

# Final: Drilling Techniques, Field Protocols, and Proposed Monitoring Well Locations to Support the Development of a Reliable Program for Monitoring Water Levels

## Prepared for:

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November 2022

**Final: Drilling Techniques, Field Protocols, and Proposed  
Monitoring Well Locations to Support the Development of a  
Reliable Program for Monitoring Water Levels**

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## EXECUTIVE SUMMARY

Calhoun County Groundwater Conservation District (GCD), Texana County GCD, Refugio County GCD, and Victoria County GCD (the Districts) are working together to develop and integrate their monitoring programs. The Districts have jointly funded this report to accomplish the following:

- Provide guidance and information on the drilling and construction of monitoring wells at different depths;
- Assign wells to aquifers based on the current stratigraphic data used to represent the tops and bottoms of aquifer in GMA 15,
- Provide guidance and protocols for measuring water levels;
- Establish criteria for evaluating the adequacy of well coverage;
- Investigate approaches for quantifying uncertainty using geostatistical techniques and demonstrate their application using the Districts' water level data;
- Provide suggested locations for expanding the monitoring well network.

The report is partitioned into seven sections. Section 1 introduces the reader to GMA 15, the Districts, the report objectives, and the report outline. The introduction cites several Texas statutes from the Texas Water Code (TWC) that give GCDs the responsibility, the authority, and the ability to establish and operate a monitoring well program.

Section 2 describes the three sets of stratigraphic surfaces that are relevant to hydrogeologic studies in GMA 15. These three sets of surfaces will be referred to as: (1) Groundwater Availability Model (GAM) 15, (2) GAM 15 & 16, and (3) the Texas Water Development Board (TWDB) Study. Section 2 provides a tabulation of 2,337 monitoring wells located in the four counties managed by the Districts: Victoria, Jackson, Calhoun, and Refugio counties. For each monitoring well, an aquifer assignment is made for each of the three surfaces. Where possible, the intersection between the monitoring well screen thickness and the TWDB surface is used to assign the aquifer. If no screen information is available, the total depth of the monitoring well is assumed to be representative of the longest screen interval within the monitoring well.

Section 3 presents hydrographs for the Districts' monitoring wells, provides protocols for measured water levels, and discusses an approach for flagging measured water levels that appear to be unrepresentative of aquifer conditions. The water levels in the hydrographs are marked with two types of flags. One flag type is represented by the color of the measured water level. The other flag type is represented by a "X" superimposed on the measured water level. The color of the measured water levels indicates the date that the water level measurement was taken. Based on INTERA's analysis of water levels in the Gulf Coast Aquifer, an appropriate set of dates for assessing long-term regional trends in water levels is the first four months of a year. During those four months, irrigation is either minimal or non-existent and the water levels are typically undergoing a slight rebound from higher pumping during the summer. The criterion for placing an "X" on top of a measured water level is that the difference between a measured water level and its preceding value is greater than the standard deviation for the series of measured water levels at the well. At some wells, the "X" likely represents an outlier or a bad measurement that should be evaluated for possible removal from the analysis because it may not be representative of aquifer conditions near a well.

Section 4 discusses the administrative and technical considerations for assessing the adequacy of a monitoring network. The administrative considerations were developed based on a review of TWC rules

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and management plans of the Districts, DFCs adopted by GMA 15, and the Districts' permit regulations. The technical considerations were developed based on evaluations involving the design of a well monitoring network and determining an average water level for an entire county based on measured water levels. The technical considerations were assembled from discussions with Gulf Coast GCDs, from reports / papers related to the design of District well monitoring networks, and from the technical requirements to perform an evaluation of DFCs. Among the findings in Section 4 are:

- The TWC does not require GCDs to monitor groundwater levels.
- A significant impetus for GCDs to have a monitoring network is to evaluate DFC compliance
- Neither the TCEQ nor the TWDB have provided any guidance or assistance GCD to help establish consistency in the groundwater monitoring programs among GCDs
- Geostatistical methods were determined to be more appropriate than classical statistical methods for supporting the design of monitoring well networks and interpolating measured water levels
- Out of the fourteen surveyed GCDs in GMA 16 and 15, eight GCDs had more than 20 wells and five GCDs monitored less than 10 wells in their monitoring well network.

Section 5 discusses GCD management responsibilities that are associated with monitoring water levels and overviews a geostatistical method for interpolation called kriging. TWC §36.0015 states that GCD are state's preferred method of groundwater management, and they are charged with using the best available science in the conservation and development of groundwater through rules developed, adopted, and promulgated by a district. The TWC also lists specific groundwater GCD management issues for water levels are required. These issues include: DFCs, conjunctive surface water management, pumping impacts to environmental conditions, characterization of hydrologic conditions, and developing water balances for aquifers. Without a knowledge of the uncertainty associated with analyses used to manage groundwater production, GCDs may not be in the ideal position for making a well-informed decision. The report discusses three approaches that are commonly used to estimate uncertainty associated with kriging. Kriging is the interpolation method used by the Districts to assess their DFC compliance using measured water levels from 2000 to 2021. These three approaches are: calculating the kriged variance, performing cross-validation, and generating Sequential Gaussian Simulations (SGS). The reports apply these three methods to calculate measures of uncertainty associated with the analyses of the 2021 measured water levels. Results from the SGS show that the results from Kriging with residuals produces significantly less uncertainty than the results with Kriging with water levels.

Section 6 discusses the considerations for expanding the size of the monitoring well network and identifies candidate locations for new monitoring wells. Among the GCDs management responsibilities related to monitoring water levels is evaluating compliance to the GCD's DFC. The importance of evaluating DFC compliance was echoed in the responses from a Groundwater Advisory Committee (GWAC) that was created by VCGCD. Section 6 proposes new candidate well locations for each of the four GCDs' monitoring well network. Each new well location is associated with a level of relative importance. **Table ES-1** provides a brief explanation of the three levels. Level 1 is the highest priority. Level 3 is the lowest priority and Level 2 is an intermediate priority.



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Table ES-1 Description of the Three Monitoring Levels that are Assigned to Proposed Areas for Expansion of the Monitoring Network

Monitoring Level		Purpose
Level 1	Highest Priority	Fill in gaps in well coverage to support geostatistical analysis that produce continuous water level surfaces that can be used to estimate temporal changes in water levels and flow directions and to check DFC compliance.
Level 2	Intermediate Priority	Obtain access to a former rig supply well that is located in an area where a Group 2 well may not be accessible or where monitoring a rig supply well would be preferred over a Group 2 well. In some cases, to monitor an area where no wells are in the current monitoring well network.
Level 3	Low Priority	Provide the opportunity to monitor groundwater -surface water interaction by measuring water level in a shallow groundwater well located in the vicinity of a stream gauge.

Table ES-2 lists the number of wells that have been previously used to monitor water levels and the number of proposed new locations for monitoring wells by county and by aquifer. The existing monitoring wells are comprised of two well groups: Group 1 and Group 2. Group 1 wells have been monitored since 2016. Group 2 wells have been monitored between 2000 and 2016. The proposed new well locations are designated by the monitoring areas associated with priorities levels 1 to 3. For each of the monitoring areas, a list of possible wells in the TWDB Submitted Drillers Reports (DSR) are tabulated for consideration by the District.

Table ES-2 Distribution of Existing and Proposed New Well Location for the Monitoring Network for Calhoun, Jackson, Refugio, and Victoria Counties

County	Aquifer	Existing Wells		Proposed New Well Locations (SDR)			Total	
		Group 1	Group 2	Level 1	Level 2	Level 3	Existing	Proposed
Calhoun	CH	11	9	4	3	1	20	8
	EV	0	0	0	0	0	0	0
Jackson	CH	58	22	3	4	3	80	10
	EV	5	3	5	0	0	8	5
Refugio	CH	13	14	4	3	0	27	7
	EV	2	7	3	2	0	9	5
Victoria	CH	39	45	2	2	2	84	5
	EV	16	26	5	3	2	42	10
Total	CH	121	90	12	12	6	211	30
	EV	23	36	13	5	2	59	20

Section 7 provides guidelines for the design of three types of monitoring wells that may be installed by a GCD in the Gulf Coast Aquifer System. The three types are:

1. A well constructed from PVC that terminates between 100 and 800 feet below ground service.
2. A well constructed from steel that terminates between 800 and 1,500 feet below ground surface.

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3. A well that terminates between 500 and 2,000 feet below ground surface that was constructed by converting an abandoned oil & gas well.

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## ACROYNMS AND ABBREVIATIONS

BEG	Bureau of Economic Geology
BRACs	Brackish Resource Aquifer Characterization System
CCGCD	Calhoun County GCD
DFCs	Desired Future Conditions
EPA	US Environmental Protection Agency
GAM	Groundwater Availability Model
GBDS	Gulf Basin Depositional Synthesis Project
GCDs	Groundwater Conservation Districts
GMA	Groundwater Management Area
GWAC	Groundwater Advisory Committee
H&SP	Health and Safety Plan
HPWD	High Plains Water District
RGCD	Refugio GCD
RRC	Railroad Commission of Texas
SDRs	submitted driller reports
SGS	sequential gaussian simulation
SWAP	Source Water Assessment and Protection
TCEQ	Texas Commission on Environmental Quality
TGCD	Texana GCD
TWC	Texas Water Code
TWDB	Texas Water Development Board
USGS	United States Geological Survey
VCGCD	Victoria County GCD

## **1.0 INTRODUCTION**

### **1.1 Background**

The Texas Water Code (TWC) §36.0015 states that Groundwater Conservation Districts (GCDs) are the state's preferred method of groundwater management and that they are charged with the responsibility to use the best available science in the conservation and development of groundwater. Among the responsibilities that the TWC provides GCDs is establishing Desired Future Conditions (DFCs) for aquifers with due considerations for pumping impacts on aquifer hydrologic conditions, on the water balance and on groundwater exchange within and between aquifers, on groundwater – surface water interactions, and on land subsidence. All of the GCDs that manage the Gulf Coast Aquifer have DFCs that are based on changes in water levels over time. To support the GCDs' ability to monitor the aquifer conditions, the TWC authorizes GCDs to collect any information deemed necessary to accomplish their missions and to enter private or public land to collect hydrogeologic data and perform tests as they deemed necessary.

Despite the importance of monitoring water levels to the management and stewardship of groundwater resources, there is no general guidance provided by the Texas Water Development Board (TWDB) or the Texas Commission on Environmental Quality (TCEQ) for designing and implementation a groundwater monitoring program to support compliance evaluation of DFCs. In addition, the Texas Alliance of Groundwater Districts has not developed guidelines to assist GCDs with the collection and analysis of monitoring data. The lack of guidance with monitoring groundwater has resulted in GCDs located within the same Groundwater Management Areas (GMAs) having different approaches with collecting and analyzing water level data to evaluate DFC compliance.

Most of the GCDs in the GMA 15 have a commitment in their Monitoring Plan to maintaining a monitoring program and to use measured water levels to check DFC compliance. Four of these GCDs are working together to coordinate their monitoring programs. These four GCDs are Calhoun County GCD, Texana County GCD, Refugio County GCD, and Victoria County GCD. These four districts will be collectively referred to as the Districts throughout the report.

### **1.2 Report Objectives**

The report expands on two studies (Young and others, 2021; Young, 2022) recently completed by the Districts that applied geostatistical techniques to analyze measured water levels from 2000 to 2021 to determine DFC compliance.

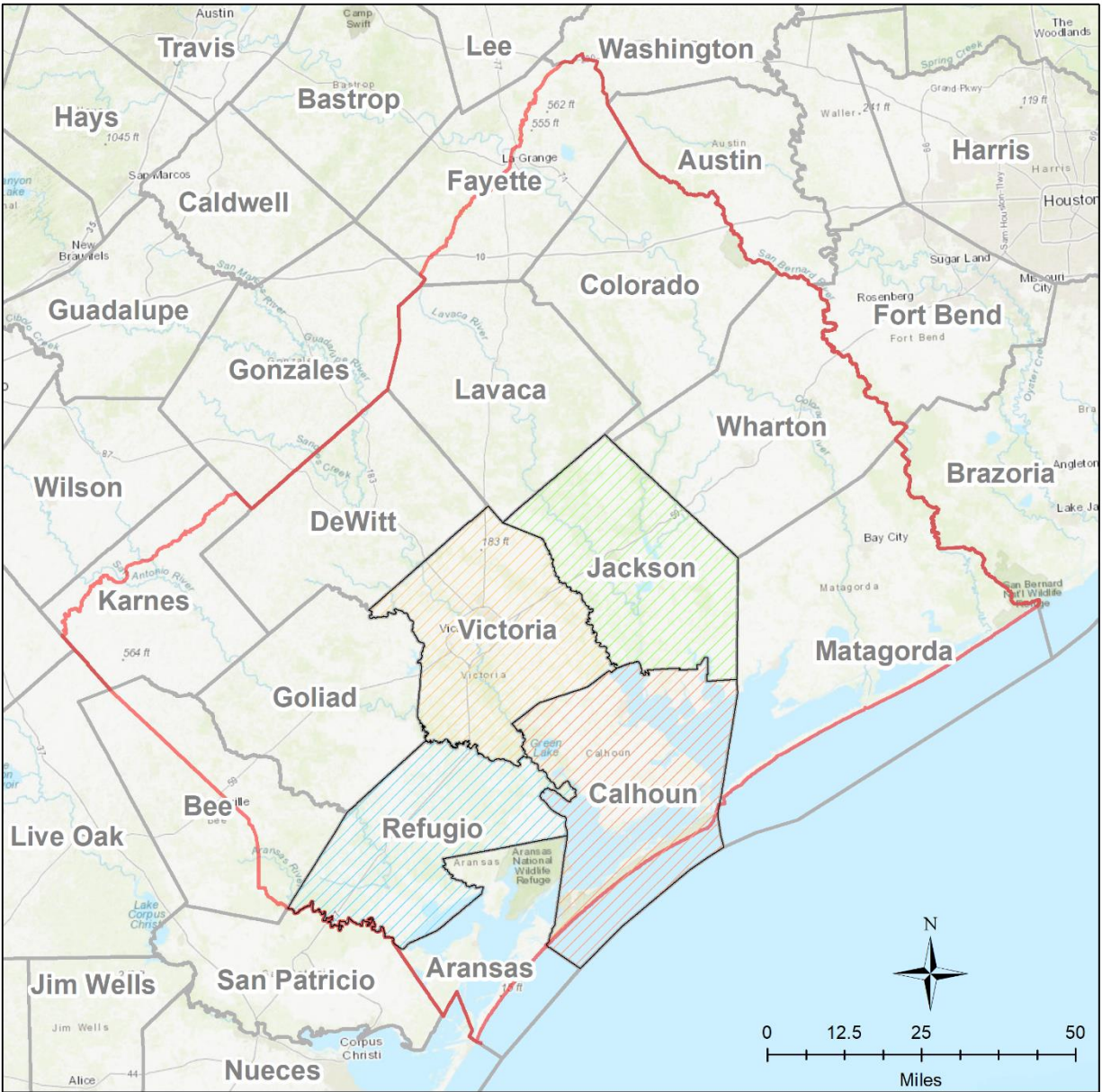
The report's specific objective is to provide approaches, guidance, and protocols for the Districts' consideration for installing monitoring wells, assigning wells to aquifers, measuring water levels, establishing criteria for evaluating the adequacy of well coverage, investigating the quantifying uncertainty using geostatistical techniques, and expanding the monitoring well network.

### 1.3 Report Outline

The report consists of eight sections including Section 1, which is the introduction. Each section addresses a specific aspect of groundwater monitoring. The sections are organized and aligned with the project tasks outlined in an INTERA proposal for the work. Although there are some interconnections among the sections, each section can be read independently of each other. Listed below is a summary of the report sections 2 through 8.

- Section 2 describes three different sets of stratigraphic surfaces being used to delineate the tops and bottoms of the Gulf Coast Aquifer System in GMA 15
- Section 3 presents hydrographs for the Districts' monitoring wells, provides protocols for measured water levels, and discusses an approach for flagging measured water levels that appear to be unrepresentative of aquifer conditions
- Section 4 discusses the administrative and technical considerations for assessing the adequacy of a monitoring network.
- Section 5 discusses GCD management responsibilities that are associated with monitoring water levels, provides an overview of geostatistical method for interpolation called kriging, and three approaches that are commonly used to estimate uncertainty associated with kriging: the kriged variance, performing cross-validation, and sequential Gaussian simulations
- Section 6 discusses the considerations for expanding the size of the monitoring well network and identifies candidate locations for new monitoring wells.
- Section 7 provides guidelines for the design of monitoring wells for the Gulf Coast Aquifer System.
- Section 8 lists the cited references.

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**GMA 15 & GCD Areas**







-  Calhoun County GCD
-  Refugio County GCD
-  Texana GCD
-  Victoria County GCD
-  GMA 15
-  County Line

Figure 1-1 Location of Calhoun County GCD, Texana GCD, Refugio County GCD, and Victoria County GCD

## 2.0 ASSIGNMENT OF AQUIFERS TO WATER WELLS RECORDED IN THE DISTRICT'S DATABASE

### 2.1 Background

There are currently three sets of stratigraphic surfaces that are relevant to hydrogeologic studies in GMA 15. These three sets of surfaces will be referred to as: (1) Groundwater Availability Model (GAM) 15, (2) GAM 15 & 16, and 3) the TWDB Study. A brief description of these three sets of surfaces can be found in **Sections 2.1, 2.2, and 2.3**, respectively.

Appendix 2A is a tabulation of 2,337 monitoring wells located in Victoria, Jackson, Calhoun, and Refugio counties. The tabulation includes well construction specifications and aquifer assignments for the three stratigraphic data sets discussed below. The aquifer assignments are based on the bottom of the well unless the depth to top and bottom of screen is available. The aquifer assignment indicates which Gulf Coast aquifer the well screen intersects.

**Figures 2-1 through 2-11** visualize the aquifer assignments in Appendix 2A along with aquifer assignments associated with wells in other counties in GMA 15. All the wells shown in the figures were used in the water level analysis discussed by Young and others (2021). Figures 2-1 to 2-3 show the aquifer assignments for wells based on the three different stratigraphic data sets for 13 counties in GMA 15. Figures 2-5 to 2-7 show the same data in Figures 2-1 to 2-3 but for only four counties: Victoria, Jackson, Calhoun, and Refugio. Figures 2-4 and 2-8 show the formation assignments for the wells based on the TWDB study. The stratigraphic surfaces generated by the TWDB study included the formations that comprise the Chicot, Evangeline, and Jasper aquifers. Figures 2-9 to **2-12** show the locations of wells where different aquifer assignments occur among the three stratigraphic data sets.

### 2.2 Aquifer Assignments using the GMA 15 Stratigraphic Surfaces

The GMA 15 Groundwater Availability Model (GAM) data set refers to the tops and bottoms of the aquifers in the central Gulf Coast GAM (Chowdhury and others, 2004) that is currently the official GAM for GMA 15. The aquifer surfaces are based largely on the Source Water Assessment and Protection (SWAP) stratigraphic studies conducted in the 1970s and 1980s but not documented until the 2003 (Strom and others, 2003a, b, c). The primary source of data used to construct the SWAP surfaces consists of digitized points taken from the surface contours for the Chicot and Evangeline aquifers found in Carr and others (1985). Carr and others (1985) do not provide control points for these contours, nor do they explain the method used to develop the contours. Thus, the uncertainty associated with the original contours is largely unknown. In developing its SWAP data set, the United States Geological Survey (USGS) blended the information from Carr et al. (1985) with information from Jorgensen (1975), Baker (1979, 1986), and geologic outcrops mapped on the Texas Bureau of Economic Geology's (BEG's) GAT (Geological Atlas of Texas) sheets.

INTERA used the available information from 2,802 monitoring wells that span the 13 counties in GMA 15 to assign aquifers based on the GMA 15 stratigraphic surfaces. Where possible, the intersection between the monitoring well screen thickness and the GMA 15 surface is used to assign the aquifer. If no screen information is available, the total depth of the monitoring well is assumed to be

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representative of the longest screen interval within the monitoring well. If neither screen interval nor depth information is available, the monitoring well aquifer assignment cannot be determined and its default assignment is “Deep” (Figure 2-1).

Figure 2-1 shows the GMA 15 aquifer assignments on the GMA 15 monitoring well network. Based on the GMA 15 surfaces, most of the monitoring wells with aquifer assignments within the GMA 15 area (n = 2163) represent the Chicot Aquifer (n = 1163; 54%). The Evangeline Aquifer makes up 43% (n = 929) of the monitoring well network, the Burkeville makes up 1% (n = 19), and the Jasper makes up 2% (n = 52).

Figure 2-5 shows the same GMA 15 aquifer assignments but is focused on four counties within GMA 15: Victoria, Jackson, Calhoun, and Refugio. Based on the GMA 15 surfaces, most of the monitoring wells with aquifer assignments within these four counties (n = 1641) represent the Chicot Aquifer (n = 980; 60%). The Evangeline Aquifer makes up 40% (n = 657) of the monitoring well network.

### **2.3 Aquifer Assignments using the GMA 15 & 16 Stratigraphic Surfaces**

The GMAs 15 & 16 GAM data set refers to the tops and bottoms of the aquifers in the central Gulf Coast GAM (Shi and Boghici, 2022 ) that was developed for use by the GMA 15 and 16. The draft for the GMAs 15 & 16 GAM was completed in April 25, 2022 and neither have been adopted nor finalized by the TWDB. The surfaces for the GMAs 15 & 16 GAM were created by integrating the geophysical data from three studies: (1) Hydrostratigraphy of the Gulf Coast – Brazos to the Rio Grande (Young and others, 2010); (2) Brackish Resource Aquifer Characterization System (BRACs) database (TWDB, 2018); and (3) Hydrogeologic Framework for Northern Gulf Coast Aquifer (Young and others, 2012).

INTERA used the available information from 2802 monitoring wells that span the 13 counties in GMA 15 to assign aquifers based on the GMA 15 & 16 stratigraphic surfaces. Where possible, the intersection between the monitoring well screen thickness and the GMA 15 & 16 surface is used to assign the aquifer. If no screen information is available, the total depth of the monitoring well is assumed to be representative of the longest screen interval within the monitoring well. If neither screen interval nor depth information is available, the monitoring well aquifer assignment cannot be determined and its default assignment is “Deep” (Figure 2-2).

Figure 2-2 shows the GMAs 15 & 16 aquifer assignments on the GMA 15 monitoring well network. Based on the GMAs 15 & 16 surfaces, most of the monitoring wells with aquifer assignments within the GMA 15 area (n = 2170) represent the Chicot Aquifer (n = 1281; 59%). The Evangeline Aquifer makes up 37% (n = 801) of the monitoring well network, the Burkeville makes up 1% (n = 16), and the Jasper makes up 3% (n = 72).

Figure 2-6 shows the same GMAs 15 & 16 aquifer assignments but is focused on four counties within GMA 15: Victoria, Jackson, Calhoun, and Refugio. Based on the GMA 15 surfaces, most of the monitoring wells with aquifer assignments within these four counties (n = 1641) represent the Chicot Aquifer (n = 1105; 67%). The Evangeline Aquifer makes up 33% (n = 535) of the monitoring well network.

## 2.4 Aquifer Assignments using the TWDB Stratigraphic Surfaces

The TWDB Aquifer data set refers to the tops and bottoms of the aquifers developed by Young and others (2010; 2012). Among the reasons for the TWDB study was to generate a defensible set of stratigraphic surfaces that are based on the analysis of geophysical logs using state-of-the-practice based on sequence stratigraphy and chronostratigraphic correlations. The framework for the geophysical analysis is rooted in the Gulf Basin Depositional Synthesis Project (GBDS). The GBDS project was generated by the BEG and funded by a consortium of petroleum companies to characterize the Cenozoic depositional history of the Gulf of Mexico Basin. Among the key papers that explains some of these concepts and methods are Galloway (1989), Galloway and others (2000), and Galloway (2005).

INTERA used the available information from 2802 monitoring wells that span the 13 counties in GMA 15 to assign aquifers based on the TWDB stratigraphic surfaces. Where possible, the intersection between the monitoring well screen thickness and the TWDB surface is used to assign the aquifer. If no screen information is available, the total depth of the monitoring well is assumed to be representative of the longest screen interval within the monitoring well. If neither screen interval nor depth information is available, the monitoring well aquifer assignment cannot be determined and its default assignment is "Deep" (Figure 2-3).

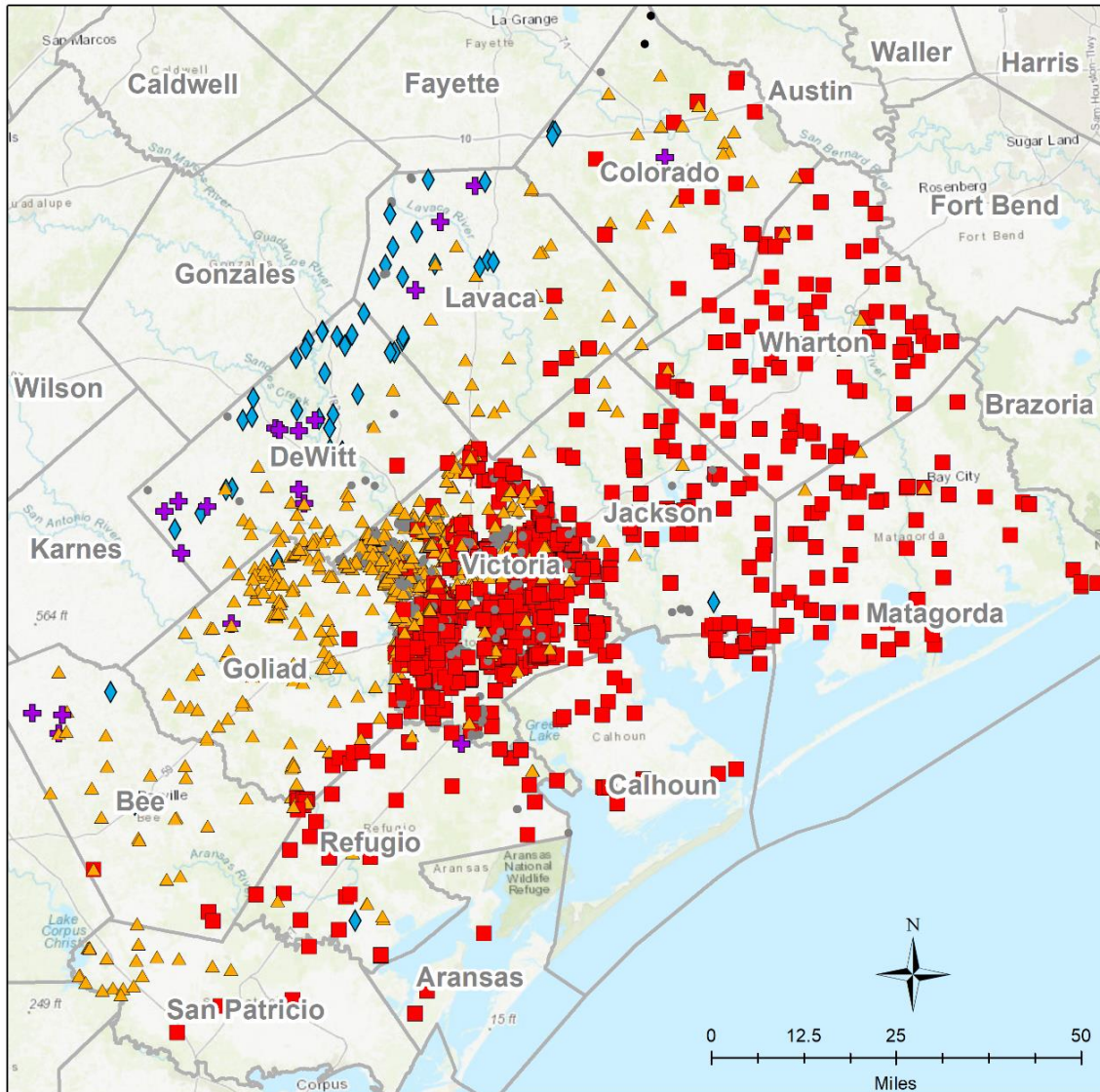
Figure 2-3 shows the TWDB aquifer assignments on the GMA 15 monitoring well network. Based on the TWDB surfaces, 62% of the monitoring wells within the GMA 15 area (n = 2162) that were assigned to the Chicot Aquifer (n = 1346). The Evangeline Aquifer makes up 33% (n = 724) of the monitoring well network, the Burkeville makes up 1% (n = 24), and the Jasper makes up 3% (n = 68).

The TWDB stratigraphic surfaces paired with the GMA 15 monitoring wells are further depicted by the geologic formations that make up each of the four aquifers (Figure 2. 2.4). The Beaumont (n = 262), Lissie (n = 783), and Willis (n = 301) formations make up the Chicot Aquifer. The Upper Goliad (n = 534), Lower Goliad (n = 89), and Upper Lagarto (n = 101) formations make up the Evangeline Aquifer. The Middle Lagarto (n = 24) formation represents the Burkeville Aquifer. The Lower Lagarto (n = 31) and Oakville (n = 37) formations make up the Jasper Aquifer.

Figure 2-7 shows the same TWDB aquifer assignments but is focused on four counties within GMA 15: Victoria, Jackson, Calhoun, and Refugio. Based on the TWDB surfaces, most of the monitoring wells with aquifer assignments within these four counties (n = 1641) represent the Chicot Aquifer (n = 1170; 71%). The Evangeline Aquifer makes up 29% (n = 470) of the monitoring well network.



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**GMA15 Aquifer**      □ County Line

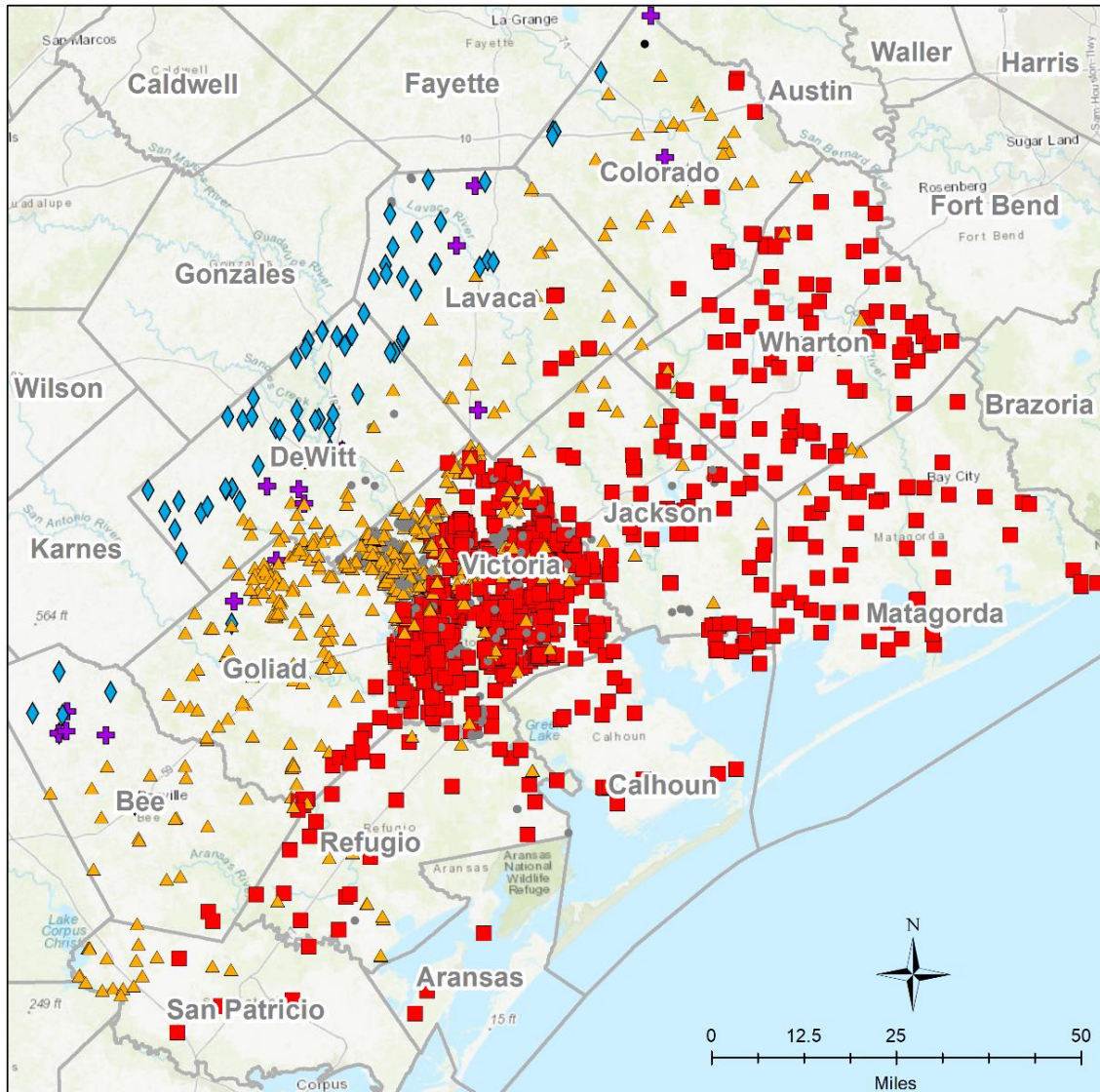
- Shallow (2)
- Deep (637)
- ◆ Jasper (52)
- ✚ Burkeville (19)
- ▲ Evangeline (929)
- Chicot (1,163)

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Figure 2-1      Aquifer assignments based on the stratigraphy from the Groundwater Available Model developed for GMA 15 (Chowdhury and others, 2004) for 13 counties. The Deep assignment includes wells with no depth information. The Shallow assignment includes well locations outside of the Gulf Coast Aquifer System footprint.



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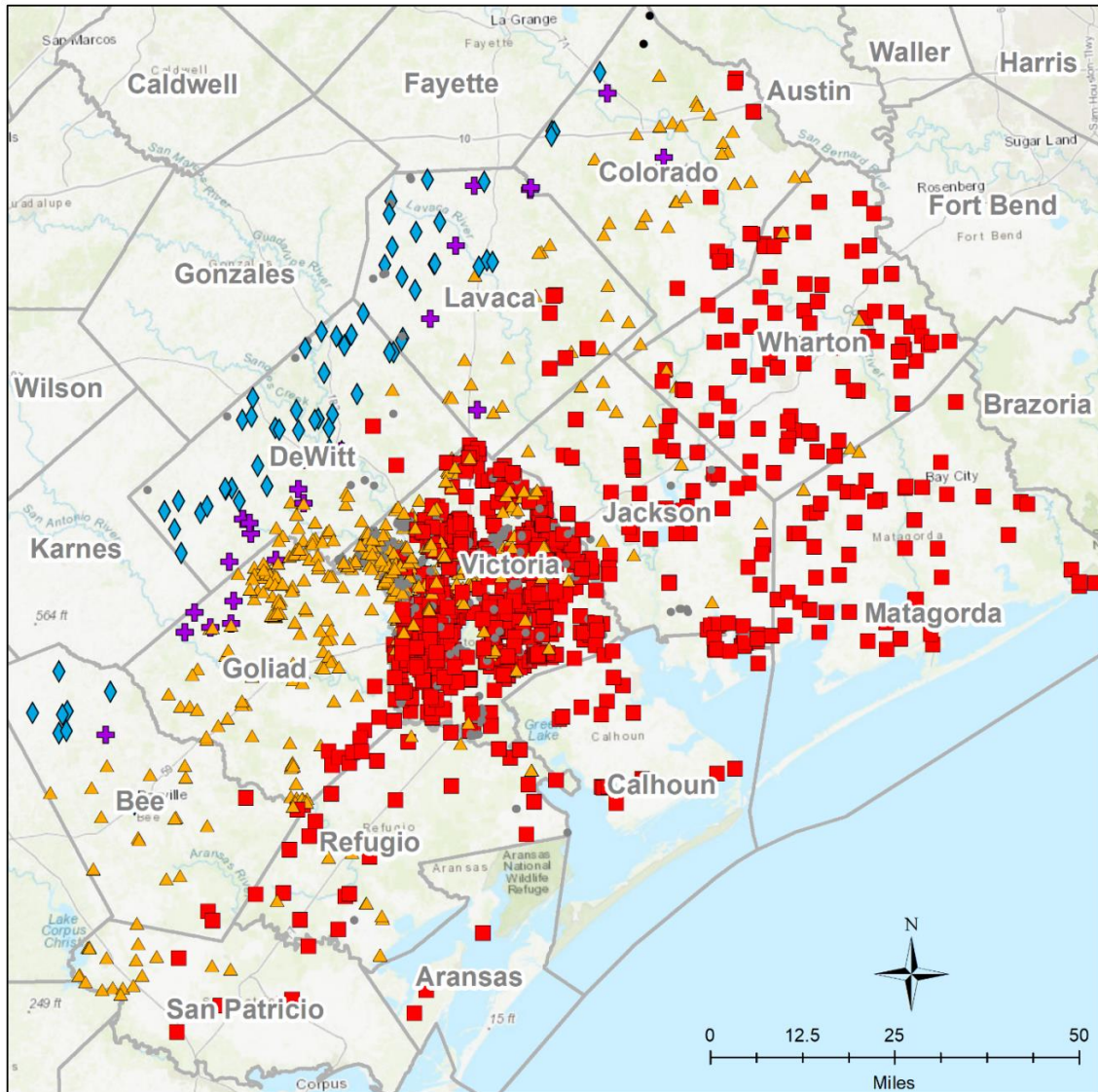
**GMA 15 & 16 Aquifer** □ County Line

- Shallow (1)
- Deep (631)
- ◆ Jasper (72)
- ✚ Burkeville (16)
- ▲ Evangeline (801)
- Chicot (1,281)

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Figure 2-2 Aquifer assignments based on the stratigraphy from the Groundwater Available Model developed for GMA 15 & 16 (Shi and Boghici, 2022) for 13 counties. The Deep assignment includes wells with no depth information. The Shallow assignment includes well locations outside of the Gulf Coast Aquifer System footprint.

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**TWDB Aquifer**       County Line

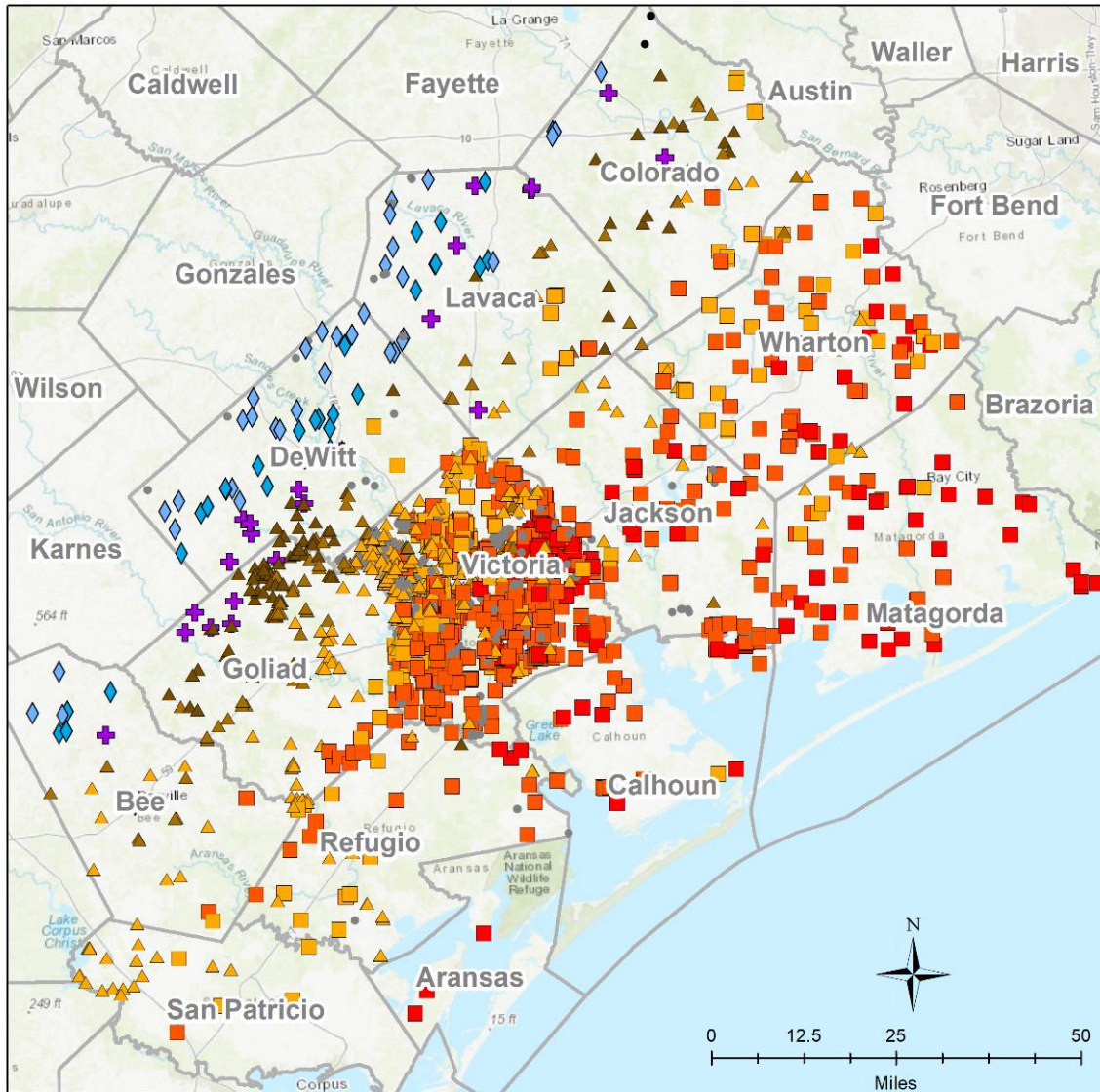
- Shallow (2)
- Deep (638)
- ◆ Jasper (68)
- ✚ Burkeville (24)
- ▲ Evangeline (724)
- Chicot (1,346)

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Figure 2-3      Aquifer assignments based on the stratigraphy from the TWDB Study for the Northern Gulf Coast System (Young and others, 2012) for 13 counties. The Deep assignment includes wells with no depth information. The Shallow assignment includes well locations outside of the Gulf Coast Aquifer System footprint.



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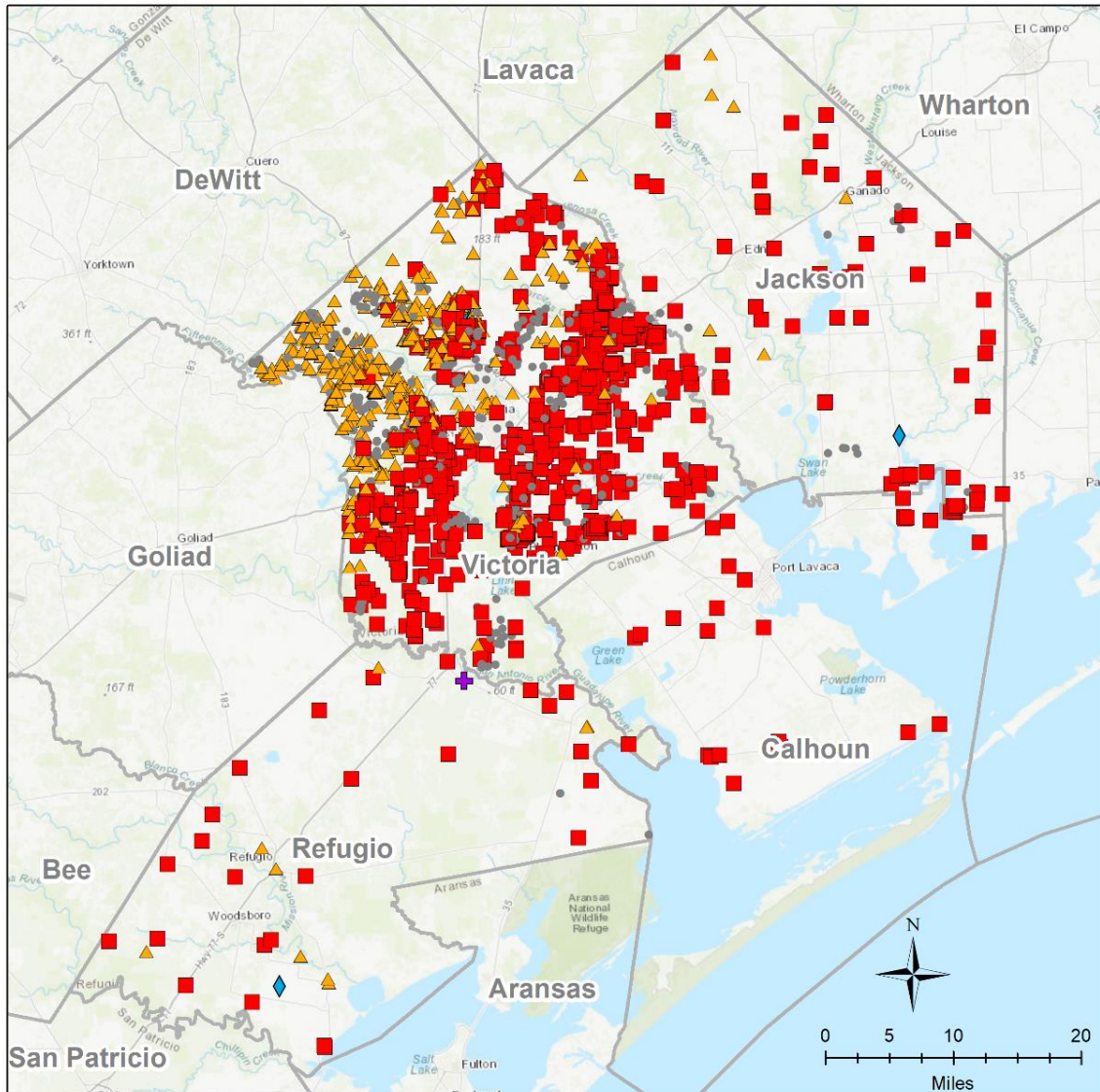


<b>TWDB Formation</b>	▲ Upper Lagarto (101)	□ County Line
• Shallow (2)	▲ Lower Goliad (89)	
• Deep (638)	▲ Upper Goliad (534)	
◆ Oakville (37)	■ Willis (301)	
◆ Lower Lagarto (31)	■ Lissie (783)	
✚ Middle Lagarto (24)	■ Beaumont (262)	

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Figure 2-4 Formation assignments based on the stratigraphy from the TWDB Study for the Northern Gulf Coast System (Young and others, 2012) for 13 counties. The Deep assignment includes wells with no depth information. The Shallow assignment includes well locations outside of the Gulf Coast Aquifer System footprint.

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**GMA15 Aquifer**       County Line

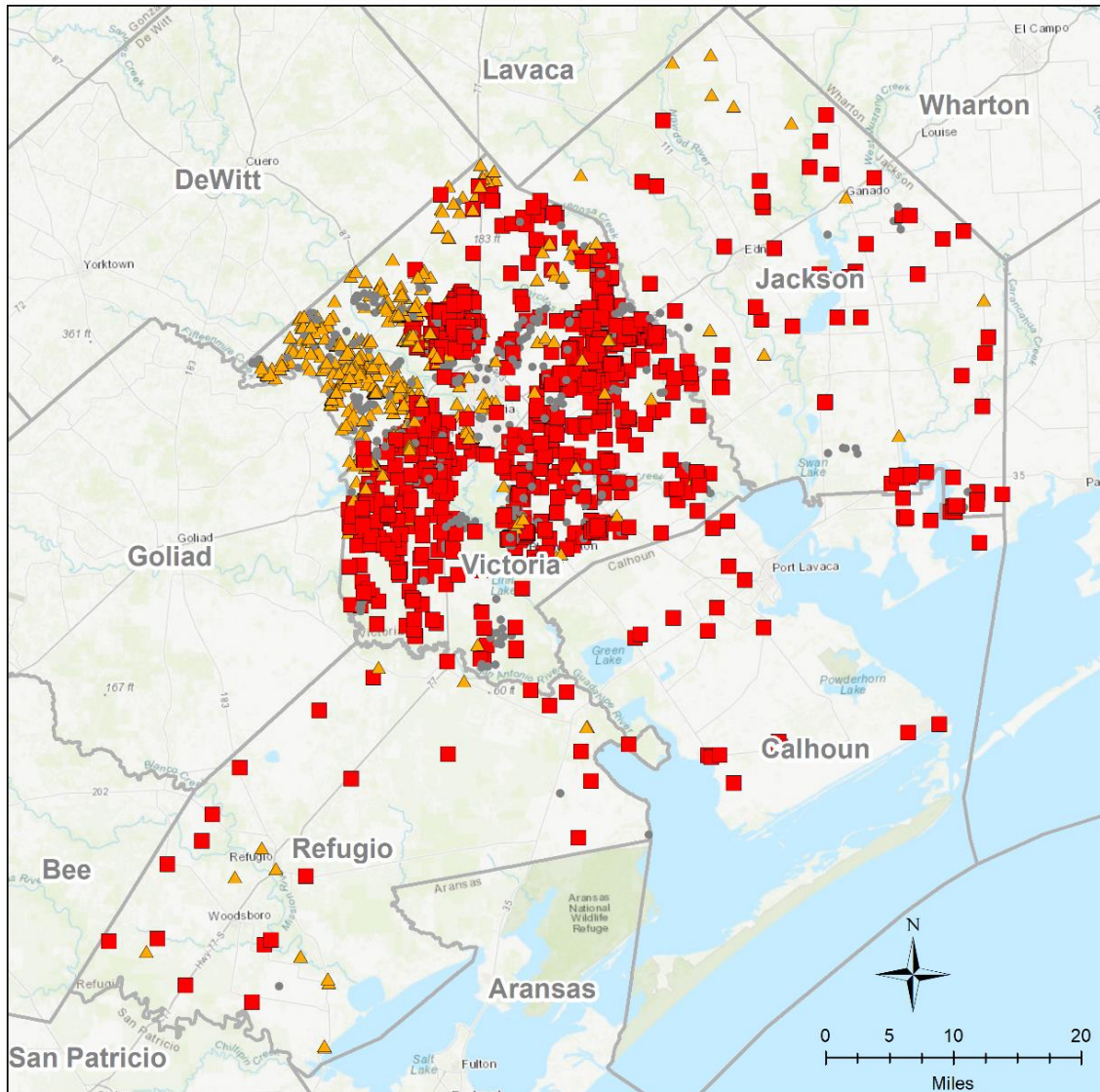
- Shallow (0)
- Deep (618)
- ◆ Jasper (3)
- ✚ Burkeville (1)
- ▲ Evangeline (657)
- Chicot (980)

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Figure 2-5      Aquifer assignments based on the stratigraphy from the Groundwater Available Model developed for GMA 15 (Chowdhury and others, 2004 ) for 4 counties. The Deep assignment includes wells with no depth information. The Shallow assignment includes well locations outside of the Gulf Coast Aquifer System footprint.



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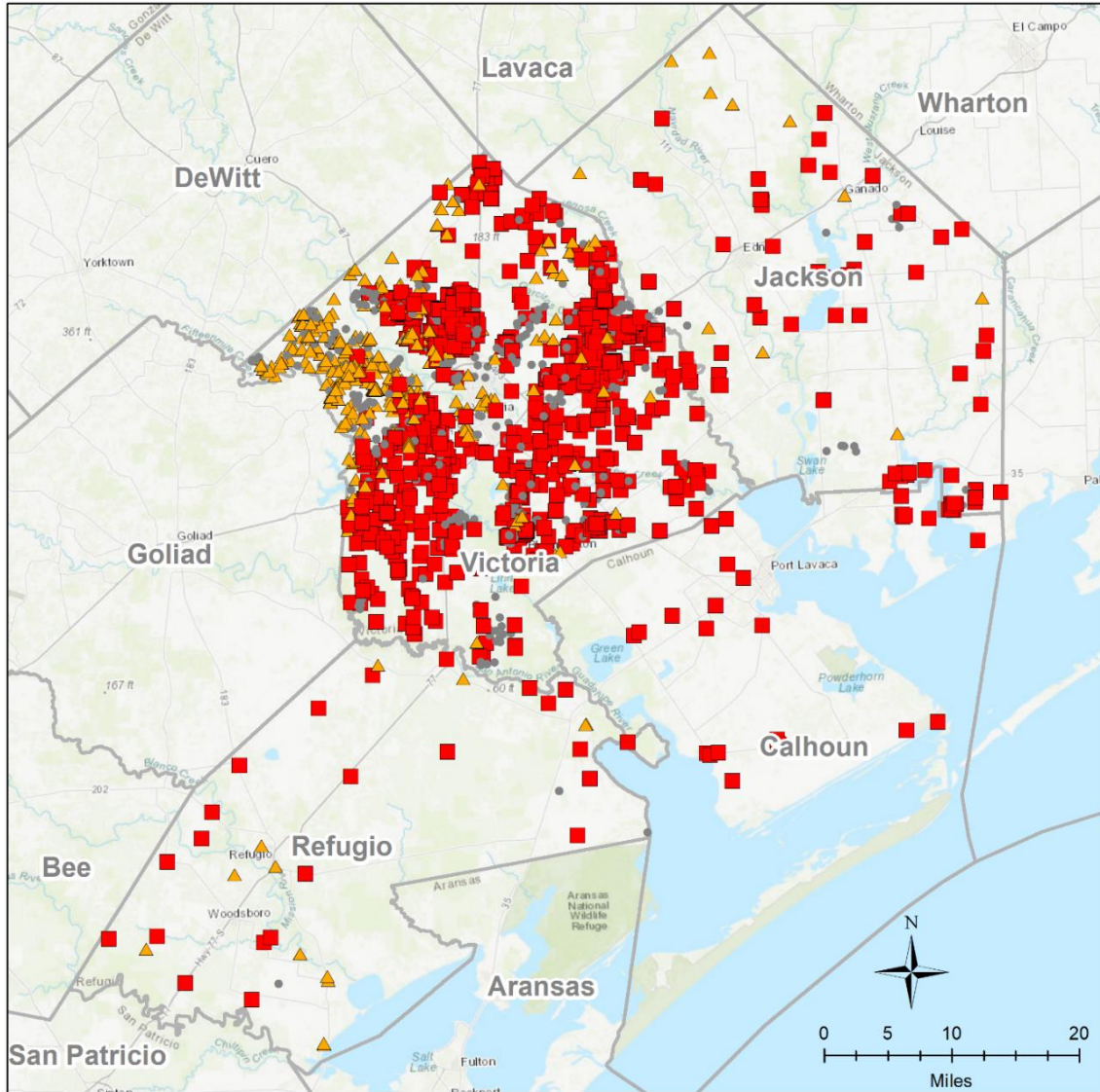
**GMA 15 & 16 Aquifer**  County Line

- Shallow (0)
- Deep (618)
- ◆ Jasper (1)
- ✚ Burkeville (0)
- ▲ Evangeline (535)
- Chicot (1,105)

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Figure 2-6 Aquifer assignments based on the stratigraphy from the Groundwater Available Model developed for GMA 15 & 16 (Shi and Boghici, 2022) for 4 counties. The Deep assignment includes wells with no depth information. The Shallow assignment includes well locations outside of the Gulf Coast Aquifer System footprint.

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**TWDB Aquifer**       County Line

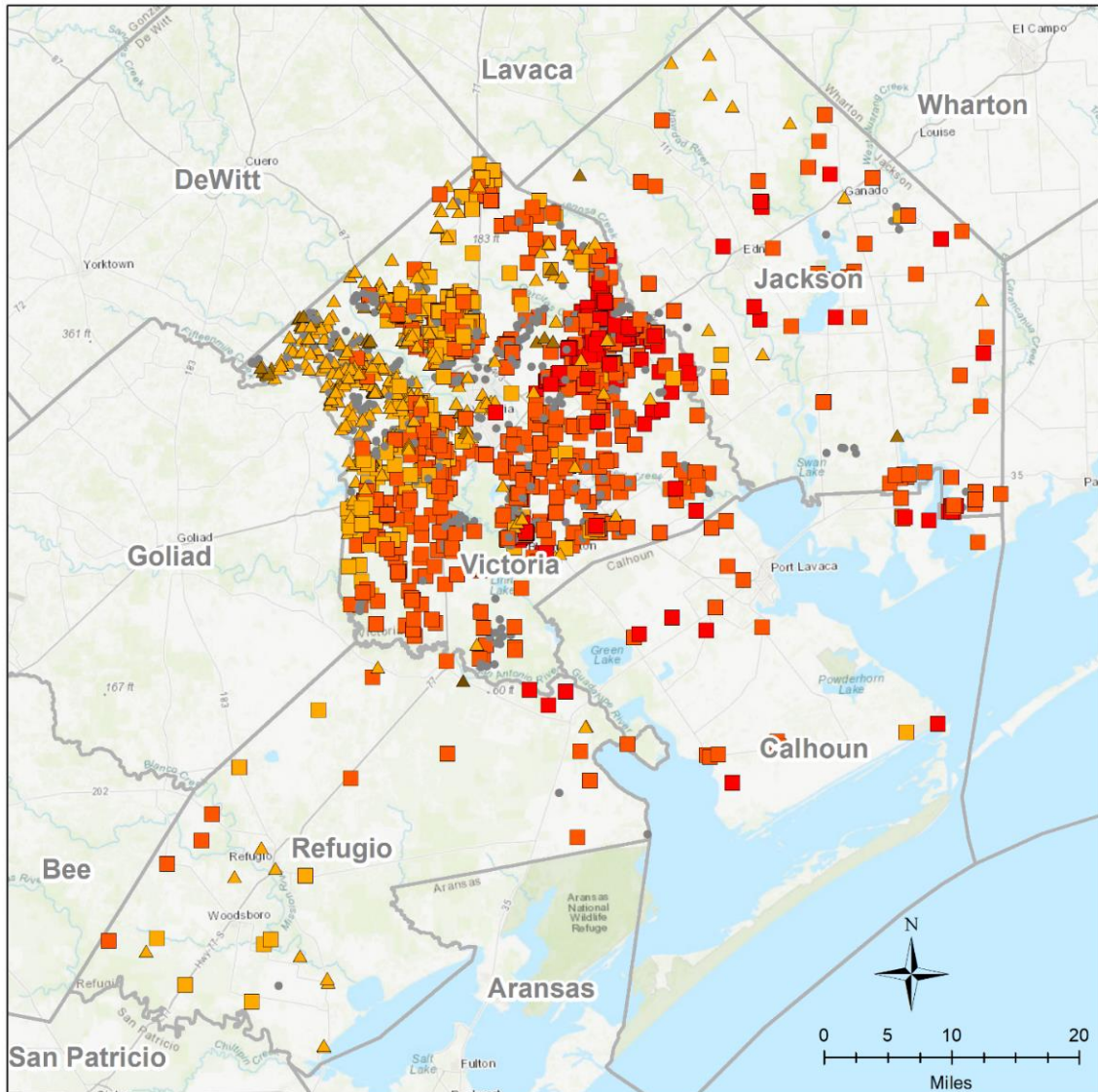
- Shallow (0)
- Deep (618)
- ◆ Jasper (1)
- ✚ Burkeville (0)
- ▲ Evangeline (470)
- Chicot (1,170)

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Figure 2-7      Aquifer assignments based on the stratigraphy from the TWDB Study for the Northern Gulf Coast System (Young and others, 2012) for 4 counties. The Deep assignment includes wells with no depth information. The Shallow assignment includes well locations outside of the Gulf Coast Aquifer System footprint.



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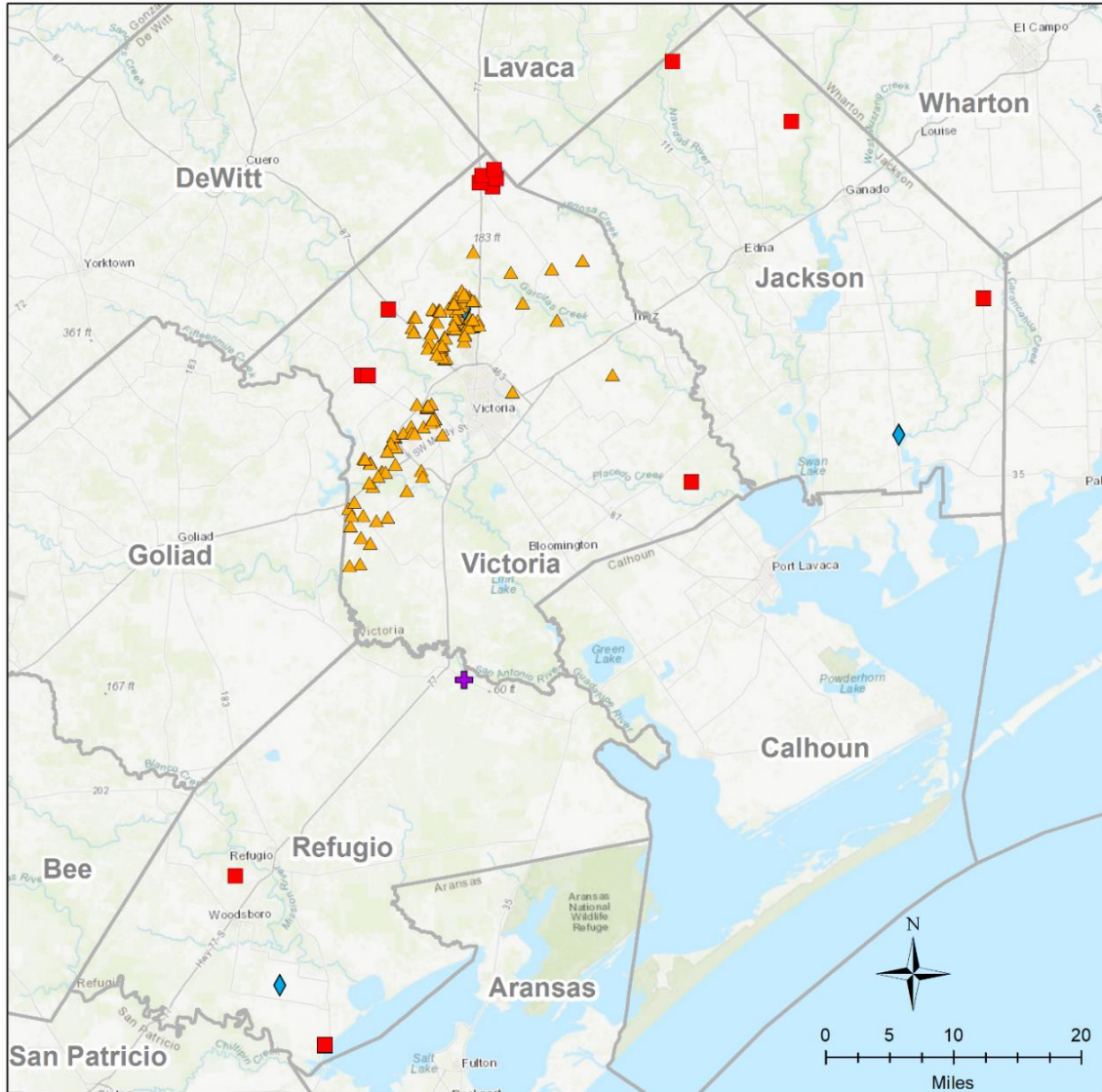


<b>TWDB Formation</b>	▲ Upper Lagarto (2)	□ County Line
• Shallow (0)	▲ Lower Goliad (23)	
• Deep (618)	▲ Upper Goliad (445)	
◆ Oakville (1)	■ Willis (241)	
◆ Lower Lagarto (0)	■ Lissie (711)	
✚ Middle Lagarto (0)	■ Beaumont (218)	

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Figure 2-8 Formation assignments based on the stratigraphy from the TWDB Study for the Northern Gulf Coast System (Young and others, 2012) for 13 counties. The Deep assignment includes wells with no depth information. The Shallow assignment includes well locations outside of the Gulf Coast Aquifer System footprint.

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**GMA 15 compared to GMA 15 & 16:  
GMA 15 Aquifer**

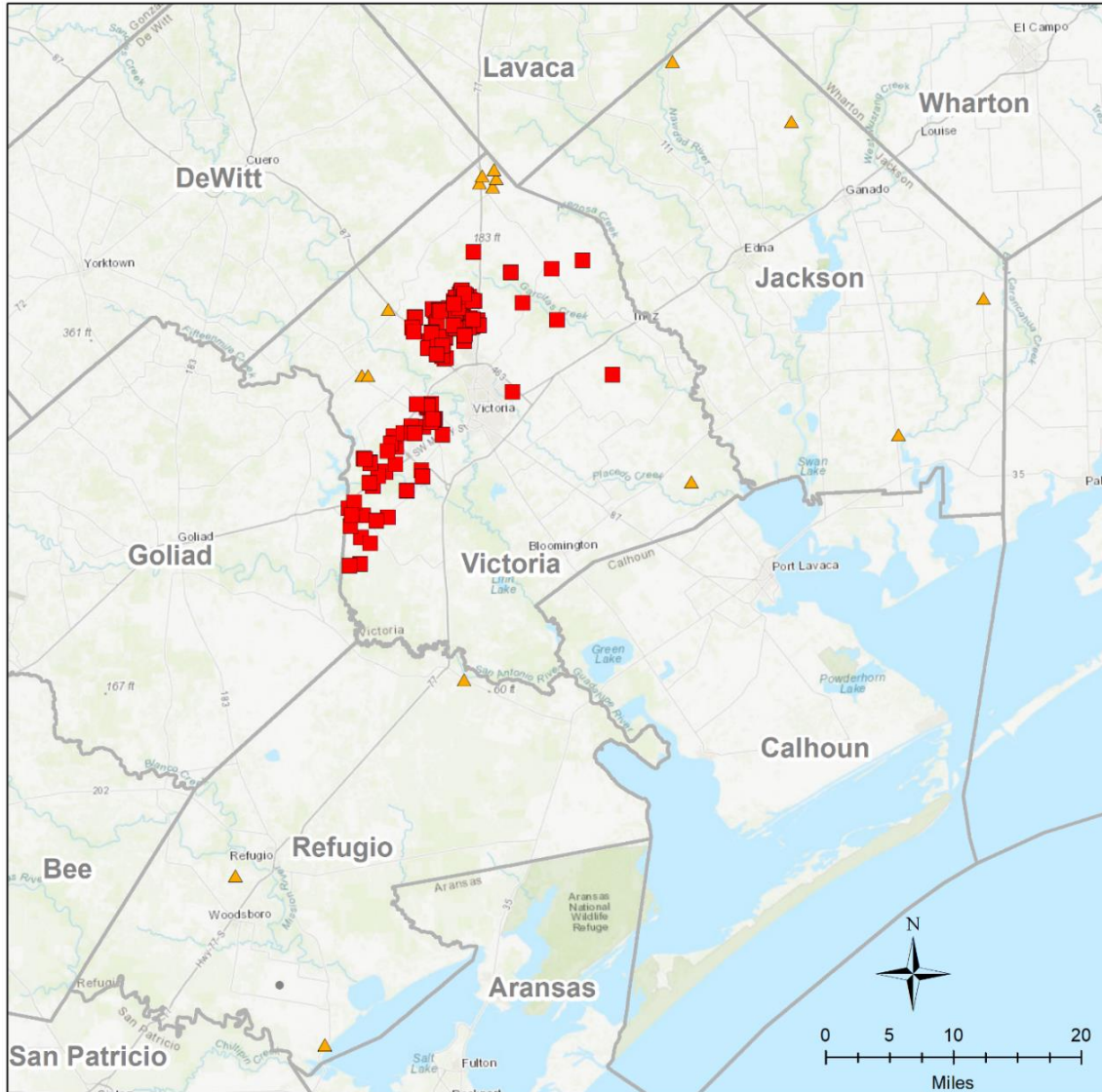
- Deep (n = 1)
  - ◆ Jasper (n = 3)
  - ✚ Burkeville (n = 1)
  - ▲ Evangeline (n = 140)
  - Chicot (n = 15)
- County Line

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Figure 2-9 Well locations with different well assignments based on the stratigraphy associated with the GMA 15 GAM (Chowdhury and others, 2004) and GMA 15 & 16 GAM (Shie and Boghici, 2022). Wells are plotted based on aquifer assignments from GMA 15 GAM (Chowdhury and others, 2004).



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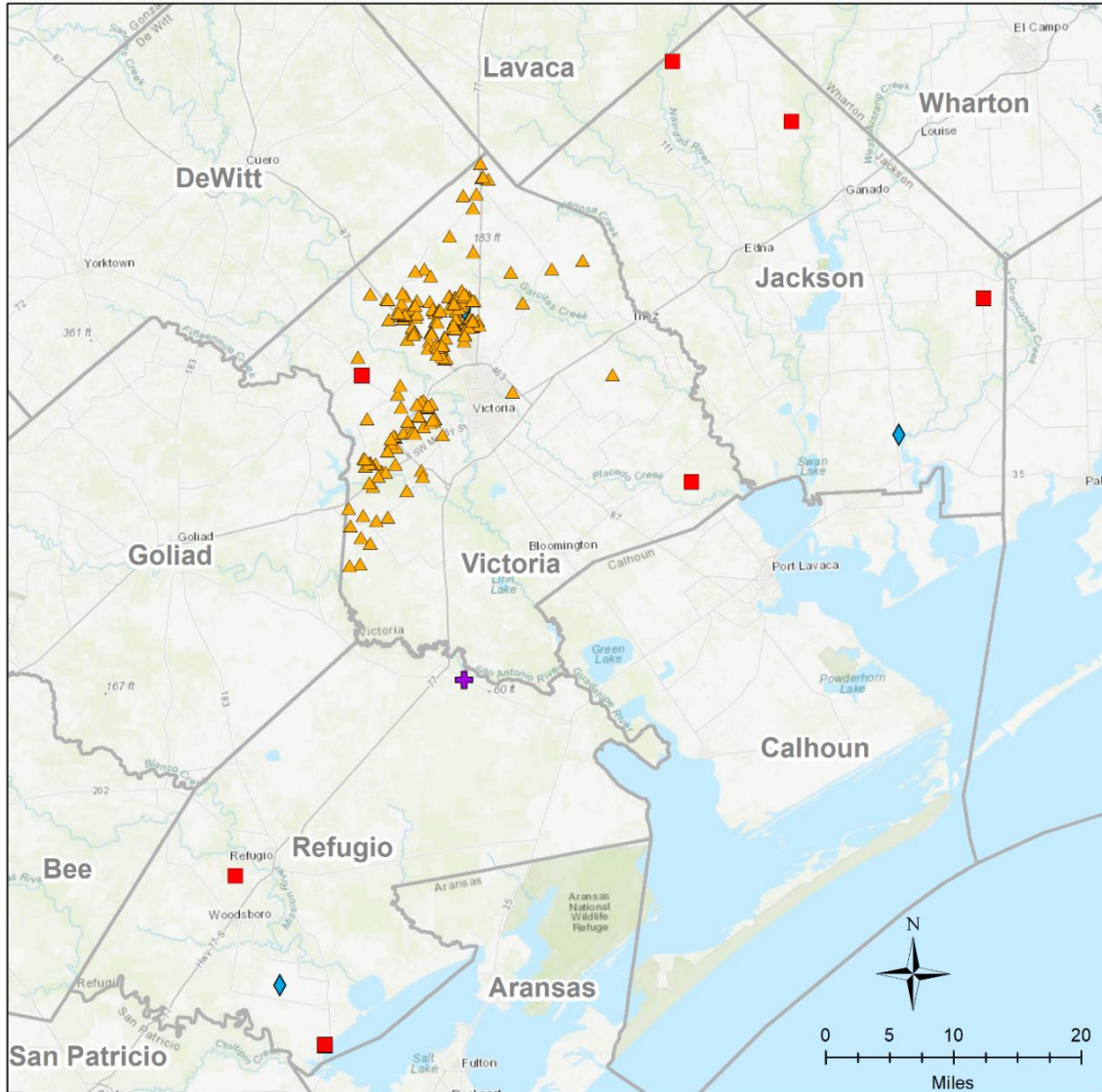
**GMA 15 compared to GMA 15 & 16:  
GMA 15 & 16 Aquifer**

- Deep (n = 1)       County Line
- ◆ Jasper (n = 1)
- ▲ Evangeline (n = 18)
- Chicot (n = 140)

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Figure 2-10 Well locations with different well assignments based on the stratigraphy associated with the GMA 15 GAM (Chowdhury and others, 2004) and GMA 15 & 16 GAM (Shi and Boghici, 2022). Wells are plotted based on aquifer assignments from The MA 15 & 16 GAM (Shi and Boghici, 2022).

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**GMA 15 compared to TWDB:  
GMA 15 Aquifer**

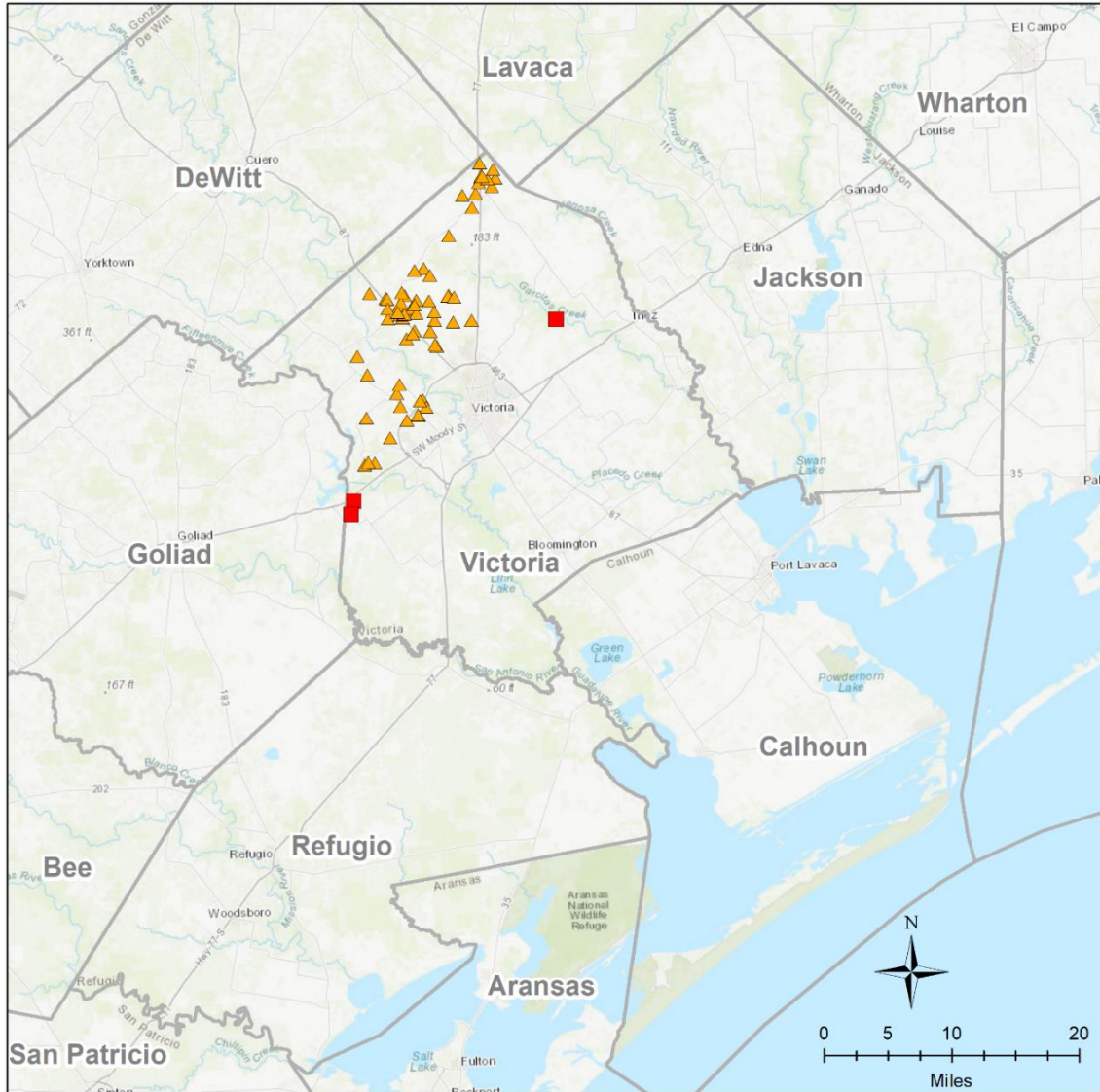
- Deep (n = 1)
  - ◆ Jasper (n = 3)
  - ✚ Burkeville (n = 1)
  - ▲ Evangeline (n = 198)
  - Chicot (n = 8)
- County Line

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Figure 2-11 Well locations with different well assignments based on the stratigraphy associated with the GMA 15 GAM (Chowdhury and others, 2004) and the TWDB Study for the Northern Gulf Coast System (Young and others, 2012). Wells are plotted based on aquifer assignments from the GMA 15 GAM (Chowdhury and others, 2004).



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**GMA 15 & 16 compared to TWDB:  
GMA 15 & 16 Aquifer**

- Deep (n = 0)       County Line
- ◆ Jasper (n = 0)
- ▲ Evangeline (n = 68)
- Chicot (n = 3)

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Figure 2-12 Well locations with different well assignments based on the stratigraphy associated with the GMA 15 & 16 GAM (Shi and Boghici, 2022). and the TWDB Study for the Northern Gulf Coast System (Young and others, 2012). Wells are plotted based on aquifer assignments from the GMA 15 & 16 GAM (Shi and Boghici, 2022).

### **3.0 DEVELOPMENT OF PROTOCOLS FOR FLAGGING MEASURED WATER LEVELS THAT APPEAR TO BE UNREPRESENTATIVE OF ACTUAL WATER LEVEL CONDITIONS.**

#### **3.1 Background**

A key metric for assessing the impacts of pumping on groundwater resources is changes in water levels over time. In GMA 15, the DFCs for all member GCDs are tied to changes in water levels. In order to develop a reliable and defensible set of measured water levels, a set of protocols for measuring water levels should be developed and followed. These rules should provide sufficient instructional detail so that different personnel following the protocols will measure the water level using the same repeatable and reproducible method.

Besides having a set of field-tested and vetted protocols for measuring water levels, another prerequisite for developing a useful database of measured water levels is that seasonal fluctuations in water levels have been properly accounted for. Numerous studies across the state have demonstrated that well water levels often experience seasonal fluctuations that are related to seasonal changes in recharge and/or pumping. As a general rule, the highest and lowest water levels typically occur during the winter months and summer months, respectively. Lower water levels usually occur during the summer because of high pumping rates related to irrigation, livestock, and domestic use.

**Figure 3-1** shows the importance of seasonal fluctuation in Wharton County, which is immediately east of Jackson County. Figure 3-1 shows the average of monthly water levels from 15 monitoring wells from 2005 to 2020. The highest and lowest water levels typically occur every year near March and September, respectively. The primary cause for the seasonal water level fluctuations is that groundwater is used to irrigate rice farms during the late Spring and Summer months. There are two potentially important observations in the water level data presented in Figure 3-1. One observation is that there can be a substantial difference between lowest and highest monthly averages in a single year. Another observation is that there is considerably less variability in the highest annual water levels than there is in the lowest annual water level for the 15 years of record.

Water levels are more sensitive to changes in pumping in a confined aquifer than in an unconfined aquifer. The difference in sensitivity exists because well water levels change in a confined aquifer occurs because of a pressure head change whereas well water levels change in a unconfined aquifer occurs because of desaturation of the aquifer. In most situations, the change in water pressure in a confined aquifer is transmitted across miles within a few hours whereas water levels in an unconfined aquifer would require days or weeks to be transmitted across miles. The relatively quick response of well water levels in a confined aquifer complicates the process of obtaining a representative water level during an irrigation season where pumping rates could be changing weekly. Because of these sensitivities, differences in annual summer-time water level measurements can more reflective of changes in recent production amounts than changes in the regional water levels than differences in annual winter-time water level measurements.

With respect to evaluating compliance to drawdown-based DFCs, water levels measured in the winter time are preferred over water levels measured in a summer time. However, a monitoring program should consider the benefits of obtaining summer-time measurements of water levels in order to assess

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to Support the Development of a Reliable Program for Monitoring Water Levels

the potential importance of seasonal fluctuations in water levels. In some situations, seasonal water level information may be necessary to properly evaluate the impact of permitted production on nearby wells as part of the district's well spacing rules or as part of a district hydrogeologic impact study for permitting a non-exempt well.

### 3.2 Averages of Measured Water Levels

**Appendix 3A** provides selected hydrographs for Calhoun, Jackson, Refugio, and Victoria counties. The water levels represent averages of water level measurement during the non-irrigation months. For this analysis, the non-irrigation months included a six-month period from November to April. The modeled water levels were extracted from a GAM. Chowdhury and others (2004) developed and used for GMA 15. The hydrographs provide information regarding the following three potentially important relationships.

- A comparison between modeled and measured water levels
- The consistency among the annual averaged water levels at a well
- An estimate of the linear trend of water level change over the period of record

A review of the plots reveals the following:

- Where the GAM is not providing reliable simulation of water level trends (i.e., Chicot Wells 31 and 11 in Jackson County).
- Where the GAM is not providing reliable simulation of water level elevation (i.e., Chicot Wells 223 and 126 in Victoria County).
- There is a substantial range of the elevation of annual water levels for a few wells (i.e., Evangeline Wells 90 and 239 in Victoria County).
- Several wells appear to have at least annual water levels that appear to be outliers (i.e., Chicot Wells 61 and 214 in Refugio County).

### 3.3 Measured Water Levels

**Appendix 3B** provides maps showing the location and hydrographs of wells with a measured water level. The water levels have been marked with two types of flags. One of the flags is represented by the color of the measured water level. The flag type is represented by a "X" on top of the measured water level.

The color of the measured water levels indicates the time of year that the water level measurement was taken: blue values were measured during January, February, March or April; green values were measured during May, June, July, or August; and red values were measured during September, October, November, or December. Based on INTERA's analysis of water levels in the Gulf Coast Aquifer, an appropriate set of dates for assessing long-term regional trends in water levels is the first four months of a year. During those four months, irrigation is either minimal or non-existent and the water levels are typically undergoing a slight rebound from higher pumping during the summer.

With regard to evaluating changes in averaged water levels over years or decades to check compliance with DFCs, the blue-colored water levels would be a good choice. If a well is located where irrigation is occurring, the water levels color coded with either green or red will likely be at a lower elevation than those water levels color coded with blue because they are impacted more by pumping. This relationship

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occurs in several wells in Appendix 3B such Chicot Well 87 and Evangeline Well 31, which are located in Jackson County where irrigation of rice farms is occurring.

The criterion for placing an “X” on top of a measured water level is that the difference between a measured water level and its preceding value is greater than the standard deviation for the series of measured water levels at the well. At some wells, the “X” likely represents an outlier or a bad measurement that should be evaluated for possible removal from the analysis because it may not be representative for the well. This situation likely applies to the “X” symbols that occur on the Evangeline Wells 3 and 8 in Jackson County. At other wells, the “X” likely marks two successive water level measurements in which only one of the two measurements should be removed. This situation likely applies to the “X” symbols that occur on two successive measured water levels for Chicot Wells 184 and 191 in Victoria County. And, at a few wells such Chicot Well 87 in Jackson County, the “X” likely does not represent a problem with an unrepresentative water level but rather a large amount of temporally variability in the measured water levels.

### 3.4 Protocols for Measuring Water Levels and Specific Conductance

**Appendix 3C** presents protocols for measuring water levels and specific conductance that will collect reliable and defensible data. The protocols were developed by reviewing and extracting text from the sampling methods presented by the USGS (Cunningham and others, 2011), the US Environmental Protection Agency ([EPA], 1991), and the TWDB (Hopkins and Anderson, 2016; Rein and Hopkins, 2008).

Separate protocols were prepared for measuring water levels using a steel tape, an electric tape (E-line), an air line, and transducers. In addition, a protocol was prepared for measuring the water level in a flowing well. The protocols in Appendix C are modifications of protocols that have been vetted and used by the federal and state agencies for decades. A key element for all of the protocols is that they provide appropriate mechanisms for documenting an appropriate level of information regarding recent pumping from the well. Depending on the well use, an appropriate time since pumping typically between 3 hours and 24 hours.

There are no protocols for measuring Total Dissolved Solids (TDS) in the field. TDS is a parameter that needs to be measured in the laboratory. If the appropriate studies are performed to develop a mathematical relationship between specific conductance and TDS then specific conductance can be used as an indicator of TDS concentrations. Several researchers (Walton, 1989; Hayashi, 2003; Sorensen and Glass, 1987) show that the relationship between specific conductance and TDS is dependent on several factors, including ionic composition and ionic strength of the solution and the method used to calculate total dissolved solids concentration. Young and others (2017) discusses these factors and develops relationships between specific conductance and TDS for groundwater samples from different regions of the Gulf Coast Aquifer.

The relationship between specific conductance and TDS concentration is constructed by plotting specific conductance as a function of total dissolved solids concentration. From the graph the conversion factor “ct” in Equation 13-8 can be derived. Equation 3-1 is modified from Estep (1998). Two applications of Equation 3-1 are presented in Figure 3-2. Figure 3-2 plots TDS concentration versus specific conductance for two sets of groundwater samples that were extracted from TWDB Water Quality Dataset. Readers interested in developing or applying Equation 3-1 are referred to Young and others (2016) for additional information.

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$$\text{TDS} = \text{ct} * \text{SC}_{w77^{\circ}\text{F}} \quad (\text{Equation 3-1})$$

Where:

- TDS = total dissolved solids concentrations (milligrams per liter)
- ct = specific conductivity-total dissolved solids conversion factor
- $\text{SC}_{w77^{\circ}\text{F}}$  = specific conductance (micromhos per centimeter at 25 degrees Celsius or 77 degrees Fahrenheit)

### 3.5 Health and Safety Plan

All field activities associated with groundwater monitoring activities should be conducted in accordance with a District approved Health and Safety Plan (H&SP). **Appendix 3D** provides a template for a H&SP that can be easily modified by a District for its own purpose and needs.



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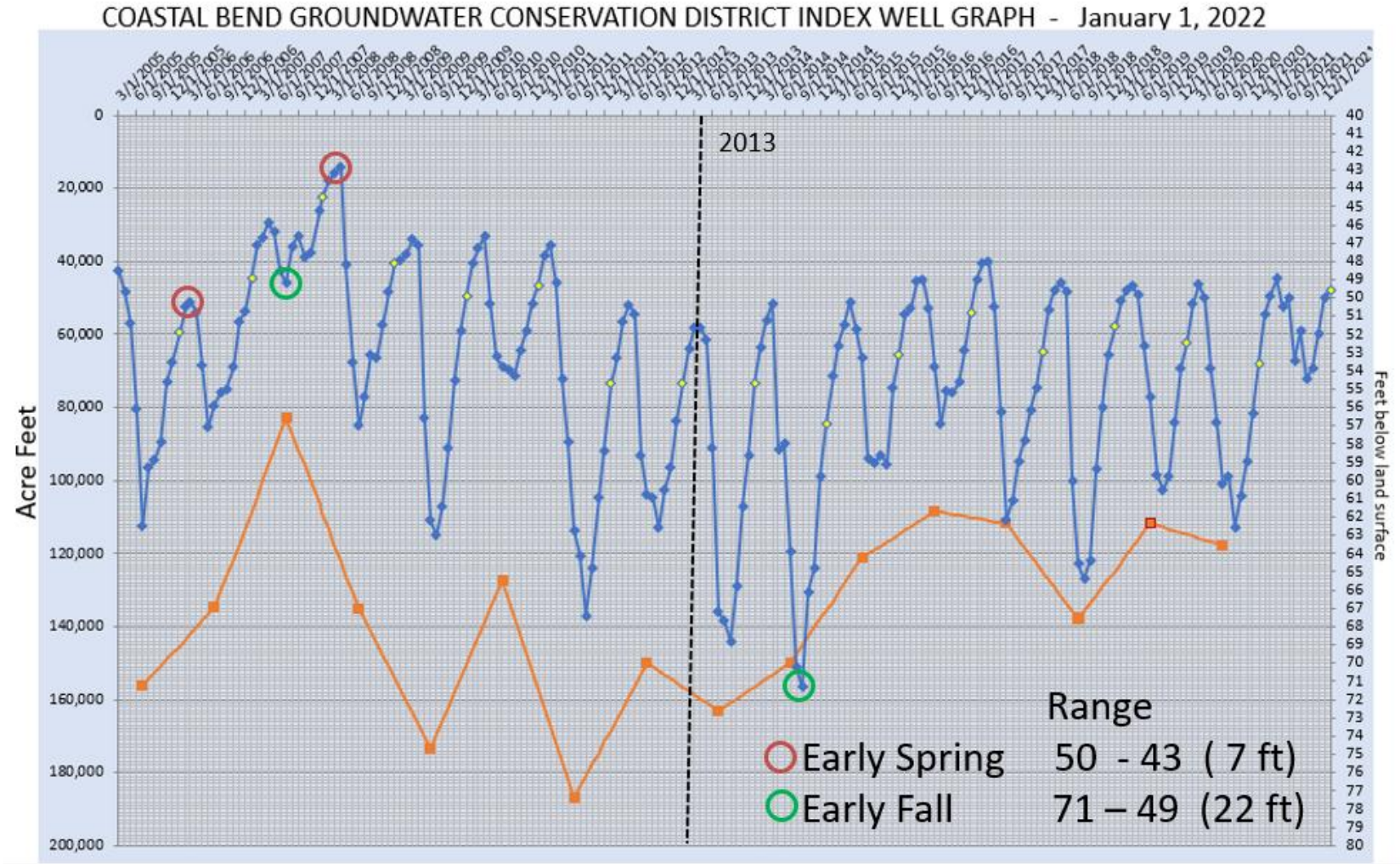


Figure 3-1

Slide from a INTERA Presentation to Coastal Bend GCD on May 10, 2022 that shows the average monthly water levels for 15 monitoring wells located in Wharton County and the monthly total production.



