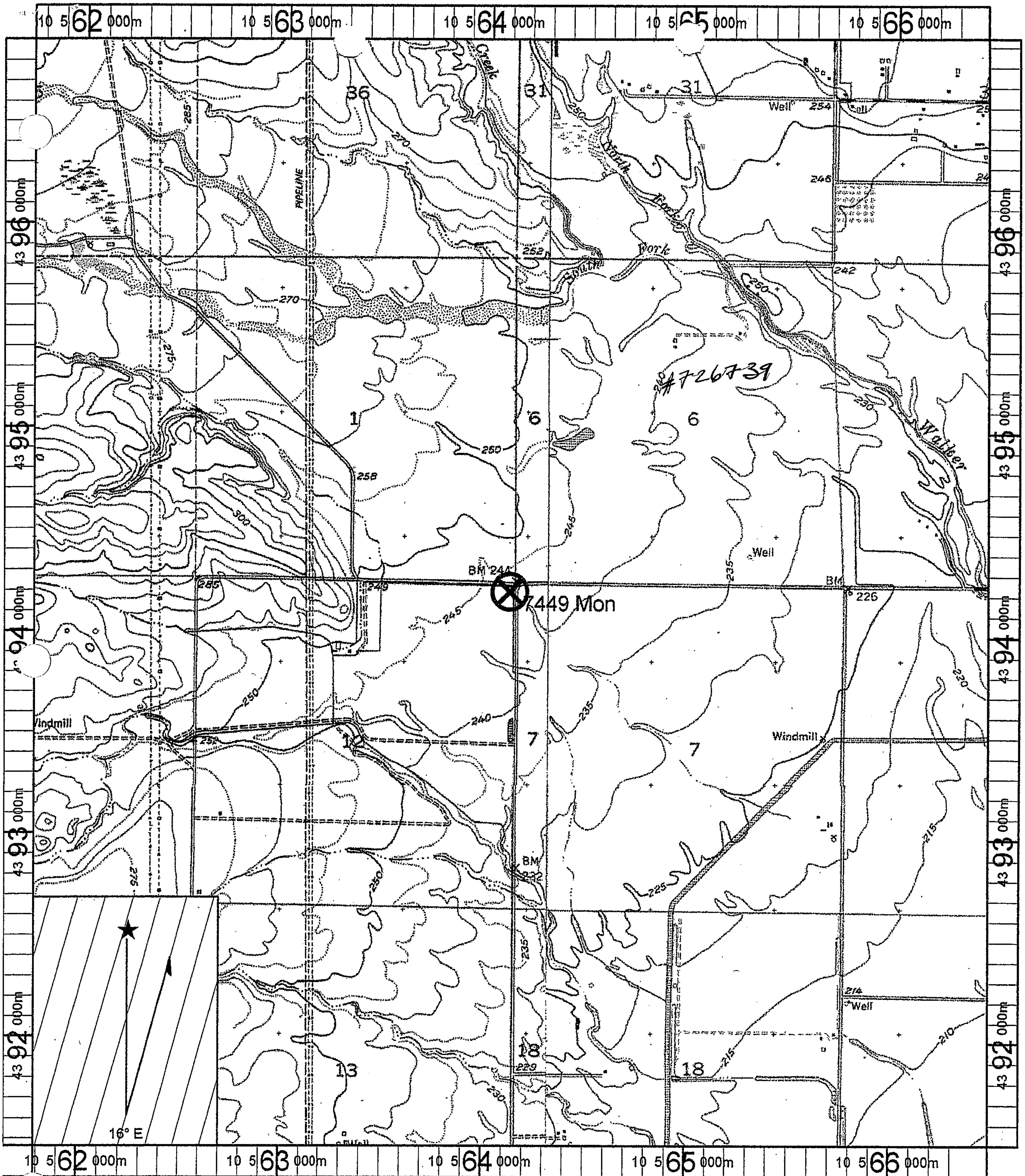
Signed [signature] WELL DRILLER/AUTHORIZED REPRESENTATIVE

10/01/02 DATE SIGNED

133783-C57A C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM



Name: FRUTO NE
Date: 6/21/2002
Scale: 1 inch equals 2000 feet

Caption: Glenn County
Job# 7449
APN: 24-200-21

ORIGINAL
File with DWR JAN 0 8 ~~2009~~ 2010

Page 1 of 3

Owner's Well No. 8434

Date Work Began 11/23/2009, Ended 12/3/2009

Local Permit Agency Glenn County Health Dept

Permit No. MW 319-09 Permit Date 11/19/2009

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. **E0103388** AB

DWR USE ONLY — DO NOT FILL IN

21N/04W-12

STATE WELL NO./ STATION NO.