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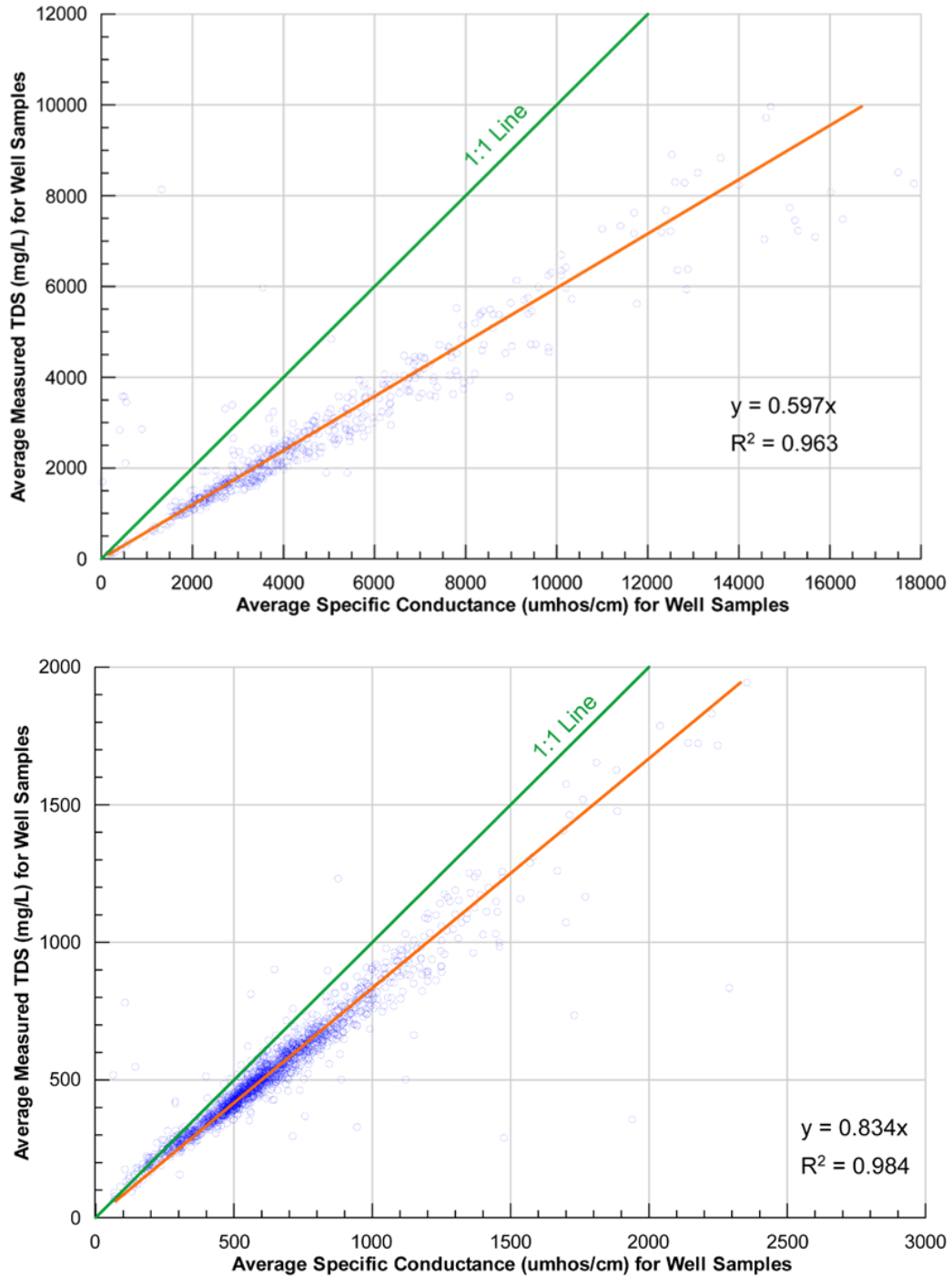


Figure 3-2 Linear regression between specific conductance and TDS concentrations for two groups of groundwater samples extracted from the TWDB Water Quality Dataset: 587 groundwater samples where chloride comprises at least 35% of the equivalence in the charge balance (top image); 1,866 groundwater samples where bicarbonate comprises at least 35% of the equivalence in the charge balance (bottom image). (graphs are from Young and others (2016).

Note: TDS=total dissolved solids; mg/L=milligrams per liter; umhos/cm=micromhos per centimeter

## **4.0 ESTABLISHMENT OF CRITERIA FOR ASSESSING THE ADEQUACY OF MONITORING WELL COVERAGE**

The GCDs in GMA 15 have adopted DFCs that are drawdown-based. In order to properly manage to DFCs and prudently manage aquifer resources, a District needs to be well informed about how their aquifer water levels vary spatially and temporally. A prerequisite for developing information about groundwater levels is a comprehensive monitoring program.

A comprehensive monitoring program encompasses three facets of monitoring: the design and construction of a well monitoring system, the development and execution of protocols for measuring water levels, and the analysis of water level data to evaluate compliance. An important aspect of a District monitoring program is that they be compliant with existing statutes, be consistent with monitoring guidelines promulgated by state and federal agencies, and be technically defensible. These considerations are important if the District is to be well positioned and successful with enforcing its rules and mandating actions in order to achieve and not exceed its DFCs.

Currently, there is no guidance from state agencies or statutes regarding how to design and implement a monitoring program to support an evaluation of DFC compliance. This section discusses administrative and technical considerations that are relevant to the design of a District's monitoring network. The administrative considerations include TWC, the District rules and management plans, DFCs adopted by GMA 15, and permit regulations. The technical considerations focused on the analyses related to the design of a well monitoring program to support evaluating compliance with drawdown-based DFCs. The technical information is based on discussions with Gulf Coast GCDs, review of reports / papers related to the design of District well monitoring networks, and an assessment of the technical requirements to perform an evaluation of DFCs..

Throughout the discussions, the term "Districts" refers to the collective of the following four GCDs: Victoria County GCD (VCGCD), Calhoun County GCD (CCGCD), Refugio GCD (RGCD), and Texana GCD (TGCD).

### **4.1 Administrative Considerations**

Administrative considerations are those related to keeping the monitoring network compliant with existing statutes and consistent with guide lines published by state agencies.

#### **4.1.1 Texas Water Code:**

The provisions in Chapter 36 of the TWC are the basis for the rights and responsibilities confirmed onto the Districts through their enabling legislations. TWC §36.109 authorizes GCDs to collect any information deemed necessary to accomplish their missions. TWC §36.109 authorizes Districts the right to enter private or public land to collect hydrogeologic data and perform tests. TWC §36.0015 states GCDs are the state's preferred method of groundwater management and that they are charged with the responsibility to use the best available science in the conservation and development of groundwater.

Despite being identified as the entity primary entity responsible for groundwater management in the state, TWC Chapter 36 does not require a District to have a groundwater monitoring program, to collect

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groundwater data, or to evaluate whether or not a GMA or GCD is compliant with its adopted DFCs. With regard to DFCs, TWC Chapter 36 gives GCDs the authority to establish a monitoring program to evaluate DFC compliance but Chapter 36 does not require a GCD explicitly evaluate DFC compliance. Instead, TWC §36.109(c)(4) requires the districts in a GMA to consider “the degree to which each management plan achieves the desired future conditions established during the joint planning process.” Although TWC Chapter 36 does not require a GCD to monitor groundwater levels, it does require certain well owners to install and monitor wells. For instance, TWC §36.1015 requires permit holders for brackish water to implement a monitoring system recommended by the TWDB to provide annual groundwater levels.

#### 4.1.2 District Management Plans

All four of the Districts have imposed on themselves the requirement to develop and maintain a water level monitoring program through their Management Plan section titled: Goals, Management Objectives and Performance Standards. In this section, the Districts have very similar language to that is contained in the VCGCD Management Plan, which provides the two following objectives and performance standard

Objective #1: Develop and maintain a water level monitoring program.

- Performance Standard #1: Each year, the District will summarize within the annual report the water level monitoring activities including the number of wells monitored and the year-to-year change of water level.

Objective #2: Analyze water level monitoring information to evaluate water level trends and determine the degree to which the District is complying with the Desired Future Conditions of Gulf Coast Aquifer in Victoria County.

- Performance Standard #2: Each year, the District will summarize within the annual report the water level trends and the conclusions regarding the compliance of the District with the desired future condition of the Gulf Coast

Among the four Districts, only the CCGCD Management Plan provides a minimal number of water wells to monitor, which is at least twelve (12) water wells. To check the number of water wells monitored for a single year, the District’s annual reports available on the web were reviewed. In their 2021 Annual report, VCGCD reported measurements from 111 wells. In their 2020 annual report, RGCD reported monitoring water levels in 20 water wells. In their 2019 annual report, TCGCD did not provide the number of wells with measured water levels. In its 2021 annual report, CCGCD reported that water levels were measured in 21 wells.

#### 4.1.3 District Rules

None of the District Rules address the process of evaluating compliance with DFC or the analysis of the water level data from the district monitoring well network. Consequently, the Districts Rules are not directly relevant for establishing a minimum number nor for identifying preferred locations for the monitoring wells.

Texas Water Development Board (TWDB) – Since the 1960s, the TWDB has monitored water levels across Texas. The purpose of the TWDB’s water-level program is to gain representative information about static water levels in aquifers (water levels unaffected by recent or nearby pumping) throughout

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the state in order to support water planning from the local to a more regional perspective. To distribute wells in the observation network throughout the state in an equitable and reasonable manner, TWDB geologists used formulas to apply to each county-aquifer combination that mainly relied on production, but also considered other variables. Although these criteria determine the number of wells needed per county-aquifer combination, spacing requirements are qualitative. As described by Hopkins and Anderson (2016), the criteria used by TWDB for determining the number of adequate water level observation wells per county-aquifer combination is:

- **1 well/25 square miles** (> 100,000 acre-feet of groundwater pumped annually)
- **1 well/50 square miles** (> 10,000 & < 100,000 acre-feet of groundwater pumped annually)
- **1 well/75 square miles** (> 10,000 & < 100,000 acre-feet of groundwater pumped annually, coupled with little water-level fluctuation, or < 50 feet of decrease per decade in artesian aquifers or < 20 feet per decade in water-table aquifers as determined from the latest water-level change maps; or where few wells available as in extreme downdip limits)
- **1 well/100 square miles** (> 2,500 acre-feet & < 10,000 acre-feet of groundwater pumped annually)
- **1 well/125 square miles** (> 2,500 acre-feet & < 10,000 acre-feet of groundwater pumped annually and little water-level fluctuation or few wells available)
- **1 well/150 square miles** (> 1,000 & < 2,500 acre-feet groundwater pumped annually)
- **1 well** for entire aquifer-county combination (<1,000 acre-feet groundwater pumped annually)

**Table 4-1** lists the number of wells for Calhoun, Jackson, Refugio, and Victoria counties that would satisfy the TWDB criteria for a single aquifer based on the area and estimated groundwater production per county. The number of wells ranged between 6 and 17 wells. Analysis of the simulated and measured water levels for the Chicot and Evangeline aquifers for these four counties by Young and others (2021) shows that differences of 40 feet and greater likely occur in the water levels between the two aquifers. These differences suggest that the water levels measured in the Chicot should not be assumed valid for the Evangeline and vice versa. As a result, the well numbers in Table 4-1 should be considered as a lower estimate for a monitoring well network for both the Chicot and Evangeline wells.

Table 4-1 Estimated number of water level monitoring wells for Calhoun, Jackson, Refugio and Victoria counties based on a TWDB Criteria (Hopkins and Anderson, 2016) that considers area and total groundwater production in a county

County	Area (sq. miles)	Total Production In Gulf Coast Aquifer (acre-ft/yr)*		Monitoring Wells Based on TWDB Criteria for Estimate an Adequate Number of Monitoring Wells for an Aquifer in a County
		2019	2020	
Calhoun	1,033	1,152	1,092	7 well
Jackson	857	62,496	58,057	17 wells
Refugio	818	2,005	2,021	6 wells
Victoria	889	15,036	14,912	12 wells

\* TWDB web site ([https://www3.twdb.texas.gov/apps/reports/WU/SumFinal\\_CountyPumpage](https://www3.twdb.texas.gov/apps/reports/WU/SumFinal_CountyPumpage))

#### **4.1.4 Summary of Findings**

Despite assigning GCDs as the state's preferred method of groundwater management charging GCDs with the responsibility to use the best available science in the conservation and development of groundwater, the TWC does not require GCDs to monitor groundwater levels. Among the key reasons for GCDs to have a monitoring network is to evaluate DFC compliance. All four GCDs that comprise Districts have committed to maintaining a groundwater monitoring program to evaluate DFC compliance. There is little information provided by GCDs regarding the design of the monitoring program and how they will use the monitoring data to check the DFCs. Given that all four of the GCDs are adjacent to each other, there would be advantages to the Districts if they coordinated the collection and analysis of their monitoring data. Moreover, it would be beneficial for all of the GCDs in the Texas Gulf Coast Aquifer to have a coordinated monitoring approach. Currently, neither the TCEQ nor the TWDB have provided any guidance or assistance GCD to promote the benefits of monitoring and to help establish consistency in the groundwater monitoring programs among the approximately 100 GCDs in Texas.

## **4.2 Technical Considerations**

Technical considerations are those related to science of measurement, statistical analysis, hydrogeology, and interpolation in as they contribute toward developing reasonable and defensible approaches for estimating average rates of water level change across large areas based on a finite number of water level measurements over time.

### **4.2.1 Statistical Considerations**

Statistical -based methods are often used to develop monitoring networks and to develop methods for the collection and analysis of monitoring data (Gibbons, 1994). The common type of statistical approaches used for designing the size of well networks have the following underlying assumptions: (1) the population of measured water levels is assumed to be a normal distribution; and (2) the well are sufficiently spaced apart from each other, the measured water levels are not correlated and can be considered as a set of independent samples.

Oliver and Piemonti (2018) and Uddameri and Andruss (2013) provide examples of statistical-based methods for determining an approach size of a monitoring well network for a GCD. Oliver and Piemonti (2018) used a method called the Standard Error Approach. Uddameri and Andruss (2013) use a method called the Statistical Power Analysis. Both approaches are based on the two underlying assumptions mentioned above.

A Standard Error measured how precisely a sampling distribution represents a population. Equation 1 is the formula for determining Standard Error from the mean and standard deviation from a population. The Standard Error is a measure of statistical accuracy of an estimate. Equation 1 states that as the number of samples increases, the confidence in the accuracy of the mean of the value improves.

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Equation 1.  $SE = \sigma / \sqrt{n}$  (Equation 1)

Where:

SE = standard error of the sample

$\sigma$  = sample standard deviation

$\sqrt{n}$  = square root of the number of samples

Figure 4-1 shows an application of the Standard Error Approach for determining the size of a monitoring well. Figure 4-1 was created by INTERA (Oliver and Piemonti, 2018) for Panola County GCD to illustrate the benefit of increasing their monitoring network beyond 16 wells. For these sixteen wells, the average water level change was 2.5 feet and the standard deviation was 1.7 feet. Figure 4-1 was created by applying Equation 1 to show that at 50 wells, the 95% confidence limit in the calculated mean change in water level would be  $\pm 0.5$  feet.

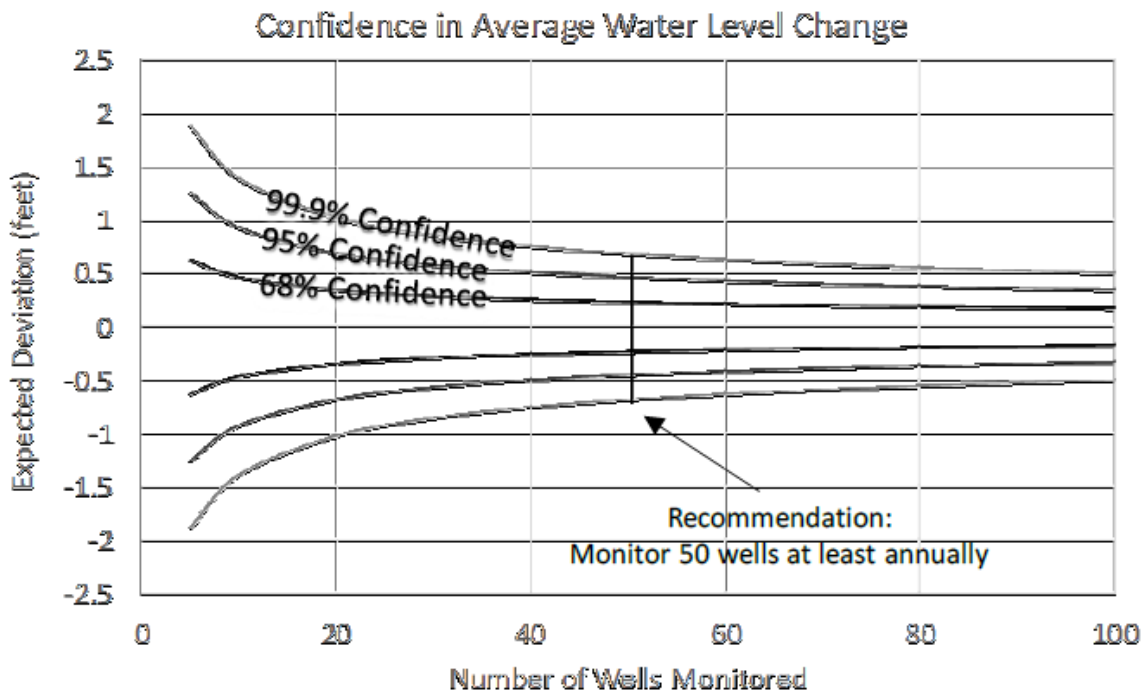


Figure 4-1 Expected deviation from the mean for various numbers of wells in the monitoring network. Distribution assumes randomly spaced wells with normal distribution of water level changes exhibiting a standard deviation of 1.7 feet around a mean

Uddameri and Andruss (2014) apply a Statistical Power Analysis to estimate the number of monitoring wells required to achieve a specific level of confidence in evaluating VCGCD compliance with their DFC. Uddameri and Andruss (2014) framed the problem using a statistical decision-making matrix based the two hypothesis

Null hypothesis: The average drawdown in the county is less than or equal to the acceptable drawdown established as the DFC

Alternative hypothesis: The average drawdown is greater than the acceptable drawdown established as the DFC.

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To implement their approach, Uddameri and Andruss (2014) used water levels from 16 wells to calculate a rate of drawdown from 2005 and 2010. This analysis produced an average drawdown of 3.46 feet with a standard deviation of 7.76 feet. Using these values as representative of the groundwater system, the application of Statistical Power Analysis indicated that a minimum set of approximately 70 wells is required within the VCGCD to statistically evaluate the compliance with DFCs with 90% reliability and at a significance level of 10% and 90% power.

### 4.2.2 Geostatistical Considerations

Geostatistical methods rely on using both statistical correlations and mathematical methods to generate values at unsampled locations. Geostatistics attempts to quantify the spatial relationship between data and the uncertainty in that relationship. Geostatistics were developed for the geosciences where the samples and populations of interest have discernable patterns and detectable covariances that void the classical statistical analysis that are based on independent and uncorrelated samples. The most common geostatistical interpolation method is Kriging. Kriging is a geostatistical interpolation technique that considers both the distance and the degree of variation between known data points when estimating values in unknown areas. Kriging accounts for the degree of variation, or spatial correlation, among the data points through a semivariogram model.

In the groundwater literature, Kriging is a proven technique for optimizing the design of well monitoring networks (Olea and Davis, 1999; Triki and others, 2013; Delbari and others, 2013; Zhou and others, 2013; Barca and others, 2013). In Texas, INTERA has used geostatistics to evaluate the adequacy of well network and to spatially interpolate water levels. INTERA (2012) used Kriging to evaluate the monitoring network of 1155 observation wells used by the High Plains Water District (HPWD) to determine water level changes in the Ogallala Aquifer across 16 counties. INTERA (2012) shows that that all well spacings in the HPWD monitoring network fall inside the correlation range of 50 miles for the water levels, and interpolated estimates in inter-well region have a standard deviation of less than 1 foot for all areas within the District boundaries. These two findings supported the conclusion that the HPWD well monitoring well is very effective at evaluating water levels across the District.

The application of Kriging requires the data be analyzed to determine the distance at which the water levels become uncorrelated. This distance is called the range. The range is an important value with regard to establishing a monitoring well network because it establishes the maximum distance that wells should be separated so that Kriging can provide informed calculations for estimating values at unsampled locations. In their application of Kriging to interpolate water levels for the Districts, Young and others (2021) define the range for the Chicot and Evangeline aquifers by fitting empirical variograms to measured water levels from 2000 to 2010. Young and others (2021) estimate the range for the Chicot Aquifer to vary from about 20 to 30 miles and estimate the range for the Evangeline Aquifer to vary from about 25 to 40 miles.

### 4.2.3 Existing GCD Monitoring Network in Gulf Coast Aquifer

As part of our technical review, we contacted general managers of GCDs to discuss their districts monitoring well network. While supporting Brush Country GCD's efforts to update their well monitoring network, Young (2015) contacted the GCD general managers in GMAs 15 & 16 to ask that they complete an on-line questionnaire regarding water level and water quality monitoring. Thirteen GCDs completed the ten-question survey. **Table 4-2** presents the tabulated responses. One of the questions asked is

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whether the district could be identified by name in a summary table. Two of the GCDs asked not to be identified in the survey.

The survey in 2015 revealed that the majority of the GCDs have an active monitoring program that includes measuring water levels at least two times a year from at least 30 wells. Five of the GCDs measure water quality parameters annually from at least eight wells. All of the GCDs rely on voluntary cooperation from the wells' owners. Only Kenedy GCD answered the question regarding how the monitoring locations were selected. Kenedy GCD stated that a consultant was hired to design the monitoring well network.

As part of this project, INTERA talked with general managers for 14 GCDs in GMAs 15 or 16. Eight of the GCDs had monitored more than 20 wells. Five GCDs monitored less than 10 wells. All of the GCDs had a similar approach for monitoring changes in water levels over time. The approach involved averaging the measured water elevations and calculating the differences in the average water levels. No GCDs expressed concern on whether or not they had a sufficient number of wells including those GCDs with less than 10 monitoring wells.



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Table 4-2 Tabulated Responses from Thirteen GCDs who responded in 2014 to a questionnaire regarding their groundwater monitoring network (from Young, 2015)

QUESTION CATEGORY	2	Water Level Monitoring			Water Quality Monitoring			5	Monitoring Program			7	8	9					
QUESTION CATEGORY		3A	3B	3C	4A	4B	4C		6A	6B	6C								
Name of Groundwater Conservation District (GCD)	Date of Response	Does the district collaborate and/or coordinate monitoring activities with other agencies? If yes, which agencies?			Approximately how many wells does the district regularly monitor for water levels?			How many wells does the district continuously monitor for water levels (i.e., with an installed pressure transducer/data logger)?	Not including wells with installed equipment for continuous monitoring, how frequently on average does the district monitor quality in these wells?	Approximately how many wells does the district regularly monitor for water quality in these wells?	How many wells does the district continuously monitor for water quality (i.e., with an installed sensor/data logger)?	Not including wells with installed equipment for continuous monitoring, how frequently on average does the district monitor quality in these wells?	If the district assigns wells to a specific aquifer or geological formation, how is the assignment made? (select all that apply)	Does the district have a program for monitoring water levels and/or water quality?	If applicable, how has the monitoring program been documented (e.g., in rules, management plan, etc.)?	If applicable, does the documentation include the processes and methods for using the monitoring program to track compliance with desired future conditions?	If the district has a monitoring well network or a formal monitoring program, what are the district's goals of the monitoring?	If the district has a monitoring well network, Al) How were the wells in the network selected and secured? B) Is well owner cooperation voluntary, mandatory, (e.g., permitting requirement) or incentivized?	If the district has a monitoring well network, Al) How frequently is the monitoring data analyzed and reported? B) What types of analyses are performed? C) How are the results reported (e.g., to the GCD board, in newsletters, etc.)?
Bee GCD	7/9/2014	Yes, TWDB	2	2	Hourly	0	0	N/A	Not Assigned	yes	yes	Annual Report	Monitor water levels to determine if the amount of water produced needs to be reduced	Yes well owner cooperation is critical	At least, annually for the annual report, but usually monthly				
Not Identified	7/29/2014	Yes, TWDB	54	3	40-yearly 14-monthly	8	0	Yearly	Not Assigned	yes	Board Reports	no	Analyze trends of drawdown associated with pumping	voluntary cooperation	analyzed monthly, reported to GCD Board monthly				
Colorado County GCD	7/15/2014	No	12	0	Monthly	0	0	N/A	Uses TWDB Assignments	yes	Management Plan	no	Our district's upcoming management plan updated will incorporate the use of monitor wells in adherence to DFC	Monitor wells are distributed more or less uniformly across the county. More monitor wells are present in zones where exempt usage is higher. Well owner cooperation is voluntary.	Monthly results are reported at each Board meeting. Graphic results are shown for key monitor wells which may impact future policy.				
Not Identified	7/29/2014	Yes, TWDB	10	0	Monthly	0	0	N/A	Not Assigned	yes	no	no response	Analyze drawdown to pumping within district	voluntary cooperation	monthly reports to the board				
Evergreen Underground Water Conservation District	7/9/2014	Not yet, maybe USGS	~80	TWDB wells	Monthly	0	0	N/A	Not Assigned	yes	Management Plan	no	To document drawdown levels both seasonally and over a long period of time.	Well owner cooperation is voluntary. Wells are selected based on their geographical location, aquifer, ease of access and monitoring, and landowner permission.	The well levels are entered monthly into our database and analyzed approximately every quarter. Hydrographs are made on selected wells and are given to our Board members				
Fayette GCD	7/9/2014	Yes, TWDB	69	0	Yearly	23	0	Yearly	Not Assigned	yes	Management Plan	yes	<b>Management Objective 6.2: Report Water Level Changes</b> At least once every three years, the District will evaluate the water levels within the monitoring well network for each aquifer to determine whether any changes in the monitoring well levels are in conformance to the desired future conditions adopted by the district. <b>6.2 a:</b> At least once every three years, report to the board of directors, water well levels with the monitoring well network for each aquifer. <b>6.2 b:</b> At least once every three years, report to the board of directors, any changes to the water levels with the monitoring well network for each aquifer. <b>6.2 c:</b> At least once every three years, report to the board of directors, a comparison of drawdown, if any, with the monitoring network of each aquifer and the desired future conditions set for each aquifer.	Well owners are given an option on the well registration form to volunteer to have their wells monitored in our "Aquifer Watch" program. Wells are evaluated by district staff for inclusion in the program. Sampling results and water level determinations are provided to the well owner free of charge.	At least once every three years, report to the board of directors, a comparison of drawdown, if any, with the monitoring network of each aquifer and the desired future conditions set for each aquifer.				
Goliad County GCD	7/9/2014	Yes, TWDB	135	0	2x/yr	15	0	Yearly	Not Assigned	yes	Management Plan	no	The goal is to measure the levels and determine amount of water level drop from previous measurements. Water quality testing is done to determine whether or not contamination is occurring and then to determine the cause of the contamination.	Well owner cooperation is voluntary. When the wells were registered as grandfathered wells we asked permission to monitor the water levels. The water quality wells were voluntary with the wells chosen specific to their location and depth.	The data is analyzed when the reports are received from the lab to determine if changes have occurred. This information is reported to the landowner as well as to the GCGCD Board, on our website, to TWDB, and to any other agency that needs the information. (TCEQ, RRC, EPA). GCGCD reports to the public through articles in our local paper and on our website the results of the water levels twice per year.				
Kenedy County GCD	7/23/2014	Yes, TWDB	50	0	2x/yr	20-25	0	Yearly	Not Assigned	yes	Management Plan	yes	Monitor trends in water levels and water quality.	Consultant developed plan. Voluntary cooperation	Data reported twice a year. To BOD.				
Live Oak Underground Water Conservation District	7/9/2014	Yes, TWDB	3	1	Monthly	0	0	N/A	Not Assigned	yes	Management Plan	Annual Report	Monitoring water levels to see if the production limits need to be changed.	Wells that are easily accessible and well owner cooperation is vital	Whenever [the GM] has time, but at the annual report for sure.				
McMullen GCD	7/9/2014	Yes, TWDB	0	0	N/A	0	0	N/A	Not Assigned	yes	Management Plan	Annual Report	Monitoring water levels to see if the production limits need to be changed.	Well owner cooperation is critical, and our problem is finding wells that can be used in the monitoring network. Most wells are cased such that it is impossible to retrieve a water level.	annually in the annual report to the board				
Pecan Valley GCD	7/17/2014	Yes, TWDB	30	0	2x/yr	0	0	N/A	Not Assigned	yes	Policies	Management	Information and DFC Compliance	Voluntary by landowner	twice a year to the board and yearly to TWDB				
San Patricio County GCD	7/9/2014	No	0	0	N/A	0	0	N/A	Not Assigned	no	Management Plan	Annual Report	Water levels to determine if the production limits need to be changed. Currently funds are not available to establish a program or to find the wells needed to monitor.	Well owner cooperation is vital, and as soon as the District has the available funds and can find some willing cooperators, a monitoring program will be established.	Annually				
Victoria County GCD	7/21/2014	Yes, TWDB	60-70	1	2x/yr	60-70	1	2x/yr	Not Assigned	yes	yes	no	Monitor w change in water levels; monitor change in water quality.	Voluntary cooperation with landowners; selection based on seeking broad distribution of wells.	Information reported to Board of Directors during meetings				

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Table 4-3 Tabulated Responses from GCDs who responded to a questionnaire in 2014 or a verbal survey in 2022 regarding their groundwater monitoring network

Name of Groundwater Conservation District (GCD)	Number of Monitoring Wells	
	Response in 2014	Response in 2022
Bee GCD	2	4
Brush County GCD	NA	50
Coastal Bend GCD	NA	33
Coastal Plains GCD	NA	9
Colorado County GCD	12	18
Duval County GCD		22
Evergreen Underground Water Conservation District	~80	25
Fayette GCD	69	45
Goliad Country GCD	135	80
Kenedy County GCD	50	50
Live Oak Underground Water Conservation District	3	3
McMullen GCD	0	3
Pecan Valley GCD	30	25-28
San Patricio County GCD	0	No wells yet

Summary of Findings – Examples of statistical and geostatistical methods were presented to assess the adequacy of the number wells in a monitoring network. A concern with application of the statistical methods to water levels is that it assumes the measured water levels are from a random population and are independent samples and therefore uncorrelated. However, assumption is invalid for wells in the Gulf Coast Aquifer. First, the water levels are not flat but will have a hydraulic gradient or trend of lower water levels in the direction of the Gulf Coast – meaning the water levels are not sampled from a random population. Second, simple calculations using the Theis (1935) equations will show that the majority of permitted wells in the Gulf Coast Aquifer will have radius-of-influences that extends tens of miles – meaning that water levels will be correlated. Unlike the classical statistical approaches, geostatistical approaches were developed to handle correlated data by use of a variogram. Geostatistical analysis by Young and others (2021) shows that water levels in both the Chicot and Evangeline aquifers are correlated to a distance of at least 20 miles. Based on our analysis of the geostatistical literature, the geostatistical approaches offer more benefits for the collection and analysis of water level data than does statistical approaches.

## **5.0 POTENTIAL BENEFITS OF QUANTIFYING PREDICTIVE UNCERTAINTY TO GROUNDWATER MONITORING**

### **5.1 BACKGROUND**

Texas has entrusted its GCDs with the management and stewardship of its groundwater resources. Implicit in their responsibility of groundwater stewardship is the need to regularly monitor aquifer conditions, including groundwater water levels and groundwater production. One of the more useful activities that a GCD can undertake to characterize the changing aquifer conditions is to monitor changes in water levels and generate contour maps of water levels. Among the benefits of a comprehensive program for collecting and analyzing data is the ability to develop a sound approach for evaluating compliance with drawdown-based DFCs.

This section addresses two factors relevant to developing a groundwater monitoring program. One factor is the list of multiple groundwater management issues that benefit from a groundwater monitoring program tailored to address management and stewardship issues relevant to the GCD to accomplish its goals. The other factor is sufficient knowledge of different approaches for incorporating uncertainty into the interpolation and analysis of data so that the GCD can tailor its work so that the level of risks associated with alternative decisions can be addressed and perhaps even quantified.

### **5.2 GROUNDWATER MONITORING TO SUPPORT THE MANAGEMENT OF GROUNDWATER RESOURCES**

Texas Water Code provides a comprehensive list of groundwater management responsibilities for GCDs. TWC §36.0015 states that GCDs were created in order to provide for the conservation, preservation, protection, recharging, and prevention of waste of groundwater, and of groundwater reservoirs or their subdivisions. TWC F36.0015 also states that GCD are state's preferred method of groundwater management, and they are charged with using the best available science in the conservation and development of groundwater through rules developed, adopted, and promulgated by a district.

The TWC also lists specific groundwater management issues for GCDs and GMAs for which water levels are required to fulfill their purpose. These issues include:

- Conjunctive surface water management
- The annual volume of water that discharges from the aquifer to springs and any surface water bodies, including lakes, streams, and rivers;
- Evaluation of permitted production
- Desired future conditions
- Controlling and preventing subsidence;
- The annual volume of flow into and out of the district within each aquifer and between aquifers in the district, if a groundwater availability model is available
- Hydrological conditions, including for each aquifer in the management area the total estimated recoverable storage as provided by the executive administrator, and the average annual recharge, inflows, and discharge
- Environmental impacts, including impacts on spring flow and other interactions between groundwater and surface water

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Based on provision TWC Chapter 36, GCDs have the authority and the responsibility to manage groundwater within their jurisdiction. In order to determine groundwater flow directions, flow between aquifers, impacts from groundwater pumping, groundwater storage, groundwater-surface water interaction, and compliance with drawdown-based DFCs, geohydrologist and GCDs alike require information on water levels. In addition, in order to develop and to improve GAMs, groundwater modelers and GCDs alike need measured water levels.

All analysis of water level data includes uncertainty. Without a knowledge of the uncertainty associated with an analysis that affects groundwater management, GCDs may not be in the best position for making a well-informed decision. One area where an assessment of uncertainty would benefit GCDs is predictions of future water levels from GAMs that are used to determine DFCs. The practice of using GAMs during the joint planning process typically ignores uncertainty in GAM prediction although there exists clear evidence that GAMs are not perfect simulators as demonstrated in results of the model calibration process wherein the model simulation cannot match historical water levels and results of numerous aquifer tests. In INTERA’s experience working with GCDs and GAMs, there is a desire to quantify uncertainty in hydrogeologic analyses. Uncertainty, however, is generally avoided not so much because it is not important but because the process of determining uncertainty is not well understood. That is, there exists concern about the large magnitudes of uncertainty that can overwhelm the calculated quantity. Uncertainty can also be costly and time-consuming to determine.

Situations where uncertainty has value are where the GCD decisions regarding technical analysis may be questioned or challenged. A prime example of such a technical analysis is an evaluation of DFC compliance. To help demonstrate how uncertainty could affect a regulatory decision, a hypothetical situation is presented. The hypothetical situation involves a drawdown-based DFC of 90 ft for average drawdown from 2010 to 2070 and a calculated average drawdown of 100 ft (10 ft greater than the DFC) for the period 2010 to 2030 based on measured water levels. **Table 5-1** presents three options that assign different levels of uncertainty with each of the two parameters. For both parameters, the options include options of relatively small uncertainty (option 1), of relatively large uncertainty (option 2), and unknown uncertainty (option 3).

Table 5-1 Ranges of uncertainty associated with the determination of the DFCs and with an average drawdown calculated from measured water levels for a hypothetical decision

<b>Drawdown Calculation Options for Different Levels of Uncertainty</b>	
DFC of 90 ft Average Drawdown from 2010 to 2070 based on GAM Simulation	Option A-1. the 95% confidence is $\pm 1$ ft
	Option A-2. the 95% confidence is $\pm 30$ ft
	Option A-3. confidence limit is unknown
Calculated Average Drawdown from 2010 to 2030 from Measured Water Levels Exceeds DFC by 10 ft	Option B-1. the 95% confidence is $\pm 5$ ft
	Option B-2. the 95% confidence is $\pm 50$ ft
	Option B-3. there is no estimate of confidence interval

For the two parameters in Table 5-1, there are nine alternative situations that can be created from the combination of two parameters that each have three options. **Table 5-2** lists the three of these options. If Option 1 is valid for both parameters, then there is approximately 95% probability that the DFC has been exceeded. If Option 2 is valid for both parameters, then there is less than a 40% probability that the DFC has been exceeded. For these two cases, GCD action will likely be decided as much on the

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calculated value as the uncertainty associated with the calculated value. For the situation where Option 3 is valid for both parameters, the GCD decision is more likely to be challenged than the GCD decision associated with the situation #1 or #2.

Table 5-2 Ranges of uncertainty associated with the determination of the DFCs and with an average drawdown calculated from measured water levels for aft hypothetical decision

Alternative Situations Associated Evaluating DFC Compliance Defined by Different Combination of Options in Table 5-1			Likely Decision if based Solely on Technical Analysis
#	Determination of DFC	Determination of Average Drawdown	
1	Option A-1 (low uncertainty)	Option B-1 (low uncertainty)	Technical analysis indicates that the probability that DFC has been exceeded is greater than 95%. Corrective action is required.
2	Option A-2 (high uncertainty)	Option B-2 (high uncertainty )	Technical analysis indicates that the probability that DFC has been exceeded is less than 40%. Collect additional data and perform analysis to better define risk of exceedance.
3	Option A-3 (no uncertainty evaluation)	Option B-3 (no uncertainty evaluation)	Technical analysis cannot provide a defensive estimate of the probability that an exceedance has occurred.

### 5.3 METHODS FOR QUANTIFICATING OF UNCERTIANTY USING KRIGING

Spatial interpolation methods are used to predict values for a variable of interest at unsampled locations based on data from sampled locations. The various interpolation methods available differ in the number of samples used in the model and how those results are weighted, and each method may produce a different result. The more complex and advanced interpolation methods such as kriging have associated measurements of uncertainty. In most cases the measure of uncertainty can be used to determine probabilities of exceeding prescribed threshold values.

There are three approaches that are commonly used to estimate uncertainty associated with kriging. These three approaches include: calculating the kriged variance, performing cross-validation, and generating sequential Gaussian simulations. Each of these approaches provide a different measure of uncertainty that can be useful to the analysis of measured water levels. The Kriged variance provides an estimate of uncertainty at the unsampled locations. Values generated from cross-validation can provide estimates of uncertainty at a sampled location if no data had existed for the sampled location. Both the Kriged variance and the cross-validation are useful for estimating uncertainty at specific locations such as a drawdown at a well location. However, the two methods are not useful for evaluating uncertainty of an ensemble of points that cover an area. Among the best options for evaluating uncertainty associated with average drawdowns across a county is sequential gaussian simulation (SGS). Each of these methods are described below:

#### 5.3.1 Calculate The Kriged Variance

The variance in the interpolated values in the inter-well regions depends on (a) the distance from observations, and (b) the variability in observed water levels. Thus, areas with large variation in measured values will tend to have more variability in the interpolated values because the value would



depend strongly on the random path used to reach a given point. Areas with few measurements would also tend to have high uncertainty, as there would be no measurements to constrain the estimates leading to large variation across different realizations.

### **5.3.2 Perform Cross-Validation**

Cross-validation analysis consists of sequentially removing one data-point from a dataset, and using the remaining data-points to estimate the value at the missing data-point. Comparison of the estimated value with the real value can give information about (a) the importance of the missing data-point, (b) the sensitivity of the estimated values to data, and (c) an upper-bound on the expected error. Because cross-validation analysis is calculating values, only a location where there are measured values it not providing a measure of the error at unsampled location, which is what a kriged variance provides. The cross-validation error can also be thought to provide an upper bound on the expected error around a given well. The error in the unsampled region will be between the cross-validation errors of at the sampled locations around the unsampled region. Cross-validation can be used to assess the quality of a single kriging approach, but another common application is to use cross-validation to compare two or more kriging approaches to determine which one performs better.

### **5.3.3 Generate Sequential Gaussian Simulations**

SGS consists of using kriging-based interpolation with the original data (sampled values) as well as all previously simulated values proximal to the interpolation location. The exercise is repeated with different random paths that visit each grid node once. A realization is completed when every grid node has an estimated value. A standard algorithm from the GSLIB geostatistical package (Deutsch and Journel, 1992) was used to create these realizations. A total of 100 equally likely conditional realizations of depth to water were created using this approach.

## **5.4 QUANTIFICATION OF KRIGING UNCERTIANTY**

Young and others (2021) constructed continuous grid of interpolated water levels for the Chicot and the Evangeline aquifers from 2000 to 2020 using ordinary kriging. Ordinary Kriging gives the optimal prediction under the assumption of second-order stationary, a normal distribution for the modeled variable, and the absence of any trend in the data. By optimal prediction, what is meant is that Kriging provides the best linear unbiased prediction at unsampled locations and reproduces the measured values at all sampled locations exactly. Readers interested in knowing more about kriging can find additional information in Young and others (2021) and textbooks such as Goovaerts (1997) and Pyrcz and Deutsch (2014).

Young and others (2021) developed the water level surfaces using measured water level and residuals. A residual is the difference between the measured value and value produced by the trend at the location of the measured data. Young and others (2022) generated the residuals by subtracting a trend surface from the measured water levels. The trend surface was generated by smoothing and filtering the results of simulated water levels using the GAM for GMA 15. The residuals were generated in order to remove the spatial trend in the measured water levels. The occurrence of long-range trends is routinely observed in regional water level surfaces (Kitanidis, 1997) because water level elevations are predominantly determined by hydraulic boundaries (such as high-elevation recharge zones) and lower

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elevation discharge zones (such as rivers). In this section, we will use three approaches to evaluate the uncertainty associated with the interpolated water surfaces.

In the next three sections we estimate uncertainty associated with kriging by calculating the Kriged variance, by performing cross-validation, and by generating sequential Gaussian simulations. We apply these three types of analysis to the 2020 measured water level data used by Young and others (2021). The data consists of 105 and 111 measured water levels in the Chicot and Evangeline aquifers, respectively. **Table 5-3** shows the number of water level measurements from Calhoun, Jackson, Refugio, and Victoria counties.

Table 5-3 Distribution of 2020 measured water levels in the Chicot and the Evangeline aquifers among Calhoun, Jackson, Refugio, and Victoria Counties

County	Number Wells with Water Levels	
	Chicot	Evangeline
Calhoun	5	0
Jackson	14	2
Refugio	7	1
Victoria	14	28

**Figure 5-1** shows the variograms for the Chicot and Evangeline aquifer that was used to kriged the 2020 water levels and the residuals generated by Young and others (2021). **Table 5-4** shows the attributes of the variograms. A variogram has three attributes that summarize important aspects of the spatial data. These three attributes are described below and are illustrated in **Figure 5-2**.

- **Range** – is the maximum distance between points up to which there is information on the correlation/spatial relationship between two data points.
- **Nugget Effect** – nugget represents the small-scale variability of the data. A nugget is defined as a variance that exists at scales less than smallest space distance used to create the variogram. A portion of that short range variability can be the result of measurement error
- **Sill** – is the sample variance, which is a measure of the spread or variability in the data points that are not correlated. The sill is determine by the sum of the variance of nugget effect and the variogram used to represent the correlation/spatial relationship among the points

Table 5-4 Attributes of the Spherical variograms illustrated in Figure 5-1

Aquifer	Kriged Parameter	Variogram	Variance (ft <sup>2</sup> )	Range (miles)
Chicot	Water Levels	Nugget	47	0
		Spherical	62,148	1,454
	Residuals	Nugget	223	0
		Spherical	477	42
Evangeline	Water Levels	Nugget	0	0
		Spherical	9,124	68
	Residuals	Nugget	123	0
		Spherical	1,218	84

#### 5.4.1 Calculate The Kriged Variance -

**Figure 5-3** shows the contours of the kriged water levels for the Chicot Aquifer based on 2020 measured water level data. For convenience, the results generated by the kriged water levels will be referred to as KWL values and the results generated by kriged residuals values will be referred to as KRS values.

**Figure 5-4** shows contours of the kriged standard deviations for the two sets of contours in Figure 5-1. The standard deviation is calculated by taking the square root of the total variance of the variogram.

**Figure 5-5** shows the contours of the kriged water level for the Evangeline Aquifer based on 2020 measured water level data. **Figure 5-6** shows the contours of the kriged water level for the Evangeline Aquifer based on 2020 measured water level data that were generated by Young and others (2021).

The observed difference in the water levels and the standard deviations are directly related to the differences in the variograms among the four data sets. The KWL contours are more contorted than their KRS counterparts because they have a smaller nugget effect – meaning they will more precisely honor the measured water levels at each location. The smaller nugget is also the cause of the lower standard deviation near the measured data for the KWL results than the KRS results. In Table 5-4, the nugget contribution to the standard deviation ranges of 0 ft for the Evangeline KWL analysis to 15 ft (aka square root of 223 ft<sup>2</sup>) for the Evangeline KWL analysis.

The standard deviations in areas far from a measured water level are greater for the KWL results than the KRS results because of the greater variance at the defines each variogram. Using the distance of 200,000 ft (about 38 miles) from nearest data point, the standard deviation determined from the variograms from the Evangeline KWL analysis, the Chicot KWL analysis, the Evangeline KRS analysis, and the Chicot KRS analysis is approximately 84 ft, 47 ft, 30 ft, and 25 ft, respectively.

A detailed examination of Figures 5-3 through 5-6 will show the control that the spacing distances and unsampled location and the nearest sampled location has a dominant effect on both the interpolated water level and standard deviation at that unsampled location. What can be learned from such an analysis is that the variogram provides useful insight into the desired spacing between measured water levels. In addition, the comparison of differences between the interpolated water levels between the KWL analysis and the KRS analysis provides useful information on the desirable locations of new monitoring wells.

#### 5.4.2 Perform Cross-Validation

A limitation of the Kriged variance that it primarily determined by the location of the data, the spacing between the data, and the variogram. The Kriged variance is not dependent on the actual values of the points as it should not be if the underlying assumptions of Kriging are fully met. However, these assumptions are usually not fully met and therefore a Kriged variance albeit a very useful metric is not necessarily a reliable measure of the true uncertainty. A more appropriate measure of uncertainty, or more correctly an upper bound on the expected error, is obtained by performing cross-validation.

**Table 5-5** shows the results from a cross-validation for the KWL analysis and the KRS analysis for the Chicot and the Evangeline aquifers. The results indicate that the KRS method has less expected error than the KWL method. The primary metric that supports this conclusion is the notably lower standard deviations for both the Chicot and the Evangeline cross-validation applications. **Figures 5-7** and **5-8** plot the data used to create the 2020 results in Table 5-5. All of the plots include a dashed black line which represents a perfect match between the measured value and the cross-validation value. Therefore, the

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less spread there is among the points around the dashed black line, the smaller the standard deviation and the lower the standard deviation.

Table 5-5 Comparison of average value for the difference between the measured value and the value calculated by cross-validation for all points associated with the 2020 data and for all points associated with the data from 2000-2021 for the KWL and the KRS analysis for the Chicot and the Evangeline Aquifers

Aquifer	Kriged Method	Measured - Cross Validation Value (ft)			
		Average		Standard Deviation	
		2020	2000-2021	2020	2000-2021
Chicot	Water Levels (KWL)	1.1	1.1	8.0	6.4
	Residuals (KRS)	0.5	0.5	3.9	2.3
Evangeline	Water Levels (KWL)	0.6	0.6	7.9	6.5
	Residuals (KRS)	0.6	0.6	4.8	5.3

#### 5.4.2.1 Generate Sequential Gaussian Simulations

A set of 100 Gaussian simulations were generated for each of the KWL and KRS analysis for the Chicot and Evangeline water level values measured in 2020. The simulations were generated using the program FIELDGEN (Doherty, 2010) and the variogram parameters in Table 5-4. For each of the simulated continuous field of water levels, standard deviation was calculated for the calculated average water levels for Calhoun, Jackson, Refugio, and Victoria counties. **Table 5-6** provides the standard deviation for the 16 scenarios created by the combination created from four counties, two aquifers, and two kriging methods. The results clearly show that the KRS methods consistently have significantly lower standard deviations than the KWL method. The lower standard deviations indicate that the KRS method has less uncertainty than the KWL for determining average water elevation for a county.

Table 5-6 Standard Deviations of the average value of the mean water levels determined for Calhoun, Jackson, Refugio, and Victoria County for the 2020 data set for the Chicot and the Evangeline based on 100 Sequential Gaussian Simulations.

Aquifer	County	Kriged Method	Standard Deviation
Chicot	Calhoun	Water Levels (KWL)	31.0
		Residuals (KRS)	0.5
	Jackson	Water Levels (KWL)	26.6
		Residuals (KRS)	0.5
	Refugio	Water Levels (KWL)	26.8
		Residuals (KRS)	0.4
	Victoria	Water Levels (KWL)	25.9
		Residuals (KRS)	0.5
Evangeline	Calhoun	Water Levels (KWL)	6.6
		Residuals (KRS)	1.0
	Jackson	Water Levels (KWL)	4.5
		Residuals (KRS)	0.7

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Aquifer	County	Kriged Method	Standard Deviation
	Refugio	Water Levels (KWL)	5.3
		Residuals (KRS)	0.7
	Victoria	Water Levels (KWL)	4.9
		Residuals (KRS)	0.5



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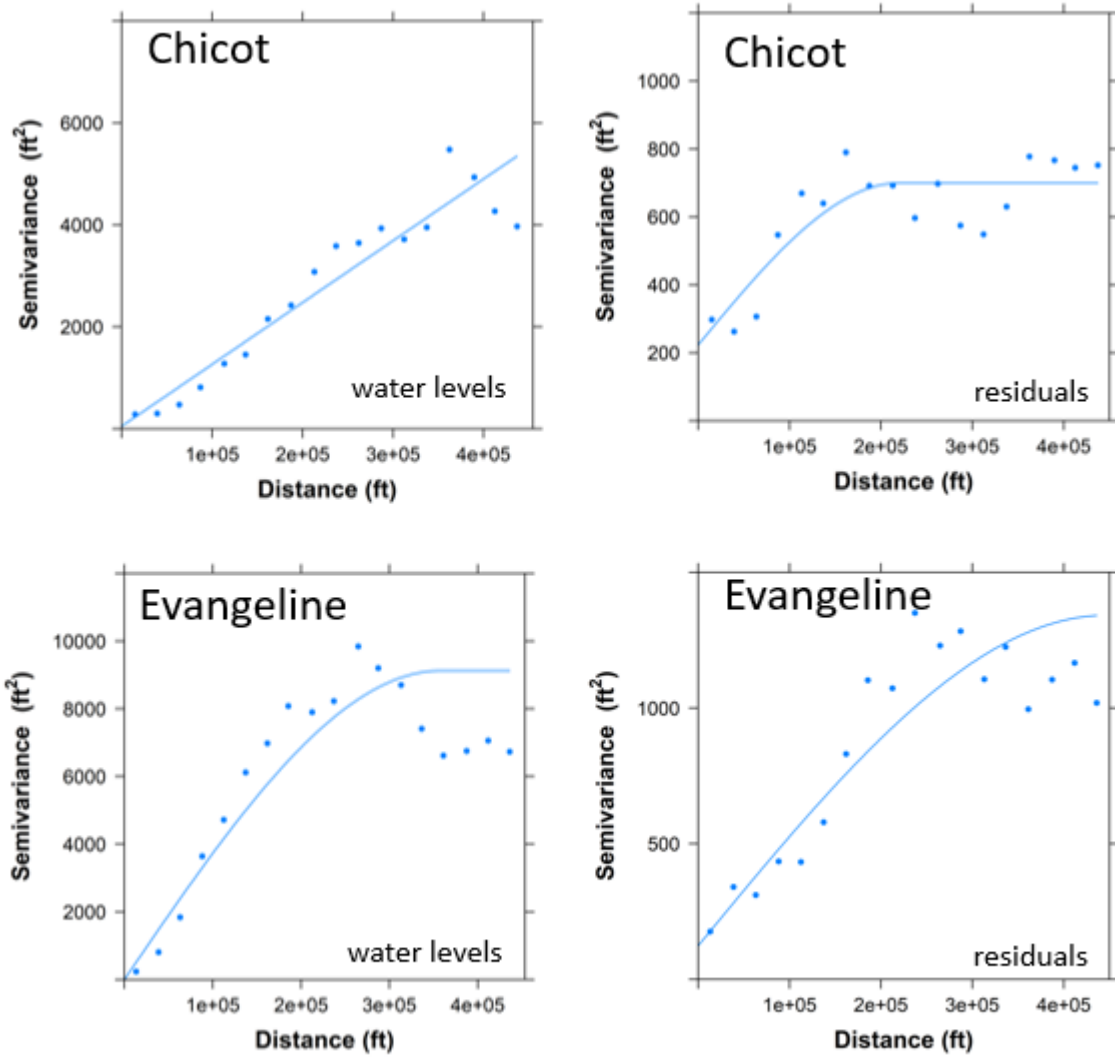


Figure 5-1 Semivariograms for the Chicot and Evangeline Aquifers based on 2020 measured water levels and 2020 residuclated enerated by detrending the measured groundwater levels

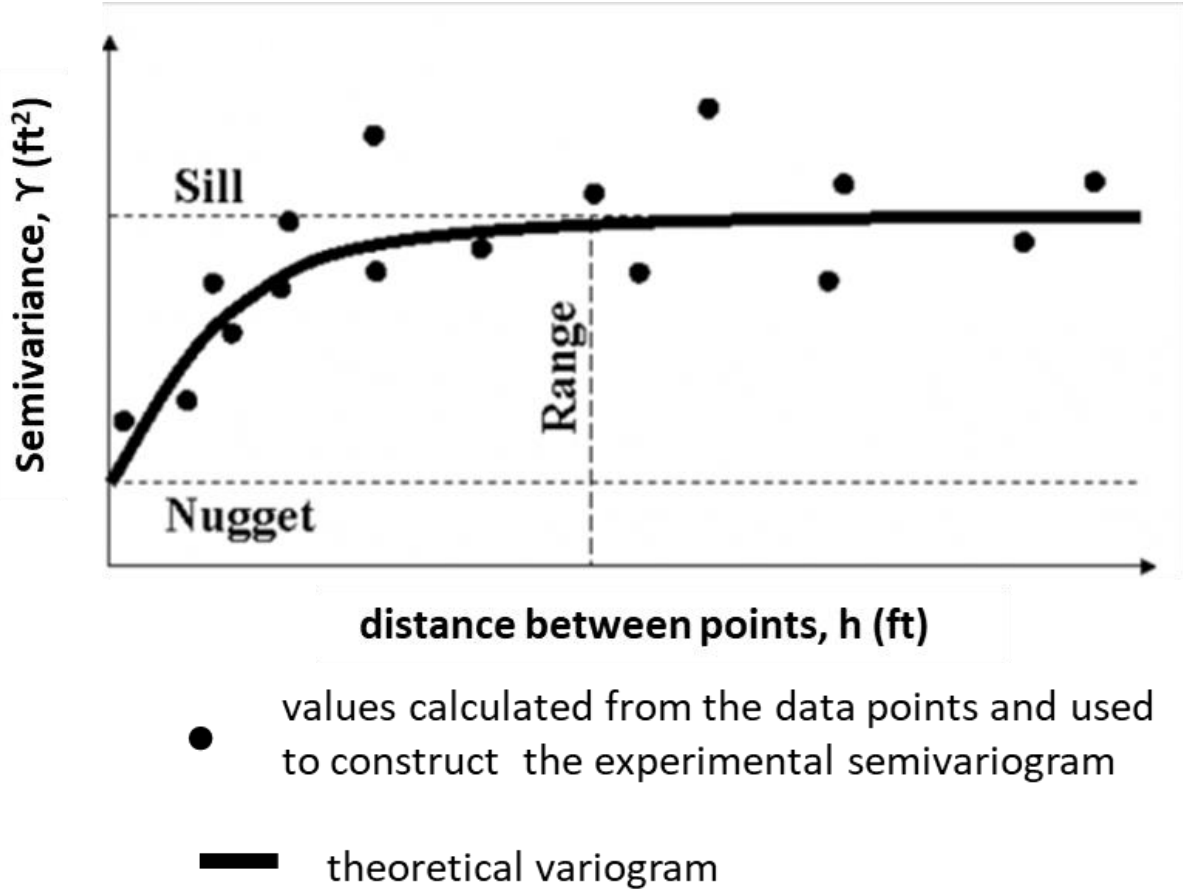


Figure 5-2 Schematic of a semivariogram

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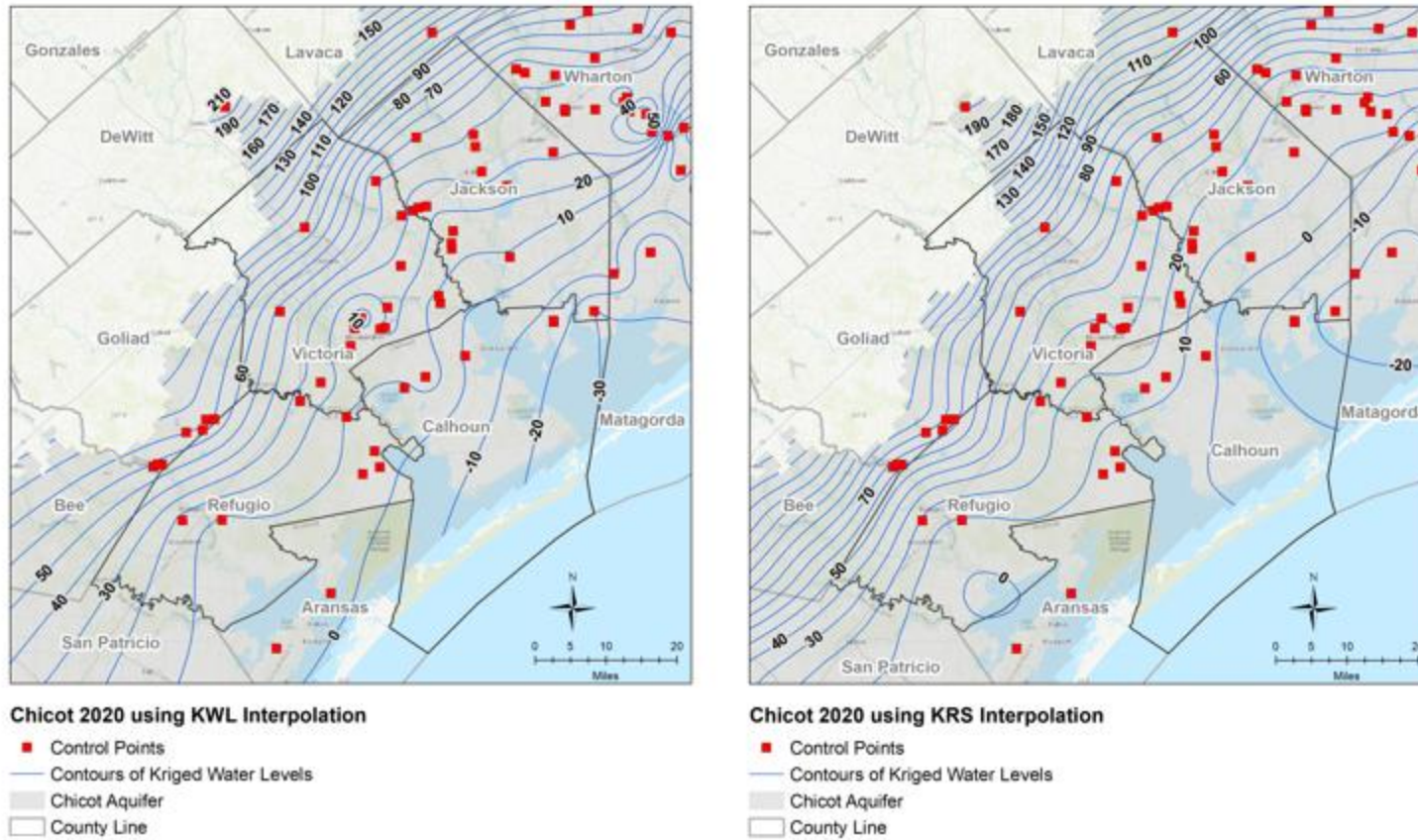
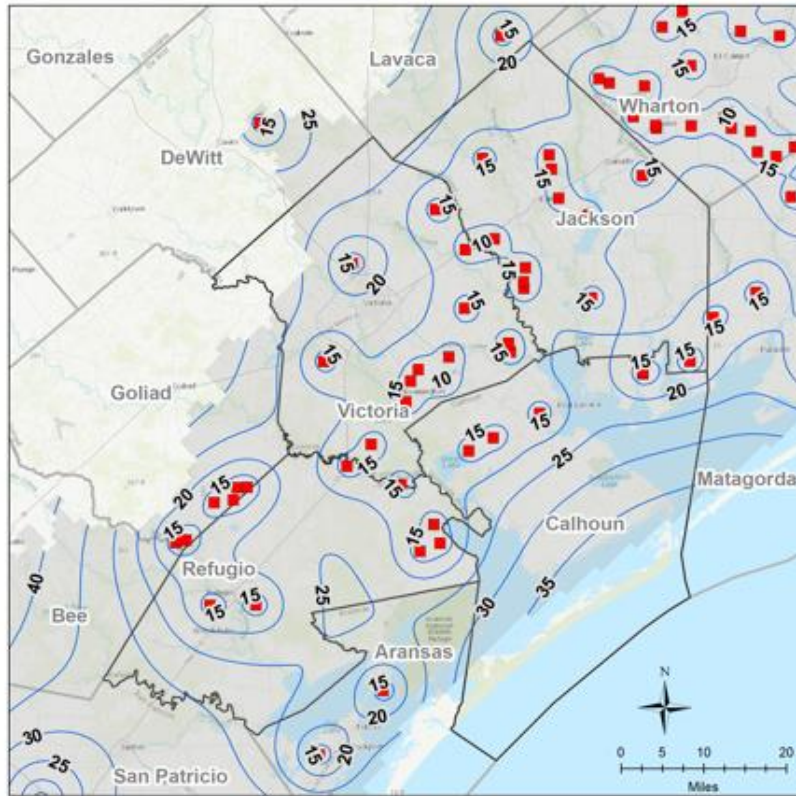


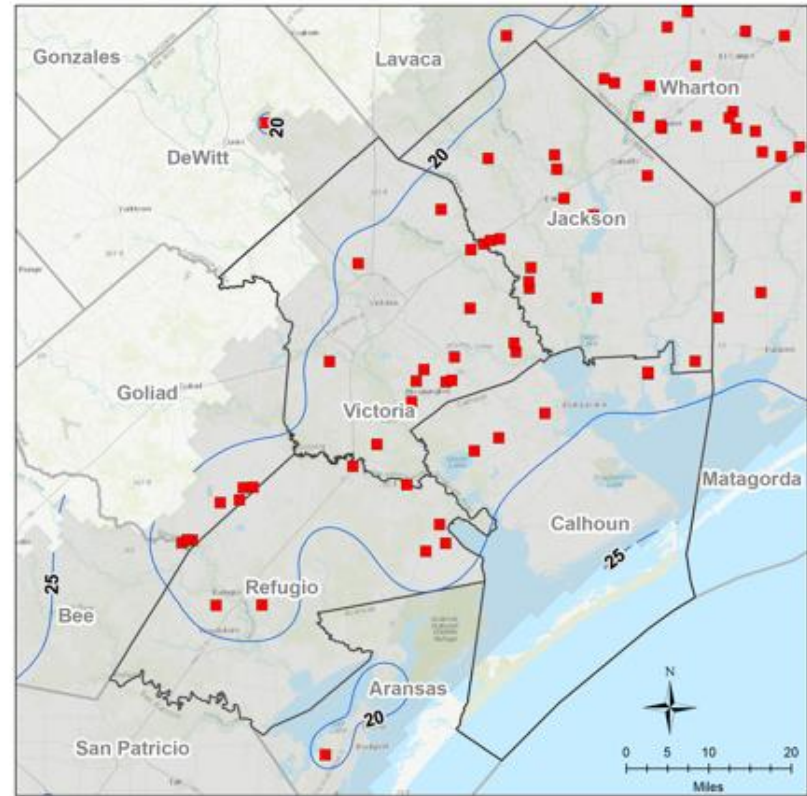
Figure 5-3 Contours of 2020 water levels for the Chicot Aquifer generated by kriging the measured water levels (KWL interpolation on the left) and calculated residuals calculated by detrending the measured water levels (KRS interpolation on the right)

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**Chicot 2020 using KWL Interpolation**

- Control Points
- Contours of Kriged Standard Deviation
- Chicot Aquifer
- County Line



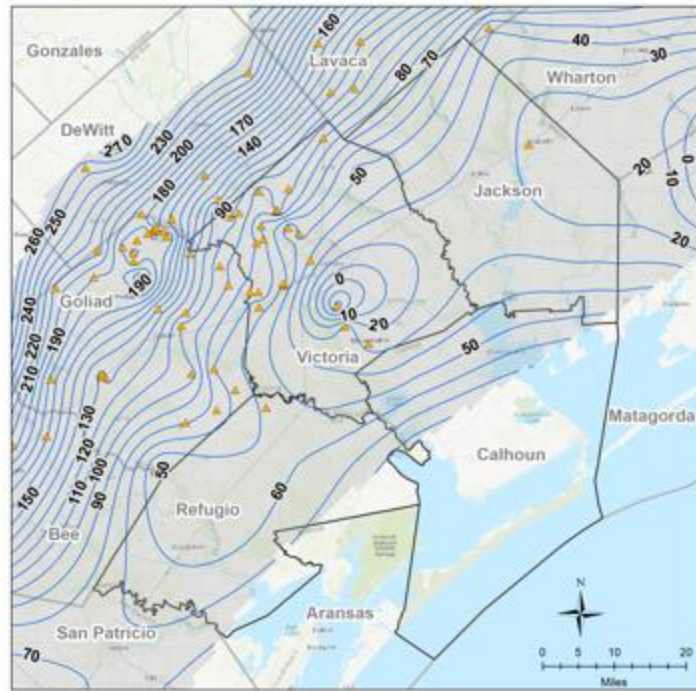
**Chicot 2020 using KRS Interpolation**

- Control Points
- Contours of Kriged Standard Deviation
- Chicot Aquifer
- County Line

Figure 5-4 Contours of standard deviations for the Chicot Aquifer water levels from kriging the measured water levels (KWL interpolation on the left) and kriging the residuals calculated by detrending the measured water levels (KRS interpolation on the right)

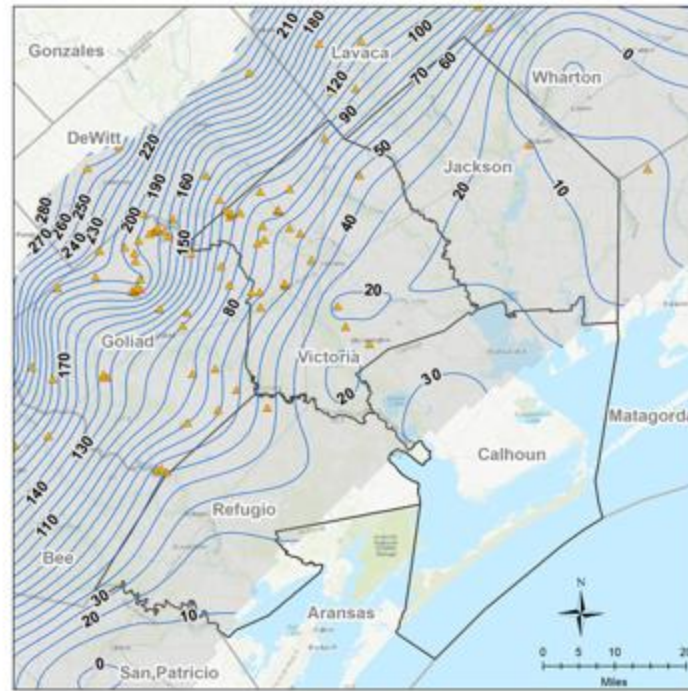


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**Evangeline 2020 using KWL Interpolation**

- ▲ Control Points
- Contours of Kriged Water Levels
- Evangeline Aquifer
- County Line



**Evangeline 2020 using KRS Interpolation**

- ▲ Control Points
- Contours of Kriged Water Levels
- Evangeline Aquifer
- County Line

Figure 5-5 Contours of 2020 water levels for the Evangeline Aquifer generated by kriging the measured water levels (KWL interpolation on the left) and calculated residuals calculated by detrending the measured water levels (KRS interpolation on the right)



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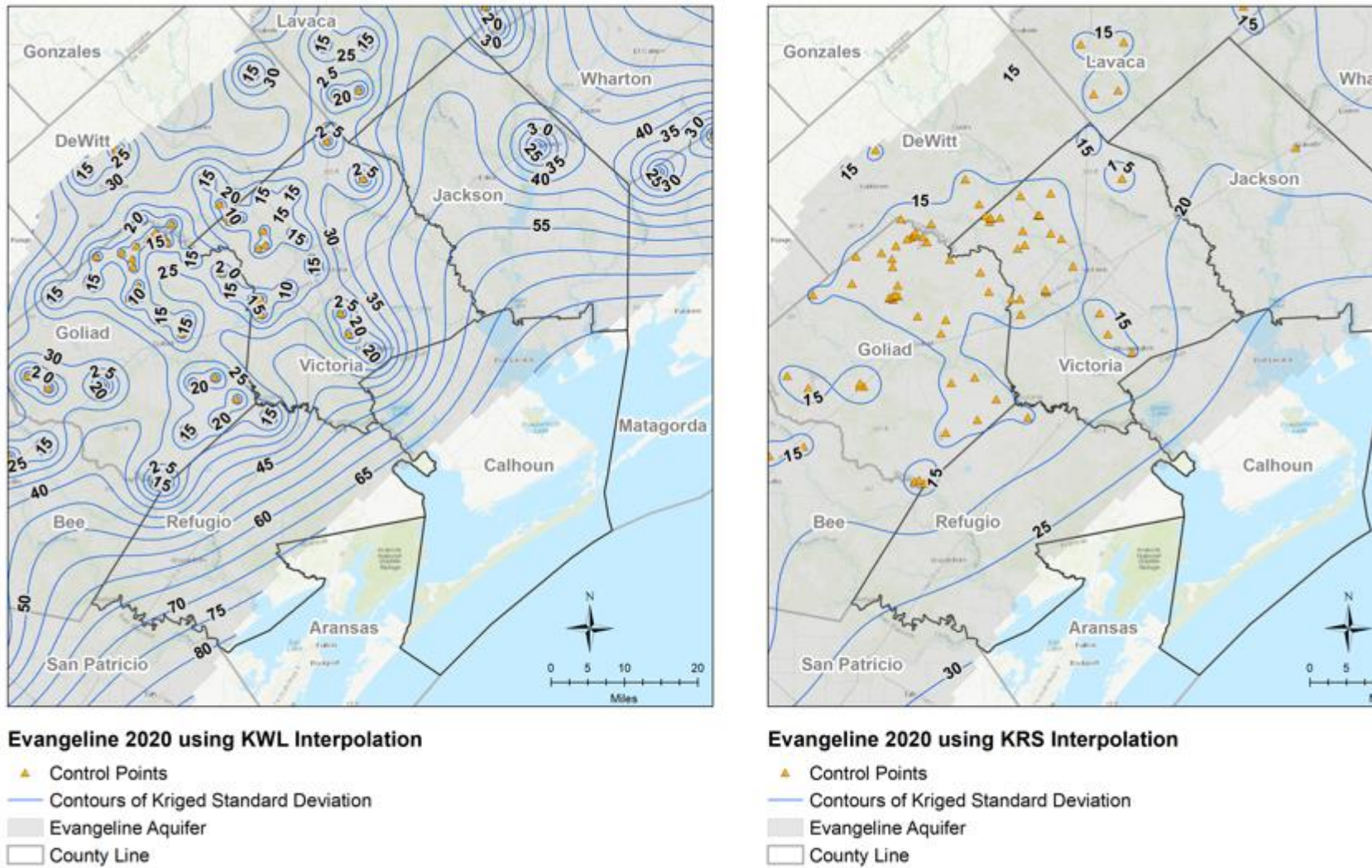


Figure 5-6 Contours of standard deviations for the Chicot Aquifer water levels from kriging the measured water levels (KWL interpolation on the left) and kriging the residuals calculated by detrending the measured water levels (KRS interpolation on the right)

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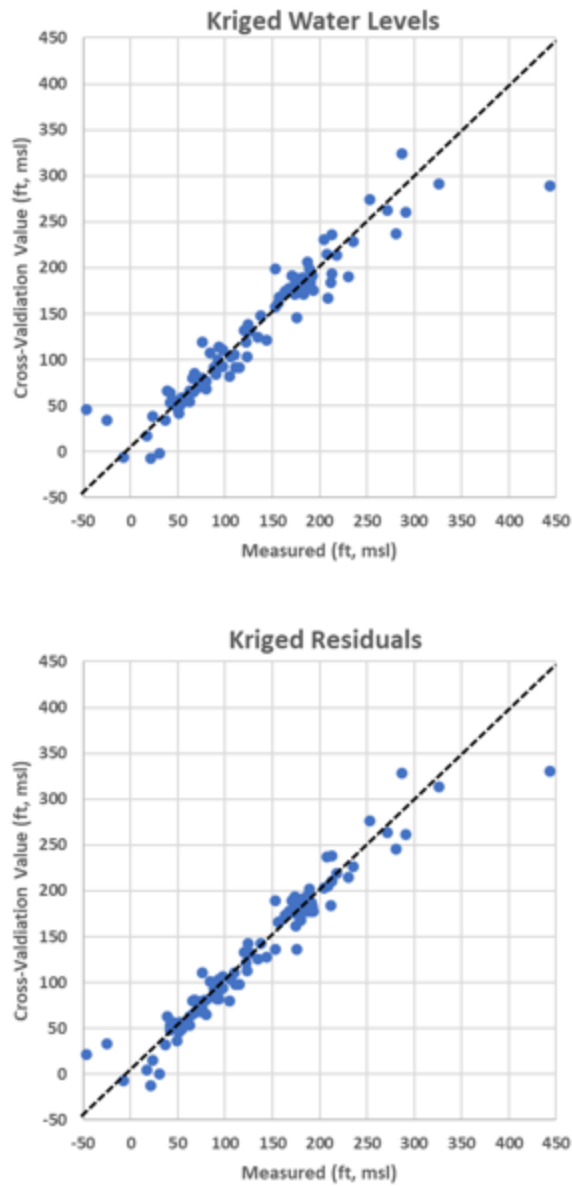


Figure 5-7 Comparison of the measured 2020 water levels and water levels calculated from cross-validation at 105 wells located in the Chicot Aquifer. (the dash black line represent a perfect match)

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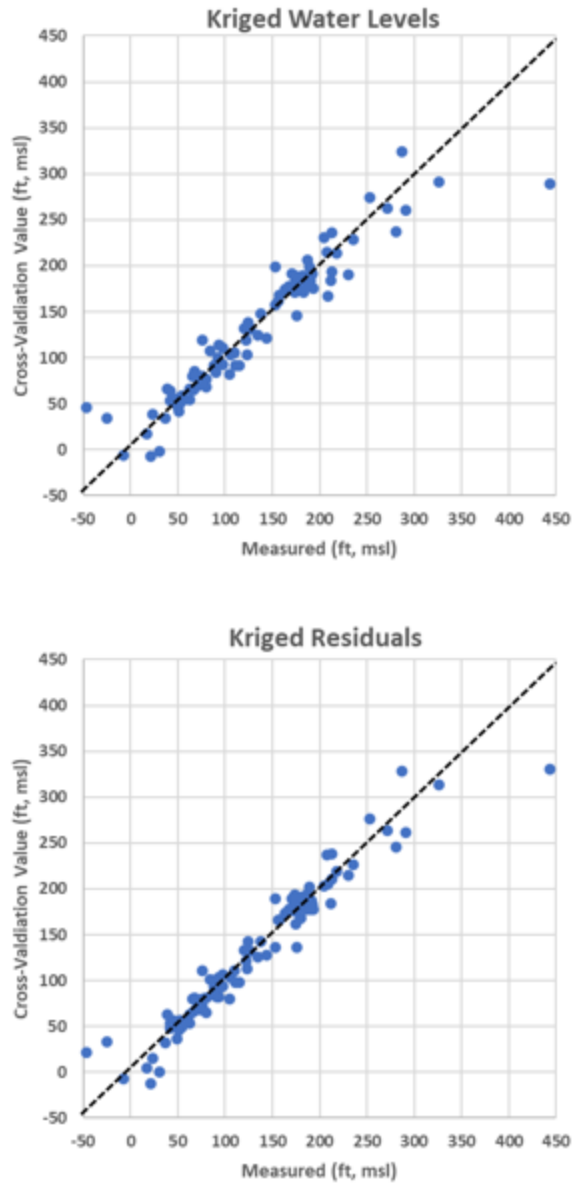


Figure 5-8 Comparison of the measured 2020 water levels and water levels calculated from cross-validation at 111 wells located in the Evangeline Aquifer. (the dash black line represent a perfect match)

## 6.0 EXPANSION OF MONITORING WELL NETWORK WITH CONSIDERATION FOR SUPPORTING GEOSTATISTICAL ANALYSIS OF DATA

### 6.1 BACKGROUND

The construction and maintenance of a comprehensive groundwater monitoring network is among the more costly activity that GCDs perform. Identifying favorable monitoring well locations is time consuming. Installation of wells is expensive. Securing leasing is resource intensive. And, obtaining and analyzing data is the trifecta: it is time-consuming, expensive, and resource intensive. Consequently, GCDs should have a well-reasoned and thought monitoring objectives and approach for accomplishing the said objectives before embarking on expansion of their monitoring well network.

This section is to provide a framework with CCGCD, TGCD, RFGCD, and VCGCD to expand their monitoring network. For convenience of brevity, these four GCDs will be referred to in the collective as the Districts. The framework will include identifying monitoring objectives based on a stakeholder based process and a systematic process for prioritizing the locations for additional monitoring wells.

### 6.2 CONSIDERATIONS FOR EXPANSION OF MONITORING WELL NETWORK

The considerations for the monitoring well expansion includes the monitoring responsibilities identified in Section 5.2 and a stakeholder-based evaluation of project priorities (Young, 2013). . Among the GCDs management responsibilities related to monitoring water levels is evaluating compliance to the GCD's DFC.. The importance of evaluating DFC compliance was echoed in the responses from a Groundwater Advisory Committee (GWAC) that was created by VCGCD that consisted of stakeholders that represented different groups of groundwater users in Victoria County. Young (2013) present the results of two surveys regarding groundwater issues, discussion and selection of potential projects, and a ranking of thirteen projects that were developed as one-page descriptions that included an estimated cost for the project.

**Table 6-1** lists the ranking of 13 projects evaluated by the GWAC. The three bolded projects are associated with the collection and analysis of water level data from a monitoring well network. The 13 projects were ranked by each GWAC member with a of score 1, 2, 3, or 4, which represented a resource utilization of poor, fair, good, and excellent respectively. The final ranking for each project was based on the average of the rankings assigned to the project by the stakeholders. Table 6-1 provides the average scores for the projects. The average scores ranged between 3.75 to 1.75. Five projects were assigned a high resource utilization ranking. Three projects were assigned a moderate resource utilization ranking. Four projects were assigned a low resource utilization score

Out of the three projects involving the collecting and analyzing groundwater water level data, one project was rated as high and two projects were rated as low. The project with a high-priority rating was titled: "Project 6: Methodology for Analyzing Monitoring Data to Document Changes in Aquifer Conditions, Address District Concerns, and Evaluate Conformance with Desired Future Conditions (DFCs)." The two projects with low-priority ratings were titled: "Project 10. Measurement of Water Levels in Vertically-staged Monitoring Wells to help estimate Vertical Groundwater Flow and to help

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Monitor/Analyze Water Level Data” and “Project 11. Conceptualization and Characterization of Groundwater-Surface Water Interactions Based on Changes in Monitored Water Levels and Water Quality Measurements.” The two low-rated projects have appreciable overlap with four of the eight water level related issues discussed in Section 5.2 that involve monitoring groundwater levels.

Table 6-1 Groundwater Advisory Committee Stakeholder Ranking of Proposed Project from Young, (2013) . The three bolded projects are associated with the collection and analysis of water level data from a monitoring well network.

Resource Utilization		Proposed Project
Group	Score	
High	3.5	<b>Project 1.</b> Assessment of the GMA 15’s GAM and Recommendations to Improve the GAM Capabilities to Help GCDs achieve their Goals and Objectives.
	3.5	<b>Project 2.</b> Literature Search for Hydraulic Test Data in Victoria County to Help Estimate Aquifer Hydraulic Properties to Improve Predictions of Pumping Impacts and Sustainability
	3.5	<b>Project 3.</b> Large-Scale Aquifer Test(s) to Characterize Aquifer Properties and Improve the Conceptualization of Groundwater Flow System in Victoria County
	3.75	<b>Project 5.</b> Development of Pumping-Impact Assessment Tool(s) Capable of Evaluating Water Level Change and Zone of Capture Associated with High-capacity Wells, Injection Wells, ASR operations, and Development of Brackish Water
	3.5	<b>Project 6. Methodology for Analysing Monitoring Data to Document Changes in Aquifer Conditions, Address District Concerns, and Evaluate Conformance with Desired Future Conditions (DFCs)</b>
	3.5	<b>Project 12.</b> Evaluation of Recharge Rates Estimated from Previous Field Studies and Collection and Analysis of Additional Field Data
Moderate	3	<b>Project 4.</b> Data-Gap Analysis of Well Construction Information and Identification of Wells Most Susceptible to Drawdown Impacts
	3	<b>Project 8.</b> Evaluation of the Sustainability of Groundwater Resources Using the GAM 15 GAM
	2.75	<b>Project 9.</b> Development of Adaptive Monitoring Practices to Achieve Sustainability of Groundwater Resources
Low	1.75	<b>Project 7.</b> Assessment of the Potential for Injection and Disposal Wells to Adversely Impact Groundwater Resources
	2.25	<b>Project 10. Measurement of Water Levels in Vertically-staged Monitoring Wells to help estimate Vertical Groundwater Flow and to help Monitor/Analyze Water Level Data</b>
	1.75	<b>Project 11. Conceptualization and Characterization of Groundwater-Surface Water Interactions Based on Changes in Monitored Water Levels and Water Quality Measurements</b>
	2.25	<b>Project 13.</b> Characterization of the Water Quality Based on Analysis of Well Monitoring and Analysis of Geophysical Logs

Based on GCD responsibilities in the TWC and responses from the GWAC created by VCGCD, the primary objective of the monitoring program should be to document changes in aquifer conditions over time and to evaluate compliance with DFCs. Additional objectives that should be deemed of considerably less



importance would be to monitor groundwater levels near river gauges and to monitor water levels in vertically staged monitoring wells.

## 6.3 GENERAL APPROACH FOR IDENTIFYING CANDIDATE MONITORING WELL LOCATIONS

INTERA has assisted numerous GCDs with expanding their groundwater wells monitoring locations (Young, 2013, Young, 2014, Young, 2015a,b,c; Oliver and Piemonti, 2018; INTERA, 2012a,b; Young and others, 2015). Although each of these applications are different in their monitoring well selection criteria, the general approach used for each application is similar. The process involves the three following steps:

- Step 1. Define the objectives of the GCD monitoring well program and identify the GCD's current set of monitoring well locations
- Step 2. Identify candidate wells that appear suitable for use as monitoring wells by searching the GCD database of exempt wells and/or the TWDB database of submitted driller reports (SDRs).
- Step 3. Identify areas where additional monitoring wells would provide beneficial water level information for accomplishing the district goals.
- Step 4. Overlap the location of candidate wells with the monitoring areas of interest and select a set of candidate wells for each monitoring area.
- Step 5. Prioritize the monitoring area of interest and prioritize and select the candidate wells per monitoring area based on available well specifications and the GCD monitoring objectives
- Step 6. Tabulate the selected candidate wells by monitoring area and include relevant well information. Identify areas where new wells would provide the most beneficial areas if no candidate wells exist.

Among the key factors that affect how the six steps are implemented are the complexity of the site geology, the monitoring objectives, and the GCD area extent. A high-level summary of the approach can be visualized using results from its application for the Coastal Plains GCD in Matagorda County. The upper image in Figure 6-1 summarizes several key features, which include the locations of candidate wells with and without screen information, 11 monitoring areas of interest, and the locations of four existing monitoring wells. The monitoring areas of interest were delineated based on differences in production types and amounts. The candidate wells were based on water use type, aquifer assignment, installation date, screen interval, and well diameter. After culling the candidate wells based on selection criteria, the highest rated candidate wells kept for final consideration by the GCDs for their monitoring program. Final selection of the additional monitoring well was required a obtaining a candidate well or drilling a new well.

## 6.4 IDENTIFICATION OF CANDIDATE WELLS AND WELL LOCATIONS

### 6.4.1 Current Well Monitoring Network and Candidate Wells for Expanding the Network

The candidate wells for wells for the monitoring network for the Districts consists of three groups of wells. Wells in each of these groups were assigned to either the Chicot or the Evangeline Aquifer based on their well depth and the aquifer surfaces associated with the GMA 15 current GAM (Chowdhury and others, 2004). **Figure 6-1** shows the location of the wells belonging to each group for the Chicot and the

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Evangeline aquifers. Well Group 1 consists of wells that have been monitored for at least one water level from 2016 to 2021. These wells are shown as red squares. Well Group 2 consists of wells that were monitored at least once from 2000 to 2015 but were not monitored from 2016 to 2021. These wells are shown as black dots. Well Group 3 consists of wells that have been installed since 2021 and are a part of the TWDB SDR database. These wells are represented as gray dots.

For each of the four counties that comprise the Districts, we have assumed that the initial monitoring network can be reasonably represented by wells in Well Group 1 and Well Group 2. The working assumption is that the GCDs will have about a 90% and about a 70% chance of obtaining permission to monitor Well Group 1 and Well Group 2, respectively.

Well Group 3 are the location of candidate wells that could be used to expand the monitoring well network. The presumption is that there is about a 20% chance that a GCD will be able to reach a monitoring agreement with an owner of a Group 3 well. SDR wells that were considered as candidate wells include those with well use types of domestic, livestock, rig supply, and irrigation. SDR wells that were not considered as candidate wells include those with municipal, mining, and industrial use.

#### 6.4.2 Monitoring Areas Where Beneficial Water Levels Can be Measured

Three priority levels were used to categorize the proposed locations for new monitoring wells. **Table 6-2** provides a brief explanation of the three levels. Level 1 is the highest priority. Level 3 is the lowest priority and Level 2 is an intermediate priority.

Table 6-2 Description of the Three Monitoring Levels that are Assigned to Proposed Areas for Expansion of the Monitoring Network

Monitoring Level		Purpose
Level 1	Highest Priority	Fill in gaps in well coverage to support geostatistical analysis that produce continuous water level surfaces that can be used to estimate temporal changes in water levels and flow directions and to check DFC compliance.
Level 2	Intermediate Priority	Obtain access to a former rig supply well that is located in an area where a Group 2 well may not be accessible or where monitoring a rig supply well would be preferred over a Group 2 well. In some cases, to monitor an area where no wells are in the current monitoring well network.
Level 3	Low Priority	Provide the opportunity to monitor groundwater -surface water interaction by measuring water level in a shallow groundwater well located in the vicinity of a stream gauge.

**Figure 6-2** shows the shows circular areas in which the addition of a monitoring well is proposed. All of the monitoring areas in Figure 6-2 have a Level 1 priority. A Level 1 priority is assigned to areas where the closest existing monitoring well is no less than 5 miles away. In general, the Level 1 monitoring areas are located in areas where the kriging variance are relatively high (see Section 5.3.1). The addition of a new well in a Level 1 monitoring areas should have a much greater impact on decreasing the uncertainty associated with the calculated average water level across the county than a randomly placed monitoring well.

The candidate wells contained in the Level 1 monitoring areas are listed in the Texas Water Development Board Submitted Driller (SDR) database. The SDR wells have been installed after 2000 and include wells used for different water uses. The SDR wells with municipal, industrial, or mining use are

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not shown in Figure 6-2 or any subsequent files. They were deemed undesirable because they typically have relatively high productions and pumping all year round. The SDR candidate wells shown in have the preferred priority of rig supply wells, then domestic/livestock wells, and then irrigation wells. The final decision regarding which candidate well would serve as the best monitoring well should be made after inspection of local conditions including the well condition, nearby pumping, and local access.

**Figure 6-3** shows monitoring areas that have a Level 2 priority. A Level 2 priority area contains one or more rig wells of interest. Rig wells were installed primarily to provide water for drilling a large and deep well such as an oil exploration borehole/well. After the well or borehole has been completed, the owners of the rig wells tend to be more cooperative than owners of other types of well owners in terms of providing a GCD access for monitoring the water well. Besides often being easier to gain monitoring access, rig wells have the additional benefit of not being pumped after they have fulfilled their purpose. The Level 2 monitoring areas provide an opportunity to reinforce an/or provide duplication in an area where a Group 2 well already exist. In these areas, additional water level data would help to help to reduce the kriged variance at the well location and provide for a better variogram analysis.

**Figure 6-4** shows monitoring areas that have a Level 3 priority. The Level 3 monitoring areas are located close to stream gauges and include wells that are less than 100 feet deep. The monitoring areas have the potential to serve as a field site to collect information on groundwater – surface water interactions.

### 6.4.3 Proposed Well Monitoring Network

Figures 6-5, 6-6, 6-7, and 6-8 show the proposed well monitoring network for Calhoun, Jackson, Refugio, and Victoria counties, respectively. Each county's well network consists of previously monitored wells and proposed new well locations. The existing monitoring wells are comprised of two well groups: Group 1 and Group 2. Group 1 wells have been monitored since 2016. Group two wells have been monitored between 2000 and 2016. The proposed areas for new locations are designated by priority levels 1 to 3. Only one new monitoring well per monitoring area I proposed. Table 6.2 explains the purpose for the different priority levels. As mentioned previously, a primary reason for the Level 2 wells is to provide redundancy for the Group 2 wells, which may not be available for future use by a GCD.

Table 6.3 lists the number of wells that have been previously used to monitor water levels and the number of proposed new locations for monitoring wells by county and by aquifer. We anticipate that at several existing and proposed well locations, no well may be available for the GCD to monitor. In a few of these situations, the GCD may chose not to lease a well but to drill a new well. One of the problems associated with drilling a new well will be securing the right to drill. Among the options to drill is obtain access to land associated with TXDOT right aways, lands associated with state and federal lands.

Appendices 7A, 7B, 7C, and 7D list the candidate wells associated with the proposed monitoring areas. These four appendices provide the latitude and longitude, the SDR number, and well use, well depth, aquifer, and the well owner's name for each well. Appendix 2A lists the wells that have been previously monitored. Appendix 2A lists the latitude and longitude, the SWN number, and well use, well depth, and aquifer. Table 6.4 lists the number of candidate wells associated with the monitoring areas for Calhoun, Jackson, Refugio, and Victoria counties.

Final: Drilling Techniques, Field Protocols, and Proposed Monitoring Well Locations to Support the Development of a Reliable Program for Monitoring Water Levels

Table 6-3 Distribution of Existing and Proposed New Well Location for the Monitoring Network for Calhoun, Jackson, Refugio, and Victoria Counties

County	Aquifer	Existing Wells		Proposed New Well Locations (SDR)			Total	
		Group 1	Group 2	Level 1	Level 2	Level 3	Existing	Proposed
Calhoun	CH	11	9	4	3	1	20	8
	EV	0	0	0	0	0	0	0
Jackson	CH	58	22	3	4	3	80	10
	EV	5	3	5	0	0	8	5
Refugio	CH	13	14	4	3	0	27	7
	EV	2	7	3	2	0	9	5
Victoria	CH	39	45	2	2	2	84	5
	EV	16	26	5	3	2	42	10
Total	CH	121	90	12	12	6	211	30
	EV	23	36	13	5	2	59	20

Table 6-4 Number of Candidate Wells associated with the Monitoring Areas for Calhoun, Jackson, Refugio, and Victoria Counties

County	Aquifer	Proposed New Well Locations (SDR)			Total
		Level 1	Level 2	Level 3	
Calhoun	CH	28	10	8	46
	EV				0
Jackson	CH	27	27	7	61
	EV	7	--		7
Refugio	CH	18	34	--	52
	EV	14	4	--	18
Victoria	CH	25	8	11	44
	EV	36	13	6	55
Total	CH	88	79	26	193
	EV	57	17	6	80

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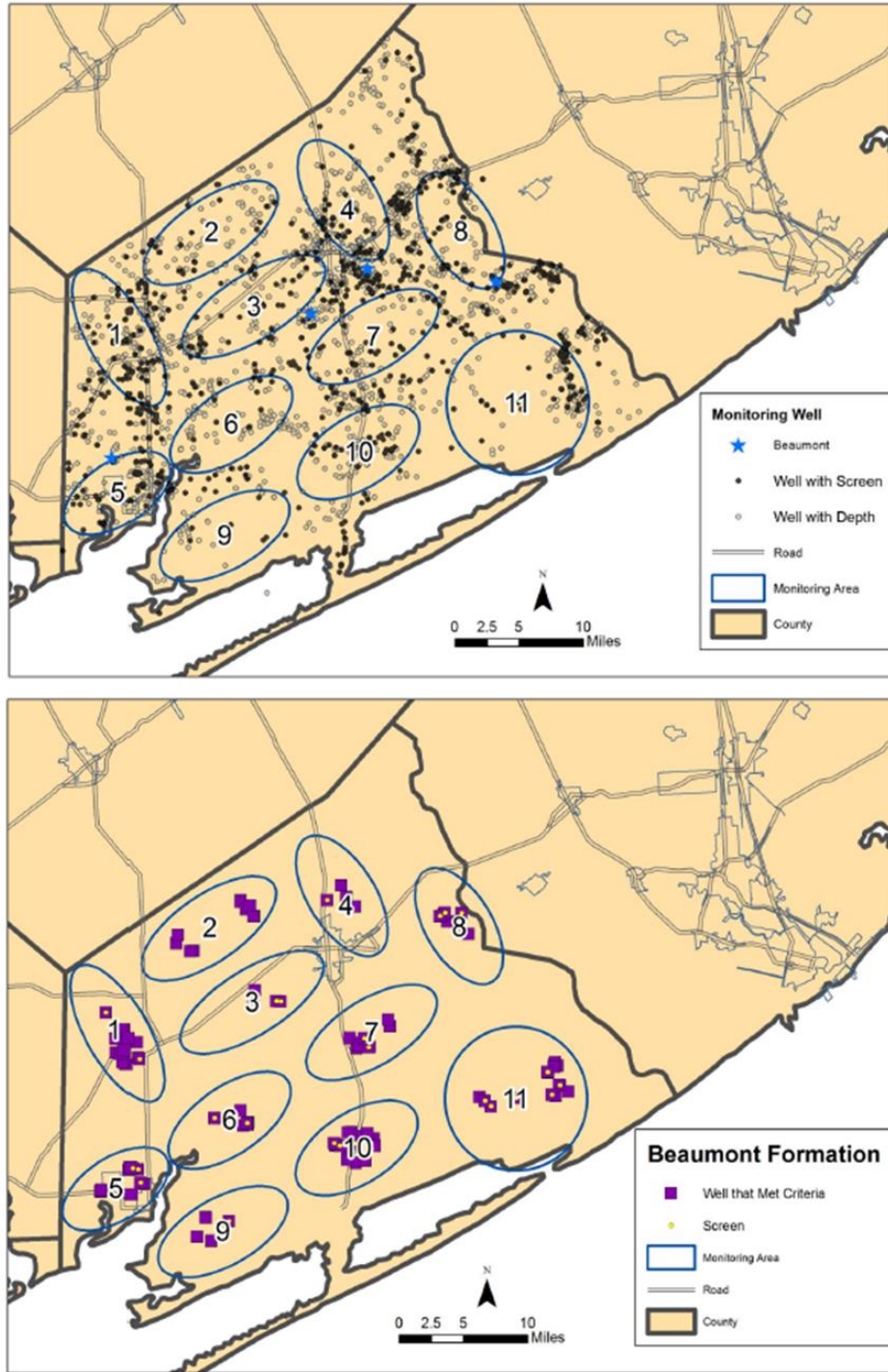


Figure 6-1 Location of eleven monitoring areas where addition monitoring wells would benefit the monitoring network for Coastal Plains GCD with locations of exempt wells that could serve as monitoring wells (top image) and with five to ten wells proposed for per monitoring area as the preferred candidates for the single monitoring well to represent that monitoring area.



Final: Drilling Techniques, Field Protocols, and Proposed Monitoring Well Locations to Support the Development of a Reliable Program for Monitoring Water Levels

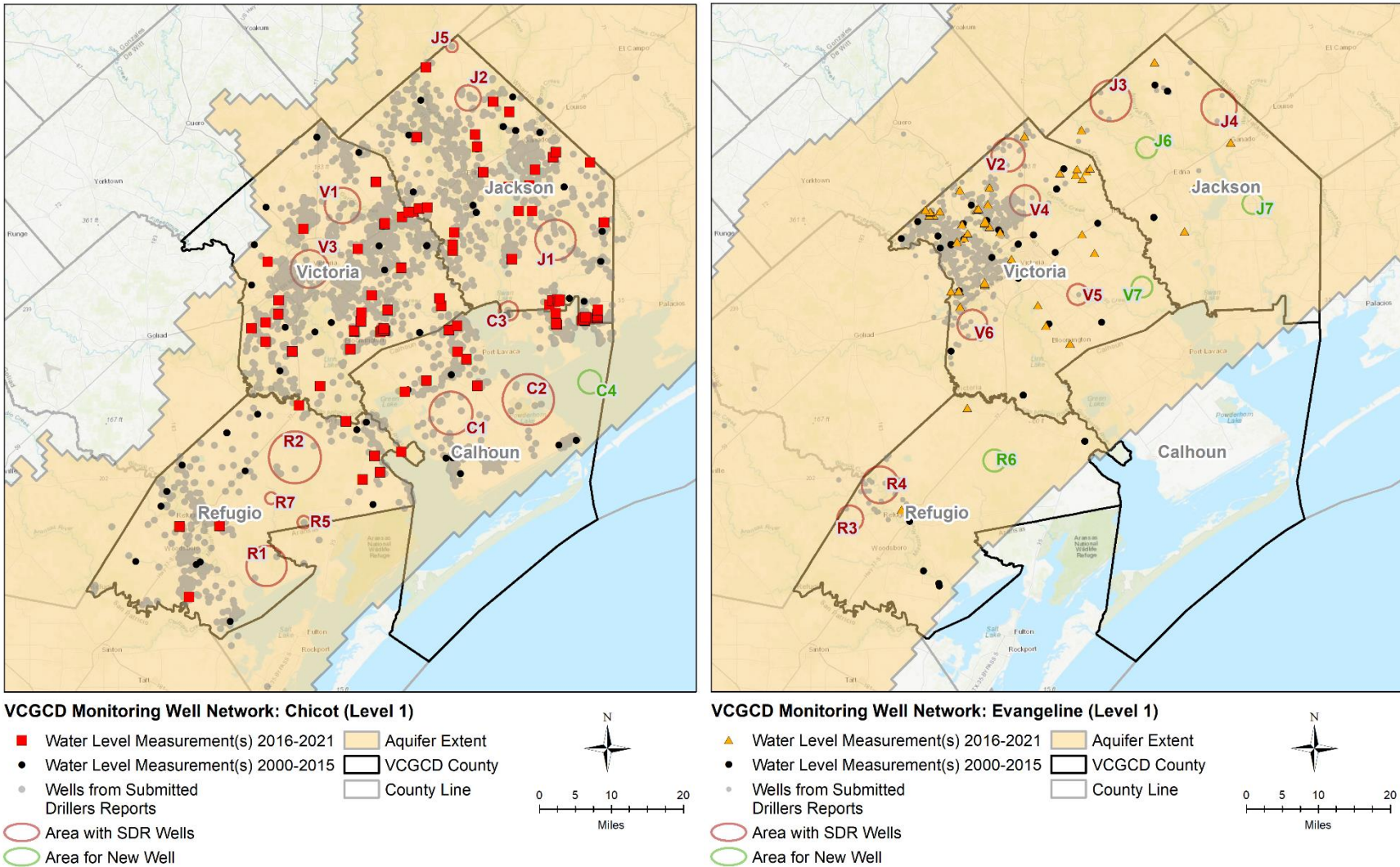


Figure 6-2 Proposed Level 1 Monitoring Areas for the Chicot and Evangeline aquifers in Calhoun, Jackson, Refugio, and Victoria counties with locations of wells with Submitted Drillers Reports.

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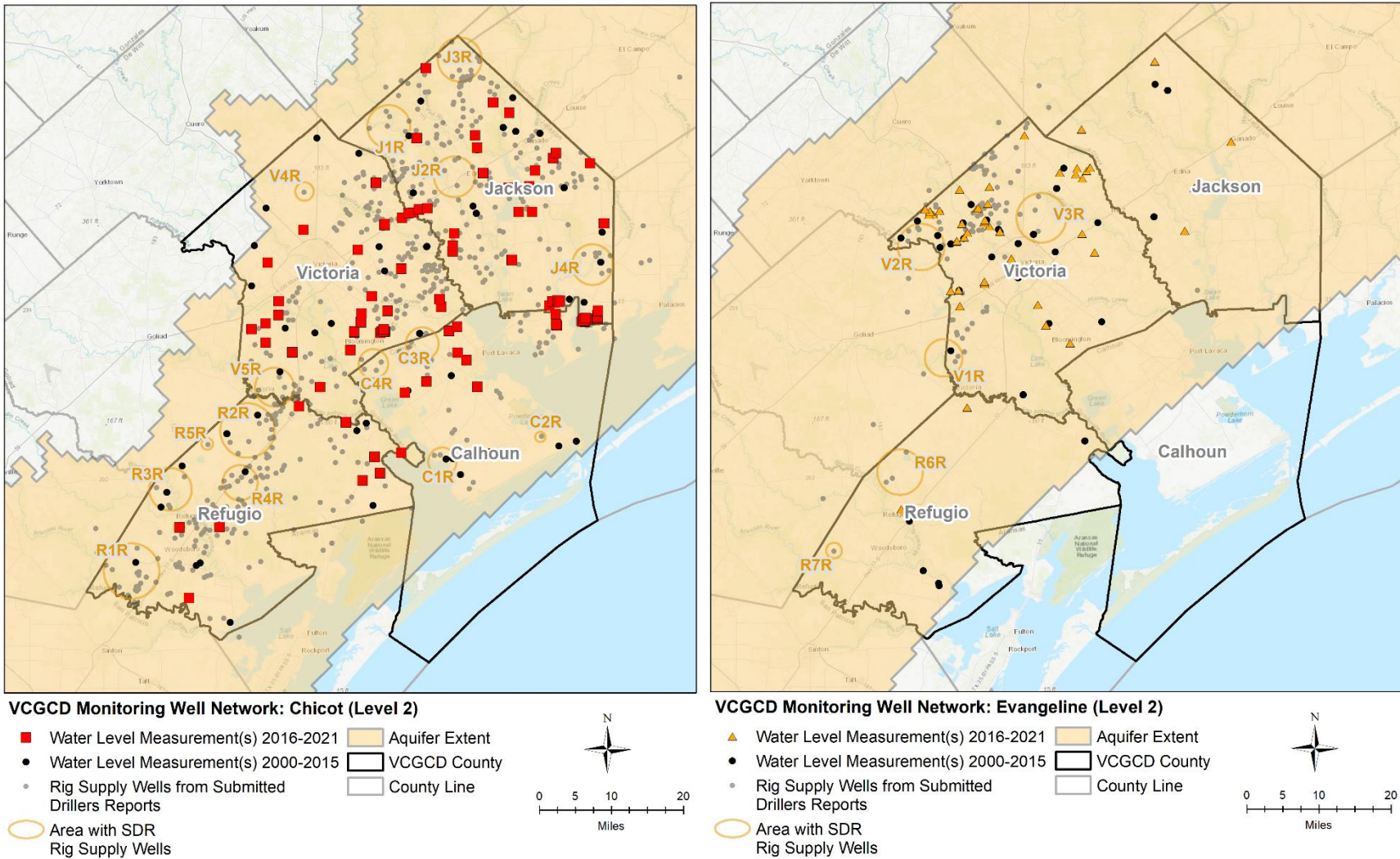
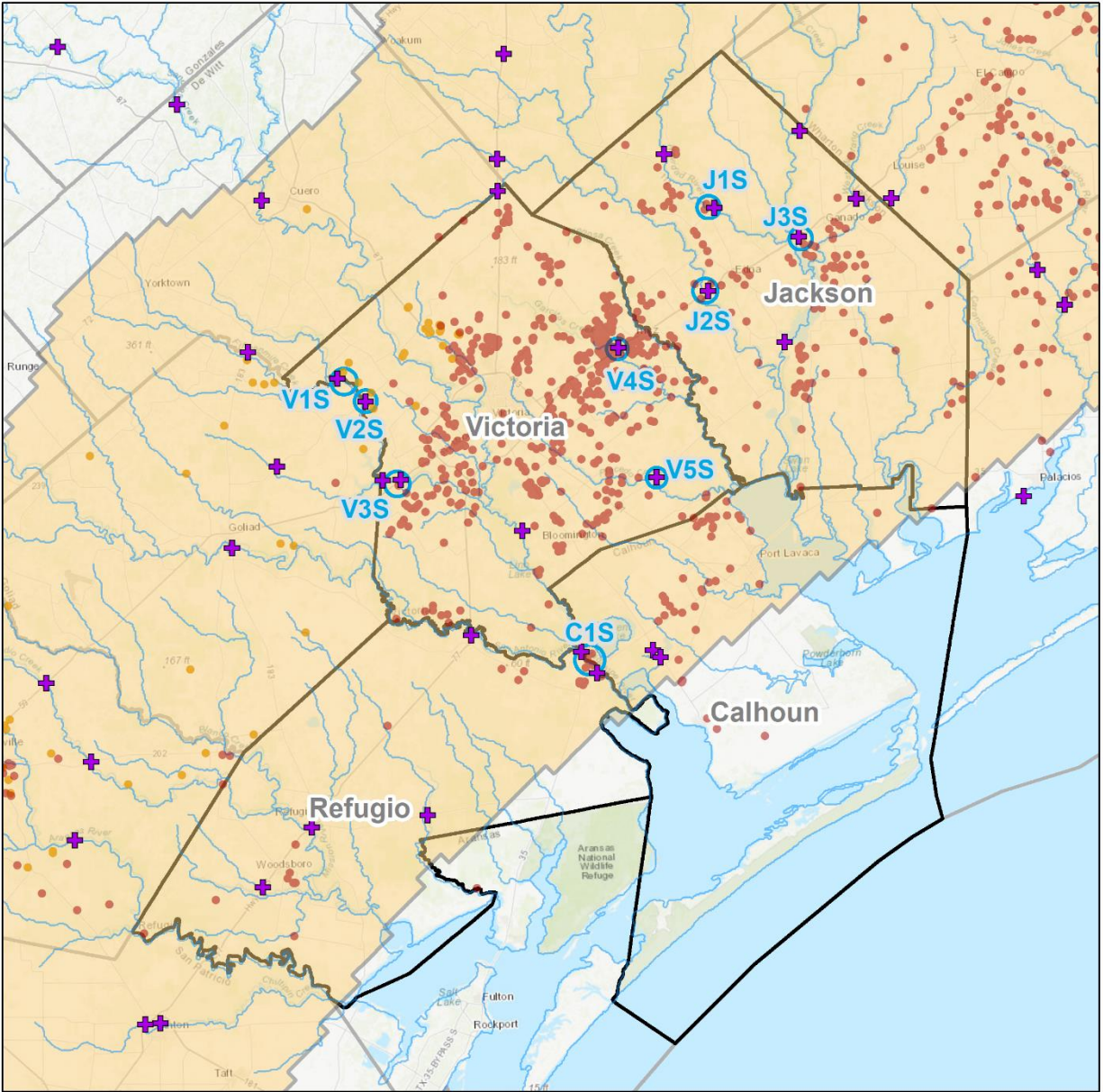


Figure 6-3 Proposed Level 2 Monitoring Areas for the Chicot and Evangeline aquifers in Calhoun, Jackson, Refugio, and Victoria counties with locations of wells with Submitted Drillers Reports.



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**Groundwater Surface Water Interaction (Level 3)**

- Shallow SDR Wells: Chicot
- Shallow SDR Wells: Evangeline
- ✚ Surface Water Gages
- Area with SDR Wells
- Rivers & Streams
- Evangeline Formation
- VCGCD County
- County Line

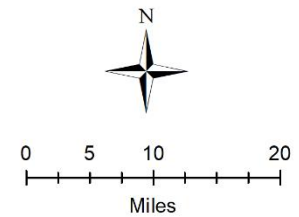
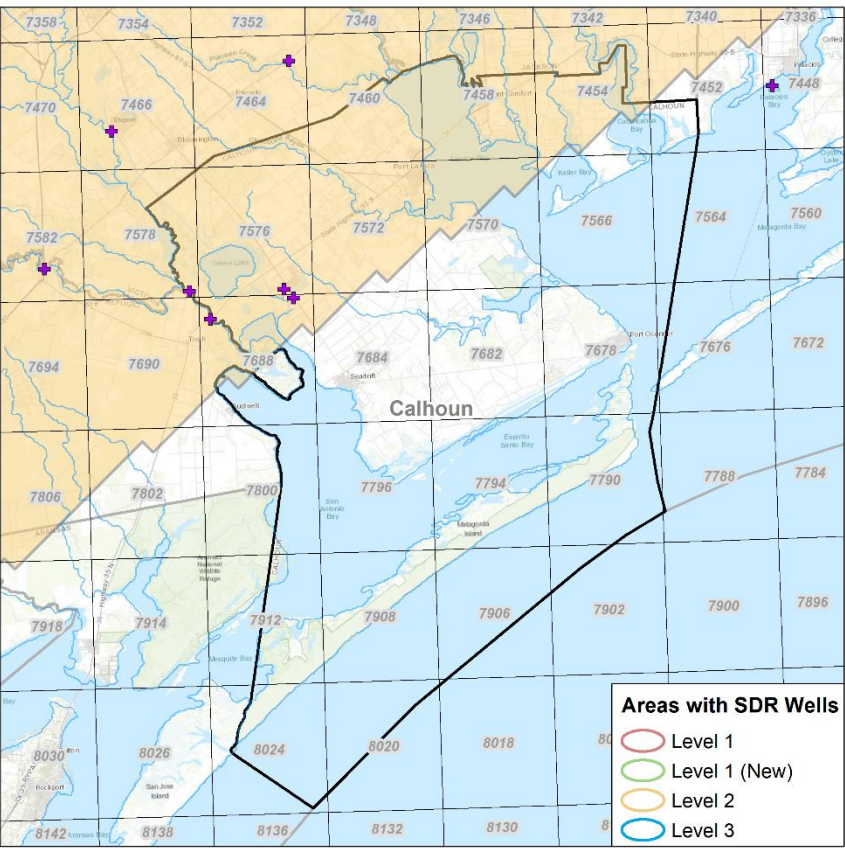
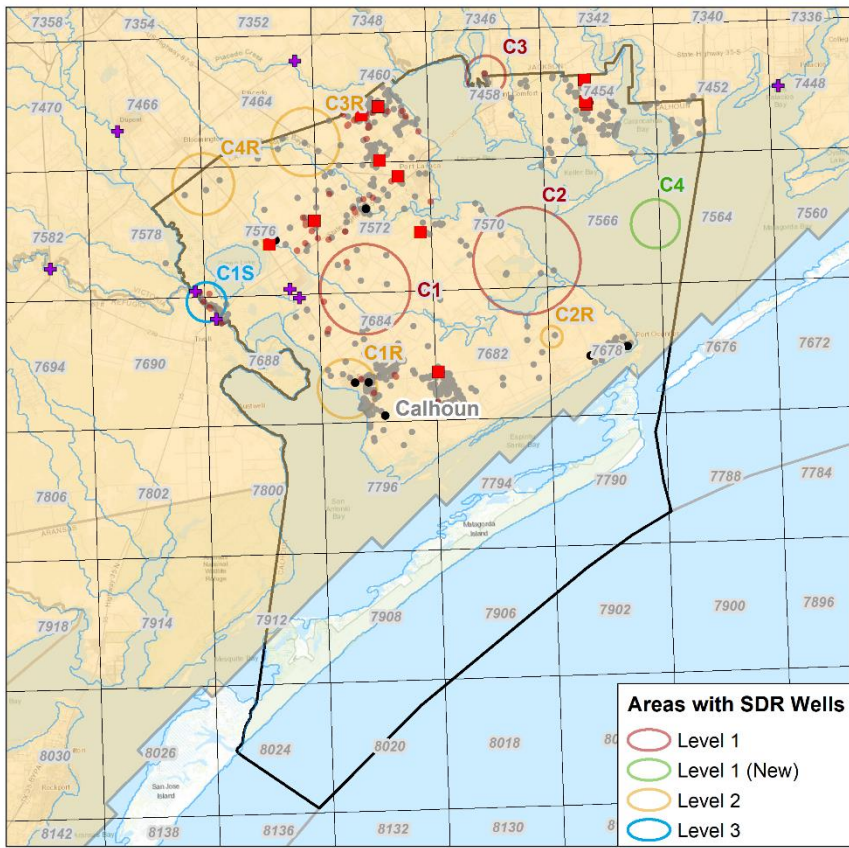
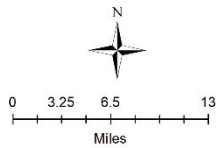


Figure 6-4 Proposed Level 3 Monitoring Areas for the Chicot and Evangeline aquifers in Calhoun, Jackson, Refugio, and Victoria counties with locations of wells with Submitted Drillers Reports



**Calhoun Monitoring Well Network: Chicot**

- Water Level Measurement(s) 2016-2021
- Water Level Measurement(s) 2000-2015
- SDR Wells
- Shallow SDR Wells
- ✚ Surface Water Gages
- Rivers & Streams
- Chicot Aquifer
- USGS 7.5 Minute Quadrangle
- Calhoun County
- County Line



**Calhoun Monitoring Well Network: Evangeline**

- ▲ Water Level Measurement(s) 2016-2021
- Water Level Measurement(s) 2000-2015
- SDR Wells
- Shallow SDR Wells
- ✚ Surface Water Gages
- Rivers & Streams
- Evangeline Aquifer
- USGS 7.5 Minute Quadrangle
- Calhoun County
- County Line

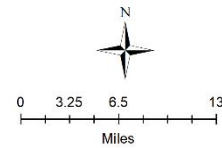
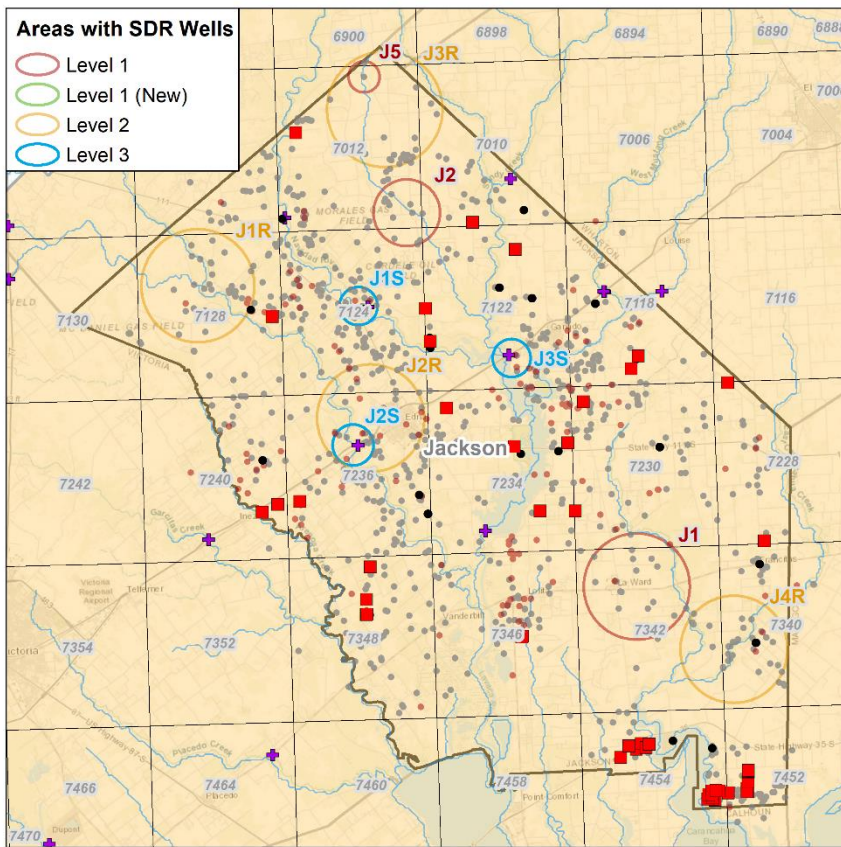


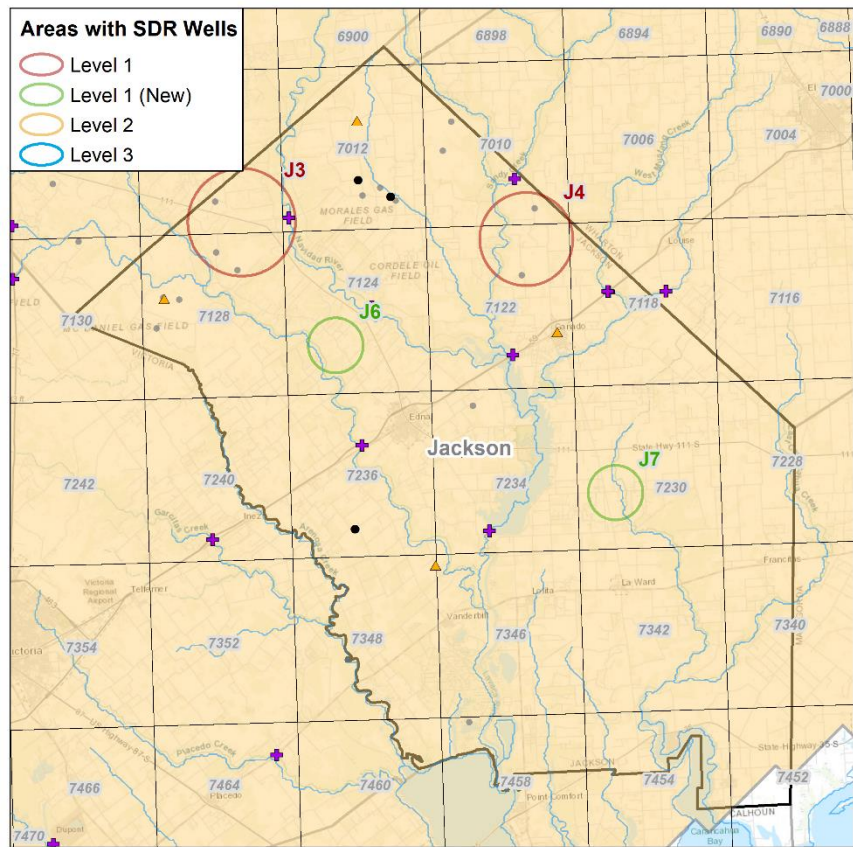
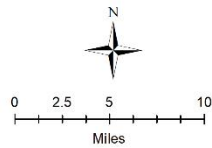
Figure 6-5 Proposed Level 1, 2 and 3 Monitoring Areas for the Chicot and Evangeline aquifers in Calhoun County with locations of wells with Submitted Drillers Reports





**Jackson Monitoring Well Network: Chicot**

- Water Level Measurement(s) 2016-2021
- Water Level Measurement(s) 2000-2015
- SDR Wells
- Shallow SDR Wells
- ✚ Surface Water Gages
- Rivers & Streams
- Chicot Aquifer
- USGS 7.5 Minute Quadrangle
- Jackson County
- County Line



**Jackson Monitoring Well Network: Evangeline**

- ▲ Water Level Measurement(s) 2016-2021
- Water Level Measurement(s) 2000-2015
- SDR Wells
- Shallow SDR Wells
- ✚ Surface Water Gages
- Rivers & Streams
- Evangeline Aquifer
- USGS 7.5 Minute Quadrangle
- Jackson County
- County Line

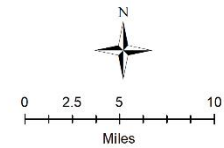
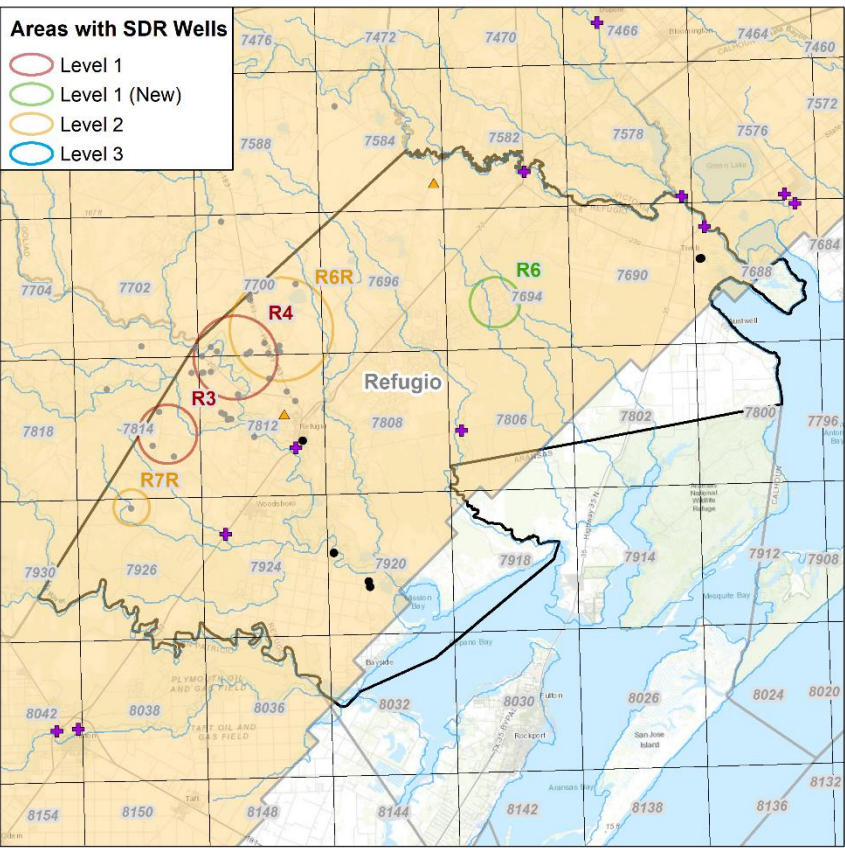
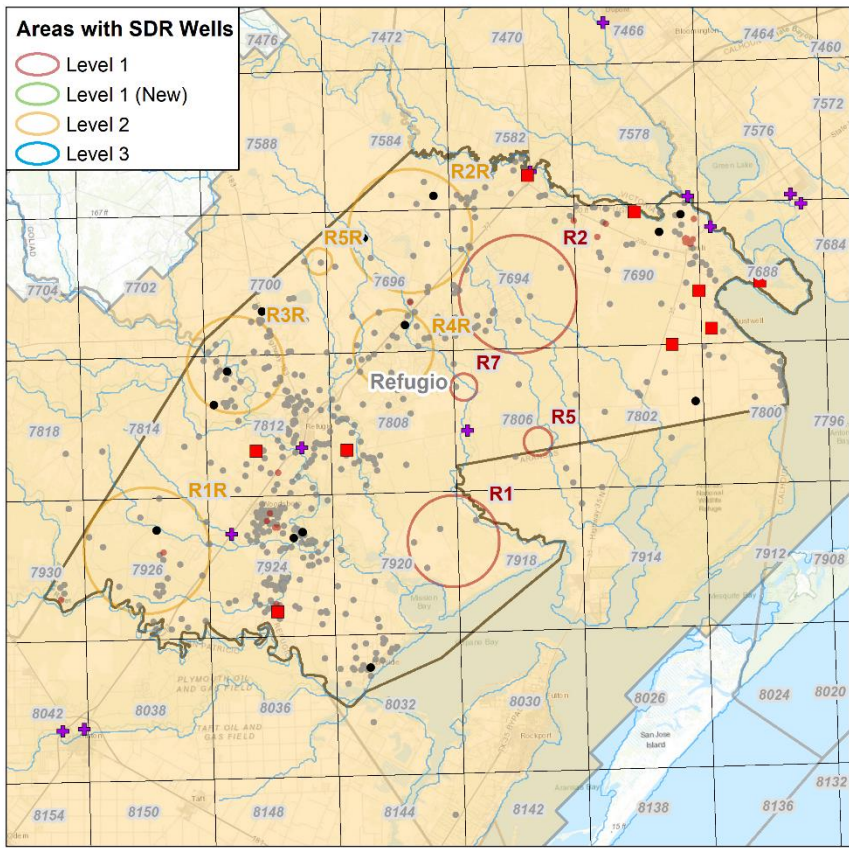


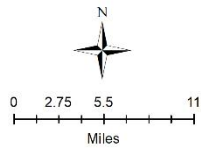
Figure 6-6 Proposed Level 1, 2 and 3 Monitoring Areas for the Chicot and Evangeline aquifers in Jackson County with locations of wells with Submitted Drillers Reports





**Refugio Monitoring Well Network: Chicot**

- Water Level Measurement(s) 2016-2021
- Water Level Measurement(s) 2000-2015
- SDR Wells
- Shallow SDR Wells
- ⊕ Surface Water Gages
- Rivers & Streams
- Chicot Aquifer
- USGS 7.5 Minute Quadrangle
- ▭ Refugio County
- ▭ County Line



**Refugio Monitoring Well Network: Evangeline**

- ▲ Water Level Measurement(s) 2016-2021
- Water Level Measurement(s) 2000-2015
- SDR Wells
- Shallow SDR Wells
- ⊕ Surface Water Gages
- Rivers & Streams
- Evangeline Aquifer
- USGS 7.5 Minute Quadrangle
- ▭ Refugio County
- ▭ County Line

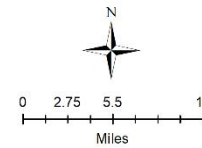
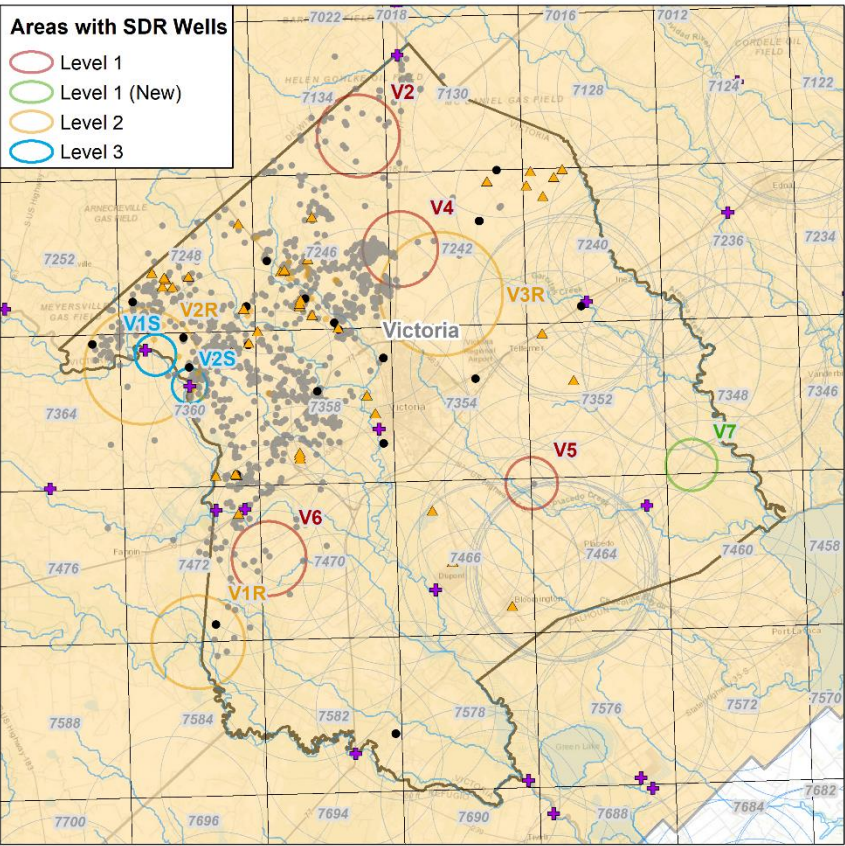
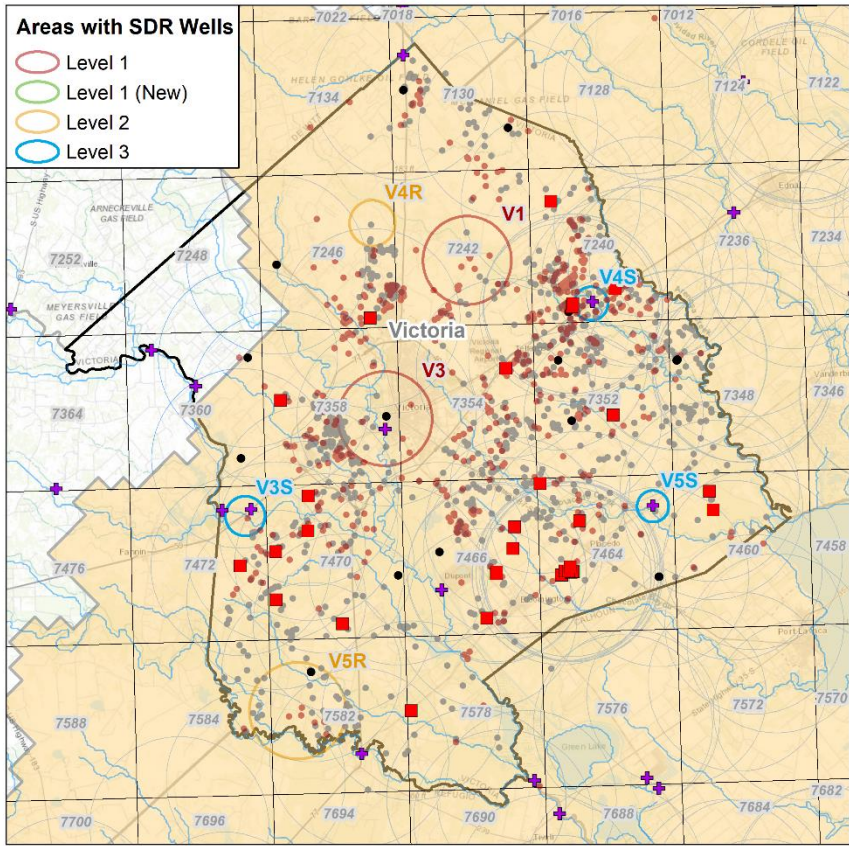
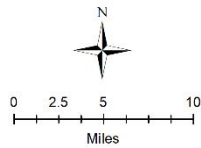


Figure 6-7 Proposed Level 1, 2 and 3 Monitoring Areas for the Chicot and Evangeline aquifers in Refugio County with locations of wells with Submitted Drillers Reports



**Victoria Monitoring Well Network: Chicot**

- Water Level Measurement(s) 2016-2021
- Water Level Measurement(s) 2000-2015
- SDR Wells
- Shallow SDR Wells
- ✚ Surface Water Gages
- Rivers & Streams
- Chicot Aquifer
- USGS 7.5 Minute Quadrangle
- ▭ Victoria County
- ▭ County Line



**Victoria Monitoring Well Network: Evangeline**

- ▲ Water Level Measurement(s) 2016-2021
- Water Level Measurement(s) 2000-2015
- SDR Wells
- Shallow SDR Wells
- ✚ Surface Water Gages
- Rivers & Streams
- Evangeline Aquifer
- USGS 7.5 Minute Quadrangle
- ▭ Victoria County
- ▭ County Line

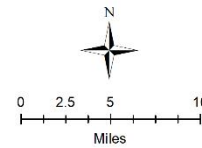


Figure 6-8 Proposed Level 1, 2 and 3 Monitoring Areas for the Chicot and Evangeline aquifers in Victoria County with locations of wells with Submitted Drillers Reports

## **7.0 DESIGN AND CONSTRUCTION SPECIFICATIONS FOR DEDICATED AQUIFER MONITORING WELLS**

### **7.1 Introduction**

The section provides guidelines for the design of three types of monitoring wells that may be installed by a GCD in the Gulf Coast Aquifer System. The three types are:

4. A well constructed from PVC that terminates between 100 and 800 feet below ground service.
5. A well constructed from steel that terminates between 800 and 1,500 feet below ground surface.
6. A well that terminates between 500 and 2,000 feet below ground surface that was constructed by converting an abandoned oil & gas well

The section describes the two most common methods for drilling monitoring wells in the Gulf Coast Aquifer: mud rotary and hollow-stem auger. Mud rotary is the most common drilling method for installation wells below a depth of 200 feet. For shallow wells that are less than 100 feet deep, hollow-stem auger is the most common method. Hollow-stem augers are often the drill method of choice for aquifer remediation sites that have shallow groundwater contamination. Section three provides a template for a bid document for a drilling and a for a bid document for a drilling and installing a well constructed from steel or iron. As a general rule, PVC is not used to construct wells that penetrate deeper than 800 to 1,000 ft below ground surface. Section four provides guidance for conversion of an oil and gas well to a water well.

### **7.2 Drilling Methods**

Drilling and sampling of boreholes represents important components of virtually all hydrogeologic investigations and ground water monitoring programs. Drilling should cause as little disturbance to the subsurface as possible. Methods should be incorporated for identification of saturated zones and sampling of formation materials to characterize the subsurface and, subsequently, allow for proper monitoring well installation.

There are a wide range of drilling methods available for installation of groundwater wells. In the Gulf Coast Aquifer System, the two most common methods are the hollow stem-auger method and the rotary mud method. These two methods are described below.

#### **7.2.1 Hollow-Stem Auger**

This type of auger consists of a hollow, steel stem or shaft with a continuous, spiraled steel flight, welded onto the exterior. A hollow auger bit, generally with carbide teeth, disturbs soil material when rotated, whereupon the spiral flights transport the cuttings to the surface, typically with no drilling fluids. Hollow-stem Auger rigs work much like a temporary casing in that the centers of the augers are open to allow for soil, water sampling, and/or well installation. Each section or flight of augers typically is 5 feet in length. One of the major advantages of hollow-stem augers is that they allow for well installation directly through the auger into non-cohesive material. This method is best suited in soils that



have a tendency to collapse when disturbed. A monitoring well can be installed inside of hollow-stem augers with little or no concern for the caving potential of the soils.

The depth capability of hollow-stem augering is dependent on site geology and the size of the rig and stem. In general, greater depths can be reached when penetrating clays than when penetrating sands; however, clays may cause the auger to bind, which limits depths. In general, hollow-stem augers are not a good choice for deposits with dense clayed material or loose gravels and cobbles. The size of the rig and stem affects the downward pressure and torque on the stem. The size of the hollow-stem stem aquifer also affects the maximum drill depth. Maximum depths approximate depths about 150 feet use 4.25-inch hollow-stem auger, whereas 10.25-inch augers can reach a maximum depth of approximately 75 feet.

### **7.2.2 Mud Rotary**

Mud rotary drilling is an open hole, fluid based recirculatory method of drilling. Mud rotary drilling method consists of a drill pipe or drill stem coupled to a drilling bit that rotates and cuts through the soils. The cuttings produced from the rotation of the drilling bit are transported to the surface by drilling mud, or air. The water, drilling mud, or air are forced down through the drill pipe, and out through the bottom of the drilling bit. The cuttings are then lifted to the surface between the borehole wall and the drill pipe.

The drilling fluid lubricates the drill bit, carries drill cuttings to the surface, and provides hydrostatic pressure in the borehole to keep the hole open and stable for sampling and installations. The bore hole is drilled by rotating a bit, and cuttings are removed by continuous circulation of the drilling fluid as a bit penetrates the formation. The bit is attached to the lower end of a string of drill pipe, which transmits the rotating action from the rig to the bit. In the direct rotary system, drilling fluid is pumped down through the drill pipe and out through the ports or jets in a bit, the fluid then flows upward in the annular space between the hole and the drill pipe, carrying the cuttings and suspension to the surface. At the surface, the fluid is channeled into a settling pit or pits where most of the cuttings drop out.

The setup for mud rotary drilling involves a mud pump, mud tank, water source and drill rods. Drillers circulate drilling mud through the rods and back through the pump, which creates a closed system. This circulation keeps the drill bit cool and maintains a straight hole. It is also possible to cut through very dense material using a tri-cone drill bit. Once the drill rods reach the desired depth, sampling methods similar to hollow stem augering can be used, as long as the hole is cased. While mud rotary drilling can go extremely deep compared to auger drilling, it is time-consuming to set up since it has so many different parts. It is, therefore, more practical to choose mud rotary when drill holes need to be deeper than the depths that can be achieved using a hollow-stem auger.

## **7.3 Monitoring Well Installation**

All monitoring wells need to be compliant with TWC Title 16, Part 4, Chapter 76, Water Well Drillers and Water Well Pump Installers. Rule §76.100 provides the technical requirements for locations and standards for well completion. If the monitoring well will be used to as part of a TCEQ monitoring network then the well will also need to be complaint with TWC, Title 30, Part 1, Chapter 330, Subchapter J, Section 330.421, Monitoring Well Construction Specification.

Just as the vertical location and length of a well screen is important to monitoring for water quality, the same considerations hold true for monitoring for a water level. In the Gulf Coast Aquifers System, its primary aquifers (the Chicot, Evangeline, and Jasper) are hundreds of feet thick except for in the vicinity of their outcrops. Across the thickness of a Gulf Coast aquifer, the sand units typically are between 20 and 60 ft thick and they are not all equally connected to each other. In order to obtain a representative hydraulic head measurement in an aquifer, the well screen should intersect several sand units and preferable one of the large sand units. In most cases, suitable length of a well screen is often between 50 feet and 100 feet. The location and length of the well screen should be based on inspection of either a driller log or a geophysical log, with the preferred option being the latter.

Groundwater monitoring wells typically have a diameter less than 5-inches. If the well will be used only to measure water levels, then a 2-inch diameter well will suffice. If water samples are obtained from the well, then a 4-inch or 5-inch water would be needed. The decision between a 4-inch or 5-inch well will depend on site specific considerations include well depth, availability of casing materials, and costs.

An important design factor for using PVC casing is the SDR of the pipe. The term SDR refers to “standard dimension ratio”, which is a dimensionless term that is obtained by dividing the average outside diameter of the pipe by the minimum wall thickness. The higher the calculated SDR, the lower the amount of pressure it can handle since the pipe minimum wall thickness is reduced in proportion to the outside diameter remaining the same. The lower the calculated SDR, the higher the amount of pressure it can handle since the wall thickness is thicker in proportion to the pipe diameter. As an example, SDR17 has a thinner wall and lower pressure class than an SDR 11.

Among the important factors that affect the costs of drilling and installing wells is the current demand for drilling. Two conditions that can cause an increase in costs are a high demand for water wells caused by drought conditions or by a surge in oil and gas exploration. Within a several year span, the cost that a specific driller may bid for drilling and installing a well can change dramatically. Because of the potential for proposed costs to fluctuate based on a driller s current and anticipated workload, a good practice for developing a monitoring well network is to obtain bids from several drillers before selecting a driller and a final well design. The process of soliciting bids from drillers begins with developing a bid document to send to potential drillers.

### **7.3.1 Well Constructed of PVC Casing**

Appendix 7A provides a template for preparing a bid document for construction a PVC monitor wells. The bid document is for a 5-inch PVC well that is comprised of Certa-Lok casing. One of the advantages of using Certa-Lok is that it as a spline-locking design to from a full strength joint instantly in all weather conditions. The locking design does not use solvents, welding, or reinforcement screws.

The bid document was prepared from a bid document that INTERA used to install a high-end monitoring well that was a part of a site characterization program that consisted of a test production well and several monitoring wells. For most situations, VCGCD can omit several of the requirements to save money without sacrificing the reliability of the monitor well to provide representative water levels. These requirements are considered case dependent, have been highlighted in Appendix 7A, and are listed below.



- Section 3.3 Pilot Boreholes, Part B. Cutting Collections:
- Section 3.4 Downhole Geophysical Survey
- Section 3.8 Well Development, Part C. Development by Swabbing and Bailing
- Section 3.8 Well Development , Part D. Development by Pumping

### 7.3.2 Well Constructed of Steel Casing

Steel well casing shall be utilized for monitoring wells extending to total depths ranging from 800 to 1,500 feet beneath ground surface. There are four standard steel types typically utilized for monitoring well casing and screen as follows:

- Mild Steel
- High Strength Low Alloy Steel (HSLA)
- Stainless Steel (Type 304)
- Stainless Steel (Type 316L)

The steel types are listed in order of increasing resistance to corrosion. Type 316L stainless steel is the most resistant to corrosion and aggressive chlorination. The steel types are also listed in order of increasing cost.

There are two types of screens typically used for the available 4-inch and 6-inch diameter deep monitoring well steel casings including:

- Louvered Screen (available from Roscoe Moss Co. )
- Continuous Wire-Wrap Screen (available from Johnson Screens and Roscoe Moss Co.)

Louvered screen is much more durable than wire-wrap screen which is an advantage for deep installation. The minimum louver slot size is 0.050-inch for louvers which is a limitation. Louvered screens are available in HSLA and Stainless Steel. Stainless steel louvered screen is much higher quality than HSLA from a water quality monitoring standpoint. The 4-inch diameter stainless steel louvered casing is constructed without uneven seams commonly found on the 4-inch diameter HSLA casing and screen.

If wire-wrapped screen is selected for deep installation it should only be stainless steel. The high surface area of wire-wrapped screen makes it vulnerable to corrosion unless constructed of stainless steel. If wire-wrapped screen is selected for deep installation it should be carefully designed to withstand the tensile hanging load and collapse pressures associated with deep installation. The casing must be hanging in suspension throughout installation and not rested on the bottom of the borehole.

Table 7-1 Relative Cost of Well Casing and Screen Materials

Casing and Screen Material Type	Cost Multiplier
Mild Steel	1
HSLA	2
Type 304 Stainless Steel	4
Type 316L Stainless Steel	4.3

Wells casing and screen joints are connected in the field by a certified welder at welding along collars attached to the top end of each casing segment by the casing manufacturer. All collars are composed of the same material as the respective casing or screen joint. Casing centralizer guides are welded on blank

casing segments at regular depth intervals (i.e., 80 or 100 feet) during installation. Screen centralizer guides must be installed at the collars and must never be welded to the actual screen perforations.

The highest quality well casing and screen design would consist entirely of stainless steel. Stainless steel is recommended for all screens for water quality monitoring quality assurance. A hybrid design including mild steel or HSLA blank casing used in conjunction with stainless steel screen is an acceptable design option. However, dielectric couplings are required between each connection of dissimilar steel.

## **7.4 Converting an Abandoned Oil and Gas Well to an Oil Well**

The Texas Natural Resources Code (§89.011) and Railroad Commission of Texas (RRC) regulations (§3.14(a)(4)) allow a landowner and the operator of an abandoned oil or gas well to file an application to convert (or “condition”) it into a water well for fresh water production. The application must be made on Form P-13, Application of Landowner to Condition an Abandoned Well for Fresh Water Production. Form P-13 is provided in Appendix 7B and documents the following information:

- The operator will properly plug the oil or gas well in accordance with RRC requirements up to the base of the usable quality water as defined by the RRC’s Groundwater Advisory Unit.
- The landowner must assume responsibility for plugging the water well and obligate himself, his heirs, successors, and assignees to complete the plugging operation.
- The landowner must also submit a copy of the permit from the GCD for the area where the well is located or must attest to the fact that
  - there is no GCD for the area in which the well is located;
  - there is a GCD for the area where the well is located, but the GCD does not require that the well be permitted or registered; or,
  - the landowner has registered the well with the GCD for the area where the well is located.

### **Step 1: Identify wells being plugged by Operators**

Under Texas Railroad Commission rules, Operators are required to plug oil & gas wells that were/are dry holes, non-productive, or have been damaged beyond repair. Operators will notify the landowner of intent to plug the Oil & Gas well. At this time, landowners contact the District to request information on feasibility of conversion. Some Operators will contact the District directly to inform of intent to plug wells.

### **Step 2: Gather information and identify “need”**

Gather as much information about the Oil & Gas well as possible, such as, location, total depth, depth of any holes/wears in the casing, casing remaining in well, gamma and EC log (if available), cement bond log (if available).

Based on the information gathered and the District need for monitoring wells in the area in deep formations, does conversion make sense at District’s expense?

### **Step 3: Register or Permit water well.**

### **Step 4: Submit P-13 paperwork to RRC**

This is completed and filed by the landowner and the Oil & Gas Operator within the appropriate RRC district office. The well must be registered or permitted with the GCD in order for this paperwork to be complete.



**Step 5: Operator receives Approval of P-13 and required minimum plugging depth**

If approved to convert, the Groundwater Advisory Unit will provide a Groundwater Protection Determination which identifies the base depth to known useable freshwater (total dissolved solids < 1,000 mg/L) and the base of Useable-Quality Water (total dissolved solids < 3,000 mg/L). These provided values establish a minimum required plugging depth to protect any freshwater formations. Know what formation you are interested in monitoring and wanting to perforate before you receive this value. You may have to petition RRC to allow a different minimum plugging depth based on your needs.

**Step 6: Allow Operator time to plug Oil & Gas well**

During this step, it is crucial to communicate with the operator the intent to use as a freshwater well and the need to have the casing left as clean as possible. This may require either the GCD or landowner to do a follow-up cleaning of remaining paraffin or residue on the casing.

**Step 7: Schedule downhole services**

Schedule the services needed to do the conversion, which include gamma logging to determine formation depths and perforation for converting to water well. Most downhole servicing companies offer both services. These services require the use of a work over rig. Make sure the downhole service company can provide that, if not other arrangements will be necessary.

**Step 8: Conduct Downhole services and Perforate**

On the day of service, start with tagging total depth (T.D.) of top plug. Proceed with running gamma log from TD to surface. Use the gamma log to help determine suitable zones to perforate within the target formation.

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## Appendix 2A. Tabulation of Monitoring wells in Victoria, Jackson, Calhoun, and Refugio County

### Description of Attributes:

- (a) INTERA WELL ID
- (b) GCD Name – Name Used by GCD to reference well, if GCD has named the well
- (c) SWN – the State Well Number used by the Texas Water Development Board
- (d) County – County in which the well is located
- (e) Lat – Latitude – NAD 83
- (f) Long – Longitude – NAD 83
- (g) Datum – Reference datum used to measure water levels (ft, msl)
- (h) Well Depth – Depth of well before datum (ft, msl)
- (i) Top Scr Depth – Depth to the top of screen (ft)
- (j) Bot Scr Depth – Depth to the bottom of screen (ft)
- (k) GMA 15 GAM - Aquifer surfaces as defined by the model layers in the GMA 15 GAM (Chowdhury and others, 2004)
- (l) GMA 15 & 16 GAM - Aquifer surfaces as defined by the model layers in the GMA 15 & 16 GAM (Shi and Boghici, 2022)
- (m) TWDB - Aquifer surfaces as defined by the TWDB Study for the Northern Gulf Coast System (Young and others, 2012)
- (n) TWDB - Formation surfaces as defined by the TWDB Study for the Northern Gulf Coast System (Young and others, 2012)
- (o) K.ne.L – Logic Flag (1=true, 0=not true) to indicate whether the well has the same aquifer assignment based on the stratigraphy for both the GMA 15 GAM and the GMA 15 & 16 GAM
- (p) K.ne.M – Logic Flag (1=true, 0=not true) to indicate whether the well has the same aquifer assignment based on the stratigraphy for both the GMA 15 GAM and the TWDB Study for the Northern Gulf Coast System
- (q) L.ne.M – Logic Flag (1=true, 0=not true) to indicate whether the well has the same aquifer assignment based on the stratigraphy for both the GMA 15 & 16 GAM and the TWDB Study for the Northern Gulf Coast System

(a) ID	(b & c) GCD Name /SWN	(d) County	(e) Lat	(f) Long	(g) Datum (ft, msl)	(h) Well Depth (ft)	(i) Top Scr Depth (ft)	(j) Bot Scr Depth (ft)	(k) GMA 15 GAM	(l) GMA 15 & 16 GAM	(m) TWDB	(n) TWDB	(o) K.ne.L	(p) K.ne.M	(q) L.ne.M
0	VCGCD-NW-000001 /	Victoria	28.7092	-96.942	59.06	87	77	87	CH	CH	CH	LI	0	0	0
1	VCGCD-NW-000002 /	Victoria	28.8469	-96.819	59.06	121	110	120	CH	CH	CH	LI	0	0	0
2	VCGCD-NW-000003 /	Victoria	28.7354	-97.156	98.43	270	250	270	EV	EV	EV	UG	0	0	0
3	VCGCD-NW-000004 /	Victoria	28.845	-97.173	164.04	170	130	170	EV	EV	EV	UG	0	0	0
4	VCGCD-NW-000005 /	Victoria	28.8469	-97.187	141.08	121	60	110	EV	EV	EV	UG	0	0	0
5	VCGCD-NW-000006 /	Victoria	29.075	-96.984	180.45	190	150	190	EV	EV	CH	WI	0	1	1
6	VCGCD-NW-000007 / 170926	Victoria	28.7406	-96.961	42.65	115	113	115	CH	CH	CH	LI	0	0	0
7	VCGCD-NW-000008 /	Victoria	28.7447	-97.124	98.43	170	155	165	EV	CH	CH	WI	1	1	0
8	VCGCD-NW-000009 /	Victoria	28.7896	-97.149	111.55	210	175	195	EV	EV	EV	UG	0	0	0
9	VCGCD-NW-000010 /	Victoria	28.9139	-97.049	127.95	180	160	180	EV	EV	CH	WI	0	1	1
10	VCGCD-NW-000011 /	Victoria	28.6345	-97.103	91.86	199	183	197	CH	CH	CH	WI	0	0	0
11	VCGCD-NW-000012 /	Victoria	29.042	-97.038	203.41	205	185	205	EV	EV	EV	UG	0	0	0
12	VCGCD-NW-000013 /	Victoria	29.0396	-97.036	200.13	203	183	203	EV	EV	EV	UG	0	0	0
13	VCGCD-NW-000014 /	Victoria	28.6094	-97.091	88.58	180	160	180	CH	CH	CH	LI	0	0	0
14	VCGCD-NW-000015 /	Victoria	28.8294	-97.104	127.95	178	148	168	EV	EV	EV	UG	0	0	0
15	VCGCD-NW-000017 /	Victoria	28.8027	-97.057	88.58	300	275	295	EV	EV	EV	UG	0	0	0
16	VCGCD-NW-000018 / 175976	Victoria	28.8544	-97.145	160.76	202	198	198	EV	EV	EV	UG	0	0	0
17	VCGCD-NW-000019 /	Victoria	28.9265	-97.077	137.8	110	100	110	EV	EV	CH	LI	0	1	1
18	VCGCD-NW-000020 /	Victoria	6825	-97.089	95.14	110	95	105	CH	CH	CH	LI	0	0	0
19	VCGCD-NW-000021 /	Victoria	28.7439	-97.123	98.43	170	145	165	EV	CH	CH	WI	1	1	0
20	VCGCD-R1GW-000737 /	Victoria	28.731	-96.836	52.49	110	90	110	CH	CH	CH	LI	0	0	0
21	VCGCD-R1GW-000864 /	Victoria	28.85	-96.889	88.58	90	60	85	CH	CH	CH	BB	0	0	0
22	VCGCD-NW-000022 /	Victoria	28.8892	-96.786	55.77	76	65	76	CH	CH	CH	BB	0	0	0
23	VCGCD-AW-1 /	Victoria	28.8032	-96.992	95.14				DP	DP	DP	DP	0	0	0
24	VCGCD-AW-2 /	Victoria	28.8042	-96.995	91.86				DP	DP	DP	DP	0	0	0
25	VCGCD-NW-000023 /	Victoria	28.6715	-96.859	55.77	77	67	77	CH	CH	CH	LI	0	0	0
26	VCGCD-NW-000024 /	Victoria	28.9256	-97.051	164.04	150	130	140	EV	CH	CH	LI	1	1	0



(a) ID	(b & c) GCD Name /SWN	(d) County	(e) Lat	(f) Long	(g) Datum (ft, msl)	(h) Well Depth (ft)	(i) Top Scr Depth (ft)	(j) Bot Scr Depth (ft)	(k) GMA 15 GAM	(l) GMA 15 & 16 GAM	(m) TWDB	(n) TWDB	(o) K.ne.L	(p) K.ne.M	(q) L.ne.M
27	VCGCD-GW-000541 /	Victoria	28.9056	-97.078	118.11				DP	DP	DP	DP	0	0	0
28	VCGCD-NW-000025 /	Victoria	28.8181	-97.128	137.8	189	169	189	EV	EV	EV	UG	0	0	0
29	VCGCD-NW-000026 /	Victoria	28.7968	-96.801	55.77	190	160	180	CH	CH	CH	LI	0	0	0
30	VCGCD-NW-000028 /	Victoria	28.7691	-97.113	111.55	265	230	250	EV	EV	EV	UG	0	0	0
31	VCGCD-NW-000029 /	Victoria	28.8892	-96.952	118.11	71	70	71	CH	CH	CH	LI	0	0	0
32	VCGCD-NW-000031 /	Victoria	28.7765	-97.078	88.58	140	88	108	CH	CH	CH	LI	0	0	0
33	VCGCD-NW-000032 /	Victoria	28.9281	-97.097	147.64	103	80	90	EV	EV	CH	LI	0	1	1
34	VCGCD-AW-4 /	Victoria	28.8612	-96.994	104.99				DP	DP	DP	DP	0	0	0
35	VCGCD-NW-000033 /	Victoria	28.8453	-97.139	147.64	160	132	160	EV	EV	EV	UG	0	0	0
36	VCGCD-NW-000034 /	Victoria	28.8046	-97.141	134.51	110	90	110	EV	EV	CH	WI	0	1	1
37	VCGCD-R1NW-000589 /	Victoria	28.7758	-97.111	118.11	260	210	260	EV	EV	EV	UG	0	0	0
38	VCGCD-NW-000035 /	Victoria	28.7822	-97.111	121.39	257	237	257	EV	EV	EV	UG	0	0	0
39	VCGCD-NW-000036 / 179798	Victoria	28.8808	-96.824	62.34	124	122	122	CH	CH	CH	LI	0	0	0
40	VCGCD-NW-000037 /	Victoria	28.9233	-97.049	157.48	200	170	190	EV	EV	CH	WI	0	1	1
41	VCGCD-NW-000038 /	Victoria	28.695	-97.149	108.27	152	100	152	EV	CH	CH	WI	1	1	0
42	VCGCD-NW-000039 /	Victoria	28.9208	-96.858	88.58	140	118	138	CH	CH	CH	LI	0	0	0
43	VCGCD-NW-000040 /	Victoria	28.8208	-96.837	65.62	60	40	60	CH	CH	CH	BB	0	0	0
44	VCGCD-NW-000041 /	Victoria	28.7576	-97.133	108.27	182		160	EV	EV	EV	UG	0	0	0
45	VCGCD-NW-000042 /	Victoria	28.9042	-97.003	127.95	164	140	164	CH	CH	CH	LI	0	0	0
46	VCGCD-NW-000043 /	Victoria	28.7102	-97.117	104.99	120	100	120	CH	CH	CH	LI	0	0	0
47	VCGCD-NW-000044 /	Victoria	28.8551	-97.163	187.01	178	155	175	EV	EV	EV	UG	0	0	0
48	VCGCD-NW-000045 /	Victoria	28.9092	-96.839	82.02	100	75	95	CH	CH	CH	BB	0	0	0
49	VCGCD-NW-000046 /	Victoria	28.6558	-96.879	59.06	164	120	160	CH	CH	CH	LI	0	0	0
50	VCGCD-NW-000047 /	Victoria	29.0553	-96.981	164.04	60	45	60	CH	CH	CH	LI	0	0	0
51	VCGCD-NW-000048 /	Victoria	28.8662	-97.056	82.02	247	200	240	EV	EV	EV	UG	0	0	0
52	VCGCD-NW-000049 /	Victoria	28.7557	-96.961	59.06	117	95	105	CH	CH	CH	LI	0	0	0
53	VCGCD-NW-000050 /	Victoria	28.7585	-97.132	108.27	160	135	160	EV	EV	EV	UG	0	0	0

(a) ID	(b & c) GCD Name /SWN	(d) County	(e) Lat	(f) Long	(g) Datum (ft, msl)	(h) Well Depth (ft)	(i) Top Scr Depth (ft)	(j) Bot Scr Depth (ft)	(k) GMA 15 GAM	(l) GMA 15 & 16 GAM	(m) TWDB	(n) TWDB	(o) K.ne.L	(p) K.ne.M	(q) L.ne.M
54	VCGCD-NW-000051 /	Victoria	28.912	-96.867	72.18	80	40	80	CH	CH	CH	LI	0	0	0
55	VCGCD-NW-000052 /	Victoria	28.9043	-97.005	131.23	82	60	80	CH	CH	CH	LI	0	0	0
56	VCGCD-NW-000053 /	Victoria	28.8863	-96.837	68.9	100	70	80	CH	CH	CH	BB	0	0	0
57	VCGCD-NW-000054 /	Victoria	28.9269	-97.078	144.36	120	98	118	EV	EV	CH	LI	0	1	1
58	VCGCD-NW-000055 /	Victoria	28.7661	-97.007	49.21	180	137	157	CH	CH	CH	LI	0	0	0
59	VCGCD-NW-000056 /	Victoria	28.7579	-96.869	62.34	110	70	110	CH	CH	CH	LI	0	0	0
60	VCGCD-NW-000057 /	Victoria	28.9076	-96.779	59.06	150	90	116	CH	CH	CH	LI	0	0	0
61	VCGCD-NW-000058 /	Victoria	28.7874	-97.076	75.46	100	80	90	CH	CH	CH	LI	0	0	0
62	VCGCD-NW-000059 /	Victoria	28.9189	-97.076	134.51	100	80	90	EV	CH	CH	LI	1	1	0
63	VCGCD-NW-000060 /	Victoria	28.6053	-97.139	101.71	180	155	180	CH	CH	CH	WI	0	0	0
64	VCGCD-NW-000061 /	Victoria	28.8855	-96.842	72.18	65	40	60	CH	CH	CH	BB	0	0	0
65	VCGCD-NW-000062 /	Victoria	28.7967	-96.902	75.46	170	148	168	CH	CH	CH	LI	0	0	0
66	VCGCD-NW-000063 /	Victoria	28.7974	-96.896	72.18	90	50	90	CH	CH	CH	LI	0	0	0
67	VCGCD-NW-000064 /	Victoria	28.9127	-96.853	88.58	70	60	70	CH	CH	CH	BB	0	0	0
68	VCGCD-NW-000065 /	Victoria	28.9011	-97.006	131.23	93	70	90	CH	CH	CH	LI	0	0	0
69	VCGCD-NW-000066 /	Victoria	28.8692	-96.787	52.49	290	230	290	CH	CH	CH	LI	0	0	0
70	VCGCD-NW-000067 /	Victoria	28.8897	-96.794	62.34	182	162	182	CH	CH	CH	LI	0	0	0
71	VCGCD-NW-000070 /	Victoria	28.8976	-96.836	68.9	160	100	140	CH	CH	CH	LI	0	0	0
72	VCGCD-NW-000071 /	Victoria	28.7287	-96.729	32.81	205	180	203	CH	CH	CH	LI	0	0	0
73	VCGCD-NW-000072 /	Victoria	28.723	-96.724	36.09	755	700	740	CH	EV	EV	UG	1	1	0
74	VCGCD-NW-000073 /	Victoria	28.9088	-97.011	134.51	170	155	165	EV	CH	CH	LI	1	1	0
75	VCGCD-NW-000074 /	Victoria	28.8707	-97.039	111.55	170	150	160	EV	CH	CH	WI	1	1	0
76	VCGCD-NW-000075 /	Victoria	28.8966	-97.151	150.92	220	192	220	EV	EV	EV	UG	0	0	0
77	VCGCD-NW-000076 /	Victoria	28.855	-97.257	157.48	160	140	160	EV	EV	EV	UG	0	0	0
78	VCGCD-NW-000077 /	Victoria	28.6795	-96.825	49.21	50	40	48	CH	CH	CH	BB	0	0	0
79	VCGCD-NW-000078 /	Victoria	28.8939	-96.836	65.62	88	68	88	CH	CH	CH	BB	0	0	0
80	VCGCD-NW-000079 /	Victoria	28.8701	-96.838	65.62	70	62	70	CH	CH	CH	BB	0	0	0

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81	VCGCD-NW-000080 /	Victoria	28.8679	-97.139	170.6	175	145	165	EV	EV	EV	UG	0	0	0
82	VCGCD-NW-000081 /	Victoria	28.7446	-97.052	91.86	100	80	100	CH	CH	CH	LI	0	0	0
83	VCGCD-NW-000082 /	Victoria	28.7439	-97.052	88.58	105	80	100	CH	CH	CH	LI	0	0	0
84	VCGCD-NW-000083 /	Victoria	28.872	-97.237	137.8	160	140	160	EV	EV	EV	UG	0	0	0
85	VCGCD-NW-000084 /	Victoria	28.8401	-96.863	68.9	90	71	86	CH	CH	CH	BB	0	0	0
86	VCGCD-NW-000085 /	Victoria	28.9088	-96.838	82.02	100	95	100	CH	CH	CH	BB	0	0	0
87	VCGCD-NW-000086 /	Victoria	28.754	-97.159	111.55	126	106	126	EV	EV	EV	UG	0	0	0
88	VCGCD-NW-000087 /	Victoria	28.8765	-96.84	72.18	68	45	68	CH	CH	CH	BB	0	0	0
89	VCGCD-NW-000088 /	Victoria	28.8977	-97.008	131.23	75	40	75	CH	CH	CH	LI	0	0	0
90	VCGCD-NW-000089 /	Victoria	28.8359	-97.112	137.8	184	162	184	EV	EV	EV	UG	0	0	0
91	VCGCD-NW-000090 /	Victoria	28.9493	-96.827	75.46	165	145	155	CH	CH	CH	LI	0	0	0
92	VCGCD-NW-000091 /	Victoria	28.8152	-96.92	91.86	100	78	100	CH	CH	CH	LI	0	0	0
93	VCGCD-NW-000092 /	Victoria	28.9087	-96.855	78.74	95	78	88	CH	CH	CH	BB	0	0	0
94	VCGCD-NW-000093 /	Victoria	28.728	-97.136	72.18	125	110	125	EV	CH	CH	WI	1	1	0
95	VCGCD-NW-000094 /	Victoria	28.8573	-96.82	49.21	118	98	118	CH	CH	CH	LI	0	0	0
96	VCGCD-NW-000095 /	Victoria	28.9063	-96.993	127.95	90	74	84	CH	CH	CH	LI	0	0	0
97	VCGCD-NW-000096 /	Victoria	28.8543	-96.752	42.65	131	112	132	CH	CH	CH	BB	0	0	0
98	VCGCD-NW-000098 /	Victoria	28.8612	-97.147	183.73	210	184	208	EV	EV	EV	UG	0	0	0
99	VCGCD-NW-000099 /	Victoria	28.9076	-96.841	78.74	90	68	90	CH	CH	CH	BB	0	0	0
100	VCGCD-NW-000100 /	Victoria	28.8026	-97.053	59.06	160	140	150	EV	CH	CH	WI	1	1	0
101	VCGCD-NW-000101 /	Victoria	28.8236	-97.068	108.27	200	100	180	EV	EV	EV	UG	0	0	0
102	VCGCD-NW-000102 /	Victoria	28.8751	-97.032	108.27	290	220	280	EV	EV	EV	UG	0	0	0
103	VCGCD-NW-000103 /	Victoria	28.7112	-96.944	49.21	85	75	85	CH	CH	CH	LI	0	0	0
104	VCGCD-NW-000104 /	Victoria	28.8517	-96.844	59.06	110	80	110	CH	CH	CH	LI	0	0	0
105	VCGCD-NW-000105 /	Victoria	28.9091	-96.865	65.62	80	60	80	CH	CH	CH	LI	0	0	0
106	VCGCD-NW-000106 /	Victoria	28.9396	-96.938	95.14	170	155	170	CH	CH	CH	LI	0	0	0
107	VCGCD-NW-000107 /	Victoria	28.8353	-96.72	39.37	250	208	229	CH	CH	CH	LI	0	0	0

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108	VCGCD-NW-000108 /	Victoria	28.7786	-97.013	49.21	200	180	189	CH	CH	CH	WI	0	0	0
109	VCGCD-NW-000109 /	Victoria	28.8539	-96.833	59.06	190	167	181	CH	CH	CH	LI	0	0	0
110	VCGCD-NW-000110 /	Victoria	28.8304	-97.103	127.95	275	235	275	EV	EV	EV	UG	0	0	0
111	VCGCD-NW-000111 /	Victoria	28.8636	-97.104	127.95	200	158	198	EV	EV	EV	UG	0	0	0
112	VCGCD-NW-000112 /	Victoria	28.898	-97.152	108.27	180	150	170	EV	EV	EV	UG	0	0	0
113	VCGCD-NW-000113 /	Victoria	28.8943	-97.091	114.83	220	170	210	EV	EV	EV	UG	0	0	0
114	VCGCD-NW-000114 /	Victoria	28.8472	-97.094	124.67	250	160	250	EV	EV	EV	UG	0	0	0
115	VCGCD-NW-000115 /	Victoria	28.7982	-97.055	75.46	124	102	122	CH	CH	CH	LI	0	0	0
116	VCGCD-NW-000117 /	Victoria	28.8753	-97.248	150.92	175	158	168	EV	EV	EV	UG	0	0	0
117	VCGCD-NW-000118 / 187365	Victoria	28.8154	-97.062	101.71	215	175	215	EV	CH	CH	WI	1	1	0
118	VCGCD-NW-000119 /	Victoria	28.8711	-96.857	75.46	113	80	110	CH	CH	CH	LI	0	0	0
119	VCGCD-NW-000121 /	Victoria	28.9002	-97.077	118.11	182	162	182	EV	EV	EV	UG	0	0	0
120	VCGCD-NW-000123 /	Victoria	28.924	-97.181	170.6	195	175	195	EV	EV	EV	UG	0	0	0
121	VCGCD-NW-000124 /	Victoria	28.8055	-97.073	114.83	230	110	115	EV	EV	CH	WI	0	1	1
122	VCGCD-NW-000125 /	Victoria	28.8886	-96.84	68.9	110	90	120	CH	CH	CH	LI	0	0	0
123	VCGCD-NW-000126 /	Victoria	28.885	-97.161	147.64	122	102	122	EV	EV	EV	UG	0	0	0
124	VCGCD-NW-000127 /	Victoria	28.6704	-96.877	55.77	73	65	73	CH	CH	CH	LI	0	0	0
125	VCGCD-NW-000128 /	Victoria	28.8919	-96.951	118.11	80	50	70	CH	CH	CH	LI	0	0	0
126	VCGCD-NW-000129 /	Victoria	28.8409	-97.182	160.76	116	92	112	EV	EV	EV	UG	0	0	0
127	VCGCD-NW-000130 /	Victoria	28.8476	-97.107	127.95	190	169	189	EV	EV	EV	UG	0	0	0
128	VCGCD-NW-000131 /	Victoria	28.8842	-97.042	114.83	60	43	58	CH	CH	CH	LI	0	0	0
129	VCGCD-NW-000132 /	Victoria	28.9098	-97.008	131.23	73	43	63	CH	CH	CH	LI	0	0	0
130	VCGCD-NW-000133 /	Victoria	28.7125	-97.134	88.58	110	92	102	CH	CH	CH	WI	0	0	0
131	VCGCD-NW-000134 /	Victoria	28.6714	-97.13	104.99	90	60	90	CH	CH	CH	LI	0	0	0
132	VCGCD-NW-000135 /	Victoria	28.7194	-97.098	95.14	130	110	120	CH	CH	CH	LI	0	0	0
133	VCGCD-NW-000136 /	Victoria	28.8698	-97.142	173.88	177	157	167	EV	EV	EV	UG	0	0	0

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134	VCGCD-NW-000137 /	Victoria	28.8909	-97.058	114.83	90	60	70	EV	CH	CH	LI	1	1	0
135	VCGCD-NW-000139 /	Victoria	28.8604	-97.159	167.32	150	130	140	EV	EV	EV	UG	0	0	0
136	VCGCD-NW-000140 /	Victoria	29.0682	-97.027	190.29	144	124	144	EV	EV	EV	UG	0	0	0
137	VCGCD-NW-000141 /	Victoria	28.7094	-97.168	114.83	177	157	167	EV	EV	EV	UG	0	0	0
138	VCGCD-NW-000142 /	Victoria	28.9114	-96.838	82.02	85	65	85	CH	CH	CH	BB	0	0	0
139	VCGCD-NW-000143 /	Victoria	28.7511	-97.144	114.83	143	123	143	EV	EV	CH	WI	0	1	1
140	VCGCD-NW-000144 /	Victoria	28.9076	-96.844	82.02	83	63	83	CH	CH	CH	BB	0	0	0
141	VCGCD-NW-000145 /	Victoria	28.8284	-97.186	124.67	227	207	227	EV	EV	EV	UG	0	0	0
142	VCGCD-NW-000146 /	Victoria	28.8406	-96.823	59.06	110	75	85	CH	CH	CH	LI	0	0	0
143	VCGCD-NW-000147 /	Victoria	29.0382	-97.013	180.45	210	80	190	EV	EV	EV	UG	0	0	0
144	VCGCD-GW-000376 /	Victoria	28.8331	-96.881	78.74	385	215	385	CH	CH	CH	WI	0	0	0
145	VCGCD-NW-000148 /	Victoria	28.9047	-97.003	131.23	120	60	100	CH	CH	CH	LI	0	0	0
146	VCGCD-NW-000150 /	Victoria	28.8982	-96.995	127.95	62	42	62	CH	CH	CH	LI	0	0	0
147	VCGCD-NW-000151 /	Victoria	28.7803	-97.068	91.86	130	108	128	CH	CH	CH	LI	0	0	0
148	VCGCD-NW-000152 /	Victoria	28.7529	-97.022	39.37	33	23	33	CH	CH	CH	LI	0	0	0
149	VCGCD-NW-000153 /	Victoria	28.9039	-97.004	127.95	92	70	90	CH	CH	CH	LI	0	0	0
150	VCGCD-NW-000154 /	Victoria	28.9172	-97.091	127.95	100	78	88	EV	EV	CH	LI	0	1	1
151	VCGCD-NW-000155 /	Victoria	28.7985	-97.058	98.43	170	110	120	CH	CH	CH	WI	0	0	0
152	VCGCD-NW-000156 /	Victoria	28.9267	-96.812	72.18	250	120	220	CH	CH	CH	LI	0	0	0
153	VCGCD-NW-000157 /	Victoria	28.8029	-97.054	59.06	201	181	201	EV	CH	CH	WI	1	1	0
154	VCGCD-NW-000158 /	Victoria	28.8492	-97.109	134.51	220	180	220	EV	EV	EV	UG	0	0	0
155	VCGCD-NW-000159 /	Victoria	28.8852	-96.769	55.77	135	115	135	CH	CH	CH	LI	0	0	0
156	VCGCD-NW-000160 /	Victoria	28.891	-97.178	180.45	168	148	168	EV	EV	EV	UG	0	0	0
157	VCGCD-NW-000161 /	Victoria	28.9094	-97.081	118.11	305	260	300	EV	EV	EV	UG	0	0	0
158	VCGCD-NW-000162 /	Victoria	28.7902	-97.059	95.14	130	110	130	CH	CH	CH	LI	0	0	0
159	VCGCD-NW-000163 /	Victoria	28.6365	-96.915	52.49	95	75	95	CH	CH	CH	LI	0	0	0
160	VCGCD-NW-000164 /	Victoria	28.8969	-97.145	111.55	200	176	196	EV	EV	EV	UG	0	0	0



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161	VCGCD-NW-000166 /	Victoria	28.7934	-97.061	98.43	114	88	108	CH	CH	CH	LI	0	0	0
162	VCGCD-NW-000167 /	Victoria	28.8675	-97.119	127.95	200	180	190	EV	EV	EV	UG	0	0	0
163	VCGCD-NW-000168 /	Victoria	28.655	-97.053	95.14	160	140	160	CH	CH	CH	LI	0	0	0
164	VCGCD-NW-000169 /	Victoria	28.8914	-97.01	131.23	90	72	82	CH	CH	CH	LI	0	0	0
165	VCGCD-NW-000170 /	Victoria	28.7992	-97.035	55.77	125	100	120	CH	CH	CH	LI	0	0	0
166	VCGCD-NW-000171 /	Victoria	28.9057	-97.003	131.23	90	40	80	CH	CH	CH	LI	0	0	0
167	VCGCD-NW-000172 /	Victoria	28.6371	-96.916	52.49	101	90	101	CH	CH	CH	LI	0	0	0
168	VCGCD-NW-000173 /	Victoria	28.8894	-96.843	68.9	92	70	90	CH	CH	CH	BB	0	0	0
169	VCGCD-NW-000174 /	Victoria	28.8614	-97.171	180.45	155	128	148	EV	EV	EV	UG	0	0	0
170	VCGCD-NW-000175 /	Victoria	28.8611	-97.142	173.88	205	180	200	EV	EV	EV	UG	0	0	0
171	VCGCD-NW-000176 /	Victoria	28.7939	-97.068	104.99	210	190	210	EV	CH	CH	WI	1	1	0
172	VCGCD-NW-000177 /	Victoria	28.8357	-97.13	137.8	165	145	165	EV	EV	EV	UG	0	0	0
173	VCGCD-NW-000178 /	Victoria	28.8395	-96.85	59.06	73	60	73	CH	CH	CH	BB	0	0	0
174	VCGCD-NW-000179 / 227797	Victoria	28.6842	-96.919	62.34	120	100	120	CH	CH	CH	LI	0	0	0
175	VCGCD-NW-000180 /	Victoria	28.765	-97.075	101.71	100	50	80	CH	CH	CH	LI	0	0	0
176	VCGCD-NW-000181 /	Victoria	28.7539	-96.834	55.77	120	80	120	CH	CH	CH	LI	0	0	0
177	VCGCD-NW-000183 /	Victoria	28.8825	-96.868	82.02	57	43	57	CH	CH	CH	BB	0	0	0
178	VCGCD-NW-000184 /	Victoria	28.8828	-96.843	72.18	68	45	65	CH	CH	CH	BB	0	0	0
179	VCGCD-NW-000185 /	Victoria	28.9169	-97.11	131.23	120	100	110	EV	EV	CH	WI	0	1	1
180	VCGCD-NW-000186 /	Victoria	28.5575	-97.085	85.3	93	70	90	CH	CH	CH	LI	0	0	0
181	VCGCD-NW-000187 /	Victoria	28.7439	-96.939	72.18	105	95	105	CH	CH	CH	LI	0	0	0
182	VCGCD-NW-000188 /	Victoria	28.8881	-96.8	62.34	62	52	62	CH	CH	CH	BB	0	0	0
183	VCGCD-NW-000189 /	Victoria	28.8899	-96.797	62.34	55	45	55	CH	CH	CH	BB	0	0	0
184	VCGCD-NW-000190 /	Victoria	28.8892	-96.798	65.62	65	43	63	CH	CH	CH	BB	0	0	0
185	VCGCD-NW-000191 /	Victoria	28.7771	-97.145	124.67	200	175	195	EV	EV	EV	UG	0	0	0
186	VCGCD-NW-000192 /	Victoria	28.8308	-97.103	127.95	265	245	265	EV	EV	EV	UG	0	0	0