LATITUDE | LONGITUDE

APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD ROTARY FLUID MUD

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain, size, color, etc.*
0	5	Top soil
5	65	Sand and gravel
65	170	Sandy brown clay
170	180	Sand and gravel
180	230	Sandy brown clay
230	260	Sand and gravel
260	275	Sandy brown clay
275	280	Sand and gravel
280	370	Sandy brown clay
370	380	Sand and gravel
380	515	Sandy blue clay
515	540	Sand with small gravel
540	650	Sandy blue clay with small gravel
650	879	Sandy blue clay
879	900	Small gravel
900	950	Sandy blue clay
950	1080	Black sand

TOTAL DEPTH OF BORING 1080 (Feet)

TOTAL DEPTH OF COMPLETED WELL 1070 (Feet)

WELL LOCATION

Address 70' Sof Road 25 & 70' Wof Road D

City CA

County GLENN

APN Book 024 Page 200 Parcel 021 (A 3-4)

Township 21 N Range 4 W Section 12

Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH

BIG Farms 'W' Replacement

WEST EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL

MODIFICATION/REPAIR
— Deepen
— Other (Specify)

— DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
— Domestic — Public
— Irrigation — Industrial

MONITORING ✓
TEST WELL —
CATHODIC PROTECTION —
HEAT EXCHANGE —
DIRECT PUSH —
INJECTION —
VAPOR EXTRACTION —
SPARGING —
REMEDIATION —
OTHER (SPECIFY) —

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
Zone	1									
0	520	10-3/4	✓				PVC	2.5	SCH 80	
520	530	10-3/4		✓			PVC	2.5	SCH 80	.030
530	590	10-3/4	✓				PVC	2.5	SCH 80	
590	600	10-3/4		✓			PVC	2.5	SCH 80	.030
600	630	10-3/4	✓				PVC	2.5	SCH 80	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	265	✓			Sand Slurry
265	285		✓		Bentonite Seal
285	480			✓	SRI#8 Sand
480	496		✓		Bentonite Seal
496	658			✓	SRI#8 Sand
658	675		✓		Bentonite Seal

ATTACHMENTS (✓)

— Geologic Log
— Well Construction Diagram
— Geophysical Log(s)
— Soil/Water Chemical Analysis
— Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

20 WEST KENTUCKY AVE WOODLAND CA 95695
ADDRESS CITY STATE ZIP

Signed Mark Damions 12/31/09 C57 A HIC - 13378
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL File with DWR JAN 0 8 2009

Page 2 of 3

Owner's Well No. 8434

Date Work Began 11/23/2009, Ended 12/3/2009

Local Permit Agency Glenn County Health Dept

Permit No. MW 319-09 Permit Date 11/19/2009

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. E0103388

DWR USE ONLY — DO NOT FILL IN

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD ROTARY FLUID MUD

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain, size, color, etc.*
0	5	Top soil
5	65	Sand and gravel
65	170	Sandy brown clay
170	180	Sand and gravel
180	230	Sandy brown clay
230	260	Sand and gravel
260	275	Sandy brown clay
275	280	Sand and gravel
280	370	Sandy brown clay
370	380	Sand and gravel
380	515	Sandy blue clay
515	540	Sand with small gravel
540	650	Sandy blue clay with small gravel
650	879	Sandy blue clay
879	900	Small gravel
900	950	Sandy blue clay
950	1080	Black sand

TOTAL DEPTH OF BORING 1080 (Feet)

TOTAL DEPTH OF COMPLETED WELL 1070 (Feet)

WELL LOCATION

Address 70' Sof Road 25 & 70' Wof Road D

City CA

County GLENN

APN Book 024 Page 200 Parcel 021

Township 21 N Range 4 W Section 12

Latitude ___ DEG. MIN. SEC. ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH