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187	VCGCD-NW-000193 /	Victoria	28.9119	-96.837	82.02	100	75	85	CH	CH	CH	BB	0	0	0
188	VCGCD-GW-000454 /	Victoria	28.6649	-96.963	42.65	119	7	59	CH	CH	CH	LI	0	0	0
189	VCGCD-NW-000195 /	Victoria	28.6302	-96.923	26.25	85	65	85	CH	CH	CH	LI	0	0	0
190	VCGCD-NW-000196 /	Victoria	28.7211	-96.878	62.34	126	104	124	CH	CH	CH	LI	0	0	0
191	VCGCD-NW-000197 / 244258	Victoria	28.9348	-97.107	131.23	240	100	220	EV	EV	EV	UG	0	0	0
192	VCGCD-NW-000198 /	Victoria	28.9304	-97.039	147.64	230	140	220	EV	EV	EV	UG	0	0	0
193	VCGCD-NW-000199 /	Victoria	28.9068	-96.844	78.74	84	64	84	CH	CH	CH	BB	0	0	0
194	VCGCD-NW-000200 /	Victoria	28.7436	-97.118	101.71	150	136	146	EV	CH	CH	WI	1	1	0
195	VCGCD-NW-000201 /	Victoria	28.8808	-97.046	111.55	73	58	73	CH	CH	CH	LI	0	0	0
196	VCGCD-NW-000203 /	Victoria	28.8572	-96.821	52.49	140	120	140	CH	CH	CH	LI	0	0	0
197	VCGCD-NW-000204 / 225654	Victoria	28.9126	-96.835	82.02	100	67	77	CH	CH	CH	BB	0	0	0
198	VCGCD-NW-000205 /	Victoria	29.0567	-96.992	167.32	152	132	152	EV	EV	CH	WI	0	1	1
199	VCGCD-NW-000206 /	Victoria	28.7833	-97.105	118.11	150	60	80	EV	CH	CH	WI	1	1	0
200	VCGCD-NW-000207 /	Victoria	29.067	-96.987	180.45	108	83	103	CH	CH	CH	LI	0	0	0
201	VCGCD-NW-000208 /	Victoria	28.9022	-97.076	118.11	123	110	120	EV	EV	CH	WI	0	1	1
202	VCGCD-NW-000209 /	Victoria	28.7847	-97.106	118.11	300	277	297	EV	EV	EV	UG	0	0	0
203	VCGCD-NW-000211 /	Victoria	28.8186	-97.087	121.39	250	220	240	EV	EV	EV	UG	0	0	0
204	VCGCD-NW-000212 /	Victoria	28.7844	-97.105	118.11	282	240	260	EV	EV	EV	UG	0	0	0
205	VCGCD-NW-000213 /	Victoria	28.7718	-97.104	114.83	160	145	160	EV	CH	CH	WI	1	1	0
206	VCGCD-NW-000214 /	Victoria	28.8302	-97.107	124.67	195	178	195	EV	EV	EV	UG	0	0	0
207	VCGCD-NW-000215 /	Victoria	28.6087	-96.946	9.84	67	43	63	CH	CH	CH	LI	0	0	0
208	VCGCD-NW-000216 /	Victoria	28.7317	-97.14	68.9	175	132	152	EV	EV	EV	UG	0	0	0
209	VCGCD-NW-000218 /	Victoria	28.7928	-97.057	88.58	110	86	106	CH	CH	CH	LI	0	0	0
210	VCGCD-NW-000219 /	Victoria	28.8734	-97.037	111.55	146	120	140	CH	CH	CH	WI	0	0	0
211	VCGCD-NW-000220 /	Victoria	28.7377	-96.735	36.09	205	180	200	CH	CH	CH	LI	0	0	0
212	VCGCD-NW-000221 /	Victoria	28.6696	-96.856	55.77	79	10	79	CH	CH	CH	LI	0	0	0

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213	VCGCD-NW-000222 /	Victoria	28.8785	-97.136	95.14	190	160	180	EV	EV	EV	UG	0	0	0
214	VCGCD-NW-000223 /	Victoria	28.8427	-96.868	75.46	95	79	94	CH	CH	CH	LI	0	0	0
215	VCGCD-NW-000224 /	Victoria	28.7625	-96.992	42.65	79	10	79	CH	CH	CH	LI	0	0	0
216	VCGCD-NW-000225 /	Victoria	28.8186	-97.089	124.67	252	240	250	EV	EV	EV	UG	0	0	0
217	VCGCD-NW-000226 /	Victoria	28.83	-96.92	91.86	70	60	70	CH	CH	CH	BB	0	0	0
218	VCGCD-NW-000227 /	Victoria	28.6746	-96.847	55.77	180	170	180	CH	CH	CH	LI	0	0	0
219	VCGCD-NW-000229 /	Victoria	28.9114	-96.838	82.02	100	67	77	CH	CH	CH	BB	0	0	0
220	VCGCD-NW-000230 /	Victoria	28.5726	-97.135	101.71	180	140	180	CH	CH	CH	LI	0	0	0
221	VCGCD-NW-000231 /	Victoria	28.7997	-97.055	85.3	200	180	200	EV	CH	CH	WI	1	1	0
222	VCGCD-NW-000232 /	Victoria	28.8855	-96.843	72.18	100	78	98	CH	CH	CH	BB	0	0	0
223	VCGCD-NW-000233 /	Victoria	28.8413	-96.884	82.02	62	39	59	CH	CH	CH	BB	0	0	0
224	VCGCD-NW-000234 /	Victoria	28.8833	-96.841	72.18	100	76	88	CH	CH	CH	BB	0	0	0
225	VCGCD-NW-000235 /	Victoria	28.9041	-96.838	75.46	310	280	300	CH	CH	CH	LI	0	0	0
226	VCGCD-NW-000236 /	Victoria	28.7688	-97.04	72.18	110	60	70	CH	CH	CH	LI	0	0	0
227	VCGCD-NW-000237 / 244772	Victoria	28.6334	-97.005	32.81	220	190	220	CH	CH	CH	LI	0	0	0
228	VCGCD-NW-000238 /	Victoria	28.8701	-97.217	154.2	92	72	92	EV	EV	EV	UG	0	0	0
229	VCGCD-NW-000239 /	Victoria	28.8515	-96.888	85.3	130	100	110	CH	CH	CH	LI	0	0	0
230	VCGCD-NW-000240 /	Victoria	28.8864	-96.959	118.11	110	76	90	CH	CH	CH	LI	0	0	0
231	VCGCD-NW-000241 /	Victoria	28.8911	-97.026	127.95	261	248	261	EV	EV	EV	UG	0	0	0
232	VCGCD-NW-000242 /	Victoria	28.9058	-96.782	59.06	250			CH	CH	CH	LI	0	0	0
233	VCGCD-NW-000243 /	Victoria	28.8704	-97.042	108.27	90	73	88	CH	CH	CH	LI	0	0	0
234	VCGCD-NW-000244 /	Victoria	28.6335	-97.004	26.25	220	190	220	CH	CH	CH	LI	0	0	0
235	VCGCD-NW-000245 /	Victoria	28.9064	-96.845	78.74	80	60	75	CH	CH	CH	BB	0	0	0
236	VCGCD-NW-000246 /	Victoria	28.818	-97.062	108.27	140	80	100	EV	CH	CH	WI	1	1	0
237	VCGCD-NW-000247 /	Victoria	28.8331	-96.846	62.34	100	60	90	CH	CH	CH	LI	0	0	0
238	VCGCD-NW-000248 /	Victoria	28.8048	-96.915	82.02	67	30	65	CH	CH	CH	BB	0	0	0

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239	VCGCD-NW-000249 /	Victoria	28.8784	-97.198	200.13	165	140	160	EV	EV	EV	UG	0	0	0
240	VCGCD-NW-000250 /	Victoria	28.9419	-97.03	157.48	204	184	204	EV	EV	CH	WI	0	1	1
241	VCGCD-NW-000251 /	Victoria	28.6341	-96.999	32.81	220	180	220	CH	CH	CH	LI	0	0	0
242	VCGCD-NW-000252 /	Victoria	28.6333	-97.002	42.65	195	155	195	CH	CH	CH	LI	0	0	0
243	VCGCD-NW-000253 /	Victoria	28.9038	-96.995	131.23	80	63	75	CH	CH	CH	LI	0	0	0
244	VCGCD-NW-000254 /	Victoria	28.9597	-97.118	164.04	230	200	215	EV	EV	EV	UG	0	0	0
245	VCGCD-NW-000255 /	Victoria	28.986	-97.102	167.32	152	120	152	EV	EV	EV	UG	0	0	0
246	VCGCD-NW-000256 /	Victoria	28.8987	-97.078	118.11	205	160	180	EV	EV	EV	UG	0	0	0
247	VCGCD-NW-000257 /	Victoria	28.9052	-97.002	131.23	90	68	78	CH	CH	CH	LI	0	0	0
248	VCGCD-NW-000258 /	Victoria	28.6757	-97.046	82.02	83	63	83	CH	CH	CH	LI	0	0	0
249	VCGCD-NW-000259 /	Victoria	28.8889	-96.799	65.62	65	50	65	CH	CH	CH	BB	0	0	0
250	VCGCD-NW-000260 /	Victoria	28.784	-97.083	104.99	115	95	115	CH	CH	CH	LI	0	0	0
251	VCGCD-NW-000261 /	Victoria	28.9409	-97.031	157.48	204	184	204	EV	EV	CH	WI	0	1	1
252	VCGCD-NW-000262 /	Victoria	28.8428	-97.097	124.67	186	175	185	EV	EV	EV	UG	0	0	0
253	VCGCD-NW-000263 /	Victoria	28.8788	-97.032	88.58	60	30	40	CH	CH	CH	LI	0	0	0
254	VCGCD-NW-000264 /	Victoria	29.0096	-97.028	190.29	202	180	200	EV	EV	CH	WI	0	1	1
255	VCGCD-NW-000265 /	Victoria	28.6304	-97	55.77	180	140	180	CH	CH	CH	LI	0	0	0
256	VCGCD-NW-000266 /	Victoria	28.9205	-96.858	91.86	81	58	78	CH	CH	CH	BB	0	0	0
257	VCGCD-GW-000556 /	Victoria	28.8992	-96.785	59.06	58	40	40	CH	CH	CH	BB	0	0	0
258	VCGCD-NW-000267 /	Victoria	28.887	-96.844	68.9	89	68	88	CH	CH	CH	BB	0	0	0
259	VCGCD-NW-000268 /	Victoria	28.7597	-96.911	72.18	146	125	145	CH	CH	CH	LI	0	0	0
260	VCGCD-NW-000269 /	Victoria	28.8598	-96.957	108.27	96	75	95	CH	CH	CH	LI	0	0	0
261	VCGCD-NW-000270 /	Victoria	28.7567	-96.916	72.18	118	96	116	CH	CH	CH	LI	0	0	0
262	VCGCD-NW-000271 /	Victoria	28.771	-96.928	75.46	133	110	130	CH	CH	CH	LI	0	0	0
263	VCGCD-NW-000272 /	Victoria	28.8298	-97.104	127.95	250	235	250	EV	EV	EV	UG	0	0	0
264	VCGCD-NW-000273 /	Victoria	28.8872	-97.048	114.83	63	40	50	CH	CH	CH	LI	0	0	0
265	VCGCD-NW-000274 /	Victoria	28.6458	-97.077	91.86	142	118	138	CH	CH	CH	LI	0	0	0

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266	VCGCD-NW-000275 /	Victoria	28.648	-96.917	59.06	83	73	83	CH	CH	CH	BB	0	0	0
267	VCGCD-NW-000276 /	Victoria	28.6699	-96.817	45.93	225	200	220	CH	CH	CH	LI	0	0	0
268	VCGCD-NW-000277 /	Victoria	28.8038	-97.16	111.55	225	200	220	EV	EV	EV	UG	0	0	0
269	VCGCD-NW-000278 /	Victoria	28.8077	-96.834	62.34	83	70	83	CH	CH	CH	BB	0	0	0
270	VCGCD-NW-000279 /	Victoria	29.0207	-96.959	144.36	100	80	100	CH	CH	CH	LI	0	0	0
271	VCGCD-NW-000280 /	Victoria	28.914	-96.847	88.58	80	63	78	CH	CH	CH	BB	0	0	0
272	VCGCD-NW-000281 /	Victoria	28.7774	-96.903	75.46	117	95	115	CH	CH	CH	LI	0	0	0
273	VCGCD-NW-000282 /	Victoria	28.8978	-97.012	131.23	167	150	165	EV	CH	CH	LI	1	1	0
274	VCGCD-NW-000283 /	Victoria	28.8472	-97.022	95.14	102	82	92	CH	CH	CH	LI	0	0	0
275	VCGCD-NW-000284 /	Victoria	28.8372	-97.132	147.64	158	140	158	EV	EV	EV	UG	0	0	0
276	VCGCD-NW-000285 /	Victoria	28.8203	-97.159	137.8	104	87	97	EV	EV	EV	UG	0	0	0
277	VCGCD-NW-000286 /	Victoria	28.5416	-96.956	22.97	115	95	115	CH	CH	CH	LI	0	0	0
278	VCGCD-NW-000287 /	Victoria	28.8053	-96.916	82.02	75	53	73	CH	CH	CH	LI	0	0	0
279	VCGCD-NW-000288 /	Victoria	28.7512	-96.877	65.62	90	80	90	CH	CH	CH	LI	0	0	0
280	VCGCD-NW-000289 /	Victoria	28.7882	-96.903	78.74	150	140	150	CH	CH	CH	LI	0	0	0
281	VCGCD-NW-000290 /	Victoria	28.5323	-96.998	22.97	105	80	100	CH	CH	CH	LI	0	0	0
282	VCGCD-NW-000291 /	Victoria	28.5456	-96.994	62.34	105	80	100	CH	CH	CH	LI	0	0	0
283	VCGCD-NW-000292 /	Victoria	28.7824	-97.081	101.71	112	92	112	CH	CH	CH	LI	0	0	0
284	VCGCD-NW-000293 /	Victoria	28.8863	-97.202	209.97	206	175	195	EV	EV	EV	UG	0	0	0
285	VCGCD-NW-000294 /	Victoria	28.9039	-97.004	127.95	155	134	154	CH	CH	CH	LI	0	0	0
286	VCGCD-NW-000295 /	Victoria	28.8893	-96.819	68.9	75	55	75	CH	CH	CH	BB	0	0	0
287	VCGCD-NW-000296 /	Victoria	28.8804	-96.87	82.02	60	40	60	CH	CH	CH	BB	0	0	0
288	VCGCD-NW-000297 /	Victoria	28.6257	-97.077	88.58	165	140	160	CH	CH	CH	LI	0	0	0
289	VCGCD-NW-000298 /	Victoria	28.8953	-97.038	114.83	135	110	120	EV	CH	CH	WI	1	1	0
290	VCGCD-NW-000299 /	Victoria	28.8585	-96.817	52.49	110	90	110	CH	CH	CH	LI	0	0	0
291	VCGCD-NW-000300 /	Victoria	28.8886	-97.236	170.6	204	183	203	EV	EV	EV	UG	0	0	0
292	VCGCD-NW-000301 /	Victoria	28.8044	-96.77	49.21	124	40	60	CH	CH	CH	BB	0	0	0



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293	VCGCD-NW-000302 /	Victoria	28.8686	-97.049	98.43	290	260	280	EV	EV	EV	UG	0	0	0
294	VCGCD-NW-000303 /	Victoria	28.9078	-96.842	82.02	84	64	84	CH	CH	CH	BB	0	0	0
295	VCGCD-NW-000304 /	Victoria	28.8836	-97.23	187.01	145	109	124	EV	EV	EV	UG	0	0	0
296	VCGCD-NW-000305 /	Victoria	28.6507	-97.074	88.58	161	135	160	CH	CH	CH	LI	0	0	0
297	VCGCD-NW-000307 /	Victoria	28.5587	-97.086	85.3	160	83	103	CH	CH	CH	LI	0	0	0
298	VCGCD-NW-000308 /	Victoria	28.852	-96.865	65.62	105	83	103	CH	CH	CH	LI	0	0	0
299	VCGCD-NW-000309 /	Victoria	28.6643	-97.125	104.99	198	155	195	CH	CH	CH	WI	0	0	0
300	VCGCD-NW-000311 /	Victoria	28.8867	-97.047	114.83	85	60	70	CH	CH	CH	LI	0	0	0
301	VCGCD-NW-000312 /	Victoria	29.031	-96.913	124.67	144	104	144	CH	CH	CH	LI	0	0	0
302	VCGCD-NW-000313 /	Victoria	28.8634	-97.148	177.17	155	135	155	EV	EV	EV	UG	0	0	0
303	VCGCD-NW-000314 /	Victoria	28.8221	-97.065	98.43	260	235	255	EV	EV	EV	UG	0	0	0
304	VCGCD-NW-000315 /	Victoria	28.6777	-97.168	114.83	254	234	254	EV	EV	EV	UG	0	0	0
305	VCGCD-GW-000007 /	Victoria	28.8221	-96.979	98.43	1010	450	1000	EV	EV	EV	UG	0	0	0
306	VCGCD-NW-000316 /	Victoria	28.832	-97.101	131.23	160	240	260	EV	EV	CH	WI	0	1	1
307	VCGCD-NW-000318 /	Victoria	28.8372	-97.116	137.8	222	202	222	EV	EV	EV	UG	0	0	0
308	VCGCD-NW-000319 /	Victoria	28.8834	-97.047	111.55	210	200	210	EV	EV	EV	UG	0	0	0
309	VCGCD-NW-000320 /	Victoria	28.7843	-97.107	118.11	125	80	100	EV	CH	CH	WI	1	1	0
310	VCGCD-NW-000321 /	Victoria	28.898	-97.222	209.97	200	180	200	EV	EV	EV	UG	0	0	0
311	VCGCD-NW-000322 /	Victoria	28.8823	-96.841	72.18	98	80	90	CH	CH	CH	BB	0	0	0
312	VCGCD-NW-000323 /	Victoria	28.9058	-97.003	131.23	85	60	70	CH	CH	CH	LI	0	0	0
313	VCGCD-NW-000324 /	Victoria	28.6892	-96.965	45.93	100	80	100	CH	CH	CH	LI	0	0	0
314	VCGCD-NW-000325 /	Victoria	28.6912	-97.091	95.14	365	320	360	EV	EV	EV	UG	0	0	0
315	VCGCD-NW-000326 /	Victoria	28.7396	-96.894	68.9	103	90	100	CH	CH	CH	LI	0	0	0
316	VCGCD-NW-000327 /	Victoria	28.9048	-97.003	131.23	78	63	76	CH	CH	CH	LI	0	0	0
317	VCGCD-NW-000328 /	Victoria	28.7921	-96.875	72.18	85	60	80	CH	CH	CH	LI	0	0	0
318	VCGCD-NW-000329 /	Victoria	28.9122	-96.837	82.02	90	70	90	CH	CH	CH	BB	0	0	0
319	VCGCD-NW-000330 /	Victoria	28.7937	-96.922	78.74	100	80	100	CH	CH	CH	LI	0	0	0

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320	VCGCD-NW-000331 /	Victoria	28.8399	-97.18	164.04	136	116	136	EV	EV	EV	UG	0	0	0
321	VCGCD-NW-000332 /	Victoria	28.6523	-96.887	52.49	392	372	392	CH	CH	CH	WI	0	0	0
322	VCGCD-GW-000972 /	Victoria	28.7638	-96.902	72.18	530	155	530	CH	CH	CH	WI	0	0	0
323	VCGCD-NW-000334 /	Victoria	28.9099	-96.838	82.02	84	64	84	CH	CH	CH	BB	0	0	0
324	VCGCD-NW-000335 /	Victoria	28.9086	-97.005	131.23	125	80	100	CH	CH	CH	LI	0	0	0
325	VCGCD-NW-000336 /	Victoria	28.9064	-96.782	59.06	152	130	150	CH	CH	CH	LI	0	0	0
326	VCGCD-R1GW-000641 /	Victoria	28.9155	-96.914	101.71	100	80	100	CH	CH	CH	LI	0	0	0
327	VCGCD-NW-000337 /	Victoria	28.9039	-97.004	127.95	158	136	156	CH	CH	CH	LI	0	0	0
328	VCGCD-NW-000338 /	Victoria	28.9132	-96.835	82.02	79	57	77	CH	CH	CH	BB	0	0	0
329	VCGCD-NW-000339 /	Victoria	28.7579	-97.142	114.83	243	223	243	EV	EV	EV	UG	0	0	0
330	VCGCD-NW-000340 /	Victoria	28.7761	-97.06	88.58	107	87	107	CH	CH	CH	LI	0	0	0
331	VCGCD-NW-000341 /	Victoria	28.9403	-97.112	157.48	145	120	140	EV	EV	CH	WI	0	1	1
332	VCGCD-NW-000342 /	Victoria	28.8694	-97.248	160.76	185	150	170	EV	EV	EV	UG	0	0	0
333	VCGCD-NW-000344 /	Victoria	28.5942	-97.155	78.74	140	100	140	CH	CH	CH	LI	0	0	0
334	VCGCD-NW-000345 /	Victoria	28.9089	-97.007	131.23	248	224	248	EV	CH	CH	WI	1	1	0
335	VCGCD-NW-000346 /	Victoria	28.7844	-97.104	118.11	268	245	265	EV	EV	EV	UG	0	0	0
336	VCGCD-NW-000347 /	Victoria	28.8825	-97.042	114.83	135	115	135	EV	CH	CH	WI	1	1	0
337	VCGCD-NW-000348 /	Victoria	28.9137	-96.873	82.02	235	215	235	CH	CH	CH	LI	0	0	0
338	VCGCD-NW-000349 /	Victoria	28.8994	-97.215	206.69	210	180	200	EV	EV	EV	UG	0	0	0
339	VCGCD-NW-000350 /	Victoria	28.9664	-96.95	118.11	240	200	240	EV	CH	CH	WI	1	1	0
340	VCGCD-NW-000351 /	Victoria	28.9186	-97.074	124.67	105	80	100	EV	CH	CH	WI	1	1	0
341	VCGCD-NW-000352 /	Victoria	28.9061	-97.003	131.23	84	60	80	CH	CH	CH	LI	0	0	0
342	VCGCD-NW-000353 /	Victoria	28.9044	-97.003	131.23	105	65	85	CH	CH	CH	LI	0	0	0
343	VCGCD-NW-000354 /	Victoria	28.7163	-97.088	78.74	125	105	125	CH	CH	CH	LI	0	0	0
344	VCGCD-NW-000355 /	Victoria	28.9067	-96.844	78.74	83	63	83	CH	CH	CH	BB	0	0	0
345	VCGCD-NW-000356 /	Victoria	28.8525	-96.801	55.77	125	100	110	CH	CH	CH	LI	0	0	0
346	VCGCD-GW-000450 /	Victoria	28.6655	-96.961	59.06	106	24	34	CH	CH	CH	LI	0	0	0

(a) ID	(b & c) GCD Name /SWN	(d) County	(e) Lat	(f) Long	(g) Datum (ft, msl)	(h) Well Depth (ft)	(i) Top Scr Depth (ft)	(j) Bot Scr Depth (ft)	(k) GMA 15 GAM	(l) GMA 15 & 16 GAM	(m) TWDB	(n) TWDB	(o) K.ne.L	(p) K.ne.M	(q) L.ne.M
347	VCGCD-NW-000357 /	Victoria	28.8428	-96.725	39.37	260	220	260	CH	CH	CH	LI	0	0	0
348	VCGCD-NW-000358 /	Victoria	29.0908	-96.986	147.64	125	95	115	EV	EV	CH	WI	0	1	1
349	VCGCD-NW-000359 /	Victoria	28.9208	-97.094	124.67	116	94	114	EV	EV	CH	WI	0	1	1
350	VCGCD-NW-000360 /	Victoria	28.9067	-96.846	82.02	86	66	86	CH	CH	CH	BB	0	0	0
351	VCGCD-NW-000362 /	Victoria	28.835	-96.86	68.9	168	146	166	CH	CH	CH	LI	0	0	0
352	VCGCD-NW-000363 /	Victoria	28.8003	-97.058	101.71	150	120	140	CH	CH	CH	LI	0	0	0
353	VCGCD-NW-000364 /	Victoria	28.8003	-97.059	101.71	145	115	130	CH	CH	CH	LI	0	0	0
354	VCGCD-NW-000365 /	Victoria	28.9214	-97.094	127.95	150	120	140	EV	EV	EV	UG	0	0	0
355	VCGCD-GW-000455 /	Victoria	28.6645	-96.963	36.09	93	58	88	CH	CH	CH	LI	0	0	0
356	VCGCD-NW-000366 / 280923	Victoria	28.9142	-97.223	216.54	215	180	200	EV	EV	EV	LG	0	0	0
357	VCGCD-NW-000367 /	Victoria	28.6944	-97.059	85.3	112	85	105	CH	CH	CH	LI	0	0	0
358	VCGCD-NW-000368 /	Victoria	28.8574	-97.152	160.76	122	102	122	EV	EV	EV	UG	0	0	0
359	VCGCD-NW-000369 /	Victoria	28.891	-96.836	68.9	125	100	110	CH	CH	CH	LI	0	0	0
360	VCGCD-NW-000370 /	Victoria	28.9014	-97.055	118.11	160	32	52	EV	EV	CH	WI	0	1	1
361	VCGCD-NW-000371 /	Victoria	28.8714	-97.037	111.55	205	170	190	EV	CH	CH	WI	1	1	0
362	VCGCD-NW-000372 /	Victoria	28.8647	-97.146	177.17	225	202	222	EV	EV	EV	UG	0	0	0
363	VCGCD-NW-000373 /	Victoria	28.8533	-96.753	42.65	134	112	132	CH	CH	CH	BB	0	0	0
364	VCGCD-NW-000374 /	Victoria	28.7595	-97.134	108.27	162	142	162	EV	EV	EV	UG	0	0	0
365	VCGCD-NW-000376 /	Victoria	28.7475	-97.03	75.46	185	160	180	CH	CH	CH	LI	0	0	0
366	VCGCD-NW-000377 /	Victoria	28.8792	-97.146	154.2	130	80	120	EV	EV	EV	UG	0	0	0
367	VCGCD-NW-000378 /	Victoria	28.9694	-96.897	114.83	344	323	343	EV	CH	CH	WI	1	1	0
368	VCGCD-NW-000379 /	Victoria	28.9026	-96.79	62.34	102	82	102	CH	CH	CH	BB	0	0	0
369	VCGCD-NW-000380 /	Victoria	28.7722	-97.06	85.3	85	70	80	CH	CH	CH	LI	0	0	0
370	VCGCD-NW-000381 /	Victoria	28.91	-96.838	82.02	84	64	84	CH	CH	CH	BB	0	0	0
371	VCGCD-NW-000382 /	Victoria	28.9054	-96.798	62.34	182	163	182	CH	CH	CH	LI	0	0	0
372	VCGCD-NW-000383 /	Victoria	28.8458	-97.176	157.48	180	140	160	EV	EV	EV	UG	0	0	0

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373	VCGCD-NW-000384 /	Victoria	28.7836	-97.103	118.11	315	260	300	EV	EV	EV	UG	0	0	0
374	VCGCD-NW-000385 /	Victoria	28.8395	-97.179	173.88	136	116	130	EV	EV	EV	UG	0	0	0
375	VCGCD-NW-000386 /	Victoria	28.9394	-97.11	154.2	140	110	130	EV	EV	CH	WI	0	1	1
376	VCGCD-NW-000387 /	Victoria	28.9083	-96.843	82.02	84	64	84	CH	CH	CH	BB	0	0	0
377	VCGCD-NW-000388 /	Victoria	28.7846	-97.077	91.86	360	260	360	EV	EV	EV	UG	0	0	0
378	VCGCD-NW-000389 /	Victoria	28.7301	-96.935	72.18	90	70	90	CH	CH	CH	LI	0	0	0
379	VCGCD-NW-000390 /	Victoria	28.8078	-96.918	88.58	100	80	100	CH	CH	CH	LI	0	0	0
380	VCGCD-NW-000391 /	Victoria	28.8939	-97.036	111.55	150	120	140	EV	CH	CH	WI	1	1	0
381	VCGCD-NW-000392 /	Victoria	28.8858	-97.04	118.11	175	142	162	EV	CH	CH	WI	1	1	0
382	VCGCD-NW-000393 /	Victoria	28.8367	-97.131	144.36	175	153	173	EV	EV	EV	UG	0	0	0
383	VCGCD-NW-000394 /	Victoria	28.7423	-97.042	82.02	63	43	63	CH	CH	CH	LI	0	0	0
384	VCGCD-NW-000395 /	Victoria	28.8306	-97.186	121.39	82	62	82	EV	EV	EV	UG	0	0	0
385	VCGCD-NW-000396 /	Victoria	28.7744	-97.11	114.83	255	232	252	EV	EV	EV	UG	0	0	0
386	VCGCD-NW-000397 / 303969	Victoria	28.8147	-97.079	121.39	140	110	1130	CH	CH	CH	WI	0	0	0
387	VCGCD-NW-000398 /	Victoria	28.93	-97.093	144.36	93	73	93	EV	EV	CH	LI	0	1	1
388	VCGCD-NW-000399 /	Victoria	29.0642	-96.97	170.6	160	140	160	CH	EV	CH	WI	1	0	1
389	VCGCD-NW-000400 / 303032	Victoria	28.9158	-97.048	141.08	85	50	85	CH	CH	CH	LI	0	0	0
390	VCGCD-NW-000401 /	Victoria	28.8644	-97.213	150.92	200	160	180	EV	EV	EV	UG	0	0	0
391	VCGCD-NW-000402 /	Victoria	28.9288	-97.078	144.36	121	100	120	EV	EV	CH	WI	0	1	1
392	VCGCD-NW-000403 /	Victoria	28.8847	-97.049	111.55	90	60	70	CH	CH	CH	LI	0	0	0
393	VCGCD-NW-000404 /	Victoria	28.7578	-96.916	72.18	98	76	96	CH	CH	CH	LI	0	0	0
394	VCGCD-NW-000405 /	Victoria	28.8883	-96.844	68.9	120	80	100	CH	CH	CH	LI	0	0	0
395	VCGCD-NW-000407 /	Victoria	28.8866	-96.956	118.11	84	61	81	CH	CH	CH	LI	0	0	0
396	VCGCD-NW-000408 /	Victoria	28.8384	-97.18	167.32	220	200	220	EV	EV	EV	UG	0	0	0
397	VCGCD-NW-000409 /	Victoria	28.8239	-97.067	104.99	190	160	180	EV	EV	CH	WI	0	1	1
398	VCGCD-NW-000410 /	Victoria	28.8617	-97.113	137.8	220	200	220	EV	EV	EV	UG	0	0	0

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399	VCGCD-NW-000411 /	Victoria	28.8372	-97.182	164.04	158	138	158	EV	EV	EV	UG	0	0	0
400	VCGCD-NW-000412 /	Victoria	28.8517	-97.158	187.01	153	130	150	EV	EV	EV	UG	0	0	0
401	VCGCD-NW-000413 /	Victoria	29.023	-96.946	134.51	80	60	80	CH	CH	CH	LI	0	0	0
402	VCGCD-NW-000414 /	Victoria	29.0217	-96.927	124.67	124	104	124	CH	CH	CH	LI	0	0	0
403	VCGCD-NW-000415 /	Victoria	28.9425	-97.087	147.64	145	110	130	EV	EV	CH	WI	0	1	1
404	VCGCD-NW-000416 /	Victoria	28.817	-97.074	118.11	275	240	260	EV	EV	EV	UG	0	0	0
405	VCGCD-NW-000417 /	Victoria	28.9402	-97.004	141.08	195	175	195	EV	CH	CH	WI	1	1	0
406	VCGCD-NW-000418 /	Victoria	28.8442	-97.191	137.8	80	65	80	EV	EV	EV	UG	0	0	0
407	VCGCD-NW-000419 /	Victoria	28.9041	-97.005	131.23	105	40	100	CH	CH	CH	LI	0	0	0
408	VCGCD-NW-000420 /	Victoria	28.9053	-97.004	131.23	105	40	100	CH	CH	CH	LI	0	0	0
409	VCGCD-NW-000421 /	Victoria	28.8125	-97.106	127.95	295	265	285	EV	EV	EV	UG	0	0	0
410	VCGCD-NW-000422 /	Victoria	28.9114	-96.835	82.02	85	60	80	CH	CH	CH	BB	0	0	0
411	VCGCD-NW-000423 /	Victoria	28.8618	-97.146	180.45	155	135	155	EV	EV	EV	UG	0	0	0
412	VCGCD-NW-000424 /	Victoria	28.924	-97.201	183.73	193	170	190	EV	EV	EV	UG	0	0	0
413	VCGCD-NW-000427 /	Victoria	28.9033	-97.004	127.95	158	136	156	CH	CH	CH	LI	0	0	0
414	VCGCD-NW-000428 /	Victoria	28.883	-97.059	111.55	85		65	EV	CH	CH	LI	1	1	0
415	VCGCD-NW-000429 /	Victoria	28.8186	-97.089	124.67	144	102	122	CH	CH	CH	WI	0	0	0
416	VCGCD-NW-000430 /	Victoria	28.7842	-97.105	118.11	304	260	300	EV	EV	EV	UG	0	0	0
417	VCGCD-NW-000431 / 92640	Victoria	28.8428	-96.907	98.43	128	116	126	CH	CH	CH	LI	0	0	0
418	VCGCD-NW-000432 / 92636	Victoria	28.8431	-96.906	98.43	138	112	128	CH	CH	CH	LI	0	0	0
419	VCGCD-NW-000434 / 92638	Victoria	28.8428	-96.906	98.43	128	108	128	CH	CH	CH	LI	0	0	0
420	VCGCD-NW-000435 / 92648	Victoria	28.8431	-96.906	98.43	60	50	60	CH	CH	CH	BB	0	0	0
421	VCGCD-NW-000436 / 319989	Victoria	28.8433	-96.906	98.43	60	50	60	CH	CH	CH	BB	0	0	0
422	VCGCD-NW-000439 /	Victoria	28.8853	-97.049	114.83	220	190	210	EV	EV	EV	UG	0	0	0
423	VCGCD-NW-000440 /	Victoria	28.8414	-97.091	108.27	192	172	192	EV	EV	EV	UG	0	0	0
424	VCGCD-NW-000441 /	Victoria	28.9214	-97.089	137.8	110	80	90	EV	EV	CH	LI	0	1	1



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425	VCGCD-NW-000442 /	Victoria	28.8928	-96.763	52.49	120	98	118	CH	CH	CH	LI	0	0	0
426	VCGCD-NW-000443 /	Victoria	28.8561	-96.842	62.34	205	120	180	CH	CH	CH	LI	0	0	0
427	VCGCD-NW-000444 /	Victoria	28.6781	-96.846	55.77	280	259	269	CH	CH	CH	LI	0	0	0
428	VCGCD-NW-000445 /	Victoria	28.8853	-97.046	114.83	180	160	170	EV	CH	CH	WI	1	1	0
429	VCGCD-NW-000446 /	Victoria	28.8481	-97.17	183.73	175	153	173	EV	EV	EV	UG	0	0	0
430	VCGCD-NW-000447 /	Victoria	28.7032	-96.743	29.53	100	80	100	CH	CH	CH	LI	0	0	0
431	VCGCD-NW-000448 /	Victoria	28.8816	-96.962	114.83	92	82	92	CH	CH	CH	LI	0	0	0
432	VCGCD-NW-000449 / 346690	Victoria	28.7937	-97.057	88.58	110	86	106	CH	CH	CH	LI	0	0	0
433	VCGCD-NW-000450 / 346737	Victoria	28.9225	-97.073	121.39	127	105	125	EV	EV	CH	WI	0	1	1
434	VCGCD-NW-000451 /	Victoria	28.7836	-97.106	118.11	270	248	268	EV	EV	EV	UG	0	0	0
435	VCGCD-NW-000452 /	Victoria	28.9405	-97.01	144.36	200	180	200	EV	CH	CH	WI	1	1	0
436	VCGCD-NW-000453 /	Victoria	28.8743	-97.122	124.67	227	160	220	EV	EV	EV	UG	0	0	0
437	VCGCD-NW-000454 /	Victoria	28.9267	-96.996	124.67	320	200	280	EV	EV	EV	UG	0	0	0
438	VCGCD-NW-000455 /	Victoria	28.9114	-97.025	131.23	240	211	231	EV	EV	CH	WI	0	1	1
439	VCGCD-NW-000456 /	Victoria	28.9367	-97.003	137.8	200	170	190	EV	CH	CH	WI	1	1	0
440	VCGCD-NW-000457 /	Victoria	28.8071	-96.84	65.62	100	60		CH	CH	CH	BB	0	0	0
441	VCGCD-NW-000458 /	Victoria	28.7347	-96.902	68.9	180	140	180	CH	CH	CH	LI	0	0	0
442	VCGCD-NW-000459 /	Victoria	28.9111	-96.863	68.9	105	85	105	CH	CH	CH	LI	0	0	0
443	VCGCD-NW-000460 /	Victoria	28.8224	-97.068	101.71	210	183	203	EV	EV	EV	UG	0	0	0
444	VCGCD-NW-000461 /	Victoria	28.7889	-96.897	78.74	164	142	162	CH	CH	CH	LI	0	0	0
445	VCGCD-NW-000462 /	Victoria	28.7083	-97.138	108.27	110	85	105	CH	CH	CH	WI	0	0	0
446	VCGCD-NW-000463 /	Victoria	28.94	-97.002	141.08	142	120	140	CH	CH	CH	LI	0	0	0
447	VCGCD-NW-000464 /	Victoria	28.6308	-97.105	95.14	125	103	123	CH	CH	CH	LI	0	0	0
448	VCGCD-NW-000465 /	Victoria	28.7881	-96.899	78.74	130	110	130	CH	CH	CH	LI	0	0	0
449	VCGCD-NW-000466 / 350304	Victoria	29.0692	-96.987	183.73	144	120	140	CH	EV	CH	WI	1	0	1

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450	VCGCD-NW-000467 /	Victoria	28.5956	-97.167	72.18	125	103	123	CH	CH	CH	LI	0	0	0
451	VCGCD-NW-000468 /	Victoria	28.9135	-97.049	127.95	96	86	96	EV	CH	CH	LI	1	1	0
452	VCGCD-NW-000469 /	Victoria	28.8764	-97.168	170.6	235	207	227	EV	EV	EV	UG	0	0	0
453	VCGCD-NW-000470 /	Victoria	28.8747	-97.278	203.41	150	114	134	EV	EV	EV	UG	0	0	0
454	VCGCD-NW-000471 /	Victoria	28.8975	-97.06	114.83	205	50	70	EV	EV	EV	UG	0	0	0
455	VCGCD-NW-000472 / 349117	Victoria	28.7295	-96.938	75.46	100	80	100	CH	CH	CH	LI	0	0	0
456	VCGCD-NW-000473 /	Victoria	28.7903	-97.069	101.71	151	131	151	CH	CH	CH	WI	0	0	0
457	VCGCD-GW-000012 /	Victoria	28.8305	-96.989	95.14	1000	381	978	EV	EV	EV	UG	0	0	0
458	VCGCD-NW-000474 /	Victoria	28.8439	-96.902	95.14	150	115	135	CH	CH	CH	LI	0	0	0
459	VCGCD-NW-000475 /	Victoria	28.8039	-97.063	108.27	155	130	150	CH	CH	CH	WI	0	0	0
460	VCGCD-NW-000476 /	Victoria	28.9399	-97.017	147.64	195	175	195	EV	CH	CH	WI	1	1	0
461	VCGCD-NW-000477 /	Victoria	29.0111	-97.03	187.01	220	175	215	EV	EV	EV	UG	0	0	0
462	VCGCD-NW-000478 /	Victoria	28.7844	-97.064	98.43	140	105	115	CH	CH	CH	LI	0	0	0
463	VCGCD-NW-000479 /	Victoria	28.758	-97.036	68.9	200	170	190	CH	CH	CH	WI	0	0	0
464	VCGCD-NW-000480 /	Victoria	28.6647	-96.909	62.34	200	177	197	CH	CH	CH	LI	0	0	0
465	VCGCD-NW-000481 /	Victoria	28.9062	-97.08	121.39	220	100	140	EV	EV	EV	UG	0	0	0
466	VCGCD-GW-000711 /	Victoria	28.9023	-96.995	127.95				DP	DP	DP	DP	0	0	0
467	VCGCD-NW-000482 /	Victoria	28.6842	-96.855	52.49	200	160	200	CH	CH	CH	LI	0	0	0
468	VCGCD-NW-000483 /	Victoria	28.6839	-96.855	52.49	200	120	200	CH	CH	CH	LI	0	0	0
469	VCGCD-NW-000484 /	Victoria	28.9117	-96.836	82.02	84	64	84	CH	CH	CH	BB	0	0	0
470	VCGCD-GW-000843 /	Victoria	28.6674	-96.942	62.34				DP	DP	DP	DP	0	0	0
471	VCGCD-GW-000766 /	Victoria	28.663	-96.961	26.25				DP	DP	DP	DP	0	0	0
472	VCGCD-GW-000919 /	Victoria	28.6632	-96.953	59.06				DP	DP	DP	DP	0	0	0
473	VCGCD-GW-000829 / 183915	Victoria	28.6702	-96.95	68.9				DP	DP	DP	DP	0	0	0
474	VCGCD-GW-000933 /	Victoria	28.993	-96.846	91.86				DP	DP	DP	DP	0	0	0
475	VCGCD-NW-000485 /	Victoria	28.6702	-97.153	111.55	200	140	200	EV	CH	CH	WI	1	1	0

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476	VCGCD-GW-000918 /	Victoria	28.6632	-96.953	59.06				DP	DP	DP	DP	0	0	0
477	VCGCD-NW-000486 /	Victoria	28.7491	-97.052	91.86	180	150	180	CH	CH	CH	LI	0	0	0
478	VCGCD-NW-000487 /	Victoria	28.9069	-97.079	118.11	86	62	82	EV	CH	CH	LI	1	1	0
479	VCGCD-NW-000488 /	Victoria	28.8767	-96.878	88.58	95	72	92	CH	CH	CH	BB	0	0	0
480	VCGCD-GW-000891 /	Victoria	28.6698	-96.937	62.34				DP	DP	DP	DP	0	0	0
481	VCGCD-GW-000816 /	Victoria	28.6731	-96.952	65.62				DP	DP	DP	DP	0	0	0
482	VCGCD-GW-000839 / 183914	Victoria	28.6712	-96.951	68.9				DP	DP	DP	DP	0	0	0
483	VCGCD-GW-000899 /	Victoria	28.6723	-96.938	62.34				DP	DP	DP	DP	0	0	0
484	VCGCD-GW-000887 /	Victoria	28.6644	-96.963	36.09				DP	DP	DP	DP	0	0	0
485	VCGCD-GW-000233 /	Victoria	28.9272	-97.209	200.13				DP	DP	DP	DP	0	0	0
486	VCGCD-NW-000489 /	Victoria	28.8066	-96.758	45.93	117	105	117	CH	CH	CH	BB	0	0	0
487	VCGCD-GW-000092 /	Victoria	28.8707	-97.096	85.3				DP	DP	DP	DP	0	0	0
488	VCGCD-NW-000490 /	Victoria	28.6925	-97.117	101.71	200	150	200	EV	CH	CH	WI	1	1	0
489	VCGCD-NW-000491 /	Victoria	28.9108	-96.837	82.02	90	70	90	CH	CH	CH	BB	0	0	0
490	VCGCD-GW-000888 /	Victoria	28.6938	-96.959	62.34				DP	DP	DP	DP	0	0	0
491	VCGCD-NW-000492 /	Victoria	28.8508	-96.89	88.58	75	55	75	CH	CH	CH	BB	0	0	0
492	VCGCD-NW-000493 /	Victoria	28.6756	-96.847	55.77	183	173	183	CH	CH	CH	LI	0	0	0
493	VCGCD-GW-000761 /	Victoria	28.8924	-97.014	131.23				DP	DP	DP	DP	0	0	0
494	VCGCD-GW-000907 / 183833	Victoria	28.6729	-96.962	62.34				DP	DP	DP	DP	0	0	0
495	VCGCD-NW-000494 /	Victoria	28.8858	-96.846	72.18	85	65	85	CH	CH	CH	BB	0	0	0
496	VCGCD-R1GW-000521 /	Victoria	28.9015	-96.993	127.95	60	45	60	CH	CH	CH	LI	0	0	0
497	VCGCD-GW-000788 /	Victoria	28.9023	-97.078	121.39	150	137	142	EV	EV	EV	UG	0	0	0
498	VCGCD-GW-000797 /	Victoria	28.8979	-97.081	118.11	150			EV	EV	EV	UG	0	0	0
499	VCGCD-NW-000495 /	Victoria	28.7394	-97.128	98.43	142	120	140	EV	CH	CH	WI	1	1	0
500	VCGCD-NW-000496 /	Victoria	28.7764	-96.903	75.46	162	142	162	CH	CH	CH	LI	0	0	0
501	VCGCD-NW-000497 /	Victoria	28.895	-96.76	55.77	180	138	178	CH	CH	CH	LI	0	0	0

(a) ID	(b & c) GCD Name /SWN	(d) County	(e) Lat	(f) Long	(g) Datum (ft, msl)	(h) Well Depth (ft)	(i) Top Scr Depth (ft)	(j) Bot Scr Depth (ft)	(k) GMA 15 GAM	(l) GMA 15 & 16 GAM	(m) TWDB	(n) TWDB	(o) K.ne.L	(p) K.ne.M	(q) L.ne.M
502	VCGCD-NW-000498 /	Victoria	28.7247	-97.051	75.46	100	80	90	CH	CH	CH	LI	0	0	0
503	VCGCD-NW-000499 /	Victoria	28.818	-97.072	118.11	318	255	275	EV	EV	EV	UG	0	0	0
504	VCGCD-GW-000896 /	Victoria	28.6717	-96.938	62.34				DP	DP	DP	DP	0	0	0
505	VCGCD-NW-000500 /	Victoria	28.892	-96.764	55.77	142	120	140	CH	CH	CH	LI	0	0	0
506	VCGCD-NW-000501 /	Victoria	28.8933	-96.762	52.49	125	100	120	CH	CH	CH	LI	0	0	0
507	VCGCD-NW-000502 /	Victoria	28.8934	-96.761	55.77	125	100	120	CH	CH	CH	LI	0	0	0
508	VCGCD-GW-000813 / 183912	Victoria	28.667	-96.953	65.62				DP	DP	DP	DP	0	0	0
509	VCGCD-GW-000920 /	Victoria	28.6718	-96.966	65.62				DP	DP	DP	DP	0	0	0
510	VCGCD-GW-000848 /	Victoria	28.6892	-96.942	68.9				DP	DP	DP	DP	0	0	0
511	VCGCD-NW-000503 /	Victoria	28.8351	-97.13	137.8	172	152	172	EV	EV	EV	UG	0	0	0
512	VCGCD-GW-000914 /	Victoria	28.6665	-96.951	65.62				DP	DP	DP	DP	0	0	0
513	VCGCD-GW-000006 /	Victoria	28.8207	-96.988	98.43	1034	460	1010	EV	EV	EV	UG	0	0	0
514	VCGCD-NW-000504 /	Victoria	28.6322	-97.103	95.14	180	135	155	CH	CH	CH	LI	0	0	0
515	VCGCD-GW-000851 / 183961	Victoria	28.6741	-96.951	68.9				DP	DP	DP	DP	0	0	0
516	VCGCD-NW-000505 /	Victoria	28.6322	-97.103	95.14	200	155	175	CH	CH	CH	WI	0	0	0
517	VCGCD-NW-000506 /	Victoria	28.7803	-97.111	118.11	260	208	258	EV	EV	EV	UG	0	0	0
518	VCGCD-NW-000508 /	Victoria	28.6797	-96.92	62.34	125	90	110	CH	CH	CH	LI	0	0	0
519	VCGCD-NW-000509 /	Victoria	28.675	-96.847	55.77	260	240	260	CH	CH	CH	LI	0	0	0
520	VCGCD-GW-000912 /	Victoria	28.6841	-96.923	62.34				DP	DP	DP	DP	0	0	0
521	VCGCD-GW-000730 /	Victoria	28.7126	-97.094	95.14				DP	DP	DP	DP	0	0	0
522	VCGCD-NW-000510 / 361508	Victoria	28.8395	-97.128	144.36	180	158	178	EV	EV	EV	UG	0	0	0
523	VCGCD-NW-000511 /	Victoria	28.9275	-97.211	200.13				DP	DP	DP	DP	0	0	0
524	VCGCD-NW-000512 /	Victoria	28.6528	-97.033	78.74	160	138	158	CH	CH	CH	LI	0	0	0
525	VCGCD-NW-000513 /	Victoria	28.893	-97.155	157.48	250	200	240	EV	EV	EV	UG	0	0	0
526	VCGCD-GW-000865 / 183920	Victoria	28.674	-96.952	68.9				DP	DP	DP	DP	0	0	0

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527	VCGCD-GW-000815 / 183830	Victoria	28.673	-96.951	68.9				DP	DP	DP	DP	0	0	0
528	VCGCD-NW-000514 /	Victoria	28.9414	-97.009	147.64	200	175	195	EV	CH	CH	WI	1	1	0
529	VCGCD-GW-000890 /	Victoria	28.6752	-96.938	62.34				DP	DP	DP	DP	0	0	0
530	VCGCD-GW-000332 /	Victoria	28.9061	-97.034	127.95				DP	DP	DP	DP	0	0	0
531	VCGCD-NW-000515 /	Victoria	28.9517	-97.122	154.2	240	213	233	EV	EV	EV	UG	0	0	0
532	VCGCD-NW-000516 /	Victoria	28.9069	-97	131.23	260	235	255	EV	CH	CH	WI	1	1	0
533	VCGCD-NW-000517 /	Victoria	28.8847	-97.046	111.55	180	150	170	EV	CH	CH	WI	1	1	0
534	VCGCD-NW-000518 /	Victoria	28.9164	-97.004	127.95	250	200	240	EV	CH	CH	WI	1	1	0
535	VCGCD-GW-000856 / 183922	Victoria	28.6745	-96.952	68.9				DP	DP	DP	DP	0	0	0
536	VCGCD-GW-000819 /	Victoria	28.6725	-96.938	62.34				DP	DP	DP	DP	0	0	0
537	VCGCD-NW-000520 /	Victoria	28.738	-97.046	82.02	200	160	200	CH	CH	CH	LI	0	0	0
538	VCGCD-GW-000926 /	Victoria	28.9866	-96.872	101.71				DP	DP	DP	DP	0	0	0
539	VCGCD-GW-000868 / 467771	Victoria	28.6735	-96.951	68.9				DP	DP	DP	DP	0	0	0
540	VCGCD-GW-000889 /	Victoria	28.6752	-96.938	62.34				DP	DP	DP	DP	0	0	0
541	VCGCD-GW-000812 / 183911	Victoria	28.667	-96.953	65.62				DP	DP	DP	DP	0	0	0
542	VCGCD-GW-000807 /	Victoria	28.9012	-97.077	118.11				DP	DP	DP	DP	0	0	0
543	VCGCD-NW-000521 /	Victoria	28.7425	-97.045	88.58	160	120	160	CH	CH	CH	LI	0	0	0
544	VCGCD-GW-000133 /	Victoria	28.791	-97.106	101.71				DP	DP	DP	DP	0	0	0
545	VCGCD-GW-000916 /	Victoria	28.6626	-96.954	59.06				DP	DP	DP	DP	0	0	0
546	VCGCD-GW-000763 /	Victoria	28.6649	-96.961	55.77				DP	DP	DP	DP	0	0	0
547	VCGCD-GW-000852 /	Victoria	28.6742	-96.951	68.9				DP	DP	DP	DP	0	0	0
548	VCGCD-GW-000841 /	Victoria	28.6706	-96.937	62.34				DP	DP	DP	DP	0	0	0
549	VCGCD-NW-000522 / 362856	Victoria	28.9169	-96.827	78.74	94	74	94	CH	CH	CH	BB	0	0	0
550	VCGCD-GW-000910 /	Victoria	28.6892	-96.962	49.21				DP	DP	DP	DP	0	0	0



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551	VCGCD-GW-000770 /	Victoria	28.6632	-96.966	26.25				DP	DP	DP	DP	0	0	0
552	VCGCD-NW-000523 /	Victoria	28.9061	-97.001	131.23	280	260	270	EV	CH	CH	WI	1	1	0
553	VCGCD-NW-000524 /	Victoria	28.9372	-97.072	164.04	180	160	180	EV	EV	CH	WI	0	1	1
554	VCGCD-NW-000525 /	Victoria	28.7831	-96.865	62.34	100	80	100	CH	CH	CH	LI	0	0	0
555	VCGCD-GW-000909 /	Victoria	28.6868	-96.968	52.49				DP	DP	DP	DP	0	0	0
556	VCGCD-GW-000810 /	Victoria	28.6691	-96.946	68.9				DP	DP	DP	DP	0	0	0
557	VCGCD-GW-000966 / 451667	Victoria	28.7119	-96.949	59.06				DP	DP	DP	DP	0	0	0
558	VCGCD-GW-000821 /	Victoria	28.6706	-96.938	62.34				DP	DP	DP	DP	0	0	0
559	VCGCD-GW-000383 /	Victoria	28.8704	-96.998	111.55				DP	DP	DP	DP	0	0	0
560	VCGCD-GW-000846 /	Victoria	28.6905	-96.951	68.9				DP	DP	DP	DP	0	0	0
561	VCGCD-GW-000764 /	Victoria	28.6661	-96.959	52.49				DP	DP	DP	DP	0	0	0
562	VCGCD-NW-000526 /	Victoria	28.9007	-97.055	118.11	225	200	220	EV	EV	EV	UG	0	0	0
563	VCGCD-GW-000823 /	Victoria	28.6715	-96.951	68.9				DP	DP	DP	DP	0	0	0
564	VCGCD-GW-000771 /	Victoria	28.6668	-96.963	65.62				DP	DP	DP	DP	0	0	0
565	VCGCD-GW-000921 /	Victoria	28.6651	-96.946	62.34				DP	DP	DP	DP	0	0	0
566	VCGCD-GW-000905 /	Victoria	28.6692	-96.949	68.9				DP	DP	DP	DP	0	0	0
567	VCGCD-NW-000527 /	Victoria	28.8889	-96.844	68.9	85	65	85	CH	CH	CH	BB	0	0	0
568	VCGCD-NW-000528 /	Victoria	28.8708	-96.842	62.34	90	66	88	CH	CH	CH	BB	0	0	0
569	VCGCD-NW-000529 /	Victoria	28.7686	-97.045	78.74	110	70	90	CH	CH	CH	LI	0	0	0
570	VCGCD-NW-000530 /	Victoria	28.7947	-97.084	88.58	163	143	163	EV	CH	CH	WI	1	1	0
571	VCGCD-GW-000381 /	Victoria	28.5721	-97.058	85.3	200			CH	CH	CH	LI	0	0	0
572	VCGCD-GW-000185 /	Victoria	28.7841	-96.936	78.74				DP	DP	DP	DP	0	0	0
573	VCGCD-NW-000531 /	Victoria	28.8908	-96.837	68.9	140	118	138	CH	CH	CH	LI	0	0	0
574	VCGCD-GW-000867 /	Victoria	28.6735	-96.951	68.9				DP	DP	DP	DP	0	0	0
575	VCGCD-GW-000833 /	Victoria	28.6692	-96.947	68.9				DP	DP	DP	DP	0	0	0
576	VCGCD-GW-000898 /	Victoria	28.6717	-96.938	62.34				DP	DP	DP	DP	0	0	0

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577	VCGCD-GW-000817 /	Victoria	28.673	-96.952	65.62				DP	DP	DP	DP	0	0	0
578	VCGCD-GW-000747 /	Victoria	28.5978	-96.98	65.62				DP	DP	DP	DP	0	0	0
579	VCGCD-GW-000870 / 467768	Victoria	28.664	-96.962	32.81				DP	DP	DP	DP	0	0	0
580	VCGCD-GW-000106 /	Victoria	28.7828	-97.06	82.02				DP	DP	DP	DP	0	0	0
581	VCGCD-NW-000532 /	Victoria	28.8864	-97.047	114.83	230	187	207	EV	EV	EV	UG	0	0	0
582	VCGCD-NW-000533 / 297488	Victoria	28.8545	-96.837	62.34	117	97	117	CH	CH	CH	LI	0	0	0
583	VCGCD-NW-000534 /	Victoria	28.8403	-97.178	177.17	180	158	178	EV	EV	EV	UG	0	0	0
584	VCGCD-NW-000535 /	Victoria	29.0778	-96.977	183.73	226	184	224	EV	EV	EV	UG	0	0	0
585	VCGCD-NW-000536 /	Victoria	28.7219	-97.056	42.65	180	120	180	CH	CH	CH	WI	0	0	0
586	VCGCD-NW-000537 /	Victoria	28.7571	-97.134	108.27	220	200	220	EV	EV	EV	UG	0	0	0
587	VCGCD-NW-000538 /	Victoria	28.9394	-97.014	147.64	140	115	135	EV	CH	CH	LI	1	1	0
588	VCGCD-NW-000539 / 367828	Victoria	28.8156	-97.063	104.99	225	195	205	EV	EV	CH	WI	0	1	1
589	VCGCD-NW-000540 /	Victoria	28.9422	-97.009	147.64	198	178	198	EV	CH	CH	WI	1	1	0
590	VCGCD-NW-000541 / 368099	Victoria	28.9375	-97.004	137.8	130	105	125	CH	CH	CH	LI	0	0	0
591	VCGCD-NW-000542 /	Victoria	28.9003	-97.028	134.51	84	61	81	CH	CH	CH	LI	0	0	0
592	VCGCD-NW-000543 /	Victoria	28.9231	-97.072	134.51	160	140	150	EV	EV	EV	UG	0	0	0
593	VCGCD-NW-000544 /	Victoria	28.8903	-97.178	183.73	300	150	170	EV	EV	EV	UG	0	0	0
594	VCGCD-NW-000545 /	Victoria	28.8828	-97.163	167.32	200	160	180	EV	EV	EV	UG	0	0	0
595	VCGCD-NW-000546 /	Victoria	28.6404	-97.155	108.27	172	140	160	EV	CH	CH	WI	1	1	0
596	VCGCD-NW-000547 /	Victoria	28.8808	-97.044	111.55	165	140	160	EV	CH	CH	WI	1	1	0
597	VCGCD-NW-000548 /	Victoria	28.9778	-96.926	124.67	85	60	80	CH	CH	CH	LI	0	0	0
598	VCGCD-NW-000549 /	Victoria	28.8244	-97.187	131.23	190	160	180	EV	EV	EV	UG	0	0	0
599	VCGCD-GW-000665 /	Victoria	28.9046	-96.942	114.83				DP	DP	DP	DP	0	0	0
600	VCGCD-NW-000551 /	Victoria	28.797	-97.168	111.55	192	164	184	EV	EV	EV	UG	0	0	0
601	VCGCD-GW-000121 /	Victoria	28.8974	-97.211	190.29				DP	DP	DP	DP	0	0	0

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602	VCGCD-NW-000552 /	Victoria	28.8918	-96.765	55.77	98	74	94	CH	CH	CH	BB	0	0	0
603	VCGCD-NW-000553 /	Victoria	28.8922	-96.764	55.77	78	68	78	CH	CH	CH	BB	0	0	0
604	VCGCD-NW-000554 /	Victoria	28.893	-96.763	52.49	107	85	105	CH	CH	CH	BB	0	0	0
605	VCGCD-NW-000555 /	Victoria	28.8178	-96.92	88.58	93	73	93	CH	CH	CH	LI	0	0	0
606	VCGCD-GW-000008 /	Victoria	28.8222	-96.973	95.14	822	453	801	EV	EV	EV	UG	0	0	0
607	VCGCD-NW-000556 /	Victoria	28.9083	-96.843	82.02	84	64	84	CH	CH	CH	BB	0	0	0
608	VCGCD-NW-000557 /	Victoria	28.8839	-97.048	111.55	260	220	240	EV	EV	EV	UG	0	0	0
609	VCGCD-NW-000558 /	Victoria	28.7135	-97.093	95.14	120	96	116	CH	CH	CH	LI	0	0	0
610	VCGCD-NW-000559 /	Victoria	28.8469	-96.822	59.06	330	249	274	CH	CH	CH	LI	0	0	0
611	VCGCD-NW-000560 /	Victoria	28.8844	-96.767	52.49	60	40	60	CH	CH	CH	BB	0	0	0
612	VCGCD-NW-000561 /	Victoria	28.8831	-96.816	59.06	75	55	75	CH	CH	CH	BB	0	0	0
613	VCGCD-GW-000410 /	Victoria	28.6714	-96.941	62.34	70	10	10	CH	CH	CH	BB	0	0	0
614	VCGCD-GW-000061 /	Victoria	28.7691	-97.129	111.55				DP	DP	DP	DP	0	0	0
615	VCGCD-GW-000333 /	Victoria	28.9037	-97.035	121.39				DP	DP	DP	DP	0	0	0
616	VCGCD-GW-000639 /	Victoria	28.9257	-96.906	85.3				DP	DP	DP	DP	0	0	0
617	VCGCD-NW-000562 /	Victoria	28.8589	-97.17	187.01	185	135	155	EV	EV	EV	UG	0	0	0
618	VCGCD-NW-000563 /	Victoria	28.7758	-96.958	82.02	160	120	140	CH	CH	CH	LI	0	0	0
619	VCGCD-NW-000564 /	Victoria	28.8856	-97.041	114.83	200	155	175	EV	EV	EV	UG	0	0	0
620	VCGCD-NW-000565 /	Victoria	28.7219	-97.092	68.9	208	180	200	EV	CH	CH	WI	1	1	0
621	VCGCD-GW-000267 /	Victoria	28.7835	-97.054	88.58				DP	DP	DP	DP	0	0	0
622	VCGCD-GW-000169 /	Victoria	28.8442	-97.168	173.88	154			EV	EV	EV	UG	0	0	0
623	VCGCD-NW-000566 /	Victoria	28.8247	-97.187	131.23	190	160	180	EV	EV	EV	UG	0	0	0
624	VCGCD-NW-000567 /	Victoria	28.8839	-96.816	59.06	140	108	115	CH	CH	CH	LI	0	0	0
625	VCGCD-NW-000568 /	Victoria	28.9128	-96.931	98.43	100	60	100	CH	CH	CH	LI	0	0	0
626	VCGCD-GW-000554 /	Victoria	28.8032	-97.016	59.06				DP	DP	DP	DP	0	0	0
627	VCGCD-NW-000569 /	Victoria	28.92	-96.844	91.86	100	80	100	CH	CH	CH	BB	0	0	0
628	VCGCD-GW-000522 /	Victoria	28.9076	-97.006	134.51				DP	DP	DP	DP	0	0	0

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629	VCGCD-GW-000585 /	Victoria	28.7686	-97.045	78.74				DP	DP	DP	DP	0	0	0
630	VCGCD-NW-000570 /	Victoria	28.9347	-97.093	141.08	120	80	120	EV	EV	CH	WI	0	1	1
631	VCGCD-GW-000703 /	Victoria	28.9596	-97.069	177.17				DP	DP	DP	DP	0	0	0
632	VCGCD-GW-000256 /	Victoria	28.7351	-97.137	75.46				DP	DP	DP	DP	0	0	0
633	VCGCD-GW-000176 /	Victoria	28.7903	-96.84	62.34				DP	DP	DP	DP	0	0	0
634	VCGCD-NW-000571 /	Victoria	28.8794	-96.876	88.58	90	70	90	CH	CH	CH	BB	0	0	0
635	VCGCD-GW-000795 /	Victoria	28.8994	-97.078	118.11				DP	DP	DP	DP	0	0	0
636	VCGCD-GW-000861 /	Victoria	28.8964	-97.083	118.11	148	133	148	EV	EV	EV	UG	0	0	0
637	VCGCD-GW-000302 /	Victoria	28.77	-97.15	124.67	225			EV	EV	EV	UG	0	0	0
638	VCGCD-NW-000572 /	Victoria	28.8103	-97.078	118.11	268	246	266	EV	EV	EV	UG	0	0	0
639	VCGCD-GW-000009 /	Victoria	28.8107	-97.02	59.06	1068	510	1048	EV	EV	EV	LG	0	0	0
640	VCGCD-NW-000573 /	Victoria	28.6597	-97.045	55.77	200	140	200	CH	CH	CH	LI	0	0	0
641	VCGCD-NW-000574 /	Victoria	28.9189	-96.845	91.86	114	92	112	CH	CH	CH	LI	0	0	0
642	VCGCD-NW-000575 /	Victoria	28.8233	-97.186	131.23	190	160	180	EV	EV	EV	UG	0	0	0
643	VCGCD-GW-000499 /	Victoria	28.5558	-96.962	26.25				DP	DP	DP	DP	0	0	0
644	VCGCD-GW-000857 /	Victoria	28.8974	-97.084	118.11	165			EV	EV	EV	UG	0	0	0
645	VCGCD-GW-000953 / 169957	Victoria	28.8869	-96.958	118.11				DP	DP	DP	DP	0	0	0
646	VCGCD-NW-000576 /	Victoria	28.9731	-97.062	180.45	200	170	190	EV	EV	CH	WI	0	1	1
647	VCGCD-GW-000781 /	Victoria	28.9024	-97.01	131.23				DP	DP	DP	DP	0	0	0
648	VCGCD-NW-000577 /	Victoria	28.8811	-97.044	114.83	160	120	160	EV	CH	CH	WI	1	1	0
649	VCGCD-NW-000578 /	Victoria	28.7148	-96.815	49.21	180	140	180	CH	CH	CH	LI	0	0	0
650	VCGCD-GW-000677 /	Victoria	28.6587	-97.033	39.37				DP	DP	DP	DP	0	0	0
651	VCGCD-GW-000401 /	Victoria	28.795	-97.094	98.43				DP	DP	DP	DP	0	0	0
652	VCGCD-GW-000652 /	Victoria	28.8755	-96.952	118.11				DP	DP	DP	DP	0	0	0
653	VCGCD-NW-000579 /	Victoria	28.9361	-97.056	164.04	181	157	177	EV	EV	CH	WI	0	1	1
654	VCGCD-GW-000351 /	Victoria	28.9444	-97.148	134.51				DP	DP	DP	DP	0	0	0

(a) ID	(b & c) GCD Name /SWN	(d) County	(e) Lat	(f) Long	(g) Datum (ft, msl)	(h) Well Depth (ft)	(i) Top Scr Depth (ft)	(j) Bot Scr Depth (ft)	(k) GMA 15 GAM	(l) GMA 15 & 16 GAM	(m) TWDB	(n) TWDB	(o) K.ne.L	(p) K.ne.M	(q) L.ne.M
655	VCGCD-GW-000738 /	Victoria	28.9998	-96.898	114.83	60			CH	CH	CH	LI	0	0	0
656	VCGCD-GW-000471 /	Victoria	28.774	-97.019	49.21				DP	DP	DP	DP	0	0	0
657	VCGCD-GW-000174 /	Victoria	28.7453	-97.072	95.14				DP	DP	DP	DP	0	0	0
658	VCGCD-GW-000668 /	Victoria	28.9132	-96.935	108.27				DP	DP	DP	DP	0	0	0
659	VCGCD-NW-000581 /	Victoria	28.8197	-97.057	82.02	203	179	199	EV	CH	CH	WI	1	1	0
660	VCGCD-NW-000582 /	Victoria	28.7167	-96.75	32.81	270	230	270	CH	CH	CH	LI	0	0	0
661	VCGCD-NW-000583 /	Victoria	28.7502	-96.75	45.93	230	210	230	CH	CH	CH	LI	0	0	0
662	VCGCD-NW-000584 /	Victoria	28.7333	-96.7	29.53	180	160	180	CH	CH	CH	LI	0	0	0
663	VCGCD-GW-000342 /	Victoria	28.8767	-97.149	160.76	100			EV	EV	EV	UG	0	0	0
664	VCGCD-GW-000580 /	Victoria	28.8889	-96.844	68.9	130			CH	CH	CH	LI	0	0	0
665	VCGCD-NW-000585 /	Victoria	28.9275	-97.052	164.04	144	121	141	EV	CH	CH	WI	1	1	0
666	VCGCD-GW-000415 /	Victoria	28.6708	-96.941	62.34	60	9	29	CH	CH	CH	BB	0	0	0
667	VCGCD-NW-000586 /	Victoria	28.5697	-97.097	91.86	90	70	90	CH	CH	CH	LI	0	0	0
668	VCGCD-NW-000587 /	Victoria	28.7261	-96.934	68.9	100	80	100	CH	CH	CH	LI	0	0	0
669	VCGCD-GW-000365 /	Victoria	28.9762	-96.857	91.86				DP	DP	DP	DP	0	0	0
670	VCGCD-GW-000669 /	Victoria	28.8672	-96.975	114.83				DP	DP	DP	DP	0	0	0
671	VCGCD-GW-000460 /	Victoria	28.5957	-97.155	68.9				DP	DP	DP	DP	0	0	0
672	VCGCD-GW-000010 /	Victoria	28.8139	-96.979	95.14	1037	396	966	EV	EV	EV	UG	0	0	0
673	VCGCD-NW-000588 /	Victoria	28.935	-96.998	131.23	230	210	230	EV	CH	CH	WI	1	1	0
674	VCGCD-GW-000013 /	Victoria	28.8162	-96.992	98.43	1040	406	1020	EV	EV	EV	UG	0	0	0
675	VCGCD-GW-000496 /	Victoria	28.5538	-96.989	62.34				DP	DP	DP	DP	0	0	0
676	VCGCD-NW-000589 /	Victoria	28.7758	-97.111	118.11	168	148	168	EV	CH	CH	WI	1	1	0
677	VCGCD-GW-000040 /	Victoria	28.7818	-97.059	85.3				DP	DP	DP	DP	0	0	0
678	VCGCD-NW-000590 /	Victoria	28.9314	-96.935	104.99	320	200	320	EV	CH	CH	WI	1	1	0
679	VCGCD-NW-000591 /	Victoria	28.8203	-97.067	114.83	310	270	310	EV	EV	EV	UG	0	0	0
680	VCGCD-NW-000592 /	Victoria	28.8842	-96.867	85.3	140	118	138	CH	CH	CH	LI	0	0	0
681	VCGCD-NW-000593 /	Victoria	29.0213	-97.043	187.01	200	170	190	EV	EV	EV	UG	0	0	0



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682	VCGCD-NW-000594 /	Victoria	28.6281	-97.104	91.86	183	141	181	CH	CH	CH	LI	0	0	0
683	VCGCD-GW-000553 /	Victoria	28.7124	-96.944	39.37				DP	DP	DP	DP	0	0	0
684	VCGCD-NW-000595 /	Victoria	28.7878	-97.095	98.43	120	70	110	EV	CH	CH	WI	1	1	0
685	VCGCD-GW-000371 /	Victoria	28.6974	-96.968	32.81				DP	DP	DP	DP	0	0	0
686	VCGCD-GW-000702 /	Victoria	28.805	-96.917	82.02				DP	DP	DP	DP	0	0	0
687	VCGCD-GW-000570 /	Victoria	28.8766	-97.278	200.13				DP	DP	DP	DP	0	0	0
688	VCGCD-NW-000596 /	Victoria	28.9058	-96.847	75.46	83	63	83	CH	CH	CH	BB	0	0	0
689	VCGCD-NW-000597 /	Victoria	28.8939	-97.058	114.83	180	160	170	EV	EV	EV	UG	0	0	0
690	VCGCD-NW-000598 /	Victoria	28.945	-96.83	82.02	148	128	148	CH	CH	CH	LI	0	0	0
691	VCGCD-NW-000599 /	Victoria	28.9069	-97.002	131.23	160	130	150	CH	CH	CH	LI	0	0	0
692	VCGCD-NW-000600 /	Victoria	28.6458	-97.107	101.71	200	160	200	CH	CH	CH	LI	0	0	0
693	VCGCD-NW-000601 /	Victoria	28.6905	-97.034	32.81	130	100	130	CH	CH	CH	LI	0	0	0
694	VCGCD-NW-000602 /	Victoria	28.6872	-97.044	32.81	110	90	110	CH	CH	CH	LI	0	0	0
695	VCGCD-GW-000468 /	Victoria	28.7454	-97.073	88.58				DP	DP	DP	DP	0	0	0
696	VCGCD-GW-000975 /	Victoria	28.7189	-96.874	62.34				DP	DP	DP	DP	0	0	0
697	VCGCD-NW-000603 /	Victoria	28.8642	-96.783	49.21	70	45	65	CH	CH	CH	BB	0	0	0
698	VCGCD-GW-000462 /	Victoria	28.5914	-97.157	65.62				DP	DP	DP	DP	0	0	0
699	VCGCD-NW-000604 /	Victoria	28.8878	-96.841	68.9	90	70	90	CH	CH	CH	BB	0	0	0
700	VCGCD-GW-000148 /	Victoria	28.9144	-96.862	85.3				DP	DP	DP	DP	0	0	0
701	VCGCD-GW-000325 /	Victoria	28.6934	-96.959	52.49	89	69	89	CH	CH	CH	LI	0	0	0
702	VCGCD-NW-000605 /	Victoria	28.7448	-96.858	59.06	84	60	80	CH	CH	CH	LI	0	0	0
703	VCGCD-GW-000694 /	Victoria	28.7469	-96.932	75.46				DP	DP	DP	DP	0	0	0
704	VCGCD-GW-000453 /	Victoria	28.6651	-96.963	45.93	116	5	55	CH	CH	CH	LI	0	0	0
705	VCGCD-NW-000606 /	Victoria	28.9553	-97.092	147.64	162	140	162	EV	EV	EV	UG	0	0	0
706	VCGCD-GW-000844 /	Victoria	28.6609	-96.952	59.06				DP	DP	DP	DP	0	0	0
707	VCGCD-GW-000598 /	Victoria	28.9314	-97.113	150.92				DP	DP	DP	DP	0	0	0
708	VCGCD-NW-000607 /	Victoria	28.7567	-97.043	88.58	240	180	240	CH	CH	CH	WI	0	0	0

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709	VCGCD-NW-000608 /	Victoria	28.909	-97	131.23	162	145	155	CH	CH	CH	LI	0	0	0
710	VCGCD-NW-000609 /	Victoria	28.863	-96.872	72.18	105	85	105	CH	CH	CH	LI	0	0	0
711	VCGCD-NW-000610 /	Victoria	28.909	-96.842	82.02	84	64	84	CH	CH	CH	BB	0	0	0
712	VCGCD-NW-000611 /	Victoria	28.8614	-96.725	36.09	125	105	125	CH	CH	CH	BB	0	0	0
713	VCGCD-NW-000612 /	Victoria	28.8378	-97.128	141.08	160	140	160	EV	EV	EV	UG	0	0	0
714	VCGCD-NW-000613 /	Victoria	28.5986	-97.132	98.43	120	80	120	CH	CH	CH	LI	0	0	0
715	VCGCD-NW-000614 /	Victoria	28.7172	-96.947	39.37	115	95	115	CH	CH	CH	LI	0	0	0
716	VCGCD-NW-000615 /	Victoria	28.9906	-96.997	160.76	190	170	190	EV	CH	CH	WI	1	1	0
717	VCGCD-NW-000616 /	Victoria	28.8589	-97.172	180.45	180	135	155	EV	EV	EV	UG	0	0	0
718	VCGCD-NW-000617 /	Victoria	28.9531	-96.834	75.46	80	60	80	CH	CH	CH	BB	0	0	0
719	VCGCD-NW-000618 /	Victoria	28.6553	-96.954	16.4	320	275	315	CH	CH	CH	WI	0	0	0
720	VCGCD-GW-000164 /	Victoria	28.6562	-97.043	78.74				DP	DP	DP	DP	0	0	0
721	VCGCD-NW-000619 /	Victoria	29.058	-97.038	193.57	70	50	70	CH	CH	CH	LI	0	0	0
722	VCGCD-NW-000620 /	Victoria	28.7567	-97.136	108.27	160	140	160	EV	EV	EV	UG	0	0	0
723	VCGCD-NW-000621 /	Victoria	28.7596	-96.915	72.18	90	70	90	CH	CH	CH	LI	0	0	0
724	VCGCD-GW-000245 /	Victoria	28.7823	-97.005	49.21	865	420	850	EV	EV	EV	UG	0	0	0
725	VCGCD-GW-000690 /	Victoria	28.7208	-96.874	62.34				DP	DP	DP	DP	0	0	0
726	VCGCD-GW-000752 /	Victoria	28.7723	-96.951	82.02				DP	DP	DP	DP	0	0	0
727	VCGCD-NW-000622 /	Victoria	28.7808	-97.102	118.11	318	260	300	EV	EV	EV	UG	0	0	0
728	VCGCD-NW-000623 /	Victoria	28.7616	-96.987	42.65	100	80	100	CH	CH	CH	LI	0	0	0
729	VCGCD-NW-000624 /	Victoria	28.7783	-97.055	85.3	75	55	75	CH	CH	CH	LI	0	0	0
730	VCGCD-GW-000107 /	Victoria	28.9217	-97.225	209.97	370	340	360	EV	EV	EV	LG	0	0	0
731	VCGCD-GW-000464 /	Victoria	28.9639	-96.892	108.27	680			EV	EV	EV	UG	0	0	0
732	VCGCD-GW-000563 /	Victoria	28.8107	-96.918	88.58				DP	DP	DP	DP	0	0	0
733	VCGCD-NW-000625 /	Victoria	28.8042	-96.916	82.02	225	205	225	CH	CH	CH	LI	0	0	0
734	VCGCD-GW-000005 /	Victoria	28.821	-96.984	98.43	1017	464	1000	EV	EV	EV	UG	0	0	0
735	VCGCD-R1GW-000001 /	Victoria	28.7843	-97.05	91.86	124	122	124	CH	CH	CH	LI	0	0	0

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736	VCGCD-R1GW-000469 / 448956	Victoria	28.7444	-97.072	91.86	295	255	295	EV	CH	CH	WI	1	1	0
737	VCGCD-R1GW-000530 /	Victoria	29.0406	-96.997	180.45	280	230	270	EV	EV	EV	UG	0	0	0
738	VCGCD-GW-000369 /	Victoria	28.7225	-96.96	42.65				DP	DP	DP	DP	0	0	0
739	VCGCD-GW-000756 /	Victoria	28.8054	-96.805	59.06	1000	300	700	EV	EV	EV	UG	0	0	0
740	VCGCD-R1GW-000465 / 285692	Victoria	28.9704	-96.895	111.55	1080	162	740	EV	EV	EV	LG	0	0	0
741	VCGCD-GW-000315 /	Victoria	28.6757	-96.957	65.62	1059			EV	EV	EV	UG	0	0	0
742	VCGCD-GW-000461 /	Victoria	28.5923	-97.154	65.62				DP	DP	DP	DP	0	0	0
743	VCGCD-GW-000186 /	Victoria	28.8951	-96.819	62.34				DP	DP	DP	DP	0	0	0
744	VCGCD-GW-000476 /	Victoria	28.8398	-96.844	55.77	300			CH	CH	CH	LI	0	0	0
745	VCGCD-GW-000147 /	Victoria	28.8265	-96.761	45.93				DP	DP	DP	DP	0	0	0
746	VCGCD-NW-000627 /	Victoria	28.7558	-96.917	72.18	115	92	112	CH	CH	CH	LI	0	0	0
747	VCGCD-R1GW-000238 /	Victoria	28.7845	-97.044	62.34	285	230	250	EV	CH	CH	WI	1	1	0
748	VCGCD-GW-000248 /	Victoria	28.8855	-97.001	121.39	51			CH	CH	CH	LI	0	0	0
749	VCGCD-GW-000560 /	Victoria	28.8884	-96.917	108.27	1068			EV	EV	EV	LG	0	0	0
750	VCGCD-GW-000567 /	Victoria	28.6994	-96.948	68.9				DP	DP	DP	DP	0	0	0
751	VCGCD-GW-000474 /	Victoria	28.8471	-96.84	52.49	300			CH	CH	CH	LI	0	0	0
752	VCGCD-NW-000628 /	Victoria	28.8387	-97.127	144.36	180	155	175	EV	EV	EV	UG	0	0	0
753	VCGCD-NW-000629 /	Victoria	28.7232	-97.038	75.46	143	123	143	CH	CH	CH	LI	0	0	0
754	VCGCD-NW-000630 /	Victoria	28.9221	-97.09	137.8	150	130	140	EV	EV	EV	UG	0	0	0
755	VCGCD-GW-000266 /	Victoria	28.7845	-97.055	85.3	70			CH	CH	CH	LI	0	0	0
756	VCGCD-NW-000631 /	Victoria	28.8594	-96.841	65.62	133	113	133	CH	CH	CH	LI	0	0	0
757	VCGCD-NW-000632 /	Victoria	28.8478	-96.904	95.14	170	130	170	CH	CH	CH	LI	0	0	0
758	VCGCD-NW-000633 /	Victoria	28.833	-97.085	114.83	220	200	210	EV	EV	EV	UG	0	0	0
759	VCGCD-GW-000425 /	Victoria	28.6695	-96.939	62.34	63	8	18	CH	CH	CH	BB	0	0	0
760	VCGCD-NW-000634 /	Victoria	28.9119	-96.853	88.58	70	50	70	CH	CH	CH	BB	0	0	0
761	VCGCD-NW-000635 /	Victoria	28.8905	-96.767	55.77	130	108	128	CH	CH	CH	LI	0	0	0

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762	VCGCD-GW-000382 /	Victoria	28.8104	-97.075	118.11				DP	DP	DP	DP	0	0	0
763	VCGCD-NW-000637 /	Victoria	28.8847	-96.843	72.18	120	88	118	CH	CH	CH	LI	0	0	0
764	VCGCD-NW-000638 /	Victoria	28.8945	-96.994	127.95	65	45	65	CH	CH	CH	LI	0	0	0
765	VCGCD-NW-000639 /	Victoria	28.9078	-97.001	131.23	165	135	155	CH	CH	CH	LI	0	0	0
766	VCGCD-GW-000653 /	Victoria	28.8757	-96.952	118.11				DP	DP	DP	DP	0	0	0
767	VCGCD-NW-000640 /	Victoria	28.7038	-97.167	118.11	174	141	171	EV	CH	CH	WI	1	1	0
768	VCGCD-GW-000831 /	Victoria	28.6715	-96.944	68.9				DP	DP	DP	DP	0	0	0
769	VCGCD-NW-000641 /	Victoria	28.7103	-97.16	118.11	171	138	168	EV	CH	EV	UG	1	0	1
770	VCGCD-NW-000642 /	Victoria	28.9358	-97.005	134.51	212	192	212	EV	CH	CH	WI	1	1	0
771	VCGCD-NW-000643 /	Victoria	28.9572	-96.838	78.74	80	60	80	CH	CH	CH	BB	0	0	0
772	VCGCD-NW-000644 /	Victoria	28.7344	-96.935	72.18	110	90	110	CH	CH	CH	LI	0	0	0
773	VCGCD-NW-000645 /	Victoria	28.7106	-97.094	95.14	93	73	93	CH	CH	CH	LI	0	0	0
774	VCGCD-NW-000646 /	Victoria	28.7432	-97.049	91.86	130	100	120	CH	CH	CH	LI	0	0	0
775	VCGCD-NW-000647 /	Victoria	28.7125	-96.728	32.81	180	150	180	CH	CH	CH	LI	0	0	0
776	VCGCD-NW-000648 /	Victoria	28.7828	-97.071	78.74	100	75	95	CH	CH	CH	LI	0	0	0
777	VCGCD-NW-000649 /	Victoria	28.8722	-97.047	104.99	240	193	233	EV	EV	EV	UG	0	0	0
778	VCGCD-NW-000650 /	Victoria	28.8247	-96.822	59.06	130	100	120	CH	CH	CH	LI	0	0	0
779	VCGCD-NW-000651 /	Victoria	28.8631	-96.871	72.18	105	85	105	CH	CH	CH	LI	0	0	0
780	VCGCD-NW-000652 /	Victoria	28.735	-97.074	82.02	75	50	75	CH	CH	CH	LI	0	0	0
781	VCGCD-NW-000653 /	Victoria	28.9539	-96.835	75.46	153	68	116	CH	CH	CH	LI	0	0	0
782	VCGCD-NW-000654 /	Victoria	28.7572	-97.136	108.27	235	215	235	EV	EV	EV	UG	0	0	0
783	VCGCD-GW-000796 /	Victoria	28.8951	-97.084	101.71	160			EV	EV	EV	UG	0	0	0
784	VCGCD-NW-000655 /	Victoria	28.7887	-96.898	78.74	133	101	131	CH	CH	CH	LI	0	0	0
785	VCGCD-GW-000223 /	Victoria	29.0554	-96.979	167.32	120			CH	CH	CH	LI	0	0	0
786	VCGCD-GW-000039 /	Victoria	28.8549	-97.16	183.73	120			EV	EV	EV	UG	0	0	0
787	VCGCD-NW-000656 /	Victoria	29.0483	-96.909	121.39	188	155	185	CH	CH	CH	WI	0	0	0
788	VCGCD-GW-000885 /	Victoria	28.6598	-96.96	13.12				DP	DP	DP	DP	0	0	0

(a) ID	(b & c) GCD Name /SWN	(d) County	(e) Lat	(f) Long	(g) Datum (ft, msl)	(h) Well Depth (ft)	(i) Top Scr Depth (ft)	(j) Bot Scr Depth (ft)	(k) GMA 15 GAM	(l) GMA 15 & 16 GAM	(m) TWDB	(n) TWDB	(o) K.ne.L	(p) K.ne.M	(q) L.ne.M
789	VCGCD-GW-000876 /	Victoria	28.6673	-96.961	65.62				DP	DP	DP	DP	0	0	0
790	VCGCD-NW-000657 /	Victoria	28.8884	-96.769	55.77	131	108	128	CH	CH	CH	LI	0	0	0
791	VCGCD-GW-000091 /	Victoria	28.6753	-97.049	85.3	120	100	110	CH	CH	CH	LI	0	0	0
792	VCGCD-GW-000201 /	Victoria	28.6931	-97.022	32.81				DP	DP	DP	DP	0	0	0
793	VCGCD-GW-000794 /	Victoria	28.9013	-97.08	121.39				DP	DP	DP	DP	0	0	0
794	VCGCD-NW-000658 /	Victoria	28.9025	-96.844	68.9	70	50	70	CH	CH	CH	BB	0	0	0
795	VCGCD-NW-000659 /	Victoria	28.8914	-97.176	177.17	215	180	200	EV	EV	EV	UG	0	0	0
796	VCGCD-NW-000660 /	Victoria	28.8267	-97.082	118.11	234	190	230	EV	EV	EV	UG	0	0	0
797	VCGCD-GW-000515 /	Victoria	28.8558	-97.043	95.14				DP	DP	DP	DP	0	0	0
798	VCGCD-NW-000661 /	Victoria	28.9119	-96.854	88.58	90	70	90	CH	CH	CH	BB	0	0	0
799	VCGCD-NW-000662 / 395747	Victoria	28.9525	-96.834	75.46	80	60	80	CH	CH	CH	BB	0	0	0
800	VCGCD-NW-000663 /	Victoria	28.9118	-97.222	223.1	160	140	160	EV	EV	EV	UG	0	0	0
801	VCGCD-NW-000664 /	Victoria	28.8659	-96.841	65.62	120	100	120	CH	CH	CH	LI	0	0	0
802	VCGCD-GW-000209 / 65962	Victoria	28.7864	-97.048	82.02	120			CH	CH	CH	LI	0	0	0
803	VCGCD-GW-000635 /	Victoria	28.8951	-97.233	173.88				DP	DP	DP	DP	0	0	0
804	VCGCD-R1GW-000223 /	Victoria	29.0557	-96.979	167.32	100	78	98	CH	CH	CH	LI	0	0	0
805	VCGCD-NW-000665 / 396412	Victoria	28.9563	-96.838	78.74	80	60	80	CH	CH	CH	BB	0	0	0
806	VCGCD-NW-000666 /	Victoria	28.7463	-96.966	42.65	105	65	105	CH	CH	CH	LI	0	0	0
807	VCGCD-NW-000667 /	Victoria	28.888	-97.049	114.83	200	170	180	EV	EV	EV	UG	0	0	0
808	VCGCD-GW-000825 /	Victoria	28.9008	-97.079	121.39	157	115	145	EV	EV	EV	UG	0	0	0
809	VCGCD-GW-000960 /	Victoria	28.8872	-97.074	108.27				DP	DP	DP	DP	0	0	0
810	VCGCD-GW-000623 /	Victoria	28.9216	-97.077	137.8				DP	DP	DP	DP	0	0	0
811	VCGCD-GW-000733 /	Victoria	28.7604	-96.885	68.9	550	165	550	CH	CH	CH	WI	0	0	0
812	VCGCD-GW-000901 /	Victoria	28.6723	-96.938	62.34				DP	DP	DP	DP	0	0	0
813	VCGCD-NW-000669 /	Victoria	28.9027	-97.056	118.11	232	212	232	EV	EV	EV	UG	0	0	0
814	VCGCD-GW-000023 /	Victoria	28.8212	-96.904	78.74				DP	DP	DP	DP	0	0	0



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815	VCGCD-NW-000670 /	Victoria	28.9534	-96.834	75.46	78	58	78	CH	CH	CH	BB	0	0	0
816	VCGCD-NW-000671 /	Victoria	28.9064	-97.002	131.23	153	130	150	CH	CH	CH	LI	0	0	0
817	VCGCD-GW-000581 /	Victoria	28.5234	-96.997	19.69				DP	DP	DP	DP	0	0	0
818	VCGCD-GW-000183 /	Victoria	28.7053	-96.845	49.21				DP	DP	DP	DP	0	0	0
819	VCGCD-GW-000065 /	Victoria	28.7799	-97.129	118.11				DP	DP	DP	DP	0	0	0
820	VCGCD-GW-000604 /	Victoria	28.6386	-97.168	111.55				DP	DP	DP	DP	0	0	0
821	VCGCD-GW-000056 /	Victoria	28.7852	-96.813	59.06				DP	DP	DP	DP	0	0	0
822	VCGCD-GW-000305 /	Victoria	28.663	-97.117	104.99				DP	DP	DP	DP	0	0	0
823	VCGCD-GW-000540 /	Victoria	28.9058	-97.078	118.11				DP	DP	DP	DP	0	0	0
824	VCGCD-GW-000194 /	Victoria	28.7141	-96.837	52.49				DP	DP	DP	DP	0	0	0
825	VCGCD-NW-000673 /	Victoria	28.8356	-97.128	137.8	155	140	145	EV	EV	EV	UG	0	0	0
826	VCGCD-GW-000441 /	Victoria	28.6717	-96.939	62.34	34	45	55	CH	CH	CH	BB	0	0	0
827	VCGCD-GW-000479 /	Victoria	28.7945	-96.957	91.86				DP	DP	DP	DP	0	0	0
828	VCGCD-NW-000674 /	Victoria	28.893	-96.762	52.49	121	98	118	CH	CH	CH	LI	0	0	0
829	VCGCD-GW-000090 /	Victoria	28.9249	-97.029	154.2				DP	DP	DP	DP	0	0	0
830	VCGCD-NW-000675 /	Victoria	28.837	-97.13	141.08	163	143	163	EV	EV	EV	UG	0	0	0
831	VCGCD-R1GW-000953 /	Victoria	28.887	-96.958	118.11	85	65	85	CH	CH	CH	LI	0	0	0
832	VCGCD-NW-000677 /	Victoria	28.8058	-96.916	85.3	97	77	97	CH	CH	CH	LI	0	0	0
833	VCGCD-NW-000678 /	Victoria	28.8344	-97.073	98.43	244	209	239	EV	EV	EV	UG	0	0	0
834	VCGCD-GW-000784 /	Victoria	28.8972	-97.083	118.11	170			EV	EV	EV	UG	0	0	0
835	VCGCD-NW-000679 /	Victoria	28.8933	-96.8	59.06	82	62	82	CH	CH	CH	BB	0	0	0
836	VCGCD-GW-000575 /	Victoria	29.0768	-96.983	183.73	170			CH	EV	CH	WI	1	0	1
837	VCGCD-GW-000440 /	Victoria	28.6711	-96.939	62.34	35	45	55	CH	CH	CH	BB	0	0	0
838	VCGCD-NW-000682 /	Victoria	29.055	-97.009	180.45	200	160	200	EV	EV	CH	WI	0	1	1
839	VCGCD-NW-000683 / 400161	Victoria	28.8661	-97.262	164.04	205	175	185	EV	EV	EV	LG	0	0	0
840	VCGCD-GW-000449 /	Victoria	28.6729	-96.938	62.34	72	8	12	CH	CH	CH	BB	0	0	0

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841	VCGCD-NW-000684 /	Victoria	28.953	-97.116	144.36	165	125	135	EV	EV	EV	UG	0	0	0
842	VCGCD-GW-000058 /	Victoria	28.771	-97.055	88.58	180			CH	CH	CH	LI	0	0	0
843	VCGCD-GW-000744 /	Victoria	28.5794	-97.004	68.9				DP	DP	DP	DP	0	0	0
844	VCGCD-GW-000300 /	Victoria	28.9122	-97.047	124.67	145			EV	CH	CH	WI	1	1	0
845	VCGCD-GW-000408 /	Victoria	28.6652	-96.946	62.34	33	38	48	CH	CH	CH	BB	0	0	0
846	VCGCD-GW-000243 /	Victoria	28.7884	-97.009	52.49	1019	387	762	EV	EV	EV	UG	0	0	0
847	VCGCD-GW-000936 /	Victoria	28.9882	-96.862	98.43				DP	DP	DP	DP	0	0	0
848	VCGCD-GW-000925 /	Victoria	28.6661	-96.952	65.62				DP	DP	DP	DP	0	0	0
849	VCGCD-GW-000171 /	Victoria	28.6582	-97.124	108.27				DP	DP	DP	DP	0	0	0
850	VCGCD-GW-000593 /	Victoria	28.6308	-96.922	45.93				DP	DP	DP	DP	0	0	0
851	VCGCD-GW-000837 /	Victoria	28.6735	-96.953	65.62				DP	DP	DP	DP	0	0	0
852	VCGCD-GW-000345 /	Victoria	28.9407	-97.153	131.23				DP	DP	DP	DP	0	0	0
853	VCGCD-GW-000143 /	Victoria	28.7088	-97.146	101.71	230			EV	EV	EV	UG	0	0	0
854	VCGCD-GW-000660 /	Victoria	28.8792	-96.952	114.83				DP	DP	DP	DP	0	0	0
855	VCGCD-GW-000199 /	Victoria	28.6854	-97.035	62.34				DP	DP	DP	DP	0	0	0
856	VCGCD-GW-000177 /	Victoria	28.8905	-97.205	193.57				DP	DP	DP	DP	0	0	0
857	VCGCD-NW-000685 /	Victoria	28.8222	-97.08	121.39	280	235	275	EV	EV	EV	UG	0	0	0
858	VCGCD-GW-000312 /	Victoria	28.644	-96.902	59.06	1001			EV	EV	EV	UG	0	0	0
859	VCGCD-NW-000686 /	Victoria	28.9011	-97.055	118.11	140	115	135	EV	CH	CH	WI	1	1	0
860	VCGCD-NW-000687 /	Victoria	28.971	-97.074	183.73	170	140	160	EV	EV	CH	WI	0	1	1
861	VCGCD-NW-000688 /	Victoria	28.8072	-96.902	78.74	90	50	90	CH	CH	CH	LI	0	0	0
862	VCGCD-NW-000689 /	Victoria	28.7047	-96.856	55.77	97	73	93	CH	CH	CH	LI	0	0	0
863	VCGCD-GW-000319 /	Victoria	28.6649	-96.963	42.65	105	70	100	CH	CH	CH	LI	0	0	0
864	VCGCD-GW-000850 /	Victoria	28.6825	-96.941	65.62				DP	DP	DP	DP	0	0	0
865	VCGCD-GW-000274 /	Victoria	28.8316	-97.157	150.92				DP	DP	DP	DP	0	0	0
866	VCGCD-GW-000714 /	Victoria	28.6687	-96.844	52.49				DP	DP	DP	DP	0	0	0
867	VCGCD-GW-000015 /	Victoria	28.8153	-97.062	101.71				DP	DP	DP	DP	0	0	0

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868	VCGCD-GW-000656 /	Victoria	28.8853	-96.954	118.11				DP	DP	DP	DP	0	0	0
869	VCGCD-GW-000057 /	Victoria	28.7706	-97.055	88.58	60		50	CH	CH	CH	LI	0	0	0
870	VCGCD-NW-000690 /	Victoria	28.6528	-97.112	101.71	140	100	140	CH	CH	CH	LI	0	0	0
871	VCGCD-GW-000392 /	Victoria	28.8206	-97.066	114.83				DP	DP	DP	DP	0	0	0
872	VCGCD-NW-000691 /	Victoria	28.6584	-97.103	98.43	180	120	180	CH	CH	CH	LI	0	0	0
873	VCGCD-NW-000692 /	Victoria	28.7574	-97.133	108.27	236	215	235	EV	EV	EV	UG	0	0	0
874	VCGCD-GW-000145 /	Victoria	28.9533	-97.094	144.36	168	150	168	EV	EV	EV	UG	0	0	0
875	VCGCD-R1GW-000257 /	Victoria	28.7828	-97.046	72.18	360	300	360	EV	EV	EV	UG	0	0	0
876	VCGCD-GW-000317 /	Victoria	28.6656	-96.961	55.77	134	78	134	CH	CH	CH	LI	0	0	0
877	VCGCD-NW-000693 /	Victoria	28.8953	-97.172	183.73	180	140	160	EV	EV	EV	UG	0	0	0
878	VCGCD-NW-000694 /	Victoria	28.8653	-97.251	147.64	185	150	160	EV	EV	EV	UG	0	0	0
879	VCGCD-GW-000378 /	Victoria	28.8166	-97.064	108.27	150			EV	CH	CH	WI	1	1	0
880	VCGCD-R1GW-000353 /	Victoria	28.9464	-97.133	154.2	105	80	100	EV	EV	CH	LI	0	1	1
881	VCGCD-NW-000695 /	Victoria	28.9408	-97.179	173.88	240	191	231	EV	EV	EV	UG	0	0	0
882	VCGCD-NW-000696 /	Victoria	28.8844	-97.047	111.55	185	160	170	EV	EV	CH	WI	0	1	1
883	VCGCD-GW-000422 /	Victoria	28.6697	-96.94	62.34	26	45	53	CH	CH	CH	BB	0	0	0
884	VCGCD-GW-000840 /	Victoria	28.6842	-96.966	55.77				DP	DP	DP	DP	0	0	0
885	VCGCD-NW-000697 /	Victoria	28.7817	-97.111	121.39	180	150	180	EV	EV	CH	WI	0	1	1
886	VCGCD-GW-000872 /	Victoria	28.6645	-96.963	32.81				DP	DP	DP	DP	0	0	0
887	VCGCD-NW-000698 /	Victoria	28.7875	-97.084	95.14	145	100	110	EV	CH	CH	WI	1	1	0
888	VCGCD-GW-000166 /	Victoria	28.917	-97.049	144.36				DP	DP	DP	DP	0	0	0
889	VCGCD-GW-000326 /	Victoria	28.6963	-96.955	62.34	92	72	92	CH	CH	CH	LI	0	0	0
890	VCGCD-GW-000151 /	Victoria	28.8564	-96.752	42.65	100			CH	CH	CH	BB	0	0	0
891	VCGCD-GW-000427 /	Victoria	28.6735	-96.939	62.34	35	35	55	CH	CH	CH	BB	0	0	0
892	VCGCD-GW-000710 /	Victoria	28.8826	-97.059	111.55				DP	DP	DP	DP	0	0	0
893	VCGCD-GW-000261 /	Victoria	28.846	-97.023	78.74				DP	DP	DP	DP	0	0	0
894	VCGCD-NW-000699 /	Victoria	28.8853	-97.048	114.83	205	180	190	EV	EV	EV	UG	0	0	0

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895	VCGCD-GW-000406 /	Victoria	28.6643	-96.949	59.06	20	41	51	CH	CH	CH	LI	0	0	0
896	VCGCD-NW-000700 /	Victoria	28.9428	-97.017	150.92	205	175	195	EV	CH	CH	WI	1	1	0
897	VCGCD-R1GW-000725 / 391404	Victoria	28.8458	-96.878	78.74	87	75	87	CH	CH	CH	BB	0	0	0
898	VCGCD-NW-000701 /	Victoria	28.8526	-97.1	127.95	214	194	214	EV	EV	EV	UG	0	0	0
899	VCGCD-NW-000702 /	Victoria	28.9144	-96.852	91.86	95	75	95	CH	CH	CH	BB	0	0	0
900	VCGCD-NW-000703 /	Victoria	28.9144	-96.852	91.86	140	120	140	CH	CH	CH	LI	0	0	0
901	VCGCD-NW-000704 /	Victoria	28.8858	-96.956	118.11	85	65	85	CH	CH	CH	LI	0	0	0
902	VCGCD-GW-000742 /	Victoria	28.8232	-97.074	121.39				DP	DP	DP	DP	0	0	0
903	VCGCD-GW-000077 /	Victoria	28.7364	-97.063	72.18				DP	DP	DP	DP	0	0	0
904	VCGCD-GW-000434 /	Victoria	28.6706	-96.937	62.34	122	54	34	CH	CH	CH	LI	0	0	0
905	VCGCD-NW-000705 /	Victoria	28.6314	-97.104	95.14	180			CH	CH	CH	LI	0	0	0
906	VCGCD-NW-000706 /	Victoria	28.7536	-97.131	104.99	170	130	150	EV	EV	CH	WI	0	1	1
907	VCGCD-NW-000707 /	Victoria	28.7844	-97.101	114.83	280	240	280	EV	EV	EV	UG	0	0	0
908	VCGCD-GW-000513 /	Victoria	28.9239	-96.995	118.11				DP	DP	DP	DP	0	0	0
909	VCGCD-GW-000624 /	Victoria	28.9012	-97.013	131.23				DP	DP	DP	DP	0	0	0
910	VCGCD-GW-000550 /	Victoria	28.7797	-97.154	114.83				DP	DP	DP	DP	0	0	0
911	VCGCD-GW-000206 /	Victoria	28.679	-97.018	26.25				DP	DP	DP	DP	0	0	0
912	VCGCD-GW-000034 /	Victoria	28.9195	-96.811	68.9				DP	DP	DP	DP	0	0	0
913	VCGCD-NW-000708 /	Victoria	28.8638	-96.872	68.9	105	85	105	CH	CH	CH	LI	0	0	0
914	VCGCD-NW-000709 /	Victoria	28.7844	-97.101	114.83	315	258	298	EV	EV	EV	UG	0	0	0
915	VCGCD-GW-000231 /	Victoria	28.923	-97.206	183.73	165			EV	EV	EV	UG	0	0	0
916	VCGCD-GW-000029 /	Victoria	28.8308	-96.825	59.06				DP	DP	DP	DP	0	0	0
917	VCGCD-GW-000403 /	Victoria	28.6853	-96.948	65.62	28	42	52	CH	CH	CH	LI	0	0	0
918	VCGCD-GW-000952 /	Victoria	28.8258	-97.066	95.14				DP	DP	DP	DP	0	0	0
919	VCGCD-NW-000710 /	Victoria	28.7951	-97.082	91.86	275	235	275	EV	EV	EV	UG	0	0	0
920	VCGCD-NW-000711 /	Victoria	28.9314	-97.021	144.36	205	180	190	EV	CH	CH	WI	1	1	0

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921	VCGCD-NW-000712 /	Victoria	28.7244	-96.804	45.93	102	82	102	CH	CH	CH	LI	0	0	0
922	VCGCD-GW-000137 /	Victoria	28.7147	-97.155	118.11	225	205	225	EV	EV	EV	UG	0	0	0
923	VCGCD-NW-000713 /	Victoria	28.995	-96.915	121.39	60	40	60	CH	CH	CH	LI	0	0	0
924	VCGCD-GW-000070 /	Victoria	28.7897	-97.116	114.83				DP	DP	DP	DP	0	0	0
925	VCGCD-GW-000318 /	Victoria	28.6654	-96.963	55.77	91	56	86	CH	CH	CH	LI	0	0	0
926	VCGCD-NW-000714 /	Victoria	29.0297	-96.932	137.8	110	90	110	CH	CH	CH	LI	0	0	0
927	VCGCD-NW-000715 /	Victoria	28.8419	-96.811	55.77	160	140	160	CH	CH	CH	LI	0	0	0
928	VCGCD-NW-000716 /	Victoria	28.9072	-97.001	131.23	240	220	240	EV	CH	CH	WI	1	1	0
929	VCGCD-GW-000755 /	Victoria	28.8203	-96.773	42.65	1095	300	700	EV	EV	EV	UG	0	0	0
930	VCGCD-GW-000093 /	Victoria	28.8675	-97.099	82.02				DP	DP	DP	DP	0	0	0
931	VCGCD-NW-000717 /	Victoria	28.8836	-96.842	72.18	91	68	88	CH	CH	CH	BB	0	0	0
932	VCGCD-NW-000718 /	Victoria	28.8987	-97.212	193.57	200	160	200	EV	EV	EV	UG	0	0	0
933	VCGCD-GW-000161 /	Victoria	28.7918	-96.874	68.9				DP	DP	DP	DP	0	0	0
934	VCGCD-GW-000042 /	Victoria	28.7814	-97.059	85.3				DP	DP	DP	DP	0	0	0
935	VCGCD-GW-000349 /	Victoria	28.9398	-97.153	121.39				DP	DP	DP	DP	0	0	0
936	VCGCD-NW-000719 /	Victoria	28.882	-97.048	108.27	220	190	210	EV	EV	EV	UG	0	0	0
937	VCGCD-GW-000854 / 183924	Victoria	28.675	-96.952	68.9				DP	DP	DP	DP	0	0	0
938	VCGCD-NW-000720 /	Victoria	28.8347	-97.086	118.11	220	200	220	EV	EV	EV	UG	0	0	0
939	VCGCD-GW-000945 /	Victoria	28.9802	-96.843	88.58				DP	DP	DP	DP	0	0	0
940	VCGCD-GW-000428 /	Victoria	28.6725	-96.94	62.34	30	40	51	CH	CH	CH	BB	0	0	0
941	VCGCD-GW-000286 /	Victoria	28.822	-97.131	134.51				DP	DP	DP	DP	0	0	0
942	VCGCD-GW-000331 /	Victoria	28.9084	-97.031	131.23				DP	DP	DP	DP	0	0	0
943	VCGCD-NW-000721 /	Victoria	28.9554	-96.836	75.46	76	56	76	CH	CH	CH	BB	0	0	0
944	VCGCD-GW-000049 /	Victoria	28.8659	-97.099	82.02				DP	DP	DP	DP	0	0	0
945	VCGCD-GW-000445 /	Victoria	28.6722	-96.94	62.34	93	18	2	CH	CH	CH	LI	0	0	0
946	VCGCD-GW-000417 /	Victoria	28.6703	-96.94	62.34	117	47	27	CH	CH	CH	LI	0	0	0



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947	VCGCD-NW-000722 /	Victoria	29.0224	-97.042	190.29	320	140	260	EV	EV	EV	UG	0	0	0
948	VCGCD-GW-000594 /	Victoria	28.7946	-97.084	88.58	30			CH	CH	CH	LI	0	0	0
949	VCGCD-GW-000001 /	Victoria	28.7846	-97.05	88.58				DP	DP	DP	DP	0	0	0
950	VCGCD-GW-000236 /	Victoria	28.6823	-96.863	55.77				DP	DP	DP	DP	0	0	0
951	VCGCD-GW-000249 /	Victoria	28.9128	-97.045	124.67				DP	DP	DP	DP	0	0	0
952	VCGCD-GW-000213 /	Victoria	28.7989	-97.142	131.23				DP	DP	DP	DP	0	0	0
953	VCGCD-NW-000723 /	Victoria	28.9242	-97.013	131.23	1022	1022	1022	EV	EV	EV	LG	0	0	0
954	VCGCD-NW-000724 /	Victoria	28.9257	-97.011	134.51	1656			JA	EV	EV	UL	1	1	0
955	VCGCD-GW-000516 /	Victoria	28.8495	-97.048	91.86				DP	DP	DP	DP	0	0	0
956	VCGCD-NW-000725 /	Victoria	28.9229	-97.022	141.08	3170	3060	3166	DP	JA	JA	OK	1	1	0
957	VCGCD-GW-000523 /	Victoria	28.7823	-96.997	55.77				DP	DP	DP	DP	0	0	0
958	VCGCD-GW-000346 /	Victoria	28.9409	-97.153	131.23				DP	DP	DP	DP	0	0	0
959	VCGCD-GW-000081 /	Victoria	28.8901	-97.013	131.23	79	59	69	CH	CH	CH	LI	0	0	0
960	VCGCD-GW-000527 /	Victoria	29.0396	-96.891	108.27				DP	DP	DP	DP	0	0	0
961	VCGCD-GW-000141 /	Victoria	28.7129	-97.146	104.99	80			CH	CH	CH	LI	0	0	0
962	VCGCD-GW-000044 /	Victoria	28.8649	-97.193	190.29	148			EV	EV	EV	UG	0	0	0
963	VCGCD-NW-000726 /	Victoria	28.8615	-97.16	170.6	178	146	176	EV	EV	EV	UG	0	0	0
964	VCGCD-GW-000111 /	Victoria	28.8736	-97.286	213.25				DP	DP	DP	DP	0	0	0
965	VCGCD-GW-000469 /	Victoria	28.7437	-97.072	88.58				DP	DP	DP	DP	0	0	0
966	VCGCD-GW-000451 /	Victoria	28.6648	-96.963	42.65	121	2	62	CH	CH	CH	LI	0	0	0
967	VCGCD-GW-000741 /	Victoria	28.6646	-96.866	55.77				DP	DP	DP	DP	0	0	0
968	VCGCD-NW-000727 /	Victoria	28.89	-96.767	55.77	136	112	132	CH	CH	CH	LI	0	0	0
969	VCGCD-GW-000488 /	Victoria	28.9027	-96.79	62.34				DP	DP	DP	DP	0	0	0
970	VCGCD-GW-000046 /	Victoria	28.8703	-97.129	141.08				DP	DP	DP	DP	0	0	0
971	VCGCD-GW-000745 /	Victoria	28.5893	-97.005	68.9				DP	DP	DP	DP	0	0	0
972	VCGCD-GW-000038 /	Victoria	28.9224	-96.795	65.62				DP	DP	DP	DP	0	0	0
973	VCGCD-GW-000736 /	Victoria	28.8432	-96.873	78.74				DP	DP	DP	DP	0	0	0

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974	VCGCD-GW-000127 /	Victoria	28.7107	-96.959	36.09				DP	DP	DP	DP	0	0	0
975	VCGCD-GW-000228 /	Victoria	28.831	-97.11	127.95				DP	DP	DP	DP	0	0	0
976	VCGCD-NW-000728 /	Victoria	28.8289	-97.083	118.11	238	205	235	EV	EV	EV	UG	0	0	0
977	VCGCD-NW-000729 /	Victoria	28.8794	-97.048	111.55	80	60	80	CH	CH	CH	LI	0	0	0
978	VCGCD-GW-000547 /	Victoria	28.872	-97.047	104.99				DP	DP	DP	DP	0	0	0
979	VCGCD-GW-000114 /	Victoria	28.7956	-97.143	137.8				DP	DP	DP	DP	0	0	0
980	VCGCD-NW-000730 /	Victoria	28.8073	-96.918	88.58	90	70	90	CH	CH	CH	LI	0	0	0
981	VCGCD-GW-000105 /	Victoria	28.7832	-97.061	82.02				DP	DP	DP	DP	0	0	0
982	VCGCD-NW-000731 /	Victoria	28.7991	-96.713	36.09	220	200	220	CH	CH	CH	LI	0	0	0
983	VCGCD-GW-000335 /	Victoria	28.7379	-97.103	62.34	80			CH	CH	CH	LI	0	0	0
984	VCGCD-GW-000647 /	Victoria	28.8922	-96.936	114.83				DP	DP	DP	DP	0	0	0
985	VCGCD-GW-000529 /	Victoria	29.0406	-96.996	177.17	120			CH	CH	CH	LI	0	0	0
986	VCGCD-GW-000388 /	Victoria	28.822	-97.075	121.39	130			CH	CH	CH	LI	0	0	0
987	VCGCD-GW-000416 /	Victoria	28.6708	-96.941	62.34	24	45	55	CH	CH	CH	BB	0	0	0
988	VCGCD-GW-000566 /	Victoria	28.693	-96.973	6.56				DP	DP	DP	DP	0	0	0
989	VCGCD-GW-000217 /	Victoria	28.872	-96.848	68.9	56	56	56	CH	CH	CH	BB	0	0	0
990	VCGCD-GW-000768 /	Victoria	28.6705	-96.855	55.77	229	200	220	CH	CH	CH	LI	0	0	0
991	VCGCD-GW-000642 /	Victoria	28.9141	-96.922	104.99				DP	DP	DP	DP	0	0	0
992	VCGCD-GW-000626 /	Victoria	28.8364	-97.188	111.55				DP	DP	DP	DP	0	0	0
993	VCGCD-GW-000179 /	Victoria	28.7162	-96.838	52.49				DP	DP	DP	DP	0	0	0
994	VCGCD-GW-000708 /	Victoria	28.8811	-97.044	114.83	50			CH	CH	CH	LI	0	0	0
995	VCGCD-GW-000724 /	Victoria	28.7448	-96.858	59.06				DP	DP	DP	DP	0	0	0
996	VCGCD-GW-000859 /	Victoria	28.9121	-96.854	88.58	110			CH	CH	CH	BB	0	0	0
997	VCGCD-GW-000699 /	Victoria	28.7137	-97.093	91.86				DP	DP	DP	DP	0	0	0
998	VCGCD-NW-000732 /	Victoria	28.8631	-96.849	68.9	120	100	120	CH	CH	CH	LI	0	0	0
999	VCGCD-GW-000446 /	Victoria	28.6724	-96.938	62.34	98	29	19	CH	CH	CH	LI	0	0	0
1000	VCGCD-GW-000066 /	Victoria	28.7746	-97.118	114.83				DP	DP	DP	DP	0	0	0

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1001	VCGCD-GW-000688 /	Victoria	28.7751	-96.959	85.3				DP	DP	DP	DP	0	0	0
1002	VCGCD-NW-000733 /	Victoria	28.837	-97.13	141.08	162	145	162	EV	EV	EV	UG	0	0	0
1003	VCGCD-GW-000322 /	Victoria	28.6893	-96.942	65.62	420			CH	CH	CH	WI	0	0	0
1004	VCGCD-GW-000537 /	Victoria	28.8708	-97.19	180.45				DP	DP	DP	DP	0	0	0
1005	VCGCD-GW-000662 /	Victoria	28.8643	-96.945	111.55				DP	DP	DP	DP	0	0	0
1006	VCGCD-GW-000706 /	Victoria	28.951	-97.059	167.32				DP	DP	DP	DP	0	0	0
1007	VCGCD-GW-000525 /	Victoria	29.04	-96.89	108.27				DP	DP	DP	DP	0	0	0
1008	VCGCD-GW-000485 /	Victoria	28.9105	-96.853	88.58				DP	DP	DP	DP	0	0	0
1009	VCGCD-GW-000356 /	Victoria	28.9384	-97.128	150.92				DP	DP	DP	DP	0	0	0
1010	VCGCD-GW-000135 /	Victoria	28.8512	-97.163	187.01				DP	DP	DP	DP	0	0	0
1011	VCGCD-NW-000734 /	Victoria	28.7738	-97.068	68.9	128	84	124	CH	CH	CH	LI	0	0	0
1012	VCGCD-NW-000735 /	Victoria	28.6217	-97.152	108.27	180	120	180	CH	CH	CH	WI	0	0	0
1013	VCGCD-GW-000749 /	Victoria	28.795	-97.082	88.58				DP	DP	DP	DP	0	0	0
1014	VCGCD-GW-000731 /	Victoria	28.7464	-96.88	65.62	145	120	140	CH	CH	CH	LI	0	0	0
1015	VCGCD-GW-000263 /	Victoria	28.6322	-97	65.62	180	140	160	CH	CH	CH	LI	0	0	0
1016	VCGCD-GW-000501 /	Victoria	28.547	-96.981	59.06				DP	DP	DP	DP	0	0	0
1017	VCGCD-GW-000324 /	Victoria	28.688	-96.965	68.9				DP	DP	DP	DP	0	0	0
1018	VCGCD-GW-000253 /	Victoria	28.9409	-97.087	147.64				DP	DP	DP	DP	0	0	0
1019	VCGCD-GW-000235 /	Victoria	28.7063	-96.896	59.06				DP	DP	DP	DP	0	0	0
1020	VCGCD-NW-000736 /	Victoria	28.8942	-96.762	55.77	124	92	122	CH	CH	CH	LI	0	0	0
1021	VCGCD-NW-000737 /	Victoria	28.8239	-97.187	131.23	225	205	225	EV	EV	EV	UG	0	0	0
1022	VCGCD-GW-000860 / 394865	Victoria	28.912	-96.854	88.58	86			CH	CH	CH	BB	0	0	0
1023	VCGCD-NW-000738 /	Victoria	28.8831	-96.842	72.18	92	68	88	CH	CH	CH	BB	0	0	0
1024	VCGCD-GW-000497 /	Victoria	28.5608	-96.989	59.06				DP	DP	DP	DP	0	0	0
1025	VCGCD-GW-000160 /	Victoria	28.9104	-97.186	154.2				DP	DP	DP	DP	0	0	0
1026	VCGCD-GW-000978 /	Victoria	28.9018	-96.988	124.67	785	240	785	EV	EV	EV	UG	0	0	0

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1027	VCGCD-GW-000638 /	Victoria	28.9062	-97.164	108.27				DP	DP	DP	DP	0	0	0
1028	VCGCD-NW-000739 /	Victoria	28.9389	-97.016	144.36	200	180	190	EV	CH	CH	WI	1	1	0
1029	VCGCD-GW-000959 /	Victoria	28.8912	-97.069	111.55	60			CH	CH	CH	LI	0	0	0
1030	VCGCD-GW-000715 /	Victoria	28.669	-96.843	52.49				DP	DP	DP	DP	0	0	0
1031	VCGCD-GW-000726 /	Victoria	29.0493	-97.016	190.29				DP	DP	DP	DP	0	0	0
1032	VCGCD-NW-000740 /	Victoria	28.7689	-96.949	82.02	90	70	90	CH	CH	CH	LI	0	0	0
1033	VCGCD-NW-000741 /	Victoria	28.8294	-97.185	131.23	100	80	100	EV	EV	EV	UG	0	0	0
1034	VCGCD-GW-000664 /	Victoria	28.8676	-96.944	111.55				DP	DP	DP	DP	0	0	0
1035	VCGCD-GW-000659 /	Victoria	28.8801	-96.949	114.83				DP	DP	DP	DP	0	0	0
1036	VCGCD-NW-000742 /	Victoria	28.9248	-97.022	144.36	210	190	210	EV	CH	CH	WI	1	1	0
1037	VCGCD-GW-000055 /	Victoria	28.8642	-97.198	170.6				DP	DP	DP	DP	0	0	0
1038	VCGCD-NW-000743 /	Victoria	28.8292	-97.186	121.39	90	80	90	EV	EV	EV	UG	0	0	0
1039	VCGCD-NW-000744 /	Victoria	28.9399	-97.002	141.08	142	120	140	CH	CH	CH	LI	0	0	0
1040	VCGCD-NW-000745 /	Victoria	28.8389	-96.828	59.06	120	100	120	CH	CH	CH	LI	0	0	0
1041	VCGCD-NW-000746 /	Victoria	28.8239	-97.109	121.39	210	190	210	EV	EV	EV	UG	0	0	0
1042	VCGCD-GW-000304 /	Victoria	28.7744	-97.075	98.43				DP	DP	DP	DP	0	0	0
1043	VCGCD-NW-000747 /	Victoria	28.6647	-96.866	52.49	270	220	260	CH	CH	CH	LI	0	0	0
1044	VCGCD-NW-000748 /	Victoria	28.8886	-96.836	68.9	110	100	110	CH	CH	CH	LI	0	0	0
1045	VCGCD-GW-000290 /	Victoria	28.8153	-97.147	144.36				DP	DP	DP	DP	0	0	0
1046	VCGCD-GW-000519 /	Victoria	28.8625	-97.033	101.71				DP	DP	DP	DP	0	0	0
1047	VCGCD-GW-000792 /	Victoria	28.9004	-97.078	121.39				DP	DP	DP	DP	0	0	0
1048	VCGCD-GW-000187 /	Victoria	28.8963	-96.816	62.34				DP	DP	DP	DP	0	0	0
1049	VCGCD-NW-000749 /	Victoria	28.7822	-97.062	82.02	110	90	110	CH	CH	CH	LI	0	0	0
1050	VCGCD-GW-000908 / 183832	Victoria	28.6728	-96.962	62.34				DP	DP	DP	DP	0	0	0
1051	VCGCD-GW-000123 /	Victoria	28.715	-96.955	32.81				DP	DP	DP	DP	0	0	0
1052	VCGCD-GW-000648 /	Victoria	28.8903	-96.94	114.83				DP	DP	DP	DP	0	0	0

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1053	VCGCD-GW-000511 /	Victoria	28.7785	-96.809	55.77	156			CH	CH	CH	LI	0	0	0
1054	VCGCD-GW-000254 /	Victoria	28.7691	-97.055	85.3				DP	DP	DP	DP	0	0	0
1055	VCGCD-GW-000559 /	Victoria	28.8931	-96.907	101.71	1068			EV	EV	EV	LG	0	0	0
1056	VCGCD-NW-000750 /	Victoria	28.7928	-96.859	65.62	300	240	300	CH	CH	CH	LI	0	0	0
1057	VCGCD-GW-000404 /	Victoria	28.6836	-96.944	65.62	28	41	51	CH	CH	CH	BB	0	0	0
1058	VCGCD-GW-000146 /	Victoria	28.7139	-96.948	42.65	120			CH	CH	CH	LI	0	0	0
1059	VCGCD-NW-000751 /	Victoria	28.8172	-97.062	108.27	281	258	278	EV	EV	EV	UG	0	0	0
1060	VCGCD-GW-000126 /	Victoria	28.711	-96.959	36.09				DP	DP	DP	DP	0	0	0
1061	VCGCD-GW-000399 /	Victoria	28.7377	-97.071	68.9	200			EV	CH	CH	WI	1	1	0
1062	VCGCD-GW-000153 /	Victoria	28.8558	-96.751	36.09	300			CH	CH	CH	LI	0	0	0
1063	VCGCD-NW-000752 /	Victoria	28.8459	-96.879	78.74	105	85	105	CH	CH	CH	LI	0	0	0
1064	VCGCD-GW-000739 /	Victoria	28.9092	-96.991	127.95				DP	DP	DP	DP	0	0	0
1065	VCGCD-NW-000753 /	Victoria	28.9218	-97.088	134.51	130	110	120	EV	EV	CH	WI	0	1	1
1066	VCGCD-GW-000132 /	Victoria	28.7928	-97.106	95.14				DP	DP	DP	DP	0	0	0
1067	VCGCD-GW-000421 /	Victoria	28.6697	-96.94	62.34	87	16	4	CH	CH	CH	LI	0	0	0
1068	VCGCD-GW-000224 /	Victoria	28.7217	-96.879	62.34	80			CH	CH	CH	LI	0	0	0
1069	VCGCD-GW-000473 /	Victoria	28.8287	-97.175	147.64				DP	DP	DP	DP	0	0	0
1070	VCGCD-GW-000790 /	Victoria	28.8949	-97.087	121.39				DP	DP	DP	DP	0	0	0
1071	VCGCD-GW-000798 /	Victoria	28.8979	-97.081	118.11	65			CH	CH	CH	LI	0	0	0
1072	VCGCD-NW-000754 /	Victoria	28.9136	-97.002	127.95	185	165	175	EV	CH	CH	WI	1	1	0
1073	VCGCD-GW-000528 /	Victoria	28.842	-96.897	91.86				DP	DP	DP	DP	0	0	0
1074	VCGCD-GW-000787 /	Victoria	28.8991	-97.082	121.39	180	145	165	EV	EV	EV	UG	0	0	0
1075	VCGCD-GW-000229 /	Victoria	28.9053	-97.206	170.6	185			EV	EV	EV	UG	0	0	0
1076	VCGCD-GW-000922 /	Victoria	28.6968	-96.954	62.34				DP	DP	DP	DP	0	0	0
1077	VCGCD-GW-000405 /	Victoria	28.6635	-96.947	59.06	23	39	49	CH	CH	CH	BB	0	0	0
1078	VCGCD-NW-000755 /	Victoria	28.905	-97.022	134.51	170	155	170	EV	CH	CH	WI	1	1	0
1079	VCGCD-GW-000060 /	Victoria	28.7323	-97.14	72.18	135	117	127	EV	CH	CH	WI	1	1	0



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1080	VCGCD-GW-000373 /	Victoria	28.951	-96.882	104.99				DP	DP	DP	DP	0	0	0
1081	VCGCD-GW-000359 /	Victoria	28.9326	-97.121	154.2				DP	DP	DP	DP	0	0	0
1082	VCGCD-GW-000280 /	Victoria	28.7714	-97.069	88.58	80			CH	CH	CH	LI	0	0	0
1083	VCGCD-GW-000407 /	Victoria	28.6696	-96.944	62.34	26	44	54	CH	CH	CH	BB	0	0	0
1084	VCGCD-NW-000756 /	Victoria	28.8348	-96.862	68.9	68	53	68	CH	CH	CH	BB	0	0	0
1085	VCGCD-NW-000757 /	Victoria	28.8487	-97.153	167.32	160	120	160	EV	EV	EV	UG	0	0	0
1086	VCGCD-GW-000600 /	Victoria	28.9292	-97.08	141.08				DP	DP	DP	DP	0	0	0
1087	VCGCD-GW-000379 /	Victoria	28.8218	-97.075	124.67	122			CH	CH	CH	LI	0	0	0
1088	VCGCD-GW-000793 /	Victoria	28.8935	-97.086	118.11	90			EV	EV	CH	WI	0	1	1
1089	VCGCD-GW-000670 /	Victoria	28.9074	-96.828	72.18				DP	DP	DP	DP	0	0	0
1090	VCGCD-GW-000273 /	Victoria	28.911	-97.187	154.2				DP	DP	DP	DP	0	0	0
1091	VCGCD-NW-000758 /	Victoria	28.8436	-97.131	144.36	153	133	153	EV	EV	EV	UG	0	0	0
1092	VCGCD-GW-000904 /	Victoria	28.6692	-96.949	68.9				DP	DP	DP	DP	0	0	0
1093	VCGCD-GW-000884 /	Victoria	28.6576	-96.958	16.4				DP	DP	DP	DP	0	0	0
1094	VCGCD-GW-000079 /	Victoria	28.7358	-97.063	62.34				DP	DP	DP	DP	0	0	0
1095	VCGCD-GW-000360 /	Victoria	28.9263	-97.127	150.92				DP	DP	DP	DP	0	0	0
1096	VCGCD-GW-000203 /	Victoria	28.6892	-97.016	32.81				DP	DP	DP	DP	0	0	0
1097	VCGCD-GW-000701 /	Victoria	28.82	-97.058	85.3				DP	DP	DP	DP	0	0	0
1098	VCGCD-GW-000693 /	Victoria	28.8989	-97.191	187.01	220			EV	EV	EV	UG	0	0	0
1099	VCGCD-GW-000191 /	Victoria	28.8302	-97.15	144.36				DP	DP	DP	DP	0	0	0
1100	VCGCD-GW-000619 /	Victoria	28.88	-96.97	114.83				DP	DP	DP	DP	0	0	0
1101	VCGCD-NW-000759 /	Victoria	28.7399	-96.947	55.77	260	220	260	CH	CH	CH	LI	0	0	0
1102	VCGCD-NW-000760 /	Victoria	28.8677	-97.048	95.14	60	30	50	CH	CH	CH	LI	0	0	0
1103	VCGCD-NW-000761 /	Victoria	28.8678	-97.048	95.14	257	230	250	EV	EV	EV	UG	0	0	0
1104	VCGCD-NW-000762 /	Victoria	28.7225	-96.917	68.9	118	98	118	CH	CH	CH	LI	0	0	0
1105	VCGCD-GW-000288 /	Victoria	28.8202	-97.14	137.8				DP	DP	DP	DP	0	0	0
1106	VCGCD-GW-000466 /	Victoria	28.9611	-96.883	104.99	740			EV	EV	EV	UG	0	0	0

(a) ID	(b & c) GCD Name /SWN	(d) County	(e) Lat	(f) Long	(g) Datum (ft, msl)	(h) Well Depth (ft)	(i) Top Scr Depth (ft)	(j) Bot Scr Depth (ft)	(k) GMA 15 GAM	(l) GMA 15 & 16 GAM	(m) TWDB	(n) TWDB	(o) K.ne.L	(p) K.ne.M	(q) L.ne.M
1107	VCGCD-GW-000505 /	Victoria	28.8129	-97.067	111.55	92	90	92	CH	CH	CH	LI	0	0	0
1108	VCGCD-GW-000424 /	Victoria	28.6695	-96.939	62.34	90	19	1	CH	CH	CH	LI	0	0	0
1109	VCGCD-NW-000763 /	Victoria	29.0042	-96.915	121.39	75	55	75	CH	CH	CH	LI	0	0	0
1110	VCGCD-GW-000119 /	Victoria	28.8278	-97.151	147.64				DP	DP	DP	DP	0	0	0
1111	VCGCD-GW-000413 /	Victoria	28.6709	-96.941	62.34	114	49	29	CH	CH	CH	LI	0	0	0
1112	VCGCD-GW-000650 /	Victoria	28.8759	-96.95	118.11				DP	DP	DP	DP	0	0	0
1113	VCGCD-GW-000108 /	Victoria	28.9236	-97.223	196.85	350	300	340	EV	EV	EV	LG	0	0	0
1114	VCGCD-GW-000323 /	Victoria	28.6867	-96.968	52.49	109	49	109	CH	CH	CH	LI	0	0	0
1115	VCGCD-GW-000502 /	Victoria	28.5552	-96.972	55.77				DP	DP	DP	DP	0	0	0
1116	VCGCD-GW-000758 / 407631	Victoria	28.8858	-96.956	118.11				DP	DP	DP	DP	0	0	0
1117	VCGCD-NW-000764 /	Victoria	28.7868	-97.102	108.27	280	255	275	EV	EV	EV	UG	0	0	0
1118	VCGCD-NW-000765 /	Victoria	28.5302	-97.003	26.25	140	100	140	CH	CH	CH	LI	0	0	0
1119	VCGCD-GW-000368 /	Victoria	28.9694	-96.845	88.58				DP	DP	DP	DP	0	0	0
1120	VCGCD-GW-000370 /	Victoria	28.6989	-96.969	32.81				DP	DP	DP	DP	0	0	0
1121	VCGCD-GW-000482 /	Victoria	28.7828	-97.103	118.11				DP	DP	DP	DP	0	0	0
1122	VCGCD-NW-000766 /	Victoria	28.7503	-96.918	72.18	100	80	100	CH	CH	CH	LI	0	0	0
1123	VCGCD-GW-000188 /	Victoria	28.8003	-97.062	104.99				DP	DP	DP	DP	0	0	0
1124	VCGCD-GW-000073 /	Victoria	28.8631	-97.196	187.01	141			EV	EV	EV	UG	0	0	0
1125	VCGCD-GW-000420 /	Victoria	28.6696	-96.94	62.34	118	47	27	CH	CH	CH	LI	0	0	0
1126	VCGCD-GW-000862 /	Victoria	28.8844	-97.075	104.99	200			EV	EV	EV	UG	0	0	0
1127	VCGCD-GW-000542 /	Victoria	28.8947	-97.133	95.14	307	155	211	EV	EV	EV	UG	0	0	0
1128	VCGCD-NW-000767 /	Victoria	28.6935	-97.125	104.99	95	75	95	CH	CH	CH	LI	0	0	0
1129	VCGCD-NW-000768 /	Victoria	28.9292	-97.015	141.08	200	180	190	EV	CH	CH	WI	1	1	0
1130	VCGCD-GW-000096 /	Victoria	28.7105	-96.7	26.25				DP	DP	DP	DP	0	0	0
1131	VCGCD-GW-000097 /	Victoria	28.739	-96.727	29.53				DP	DP	DP	DP	0	0	0
1132	VCGCD-NW-000770 /	Victoria	28.8893	-96.768	55.77	124	100	120	CH	CH	CH	LI	0	0	0

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1133	VCGCD-GW-000337 /	Victoria	28.8946	-97.059	114.83				DP	DP	DP	DP	0	0	0
1134	VCGCD-GW-000773 /	Victoria	28.6701	-96.854	55.77	220	200	220	CH	CH	CH	LI	0	0	0
1135	VCGCD-NW-000771 /	Victoria	28.8886	-96.768	55.77	162	140	160	CH	CH	CH	LI	0	0	0
1136	VCGCD-NW-000772 /	Victoria	28.8103	-97.136	144.36	192	172	192	EV	EV	EV	UG	0	0	0
1137	VCGCD-GW-000293 /	Victoria	28.8032	-97.165	118.11	210			EV	EV	EV	UG	0	0	0
1138	VCGCD-GW-000283 /	Victoria	28.8804	-97.237	137.8				DP	DP	DP	DP	0	0	0
1139	VCGCD-NW-000773 /	Victoria	28.9323	-96.832	88.58	80	60	80	CH	CH	CH	BB	0	0	0
1140	VCGCD-GW-000430 /	Victoria	28.6717	-96.937	62.34	74	7	13	CH	CH	CH	BB	0	0	0
1141	VCGCD-GW-000429 /	Victoria	28.6718	-96.937	62.34	102	35	15	CH	CH	CH	LI	0	0	0
1142	VCGCD-GW-000689 /	Victoria	28.7212	-96.873	62.34				DP	DP	DP	DP	0	0	0
1143	VCGCD-GW-000760 /	Victoria	28.9103	-96.783	59.06	504	400	475	CH	CH	CH	WI	0	0	0
1144	VCGCD-NW-000774 /	Victoria	28.9685	-97.157	141.08	155	135	155	EV	EV	EV	UG	0	0	0
1145	VCGCD-GW-000644 /	Victoria	28.9048	-96.927	108.27				DP	DP	DP	DP	0	0	0
1146	VCGCD-GW-000941 /	Victoria	28.9893	-96.825	78.74				DP	DP	DP	DP	0	0	0
1147	VCGCD-GW-000435 /	Victoria	28.6706	-96.937	62.34	77	14	6	CH	CH	CH	LI	0	0	0
1148	VCGCD-GW-000340 /	Victoria	28.9329	-97.14	131.23	758	360	758	EV	EV	EV	LG	0	0	0
1149	VCGCD-GW-000973 /	Victoria	28.8965	-97.012	131.23				DP	DP	DP	DP	0	0	0
1150	VCGCD-NW-000775 /	Victoria	28.9101	-96.836	82.02	90	70	90	CH	CH	CH	BB	0	0	0
1151	VCGCD-GW-000913 /	Victoria	28.6831	-96.925	62.34				DP	DP	DP	DP	0	0	0
1152	VCGCD-GW-000447 /	Victoria	28.6725	-96.938	62.34	92	23	3	CH	CH	CH	LI	0	0	0
1153	VCGCD-GW-000800 /	Victoria	28.8961	-97.082	114.83				DP	DP	DP	DP	0	0	0
1154	VCGCD-GW-000214 /	Victoria	28.8004	-97.138	131.23				DP	DP	DP	DP	0	0	0
1155	VCGCD-GW-000751 /	Victoria	28.9081	-97.007	134.51	50			CH	CH	CH	LI	0	0	0
1156	VCGCD-NW-000776 /	Victoria	28.8103	-96.921	88.58	90	62	90	CH	CH	CH	LI	0	0	0
1157	VCGCD-NW-000777 /	Victoria	28.8617	-97.173	180.45	170	140	150	EV	EV	EV	UG	0	0	0
1158	VCGCD-GW-000264 /	Victoria	28.7934	-97.158	118.11				DP	DP	DP	DP	0	0	0
1159	VCGCD-NW-000778 /	Victoria	28.9002	-96.792	62.34	70	55	70	CH	CH	CH	BB	0	0	0

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1160	VCGCD-GW-000426 /	Victoria	28.6695	-96.939	62.34	25	45	55	CH	CH	CH	BB	0	0	0
1161	VCGCD-GW-000675 /	Victoria	28.918	-96.816	68.9				DP	DP	DP	DP	0	0	0
1162	VCGCD-NW-000780 /	Victoria	28.8647	-96.873	72.18	95	75	95	CH	CH	CH	LI	0	0	0
1163	VCGCD-NW-000781 /	Victoria	28.6958	-97.126	104.99	135	115	135	CH	CH	CH	WI	0	0	0
1164	VCGCD-NW-000782 /	Victoria	28.7158	-97.046	55.77	85	60	80	CH	CH	CH	LI	0	0	0
1165	VCGCD-NW-000783 /	Victoria	28.8561	-97.162	183.73	171	155	165	EV	EV	EV	UG	0	0	0
1166	VCGCD-GW-000080 /	Victoria	28.8742	-97.155	173.88				DP	DP	DP	DP	0	0	0
1167	VCGCD-GW-000956 /	Victoria	28.8936	-97.086	118.11	175	150	170	EV	EV	EV	UG	0	0	0
1168	VCGCD-GW-000864 / 446594	Victoria	28.8499	-96.889	88.58				DP	DP	DP	DP	0	0	0
1169	VCGCD-GW-000241 /	Victoria	28.7905	-97.011	52.49	820	364	697	EV	EV	EV	UG	0	0	0
1170	VCGCD-GW-000087 /	Victoria	28.912	-97.186	164.04				DP	DP	DP	DP	0	0	0
1171	VCGCD-GW-000663 /	Victoria	28.8624	-96.945	108.27				DP	DP	DP	DP	0	0	0
1172	VCGCD-GW-000737 /	Victoria	28.7309	-96.836	52.49				DP	DP	DP	DP	0	0	0
1173	VCGCD-GW-000385 /	Victoria	28.8175	-97.067	114.83				DP	DP	DP	DP	0	0	0
1174	VCGCD-GW-000481 /	Victoria	28.8914	-97.155	180.45				DP	DP	DP	DP	0	0	0
1175	VCGCD-NW-000784 /	Victoria	28.565	-96.956	55.77	200	160	200	CH	CH	CH	LI	0	0	0
1176	VCGCD-GW-000548 /	Victoria	28.8725	-97.046	108.27				DP	DP	DP	DP	0	0	0
1177	VCGCD-NW-000785 /	Victoria	28.9109	-96.837	82.02	90	70	90	CH	CH	CH	BB	0	0	0
1178	VCGCD-GW-000685 / 809205	Victoria	28.8805	-97.044	111.55	80	76	80	CH	CH	CH	LI	0	0	0
1179	VCGCD-NW-000786 /	Victoria	28.9045	-97.023	134.51	170	130	170	EV	CH	CH	WI	1	1	0
1180	VCGCD-GW-000470 /	Victoria	28.7732	-97.02	49.21				DP	DP	DP	DP	0	0	0
1181	VCGCD-GW-000240 /	Victoria	28.8406	-97.02	62.34	350			EV	EV	EV	UG	0	0	0
1182	VCGCD-GW-000330 /	Victoria	28.911	-97.028	127.95				DP	DP	DP	DP	0	0	0
1183	VCGCD-NW-000787 /	Victoria	28.6954	-97.09	98.43	120	103	120	CH	CH	CH	LI	0	0	0
1184	VCGCD-GW-000295 /	Victoria	28.7959	-97.173	121.39	230			EV	EV	EV	UG	0	0	0
1185	VCGCD-GW-000712 /	Victoria	28.9027	-96.994	127.95				DP	DP	DP	DP	0	0	0

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1186	VCGCD-GW-000538 /	Victoria	28.877	-97.187	187.01				DP	DP	DP	DP	0	0	0
1187	VCGCD-GW-000495 /	Victoria	28.5594	-96.981	62.34				DP	DP	DP	DP	0	0	0
1188	VCGCD-NW-000789 /	Victoria	28.6259	-97.069	85.3	170	150	170	CH	CH	CH	LI	0	0	0
1189	VCGCD-NW-000790 /	Victoria	28.7009	-97.126	108.27	115	105	115	CH	CH	CH	LI	0	0	0
1190	VCGCD-GW-000255 /	Victoria	28.8758	-97.034	108.27	150	98	104	CH	CH	CH	WI	0	0	0
1191	VCGCD-GW-000131 /	Victoria	28.879	-97.014	114.83	80			CH	CH	CH	LI	0	0	0
1192	VCGCD-GW-000863 /	Victoria	28.8933	-97.085	104.99	120			EV	EV	EV	UG	0	0	0
1193	VCGCD-NW-000791 /	Victoria	28.9309	-97.014	141.08	195	175	195	EV	CH	CH	WI	1	1	0
1194	VCGCD-NW-000792 /	Victoria	28.7908	-96.872	68.9	85	75	85	CH	CH	CH	LI	0	0	0
1195	VCGCD-NW-000793 /	Victoria	28.8499	-96.76	39.37	62	42	62	CH	CH	CH	BB	0	0	0
1196	VCGCD-GW-000363 /	Victoria	28.9046	-96.788	62.34	92	82	92	CH	CH	CH	BB	0	0	0
1197	VCGCD-GW-000170 /	Victoria	28.7113	-96.948	62.34				DP	DP	DP	DP	0	0	0
1198	VCGCD-GW-000348 /	Victoria	28.9463	-97.15	127.95				DP	DP	DP	DP	0	0	0
1199	VCGCD-GW-000059 /	Victoria	28.77	-97.055	88.58	60			CH	CH	CH	LI	0	0	0
1200	VCGCD-GW-000557 /	Victoria	28.7891	-97.096	95.14				DP	DP	DP	DP	0	0	0
1201	VCGCD-NW-000794 /	Victoria	28.795	-97.067	104.99	150	130	150	CH	CH	CH	LI	0	0	0
1202	VCGCD-GW-000897 /	Victoria	28.6716	-96.938	62.34				DP	DP	DP	DP	0	0	0
1203	VCGCD-GW-000163 /	Victoria	28.7909	-96.84	62.34				DP	DP	DP	DP	0	0	0
1204	VCGCD-GW-000555 /	Victoria	28.847	-97.08	98.43	220	40	100	EV	EV	EV	UG	0	0	0
1205	VCGCD-GW-000301 /	Victoria	28.7712	-97.147	124.67	225			EV	EV	EV	UG	0	0	0
1206	VCGCD-GW-000500 /	Victoria	28.574	-96.975	59.06				DP	DP	DP	DP	0	0	0
1207	VCGCD-GW-000088 /	Victoria	28.891	-97.172	180.45	170			EV	EV	EV	UG	0	0	0
1208	VCGCD-GW-000486 /	Victoria	28.8979	-97.083	118.11				DP	DP	DP	DP	0	0	0
1209	VCGCD-NW-000795 /	Victoria	28.801	-97.088	111.55	183	160	180	EV	EV	CH	WI	0	1	1
1210	VCGCD-GW-000847 /	Victoria	28.6892	-96.942	65.62				DP	DP	DP	DP	0	0	0
1211	VCGCD-GW-000551 /	Victoria	28.7802	-97.151	134.51				DP	DP	DP	DP	0	0	0
1212	VCGCD-GW-000418 /	Victoria	28.6703	-96.94	62.34	22	48	58	CH	CH	CH	BB	0	0	0



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1213	VCGCD-NW-000796 /	Victoria	28.673	-97.029	22.97	83	63	83	CH	CH	CH	LI	0	0	0
1214	VCGCD-GW-000222 /	Victoria	28.8035	-97.147	134.51				DP	DP	DP	DP	0	0	0
1215	VCGCD-NW-000797 /	Victoria	28.8342	-97.1	131.23	215	190	200	EV	EV	EV	UG	0	0	0
1216	VCGCD-NW-000798 /	Victoria	28.86	-96.817	59.06	110	100	110	CH	CH	CH	LI	0	0	0
1217	VCGCD-NW-000799 /	Victoria	28.838	-97.127	141.08	200	180	200	EV	EV	EV	UG	0	0	0
1218	VCGCD-GW-000977 /	Victoria	28.7783	-97.055	82.02				DP	DP	DP	DP	0	0	0
1219	VCGCD-GW-000207 /	Victoria	28.9026	-97.219	206.69				DP	DP	DP	DP	0	0	0
1220	VCGCD-GW-000219 /	Victoria	28.8741	-96.843	68.9	52	52	52	CH	CH	CH	BB	0	0	0
1221	VCGCD-GW-000412 /	Victoria	28.6714	-96.941	62.34	20	49	59	CH	CH	CH	BB	0	0	0
1222	VCGCD-GW-000785 /	Victoria	28.8987	-97.081	118.11	65			CH	CH	CH	LI	0	0	0
1223	VCGCD-GW-000698 /	Victoria	28.7132	-97.094	95.14				DP	DP	DP	DP	0	0	0
1224	VCGCD-NW-000800 / 437367	Victoria	28.7867	-97.08	95.14	194	174	194	EV	CH	CH	WI	1	1	0
1225	VCGCD-GW-000720 /	Victoria	28.6632	-96.865	52.49				DP	DP	DP	DP	0	0	0
1226	VCGCD-GW-000452 /	Victoria	28.6667	-96.96	62.34	125	25	45	CH	CH	CH	LI	0	0	0
1227	VCGCD-NW-000801 /	Victoria	28.8366	-97.127	137.8	170	150	170	EV	EV	EV	UG	0	0	0
1228	VCGCD-NW-000802 /	Victoria	28.8992	-96.849	68.9	85	60	80	CH	CH	CH	BB	0	0	0
1229	VCGCD-GW-000886 /	Victoria	28.6598	-96.96	13.12				DP	DP	DP	DP	0	0	0
1230	VCGCD-GW-000725 /	Victoria	28.8458	-96.877	78.74				DP	DP	DP	DP	0	0	0
1231	VCGCD-GW-000963 /	Victoria	28.8963	-97.081	114.83				DP	DP	DP	DP	0	0	0
1232	VCGCD-GW-000979 /	Victoria	28.6481	-96.913	59.06				DP	DP	DP	DP	0	0	0
1233	VCGCD- R1GW-000556 /	Victoria	28.8997	-96.783	59.06	110	80	100	CH	CH	CH	LI	0	0	0
1234	VCGCD-GW-000719 /	Victoria	28.9024	-96.995	131.23	100			CH	CH	CH	LI	0	0	0
1235	VCGCD-GW-000341 /	Victoria	28.9325	-97.138	134.51				DP	DP	DP	DP	0	0	0
1236	VCGCD-GW-000374 /	Victoria	28.8823	-96.762	52.49				DP	DP	DP	DP	0	0	0
1237	VCGCD-GW-000204 /	Victoria	28.6864	-97.004	22.97				DP	DP	DP	DP	0	0	0
1238	VCGCD-GW-000277 /	Victoria	28.7245	-97.142	104.99				DP	DP	DP	DP	0	0	0

(a) ID	(b & c) GCD Name /SWN	(d) County	(e) Lat	(f) Long	(g) Datum (ft, msl)	(h) Well Depth (ft)	(i) Top Scr Depth (ft)	(j) Bot Scr Depth (ft)	(k) GMA 15 GAM	(l) GMA 15 & 16 GAM	(m) TWDB	(n) TWDB	(o) K.ne.L	(p) K.ne.M	(q) L.ne.M
1239	VCGCD-GW-000968 /	Victoria	28.6727	-96.847	55.77	160			CH	CH	CH	LI	0	0	0
1240	VCGCD-GW-000297 /	Victoria	28.7913	-96.973	78.74				DP	DP	DP	DP	0	0	0
1241	VCGCD-GW-000226 /	Victoria	28.7201	-96.877	62.34	80			CH	CH	CH	LI	0	0	0
1242	VCGCD-GW-000409 /	Victoria	28.6713	-96.941	62.34	116	47	27	CH	CH	CH	LI	0	0	0
1243	VCGCD-GW-000419 /	Victoria	28.6703	-96.94	62.34	90	20		CH	CH	CH	LI	0	0	0
1244	VCGCD-GW-000068 /	Victoria	28.7737	-97.118	111.55				DP	DP	DP	DP	0	0	0
1245	VCGCD-GW-000630 /	Victoria	28.8546	-97.273	177.17				DP	DP	DP	DP	0	0	0
1246	VCGCD-GW-000309 /	Victoria	28.6329	-97.003	45.93	188	168	188	CH	CH	CH	LI	0	0	0
1247	VCGCD-GW-000139 /	Victoria	28.6933	-96.899	59.06	290	246	286	CH	CH	CH	LI	0	0	0
1248	VCGCD-GW-000431 /	Victoria	28.6718	-96.937	62.34	26	41	51	CH	CH	CH	BB	0	0	0
1249	VCGCD-GW-000457 / 183778	Victoria	28.6658	-96.961	65.62				DP	DP	DP	DP	0	0	0
1250	VCGCD-NW-000804 /	Victoria	28.8814	-97.21	190.29	200	160	180	EV	EV	EV	UG	0	0	0
1251	VCGCD-GW-000880 / 183781	Victoria	28.671	-96.955	65.62				DP	DP	DP	DP	0	0	0
1252	VCGCD-NW-000805 /	Victoria	28.6617	-97.124	104.99	170	145	165	CH	CH	CH	WI	0	0	0
1253	VCGCD-NW-000806 /	Victoria	28.8531	-97.167	183.73	160	150	160	EV	EV	EV	UG	0	0	0
1254	VCGCD-GW-000281 /	Victoria	28.8853	-97.234	190.29	190	170	190	EV	EV	EV	UG	0	0	0
1255	VCGCD- R1GW-000579 /	Victoria	28.682	-96.84	52.49	60	40	60	CH	CH	CH	LI	0	0	0
1256	VCGCD-NW-000807 /	Victoria	28.88	-97.166	154.2	165	145	165	EV	EV	EV	UG	0	0	0
1257	VCGCD-NW-000808 /	Victoria	28.8991	-96.836	72.18	90	70	90	CH	CH	CH	BB	0	0	0
1258	VCGCD-NW-000809 /	Victoria	28.869	-96.866	78.74	100	90	110	CH	CH	CH	BB	0	0	0
1259	VCGCD-GW-000691 /	Victoria	28.7425	-97.122	98.43				DP	DP	DP	DP	0	0	0
1260	VCGCD-GW-000881 / 183779	Victoria	28.6732	-96.957	68.9				DP	DP	DP	DP	0	0	0
1261	VCGCD-GW-000672 /	Victoria	28.9086	-96.82	72.18				DP	DP	DP	DP	0	0	0
1262	VCGCD-GW-000193 /	Victoria	28.7144	-96.837	52.49				DP	DP	DP	DP	0	0	0
1263	VCGCD-GW-000671 /	Victoria	28.9028	-96.83	65.62				DP	DP	DP	DP	0	0	0

(a) ID	(b & c) GCD Name /SWN	(d) County	(e) Lat	(f) Long	(g) Datum (ft, msl)	(h) Well Depth (ft)	(i) Top Scr Depth (ft)	(j) Bot Scr Depth (ft)	(k) GMA 15 GAM	(l) GMA 15 & 16 GAM	(m) TWDB	(n) TWDB	(o) K.ne.L	(p) K.ne.M	(q) L.ne.M
1264	VCGCD-NW-000811 /	Victoria	28.5992	-97.086	85.3	150	130	150	CH	CH	CH	LI	0	0	0
1265	VCGCD-NW-000812 /	Victoria	28.6014	-97.088	85.3	100	80	100	CH	CH	CH	LI	0	0	0
1266	VCGCD-GW-000866 / 183919	Victoria	28.6739	-96.952	68.9				DP	DP	DP	DP	0	0	0
1267	VCGCD-GW-000307 /	Victoria	28.8504	-97.008	91.86				DP	DP	DP	DP	0	0	0
1268	VCGCD-GW-000258 /	Victoria	28.7826	-97.046	72.18				DP	DP	DP	DP	0	0	0
1269	VCGCD-GW-000940 /	Victoria	28.9899	-96.829	78.74				DP	DP	DP	DP	0	0	0
1270	VCGCD-GW-000869 /	Victoria	28.6656	-96.963	59.06				DP	DP	DP	DP	0	0	0
1271	VCGCD-GW-000182 /	Victoria	28.7093	-96.842	49.21				DP	DP	DP	DP	0	0	0
1272	VCGCD-GW-000298 /	Victoria	28.8888	-96.842	68.9	90	20	30	CH	CH	CH	BB	0	0	0
1273	VCGCD-GW-000149 /	Victoria	28.8141	-97.086	114.83				DP	DP	DP	DP	0	0	0
1274	VCGCD-NW-000813 /	Victoria	28.8733	-97.042	114.83	190	168	175	EV	CH	CH	WI	1	1	0
1275	VCGCD-GW-000136 /	Victoria	28.7149	-97.16	114.83	225	205	225	EV	EV	EV	UG	0	0	0
1276	VCGCD-GW-000433 /	Victoria	28.6675	-96.942	62.34	43	28	38	CH	CH	CH	BB	0	0	0
1277	VCGCD-NW-000814 /	Victoria	28.8096	-96.812	52.49	150	130	150	CH	CH	CH	LI	0	0	0
1278	VCGCD-GW-000951 /	Victoria	28.8667	-97.028	95.14				DP	DP	DP	DP	0	0	0
1279	VCGCD-GW-000631 /	Victoria	28.8823	-97.174	157.48				DP	DP	DP	DP	0	0	0
1280	VCGCD-GW-000681 /	Victoria	28.8448	-97.021	85.3				DP	DP	DP	DP	0	0	0
1281	VCGCD-GW-000625 /	Victoria	28.8897	-97.187	196.85				DP	DP	DP	DP	0	0	0
1282	VCGCD-GW-000467 /	Victoria	28.827	-97.176	144.36	102			EV	EV	EV	UG	0	0	0
1283	VCGCD-NW-000815 /	Victoria	28.925	-96.85	98.43	110	90	110	CH	CH	CH	BB	0	0	0
1284	VCGCD-GW-000498 /	Victoria	28.5641	-96.973	52.49				DP	DP	DP	DP	0	0	0
1285	VCGCD-GW-000946 /	Victoria	28.9003	-96.794	59.06				DP	DP	DP	DP	0	0	0
1286	VCGCD-GW-000806 /	Victoria	28.9017	-97.079	121.39	160	135	155	EV	EV	EV	UG	0	0	0
1287	VCGCD-GW-000506 /	Victoria	28.7852	-97.143	124.67	230			EV	EV	EV	UG	0	0	0
1288	VCGCD-GW-000142 /	Victoria	28.7116	-97.145	104.99	80			CH	CH	CH	LI	0	0	0
1289	VCGCD-NW-000816 /	Victoria	28.7029	-97.048	91.86	105	85	105	CH	CH	CH	LI	0	0	0

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1290	VCGCD-GW-000478 /	Victoria	28.8473	-96.822	59.06	600			EV	CH	CH	WI	1	1	0
1291	VCGCD-NW-000817 /	Victoria	28.6895	-97.104	98.43	85	65	85	CH	CH	CH	LI	0	0	0
1292	VCGCD-GW-000124 /	Victoria	28.7139	-96.956	29.53				DP	DP	DP	DP	0	0	0
1293	VCGCD-GW-000328 /	Victoria	28.6889	-96.955	68.9				DP	DP	DP	DP	0	0	0
1294	VCGCD-GW-000045 /	Victoria	28.8667	-97.191	190.29	150			EV	EV	EV	UG	0	0	0
1295	VCGCD-GW-000316 /	Victoria	28.6776	-96.952	65.62	447			CH	CH	CH	WI	0	0	0
1296	VCGCD-GW-000636 /	Victoria	28.8663	-97.165	180.45				DP	DP	DP	DP	0	0	0
1297	VCGCD-GW-000849 /	Victoria	28.6826	-96.941	65.62				DP	DP	DP	DP	0	0	0
1298	VCGCD-NW-000818 /	Victoria	29.0656	-96.973	177.17	85	65	85	CH	CH	CH	LI	0	0	0
1299	VCGCD-GW-000504 /	Victoria	28.6698	-96.818	45.93				DP	DP	DP	DP	0	0	0
1300	VCGCD-GW-000389 /	Victoria	28.8214	-97.076	124.67	260			EV	EV	EV	UG	0	0	0
1301	VCGCD-GW-000564 /	Victoria	28.8441	-96.902	95.14				DP	DP	DP	DP	0	0	0
1302	VCGCD-NW-000819 /	Victoria	29.0495	-96.971	154.2	115	95	115	CH	CH	CH	LI	0	0	0
1303	VCGCD-GW-000128 /	Victoria	28.7107	-96.959	36.09				DP	DP	DP	DP	0	0	0
1304	VCGCD-NW-000820 /	Victoria	29.0495	-96.972	154.2	110	90	110	CH	CH	CH	LI	0	0	0
1305	VCGCD-GW-000054 /	Victoria	28.8242	-97.072	114.83				DP	DP	DP	DP	0	0	0
1306	VCGCD-GW-000063 /	Victoria	28.7961	-97.139	131.23				DP	DP	DP	DP	0	0	0
1307	VCGCD-GW-000247 /	Victoria	28.8817	-97.009	118.11	65			CH	CH	CH	LI	0	0	0
1308	VCGCD-GW-000306 /	Victoria	28.8504	-97.008	91.86				DP	DP	DP	DP	0	0	0
1309	VCGCD-GW-000270 /	Victoria	28.8492	-97.02	91.86				DP	DP	DP	DP	0	0	0
1310	VCGCD-GW-000629 /	Victoria	28.9057	-97.213	196.85				DP	DP	DP	DP	0	0	0
1311	VCGCD-GW-000643 /	Victoria	28.9103	-96.917	98.43				DP	DP	DP	DP	0	0	0
1312	VCGCD-GW-000296 /	Victoria	28.7818	-96.948	85.3				DP	DP	DP	DP	0	0	0
1313	VCGCD-GW-000361 /	Victoria	28.9037	-96.787	62.34	90	80	90	CH	CH	CH	BB	0	0	0
1314	VCGCD-GW-000459 /	Victoria	28.5983	-97.153	101.71				DP	DP	DP	DP	0	0	0
1315	VCGCD-GW-000584 /	Victoria	28.5214	-96.993	19.69				DP	DP	DP	DP	0	0	0
1316	VCGCD-GW-000215 /	Victoria	28.8953	-97.212	193.57				DP	DP	DP	DP	0	0	0

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1317	VCGCD-GW-000234 /	Victoria	28.9275	-97.206	200.13				DP	DP	DP	DP	0	0	0
1318	VCGCD-GW-000964 /	Victoria	28.8442	-97.023	78.74				DP	DP	DP	DP	0	0	0
1319	VCGCD-GW-000697 /	Victoria	28.8878	-96.824	62.34	610	577	602	EV	EV	EV	UG	0	0	0
1320	VCGCD-GW-000338 /	Victoria	28.7323	-97.14	75.46				DP	DP	DP	DP	0	0	0
1321	VCGCD-NW-000821 /	Victoria	28.9125	-96.837	82.02	90	70	90	CH	CH	CH	BB	0	0	0
1322	VCGCD-GW-000976 /	Victoria	28.8483	-97	88.58				DP	DP	DP	DP	0	0	0
1323	VCGCD-GW-000443 /	Victoria	28.6716	-96.939	62.34	92	18	2	CH	CH	CH	LI	0	0	0
1324	VCGCD-GW-000981 /	Victoria	28.7708	-97.055	88.58				DP	DP	DP	DP	0	0	0
1325	VCGCD-GW-000099 /	Victoria	28.7348	-96.723	29.53				DP	DP	DP	DP	0	0	0
1326	VCGCD-GW-000480 /	Victoria	28.8918	-97.156	180.45				DP	DP	DP	DP	0	0	0
1327	VCGCD-GW-000534 /	Victoria	28.7007	-96.862	59.06				DP	DP	DP	DP	0	0	0
1328	VCGCD-GW-000673 /	Victoria	28.9081	-96.82	72.18				DP	DP	DP	DP	0	0	0
1329	VCGCD-GW-000344 /	Victoria	28.8784	-97.033	91.86				DP	DP	DP	DP	0	0	0
1330	VCGCD-GW-000877 /	Victoria	28.6688	-96.954	65.62				DP	DP	DP	DP	0	0	0
1331	VCGCD-NW-000822 /	Victoria	28.9107	-96.837	82.02	90	70	90	CH	CH	CH	BB	0	0	0
1332	VCGCD-GW-000545 /	Victoria	28.8137	-97.072	114.83				DP	DP	DP	DP	0	0	0
1333	VCGCD-GW-000083 /	Victoria	28.8569	-97.186	164.04				DP	DP	DP	DP	0	0	0
1334	VCGCD-NW-000823 /	Victoria	28.7661	-97.038	72.18	180	120	180	CH	CH	CH	LI	0	0	0
1335	VCGCD-GW-000064 /	Victoria	28.7807	-97.129	121.39				DP	DP	DP	DP	0	0	0
1336	VCGCD-NW-000824 /	Victoria	28.8119	-97.083	108.27	415	320	405	EV	EV	EV	UG	0	0	0
1337	VCGCD-GW-000032 /	Victoria	28.8364	-96.817	59.06				DP	DP	DP	DP	0	0	0
1338	VCGCD-GW-000386 /	Victoria	28.899	-97.08	121.39				DP	DP	DP	DP	0	0	0
1339	VCGCD-GW-000282 /	Victoria	28.8778	-97.241	141.08				DP	DP	DP	DP	0	0	0
1340	VCGCD-GW-000069 /	Victoria	28.7734	-97.118	111.55				DP	DP	DP	DP	0	0	0
1341	VCGCD-GW-000605 /	Victoria	28.5234	-96.983	22.97				DP	DP	DP	DP	0	0	0
1342	VCGCD-GW-000801 /	Victoria	28.898	-97.084	118.11	180			EV	EV	EV	UG	0	0	0
1343	VCGCD-GW-000651 /	Victoria	28.8746	-96.951	118.11				DP	DP	DP	DP	0	0	0



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1344	VCGCD-GW-000327 /	Victoria	28.6926	-96.945	68.9				DP	DP	DP	DP	0	0	0
1345	VCGCD-GW-000463 /	Victoria	28.5878	-97.156	72.18				DP	DP	DP	DP	0	0	0
1346	VCGCD-GW-000397 /	Victoria	28.8212	-97.07	114.83				DP	DP	DP	DP	0	0	0
1347	VCGCD-GW-000196 /	Victoria	28.8777	-96.879	88.58				DP	DP	DP	DP	0	0	0
1348	VCGCD-GW-000154 /	Victoria	28.9058	-96.839	78.74				DP	DP	DP	DP	0	0	0
1349	VCGCD-NW-000825 /	Victoria	28.9421	-96.836	88.58	80			CH	CH	CH	BB	0	0	0
1350	VCGCD-NW-000826 /	Victoria	28.9356	-97.024	150.92	190	170	190	EV	CH	CH	WI	1	1	0
1351	VCGCD-GW-000782 /	Victoria	28.8911	-97.068	118.11			45	DP	DP	DP	DP	0	0	0
1352	VCGCD-NW-000827 /	Victoria	28.7114	-96.864	59.06	320	240	320	CH	CH	CH	LI	0	0	0
1353	VCGCD-GW-000284 /	Victoria	28.7343	-97.074	82.02	200			CH	CH	CH	WI	0	0	0
1354	VCGCD-GW-000095 /	Victoria	28.7429	-96.731	32.81				DP	DP	DP	DP	0	0	0
1355	VCGCD-NW-000828 /	Victoria	28.7114	-96.864	59.06	105	85	105	CH	CH	CH	LI	0	0	0
1356	VCGCD-GW-000586 /	Victoria	28.923	-97.096	131.23				DP	DP	DP	DP	0	0	0
1357	VCGCD-GW-000221 /	Victoria	28.8009	-96.911	82.02				DP	DP	DP	DP	0	0	0
1358	VCGCD-GW-000033 /	Victoria	28.926	-96.806	68.9				DP	DP	DP	DP	0	0	0
1359	VCGCD-NW-000829 /	Victoria	28.7753	-96.834	59.06	150	63	73	CH	CH	CH	LI	0	0	0
1360	VCGCD-GW-000387 /	Victoria	28.8153	-97.064	108.27				DP	DP	DP	DP	0	0	0
1361	VCGCD-GW-000172 /	Victoria	28.6565	-97.122	108.27				DP	DP	DP	DP	0	0	0
1362	VCGCD-NW-000830 /	Victoria	28.8694	-96.848	72.18	115	105	115	CH	CH	CH	LI	0	0	0
1363	VCGCD-GW-000507 /	Victoria	28.8956	-97.147	147.64				DP	DP	DP	DP	0	0	0
1364	VCGCD-NW-000831 /	Victoria	28.8702	-96.848	72.18	112	102	112	CH	CH	CH	LI	0	0	0
1365	VCGCD-NW-000832 /	Victoria	28.8698	-96.849	72.18	102	92	102	CH	CH	CH	BB	0	0	0
1366	VCGCD-NW-000833 /	Victoria	28.8692	-96.849	72.18	105	95	105	CH	CH	CH	LI	0	0	0
1367	VCGCD-GW-000252 /	Victoria	28.9022	-97.178	164.04				DP	DP	DP	DP	0	0	0
1368	VCGCD-GW-000503 /	Victoria	28.5462	-96.976	45.93				DP	DP	DP	DP	0	0	0
1369	VCGCD-GW-000657 /	Victoria	28.884	-96.952	118.11				DP	DP	DP	DP	0	0	0
1370	VCGCD-NW-000834 /	Victoria	28.8702	-96.847	68.9	115	105	115	CH	CH	CH	LI	0	0	0

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1371	VCGCD-GW-000011 /	Victoria	28.8127	-97.01	59.06	1010	430	990	EV	EV	EV	UG	0	0	0
1372	VCGCD-GW-000531 /	Victoria	28.7895	-97.015	49.21	860			EV	EV	EV	UG	0	0	0
1373	VCGCD-GW-000775 /	Victoria	28.6667	-96.96	65.62				DP	DP	DP	DP	0	0	0
1374	VCGCD-GW-000809 /	Victoria	28.6652	-96.963	52.49				DP	DP	DP	DP	0	0	0
1375	VCGCD-GW-000935 /	Victoria	28.9862	-96.858	95.14				DP	DP	DP	DP	0	0	0
1376	VCGCD-GW-000259 /	Victoria	28.8458	-97.027	82.02				DP	DP	DP	DP	0	0	0
1377	VCGCD-GW-000152 /	Victoria	28.8561	-96.752	39.37	300			CH	CH	CH	LI	0	0	0
1378	VCGCD-GW-000035 /	Victoria	28.9185	-96.809	68.9				DP	DP	DP	DP	0	0	0
1379	VCGCD-NW-000835 /	Victoria	28.7587	-97.133	108.27	215	145	165	EV	EV	EV	UG	0	0	0
1380	VCGCD-R1GW-000267 /	Victoria	28.7835	-97.054	88.58	140	100	140	CH	CH	CH	LI	0	0	0
1381	VCGCD-GW-000568 /	Victoria	28.6925	-96.966	32.81		210	290	DP	DP	DP	DP	0	0	0
1382	VCGCD-GW-000574 /	Victoria	28.76	-97.046	75.46				DP	DP	DP	DP	0	0	0
1383	VCGCD-GW-000465 /	Victoria	28.9784	-96.869	101.71				DP	DP	DP	DP	0	0	0
1384	VCGCD-GW-000543 /	Victoria	28.8958	-97.137	101.71	850	372	388	EV	EV	EV	LG	0	0	0
1385	VCGCD-GW-000518 /	Victoria	28.8511	-97.05	98.43				DP	DP	DP	DP	0	0	0
1386	VCGCD-GW-000050 /	Victoria	28.8858	-97.002	121.39				DP	DP	DP	DP	0	0	0
1387	VCGCD-GW-000414 /	Victoria	28.6709	-96.941	62.34	84	15	5	CH	CH	CH	LI	0	0	0
1388	VCGCD-GW-000704 /	Victoria	28.9536	-97.064	170.6				DP	DP	DP	DP	0	0	0
1389	VCGCD-GW-000727 /	Victoria	28.7784	-97.055	85.3	57			CH	CH	CH	LI	0	0	0
1390	VCGCD-NW-000836 /	Victoria	28.9022	-96.853	72.18	100	80	100	CH	CH	CH	LI	0	0	0
1391	VCGCD-GW-000683 /	Victoria	28.851	-96.891	88.58	85	65	85	CH	CH	CH	BB	0	0	0
1392	VCGCD-GW-000804 /	Victoria	28.9015	-97.079	121.39				DP	DP	DP	DP	0	0	0
1393	VCGCD-GW-000144 /	Victoria	28.8093	-96.973	98.43	65			CH	CH	CH	BB	0	0	0
1394	VCGCD-GW-000343 /	Victoria	28.8748	-97.15	177.17	100			EV	EV	CH	LI	0	1	1
1395	VCGCD-GW-000493 /	Victoria	28.886	-97.04	114.83				DP	DP	DP	DP	0	0	0
1396	VCGCD-GW-000074 /	Victoria	28.6874	-97.167	114.83	120	100	120	CH	CH	CH	WI	0	0	0
1397	VCGCD-GW-000654 /	Victoria	28.8757	-96.963	114.83				DP	DP	DP	DP	0	0	0

(a) ID	(b & c) GCD Name /SWN	(d) County	(e) Lat	(f) Long	(g) Datum (ft, msl)	(h) Well Depth (ft)	(i) Top Scr Depth (ft)	(j) Bot Scr Depth (ft)	(k) GMA 15 GAM	(l) GMA 15 & 16 GAM	(m) TWDB	(n) TWDB	(o) K.ne.L	(p) K.ne.M	(q) L.ne.M
1398	VCGCD-GW-000928 /	Victoria	28.9861	-96.858	95.14	200	180	200	CH	CH	CH	LI	0	0	0
1399	VCGCD-GW-000937 /	Victoria	28.9954	-96.854	88.58				DP	DP	DP	DP	0	0	0
1400	VCGCD-GW-000526 /	Victoria	29.0395	-96.89	108.27				DP	DP	DP	DP	0	0	0
1401	VCGCD-GW-000655 /	Victoria	28.8743	-96.961	111.55				DP	DP	DP	DP	0	0	0
1402	VCGCD-NW-000837 /	Victoria	28.7841	-97.065	95.14	120	95	115	CH	CH	CH	LI	0	0	0
1403	VCGCD-GW-000658 /	Victoria	28.8774	-96.956	118.11				DP	DP	DP	DP	0	0	0
1404	VCGCD-GW-000041 /	Victoria	28.7816	-97.059	85.3				DP	DP	DP	DP	0	0	0
1405	VCGCD-GW-000352 /	Victoria	28.9487	-97.14	150.92				DP	DP	DP	DP	0	0	0
1406	VCGCD-GW-000969 /	Victoria	28.6696	-96.842	52.49	160			CH	CH	CH	LI	0	0	0
1407	VCGCD-GW-000165 /	Victoria	28.8947	-97.059	114.83				DP	DP	DP	DP	0	0	0
1408	VCGCD-GW-000571 /	Victoria	28.8225	-97.071	111.55	210	195	210	EV	EV	CH	WI	0	1	1
1409	VCGCD-GW-000634 /	Victoria	28.8721	-97.287	203.41				DP	DP	DP	DP	0	0	0
1410	VCGCD-GW-000200 /	Victoria	28.689	-97.029	26.25				DP	DP	DP	DP	0	0	0
1411	VCGCD-GW-000372 /	Victoria	28.7896	-96.841	62.34				DP	DP	DP	DP	0	0	0
1412	VCGCD-GW-000649 /	Victoria	28.8826	-96.941	114.83				DP	DP	DP	DP	0	0	0
1413	VCGCD-GW-000278 /	Victoria	28.733	-97.079	78.74				DP	DP	DP	DP	0	0	0
1414	VCGCD-GW-000572 /	Victoria	29.0279	-96.891	108.27				DP	DP	DP	DP	0	0	0
1415	VCGCD-GW-000051 /	Victoria	28.9261	-97.044	141.08	130	115	125	EV	CH	CH	LI	1	1	0
1416	VCGCD-GW-000113 /	Victoria	28.8847	-97.136	98.43				DP	DP	DP	DP	0	0	0
1417	VCGCD-GW-000053 /	Victoria	28.8247	-97.072	118.11				DP	DP	DP	DP	0	0	0
1418	VCGCD-NW-000838 /	Victoria	28.7684	-96.795	49.21	120	80	120	CH	CH	CH	LI	0	0	0
1419	VCGCD-GW-000900 /	Victoria	28.6723	-96.938	62.34				DP	DP	DP	DP	0	0	0
1420	VCGCD-GW-000565 /	Victoria	28.6894	-96.967	52.49				DP	DP	DP	DP	0	0	0
1421	VCGCD-GW-000573 /	Victoria	28.8156	-97.063	104.99				DP	DP	DP	DP	0	0	0
1422	VCGCD-GW-000709 /	Victoria	28.8797	-96.876	88.58	80			CH	CH	CH	BB	0	0	0
1423	VCGCD-GW-000517 /	Victoria	28.8511	-97.05	98.43				DP	DP	DP	DP	0	0	0
1424	VCGCD-GW-000396 /	Victoria	28.8104	-97.073	114.83	140			CH	CH	CH	LI	0	0	0

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1425	VCGCD-GW-000423 /	Victoria	28.6695	-96.939	62.34	117	46	26	CH	CH	CH	LI	0	0	0
1426	VCGCD-GW-000746 /	Victoria	28.583	-96.999	65.62				DP	DP	DP	DP	0	0	0
1427	VCGCD-GW-000071 /	Victoria	28.7892	-97.116	114.83				DP	DP	DP	DP	0	0	0
1428	VCGCD-GW-000530 / 317449	Victoria	29.0405	-96.997	180.45	180			EV	EV	CH	WI	0	1	1
1429	VCGCD-NW-000839 /	Victoria	28.8914	-96.836	68.9	120	85	105	CH	CH	CH	LI	0	0	0
1430	VCGCD-GW-000546 /	Victoria	28.8724	-97.046	108.27				DP	DP	DP	DP	0	0	0
1431	VCGCD-GW-000915 /	Victoria	28.666	-96.952	65.62				DP	DP	DP	DP	0	0	0
1432	VCGCD-NW-000840 /	Victoria	28.7525	-97.106	98.43	205	160	170	EV	CH	CH	WI	1	1	0
1433	VCGCD-GW-000268 /	Victoria	28.9742	-97.073	187.01	90			CH	CH	CH	LI	0	0	0
1434	VCGCD-GW-000173 /	Victoria	29.0247	-96.936	124.67				DP	DP	DP	DP	0	0	0
1435	VCGCD-NW-000842 /	Victoria	28.8695	-96.848	68.9	100	100	110	CH	CH	CH	BB	0	0	0
1436	VCGCD-GW-000508 /	Victoria	28.7486	-97.064	88.58	900			EV	EV	EV	UG	0	0	0
1437	VCGCD-GW-000954 /	Victoria	28.8069	-97.07	111.55				DP	DP	DP	DP	0	0	0
1438	VCGCD-GW-000684 /	Victoria	28.9004	-97.028	134.51				DP	DP	DP	DP	0	0	0
1439	VCGCD-GW-000125 /	Victoria	28.7126	-96.956	39.37				DP	DP	DP	DP	0	0	0
1440	VCGCD-GW-000686 /	Victoria	28.6608	-97.044	72.18				DP	DP	DP	DP	0	0	0
1441	VCGCD-NW-000843 /	Victoria	28.8699	-96.848	68.9	110	100	110	CH	CH	CH	LI	0	0	0
1442	VCGCD-GW-000303 /	Victoria	28.7823	-96.998	49.21				DP	DP	DP	DP	0	0	0
1443	VCGCD-NW-000844 /	Victoria	28.8882	-96.838	68.9	75	55	75	CH	CH	CH	BB	0	0	0
1444	VCGCD-NW-000845 /	Victoria	28.7669	-97.042	88.58	150	130	150	CH	CH	CH	LI	0	0	0
1445	VCGCD-GW-000490 /	Victoria	28.8529	-96.778	49.21				DP	DP	DP	DP	0	0	0
1446	VCGCD-GW-000197 /	Victoria	28.8657	-97.178	180.45				DP	DP	DP	DP	0	0	0
1447	VCGCD-GW-000444 /	Victoria	28.6722	-96.94	62.34	122	43	23	CH	CH	CH	LI	0	0	0
1448	VCGCD-GW-000957 /	Victoria	28.9017	-97.077	118.11	80			EV	CH	CH	LI	1	1	0
1449	VCGCD-GW-000384 /	Victoria	28.8096	-97.075	118.11	11			CH	CH	CH	LI	0	0	0
1450	VCGCD-GW-000491 / 172908	Victoria	28.6751	-96.806	42.65	180	20	180	CH	CH	CH	LI	0	0	0