WEST EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL

MODIFICATION/REPAIR
- ___ Deepen
- ___ Other (Specify)

___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
- ___ Domestic ___ Public
- ___ Irrigation ___ Industrial

MONITORING ✓

TEST WELL ___

CATHODIC PROTECTION ___

HEAT EXCHANGE ___

DIRECT PUSH ___

INJECTION ___

VAPOR EXTRACTION ___

SPARGING ___

REMEDIATION ___

OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
630	640	10-3/4		✓			PVC	2.5	SCH 80	.030
640	660	10-3/4	✓				PVC	2.5	SCH 80	
Zone	2									
0	955	10 7/8	✓				PVC	2.5	SCH 80	
955	975	8-3/4		✓			PVC	2.5	SCH 80	.030
975	1030	8-3/4	✓				PVC	2.5	SCH 80	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
675	870			✓	SRI#8 Sand
870	911		✓		Bentonite Seal
977	1080			✓	SRI#8 Sand

ATTACHMENTS (✓)

- ___ Geologic Log
- ___ Well Construction Diagram
- ___ Geophysical Log(s)
- ___ Soil/Water Chemical Analysis
- ___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

20 WEST KENTUCKY AVE — WOODLAND — CA — 95695
ADDRESS CITY STATE ZIP

Signed ___ WELL DRILLER/AUTHORIZED REPRESENTATIVE — 12/31/09 DATE SIGNED — C57 A HIC - 13378 C-57 LICENSE NUMBER

DWR 188 REV. 11-97 IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File with DWR
Page 3 of 3

JAN 0 8 2009

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. **E0103388**

DWR USE ONLY — DO NOT FILL IN

STATE WELL NO./ STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

Owner's Well No. 8434

Date Work Began 11/23/2009, Ended 12/3/2009

Local Permit Agency Glenn County Health Dept

Permit No. MW 319-09 Permit Date 11/19/2009

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD ROTARY FLUID MUD

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION — Describe material, grain, size, color, etc.
0	5	Top soil
5	65	Sand and gravel
65	170	Sandy brown clay
170	180	Sand and gravel
180	230	Sandy brown clay
230	260	Sand and gravel
260	275	Sandy brown clay
275	280	Sand and gravel
280	370	Sandy brown clay
370	380	Sand and gravel
380	515	Sandy blue clay
515	540	Sand with small gravel
540	650	Sandy blue clay with small gravel
650	879	Sandy blue clay
879	900	Small gravel
900	950	Sandy blue clay
950	1080	Black sand

TOTAL DEPTH OF BORING 1080 (Feet)

TOTAL DEPTH OF COMPLETED WELL 1070 (Feet)

WELL LOCATION

Address 70' Sof Road 25 & 70' Wof Road D

City CA

County GLENN

APN Book 024 Page 200 Parcel 021

Township 21 N Range 4 W Section 12

Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH

WEST

EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.**

ACTIVITY (✓)

✓ NEW WELL

MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)

___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial

MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
1030	1050	8-3/4		✓			PVC	2.5	SCH 80	.030
1050	1070	8-3/4	✓				PVC	2.5	SCH 80	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analysis
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