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1451	VCGCD-GW-000276 /	Victoria	28.7987	-97.086	95.14				DP	DP	DP	DP	0	0	0
1452	VCGCD-GW-000759 /	Victoria	28.7248	-96.804	45.93				DP	DP	DP	DP	0	0	0
1453	VCGCD-NW-000846 /	Victoria	28.9522	-97.066	183.73	400			EV	EV	EV	UG	0	0	0
1454	VCGCD-NW-000847 /	Victoria	28.8909	-96.766	55.77	104	102	104	CH	CH	CH	BB	0	0	0
1455	VCGCD-GW-000628 /	Victoria	28.8658	-97.228	150.92				DP	DP	DP	DP	0	0	0
1456	VCGCD-GW-000929 /	Victoria	28.9828	-96.82	78.74	60	40	60	CH	CH	CH	BB	0	0	0
1457	VCGCD-GW-000260 /	Victoria	28.8457	-97.027	82.02				DP	DP	DP	DP	0	0	0
1458	VCGCD-GW-000168 /	Victoria	28.7623	-97.143	118.11				DP	DP	DP	DP	0	0	0
1459	VCGCD-GW-000400 /	Victoria	28.7492	-97.048	91.86				DP	DP	DP	DP	0	0	0
1460	VCGCD-GW-000743 /	Victoria	28.7114	-96.945	52.49	99			CH	CH	CH	LI	0	0	0
1461	VCGCD-GW-000036 /	Victoria	28.921	-96.806	65.62				DP	DP	DP	DP	0	0	0
1462	VCGCD-NW-000848 /	Victoria	28.8661	-97.154	180.45	165	140	150	EV	EV	EV	UG	0	0	0
1463	VCGCD-GW-000674 /	Victoria	28.9066	-96.818	72.18				DP	DP	DP	DP	0	0	0
1464	VCGCD-GW-000618 /	Victoria	28.8856	-96.955	118.11				DP	DP	DP	DP	0	0	0
1465	VCGCD-GW-000805 /	Victoria	28.9006	-97.077	121.39				DP	DP	DP	DP	0	0	0
1466	VCGCD-NW-000849 /	Victoria	28.828	-97.082	118.11	250	210	250	EV	EV	EV	UG	0	0	0
1467	VCGCD-NW-000850 /	Victoria	28.9649	-97.054	180.45	204	184	204	EV	EV	CH	WI	0	1	1
1468	VCGCD-GW-000439 /	Victoria	28.6711	-96.939	62.34	94	15	5	CH	CH	CH	LI	0	0	0
1469	VCGCD-GW-000367 /	Victoria	28.9729	-96.842	88.58				DP	DP	DP	DP	0	0	0
1470	VCGCD-NW-000851 /	Victoria	28.9427	-97.012	147.64	200	178	198	EV	CH	CH	WI	1	1	0
1471	VCGCD-NW-000852 /	Victoria	28.7825	-97.064	82.02	130	90	110	CH	CH	CH	LI	0	0	0
1472	VCGCD-NW-000853 /	Victoria	28.8353	-97.083	104.99	195	175	195	EV	EV	EV	UG	0	0	0
1473	VCGCD-NW-000854 /	Victoria	28.5654	-97.087	88.58	144	121	141	CH	CH	CH	LI	0	0	0
1474	VCGCD-NW-000855 /	Victoria	28.5772	-97.086	88.58	123	100	120	CH	CH	CH	LI	0	0	0
1475	VCGCD-NW-000856 /	Victoria	28.8375	-97.126	141.08	196	163	193	EV	EV	EV	UG	0	0	0
1476	VCGCD-GW-000769 /	Victoria	28.6594	-96.963	29.53				DP	DP	DP	DP	0	0	0
1477	VCGCD-GW-000265 /	Victoria	28.8416	-97.097	124.67	125			EV	EV	CH	WI	0	1	1



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1478	VCGCD-NW-000857 /	Victoria	28.9058	-97.021	134.51	150	130	150	CH	CH	CH	LI	0	0	0
1479	VCGCD-NW-000858 /	Victoria	28.8701	-96.847	68.9	110	100	110	CH	CH	CH	LI	0	0	0
1480	VCGCD-NW-000859 /	Victoria	28.8703	-96.847	68.9	110	100	110	CH	CH	CH	LI	0	0	0
1481	VCGCD-NW-000860 /	Victoria	28.8708	-96.846	68.9	104	94	104	CH	CH	CH	LI	0	0	0
1482	VCGCD-GW-000275 /	Victoria	28.847	-96.986	101.71				DP	DP	DP	DP	0	0	0
1483	VCGCD-NW-000861 /	Victoria	28.8712	-96.847	68.9	110	100	110	CH	CH	CH	LI	0	0	0
1484	VCGCD-NW-000862 /	Victoria	28.8711	-96.847	68.9	110	100	110	CH	CH	CH	LI	0	0	0
1485	VCGCD-NW-000863 /	Victoria	28.8697	-96.849	72.18	98	88	98	CH	CH	CH	BB	0	0	0
1486	VCGCD-GW-000436 /	Victoria	28.6706	-96.938	62.34	124	53	33	CH	CH	CH	LI	0	0	0
1487	VCGCD-NW-000864 /	Victoria	28.9566	-96.837	78.74	86	66	86	CH	CH	CH	BB	0	0	0
1488	VCGCD-NW-000865 /	Victoria	28.928	-97.032	154.2	110	95	110	EV	CH	CH	LI	1	1	0
1489	VCGCD-NW-000866 /	Victoria	29.0736	-96.966	170.6	175	155	175	CH	EV	CH	WI	1	0	1
1490	VCGCD-NW-000867 /	Victoria	28.7794	-97.111	118.11	265	245	265	EV	EV	EV	UG	0	0	0
1491	VCGCD-NW-000868 /	Victoria	28.9133	-97.22	226.38	160	140	160	EV	EV	EV	UG	0	0	0
1492	VCGCD-R1GW-000757 /	Victoria	28.8074	-97.073	114.83	165	130	140	CH	CH	CH	WI	0	0	0
1493	VCGCD-NW-000869 /	Victoria	28.9132	-96.994	124.67	210	190	210	EV	CH	CH	WI	1	1	0
1494	VCGCD-NW-000870 /	Victoria	29.0728	-96.976	180.45	205	170	190	EV	EV	CH	WI	0	1	1
1495	VCGCD-GW-000696 /	Victoria	28.8886	-96.826	59.06	711	670	700	EV	EV	EV	UG	0	0	0
1496	VCGCD-GW-000569 /	Victoria	28.7003	-96.952	65.62		140	182	DP	DP	DP	DP	0	0	0
1497	VCGCD-GW-000432 /	Victoria	28.6825	-96.941	65.62	30	39	49	CH	CH	CH	BB	0	0	0
1498	VCGCD-NW-000871 /	Victoria	28.7253	-97.035	75.46	95	75	95	CH	CH	CH	LI	0	0	0
1499	VCGCD-NW-000872 /	Victoria	28.9032	-96.993	131.23	75	55	75	CH	CH	CH	LI	0	0	0
1500	VCGCD-NW-000873 /	Victoria	28.7836	-96.95	85.3	85	65	85	CH	CH	CH	LI	0	0	0
1501	VCGCD-NW-000874 /	Victoria	28.7872	-97.107	114.83	270	240	260	EV	EV	EV	UG	0	0	0
1502	VCGCD-NW-000875 /	Victoria	28.7264	-96.818	49.21	92	82	92	CH	CH	CH	LI	0	0	0
1503	VCGCD-NW-000876 /	Victoria	28.9086	-97.027	134.51	152	130	150	CH	CH	CH	LI	0	0	0
1504	VCGCD-NW-000877 /	Victoria	28.755	-97.138	108.27	140	120	140	EV	CH	CH	WI	1	1	0

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1505	VCGCD-GW-000140 /	Victoria	28.7134	-97.146	108.27	208			EV	EV	EV	UG	0	0	0
1506	VCGCD-GW-000076 /	Victoria	28.7367	-97.063	78.74				DP	DP	DP	DP	0	0	0
1507	VCGCD-NW-000878 /	Victoria	28.5761	-97.063	85.3	200	178	198	CH	CH	CH	LI	0	0	0
1508	VCGCD-NW-000879 /	Victoria	28.8366	-97.129	141.08	164	144	164	EV	EV	EV	UG	0	0	0
1509	VCGCD-GW-000411 /	Victoria	28.6714	-96.941	62.34	46	23	33	CH	CH	CH	BB	0	0	0
1510	VCGCD-GW-000390 /	Victoria	28.822	-97.073	114.83	244			EV	EV	EV	UG	0	0	0
1511	VCGCD-GW-000705 /	Victoria	28.9532	-97.068	180.45				DP	DP	DP	DP	0	0	0
1512	VCGCD-GW-000355 /	Victoria	28.9417	-97.126	157.48				DP	DP	DP	DP	0	0	0
1513	VCGCD-GW-000582 /	Victoria	28.5241	-97.001	22.97				DP	DP	DP	DP	0	0	0
1514	VCGCD-NW-000880 /	Victoria	28.86	-96.82	59.06	140	120	140	CH	CH	CH	LI	0	0	0
1515	VCGCD-NW-000881 /	Victoria	28.8606	-96.819	59.06	140	120	140	CH	CH	CH	LI	0	0	0
1516	VCGCD-NW-000882 /	Victoria	28.8616	-96.818	62.34	140	120	140	CH	CH	CH	LI	0	0	0
1517	VCGCD-NW-000883 /	Victoria	28.8598	-96.819	59.06	140	120	140	CH	CH	CH	LI	0	0	0
1518	VCGCD-NW-000884 /	Victoria	28.946	-97.015	157.48	205	185	205	EV	CH	CH	WI	1	1	0
1519	VCGCD-NW-000885 /	Victoria	28.8283	-97.083	118.11	234	200	230	EV	EV	EV	UG	0	0	0
1520	VCGCD-NW-000886 /	Victoria	28.9397	-97.023	154.2	220	180	220	EV	EV	CH	WI	0	1	1
1521	VCGCD-NW-000887 /	Victoria	28.9075	-96.993	127.95	220	200	220	EV	CH	CH	WI	1	1	0
1522	VCGCD-NW-000888 /	Victoria	28.7511	-97.067	88.58	463	397	457	EV	EV	EV	UG	0	0	0
1523	VCGCD-NW-000889 /	Victoria	28.7146	-96.948	39.37	73	59	70	CH	CH	CH	LI	0	0	0
1524	VCGCD-NW-000890 /	Victoria	28.8278	-97.083	118.11	262	220	260	EV	EV	EV	UG	0	0	0
1525	VCGCD-NW-000891 /	Victoria	28.8283	-97.086	118.11	246	213	243	EV	EV	EV	UG	0	0	0
1526	VCGCD-NW-000892 /	Victoria	28.8286	-97.083	118.11	246	204	244	EV	EV	EV	UG	0	0	0
1527	VCGCD-NW-000893 /	Victoria	28.8883	-97.073	111.55	171	138	168	EV	EV	EV	UG	0	0	0
1528	VCGCD-NW-000894 /	Victoria	29.0483	-97.021	193.57	276	236	276	EV	EV	EV	UG	0	0	0
1529	VCGCD-NW-000895 /	Victoria	28.7175	-96.888	62.34	115	95	115	CH	CH	CH	LI	0	0	0
1530	VCGCD-GW-000354 /	Victoria	28.9454	-97.125	154.2				DP	DP	DP	DP	0	0	0
1531	VCGCD-NW-000896 /	Victoria	28.895	-97.037	114.83	160	140	160	EV	CH	CH	WI	1	1	0

(a) ID	(b & c) GCD Name /SWN	(d) County	(e) Lat	(f) Long	(g) Datum (ft, msl)	(h) Well Depth (ft)	(i) Top Scr Depth (ft)	(j) Bot Scr Depth (ft)	(k) GMA 15 GAM	(l) GMA 15 & 16 GAM	(m) TWDB	(n) TWDB	(o) K.ne.L	(p) K.ne.M	(q) L.ne.M
1532	VCGCD-NW-000897 /	Victoria	28.886	-97.05	118.11	200	160	200	EV	EV	CH	WI	0	1	1
1533	VCGCD-NW-000898 /	Victoria	28.9174	-97.02	134.51	200	180	190	EV	CH	CH	WI	1	1	0
1534	VCGCD-NW-000899 /	Victoria	28.8369	-97.127	141.08	180	155	175	EV	EV	EV	UG	0	0	0
1535	VCGCD-NW-000901 /	Victoria	28.6739	-97.101	95.14	202	182	202	CH	CH	CH	WI	0	0	0
1536	VCGCD-NW-000902 /	Victoria	28.8169	-97.096	127.95	150	130	150	EV	EV	CH	WI	0	1	1
1537	VCGCD-GW-000110 /	Victoria	28.9	-97.082	121.39	120			EV	EV	EV	UG	0	0	0
1538	VCGCD-NW-000903 /	Victoria	28.8295	-97.082	118.11	225	200	220	EV	EV	EV	UG	0	0	0
1539	VCGCD-GW-000472 /	Victoria	28.9191	-97.185	167.32				DP	DP	DP	DP	0	0	0
1540	VCGCD-GW-000037 /	Victoria	28.9252	-96.798	62.34				DP	DP	DP	DP	0	0	0
1541	VCGCD-GW-000394 /	Victoria	28.8217	-97.069	108.27				DP	DP	DP	DP	0	0	0
1542	VCGCD-NW-000904 /	Victoria	28.8283	-97.082	118.11	247	222	242	EV	EV	EV	UG	0	0	0
1543	VCGCD-NW-000905 /	Victoria	28.668	-97.118	104.99	160	140	160	CH	CH	CH	LI	0	0	0
1544	VCGCD-NW-000906 /	Victoria	28.9397	-97.022	150.92	185	170	185	EV	CH	CH	WI	1	1	0
1545	VCGCD-NW-000907 /	Victoria	28.7452	-97.07	88.58	210	175	195	CH	CH	CH	WI	0	0	0
1546	VCGCD-GW-000184 /	Victoria	28.7237	-97.162	95.14				DP	DP	DP	DP	0	0	0
1547	VCGCD-NW-000908 /	Victoria	28.8539	-97.146	160.76	100	80	100	CH	EV	EV	UG	1	1	0
1548	VCGCD-NW-000909 /	Victoria	28.7802	-96.937	78.74	104	79	99	CH	CH	CH	LI	0	0	0
1549	VCGCD-NW-000910 /	Victoria	28.9152	-96.849	91.86	75	60	75	CH	CH	CH	BB	0	0	0
1550	VCGCD-GW-000402 /	Victoria	28.7092	-96.942	52.49				DP	DP	DP	DP	0	0	0
1551	VCGCD-NW-000911 /	Victoria	28.7511	-96.826	55.77	85	65	85	CH	CH	CH	LI	0	0	0
1552	VCGCD-GW-000678 /	Victoria	28.8988	-97.192	203.41	290			EV	EV	EV	UG	0	0	0
1553	VCGCD-NW-000912 /	Victoria	28.8214	-97.085	121.39	200	170	180	EV	EV	EV	UG	0	0	0
1554	VCGCD-NW-000913 /	Victoria	28.893	-97.067	118.11	240	200	240	EV	EV	EV	UG	0	0	0
1555	VCGCD-GW-000084 / 29868	Victoria	28.8917	-97.172	183.73	202	175	195	EV	EV	EV	UG	0	0	0
1556	VCGCD-GW-000958 /	Victoria	28.8978	-97.079	118.11				DP	DP	DP	DP	0	0	0
1557	VCGCD-GW-000930 /	Victoria	28.8504	-96.891	88.58				DP	DP	DP	DP	0	0	0
1558	VCGCD-GW-000597 /	Victoria	28.9168	-96.866	75.46				DP	DP	DP	DP	0	0	0

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1559	VCGCD-GW-000776 /	Victoria	28.6669	-96.961	65.62				DP	DP	DP	DP	0	0	0
1560	VCGCD-GW-000129 /	Victoria	28.7155	-96.956	36.09				DP	DP	DP	DP	0	0	0
1561	VCGCD-GW-000155 /	Victoria	28.8897	-97.071	111.55				DP	DP	DP	DP	0	0	0
1562	VCGCD-R1GW-000358 / 473756	Victoria	28.9363	-97.114	150.92	157	140	150	EV	EV	EV	UG	0	0	0
1563	VCGCD-NW-000914 /	Victoria	28.9278	-97.065	127.95	167	160	167	EV	EV	EV	UG	0	0	0
1564	VCGCD-NW-000915 /	Victoria	28.958	-96.821	68.9	120	65	75	CH	CH	CH	LI	0	0	0
1565	VCGCD-GW-000098 /	Victoria	28.7155	-96.705	22.97				DP	DP	DP	DP	0	0	0
1566	VCGCD-NW-000916 /	Victoria	28.8869	-96.843	72.18	179	146	176	CH	CH	CH	LI	0	0	0
1567	VCGCD-GW-000052 /	Victoria	28.9259	-97.044	141.08	130	115	125	EV	CH	CH	LI	1	1	0
1568	VCGCD-NW-000917 /	Victoria	28.8314	-97.082	104.99	188	154	184	EV	EV	EV	UG	0	0	0
1569	VCGCD-NW-000918 /	Victoria	28.7539	-97.138	108.27	140	120	140	EV	CH	CH	WI	1	1	0
1570	VCGCD-GW-000082 /	Victoria	28.8898	-97.013	131.23	220	190	200	EV	CH	CH	WI	1	1	0
1571	VCGCD-GW-000802 /	Victoria	28.8984	-97.083	118.11				DP	DP	DP	DP	0	0	0
1572	VCGCD-NW-000919 /	Victoria	28.7861	-96.902	78.74	140	118	138	CH	CH	CH	LI	0	0	0
1573	VCGCD-GW-000198 /	Victoria	28.6814	-97.043	26.25				DP	DP	DP	DP	0	0	0
1574	VCGCD-NW-000920 /	Victoria	28.8997	-97.054	114.83	140	110	120	EV	CH	CH	WI	1	1	0
1575	VCGCD-NW-000921 /	Victoria	28.7247	-96.929	68.9	90	70	90	CH	CH	CH	LI	0	0	0
1576	VCGCD-NW-000922 /	Victoria	28.8111	-96.839	65.62	120	100	120	CH	CH	CH	LI	0	0	0
1577	VCGCD-NW-000923 /	Victoria	28.8402	-97.177	173.88	130	106	126	EV	EV	EV	UG	0	0	0
1578	VCGCD-NW-000924 /	Victoria	28.7192	-97.041	78.74	110	90	110	CH	CH	CH	LI	0	0	0
1579	VCGCD-NW-000925 /	Victoria	28.9567	-96.838	78.74	180	130	150	CH	CH	CH	LI	0	0	0
1580	VCGCD-NW-000926 /	Victoria	28.895	-97.012	131.23	115	80	100	CH	CH	CH	LI	0	0	0
1581	VCGCD-NW-000927 /	Victoria	28.8792	-96.76	52.49	115	100	115	CH	CH	CH	BB	0	0	0
1582	VCGCD-R1GW-000752 /	Victoria	28.7722	-96.951	82.02	145	95	105	CH	CH	CH	LI	0	0	0
1583	VCGCD-NW-000928 /	Victoria	28.7561	-97.136	104.99	174	154	174	EV	EV	EV	UG	0	0	0
1584	VCGCD-GW-000075 /	Victoria	28.6838	-97.166	108.27	120		120	EV	CH	CH	WI	1	1	0

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1585	VCGCD-NW-000929 /	Victoria	28.7939	-96.859	62.34	120	95	115	CH	CH	CH	LI	0	0	0
1586	VCGCD-GW-000883 /	Victoria	28.6577	-96.958	16.4				DP	DP	DP	DP	0	0	0
1587	VCGCD-GW-000640 /	Victoria	28.9222	-96.914	91.86				DP	DP	DP	DP	0	0	0
1588	VCGCD-GW-000799 / 447386	Victoria	28.774	-97.046	52.49				DP	DP	DP	DP	0	0	0
1589	VCGCD-GW-000089 /	Victoria	28.8312	-97.111	131.23				DP	DP	DP	DP	0	0	0
1590	VCGCD-NW-000930 /	Victoria	28.7906	-96.856	65.62	125	120	120	CH	CH	CH	LI	0	0	0
1591	VCGCD-NW-000931 /	Victoria	28.5386	-96.956	19.69	240	200	240	CH	CH	CH	LI	0	0	0
1592	VCGCD-NW-000932 /	Victoria	28.7139	-97.131	108.27	98	80	98	CH	CH	CH	LI	0	0	0
1593	VCGCD-NW-000933 /	Victoria	28.7316	-96.938	75.46	109	89	109	CH	CH	CH	LI	0	0	0
1594	VCGCD-GW-000512 /	Victoria	28.8066	-97.072	114.83				DP	DP	DP	DP	0	0	0
1595	VCGCD-GW-000350 /	Victoria	28.9337	-97.146	131.23				DP	DP	DP	DP	0	0	0
1596	VCGCD-GW-000157 /	Victoria	28.6202	-97.073	85.3				DP	DP	DP	DP	0	0	0
1597	VCGCD-GW-000210 /	Victoria	28.8949	-97.209	209.97	105			EV	EV	EV	UG	0	0	0
1598	VCGCD-GW-000532 /	Victoria	28.8306	-96.952	91.86	452			EV	CH	CH	WI	1	1	0
1599	VCGCD-NW-000934 /	Victoria	28.9296	-97.093	144.36	160	120	160	EV	EV	EV	UG	0	0	0
1600	VCGCD-GW-000962 /	Victoria	28.8957	-97.082	114.83				DP	DP	DP	DP	0	0	0
1601	VCGCD-GW-000072 /	Victoria	28.7886	-97.116	114.83				DP	DP	DP	DP	0	0	0
1602	VCGCD-GW-000524 /	Victoria	29.0396	-96.89	108.27				DP	DP	DP	DP	0	0	0
1603	VCGCD-NW-000935 /	Victoria	28.8949	-97.09	121.39	160	120	160	EV	EV	EV	UG	0	0	0
1604	VCGCD-NW-000936 /	Victoria	28.7297	-96.935	72.18	110	90	110	CH	CH	CH	LI	0	0	0
1605	VCGCD-NW-000937 /	Victoria	28.7797	-97.053	88.58	160	140	160	CH	CH	CH	LI	0	0	0
1606	VCGCD-NW-000938 /	Victoria	28.7115	-96.949	59.06	95	75	95	CH	CH	CH	LI	0	0	0
1607	VCGCD-GW-000205 /	Victoria	28.6826	-97.012	26.25				DP	DP	DP	DP	0	0	0
1608	VCGCD-NW-000939 /	Victoria	28.7293	-96.936	72.18	110	90	110	CH	CH	CH	LI	0	0	0
1609	VCGCD-NW-000940 /	Victoria	28.8869	-97.049	114.83	100	70	100	CH	CH	CH	LI	0	0	0
1610	VCGCD-NW-000941 /	Victoria	28.8575	-97.16	177.17	160	120	140	EV	EV	EV	UG	0	0	0



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1611	VCGCD-NW-000942 /	Victoria	28.8569	-97.144	170.6	138	115	135	EV	EV	EV	UG	0	0	0
1612	VCGCD-NW-000943 /	Victoria	28.8387	-97.176	164.04	165	120	160	EV	EV	EV	UG	0	0	0
1613	VCGCD-NW-000945 /	Victoria	28.9061	-97.008	131.23	170	145	165	EV	CH	CH	LI	1	1	0
1614	VCGCD-NW-000946 /	Victoria	28.7089	-97.095	98.43	145	118	138	CH	CH	CH	LI	0	0	0
1615	VCGCD-NW-000947 /	Victoria	28.9397	-97.009	144.36	200	180	200	EV	CH	CH	WI	1	1	0
1616	VCGCD-NW-000948 /	Victoria	28.9003	-97.054	118.11	170	140	160	EV	EV	EV	UG	0	0	0
1617	VCGCD-NW-000949 /	Victoria	28.905	-96.848	72.18	84	64	84	CH	CH	CH	BB	0	0	0
1618	VCGCD-NW-000950 /	Victoria	28.8639	-96.845	68.9	102	80	100	CH	CH	CH	LI	0	0	0
1619	VCGCD-NW-000951 /	Victoria	28.6128	-97.145	101.71	160	138	158	CH	CH	CH	LI	0	0	0
1620	VCGCD-NW-000952 /	Victoria	28.7174	-96.947	39.37	86	63	83	CH	CH	CH	LI	0	0	0
1621	VCGCD-NW-000953 /	Victoria	28.8886	-96.843	65.62	140	98	138	CH	CH	CH	LI	0	0	0
1622	VCGCD-NW-000954 /	Victoria	28.6625	-97.157	114.83	95	72	92	CH	CH	CH	LI	0	0	0
1623	VCGCD-NW-000956 /	Victoria	28.8297	-97.185	127.95	230	195	225	EV	EV	EV	UG	0	0	0
1624	VCGCD-NW-000958 /	Victoria	28.7164	-96.946	39.37	82	60	80	CH	CH	CH	LI	0	0	0
1625	VCGCD-NW-000959 /	Victoria	28.7436	-96.919	75.46	130	100	120	CH	CH	CH	LI	0	0	0
1626	VCGCD-GW-000178 /	Victoria	28.8896	-97.207	180.45				DP	DP	DP	DP	0	0	0
1627	VCGCD-NW-000960 /	Victoria	28.8642	-97.165	177.17	182	162	182	EV	EV	EV	UG	0	0	0
1628	VCGCD-NW-000961 /	Victoria	28.7989	-97.059	101.71	222	182	222	EV	CH	CH	WI	1	1	0
1629	VCGCD-NW-000962 /	Victoria	28.6678	-97.11	98.43	202	182	202	CH	CH	CH	WI	0	0	0
1630	VCGCD-NW-000963 /	Victoria	28.9115	-96.834	78.74	195	173	193	CH	CH	CH	LI	0	0	0
1631	VCGCD-NW-000964 /	Victoria	28.8078	-96.84	65.62	165	145	165	CH	CH	CH	LI	0	0	0
1632	VCGCD-NW-000965 /	Victoria	28.9447	-96.831	82.02	80	60	80	CH	CH	CH	BB	0	0	0
1633	VCGCD-NW-000966 /	Victoria	28.7592	-97.134	108.27	180	165	180	EV	EV	EV	UG	0	0	0
1634	VCGCD-NW-000967 /	Victoria	28.8842	-97.047	111.55	164	144	164	EV	CH	CH	WI	1	1	0
1635	VCGCD-NW-000968 /	Victoria	28.9253	-97.043	144.36	180	150	170	EV	CH	CH	WI	1	1	0
1636	VCGCD-NW-000969 /	Victoria	28.9378	-97.012	144.36	200	180	200	EV	CH	CH	WI	1	1	0
1637	VCGCD-NW-000970 /	Victoria	28.9447	-97.094	144.36	150	130	150	EV	EV	EV	UG	0	0	0

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1638	VCGCD-NW-000971 /	Victoria	29.0286	-96.888	104.99	160	140	150	CH	CH	CH	WI	0	0	0
1639	VCGCD-NW-000972 /	Victoria	28.8639	-97.118	134.51	220	200	220	EV	EV	EV	UG	0	0	0
1640	VCGCD-NW-000973 /	Victoria	28.7814	-97.104	118.11	105	80	100	CH	CH	CH	LI	0	0	0
1641	VCGCD-NW-000974 /	Victoria	28.8178	-97.062	108.27	160	120	130	EV	CH	CH	WI	1	1	0
1642	VCGCD-GW-000294 /	Victoria	28.8002	-97.168	114.83	100			EV	EV	EV	UG	0	0	0
1643	VCGCD-NW-000975 /	Victoria	28.8689	-96.862	78.74	100	78	98	CH	CH	CH	BB	0	0	0
1644	VCGCD-NW-000976 /	Victoria	28.9373	-97.013	141.08	220	175	195	EV	CH	CH	WI	1	1	0
1645	VCGCD-NW-000977 /	Victoria	28.7583	-96.912	72.18	180	158	178	CH	CH	CH	LI	0	0	0
1646	VCGCD-GW-000458 /	Victoria	28.6013	-97.154	104.99				DP	DP	DP	DP	0	0	0
1647	VCGCD-NW-000978 /	Victoria	28.9122	-96.835	82.02	86	66	86	CH	CH	CH	BB	0	0	0
1648	VCGCD-GW-000230 /	Victoria	28.8461	-97.075	91.86	280			EV	EV	EV	UG	0	0	0
1649	VCGCD-NW-000979 /	Victoria	28.8856	-97.048	114.83	72	44	64	CH	CH	CH	LI	0	0	0
1650	VCGCD-NW-000980 /	Victoria	28.9464	-97.091	144.36	128	108	128	EV	EV	CH	WI	0	1	1
1651	VCGCD-NW-000981 /	Victoria	28.8067	-97.074	118.11	210	185	205	EV	EV	CH	WI	0	1	1
1652	VCGCD-NW-000982 /	Victoria	29.0836	-96.968	177.17	172	132	172	CH	EV	CH	WI	1	0	1
1653	VCGCD-GW-000246 /	Victoria	28.8765	-97.033	108.27	286			EV	EV	EV	UG	0	0	0
1654	VCGCD-NW-000983 /	Victoria	28.8571	-97.157	177.17	150	125	135	EV	EV	EV	UG	0	0	0
1655	VCGCD-NW-000984 /	Victoria	28.916	-97.022	134.51	220	205	215	EV	CH	CH	WI	1	1	0
1656	VCGCD-NW-000985 /	Victoria	28.8383	-97.127	141.08	210	180	200	EV	EV	EV	UG	0	0	0
1657	VCGCD-NW-000986 /	Victoria	28.8341	-96.878	75.46	103	75	95	CH	CH	CH	LI	0	0	0
1658	VCGCD-NW-000987 /	Victoria	28.9583	-96.828	68.9	95	70	90	CH	CH	CH	LI	0	0	0
1659	VCGCD-NW-000988 /	Victoria	28.959	-96.819	65.62	95	65	85	CH	CH	CH	LI	0	0	0
1660	VCGCD-GW-000292 /	Victoria	28.8998	-96.846	68.9	138	126	135	CH	CH	CH	LI	0	0	0
1661	VCGCD-NW-000989 /	Victoria	28.8471	-96.721	39.37	88	68	88	CH	CH	CH	BB	0	0	0
1662	VCGCD-NW-000990 /	Victoria	28.9154	-97.023	134.51	227	210	220	EV	CH	CH	WI	1	1	0
1663	VCGCD-NW-000991 /	Victoria	28.6159	-97.044	82.02	97	87	97	CH	CH	CH	LI	0	0	0
1664	VCGCD-NW-000992 /	Victoria	28.8925	-96.805	59.06	100	80	100	CH	CH	CH	BB	0	0	0

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1665	VCGCD-NW-000993 /	Victoria	28.8421	-96.815	59.06	100	80	100	CH	CH	CH	BB	0	0	0
1666	VCGCD-GW-000257 / 72633	Victoria	28.7828	-97.046	72.18				DP	DP	DP	DP	0	0	0
1667	VCGCD-NW-000994 /	Victoria	28.8701	-97.249	164.04	180	160	170	EV	EV	EV	UG	0	0	0
1668	VCGCD-NW-000995 /	Victoria	28.934	-97.012	134.51	230	190	200	EV	CH	CH	WI	1	1	0
1669	VCGCD-NW-000996 /	Victoria	28.6437	-96.929	49.21	200	160	200	CH	CH	CH	LI	0	0	0
1670	VCGCD-NW-000997 /	Victoria	28.7313	-96.94	75.46	120	110	120	CH	CH	CH	LI	0	0	0
1671	VCGCD-GW-000514 /	Victoria	28.8631	-97.04	101.71				DP	DP	DP	DP	0	0	0
1672	VCGCD-NW-000998 /	Victoria	28.8838	-97.163	164.04	140	120	130	EV	EV	EV	UG	0	0	0
1673	VCGCD-GW-000750 /	Victoria	28.843	-96.81	55.77				DP	DP	DP	DP	0	0	0
1674	VCGCD-GW-000118 /	Victoria	28.8244	-97.151	147.64				DP	DP	DP	DP	0	0	0
1675	VCGCD-NW-000999 /	Victoria	28.8836	-97.163	167.32	140	120	130	EV	EV	EV	UG	0	0	0
1676	VCGCD-GW-000579 /	Victoria	28.6819	-96.841	52.49				DP	DP	DP	DP	0	0	0
1677	VCGCD-NW-001000 /	Victoria	28.905	-97.006	131.23	240	230	240	EV	CH	CH	WI	1	1	0
1678	VCGCD-NW-001001 /	Victoria	28.889	-96.837	68.9	125	100	110	CH	CH	CH	LI	0	0	0
1679	VCGCD-NW-001002 /	Victoria	28.8794	-96.874	88.58	90	70	90	CH	CH	CH	BB	0	0	0
1680	VCGCD-NW-001003 /	Victoria	28.8266	-96.745	32.81	60	45	60	CH	CH	CH	BB	0	0	0
1681	VCGCD-NW-001004 /	Victoria	28.8099	-96.812	52.49	210	190	210	CH	CH	CH	LI	0	0	0
1682	VCGCD-NW-001005 /	Victoria	28.8179	-96.852	68.9	105	85	105	CH	CH	CH	LI	0	0	0
1683	VCGCD-GW-000291 /	Victoria	28.9107	-96.854	88.58	140			CH	CH	CH	LI	0	0	0
1684	VCGCD-GW-000646 /	Victoria	28.9013	-96.926	108.27				DP	DP	DP	DP	0	0	0
1685	VCGCD-NW-001008 /	Victoria	28.8717	-97.181	187.01	165	155	165	EV	EV	EV	UG	0	0	0
1686	VCGCD-NW-001009 /	Victoria	28.9058	-97.006	134.51	185	170	180	CH	CH	CH	WI	0	0	0
1687	VCGCD-GW-000220 /	Victoria	28.8718	-96.84	65.62	47	47	47	CH	CH	CH	BB	0	0	0
1688	VCGCD-NW-001010 /	Victoria	28.9053	-97.005	131.23	185	165	175	CH	CH	CH	WI	0	0	0
1689	VCGCD-GW-000104 /	Victoria	28.8555	-97.174	164.04				DP	DP	DP	DP	0	0	0
1690	VCGCD-NW-001011 /	Victoria	28.808	-97.069	108.27	115	75	115	CH	CH	CH	LI	0	0	0
1691	VCGCD-NW-001012 /	Victoria	28.9474	-97.014	157.48	210	190	210	EV	CH	CH	WI	1	1	0

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1692	VCGCD-NW-001013 /	Victoria	28.9274	-97.018	141.08	198	176	196	EV	CH	CH	WI	1	1	0
1693	VCGCD-NW-001015 /	Victoria	28.9044	-97.025	134.51	175	135	175	EV	CH	CH	WI	1	1	0
1694	VCGCD-GW-000707 /	Victoria	28.6735	-96.843	55.77				DP	DP	DP	DP	0	0	0
1695	VCGCD-NW-001016 /	Victoria	28.905	-97.026	134.51	183	140	183	EV	CH	CH	WI	1	1	0
1696	VCGCD-NW-001017 /	Victoria	28.7481	-96.968	45.93	80	53	73	CH	CH	CH	LI	0	0	0
1697	VCGCD-NW-001018 /	Victoria	28.7634	-97.084	108.27	130	110	120	CH	CH	CH	LI	0	0	0
1698	VCGCD-NW-001019 /	Victoria	28.7773	-97.048	78.74	58	45	58	CH	CH	CH	LI	0	0	0
1699	VCGCD-NW-001020 /	Victoria	28.8161	-97.164	131.23	167	150	160	EV	EV	EV	UG	0	0	0
1700	VCGCD-NW-001021 /	Victoria	28.8021	-97.056	88.58	200	180	190	EV	CH	CH	WI	1	1	0
1701	VCGCD-NW-001022 /	Victoria	28.8594	-97.183	147.64	115	95	115	EV	EV	EV	UG	0	0	0
1702	VCGCD-NW-001023 /	Victoria	28.9326	-96.829	85.3	150	130	150	CH	CH	CH	LI	0	0	0
1703	VCGCD-NW-001025 /	Victoria	28.8962	-96.779	59.06	220	180	220	CH	CH	CH	LI	0	0	0
1704	VCGCD-NW-001026 /	Victoria	28.8453	-96.892	88.58	90	70	90	CH	CH	CH	LI	0	0	0
1705	VCGCD-NW-001027 /	Victoria	28.8392	-96.899	91.86	125	105	125	CH	CH	CH	LI	0	0	0
1706	VCGCD-NW-001028 /	Victoria	28.8455	-96.891	88.58	90	70	90	CH	CH	CH	BB	0	0	0
1707	VCGCD-NW-001029 /	Victoria	28.8629	-97.156	180.45	145	125	145	EV	EV	EV	UG	0	0	0
1708	VCGCD-NW-001030 /	Victoria	28.8813	-97.049	108.27	58	48	58	CH	CH	CH	LI	0	0	0
1709	VCGCD-NW-001031 /	Victoria	28.7675	-97.116	104.99	167	150	160	EV	CH	CH	WI	1	1	0
1710	VCGCD-NW-001032 /	Victoria	28.9002	-96.793	62.34	90	70	90	CH	CH	CH	BB	0	0	0
1711	VCGCD-NW-001033 /	Victoria	28.8375	-97.179	167.32	143	117	137	EV	EV	EV	UG	0	0	0
1712	VCGCD-NW-001034 /	Victoria	28.5831	-96.999	62.34	80	70	80	CH	CH	CH	LI	0	0	0
1713	VCGCD-NW-001035 /	Victoria	28.7582	-97.135	108.27	159	140	159	EV	EV	EV	UG	0	0	0
1714	VCGCD-NW-001036 /	Victoria	28.8303	-97.07	101.71	275	220	260	EV	EV	EV	UG	0	0	0
1715	VCGCD-NW-001037 /	Victoria	28.9703	-97.063	180.45	215	160	200	EV	EV	EV	UG	0	0	0
1716	VCGCD-NW-001038 /	Victoria	28.8499	-96.881	78.74	107	90	100	CH	CH	CH	LI	0	0	0
1717	VCGCD-NW-001039 /	Victoria	28.7559	-97.156	111.55	187	160	172	EV	EV	EV	UG	0	0	0
1718	VCGCD-NW-001040 /	Victoria	28.8581	-97.162	183.73	160	120	160	EV	EV	EV	UG	0	0	0

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1719	VCGCD-NW-001041 /	Victoria	28.6633	-97.141	108.27	200	140	200	EV	CH	CH	WI	1	1	0
1720	VCGCD-GW-000020 /	Victoria	28.9111	-96.892	88.58	440			EV	CH	EV	UG	1	0	1
1721	VCGCD-NW-001042 /	Victoria	28.6887	-97.132	104.99	182	162	182	EV	CH	CH	WI	1	1	0
1722	VCGCD-NW-001043 /	Victoria	28.7962	-96.81	55.77	190	180	190	CH	CH	CH	LI	0	0	0
1723	VCGCD-NW-001044 /	Victoria	28.8514	-96.87	65.62	140	116	130	CH	CH	CH	LI	0	0	0
1724	VCGCD-NW-001045 /	Victoria	28.861	-96.818	59.06	130	110	130	CH	CH	CH	LI	0	0	0
1725	VCGCD-NW-001046 /	Victoria	28.933	-97.02	147.64	104	80	100	CH	CH	CH	LI	0	0	0
1726	VCGCD-NW-001047 /	Victoria	28.9405	-97.012	147.64	205	185	203	EV	CH	CH	WI	1	1	0
1727	VCGCD-NW-001048 /	Victoria	28.6959	-97.118	101.71	75	55	75	CH	CH	CH	LI	0	0	0
1728	VCGCD-NW-001049 /	Victoria	28.6969	-97.116	101.71	75	55	75	CH	CH	CH	LI	0	0	0
1729	VCGCD-GW-000134 /	Victoria	28.7645	-97.135	111.55				DP	DP	DP	DP	0	0	0
1730	VCGCD-NW-001051 /	Victoria	28.7289	-96.715	29.53	170	150	170	CH	CH	CH	LI	0	0	0
1731	VCGCD-NW-001052 /	Victoria	28.9303	-96.827	82.02	88	68	88	CH	CH	CH	BB	0	0	0
1732	VCGCD-NW-001053 /	Victoria	28.8764	-96.95	114.83	80	65	80	CH	CH	CH	LI	0	0	0
1733	VCGCD-NW-001054 /	Victoria	28.8108	-97.158	124.67	155	135	155	EV	EV	EV	UG	0	0	0
1734	VCGCD-NW-001055 /	Victoria	28.933	-97.025	147.64	185	175	185	EV	CH	CH	WI	1	1	0
1735	VCGCD-NW-001056 /	Victoria	28.9529	-96.835	75.46	78	58	78	CH	CH	CH	BB	0	0	0
1736	VCGCD-NW-001057 /	Victoria	28.679	-96.826	49.21	215	175	215	CH	CH	CH	LI	0	0	0
1737	VCGCD-NW-001058 /	Victoria	28.7442	-96.841	52.49	138	118	138	CH	CH	CH	LI	0	0	0
1738	VCGCD-GW-000031 /	Victoria	28.8302	-96.816	55.77				DP	DP	DP	DP	0	0	0
1739	VCGCD-NW-001059 /	Victoria	28.9139	-97.001	127.95	244	224	244	EV	CH	CH	WI	1	1	0
1740	VCGCD-NW-001060 /	Victoria	28.748	-97.066	88.58	154	134	154	CH	CH	CH	LI	0	0	0
1741	VCGCD-NW-001061 /	Victoria	28.9097	-97.201	180.45	160	135	160	EV	EV	EV	UG	0	0	0
1742	VCGCD-NW-001062 /	Victoria	28.7143	-97.087	95.14	130	110	130	CH	CH	CH	LI	0	0	0
1743	VCGCD-GW-000380 /	Victoria	28.7772	-97.017	49.21	220			CH	CH	CH	WI	0	0	0
1744	VCGCD-GW-000043 /	Victoria	28.7241	-97.143	101.71	65			CH	CH	CH	LI	0	0	0
1745	VCGCD-GW-000676 /	Victoria	28.6567	-97.033	59.06				DP	DP	DP	DP	0	0	0

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1746	VCGCD-GW-000641 /	Victoria	28.9154	-96.914	101.71				DP	DP	DP	DP	0	0	0
1747	VCGCD-GW-000262 / 254683	Victoria	28.8472	-97.022	95.14				DP	DP	DP	DP	0	0	0
1748	VCGCD-NW-001063 /	Victoria	28.9127	-97.001	127.95	286	260	280	EV	EV	CH	WI	0	1	1
1749	VCGCD-NW-001064 /	Victoria	28.6732	-97.139	108.27	98	78	98	CH	CH	CH	LI	0	0	0
1750	VCGCD-NW-001065 /	Victoria	28.8631	-97.273	203.41	200	160	200	EV	EV	EV	LG	0	0	0
1751	VCGCD-NW-001066 /	Victoria	28.9081	-97.004	134.51	100	90	100	CH	CH	CH	LI	0	0	0
1752	VCGCD-GW-000167 /	Victoria	28.7616	-97.143	118.11				DP	DP	DP	DP	0	0	0
1753	VCGCD-GW-000391 /	Victoria	28.8152	-97.072	114.83				DP	DP	DP	DP	0	0	0
1754	VCGCD-GW-000180 /	Victoria	28.7143	-96.839	49.21				DP	DP	DP	DP	0	0	0
1755	VCGCD-NW-001067 /	Victoria	28.9032	-96.789	62.34	104	84	104	CH	CH	CH	BB	0	0	0
1756	VCGCD-NW-001068 /	Victoria	28.9044	-96.816	68.9	87	67	87	CH	CH	CH	BB	0	0	0
1757	VCGCD-NW-001069 /	Victoria	28.9225	-97.095	131.23	250	230	250	EV	EV	EV	UG	0	0	0
1758	VCGCD-GW-000645 /	Victoria	28.8944	-96.931	114.83				DP	DP	DP	DP	0	0	0
1759	VCGCD-NW-001070 /	Victoria	28.8997	-96.794	59.06	90	80	90	CH	CH	CH	BB	0	0	0
1760	VCGCD-NW-001071 /	Victoria	28.8611	-96.82	59.06	135	115	135	CH	CH	CH	LI	0	0	0
1761	VCGCD-GW-000437 /	Victoria	28.6706	-96.938	62.34	107	28	8	CH	CH	CH	LI	0	0	0
1762	VCGCD-GW-000208 /	Victoria	28.9121	-97.188	164.04	196			EV	EV	EV	UG	0	0	0
1763	VCGCD-GW-000362 /	Victoria	28.9035	-96.787	62.34	50	50	50	CH	CH	CH	BB	0	0	0
1764	VCGCD-GW-000549 /	Victoria	28.7808	-97.15	131.23				DP	DP	DP	DP	0	0	0
1765	VCGCD-GW-000818 /	Victoria	28.6729	-96.938	62.34				DP	DP	DP	DP	0	0	0
1766	VCGCD-GW-000520 /	Victoria	28.8658	-97.037	108.27				DP	DP	DP	DP	0	0	0
1767	VCGCD-NW-001072 /	Victoria	28.7287	-96.715	29.53	170	150	170	CH	CH	CH	LI	0	0	0
1768	VCGCD-NW-001073 /	Victoria	28.8897	-96.766	55.77	128	108	128	CH	CH	CH	LI	0	0	0
1769	VCGCD-NW-001074 /	Victoria	28.8562	-97.163	187.01	155	135	155	EV	EV	EV	UG	0	0	0
1770	VCGCD-NW-001075 /	Victoria	28.8467	-97.167	183.73	150	130	150	EV	EV	EV	UG	0	0	0
1771	VCGCD-GW-000285 /	Victoria	28.9088	-97.021	131.23				DP	DP	DP	DP	0	0	0



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1772	VCGCD-NW-001076 /	Victoria	29.0053	-96.872	101.71	155	135	155	CH	CH	CH	LI	0	0	0
1773	VCGCD-NW-001077 /	Victoria	28.8035	-97.076	118.11	145	125	145	CH	CH	CH	LI	0	0	0
1774	VCGCD-NW-001078 /	Victoria	28.906	-97.006	134.51	180	170	180	CH	CH	CH	WI	0	0	0
1775	VCGCD-NW-001079 /	Victoria	28.919	-97.022	137.8	150	140	150	CH	CH	CH	LI	0	0	0
1776	VCGCD-NW-001080 /	Victoria	28.918	-97.031	131.23	106	86	106	CH	CH	CH	LI	0	0	0
1777	VCGCD-NW-001081 /	Victoria	28.8853	-97.041	114.83	175	155	175	EV	CH	CH	WI	1	1	0
1778	VCGCD-NW-001082 /	Victoria	28.8017	-96.895	78.74	105	85	105	CH	CH	CH	LI	0	0	0
1779	VCGCD-GW-000232 /	Victoria	28.925	-97.207	187.01				DP	DP	DP	DP	0	0	0
1780	VCGCD-NW-001083 /	Victoria	28.8557	-97.126	137.8	160	140	160	EV	EV	EV	UG	0	0	0
1781	VCGCD-NW-001084 /	Victoria	28.8595	-96.819	59.06	118	108	118	CH	CH	CH	LI	0	0	0
1782	VCGCD-NW-001085 /	Victoria	28.7912	-97.067	101.71	120	110	120	CH	CH	CH	LI	0	0	0
1783	VCGCD-NW-001086 /	Victoria	28.757	-97.136	108.27	160	138	158	EV	EV	EV	UG	0	0	0
1784	VCGCD-NW-001087 /	Victoria	28.9022	-97.056	118.11	165	155	165	EV	EV	EV	UG	0	0	0
1785	VCGCD-NW-001088 /	Victoria	29.0717	-96.984	183.73	260	220	260	EV	EV	EV	UG	0	0	0
1786	VCGCD-NW-001089 /	Victoria	28.8801	-96.875	88.58	90	70	90	CH	CH	CH	BB	0	0	0
1787	VCGCD-NW-001090 /	Victoria	28.9355	-97	134.51	235	195	235	EV	CH	CH	WI	1	1	0
1788	VCGCD-NW-001091 /	Victoria	28.8376	-96.857	62.34	95	55	95	CH	CH	CH	LI	0	0	0
1789	VCGCD-NW-001092 /	Victoria	28.7803	-97.085	108.27	125	82	122	CH	CH	CH	LI	0	0	0
1790	VCGCD-NW-001093 /	Victoria	28.8586	-97.174	180.45	180	128	160	EV	EV	EV	UG	0	0	0
1791	VCGCD-NW-001094 /	Victoria	28.6633	-97.123	104.99	170	145	165	CH	CH	CH	WI	0	0	0
1792	VCGCD-NW-001095 /	Victoria	28.7914	-96.781	49.21	90	64	84	CH	CH	CH	BB	0	0	0
1793	VCGCD-NW-001096 /	Victoria	28.8614	-96.819	59.06	118	98	118	CH	CH	CH	LI	0	0	0
1794	VCGCD-NW-001097 /	Victoria	28.9044	-97.023	134.51	190	170	190	EV	CH	CH	WI	1	1	0
1795	VCGCD-NW-001098 /	Victoria	28.8761	-96.9	91.86	104	84	104	CH	CH	CH	LI	0	0	0
1796	VCGCD-NW-001099 /	Victoria	28.6717	-97.073	91.86	140	110	140	CH	CH	CH	LI	0	0	0
1797	VCGCD-NW-001100 /	Victoria	28.7396	-97.062	82.02	220	160	220	CH	CH	CH	WI	0	0	0
1798	VCGCD-NW-001101 /	Victoria	28.852	-96.889	82.02	75	55	75	CH	CH	CH	BB	0	0	0

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1799	VCGCD-NW-001102 /	Victoria	28.7275	-97.049	75.46	102	81	91	CH	CH	CH	LI	0	0	0
1800	VCGCD-GW-000438 /	Victoria	28.6712	-96.939	62.34	132	54	34	CH	CH	CH	LI	0	0	0
1801	VCGCD-NW-001103 /	Victoria	28.9067	-96.871	72.18	160	150	160	CH	CH	CH	LI	0	0	0
1802	VCGCD-NW-001104 /	Victoria	28.5939	-97.076	82.02	115	95	115	CH	CH	CH	LI	0	0	0
1803	VCGCD-NW-001105 /	Victoria	28.8361	-97.129	141.08	172	152	172	EV	EV	EV	UG	0	0	0
1804	VCGCD-NW-001106 /	Victoria	28.8216	-97.093	131.23	240	200	240	EV	EV	EV	UG	0	0	0
1805	VCGCD-NW-001107 /	Victoria	28.8033	-97.079	118.11	280	240	280	EV	EV	EV	UG	0	0	0
1806	VCGCD-NW-001108 /	Victoria	28.9311	-96.828	85.3	86	66	86	CH	CH	CH	BB	0	0	0
1807	VCGCD-GW-000026 /	Victoria	28.817	-96.887	72.18				DP	DP	DP	DP	0	0	0
1808	VCGCD-NW-001109 /	Victoria	28.6968	-97.116	101.71	78	58	78	CH	CH	CH	LI	0	0	0
1809	VCGCD-NW-001110 /	Victoria	28.8007	-96.835	62.34	95	75	95	CH	CH	CH	LI	0	0	0
1810	VCGCD-NW-001111 /	Victoria	28.8561	-97.163	187.01	138	118	138	EV	EV	EV	UG	0	0	0
1811	VCGCD-NW-001112 /	Victoria	28.8911	-96.765	55.77	90	70	90	CH	CH	CH	BB	0	0	0
1812	VCGCD-GW-000974 /	Victoria	28.8971	-97.015	131.23				DP	DP	DP	DP	0	0	0
1813	VCGCD-GW-000358 /	Victoria	28.9362	-97.114	150.92				DP	DP	DP	DP	0	0	0
1814	VCGCD-GW-000448 /	Victoria	28.6729	-96.938	62.34	116	46	26	CH	CH	CH	LI	0	0	0
1815	VCGCD-GW-000757 /	Victoria	28.8074	-97.073	114.83				DP	DP	DP	DP	0	0	0
1816	VCGCD-NW-001113 /	Victoria	28.9636	-96.831	78.74	195	175	195	CH	CH	CH	LI	0	0	0
1817	VCGCD-NW-001114 /	Victoria	28.6954	-97.164	114.83	182	162	182	EV	CH	EV	UG	1	0	1
1818	VCGCD-NW-001115 /	Victoria	28.717	-96.743	36.09	100	80	100	CH	CH	CH	BB	0	0	0
1819	VCGCD-NW-001116 /	Victoria	28.6264	-97.029	78.74	175	90	175	CH	CH	CH	LI	0	0	0
1820	VCGCD-NW-001118 /	Victoria	28.7824	-96.897	75.46	143	126	143	CH	CH	CH	LI	0	0	0
1821	VCGCD-NW-001119 /	Victoria	28.9436	-97.011	147.64	200	180	200	EV	CH	CH	WI	1	1	0
1822	VCGCD-NW-001120 /	Victoria	28.9084	-97.026	134.51	160	140	160	EV	CH	CH	LI	1	1	0
1823	VCGCD-GW-000002 /	Victoria	28.7089	-97.145	91.86	110			CH	CH	CH	WI	0	0	0
1824	VCGCD-NW-001121 /	Victoria	28.8851	-97.222	193.57	180	150	180	EV	EV	EV	UG	0	0	0
1825	VCGCD-NW-001122 /	Victoria	28.8994	-97.212	200.13	190	170	190	EV	EV	EV	UG	0	0	0

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1826	VCGCD-NW-001123 /	Victoria	28.6482	-96.913	59.06	78	67	78	CH	CH	CH	BB	0	0	0
1827	VCGCD-GW-000004 /	Victoria	28.7049	-97.15	108.27	108			CH	CH	CH	WI	0	0	0
1828	VCGCD-NW-001124 /	Victoria	28.8499	-96.816	59.06	150	130	150	CH	CH	CH	LI	0	0	0
1829	VCGCD-GW-000853 / 183923	Victoria	28.675	-96.952	68.9				DP	DP	DP	DP	0	0	0
1830	VCGCD-GW-000509 /	Victoria	28.9295	-97.093	144.36				DP	DP	DP	DP	0	0	0
1831	VCGCD-NW-001126 /	Victoria	28.7971	-96.834	62.34	94	74	94	CH	CH	CH	LI	0	0	0
1832	VCGCD-NW-001127 /	Victoria	28.754	-97.14	111.55	140	100	140	EV	EV	CH	WI	0	1	1
1833	VCGCD-NW-001128 /	Victoria	28.8608	-96.821	59.06	155	135	155	CH	CH	CH	LI	0	0	0
1834	VCGCD-NW-001129 /	Victoria	28.744	-96.885	62.34	105	85	105	CH	CH	CH	LI	0	0	0
1835	VCGCD-GW-000924 /	Victoria	28.6654	-96.961	59.06				DP	DP	DP	DP	0	0	0
1836	VCGCD-GW-000216 /	Victoria	28.8712	-96.85	72.18	56	56	56	CH	CH	CH	BB	0	0	0
1837	VCGCD-GW-000692 /	Victoria	28.8969	-96.995	127.95				DP	DP	DP	DP	0	0	0
1838	VCGCD-GW-000748 /	Victoria	28.8615	-97.264	200.13	140	120		EV	EV	EV	UG	0	0	0
1839	VCGCD-NW-001130 /	Victoria	28.8861	-96.832	68.9	118	98	118	CH	CH	CH	LI	0	0	0
1840	VCGCD-NW-001131 /	Victoria	28.8604	-96.825	59.06	120	100	120	CH	CH	CH	LI	0	0	0
1841	VCGCD-NW-001132 /	Victoria	28.8605	-96.824	59.06	105	85	105	CH	CH	CH	BB	0	0	0
1842	VCGCD-NW-001133 /	Victoria	28.773	-96.917	75.46	100	80	100	CH	CH	CH	LI	0	0	0
1843	VCGCD-NW-001134 /	Victoria	28.7503	-96.832	55.77	120	80	120	CH	CH	CH	LI	0	0	0
1844	VCGCD-NW-001135 /	Victoria	28.9326	-97.024	147.64	183	163	183	EV	CH	CH	WI	1	1	0
1845	VCGCD-NW-001136 /	Victoria	28.8791	-96.877	88.58	96	76	96	CH	CH	CH	BB	0	0	0
1846	VCGCD-NW-001137 /	Victoria	28.759	-97.154	111.55	190	170	190	EV	EV	EV	UG	0	0	0
1847	VCGCD-NW-001138 /	Victoria	28.9358	-97.011	141.08	135	110	130	CH	CH	CH	LI	0	0	0
1848	VCGCD-NW-001139 /	Victoria	28.8589	-97.268	190.29	200	160	200	EV	EV	EV	LG	0	0	0
1849	VCGCD-NW-001140 /	Victoria	28.8857	-96.845	72.18	62	42	62	CH	CH	CH	BB	0	0	0
1850	VCGCD-GW-000024 /	Victoria	28.813	-96.898	78.74				DP	DP	DP	DP	0	0	0
1851	VCGCD-GW-000086 /	Victoria	28.8051	-97.146	134.51	100			EV	EV	EV	UG	0	0	0
1852	VCGCD-AW-5 /	Victoria	28.8594	-96.982	111.55				DP	DP	DP	DP	0	0	0

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1853	VCGCD-GW-000393 /	Victoria	28.8216	-97.076	124.67	77			CH	CH	CH	LI	0	0	0
1854	VCGCD-GW-000156 /	Victoria	28.7639	-97.128	111.55				DP	DP	DP	DP	0	0	0
1855	VCGCD-GW-000777 /	Victoria	28.6663	-96.962	65.62				DP	DP	DP	DP	0	0	0
1856	VCGCD-GW-000336 /	Victoria	28.6585	-97.042	52.49				DP	DP	DP	DP	0	0	0
1857	VCGCD-GW-000667 /	Victoria	28.9073	-96.942	118.11				DP	DP	DP	DP	0	0	0
1858	VCGCD-GW-000873 / 183782	Victoria	28.6728	-96.952	68.9				DP	DP	DP	DP	0	0	0
1859	VCGCD-GW-000836 / 183918	Victoria	28.6735	-96.951	68.9				DP	DP	DP	DP	0	0	0
1860	VCGCD-GW-000237 /	Victoria	28.6825	-96.886	52.49				DP	DP	DP	DP	0	0	0
1861	VCGCD-GW-000094 /	Victoria	28.8628	-97.105	127.95				DP	DP	DP	DP	0	0	0
1862	VCGCD-GW-000828 /	Victoria	28.6702	-96.95	68.9				DP	DP	DP	DP	0	0	0
1863	VCGCD-GW-000621 /	Victoria	28.9218	-97.077	141.08				DP	DP	DP	DP	0	0	0
1864	VCGCD- R1GW-000212 /	Victoria	29.0339	-96.891	104.99	125	110	125	CH	CH	CH	LI	0	0	0
1865	VCGCD-GW-000539 /	Victoria	28.8688	-97.193	190.29				DP	DP	DP	DP	0	0	0
1866	VCGCD-GW-000892 /	Victoria	28.6698	-96.937	62.34				DP	DP	DP	DP	0	0	0
1867	VCGCD-GW-000808 /	Victoria	28.8906	-97.07	111.55				DP	DP	DP	DP	0	0	0
1868	VCGCD-GW-000783 /	Victoria	28.893	-97.089	104.99				DP	DP	DP	DP	0	0	0
1869	VCGCD-GW-000442 /	Victoria	28.6717	-96.939	62.34	129	54	34	CH	CH	CH	LI	0	0	0
1870	VCGCD-GW-000753 /	Victoria	28.8636	-97.158	180.45				DP	DP	DP	DP	0	0	0
1871	VCGCD-GW-000299 /	Victoria	28.777	-97.079	91.86				DP	DP	DP	DP	0	0	0
1872	VCGCD-GW-000048 /	Victoria	28.8661	-97.099	82.02				DP	DP	DP	DP	0	0	0
1873	VCGCD-GW-000062 /	Victoria	28.769	-97.129	111.55				DP	DP	DP	DP	0	0	0
1874	VCGCD- R1GW-000748 /	Victoria	28.8612	-97.265	200.13	229	187	227	EV	EV	EV	LG	0	0	0
1875	VCGCD-GW-000483 /	Victoria	28.6731	-96.939	62.34	36	34	54	CH	CH	CH	BB	0	0	0
1876	VCGCD- R1GW-000390 / 395744	Victoria	28.8219	-97.073	114.83	280	234	274	EV	EV	EV	UG	0	0	0
1877	VCGCD-GW-000774 /	Victoria	28.6641	-96.954	62.34				DP	DP	DP	DP	0	0	0

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1878	VCGCD-GW-000661 /	Victoria	28.8693	-96.951	111.55				DP	DP	DP	DP	0	0	0
1879	VCGCD-GW-000721 /	Victoria	28.7112	-96.941	42.65				DP	DP	DP	DP	0	0	0
1880	VCGCD-GW-000965 /	Victoria	28.8441	-97.023	78.74				DP	DP	DP	DP	0	0	0
1881	VCGCD-GW-000314 /	Victoria	28.6784	-96.953	65.62	1062			EV	EV	EV	UG	0	0	0
1882	VCGCD-GW-000313 /	Victoria	28.9041	-96.79	62.34	165			CH	CH	CH	LI	0	0	0
1883	VCGCD-GW-000078 /	Victoria	28.736	-97.063	65.62				DP	DP	DP	DP	0	0	0
1884	VCGCD-GW-000487 /	Victoria	28.8944	-97.183	180.45				DP	DP	DP	DP	0	0	0
1885	VCGCD-GW-000456 /	Victoria	28.6658	-96.961	62.34	98	16	26	CH	CH	CH	LI	0	0	0
1886	VCGCD-GW-000211 /	Victoria	28.8826	-97.211	177.17	134			EV	EV	EV	UG	0	0	0
1887	VCGCD-GW-000067 /	Victoria	28.7742	-97.118	114.83				DP	DP	DP	DP	0	0	0
1888	VCGCD-GW-000329 /	Victoria	28.8198	-97.076	121.39	160	120	140	EV	CH	CH	WI	1	1	0
1889	VCGCD-GW-000242 /	Victoria	28.7876	-97.013	52.49	1121	365	845	EV	EV	EV	LG	0	0	0
1890	VCGCD-GW-000289 /	Victoria	28.8175	-97.144	144.36				DP	DP	DP	DP	0	0	0
1891	VCGCD-GW-000561 /	Victoria	28.8881	-96.897	95.14	1125			EV	EV	EV	LG	0	0	0
1892	VCGCD-GW-000225 /	Victoria	28.7219	-96.879	62.34	80			CH	CH	CH	LI	0	0	0
1893	VCGCD-R1GW-000751 /	Victoria	28.908	-97.007	134.51	190	170	180	CH	CH	CH	WI	0	0	0
1894	VCGCD-GW-000521 /	Victoria	28.9015	-96.994	127.95				DP	DP	DP	DP	0	0	0
1895	VCGCD-GW-000130 /	Victoria	28.846	-97.082	114.83				DP	DP	DP	DP	0	0	0
1896	VCGCD-GW-000334 /	Victoria	28.7675	-96.942	78.74				DP	DP	DP	DP	0	0	0
1897	VCGCD-GW-000754 /	Victoria	28.8001	-96.801	55.77	1000	300	700	EV	EV	EV	UG	0	0	0
1898	VCGCD-R1GW-000575 /	Victoria	29.0758	-96.982	183.73	205	180	200	EV	EV	CH	WI	0	1	1
1899	VCGCD-GW-000536 /	Victoria	28.8734	-97.187	187.01				DP	DP	DP	DP	0	0	0
1900	VCGCD-GW-000272 /	Victoria	28.8439	-96.882	82.02				DP	DP	DP	DP	0	0	0
1901	VCGCD-GW-000695 /	Victoria	28.8049	-96.816	59.06				DP	DP	DP	DP	0	0	0
1902	VCGCD-GW-000347 /	Victoria	28.944	-97.152	121.39				DP	DP	DP	DP	0	0	0
1903	VCGCD-GW-000117 /	Victoria	28.8211	-97.153	141.08				DP	DP	DP	DP	0	0	0
1904	VCGCD-GW-000287 /	Victoria	28.823	-97.137	131.23				DP	DP	DP	DP	0	0	0

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1905	VCGCD-GW-000238 /	Victoria	28.7846	-97.043	59.06				DP	DP	DP	DP	0	0	0
1906	VCGCD-R1GW-000799 /	Victoria	28.774	-97.046	52.49	105	85	105	CH	CH	CH	LI	0	0	0
1907	VCGCD-GW-000109 /	Victoria	28.8254	-97.154	147.64				DP	DP	DP	DP	0	0	0
1908	VCGCD-GW-000398 /	Victoria	28.8154	-97.072	114.83				DP	DP	DP	DP	0	0	0
1909	VCGCD-GW-000202 /	Victoria	28.6845	-97.024	26.25				DP	DP	DP	DP	0	0	0
1910	VCGCD-GW-000103 /	Victoria	28.7278	-96.717	32.81				DP	DP	DP	DP	0	0	0
1911	VCGCD-GW-000834 /	Victoria	28.6668	-96.96	65.62				DP	DP	DP	DP	0	0	0
1912	VCGCD-GW-000112 /	Victoria	28.8721	-97.284	209.97				DP	DP	DP	DP	0	0	0
1913	VCGCD-GW-000353 /	Victoria	28.9463	-97.133	154.2				DP	DP	DP	DP	0	0	0
1914	VCGCD-GW-000251 /	Victoria	28.9024	-97.18	177.17				DP	DP	DP	DP	0	0	0
1915	VCGCD-R1GW-000753 /	Victoria	28.8636	-97.159	180.45	172	140	170	EV	EV	EV	UG	0	0	0
1916	VCGCD-GW-000786 /	Victoria	28.8991	-97.078	118.11	100			EV	EV	CH	WI	0	1	1
1917	VCGCD-GW-000875 /	Victoria	28.6674	-96.961	65.62				DP	DP	DP	DP	0	0	0
1918	VCGCD-R1GW-000624 /	Victoria	28.9011	-97.013	131.23	140	110	130	CH	CH	CH	LI	0	0	0
1919	VCGCD-GW-000019 / 66255	Victoria	28.9736	-97.15	144.36	160			EV	EV	EV	UG	0	0	0
1920	VCGCD-GW-000025 /	Victoria	28.8198	-96.895	75.46				DP	DP	DP	DP	0	0	0
1921	VCGCD-GW-000018 /	Victoria	28.8225	-97.076	124.67	118	77	117	CH	CH	CH	LI	0	0	0
1922	VCGCD-GW-000027 /	Victoria	28.8258	-96.889	75.46				DP	DP	DP	DP	0	0	0
1923	VCGCD-GW-000016 /	Victoria	28.8152	-97.07	111.55	98			CH	CH	CH	LI	0	0	0
1924	VCGCD-GW-000961 /	Victoria	28.8856	-97.074	104.99	53	40	50	CH	CH	CH	LI	0	0	0
1925	RGCD-NW-00008 /	Victoria	28.8511	-97.039	91.86	128			CH	CH	CH	WI	0	0	0
1926	TXGCD-GW-00410 / 802904	Victoria	28.9112	-96.772	55				DP	DP	DP	DP	0	0	0
1927	VCGCD-GW-000021 / 6657801	Victoria	29.041	-96.918	128	100			CH	CH	CH	LI	0	0	0
1928	CCGCD-GW-00003 /	Victoria	28.5705	-96.753	35	75			CH	CH	CH	BB	0	0	0
1929	CCGCD-NW-00009 /	Victoria	28.4215	-96.622	9.84	235	217	235	CH	CH	CH	LI	0	0	0
1930	CCGCD-NW-00043 / 535939	Victoria	28.4264	-96.622	9.84	240	220	240	CH	CH	CH	LI	0	0	0



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1931	TXGCD-NW-00487-East UB-DAMW /	Victoria	28.6861	-96.357	9.84				DP	DP	DP	DP	0	0	0
1932	TXGCD-NW-00488-East LF-DAMW /	Victoria	28.6861	-96.357	9.84				DP	DP	DP	DP	0	0	0
1933	TXGCD-NW-00489-Center UB-DAMW /	Victoria	28.6858	-96.373	6.56				DP	DP	DP	DP	0	0	0
1934	TXGCD-NW-00490-Center LF-DAMW /	Victoria	28.6854	-96.374	6.56				DP	DP	DP	DP	0	0	0
1935	TXGCD-NW-00491-West UB-DAMW /	Victoria	28.6849	-96.39	9.84				DP	DP	DP	DP	0	0	0
1936	TXGCD-NW-00492-West LF-DAMW /	Victoria	28.6848	-96.391	9.84				DP	DP	DP	DP	0	0	0
1937	VCGCD-GW-001016 /	Victoria	28.9125	-97.2	180.45				DP	DP	DP	DP	0	0	0
1938	VCGCD-GW-000028 / 8010401	Victoria	28.8284	-96.833	66	654			EV	EV	EV	UG	0	0	0
1939	VCGCD-GW-001010 /	Victoria	28.9108	-97.196	150.92	190			EV	EV	EV	UG	0	0	0
1940	PVGCD-INTERA-1011 /	Victoria	29.3522	-97.214	403.54				DP	DP	DP	DP	0	0	0
1941	PVGCD-INTERA-1012 /	Victoria	29.156	-97.156	288.71				DP	DP	DP	DP	0	0	0
1942	PVGCD-INTERA-1013 /	Victoria	29.1314	-97.209	213.25				DP	DP	DP	DP	0	0	0
1943	PVGCD-INTERA-1014 /	Victoria	29.0186	-97.256	252.62				DP	DP	DP	DP	0	0	0
1944	PVGCD-INTERA-1015 /	Victoria	29.0274	-97.223	187.01				DP	DP	DP	DP	0	0	0
1945	PVGCD-INTERA-1016 /	Victoria	29.0169	-97.203	177.17				DP	DP	DP	DP	0	0	0
1946	CCGCD-NW-00033 / 507156	Victoria	28.6452	-96.355	6.56	560	540	550	CH	CH	CH	LI	0	0	0
1947	VCGCD-GW-000713 / 7915902	Victoria	28.7597	-97.146	128	298	278	298	EV	EV	EV	UG	0	0	0
1948	RGCD-GW-00419 /	Victoria	28.4752	-96.915	40	60			CH	CH	CH	BB	0	0	0
1949	RGCD-NW-00340 / 8033203	Victoria	28.4931	-96.939	45	150			CH	CH	CH	LI	0	0	0
1950	VCGCD-GW-000484 /	Victoria	28.932	-97.075	135	109			EV	EV	CH	LI	0	1	1
1951	VCGCD-GW-000789 /	Victoria	28.8994	-97.082	122	287	140	160	EV	EV	EV	UG	0	0	0
1952	VCGCD-GW-000791 /	Victoria	28.8942	-97.084	122	287			EV	EV	EV	UG	0	0	0

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1953	VCGCD-GW-000803 /	Victoria	28.8959	-97.083	122	287	128	148	EV	EV	EV	UG	0	0	0
1954	VCGCD-GW-000190 /	Victoria	28.8536	-97.138	187	65			CH	EV	CH	LI	1	0	1
1955	VCGCD-GW-000620 / 6657903	Victoria	29.0196	-96.883	111				DP	DP	DP	DP	0	0	0
1956	TXGCD-GW-00417 / 8014405	Victoria	28.7997	-96.345	25	370			CH	CH	CH	LI	0	0	0
1957	TXGCD-GW-00292 / 8004403	Victoria	28.9523	-96.601	59	681	222	679	EV	EV	EV	UG	0	0	0
1958	TXGCD-GW-00290 / 8005102	Victoria	28.9882	-96.489	60	410	162	410	CH	CH	CH	LI	0	0	0
1959	TXGCD-GW-00354 / 8005502	Victoria	28.9516	-96.424	56	345	77	342	CH	CH	CH	LI	0	0	0
1960	TXGCD-GW-00323 / 8005701	Victoria	28.905	-96.499	49	429	120	429	CH	CH	CH	LI	0	0	0
1961	TXGCD-GW-00299 / 8011301	Victoria	28.8666	-96.626	33	1050	60	365	EV	EV	EV	UG	0	0	0
1962	TXGCD-GW-00284 / 8011502	Victoria	28.8308	-96.683	41	400			CH	CH	CH	LI	0	0	0
1963	RGCD-GW-00417 /	Victoria	28.5056	-97.024	78	2343			BU	EV	EV	UL	1	1	0
1964	TXGCD-GW-00120 / 8021204	Victoria	28.7223	-96.444	20	590	428	578	CH	CH	CH	LI	0	0	0
1965	CCGCD-GW-00012 / 8035704	Victoria	28.4133	-96.713	10	341	160	330	CH	CH	CH	LI	0	0	0
1966	VCGCD-GW-000212 /	Victoria	29.0337	-96.893	110	137			CH	CH	CH	LI	0	0	0
1967	VCGCD-GW-000310 / 8018404	Victoria	28.7112	-96.897	64	305			CH	CH	CH	LI	0	0	0
1968	VCGCD-NW-000116 /	Victoria	28.6936	-96.899	64	305	240	280	CH	CH	CH	LI	0	0	0
1969	VCGCD-GW-000617 / 7907305	Victoria	28.9619	-97.138	163	419			EV	EV	EV	UG	0	0	0
1970	VCGCD-GW-000700 /	Victoria	28.9282	-97.109	145	80			CH	EV	CH	LI	1	0	1
1971	VCGCD-GW-000192 / 8018103	Victoria	28.7146	-96.837	52	120			CH	CH	CH	LI	0	0	0
1972	VCGCD-GW-000610 / 7923601	Victoria	28.6856	-97.15	114	115	105	115	CH	CH	CH	WI	0	0	0

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1973	VCGCD-GW-000612 / 7924702	Victoria	28.6575	-97.118	107	180	160	180	CH	CH	CH	LI	0	0	0
1974	VCGCD-GW-000616 / 8018401	Victoria	28.6711	-96.855	57	450	202	444	CH	CH	CH	WI	0	0	0
1975	VCGCD-GW-000767 /	Victoria	28.6711	-96.855	57	450			CH	CH	CH	WI	0	0	0
1976	RGCD-GW-00370 / 8042507	Victoria	28.3253	-96.792	18				DP	DP	DP	DP	0	0	0
1977	TXGCD-GW-00195 /	Victoria	29.0002	-96.538	54				DP	DP	DP	DP	0	0	0
1978	VCGCD-GW-000489 / 8018402	Victoria	28.6737	-96.844	56	336			CH	CH	CH	LI	0	0	0
1979	VCGCD-GW-000824 /	Victoria	28.6738	-96.845	56	336			CH	CH	CH	LI	0	0	0
1980	VCGCD-NW-000944 /	Victoria	28.6738	-96.845	56	336	198	208	CH	CH	CH	LI	0	0	0
1981	VCGCD-NW-001006 /	Victoria	28.6732	-96.846	56	336	100	160	CH	CH	CH	LI	0	0	0
1982	VCGCD-NW-001007 /	Victoria	28.6732	-96.846	56	440	400	440	CH	CH	CH	WI	0	0	0
1983	TXGCD-GW-00289 / 8006101	Victoria	28.9992	-96.362	65	550	85	550	CH	CH	CH	LI	0	0	0
1984	TXGCD-GW-00123 / 8021213	Victoria	28.7255	-96.448	22	490	415	476	CH	CH	CH	LI	0	0	0
1985	TXGCD-GW-00288 / 8004601	Victoria	28.9572	-96.504	54	378	112	378	CH	CH	CH	LI	0	0	0
1986	TXGCD-GW-00287 / 8004908	Victoria	28.9058	-96.53	49	82			CH	CH	CH	BB	0	0	0
1987	TXGCD-GW-00385 / 8012502	Victoria	28.8103	-96.548	36	330			CH	CH	CH	LI	0	0	0
1988	TXGCD-GW-00251 / 6661809	Victoria	29.0219	-96.44	64				DP	DP	DP	DP	0	0	0
1989	TXGCD-GW-00075 /	Victoria	28.7508	-96.509	27				DP	DP	DP	DP	0	0	0
1990	TXGCD-GW-00114 /	Victoria	28.6875	-96.388	11	140			CH	CH	CH	BB	0	0	0
1991	TXGCD-GW-00411 / 8002608	Victoria	28.9169	-96.758	61				DP	DP	DP	DP	0	0	0
1992	TXGCD-GW-00172 /	Victoria	28.8458	-96.677	44				DP	DP	DP	DP	0	0	0
1993	TXGCD-GW-00171 /	Victoria	28.8443	-96.687	44				DP	DP	DP	DP	0	0	0

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1994	TXGCD-GW-00409 / 8003704	Victoria	28.8992	-96.722	53				DP	DP	DP	DP	0	0	0
1995	VCGCD-GW-000510 / 7916608	Victoria	28.8206	-97.024	65	327	119	325	EV	EV	EV	UG	0	0	0
1996	VCGCD-GW-000927 /	Victoria	28.9866	-96.872	101	783			EV	EV	EV	UG	0	0	0
1997	TXGCD-GW-00305 /	Victoria	28.7201	-96.386	5	525	520	525	CH	CH	CH	LI	0	0	0
1998	CCGCD-GW-00013 / 8037601	Victoria	28.4406	-96.415	4	228			CH	CH	CH	BB	0	0	0
1999	TXGCD-GW-00247 / 6661808	Victoria	29.0133	-96.453	65				DP	DP	DP	DP	0	0	0
2000	CCGCD-GW-00009 / 8026501	Victoria	28.5492	-96.803	39	267	225	267	CH	CH	CH	LI	0	0	0
2001	CCGCD-GW-00011 / 8027601	Victoria	28.5567	-96.637	16	273	210	220	CH	CH	CH	LI	0	0	0
2002	RGCD-GW-00422 /	Victoria	28.3751	-96.905	22				DP	DP	DP	DP	0	0	0
2003	RGCD-GW-00439 / 8033901	Victoria	28.3751	-96.905	22				DP	DP	DP	DP	0	0	0
2004	VCGCD-GW-000948 / 7915301	Victoria	28.853	-97.162	150	150			EV	EV	EV	UG	0	0	0
2005	VCGCD-NW-001014 /	Victoria	28.8185	-97.109	147	205	190	200	EV	EV	EV	UG	0	0	0
2006	VCGCD-GW-000395 / 801906	Victoria	28.911	-96.875	80				DP	DP	DP	DP	0	0	0
2007	VCGCD-GW-000779 /	Victoria	28.977	-96.836	85				DP	DP	DP	DP	0	0	0
2008	VCGCD-GW-000780 /	Victoria	28.9789	-96.836	85	240	220	240	CH	CH	CH	LI	0	0	0
2009	VCGCD-GW-000942 /	Victoria	28.9899	-96.823	85	190	170	190	CH	CH	CH	LI	0	0	0
2010	TXGCD-GW-00412 / 6661810	Victoria	29.0122	-96.446	64				DP	DP	DP	DP	0	0	0
2011	VCGCD-GW-000943 /	Victoria	28.9834	-96.826	85				DP	DP	DP	DP	0	0	0
2012	VCGCD-GW-000944 /	Victoria	28.9839	-96.834	85	220	200	220	CH	CH	CH	LI	0	0	0
2013	CCGCD-GW-00001 /	Victoria	28.611	-96.659	19	175	160	175	CH	CH	CH	LI	0	0	0
2014	VCGCD-GW-000989 /	Victoria	28.7204	-96.873	59				DP	DP	DP	DP	0	0	0
2015	VCGCD-GW-000682 /	Victoria	28.8599	-96.925	115				DP	DP	DP	DP	0	0	0

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2016	VCGCD-GW-000590 / 809304	Victoria	28.8602	-96.911	103				DP	DP	DP	DP	0	0	0
2017	VCGCD-GW-000101 / 8019104	Victoria	28.7353	-96.717	31	180	160	180	CH	CH	CH	LI	0	0	0
2018	VCGCD-GW-000102 / 8019105	Victoria	28.7202	-96.714	22	170	150	170	CH	CH	CH	LI	0	0	0
2019	VCGCD-GW-000576 / 8002701	Victoria	28.8901	-96.837	71	100	72	84	CH	CH	CH	BB	0	0	0
2020	VCGCD-NW-000438 /	Victoria	28.8878	-96.838	71	126	104	124	CH	CH	CH	LI	0	0	0
2021	TXGCD-GW-00274 / 6660708	Victoria	29.0379	-96.621	61	38	28	38	CH	CH	CH	BB	0	0	0
2022	VCGCD-NW-000550 /	Victoria	28.8902	-96.837	71	100	66	86	CH	CH	CH	BB	0	0	0
2023	VCGCD-NW-000426 / 7907404	Victoria	28.9241	-97.219	205	371	300	360	EV	EV	EV	LG	0	0	0
2024	VCGCD-GW-000587 / 798405	Victoria	28.9233	-97.096	138				DP	DP	DP	DP	0	0	0
2025	VCGCD-GW-000271 / 7916203	Victoria	28.8454	-97.081	87				DP	DP	DP	DP	0	0	0
2026	VCGCD-GW-000591 / 809305	Victoria	28.8464	-96.908	101				DP	DP	DP	DP	0	0	0
2027	VCGCD-NW-000122 / 8017602	Victoria	28.6738	-96.915	61	140	118	138	CH	CH	CH	LI	0	0	0
2028	VCGCD-NW-000016 / 7907503	Victoria	28.9186	-97.206	160	250	210	250	EV	EV	EV	LG	0	0	0
2029	VCGCD-GW-000552 / 7907505	Victoria	28.9204	-97.185	161	112			EV	EV	EV	UG	0	0	0
2030	VCGCD-GW-000723 /	Victoria	28.825	-97.069	103	205	183	203	EV	EV	EV	UG	0	0	0
2031	VCGCD-GW-000150 / 8010502	Victoria	28.7992	-96.803	57	140			CH	CH	CH	LI	0	0	0
2032	TXGCD-GW-00416 / 6660709	Victoria	29.0405	-96.621	62	42			CH	CH	CH	BB	0	0	0
2033	VCGCD-GW-000967 /	Victoria	28.6745	-96.851	56	185			CH	CH	CH	LI	0	0	0
2034	VCGCD-GW-000970 /	Victoria	28.6744	-96.851	56	185			CH	CH	CH	LI	0	0	0

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2035	VCGCD-NW-000310 / 8018404	Victoria	28.6745	-96.848	56	185	40	50	CH	CH	CH	LI	0	0	0
2036	VCGCD-GW-000227 / 8018104	Victoria	28.713	-96.84	57				DP	DP	DP	DP	0	0	0
2037	VCGCD-NW-000779 /	Victoria	28.565	-96.996	65	190	150	190	CH	CH	CH	LI	0	0	0
2038	VCGCD-GW-000578 / 7908403	Victoria	28.9232	-97.097	139	100	90	100	EV	EV	CH	LI	0	1	1
2039	VCGCD-GW-000589 / 7908807	Victoria	28.8868	-97.072	88	220	195	220	EV	EV	EV	UG	0	0	0
2040	TXGCD-GW-000415 / 6660707	Victoria	29.033	-96.621	56	24	14	24	CH	CH	CH	BB	0	0	0
2041	VCGCD-GW-000588 / 7914304	Victoria	28.8644	-97.271	201				DP	DP	DP	DP	0	0	0
2042	VCGCD-GW-000722 / 7915905	Victoria	28.7599	-97.146	128	120			EV	CH	CH	WI	1	1	0
2043	TXGCD-GW-00281 / 6660205	Victoria	29.1061	-96.544	83	224	97	224	CH	CH	CH	LI	0	0	0
2044	VCGCD-GW-000158 / 7907504	Victoria	28.9199	-97.208	189				DP	DP	DP	DP	0	0	0
2045	VCGCD-NW-000425 / 8017603	Victoria	28.6752	-96.914	63	100	57	67	CH	CH	CH	LI	0	0	0
2046	VCGCD-GW-000687 / 7908406	Victoria	28.9222	-97.1	125	152	132	152	EV	EV	EV	UG	0	0	0
2047	RGCD-GW-00420 /	Victoria	28.4504	-96.867	33	907			EV	EV	EV	UG	0	0	0
2048	RGCD-GW-00421 /	Victoria	28.4501	-96.868	33	907			EV	EV	EV	UG	0	0	0
2049	RGCD-GW-00426 /	Victoria	28.1671	-97.208	7	900			EV	EV	EV	UG	0	0	0
2050	RGCD-NW-00277 / 201725	Victoria	28.1719	-97.209	7	900			EV	EV	EV	UG	0	0	0
2051	VCGCD-NW-000097 / 7907707	Victoria	28.901	-97.237	189	208	180	200	EV	EV	EV	UG	0	0	0
2052	TXGCD-GW-00073 /	Victoria	28.7576	-96.527	29				DP	DP	DP	DP	0	0	0
2053	TXGCD-GW-00113 /	Victoria	28.6874	-96.382	10	120			CH	CH	CH	BB	0	0	0
2054	TXGCD-GW-00394 /	Victoria	29.2005	-96.733	137	400			CH	EV	EV	UG	1	1	0



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2055	TXGCD-GW-00277 / 6660601	Victoria	29.0684	-96.531	72	61			CH	CH	CH	BB	0	0	0
2056	TXGCD-NW-00195 /	Victoria	28.9187	-96.739	56	330			CH	CH	CH	LI	0	0	0
2057	VCGCD-GW-000244 / 7916903	Victoria	28.7815	-97.01	50	770	420	755	EV	EV	EV	UG	0	0	0
2058	VCGCD-GW-000609 / 7923303	Victoria	28.7278	-97.144	100	194	174	194	EV	EV	EV	UG	0	0	0
2059	VCGCD-GW-000718 /	Victoria	28.9	-97.078	122	200	175	195	EV	EV	EV	UG	0	0	0
2060	VCGCD-GW-000494 / 7915305	Victoria	28.8585	-97.147	178	190	168	188	EV	EV	EV	UG	0	0	0
2061	VCGCD-GW-000955 /	Victoria	28.8578	-97.149	178	190			EV	EV	EV	UG	0	0	0
2062	VCGCD-GW-000189 / 7915306	Victoria	28.8637	-97.132	138	180			EV	EV	EV	UG	0	0	0
2063	VCGCD-NW-000165 / 7915306	Victoria	28.8656	-97.131	138	180	160	180	EV	EV	EV	UG	0	0	0
2064	VCGCD-GW-000047 / 7916102	Victoria	28.8748	-97.123	129	227	160	220	EV	EV	EV	UG	0	0	0
2065	VCGCD-NW-000333 / 7908903	Victoria	28.8831	-97.024	127	105	80	100	CH	CH	CH	LI	0	0	0
2066	TXGCD-GW-00300 /	Victoria	29.0195	-96.441	65	527			CH	CH	CH	WI	0	0	0
2067	VCGCD-NW-000030 / 7924802	Victoria	28.6367	-97.057	88	120	100	110	CH	CH	CH	LI	0	0	0
2068	RGCD-NW-00474 / 7939105	Victoria	28.4764	-97.212	87				DP	DP	DP	DP	0	0	0
2069	RGCD-GW-00438 /	Victoria	28.4287	-96.815	2	429			CH	CH	CH	LI	0	0	0
2070	RGCD-NW-00176 / 129804	Victoria	28.3242	-96.883	14	503			CH	CH	CH	LI	0	0	0
2071	RGCD-GW-00234 / 7932802	Victoria	28.528	-97.045	72	165	150	160	CH	CH	CH	LI	0	0	0
2072	TXGCD-GW-00298 / 8003803	Victoria	28.8962	-96.695	55	919		919	EV	EV	EV	UG	0	0	0
2073	TXGCD-GW-00320 / 8004101	Victoria	28.9866	-96.608	67	383	133	383	CH	CH	CH	LI	0	0	0
2074	VCGCD-GW-000599 / 7907703	Victoria	28.913	-97.21	220	170	160	170	EV	EV	EV	UG	0	0	0