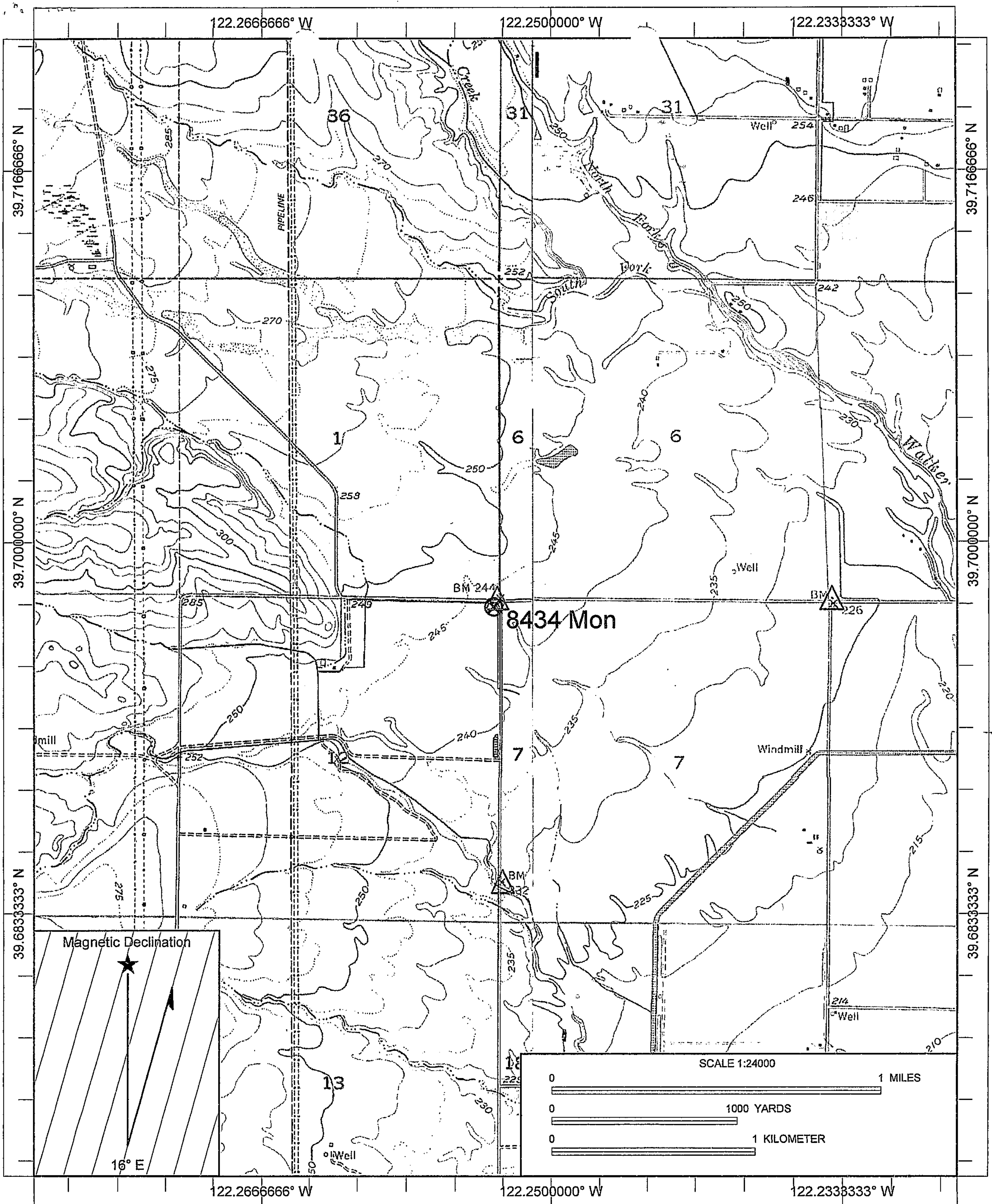
NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

20 WEST KENTUCKY AVE WOODLAND CA 95695
ADDRESS CITY STATE ZIP

Signed [signature] 12/31/09 C57 A HIC - 13378
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM



Name: FRUTO NE
Date: 11/17/2009
Scale: 1 inch equals 2000 feet

Caption: DWR (Big W) - Job# 8434 Mon
APN: 024-200-021
T21N R4W s12

ORIGINAL
File with DWR

JUN 30 2004

Page 1 of 3

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. 726922

DWR USE ONLY — DO NOT FILL IN
22N/02W-30
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

Owner's Well No. 7677 MON
Date Work Began 5/6/2004, Ended 5/14/2004
Local Permit Agency GLENN COUNTY HEALTH DEPT
Permit No. MW207-04 Permit Date 5/3/2004