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2075	VCGCD-GW-000611 / 7924102	Victoria	28.7125	-97.087	98	100	90	100	CH	CH	CH	LI	0	0	0
2076	VCGCD-NW-000681 /	Victoria	28.7406	-97.086	88	165	140	150	CH	CH	CH	WI	0	0	0
2077	TXGCD-GW-00279 / 6661407	Victoria	29.0628	-96.476	66	175			CH	CH	CH	LI	0	0	0
2078	VCGCD-NW-001050 /	Victoria	28.6965	-97.117	109	130	110	130	CH	CH	CH	LI	0	0	0
2079	CCGCD-GW-00010 / 8027501	Victoria	28.5808	-96.696	17	258			CH	CH	CH	LI	0	0	0
2080	TXGCD-GW-00119 / 8021214	Victoria	28.7212	-96.452	24	470	362	455	CH	CH	CH	LI	0	0	0
2081	VCGCD-GW-000595 / 8017801	Victoria	28.6382	-96.924	60	305			CH	CH	CH	LI	0	0	0
2082	VCGCD-GW-000159 / 797506	Victoria	28.92	-97.202	177				DP	DP	DP	DP	0	0	0
2083	VCGCD-GW-000577 / 7908404	Victoria	28.9238	-97.097	147	100	90	100	EV	EV	CH	LI	0	1	1
2084	VCGCD-GW-000138 / 798904	Victoria	28.9023	-97.006	137				DP	DP	DP	DP	0	0	0
2085	VCGCD-GW-000728 /	Jackson	28.9007	-96.995	137				DP	DP	DP	DP	0	0	0
2086	VCGCD-GW-000729 /	Jackson	28.901	-96.995	137				DP	DP	DP	DP	0	0	0
2087	VCGCD-NW-000580 /	Jackson	28.8964	-97.012	137	234	200	230	EV	CH	CH	WI	1	1	0
2088	RGCD-GW-00424 /	Jackson	28.3318	-97.367	86	55			CH	CH	CH	LI	0	0	0
2089	VCGCD-GW-000030 /	Jackson	28.8325	-96.821	64				DP	DP	DP	DP	0	0	0
2090	VCGCD-GW-000533 / 8010604	Jackson	28.8269	-96.757	45				DP	DP	DP	DP	0	0	0
2091	VCGCD-GW-000716 /	Jackson	28.724	-96.93	437				DP	DP	DP	DP	0	0	0
2092	VCGCD-GW-000181 / 8018105	Jackson	28.7119	-96.84	57				DP	DP	DP	DP	0	0	0
2093	VCGCD-GW-000492 / 8025401	Jackson	28.5505	-96.976	56				DP	DP	DP	DP	0	0	0
2094	VCGCD-GW-000583 / 7932903	Jackson	28.5208	-97.001	24				DP	DP	DP	DP	0	0	0

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2095	VCGCD-GW-000607 / 7908805	Jackson	28.8758	-97.048	111	169			EV	CH	CH	WI	1	1	0
2096	VCGCD-GW-000608 / 7915903	Jackson	28.759	-97.145	125	112	102	112	EV	CH	CH	WI	1	1	0
2097	RGCD-GW-00375 / 7931905	Jackson	28.5122	-97.141	85	200			CH	CH	CH	LI	0	0	0
2098	VCGCD-GW-000544 / 7907902	Jackson	28.893	-97.135	105	853	425	851	EV	EV	EV	LG	0	0	0
2099	RGCD-GW-00434 /	Jackson	28.1646	-97.272	35	6520			JA	DP	DP	DP	1	1	0
2100	RGCD-GW-00124 / 7931901	Jackson	28.5236	-97.134	91	946			EV	EV	EV	UG	0	0	0
2101	RGCD-GW-00427 /	Jackson	28.1981	-97.244	5	900			EV	EV	EV	UG	0	0	0
2102	RGCD-GW-00428 /	Jackson	28.1981	-97.244	5	900			EV	EV	EV	UG	0	0	0
2103	VCGCD-GW-000375 / 8017101	Jackson	28.7261	-96.966	37	703			EV	EV	EV	UG	0	0	0
2104	VCGCD-GW-000613 / 7932602	Jackson	28.5466	-97.006	63	798	185	798	EV	EV	EV	UG	0	0	0
2105	VCGCD-GW-000366 / 8002102	Jackson	28.9734	-96.855	95	791			EV	EV	EV	UG	0	0	0
2106	VCGCD-GW-000778 /	Jackson	28.9778	-96.856	95	366			EV	CH	CH	WI	1	1	0
2107	VCGCD-GW-000239 / 8010101	Jackson	28.8667	-96.861	78	990	270	880	EV	EV	EV	UG	0	0	0
2108	VCGCD-GW-000321 / 8017502	Jackson	28.6842	-96.949	67	1026			EV	EV	EV	UG	0	0	0
2109	VCGCD-GW-000364 / 8002101	Jackson	28.9981	-96.868	104	600			EV	EV	EV	UG	0	0	0
2110	RGCD-GW-00430 /	Jackson	28.3613	-97.352	87	108			CH	CH	CH	LI	0	0	0
2111	VCGCD-GW-000601 / 7916702	Jackson	28.7758	-97.087	103	588	427	588	EV	EV	EV	UG	0	0	0
2112	VCGCD-GW-000592 / 8011105	Jackson	28.8419	-96.743	49				DP	DP	DP	DP	0	0	0
2113	VCGCD-GW-000320 / 8017501	Jackson	28.6884	-96.943	68	1026			EV	EV	EV	UG	0	0	0
2114	/ 6541401	Jackson	29.2956	-95.987	86	90			CH	CH	CH	BB	0	0	0
2115	/ 6541402	Jackson	29.3036	-95.97	80	338	157	338	CH	CH	CH	LI	0	0	0

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2116	/ 6541707	Jackson	29.2761	-95.964	88	499	479	499	CH	CH	CH	WI	0	0	0
2117	/ 6541805	Jackson	29.2581	-95.95	75	90			CH	CH	CH	BB	0	0	0
2118	/ 6541807	Jackson	29.2636	-95.943	83	612	522	592	CH	CH	CH	WI	0	0	0
2119	/ 6541920	Jackson	29.2644	-95.902	75	475			CH	CH	CH	LI	0	0	0
2120	TXGCD - GW - 00077 /	Jackson	28.7572	-96.524	30				DP	DP	DP	DP	0	0	0
2121	/ 6549110	Jackson	29.2283	-95.978	79	525	427	517	CH	CH	CH	WI	0	0	0
2122	/ 6549111	Jackson	29.2281	-95.979	79	525	430	520	CH	CH	CH	WI	0	0	0
2123	/ 6549901	Jackson	29.1453	-95.893	58	375	300	355	CH	CH	CH	LI	0	0	0
2124	/ 6557802	Jackson	29.0281	-95.932	54	315	305	315	CH	CH	CH	BB	0	0	0
2125	/ 6604504	Jackson	29.9228	-96.553	389	184	164	184	SH	BU	SH	SH	1	0	1
2126	/ 6611509	Jackson	29.8153	-96.67	275	856	380	743	DP	JA	JA	OK	1	1	0
2127	/ 6611903	Jackson	29.7731	-96.654	297	92	70	90	EV	EV	BU	ML	0	1	1
2128	/ 6612204	Jackson	29.8673	-96.569	317	140			SH	SH	SH	SH	0	0	0
2129	/ 6612603	Jackson	29.8049	-96.536	298	188	158	188	EV	EV	EV	UL	0	0	0
2130	/ 6613805	Jackson	29.7508	-96.453	302	285	90	285	CH	EV	EV	LG	1	1	0
2131	TXGCD - GW - 00082 /	Jackson	28.7523	-96.547	29				DP	DP	DP	DP	0	0	0
2132	/ 6614403	Jackson	29.7944	-96.362	279	153	143	153	CH	CH	CH	WI	0	0	0
2133	/ 6614703	Jackson	29.7856	-96.365	266	90	63	71	CH	CH	CH	WI	0	0	0
2134	/ 6618601	Jackson	29.7017	-96.782	411	602	244	584	JA	JA	JA	LL	0	0	0
2135	/ 6618609	Jackson	29.7014	-96.777	403	803	309	782	JA	JA	JA	OK	0	0	0
2136	/ 6618612	Jackson	29.6928	-96.783	392	868	535	848	JA	JA	JA	OK	0	0	0
2137	/ 6619804	Jackson	29.6451	-96.687	349	140	100	140	CH	EV	EV	UL	1	1	0
2138	/ 6620307	Jackson	29.7117	-96.509	217	142	121	141	CH	EV	EV	LG	1	1	0
2139	/ 6620412	Jackson	29.6919	-96.591	248	202	160	180	EV	EV	EV	UL	0	0	0
2140	/ 6620602	Jackson	29.7054	-96.538	203	312	195	295	EV	EV	EV	UL	0	0	0
2141	TXGCD - NW - 00310 /	Jackson	29.0606	-96.758	90	124	104	124	CH	CH	CH	LI	0	0	0
2142	/ 6620608	Jackson	29.7056	-96.538	200	325	196	292	EV	EV	EV	UL	0	0	0
2143	/ 6620901	Jackson	29.6433	-96.531	246	800	211	780	BU	BU	BU	ML	0	0	0
2144	/ 6621201	Jackson	29.7431	-96.451	300	304	94	304	EV	EV	EV	LG	0	0	0
2145	/ 6621206	Jackson	29.7261	-96.424	279	318	298	317	EV	EV	EV	LG	0	0	0
2146	/ 6621404	Jackson	29.7058	-96.489	190	598	578	598	EV	EV	EV	UL	0	0	0
2147	/ 6621603	Jackson	29.6699	-96.396	239	812			EV	EV	EV	UL	0	0	0
2148	/ 6621902	Jackson	29.6517	-96.385	216	800			EV	EV	EV	UL	0	0	0
2149	/ 6621903	Jackson	29.6483	-96.4	220	504			EV	EV	EV	LG	0	0	0
2150	/ 6622201	Jackson	29.7269	-96.321	234	995			EV	EV	EV	UL	0	0	0
2151	/ 6622203	Jackson	29.7275	-96.325	225	216	180	210	CH	CH	CH	WI	0	0	0
2152	TXGCD - GW - 00276 / 6660401	Jackson	29.0633	-96.624	81	286	106	282	CH	CH	CH	LI	0	0	0
2153	/ 6622401	Jackson	29.6903	-96.374	231	812			EV	EV	EV	UL	0	0	0
2154	/ 6625103	Jackson	29.5997	-96.96	294	90			BU	BU	BU	ML	0	0	0
2155	/ 6625203	Jackson	29.6064	-96.938	325	287	239	258	JA	JA	JA	LL	0	0	0
2156	/ 6626102	Jackson	29.5886	-96.834	223	120	80	120	EV	EV	BU	ML	0	1	1
2157	/ 6626202	Jackson	29.5931	-96.832	260	126	105	126	EV	EV	BU	ML	0	1	1
2158	/ 6627905	Jackson	29.5194	-96.658	273	617	564	615	EV	EV	EV	UL	0	0	0
2159	/ 6628607	Jackson	29.5575	-96.507	210	604	394	584	EV	EV	EV	LG	0	0	0
2160	/ 6628608	Jackson	29.5572	-96.505	208	530	477	521	EV	EV	EV	LG	0	0	0
2161	/ 6628702	Jackson	29.5161	-96.585	255	565			EV	EV	EV	UL	0	0	0
2162	/ 6628804	Jackson	29.5314	-96.576	245	650			EV	EV	EV	UL	0	0	0

(a) ID	(b & c) GCD Name /SWN	(d) County	(e) Lat	(f) Long	(g) Datum (ft, msl)	(h) Well Depth (ft)	(i) Top Scr Depth (ft)	(j) Bot Scr Depth (ft)	(k) GMA 15 GAM	(l) GMA 15 & 16 GAM	(m) TWDB	(n) TWDB	(o) K.ne.L	(p) K.ne.M	(q) L.ne.M
2163	TXGCD - GW - 00366 / 6651903	Jackson	29.1494	-96.655	109	618	100	618	EV	EV	EV	UG	0	0	0
2164	TXGCD - GW - 00280 / 6660501	Jackson	29.0772	-96.559	77	200			CH	CH	CH	LI	0	0	0
2165	/ 6628902	Jackson	29.5078	-96.526	207	850			EV	EV	EV	UL	0	0	0
2166	/ 6629101	Jackson	29.6003	-96.496	222	608	208	608	EV	EV	EV	UL	0	0	0
2167	/ 6629401	Jackson	29.5664	-96.485	210	382	151	382	CH	EV	EV	UG	1	1	0
2168	/ 6629501	Jackson	29.5628	-96.428	181	90			CH	CH	CH	LI	0	0	0
2169	/ 6630101	Jackson	29.5917	-96.337	168	527	360	525	EV	EV	EV	UG	0	0	0
2170	/ 6630103	Jackson	29.5892	-96.374	187	490	190	490	EV	EV	EV	UG	0	0	0
2171	/ 6630104	Jackson	29.5886	-96.373	186	400			CH	EV	EV	UG	1	1	0
2172	/ 6631106	Jackson	29.5981	-96.238	160	900	269	900	EV	EV	EV	LG	0	0	0
2173	/ 6631107	Jackson	29.5986	-96.214	155	450			CH	EV	EV	UG	1	1	0
2174	/ 6631504	Jackson	29.5467	-96.184	142	178			CH	CH	CH	LI	0	0	0
2175	TXGCD - GW - 00278 / 6660613	Jackson	29.042	-96.513	64	850	730	850	EV	EV	EV	UG	0	0	0
2176	/ 6632402	Jackson	29.5503	-96.093	127	222			CH	CH	CH	LI	0	0	0
2177	/ 6632809	Jackson	29.5206	-96.062	121	320	230	320	CH	CH	CH	WI	0	0	0
2178	/ 6633407	Jackson	29.4242	-96.964	282	182	162	182	EV	EV	EV	UL	0	0	0
2179	/ 6633507	Jackson	29.4531	-96.937	273	620	300	600	JA	JA	JA	LL	0	0	0
2180	/ 6633510	Jackson	29.4527	-96.937	272	636	2	636	JA	JA	JA	LL	0	0	0
2181	/ 6633512	Jackson	29.44	-96.955	260	644	300	634	JA	JA	JA	LL	0	0	0
2182	/ 6633513	Jackson	29.4492	-96.924	280	998	493	978	JA	JA	JA	OK	0	0	0
2183	/ 6634201	Jackson	29.4673	-96.813	197	90	38	48	EV	EV	EV	LG	0	0	0
2184	/ 6634202	Jackson	29.4654	-96.819	210	90	51	61	EV	EV	EV	LG	0	0	0
2185	/ 6634207	Jackson	29.4803	-96.794	227	120	100	115	EV	EV	EV	LG	0	0	0
2186	TXGCD - GW - 00275 / 6660701	Jackson	29.0396	-96.622	73	63			CH	CH	CH	BB	0	0	0
2187	/ 6634803	Jackson	29.3814	-96.829	272	230	200	230	EV	EV	EV	UG	0	0	0
2188	/ 6634902	Jackson	29.3808	-96.784	160	90			EV	CH	CH	WI	1	1	0
2189	/ 6634903	Jackson	29.3792	-96.789	179	90			CH	CH	CH	WI	0	0	0
2190	/ 6635210	Jackson	29.4964	-96.671	280	237	207	237	CH	EV	EV	LG	1	1	0
2191	/ 6635901	Calhoun	29.3969	-96.665	211	840	100	840	EV	EV	EV	UL	0	0	0
2192	/ 6636902	Calhoun	29.3864	-96.51	158	100			CH	CH	CH	LI	0	0	0
2193	/ 6637601	Calhoun	29.4358	-96.412	166	200	42	158	CH	CH	CH	WI	0	0	0
2194	/ 6637607	Calhoun	29.4568	-96.417	163	318	100	318	CH	CH	CH	WI	0	0	0
2195	/ 6637608	Calhoun	29.4397	-96.398	151	336	197	315	CH	CH	CH	WI	0	0	0
2196	/ 6637614	Calhoun	29.4464	-96.398	157	360	188	345	CH	CH	CH	WI	0	0	0
2197	TXGCD - GW - 00244 /	Calhoun	29.0036	-96.444	60				DP	DP	DP	DP	0	0	0
2198	/ 6637615	Calhoun	29.4373	-96.413	160	90			CH	CH	CH	LI	0	0	0
2199	/ 6638105	Calhoun	29.4875	-96.336	148	320	290	320	CH	CH	CH	WI	0	0	0
2200	/ 6638106	Calhoun	29.4892	-96.341	156	250	240	250	CH	CH	CH	WI	0	0	0
2201	/ 6638201	Calhoun	29.4683	-96.311	155	408			CH	CH	CH	WI	0	0	0
2202	/ 6638202	Calhoun	29.4631	-96.31	155	90			CH	CH	CH	LI	0	0	0
2203	/ 6638301	Calhoun	29.4853	-96.272	154	288	100	288	CH	CH	CH	WI	0	0	0
2204	/ 6638302	Calhoun	29.49	-96.268	157	698	240	698	EV	EV	EV	LG	0	0	0
2205	/ 6638304	Calhoun	29.4625	-96.289	150	113	87	113	CH	CH	CH	LI	0	0	0
2206	/ 6638801	Calhoun	29.4031	-96.3	127	116	61	115	CH	CH	CH	LI	0	0	0

(a) ID	(b & c) GCD Name /SWN	(d) County	(e) Lat	(f) Long	(g) Datum (ft, msl)	(h) Well Depth (ft)	(i) Top Scr Depth (ft)	(j) Bot Scr Depth (ft)	(k) GMA 15 GAM	(l) GMA 15 & 16 GAM	(m) TWDB	(n) TWDB	(o) K.ne.L	(p) K.ne.M	(q) L.ne.M
2207	/ 6639106	Calhoun	29.4881	-96.221	146	90			CH	CH	CH	LI	0	0	0
2208	TXGCD - NW - 00144 /	Calhoun	28.6823	-96.388	10	190	100	190	CH	CH	CH	BB	0	0	0
2209	/ 6639701	Calhoun	29.3869	-96.223	119	214			CH	CH	CH	LI	0	0	0
2210	/ 6639801	Calhoun	29.3839	-96.184	118	300			CH	CH	CH	WI	0	0	0
2211	/ 6640401	Calhoun	29.4475	-96.114	110	442	157	442	CH	CH	CH	WI	0	0	0
2212	/ 6640505	Calhoun	29.4572	-96.074	113	90			CH	CH	CH	BB	0	0	0
2213	/ 6640803	Calhoun	29.3972	-96.075	101	312	232	303	CH	CH	CH	LI	0	0	0
2214	/ 6640902	Calhoun	29.4008	-96.027	98	94			CH	CH	CH	BB	0	0	0
2215	/ 6641202	Calhoun	29.3722	-96.955	219	333			EV	EV	BU	ML	0	1	1
2295	/ 6662309	Refugio	29.085	-96.271	84	421			CH	CH	CH	LI	0	0	0
2296	/ 6662313	Refugio	29.1186	-96.272	88	480	406	480	CH	CH	CH	LI	0	0	0
2297	/ 6662415	Refugio	29.0425	-96.358	72	458	158	458	CH	CH	CH	LI	0	0	0
2298	/ 6662603	Refugio	29.0703	-96.275	82	310			CH	CH	CH	LI	0	0	0
2299	/ 6662805	Refugio	29.0189	-96.307	62	398	252	398	CH	CH	CH	LI	0	0	0
2300	/ 6663105	Refugio	29.0933	-96.219	80	342	92	342	CH	CH	CH	LI	0	0	0
2301	/ 6663112	Refugio	29.0986	-96.224	84	90			CH	CH	CH	BB	0	0	0
2302	/ 6663504	Refugio	29.0472	-96.168	68	687	167	682	CH	CH	CH	WI	0	0	0
2303	/ 6663507	Refugio	29.0567	-96.208	68	90			CH	CH	CH	BB	0	0	0
2304	/ 6663508	Refugio	29.0569	-96.208	69	140			CH	CH	CH	BB	0	0	0
2305	/ 6663509	Refugio	29.0473	-96.17	68	688			CH	CH	CH	WI	0	0	0
2306	RGCD - GW - 00235 / 7946601	Refugio	28.3219	-97.29	64	525			EV	EV	EV	UG	0	0	0
2307	/ 6663605	Refugio	29.0772	-96.159	77	209	65	207	CH	CH	CH	BB	0	0	0
2308	/ 6663610	Refugio	29.063	-96.133	70	857			CH	EV	EV	UG	1	1	0
2309	/ 6664401	Refugio	29.055	-96.114	71	1057	317	1042	EV	EV	EV	UG	0	0	0
2310	/ 6731601	Refugio	29.5731	-97.149	403	364	260	350	DP	DP	JA	OK	0	1	1
2311	/ 6731604	Refugio	29.5515	-97.154	371	380			DP	DP	DP	DP	0	0	0
2312	/ 6731606	Refugio	29.5694	-97.15	384	350	180	325	DP	DP	DP	DP	0	0	0
2313	/ 6731610	Refugio	29.5692	-97.15	382	1051			DP	DP	DP	DP	0	0	0
2314	/ 6731612	Refugio	29.5486	-97.154	416	90			JA	JA	JA	OK	0	0	0
2315	/ 6732105	Refugio	29.6187	-97.104	452	265			DP	DP	DP	DP	0	0	0
2316	TXGCD - GW - 00452 /	Refugio	28.6887	-96.357	10	630			CH	CH	CH	LI	0	0	0
2317	/ 6732106	Refugio	29.6154	-97.102	434	275	235	275	DP	DP	DP	DP	0	0	0
2318	/ 6732201	Refugio	29.6136	-97.066	440	170	150	170	JA	JA	JA	OK	0	0	0
2319	/ 6732704	Refugio	29.5117	-97.095	424	130			JA	JA	JA	LL	0	0	0
2320	/ 6732903	Refugio	29.5304	-97.04	340	90			BU	JA	JA	LL	1	1	0
2321	/ 6739306	Refugio	29.4839	-97.149	418	100			JA	JA	JA	OK	0	0	0
2322	/ 6739507	Refugio	29.4227	-97.194	389	245	110	245	JA	JA	DP	DP	0	1	1
2323	/ 6739517	Refugio	29.4306	-97.17	360	988	770	988	DP	DP	DP	DP	0	0	0
2324	/ 6739518	Refugio	29.4489	-97.167	357	90			JA	JA	JA	OK	0	0	0
2325	/ 6739603	Refugio	29.4242	-97.129	303	150			JA	JA	JA	OK	0	0	0
2326	/ 6739605	Refugio	29.4322	-97.166	331	844	792	822	DP	JA	DP	DP	1	0	1
2327	TXGCD - GW - 00140 /	Refugio	28.7011	-96.356	12	520			CH	CH	CH	LI	0	0	0
2328	/ 6740301	Refugio	29.4832	-97.005	284	90			EV	BU	BU	ML	1	1	0
2329	/ 6740503	Refugio	29.4476	-97.056	360	320			JA	JA	JA	LL	0	0	0
2330	/ 6740504	Refugio	29.4482	-97.054	362	155	135	155	EV	JA	JA	LL	1	1	0
2331	/ 6740702	Refugio	29.3981	-97.1	340	90			BU	JA	JA	LL	1	1	0
2332	/ 6746409	Refugio	29.3036	-97.344	261	130	115	125	JA	JA	DP	DP	0	1	1
2333	/ 6746502	Refugio	29.3225	-97.312	215	132			JA	JA	DP	DP	0	1	1



(a) ID	(b & c) GCD Name /SWN	(d) County	(e) Lat	(f) Long	(g) Datum (ft, msl)	(h) Well Depth (ft)	(i) Top Scr Depth (ft)	(j) Bot Scr Depth (ft)	(k) GMA 15 GAM	(l) GMA 15 & 16 GAM	(m) TWDB	(n) TWDB	(o) K.ne.L	(p) K.ne.M	(q) L.ne.M
2334	/ 6746510	Refugio	29.3217	-97.313	214	90			JA	JA	JA	OK	0	0	0
2335	/ 6746605	Refugio	29.3108	-97.28	334	90			JA	JA	JA	OK	0	0	0
2336	/ 6746606	Refugio	29.2933	-97.263	347	140	110	130	JA	JA	JA	LL	0	0	0
2337	/ 6746607	Refugio	29.2925	-97.263	347	140			JA	JA	JA	LL	0	0	0

Calhoun County GCD = CCGCD    Refugio GCD = RGCD    Victoria County GCD = VCGCD  
Pecan Valley GCD = PVGCD    Texana GCD = TXGCD

## **APPENDIX 3A**

### **Selected Hydrographs for Measured and Modeled Water Levels**

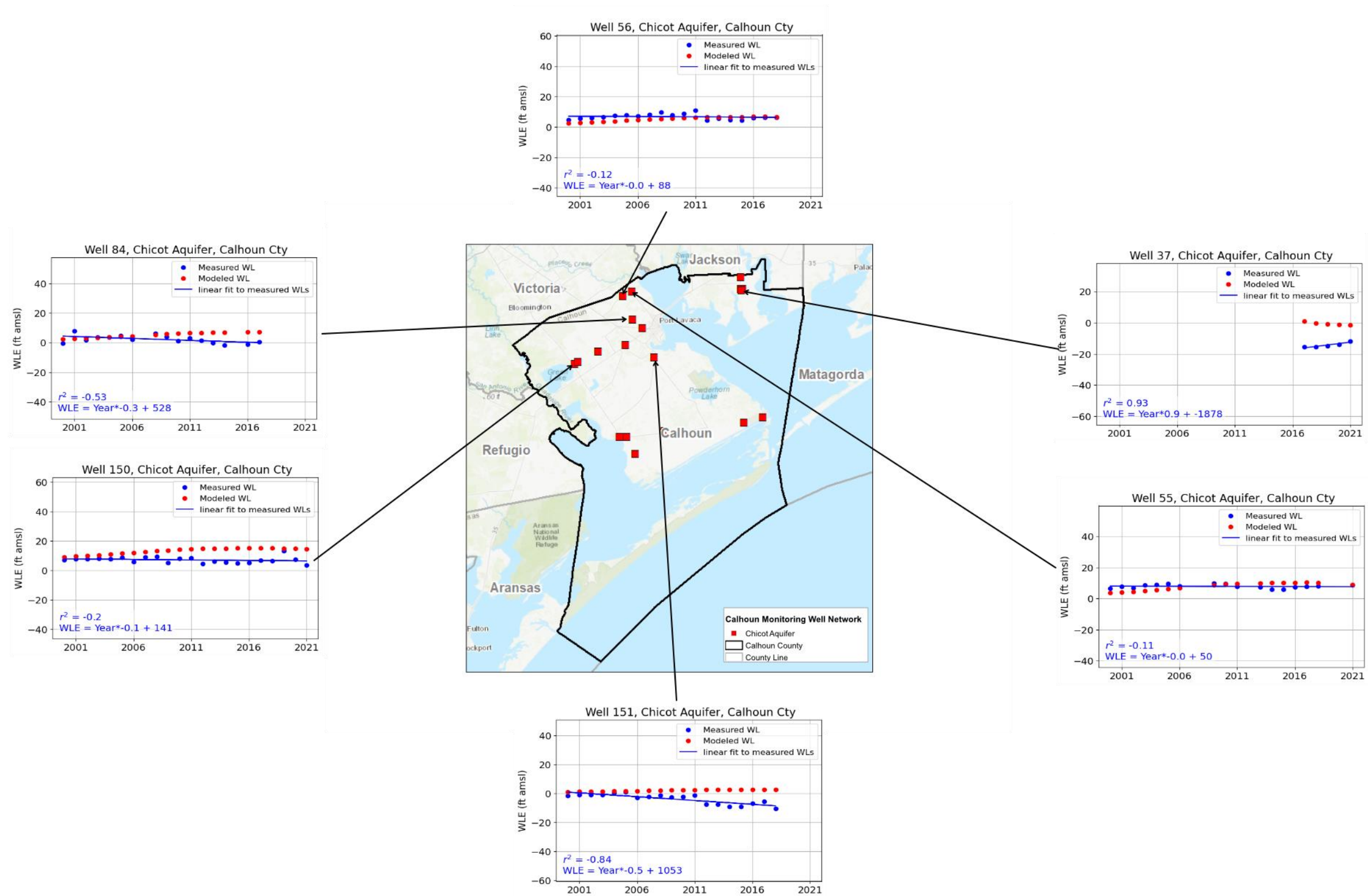


Figure 3A-1 Hydrographs for Chicot wells showing measured (blue points) and modeled (red points) water levels in Calhoun County. Modeled water levels were obtained from the Groundwater Available Model (GAM) developed for Groundwater Management Area (GMA) 15. A straight line (blue line) has been fitted to the measured water levels for reference. Measured values represent yearly averages.

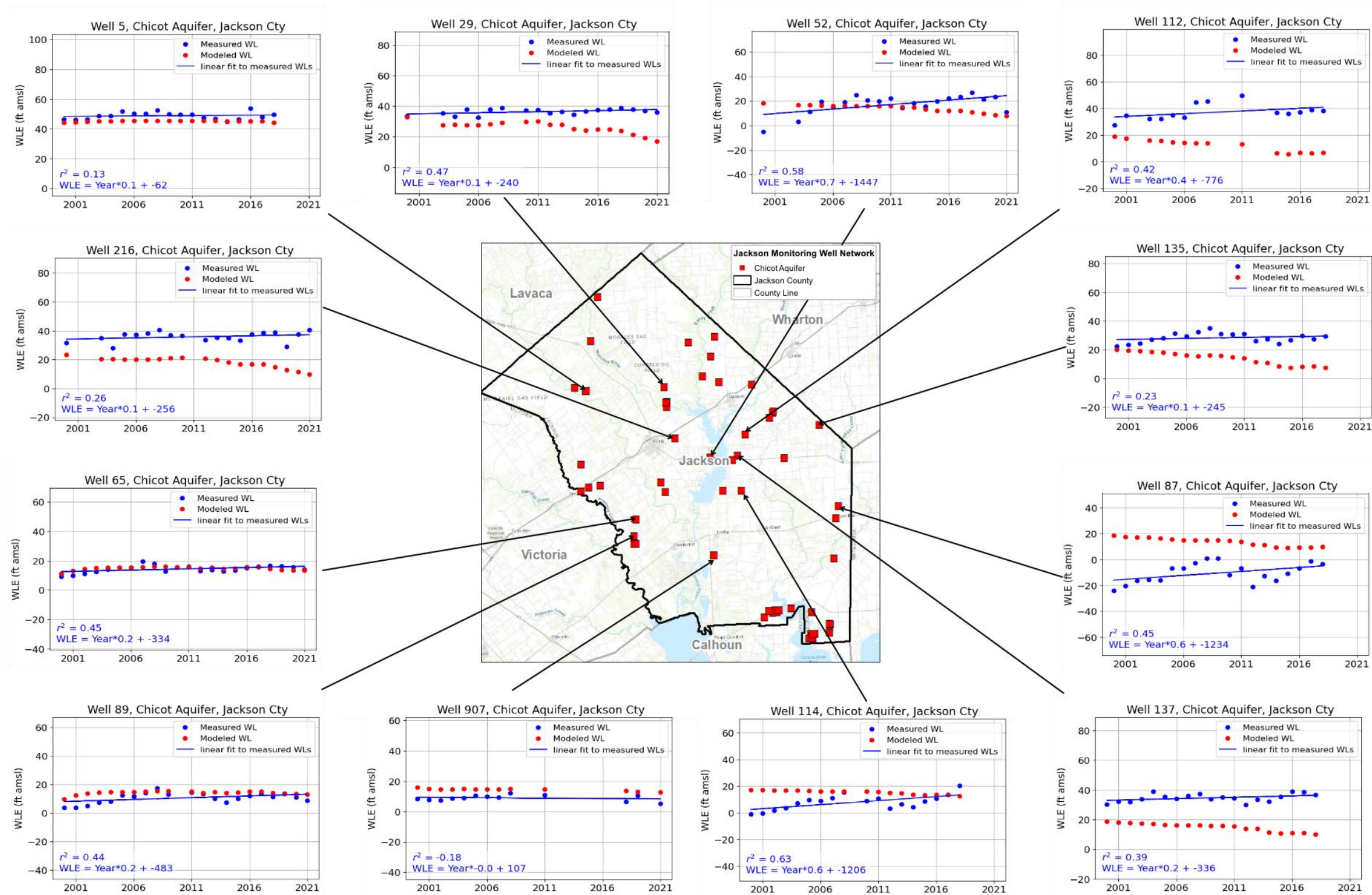


Figure 3A -2 Hydrographs for Chicot wells showing measured (blue points) and modeled (red points) water levels in Jackson County. Modeled water levels were obtained from the Groundwater Available Model (GAM) developed for Groundwater Management Area (GMA) 15. A straight line (blue line) has been fitted to the measured water levels for reference. Measured values represent an average for winter months.



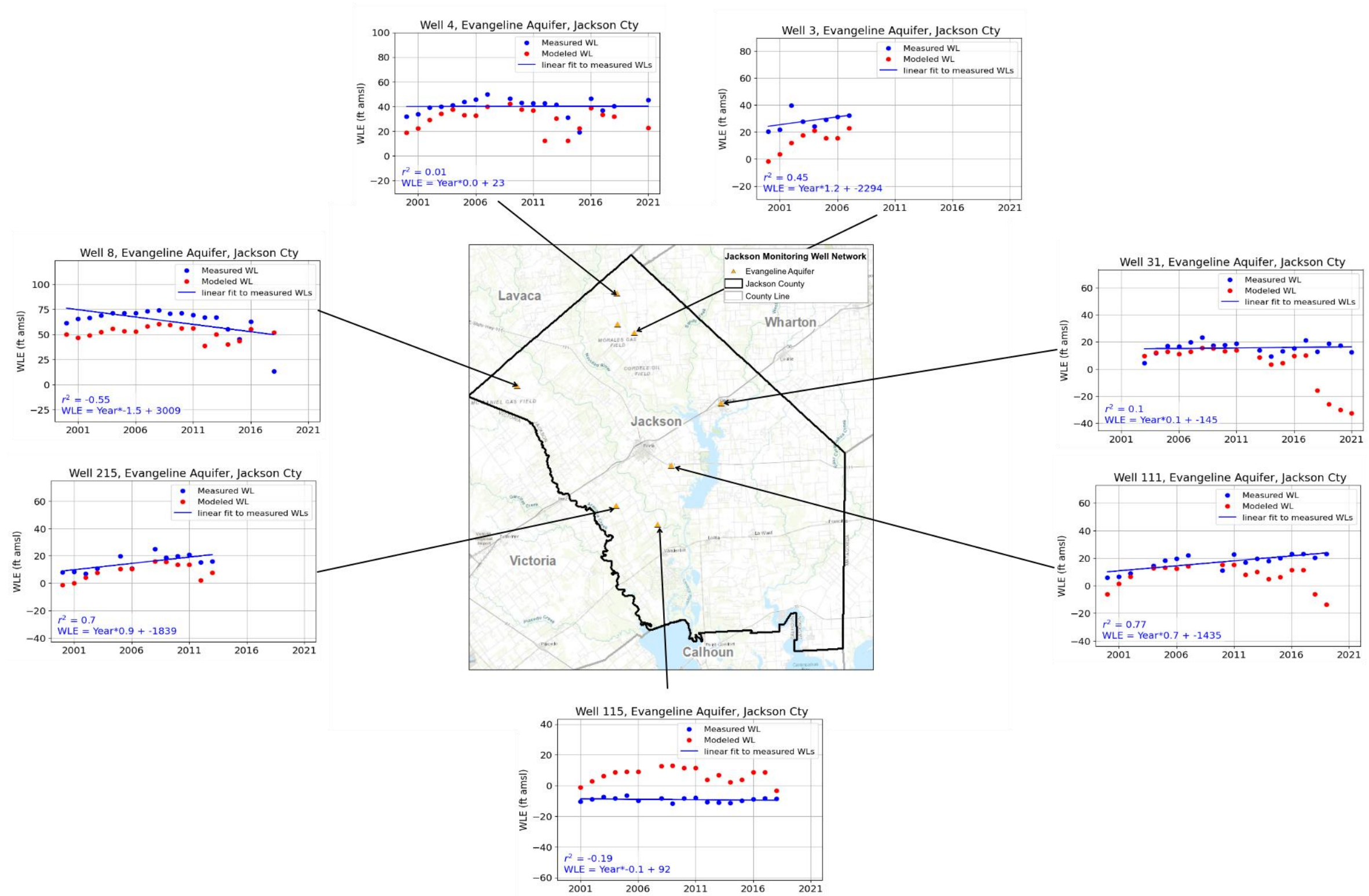


Figure 3A-3 Hydrographs for Evangeline wells showing measured (blue points) and modeled (red points) water levels in Jackson County. Modeled water levels were obtained from the Groundwater Available Model (GAM) developed for Groundwater Management Area (GMA) 15. A straight line (blue line) has been fitted to the measured water levels for reference. Measured values represent an average for winter months.

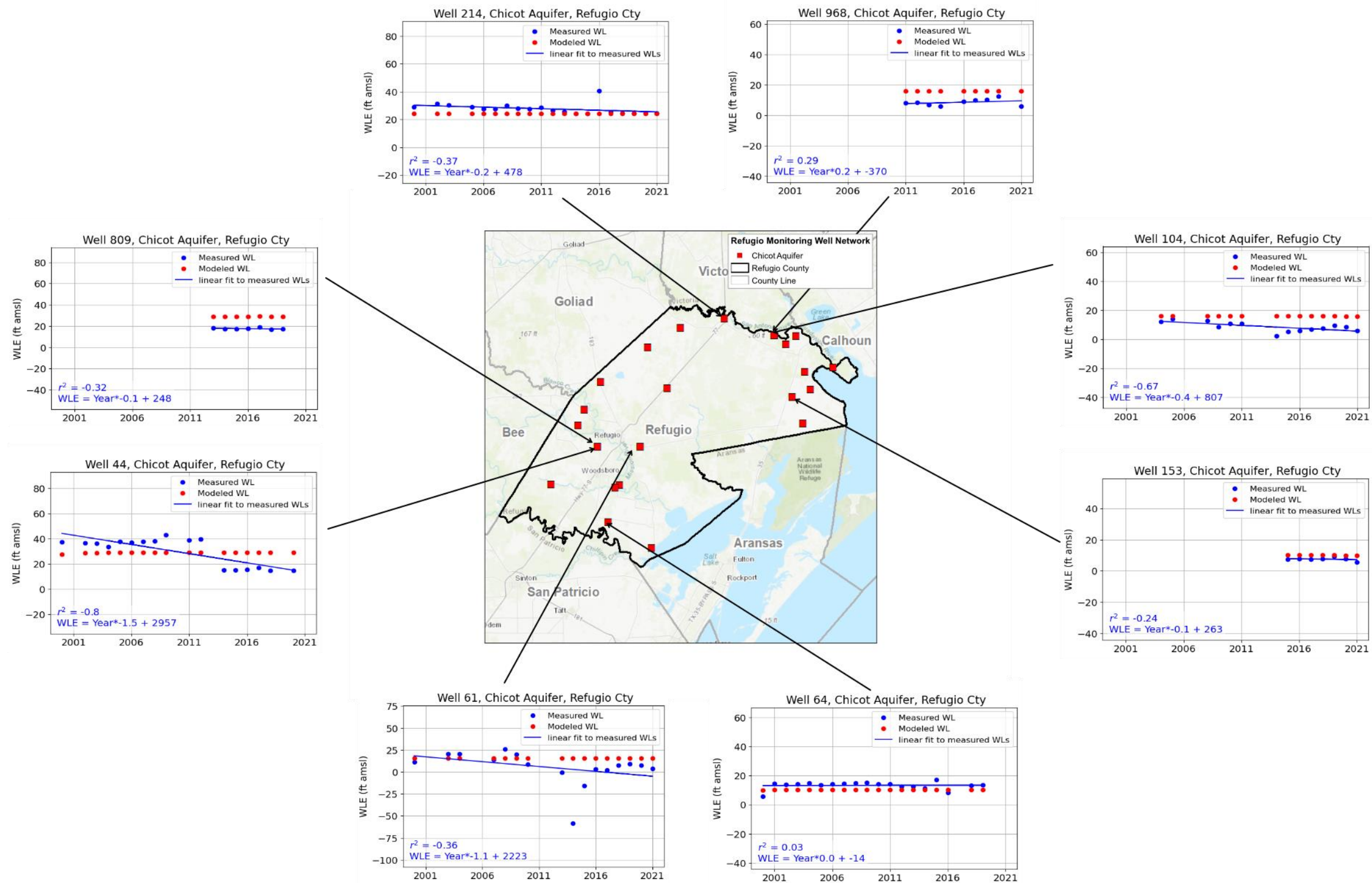


Figure 3A-4 Hydrographs for Chicot wells showing measured (blue points) and modeled (red points) water levels in Refugio County. Modeled water levels were obtained from the Groundwater Available Model (GAM) developed for Groundwater Management Area (GMA) 15. A straight line (blue line) has been fitted to the measured water levels for reference. Measured values represent an average for winter months.



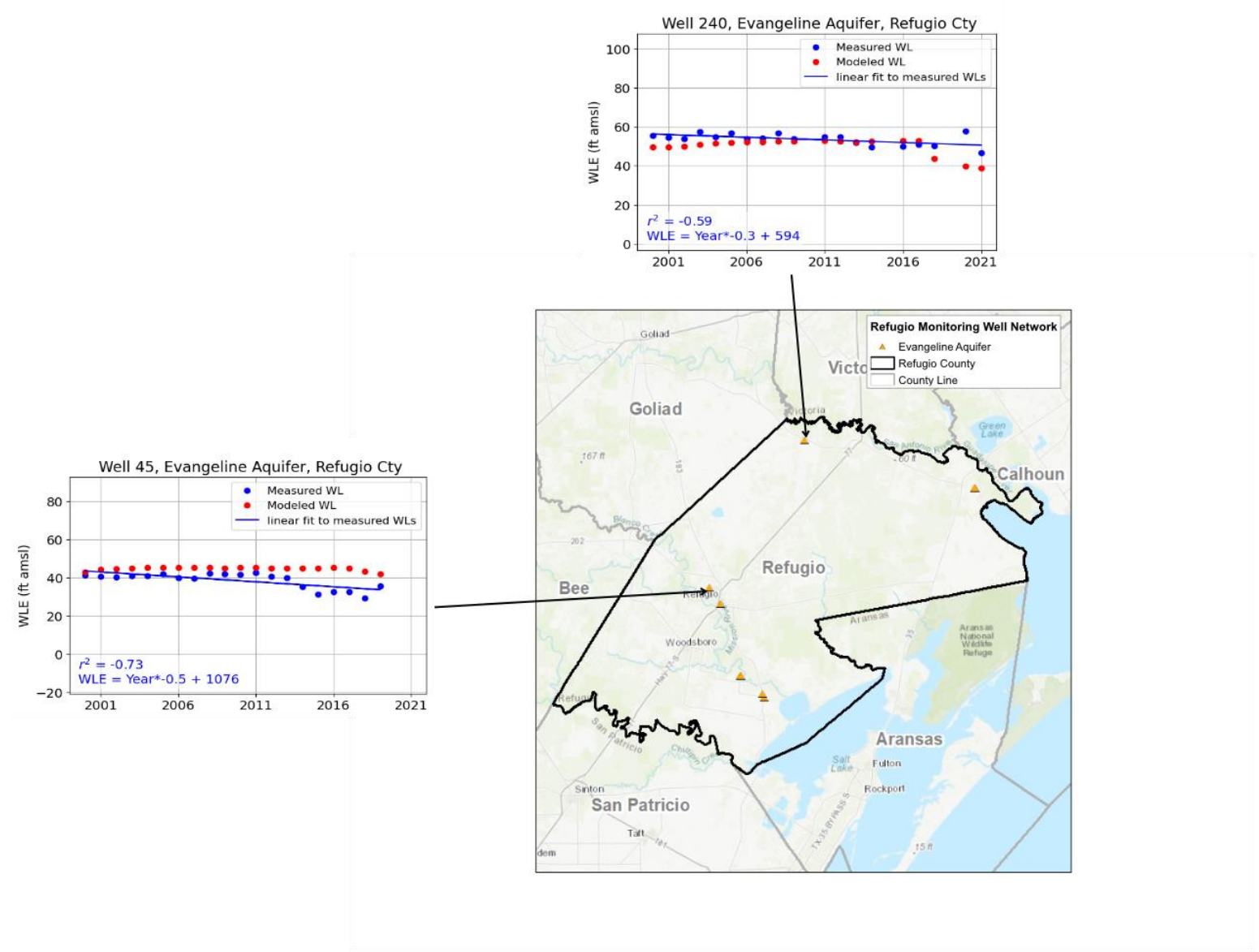


Figure 3A-5 Hydrographs for Evangelina wells showing measured (blue points) and modeled (red points) water levels in Refugio County. Modeled water levels were obtained from the Groundwater Available Model (GAM) developed for Groundwater Management Area (GMA) 15. A straight line (blue line) has been fitted to the measured water levels for reference. Measured values represent an average for winter months.

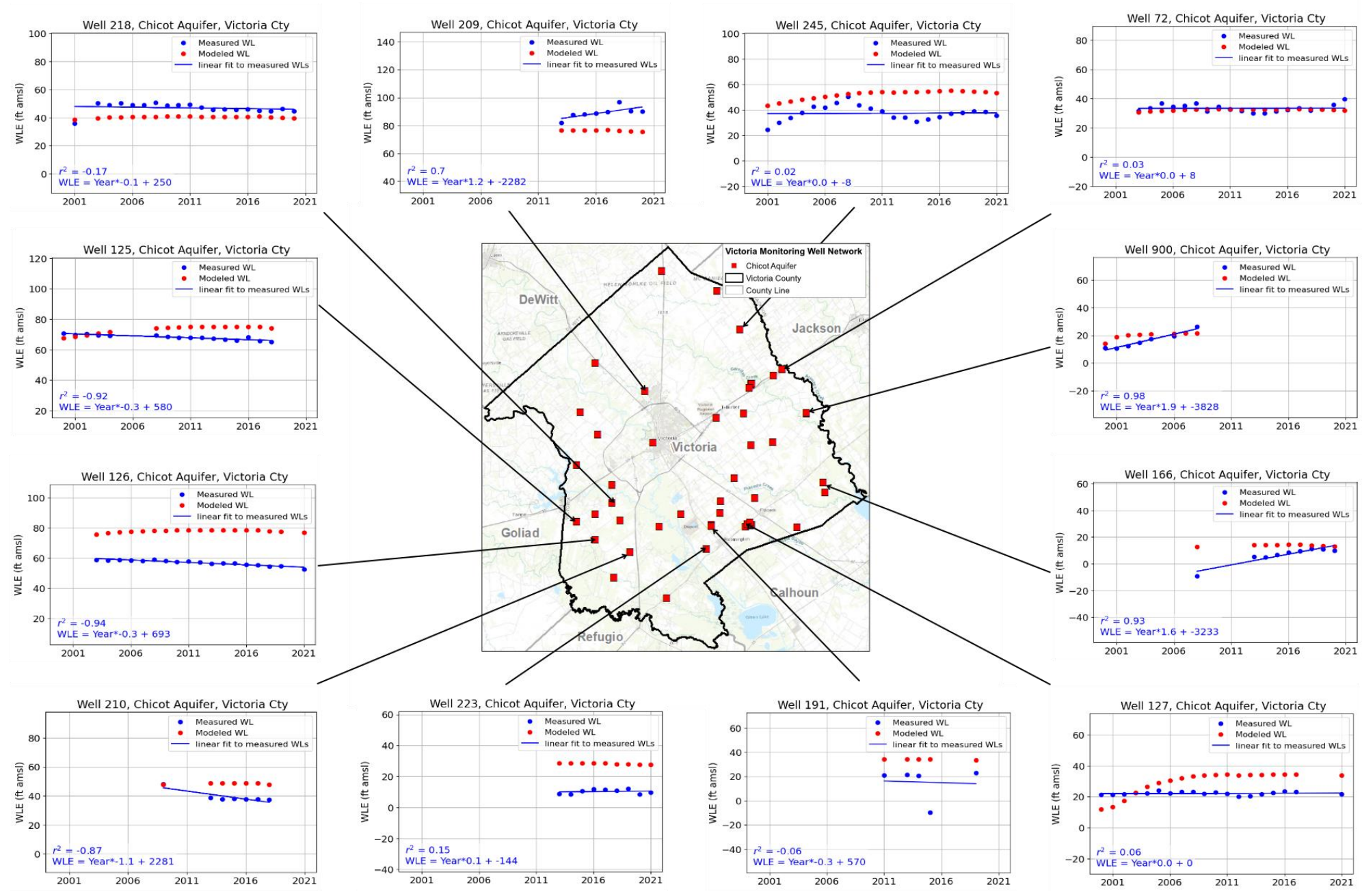


Figure 3A-6 Hydrographs for Chicot wells showing measured (blue points) and modeled (red points) water levels in Victoria County. Modeled water levels were obtained from the Groundwater Available Model (GAM) developed for Groundwater Management Area (GMA) 15. A straight line (blue line) has been fitted to the measured water levels for reference. Measured values represent an average for winter months.



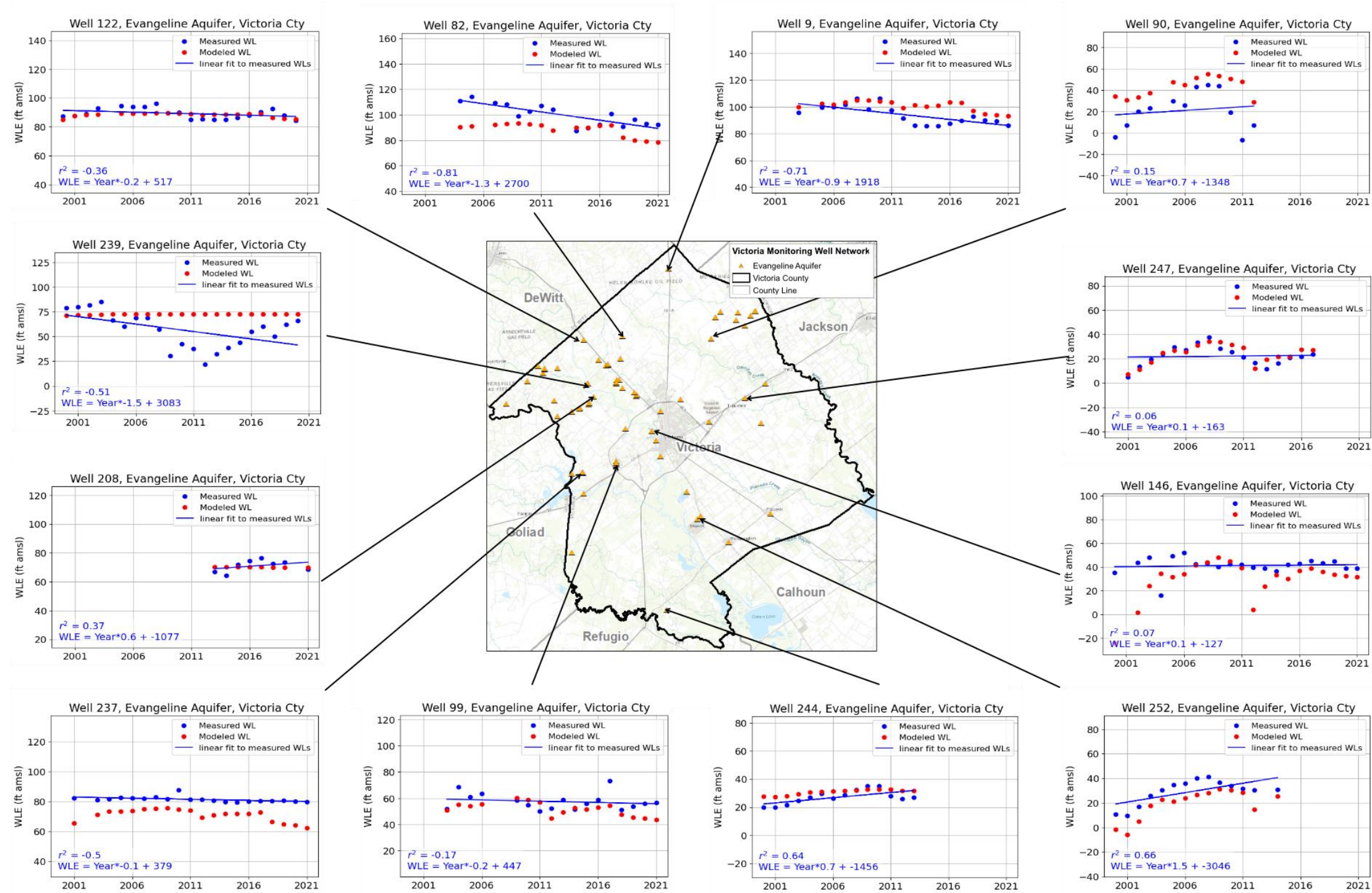
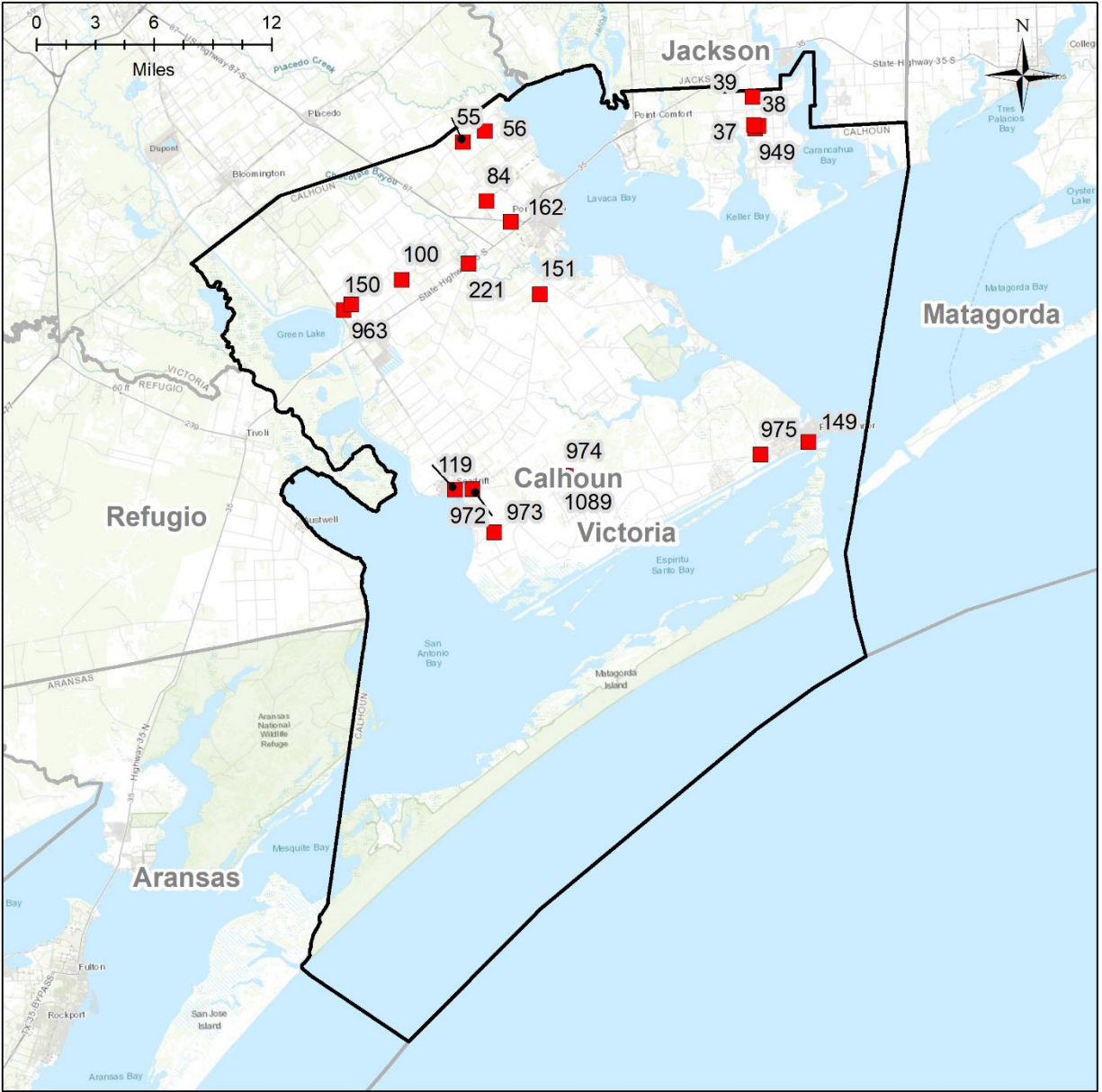


Figure 3A-7 Hydrographs for Evangeline wells showing measured (blue points) and modeled (red points) water levels in Victoria County. Modeled water levels were obtained from the Groundwater Available Model (GAM) developed for Groundwater Management Area (GMA) 15. A straight line (blue line) has been fitted to the measured water levels for reference. Measured values represent an average for winter months.

## **APPENDIX 3B**

### **Hydrographs for Measured Water Levels Color Coded Based on Sampling Period**



**Calhoun Monitoring Well Network**

- Chicot
- Calhoun County
- County Line

Figure 3B-1 Location of Chicot Monitoring Wells in Calhoun County



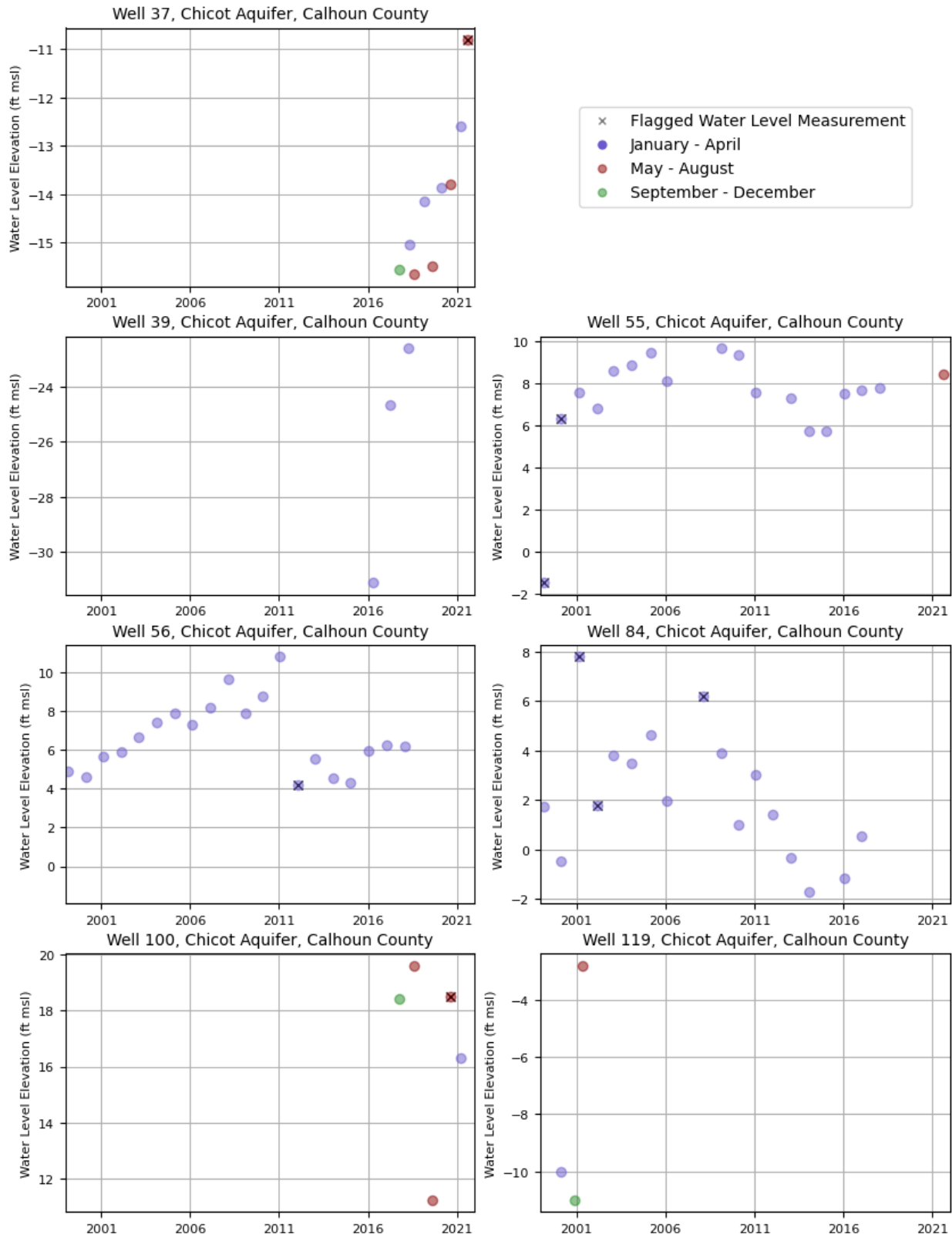


Figure 3B-2 Hydrographs for Wells 37, 39, 55, 56, 84, 100, and 199 in Calhoun County

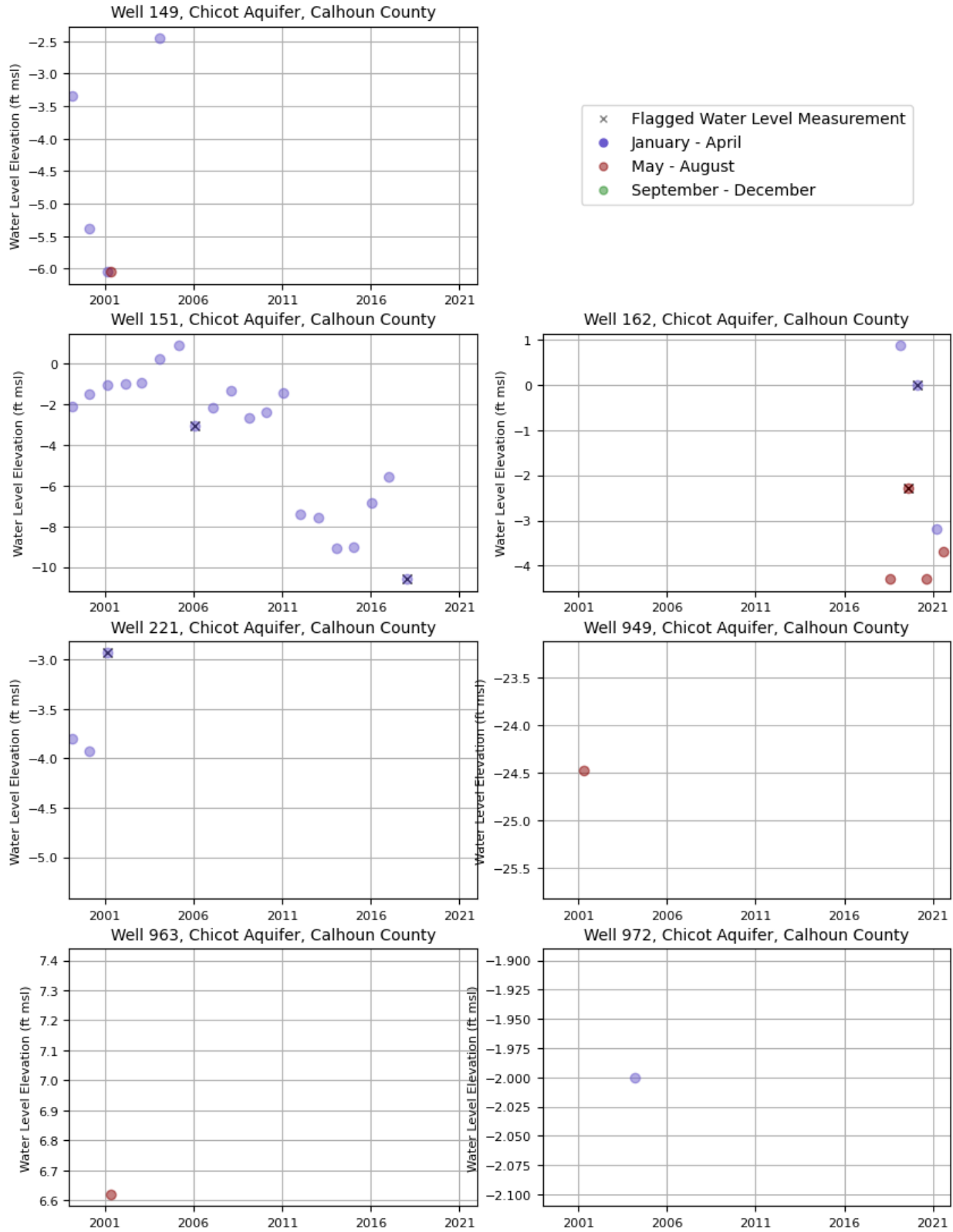
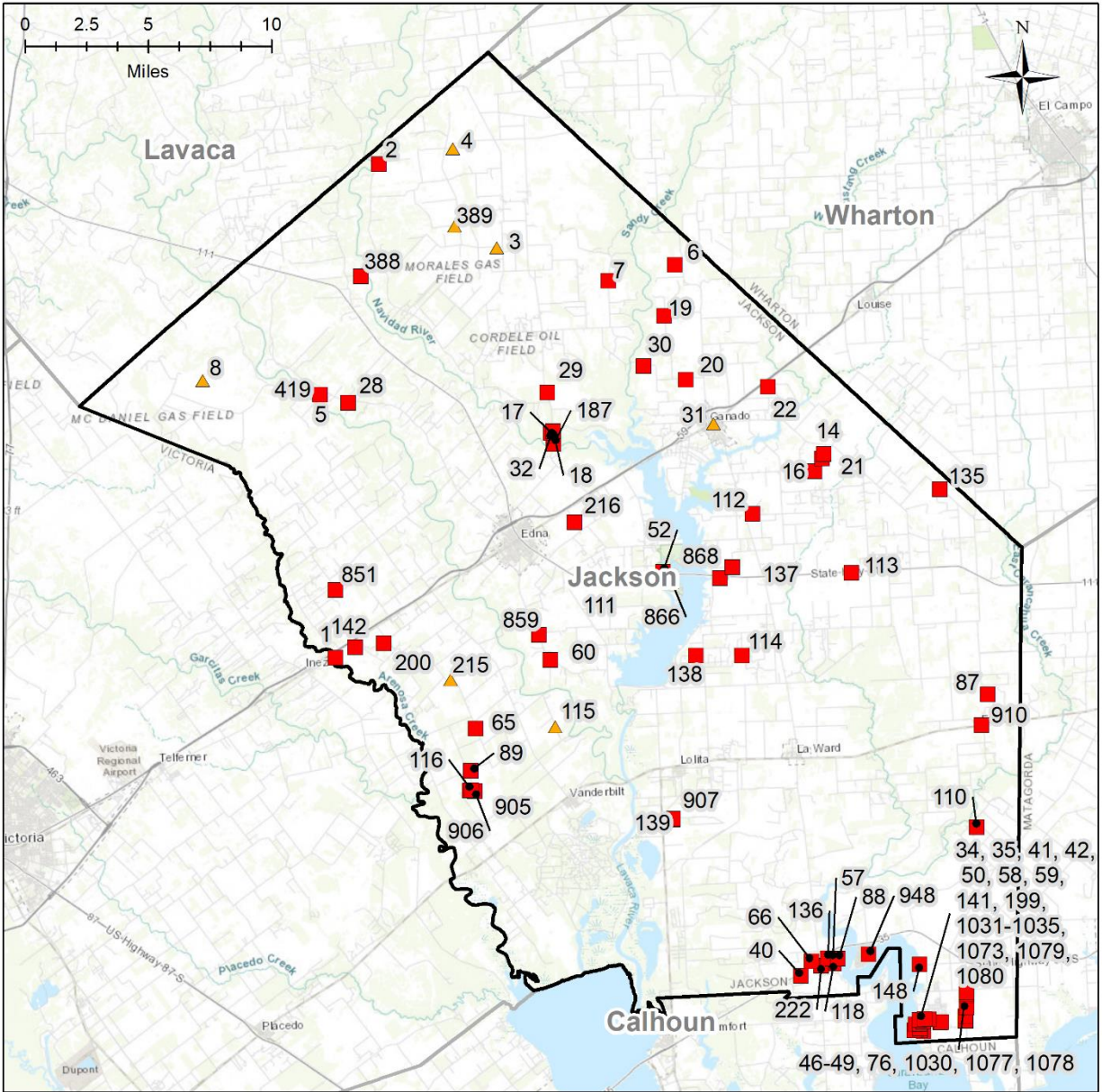


Figure 3B-3 Hydrographs for Wells 149, 151, 162, 2221, 949, 963, and 972 in Calhoun County



**Jackson Monitoring Well Network**

- Chicot Aquifer
- ▲ Evangeline Aquifer
- ▭ Jackson
- ▭ County Line

Figure 3B-4 Location of Chicot and Evangeline Monitoring Wells in Jackson County

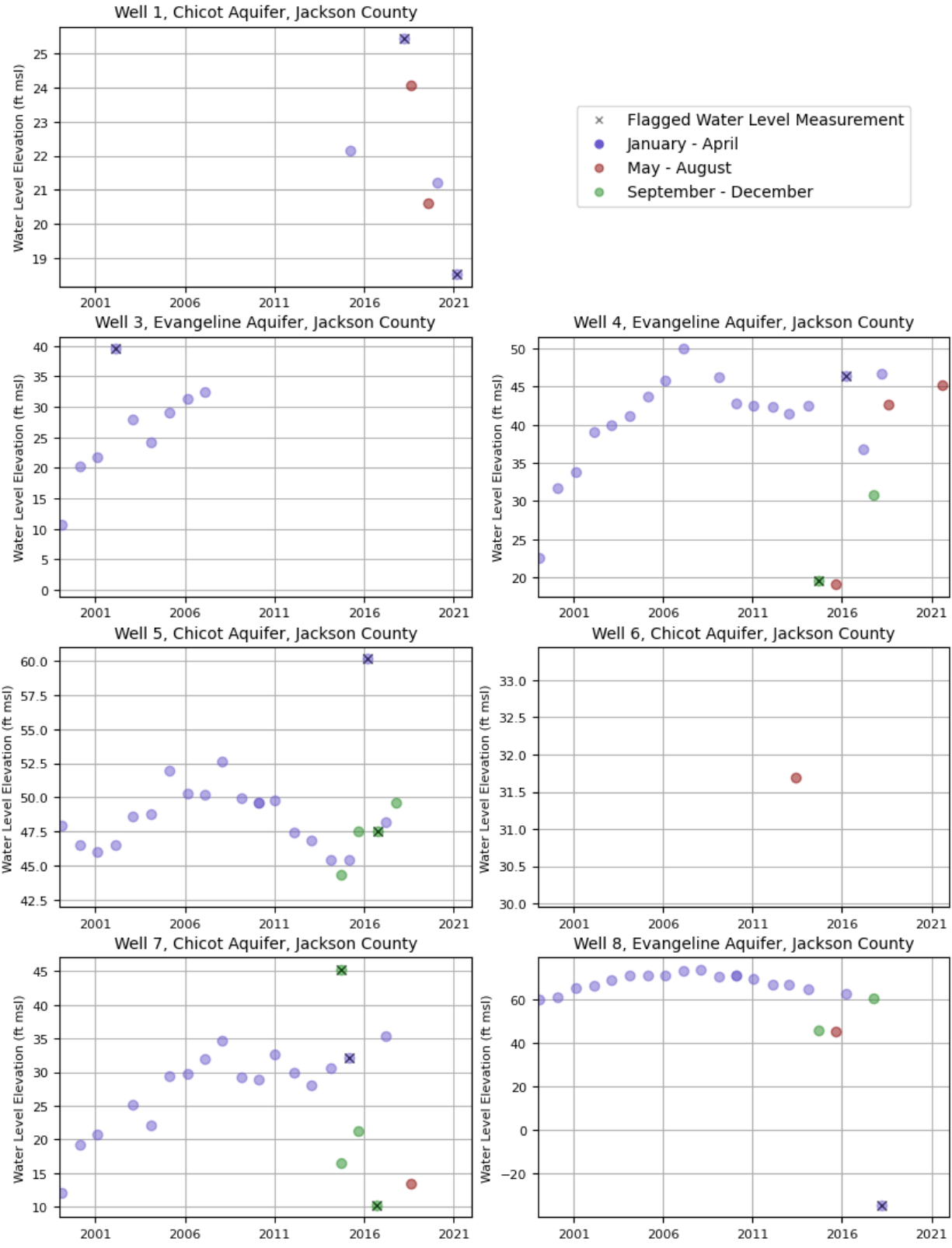


Figure 3B-5 Hydrographs for Wells 1, 4, 5, 6, 6, 7, and 8 in Jackson County

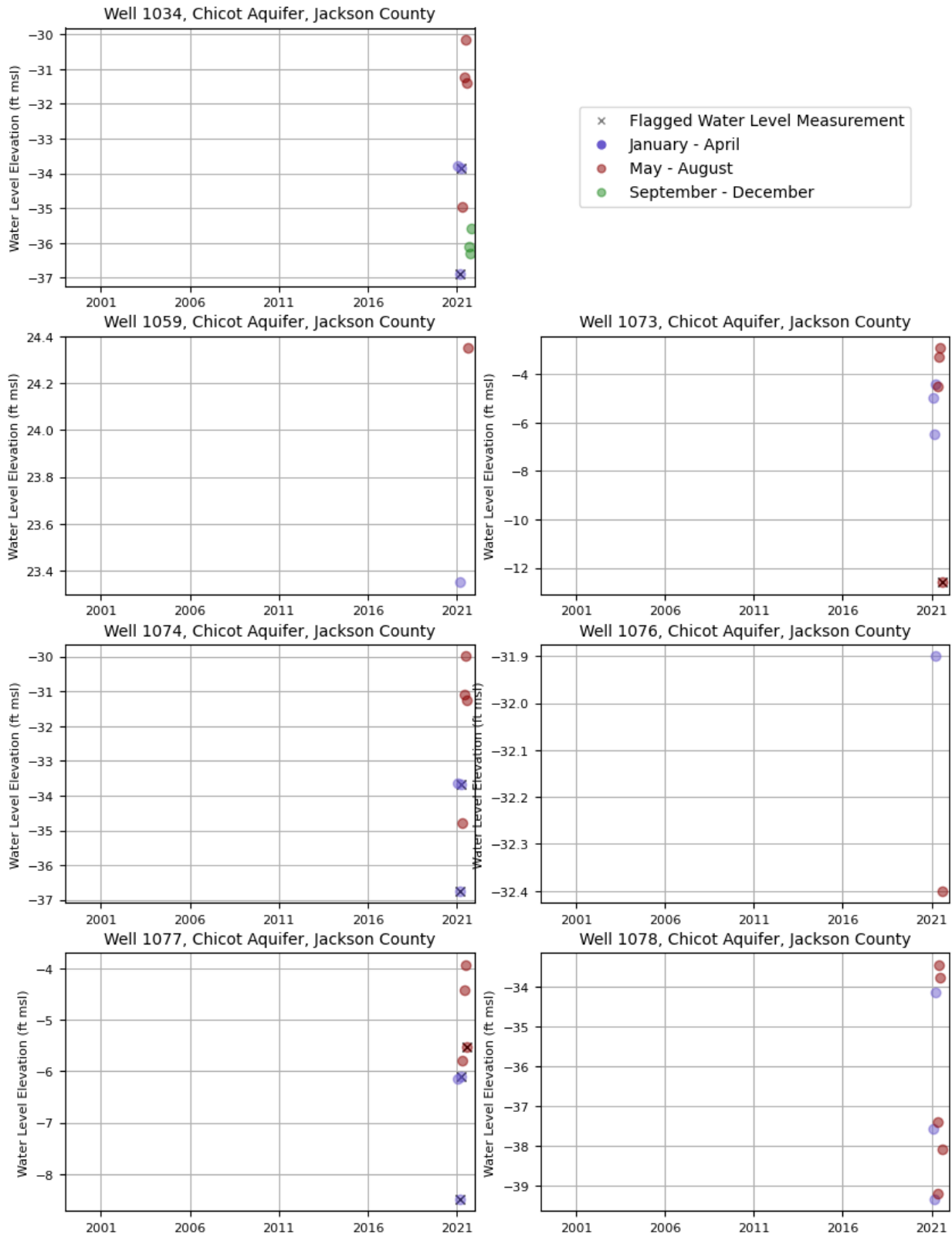


Figure 3B-6 Hydrographs for Wells 1034, 1059, 1073, 1074, 1076, 1077, and 1078 in Jackson County



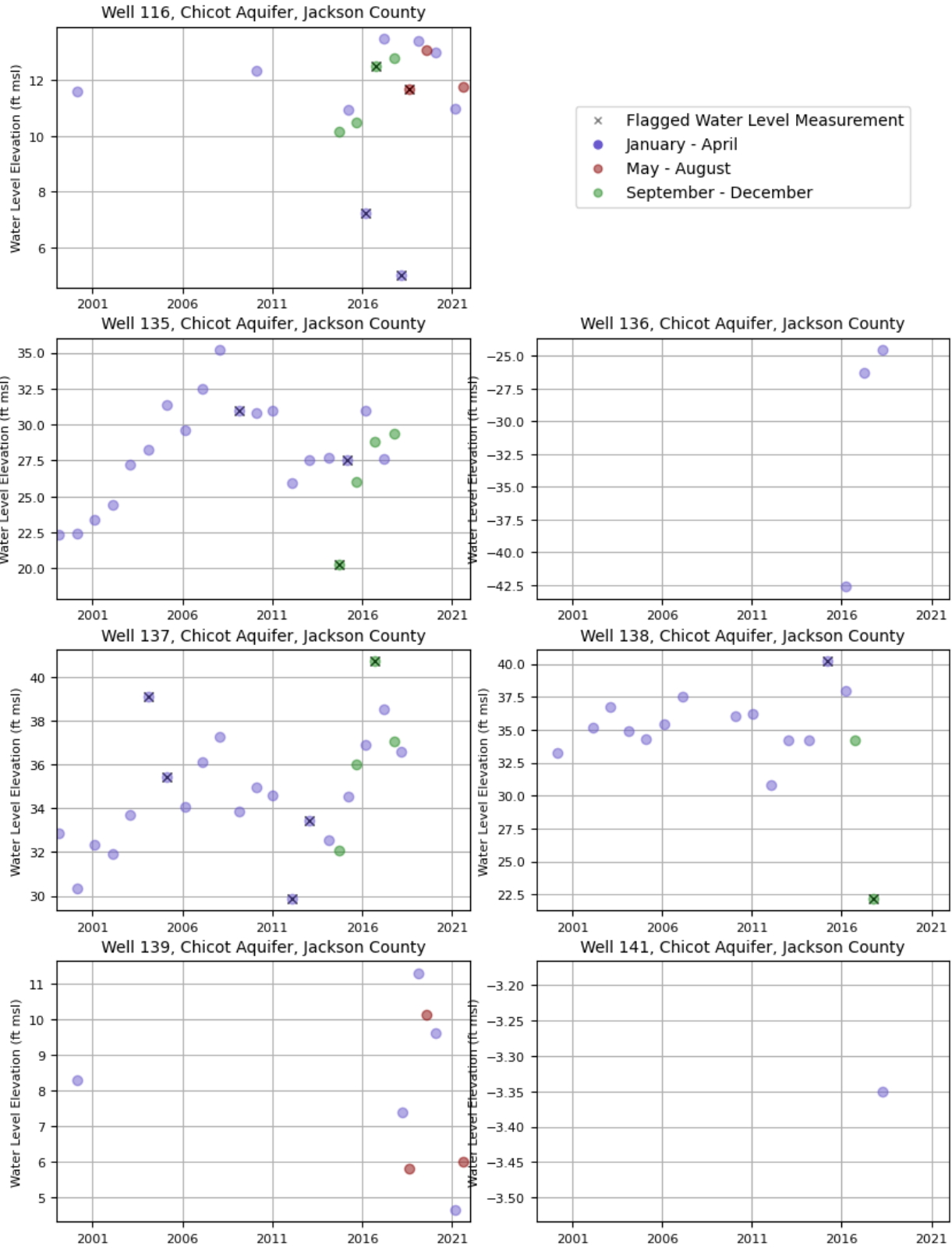


Figure 3B-7 Hydrographs for Wells 116, 135, 136, 137, 138, 139, and 141 in Jackson County

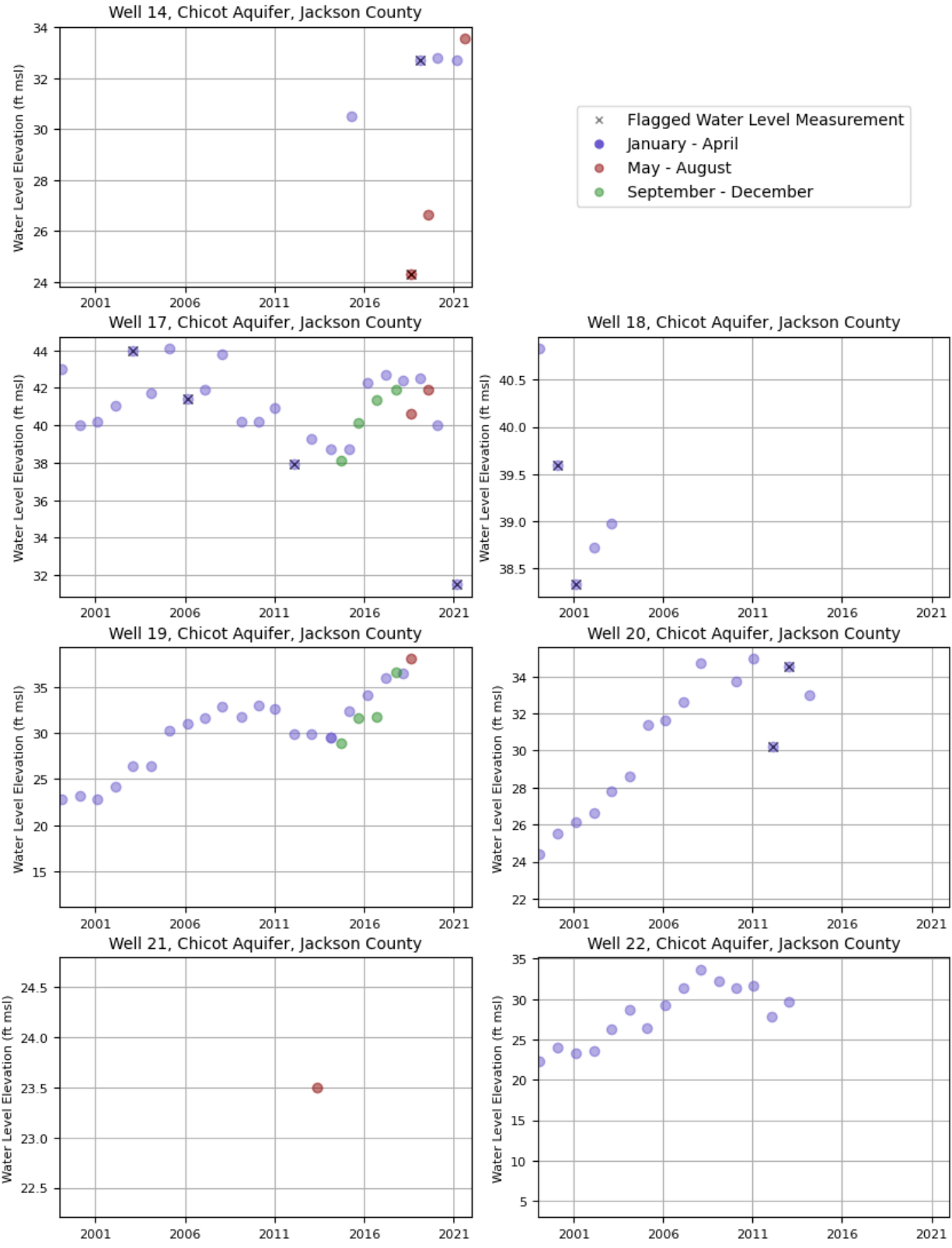


Figure 3B-8 Hydrographs for Wells 14, 17, 18, 19, 20, 21, and 22 in Jackson County

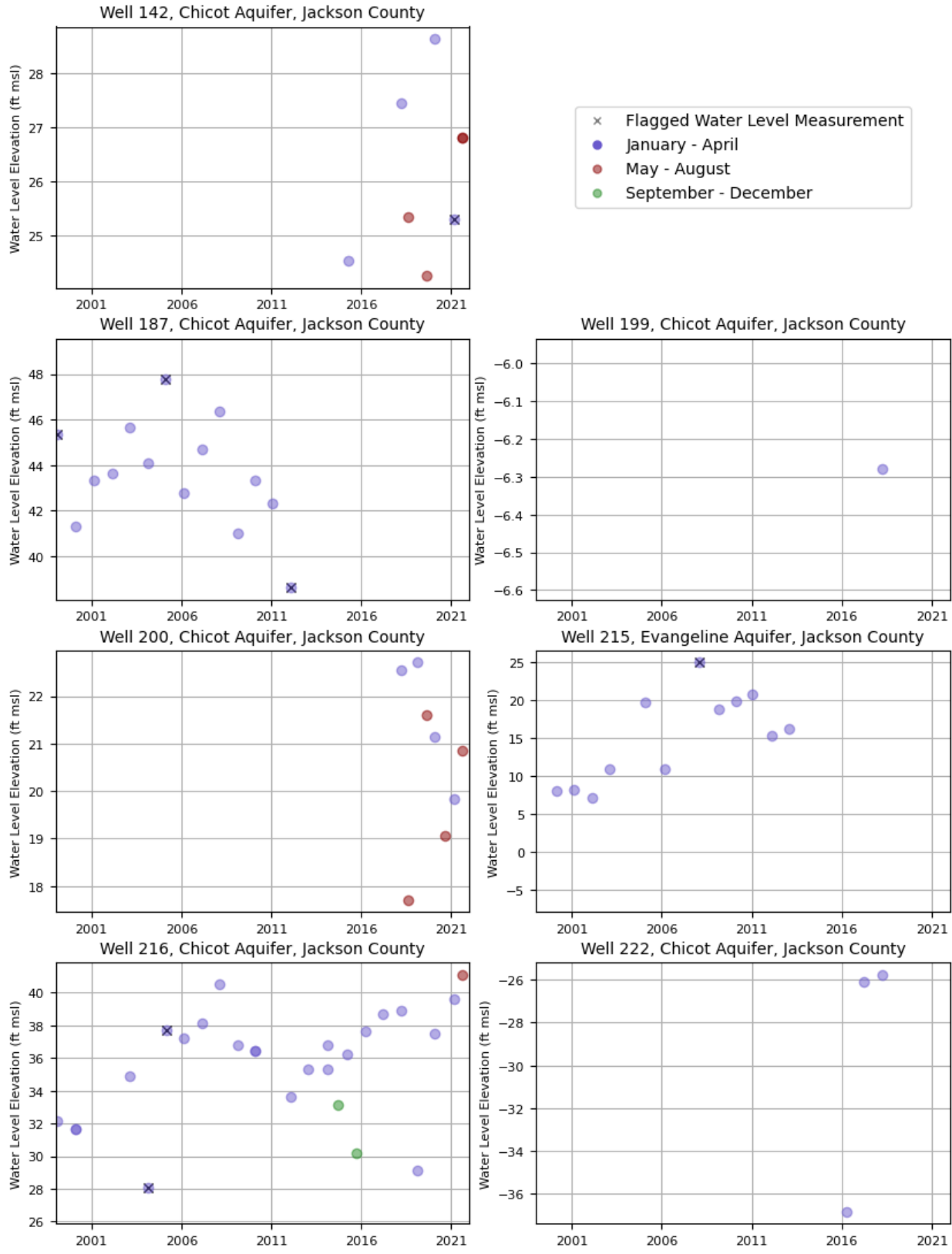


Figure 3B-9 Hydrographs for Wells 142, 187, 199, 200, 215, 215, and 222 in Jackson County