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD ROTARY FLUID MUD

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain, size, color, etc.*
0	20	SAND AND GRAVEL
20	60	TAN SILTY CLAY
60	70	SAND AND GRAVEL
70	120	TAN SILTY CLAY
120	160	SAND AND GRAVEL
160	220	TAN/BROWN SILTY CLAY
220	240	MED-CRS SAND
240	260	MED-CRS SAND WITH CLAY
260	320	TAN SILTY CLAY
320	360	POORLY GRD VOLCANIC SAND
360	380	POORLY SRTD SAND IN A VOLCANIC ASHY CLY
380	400	POORLY GRD SAND AND GRAVEL
400	480	POORLY SRTD SAND AND GRAVEL W/CLAY
480	520	MED-CRS SAND WITH CLAY
520	540	POORLY GRD SAND
540	580	TAN CLAY
580	620	POORLY GRD SAND AND GRAVEL
620	640	TAN/BLUE CLAY W/POORLY GRD GRAVEL
640	660	BLUE CLAY W/POORLY GRD SAND
660	680	NED-CRS SAND W/METAMORPHIC GRAVEL
680	760	BLUE CLAY W/SAND AND GRAVEL
760	780	TAN/BROWN CLAY
780	800	DARK BLUE/GRAY CLAY W/FINE SAND
800	820	MED-CRS SAND W/BLUE CLAY
820	900	MED-CRS BLACK SAND AND GRAVEL
900	1020	TUSCAN CLAY AND ASH W/SOME FINE SAND

TOTAL DEPTH OF BORING 920 (Feet)
TOTAL DEPTH OF COMPLETED WELL 900 (Feet)

WELL LOCATION

Address 75 FT N OF C/R 18 & .9 MI E OF C/R P
City CA
County GLENN
APN Book 046 Page 310 Parcel 060
Township 22 N Range 2 W Section 30
Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH / WEST / EAST / SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.**

ACTIVITY (✓)

✓ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___
ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___
TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)
*May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
ZONE	1									
0	45	12	✓				PVC	2.5	SCH 80	
45	55	12		✓			PVC	2.5	SCH 80	.030
55	60	12	✓				PVC	2.5	SCH 80	
60	70	12		✓			PVC	2.5	SCH 80	.030
70	80	12	✓				PVC	2.5	SCH 80	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	31	✓			SAND SLURRY
31	88			✓	#8 GRD SAND
88	114	✓			SAND SLURRY
114	291			✓	#8 GRD SAND
291	307	✓			SAND SLURRY
307	725			✓	PEA GRAVEL

AUG 17 2004

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analysis
___ Other ___
ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.
NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
20 W. KENTUCKY AVE. WOODLAND CA 95695
ADDRESS CITY STATE ZIP
Signed [signature] 06/01/04 C57 A HIC - 133783
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

IGINAL
e with DWR

Page 2 of 3

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. 726922

DWR USE ONLY — DO NOT FILL IN

STATE WELL NO./ STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

Owner's Well No. 7677 MON

Date Work Began 5/6/2004, Ended 5/14/2004

Local Permit Agency GLENN COUNTY HEALTH DEPT

Permit No. MW207-04 Permit Date 5/3/2004

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD ROTARY FLUID MUD

DEPTH FROM SURFACE Ft	to Ft	DESCRIPTION Describe material, grain, size, color, etc.
0	20	SAND AND GRAVEL
20	60	TAN SILTY CLAY
60	70	SAND AND GRAVEL
70	120	TAN SILTY CLAY
120	160	SAND AND GRAVEL
160	220	TAN/BROWN SILTY CLAY
220	240	MED-CRS SAND
240	260	MED-CRS SAND WITH CLAY
260	320	TAN SILTY CLAY
320	360	POORLY GRD VOLCANIC SAND
360	380	POORLY SRTD SAND IN A VOLCANIC ASHY CLY
380	400	POORLY GRD SAND AND GRAVEL
400	480	POORLY SRTD SAND AND GRAVEL W/CLAY
480	520	MED-CRS SAND WITH CLAY
520	540	POORLY GRD SAND
540	580	TAN CLAY
580	620	POORLY GRD SAND AND GRAVEL
620	640	TAN/BLUE CLAY W/POORLY GRD GRAVEL
640	660	BLUE CLAY W/POORLY GRD SAND
660	680	NED-CRS SAND W/METAMORPHIC GRAVEL
680	760	BLUE CLAY W/SAND AND GRAVEL
760	780	TAN/BROWN CLAY
780	800	DARK BLUE/GRAY CLAY W/FINE SAND
800	820	MED-CRS SAND W/BLUE CLAY
820	900	MED-CRS BLACK SAND AND GRAVEL
900	1020	TUSCAN CLAY AND ASH W/SOME FINE SAND

TOTAL DEPTH OF BORING 920 (Feet)

TOTAL DEPTH OF COMPLETED WELL 900 (Feet)

WELL LOCATION

Address 75 FT N OF C/R 18 & .9 MI E OF C/R P

City CA

County GLENN

APN Book 046 Page 310 Parcel 060

Township 22 N Range 2 W Section 30

Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH

WEST EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.**

ACTIVITY (✓)

✓ NEW WELL

MODIFICATION/REPAIR
- ___ Deepen
- ___ Other (Specify)

___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
- ___ Domestic ___ Public
- ___ Irrigation ___ Industrial

MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

* *May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft	to Ft	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
ZONE	2									
0	130	12	✓				PVC	2.5	SCH 80	
130	140	12		✓			PVC	2.5	SCH 80	.030
140	150	12	✓				PVC	2.5	SCH 80	
150	160	12		✓			PVC	2.5	SCH 80	.030
160	250	12	✓				PVC	2.5	SCH 80	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft	to Ft	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
725	789	✓			SAND SLURRY
789	920			✓	#8 GRD SAND

AUG 17 2004

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

ORIGINAL
File with DWR

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. 726922

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./ STATION NO.
LATITUDE / LONGITUDE
APN/TRS/OTHER

Owner's Well No. 7677 MON

Date Work Began 5/6/2004, Ended 5/14/2004

Local Permit Agency GLENN COUNTY HEALTH DEPT

Permit No. MW207-04 Permit Date 5/3/2004

WELL OWNER

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD ROTARY FLUID MUD

DEPTH FROM SURFACE Ft	to Ft	DESCRIPTION Describe material, grain, size, color, etc.
0	20	SAND AND GRAVEL
20	60	TAN SILTY CLAY
60	70	SAND AND GRAVEL
70	120	TAN SILTY CLAY
120	160	SAND AND GRAVEL
160	220	TAN/BROWN SILTY CLAY
220	240	MED-CRS SAND
240	260	MED-CRS SAND WITH CLAY
260	320	TAN SILTY CLAY
320	360	POORLY GRD VOLCANIC SAND
360	380	POORLY SRTD SAND IN A VOLCANIC ASHY CLY
380	400	POORLY GRD SAND AND GRAVEL
400	480	POORLY SRTD SAND AND GRAVEL W/CLAY
480	520	MED-CRS SAND WITH CLAY
520	540	POORLY GRD SAND
540	580	TAN CLAY
580	620	POORLY GRD SAND AND GRAVEL
620	640	TAN/BLUE CLAY W/POORLY GRD GRAVEL
640	660	BLUE CLAY W/POORLY GRD SAND
660	680	NED-CRS SAND W/METAMORPHIC GRAVEL
680	760	BLUE CLAY W/SAND AND GRAVEL
760	780	TAN/BROWN CLAY
780	800	DARK BLUE/GRAY CLAY W/FINE SAND
800	820	MED-CRS SAND W/BLUE CLAY
820	900	MED-CRS BLACK SAND AND GRAVEL
900	1020	TUSCAN CLAY AND ASH W/SOME FINE SAND

TOTAL DEPTH OF BORING 920 (Feet)

TOTAL DEPTH OF COMPLETED WELL 900 (Feet)

WELL LOCATION

Address 75 FT N OF C/R 18 & .9 MI E OF C/R P

City CA

County GLENN

APN Book 046 Page 310 Parcel 060

Township 22 N Range 2 W Section 30

Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH

WEST EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.**

ACTIVITY (✓)

✓ NEW WELL

MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)

___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial

MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

* *May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft	to Ft	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
250	260	12		✓			PVC	2.5	SCH 80	.030
260	275	12	✓				PVC	2.5	SCH 80	
ZONE	3									
0	850	12/10	✓				PVC	2.5	SCH 80	.030
850	880	10		✓			PVC	2.5	SCH 80	
880	900	10	✓				PVC	2.5	SCH 80	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft	to Ft	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	31	✓			SAND SLURRY
31	88			✓	#8 GRD SAND
88	114	✓			SAND SLURRY
114	291			✓	#8 GRD SAND
291	307	✓			SAND SLURRY
307	725				PEA GRAVEL

AUG 1

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

WOODLAND CA 95695

JUN 30 2004

ORIGINAL
File with DWR

Page 1 of 3

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. 726923

DWR USE ONLY — DO NOT FILL IN
22N/03W-24
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

Owner's Well No. 7678 MON
Date Work Began 5/17/2004, Ended 5/27/2004
Local Permit Agency GLENN COUNTY HEALTH DEPT
Permit No. MW208-04 Permit Date 5/3/2004

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD ROTARY FLUID MUD

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain, size, color, etc.*
0	10	POORLY GRD SAND
10	20	SAND AND GRAVEL
20	40	GRAVEL W/CRS SAND
40	50	MED-CRS SAND W/GRAVEL
50	60	MED-CRS SAND
60	70	LARGE GRAVEL W/FINE-CRS SAND
70	80	MED-CRS SAND W/GRAVEL
80	120	TAN SILTY CLAY
120	130	TAN SILTY CLAY W/SAND AND GRAVEL
130	140	MED SAND W/SILTY TAN CLAY
140	150	MED SAND
150	250	MED-CRS SAND W/GRAVEL
250	270	TAN SILTY CLAY
270	280	TAN SILTY CLAY W/MED-CRS SAND
280	300	TAN SILTY CLAY
300	310	TAN SILTY CLAY W/MED-CRS SAND
310	320	TAN SILTY CLAY
320	340	TAN SILTY CLAY W/MED SAND
340	350	TAN SILTY CLAY W/CRS-FINE SAND AND GRVL
350	360	TAN SILTY CLAY W/MED SAND
360	380	SAND
380	410	TAN SILTY CLAY
410	420	MED SAND W/CLAY, HARD SPOT @ 420 FT
420	440	TAN SILTY CLAY W/MED-CRS SAND
440	460	TAN SILTY CLAY
460	490	MED-CRS SAND
490	520	TAN STICKY CLAY
520	540	MED SAND W/SOME GRAVEL
540	590	TAN STICKY CLAY
590	630	TAN/BLUE CLAY

TOTAL DEPTH OF BORING 860 (Feet)
TOTAL DEPTH OF COMPLETED WELL 840 (Feet)

WELL LOCATION

Address 125 FT N OF HWY 32 & 1000 FT E OF C/R N
City CA
County GLENN
APN Book 046 Page 150 Parcel 036
Township 22 N Range 3 W Section 24
Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH

WEST EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.**

ACTIVITY (✓)

✓ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___
ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___
TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)
May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
ZONE	1									
0	50	12	✓				PVC	2.5	SCH 80	
50	60	12		✓			PVC	2.5	SCH 80	.030
60	70	12	✓				PVC	2.5	SCH 80	
ZONE	2									
0	130	12	✓				PVC	2.5	SCH 80	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	30	✓			SAND SLURRY
30	80				#8 GRD SAND
80	99				CHIPS
99	225			✓	#8 GRD SAND
225	248		✓		CHIPS
248	625			✓	#8 GRD SAND

AUG 17 2004

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analysis
___ Other
ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.
NAME EATON DRILLING CO.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
20 W. KENTUCKY AVE. WOODLAND CA 95695
ADDRESS CITY STATE ZIP
Signed [signature] 06/01/04 C57 A HIC - 133783
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File with DWR

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. 726923

DWR USE ONLY — DO NOT FILL IN

STATE WELL NO./STATION NO.

LATITUDE | LONGITUDE

APN/TRS/OTHER

Owner's Well No. 7678 MON

Date Work Began 5/17/2004, Ended 5/27/2004

Local Permit Agency GLENN COUNTY HEALTH DEPT.

Permit No. MW208-04 Permit Date 5/3/2004

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD ROTARY FLUID MUD

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain, size, color, etc.*
630	640	MED SAND
640	650	BLUE CLAY W/MED-CRS SAND
650	690	BLUE CLAY
690	700	MED-CRS SAND
700	710	BLUE/TAN CLAY
710	740	MED SAND
740	800	BRITTLE BLUE CLAY
800	820	MED-CRS SAND
820	880	BRITTLE BLUE CLAY
880	900	MED SAND
900	950	BLUE CLAY
950	1020	VOLCANIC ASH AND CLAY

TOTAL DEPTH OF BORING 860 (Feet)

TOTAL DEPTH OF COMPLETED WELL 840 (Feet)

WELL LOCATION

Address 125 FT N OF HWY 32 & 1000 FT E OF C/R N

City CA

County GLENN

APN Book 046 Page 150 Parcel 036

Township 22 N Range 3 W Section 24

Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH

WEST

EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.**

ACTIVITY (✓)

✓ NEW WELL

MODIFICATION/REPAIR
— Deepen
— Other (Specify)

— DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
— Domestic — Public
— Irrigation — Industrial

MONITORING ✓
TEST WELL —
CATHODIC PROTECTION —
HEAT EXCHANGE —
DIRECT PUSH —
INJECTION —
VAPOR EXTRACTION —
SPARGING —
REMEDIATION —
OTHER (SPECIFY) —

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
130	150	12		✓			PVC	2.5	SCH 80	.030
150	170	12	✓				PVC	2.5	SCH 80	
170	180	12		✓			PVC	2.5	SCH 80	.030
180	195	12	✓				PVC	2.5	SCH 80	
ZONE	3									
0	800	12/10	✓				PVC	2.5	SCH 80	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
625	772	✓			SAND SLURRY
772	860			✓	#8 GRD SAND

AUG 17 2004

ATTACHMENTS (✓)
— Geologic Log

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

ORIGINAL
File with DWR

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. 726923

Owner's Well No. 7678 MON

Date Work Began 5/17/2004, Ended 5/27/2004

Local Permit Agency GLENN COUNTY HEALTH DEPT.

Permit No. MW208-04 Permit Date 5/3/2004

DWR USE ONLY — DO NOT FILL IN

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD ROTARY FLUID MUD

DEPTH FROM SURFACE Ft	to Ft	DESCRIPTION Describe material, grain, size, color, etc.
0	10	POORLY GRD SAND
10	20	SAND AND GRAVEL
20	40	GRAVEL W/CRS SAND
40	50	MED-CRS SAND W/GRAVEL
50	60	MED-CRS SAND
60	70	LARGE GRAVEL W/FINE-CRS SAND
70	80	MED-CRS SAND W/GRAVEL
80	120	TAN SILTY CLAY
120	130	TAN SILTY CLAY W/SAND AND GRAVEL
130	140	MED SAND W/SILTY TAN CLAY
140	150	MED SAND
150	250	MED-CRS SAND W/GRAVEL
250	270	TAN SILTY CLAY
270	280	TAN SILTY CLAY W/MED-CRS SAND
280	300	TAN SILTY CLAY
300	310	TAN SILTY CLAY W/MED-CRS SAND
310	320	TAN SILTY CLAY
320	340	TAN SILTY CLAY W/MED SAND
340	350	TAN SILTY CLAY W/CRS-FINE SAND AND GRVL
350	360	TAN SILTY CLAY W/MED SAND
360	380	SAND
380	410	TAN SILTY CLAY
410	420	MED SAND W/CLAY, HARD SPOT @ 420 FT
420	440	TAN SILTY CLAY W/MED-CRS SAND
440	460	TAN SILTY CLAY
460	490	MED-CRS SAND
490	520	TAN STICKY CLAY
520	540	MED SAND W/SOME GRAVEL
540	590	TAN STICKY CLAY
590	630	TAN/BLUE CLAY

TOTAL DEPTH OF BORING 860 (Feet)

TOTAL DEPTH OF COMPLETED WELL 840 (Feet)

WELL LOCATION

Address 125 FT N OF HWY 32 & 1000 FT E OF C/R N

City CA

County GLENN

APN Book 046 Page 150 Parcel 036

Township 22 N Range 3 W Section 24

Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH

WEST

EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL

MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)

___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial

MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

* *May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft	to Ft	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
800	820	10		✓			PVC	2.5	SCH 80	.030
820	840	10	✓				PVC	2.5	SCH 80	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft	to Ft	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	30	✓			SAND SLURRY
30	80			✓	#8 GRD SAND
80	99		✓		CHIPS
99	225			✓	#8 GRD SAND
225	248		✓		CHIPS
248	625			✓	#8 GRD SAND

AUG 17 2004

ATTACHMENTS (✓)
___ Geologic Log
___ Well Construction Diagram

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME EATON DRILLING CO.