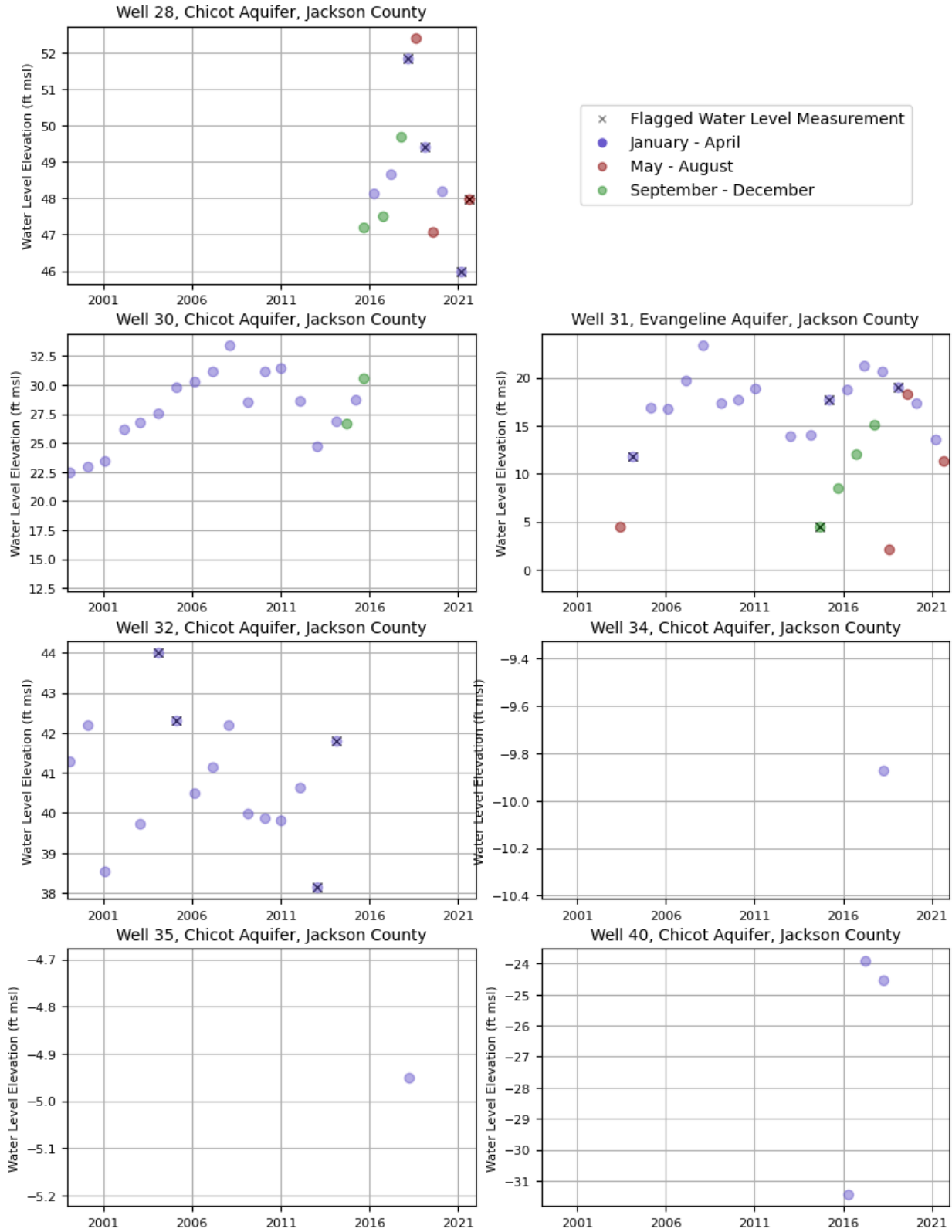


Figure 3B-10 Hydrographs for Wells 28, 30, 31, 32, 24, 25, and 40 in Jackson County

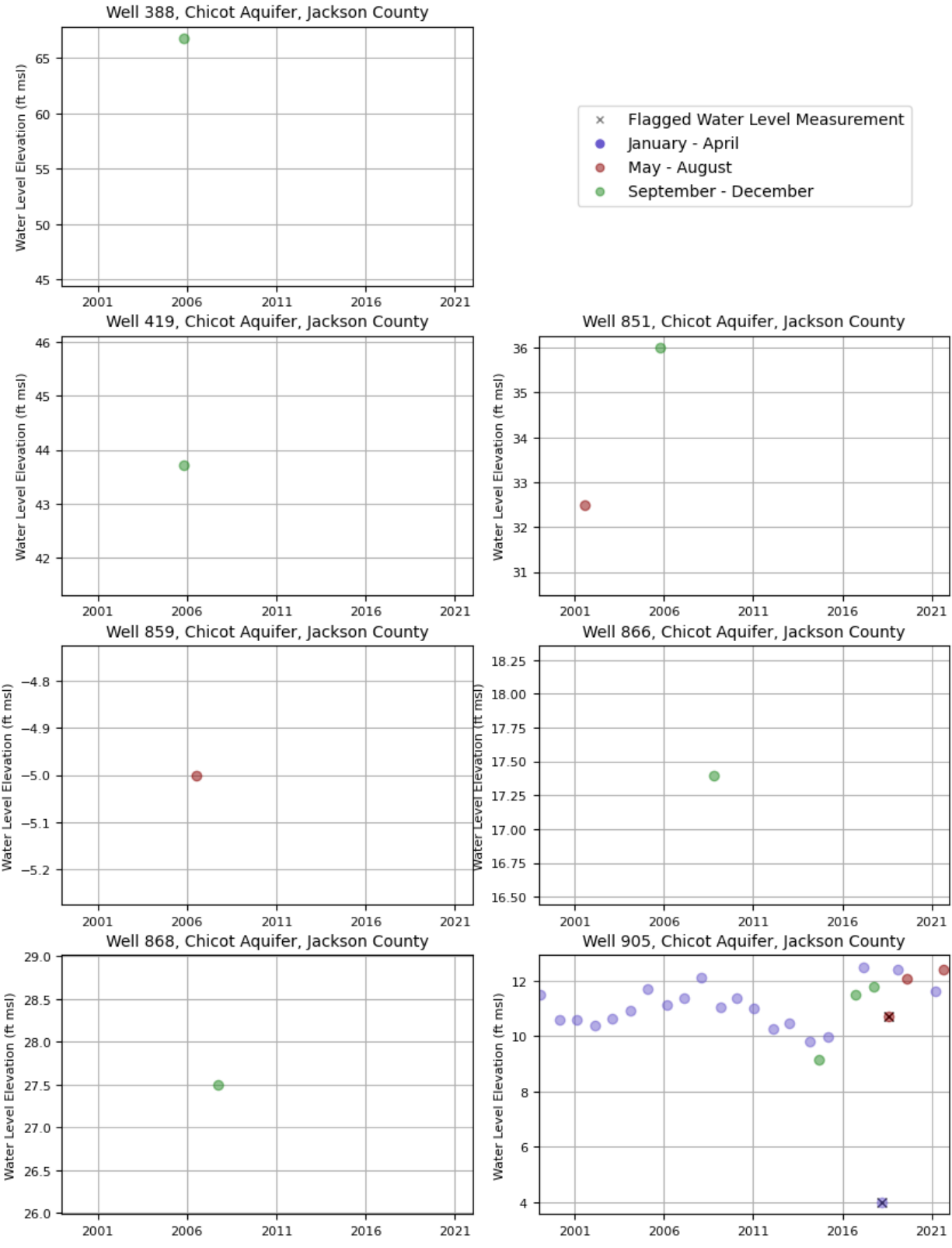


Figure 3B-11 Hydrographs for Wells 388, 419, 851, 859, 866, 868, and 905 in Jackson County



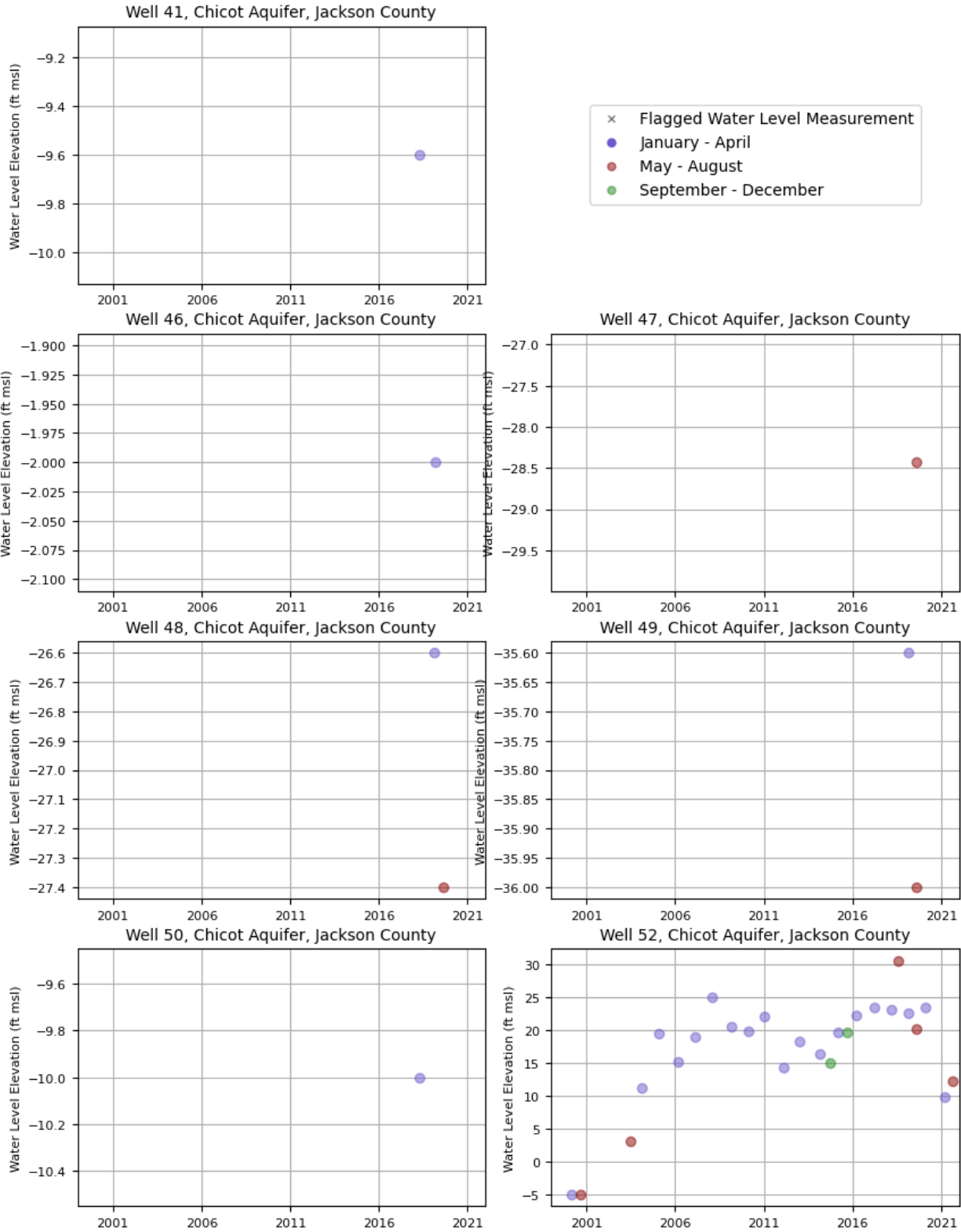


Figure 3B-12 Hydrographs for Wells 41, 46, 47, 48, 49, 50, and 52 in Jackson County

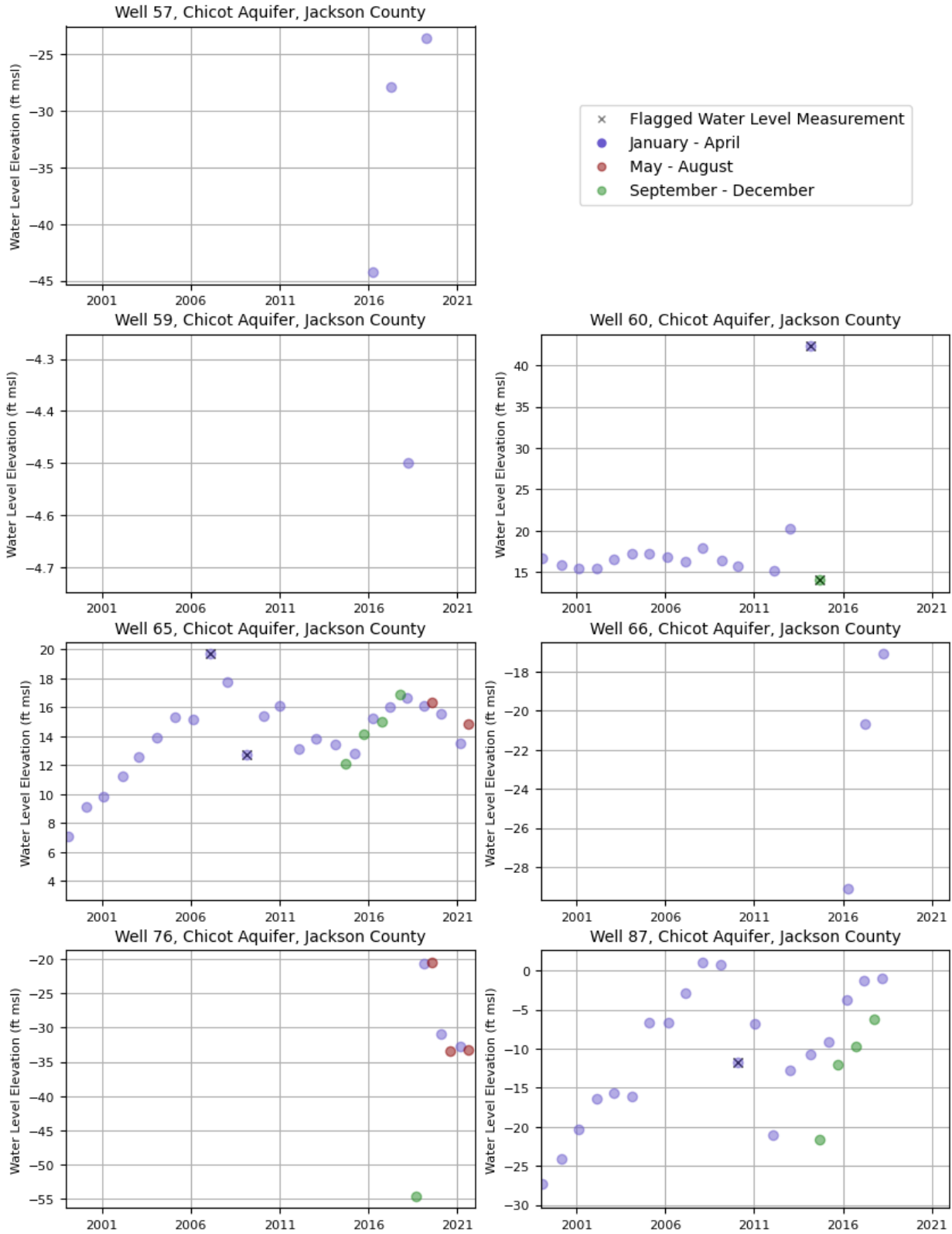


Figure 3B-13 Hydrographs for Wells 57, 59, 60, 65, 66, 76, and 87 in Jackson County

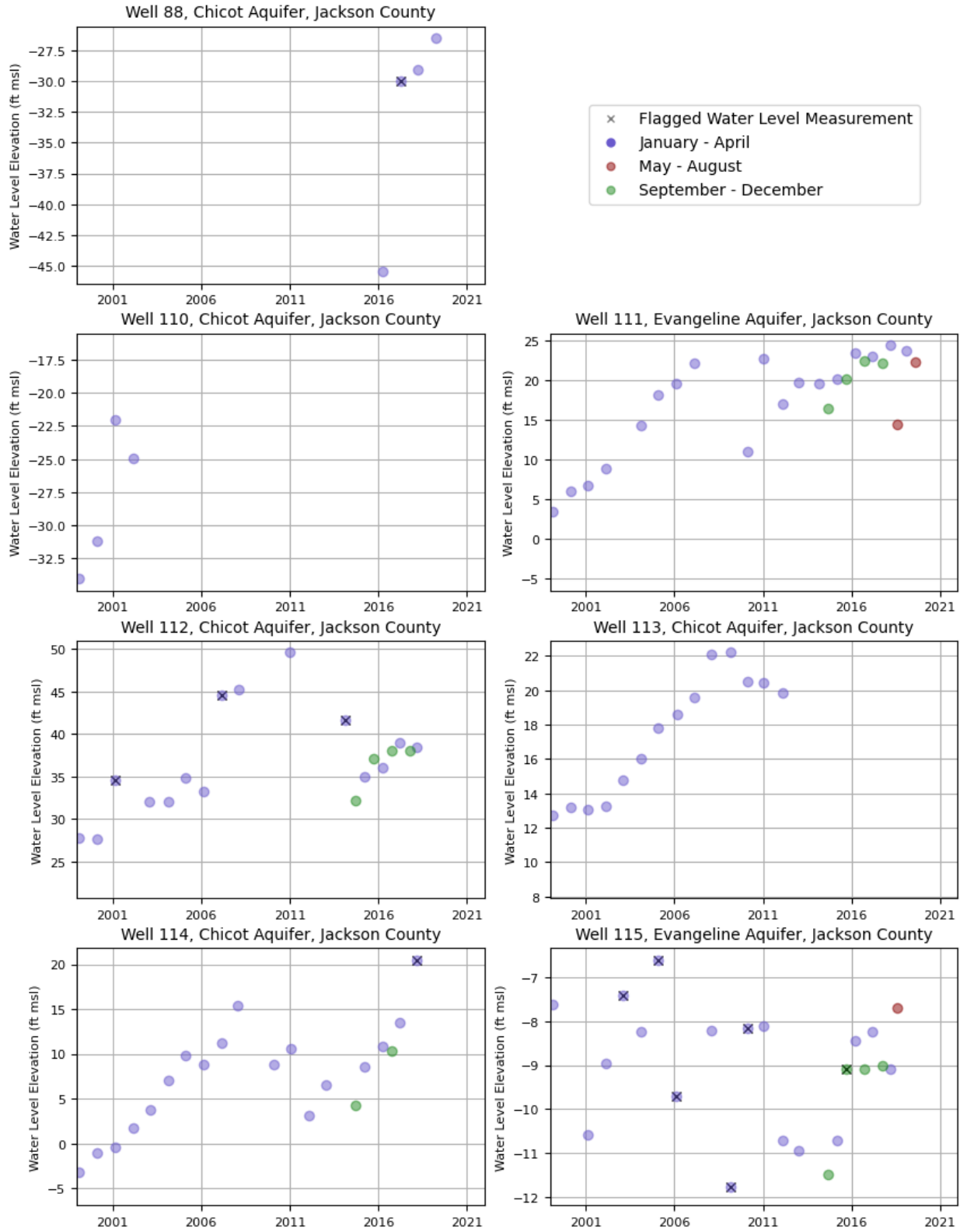


Figure 3B-14 Hydrographs for Wells 88, 110, 111, 112, 113, 114, and 115 in Jackson County

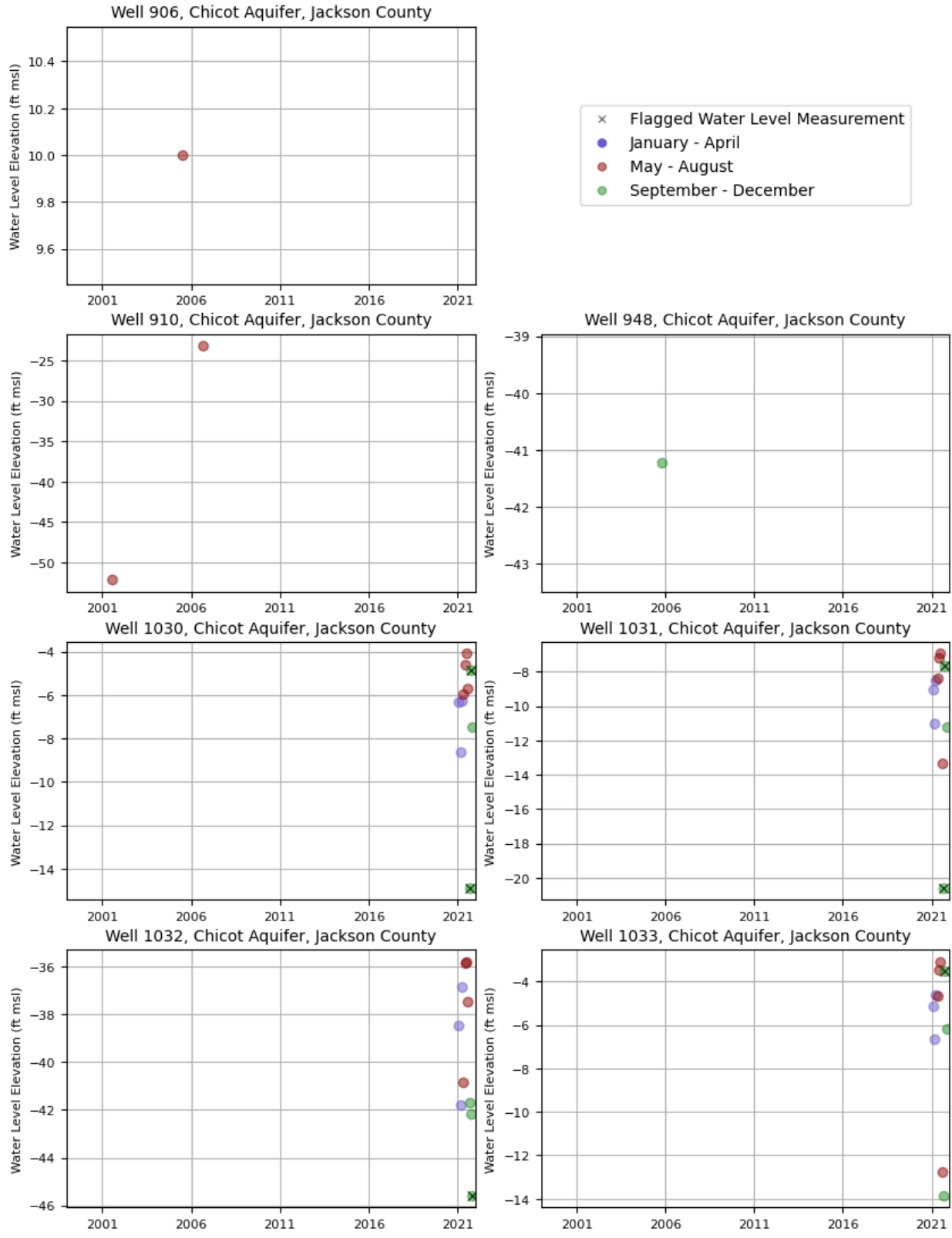
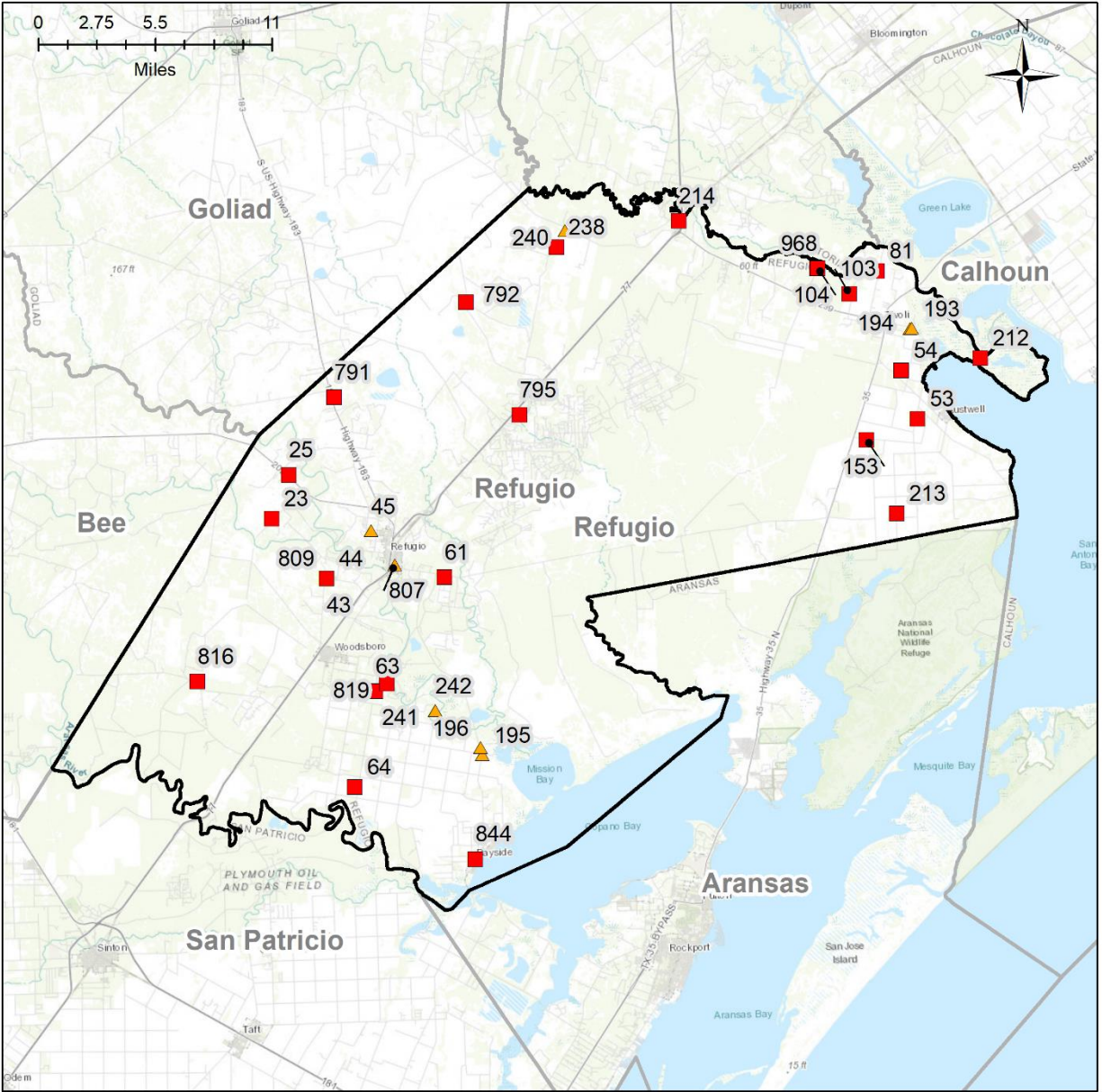


Figure 3B-15 Hydrographs for Wells 906, 910, 948, 1030, 1031, 1032, and 1033 in Jackson County



**Victoria Monitoring Well Network**

- Chicot Aquifer
- ▲ Evangeline Aquifer
- ▭ Refugio County
- ▭ County Line

Figure 3B-16 Location of Chicot and Evangeline Monitoring Wells in Refugio County



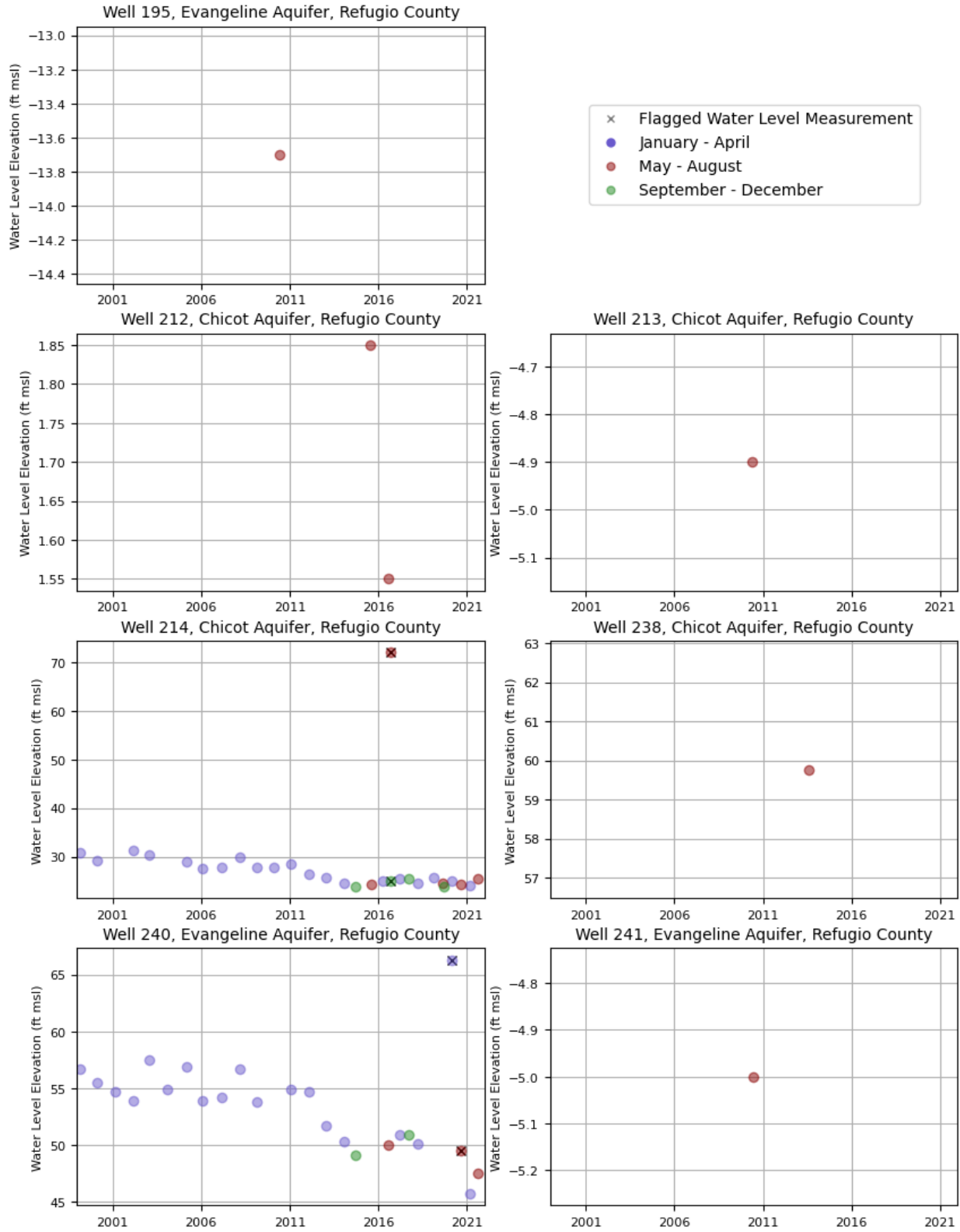


Figure 3B-17 Hydrographs for Wells 195, 212, 213, 214, 238, 240, and 241 in Refugio County

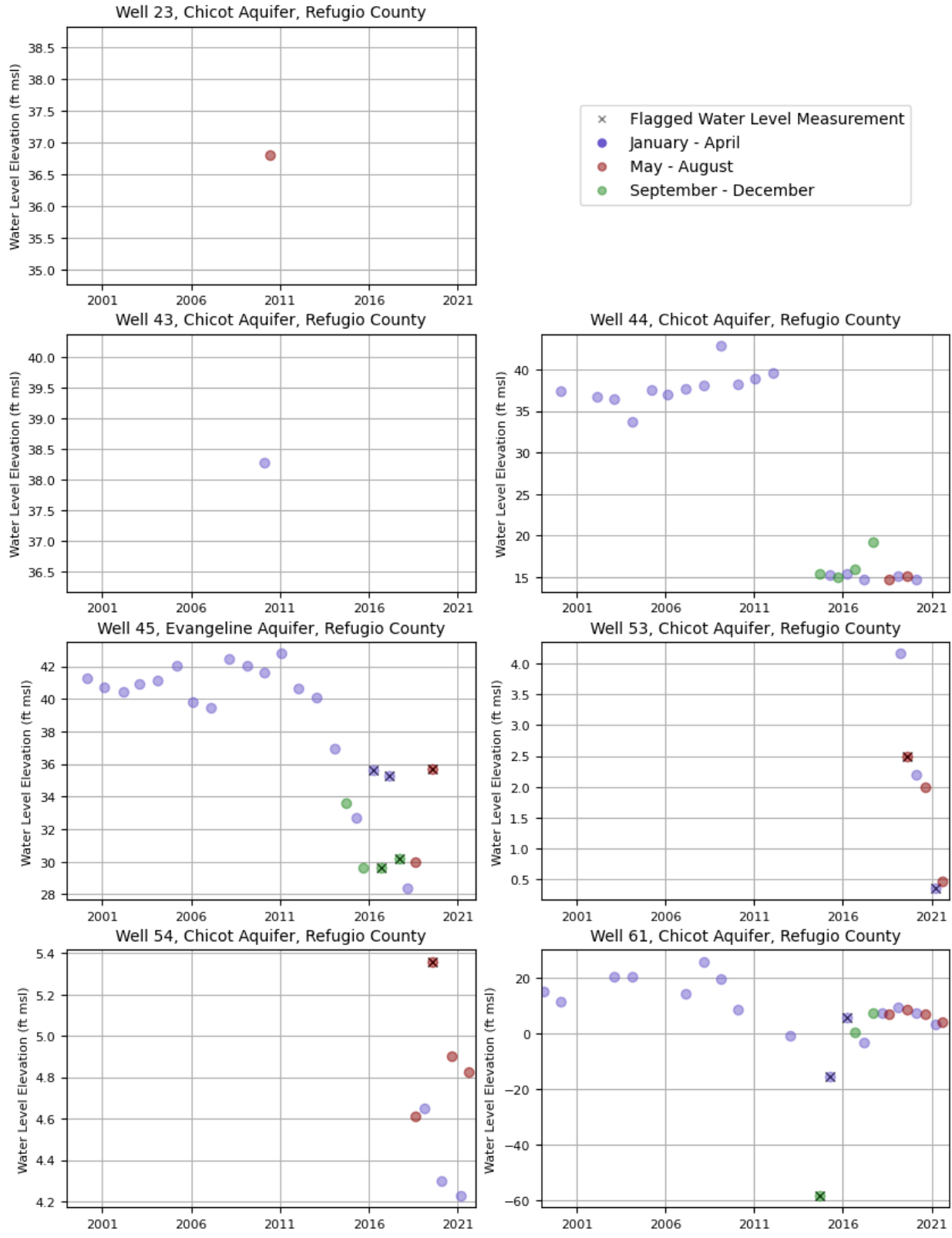


Figure 3B-18 Hydrographs for Wells 23, 43, 44, 45, 53, 54, and 61 in Refugio County

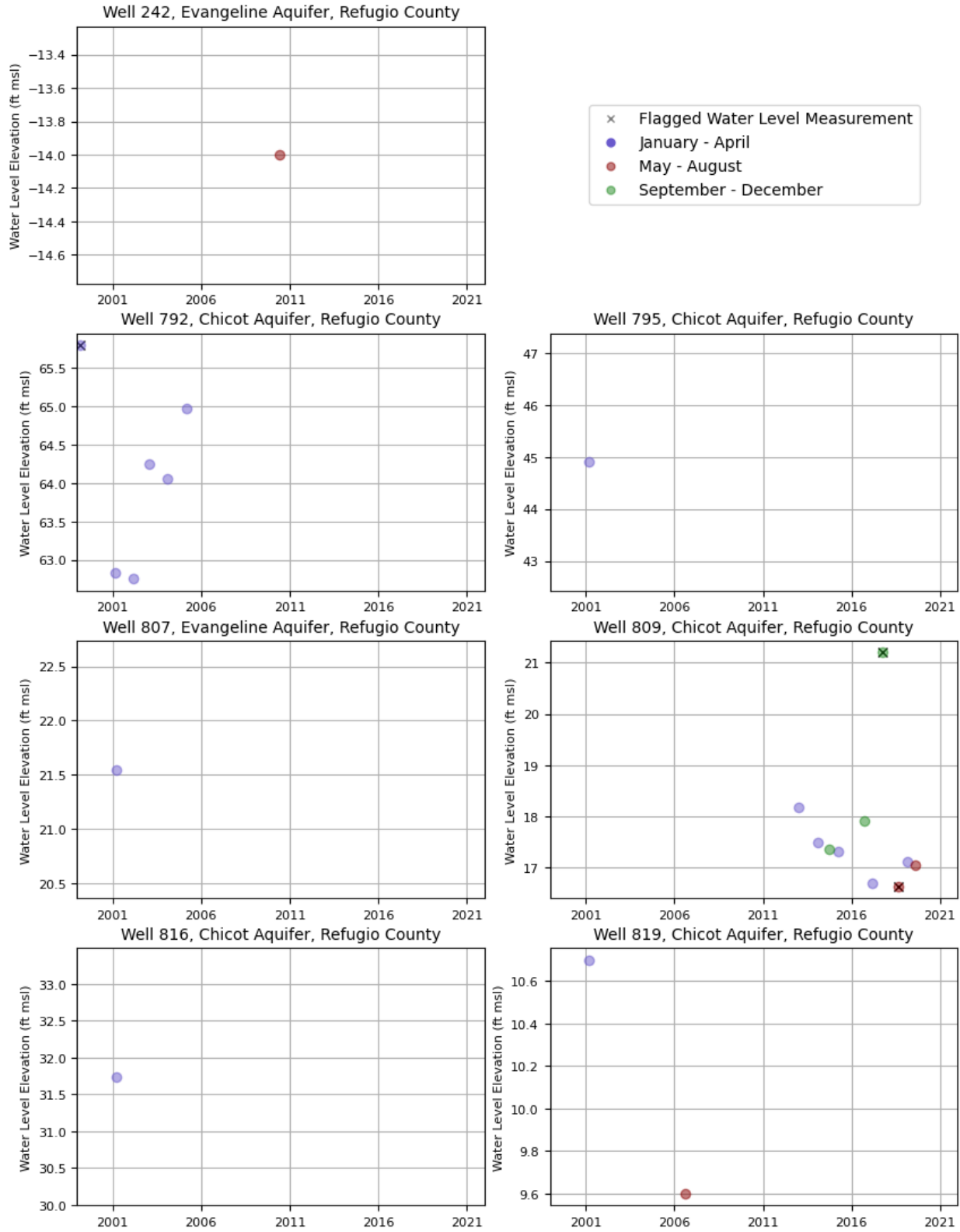


Figure 3B-19 Hydrographs for Wells 242, 792, 795, 807, 809, 816, and 819 in Refugio County

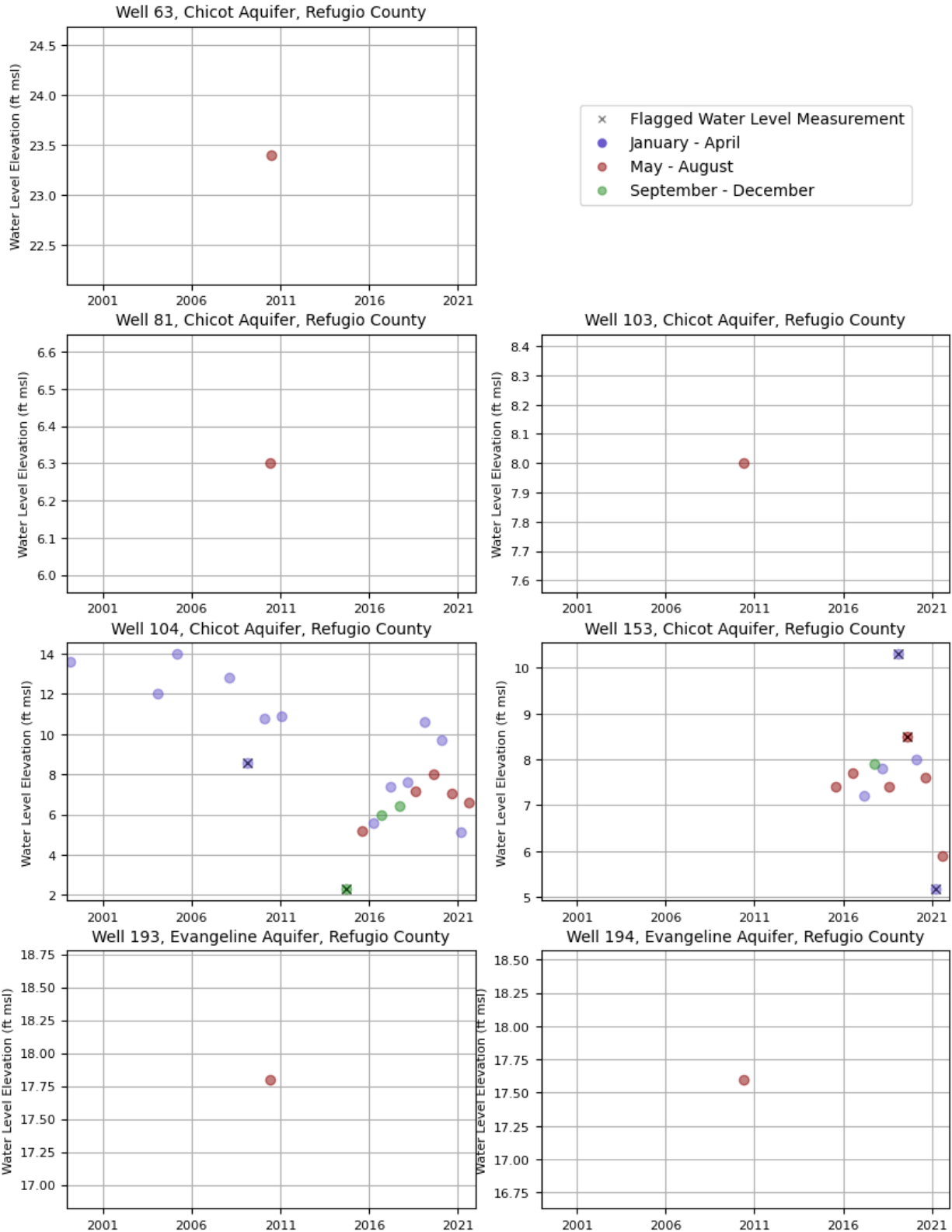
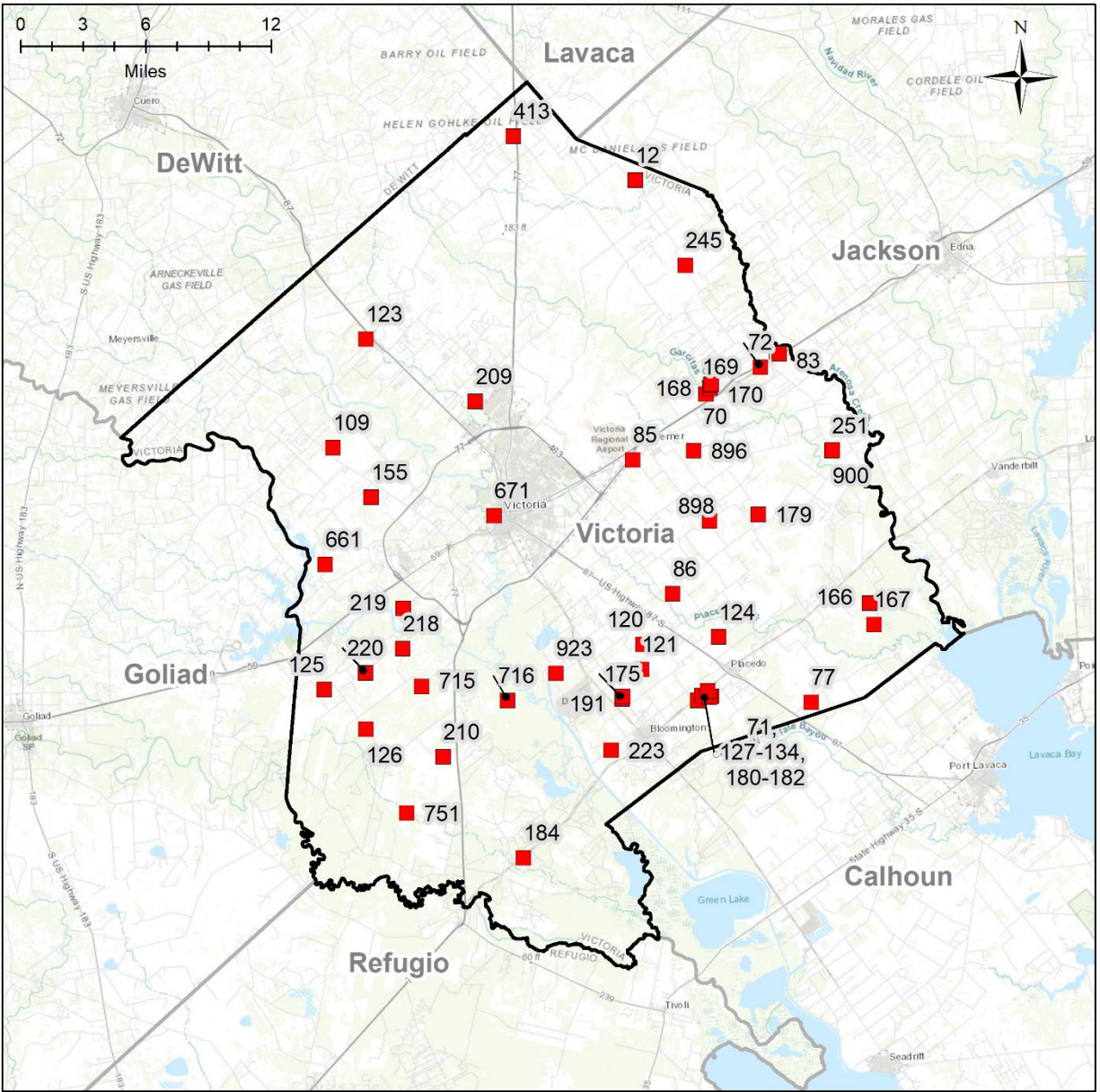


Figure 3B-20 Hydrographs for Wells 63, 81, 103, 104, 153, 193, and 194 in Refugio County

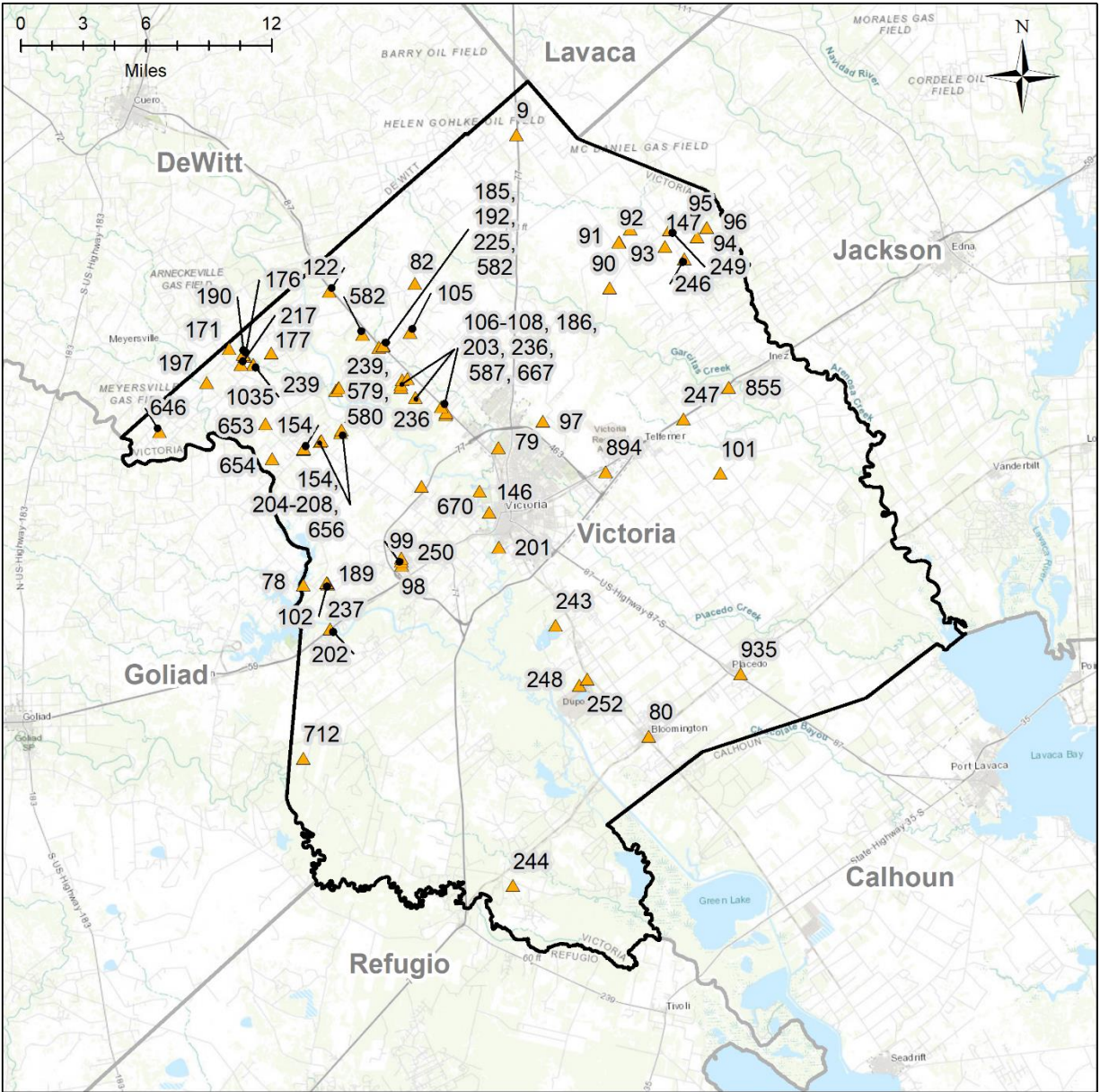


**Victoria Monitoring Well Network**

- Chicot
- Victoria County
- County Line

Figure 3B-21 Location of Chicot Monitoring Wells in Victoria County





**Victoria Monitoring Well Network**

- ▲ Evangeline
- ▭ Victoria County
- ▭ County Line

Figure 3B-22 Location of Evangeline Monitoring Wells in Victoria County



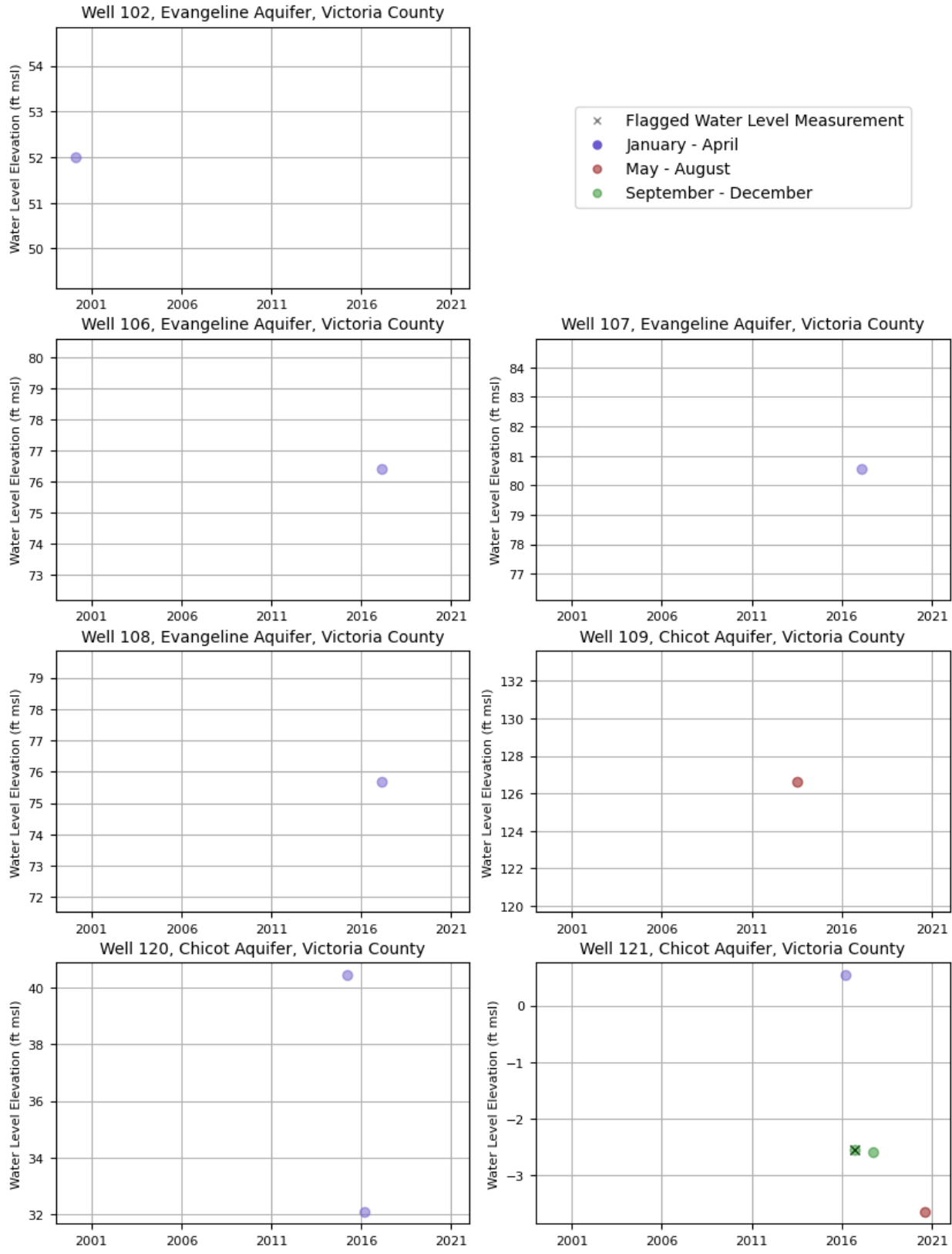


Figure 3B-23 Hydrographs for Wells 102, 106, 107, 108, 109, 120, and 121 in Victoria County

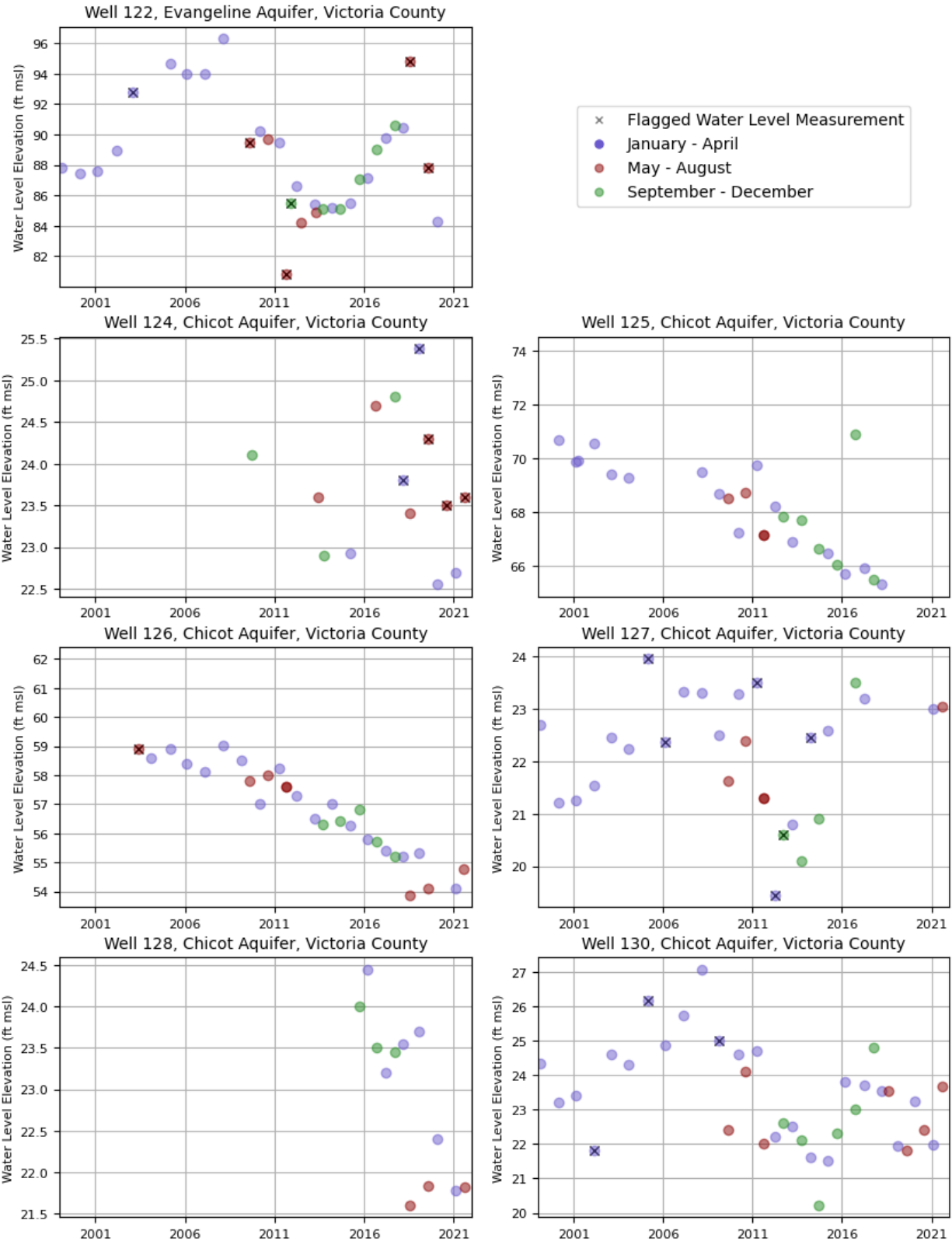


Figure 3B-24 Hydrographs for Wells 122, 124, 125, 126, 127, 128, and 130 in Victoria County

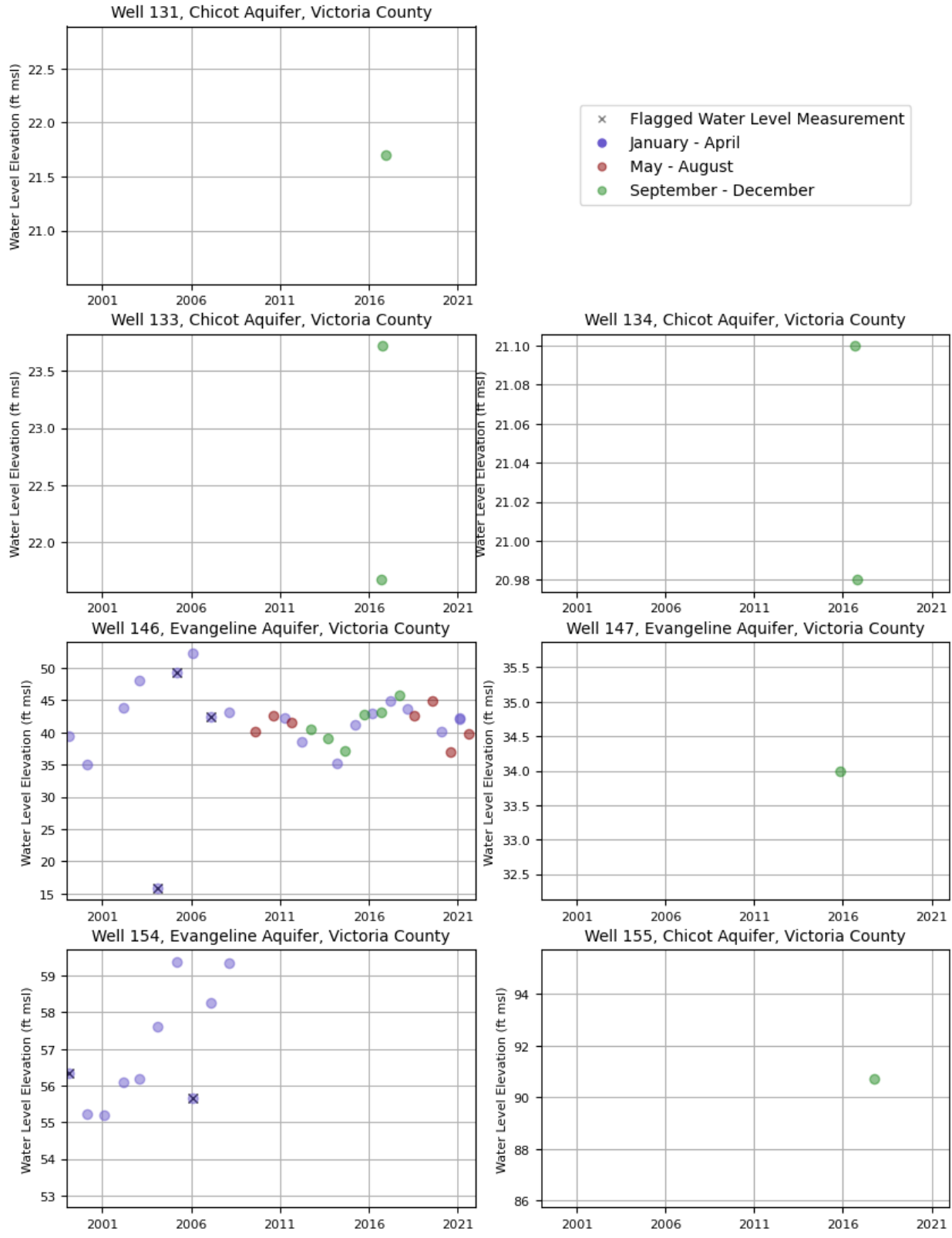


Figure 3B-25 Hydrographs for Wells 131, 133, 134, 146, 147, 154, and 155 in Victoria County

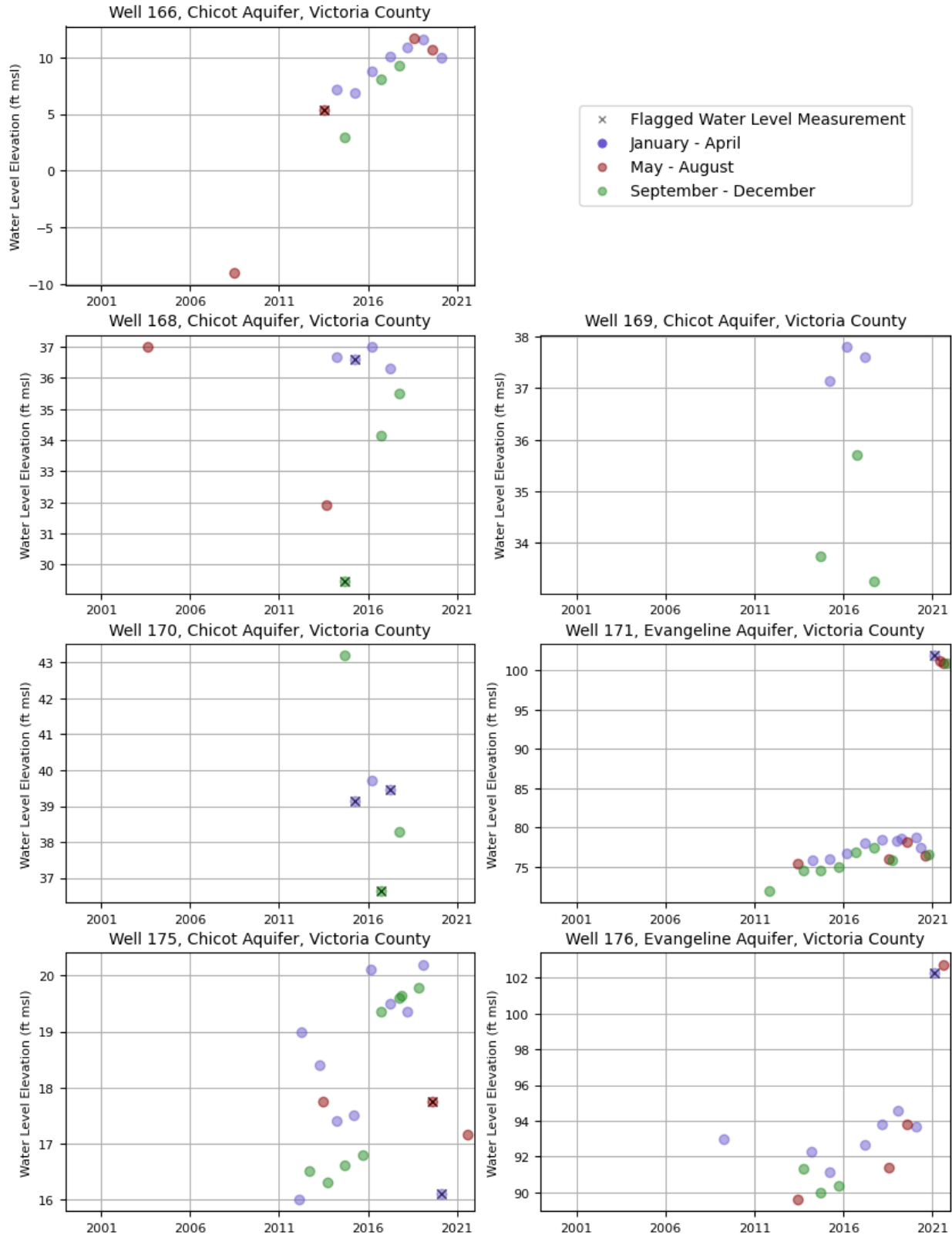


Figure 3B-26 Hydrographs for Wells 166, 168, 169, 170, 171, 175, 176 in Victoria County

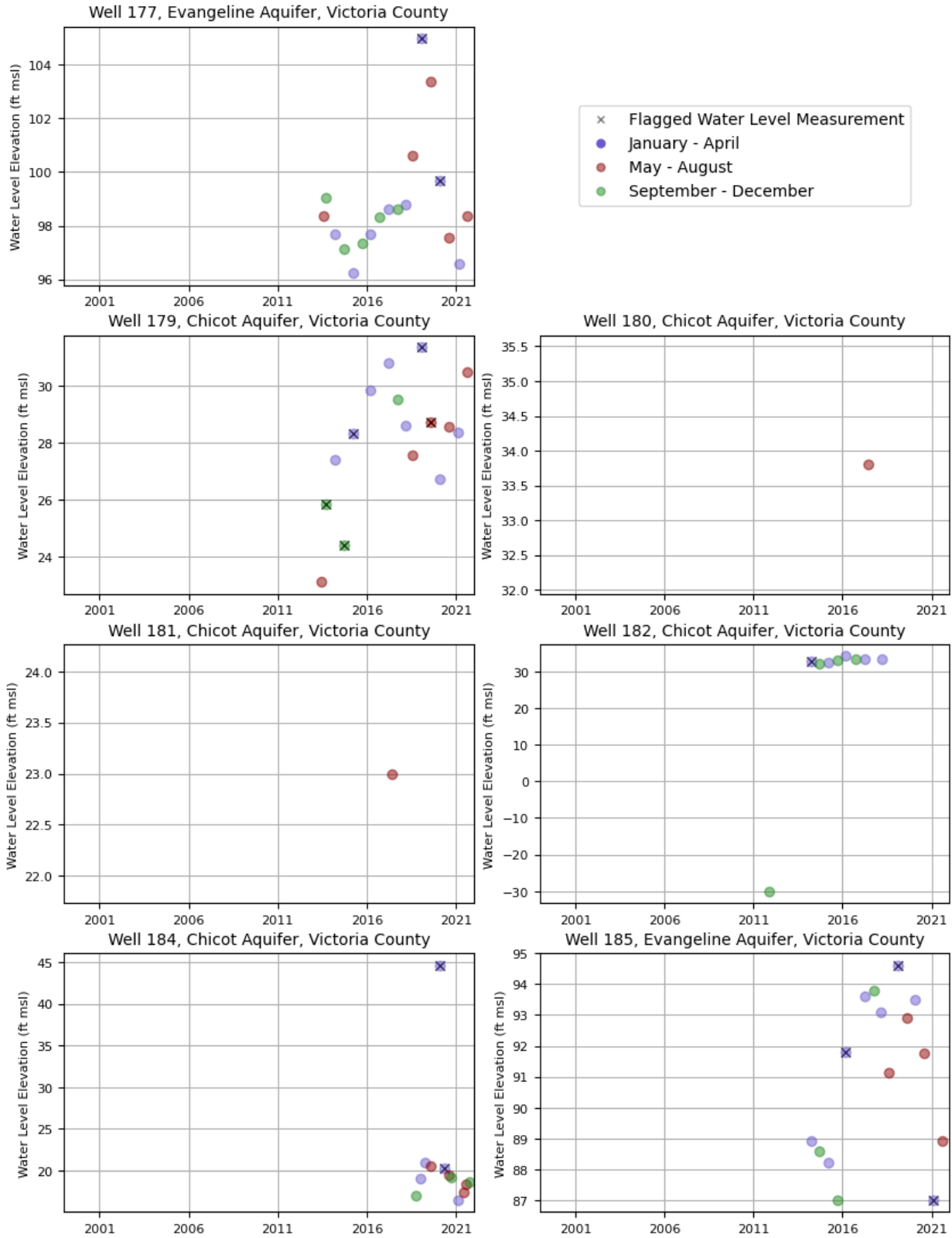


Figure 3B-27 Hydrographs for Wells 177, 179, 180, 181, 182, 184, and 185 in Victoria County



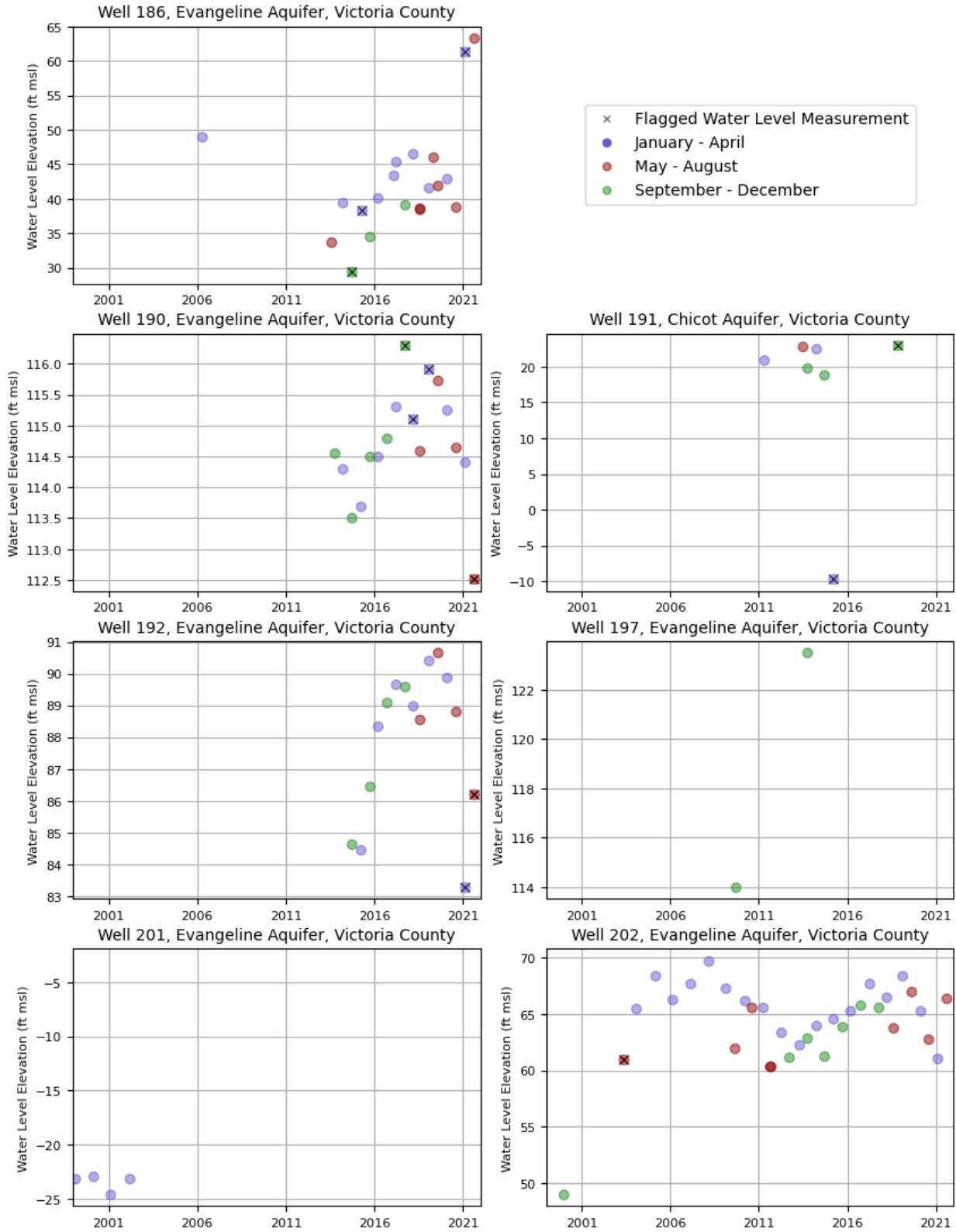


Figure 3B-28 Hydrographs for Wells 186, 190, 191, 192, 197, 201, and 202 in Victoria County

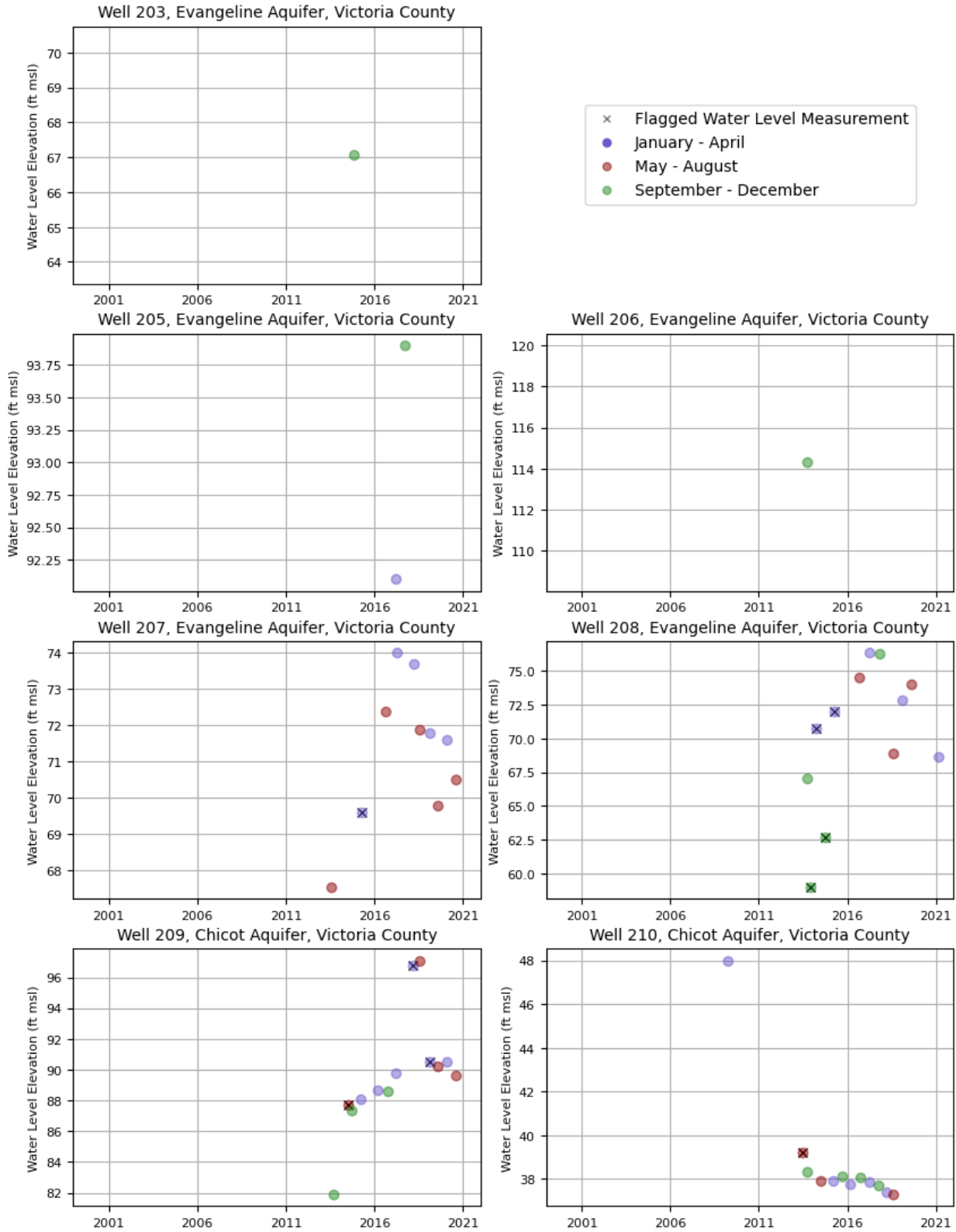


Figure 3B-29 Hydrographs for Wells 203, 205, 206, 207, 208, 209, and 210 in Victoria County

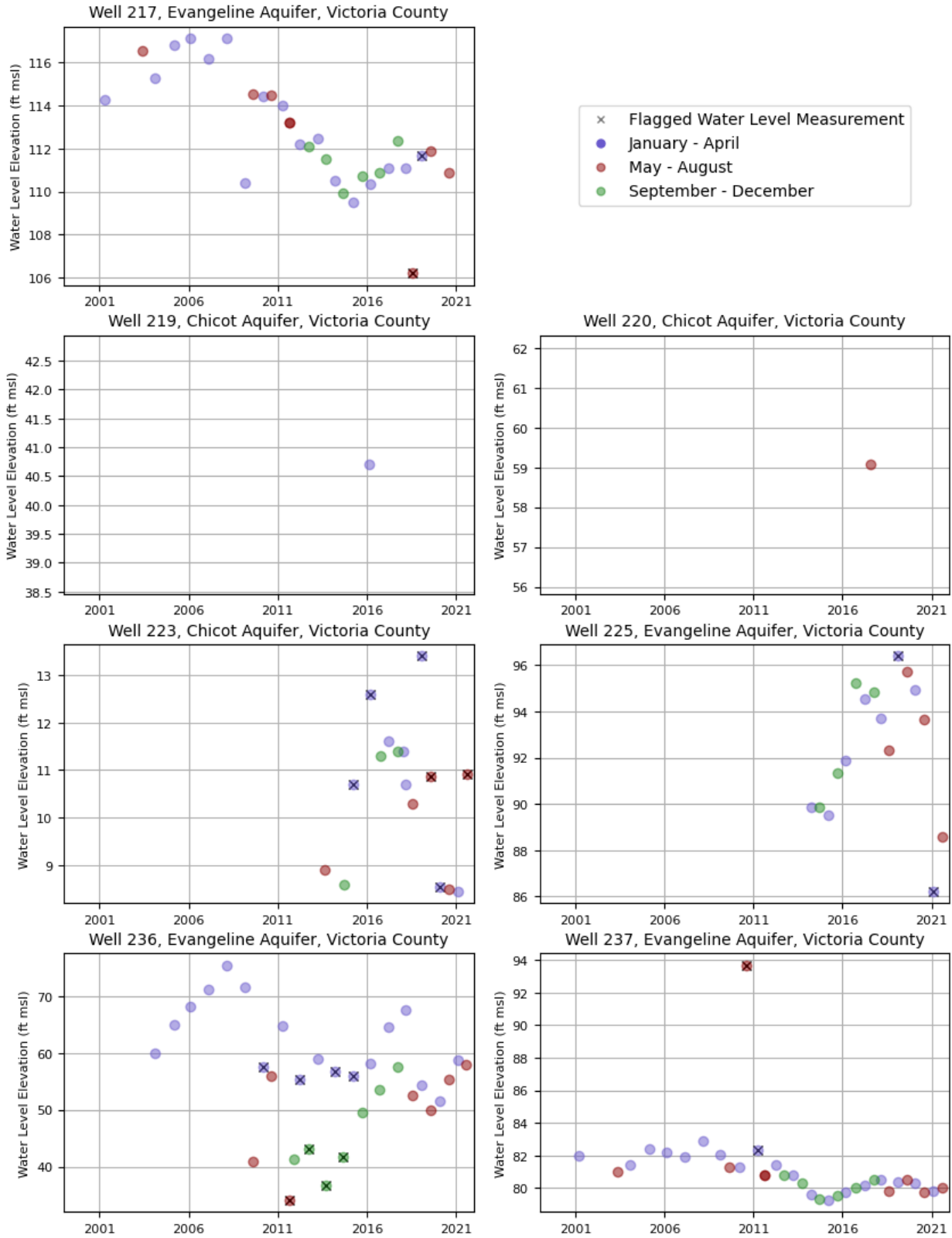


Figure 3B-30 Hydrographs for Wells 217, 219, 220, 223, 225, 236, and 237 in Victoria County

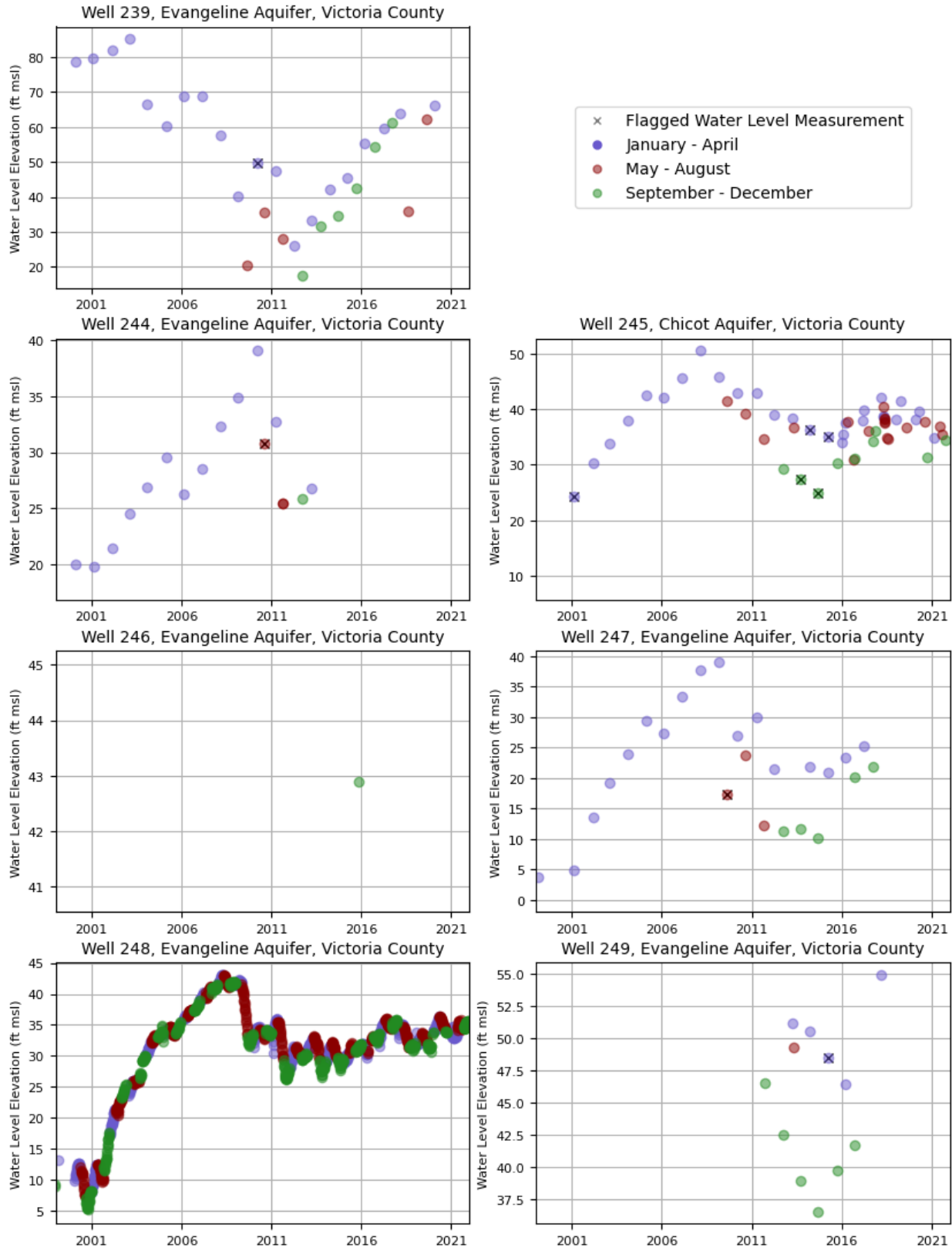


Figure 3B-31 Hydrographs for Wells 239, 244, 245, 246, 247, 248, and 249 in Victoria County

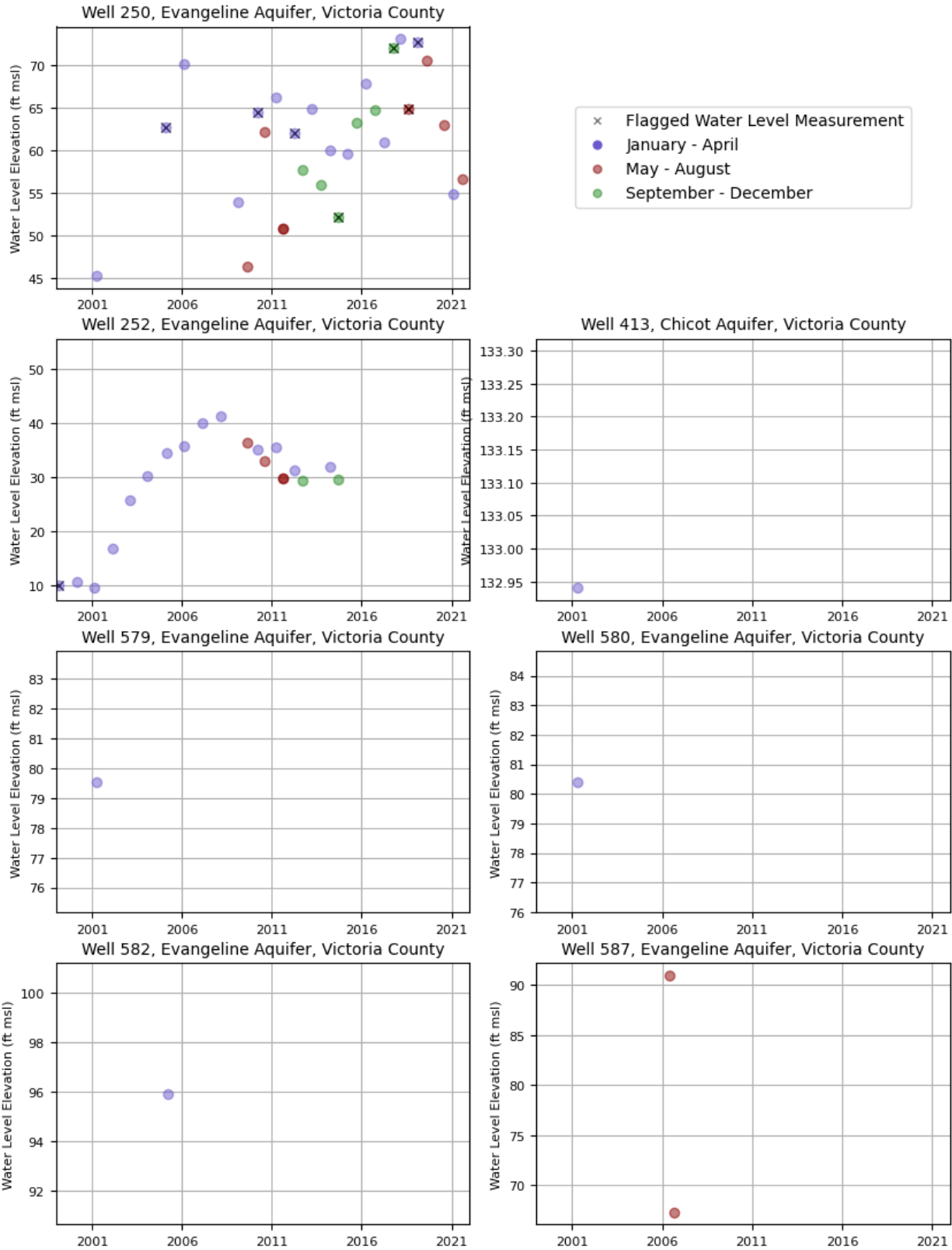


Figure 3B-32 Hydrographs for Wells 250, 252, 413, 579, 580, 582, and 587 in Victoria County

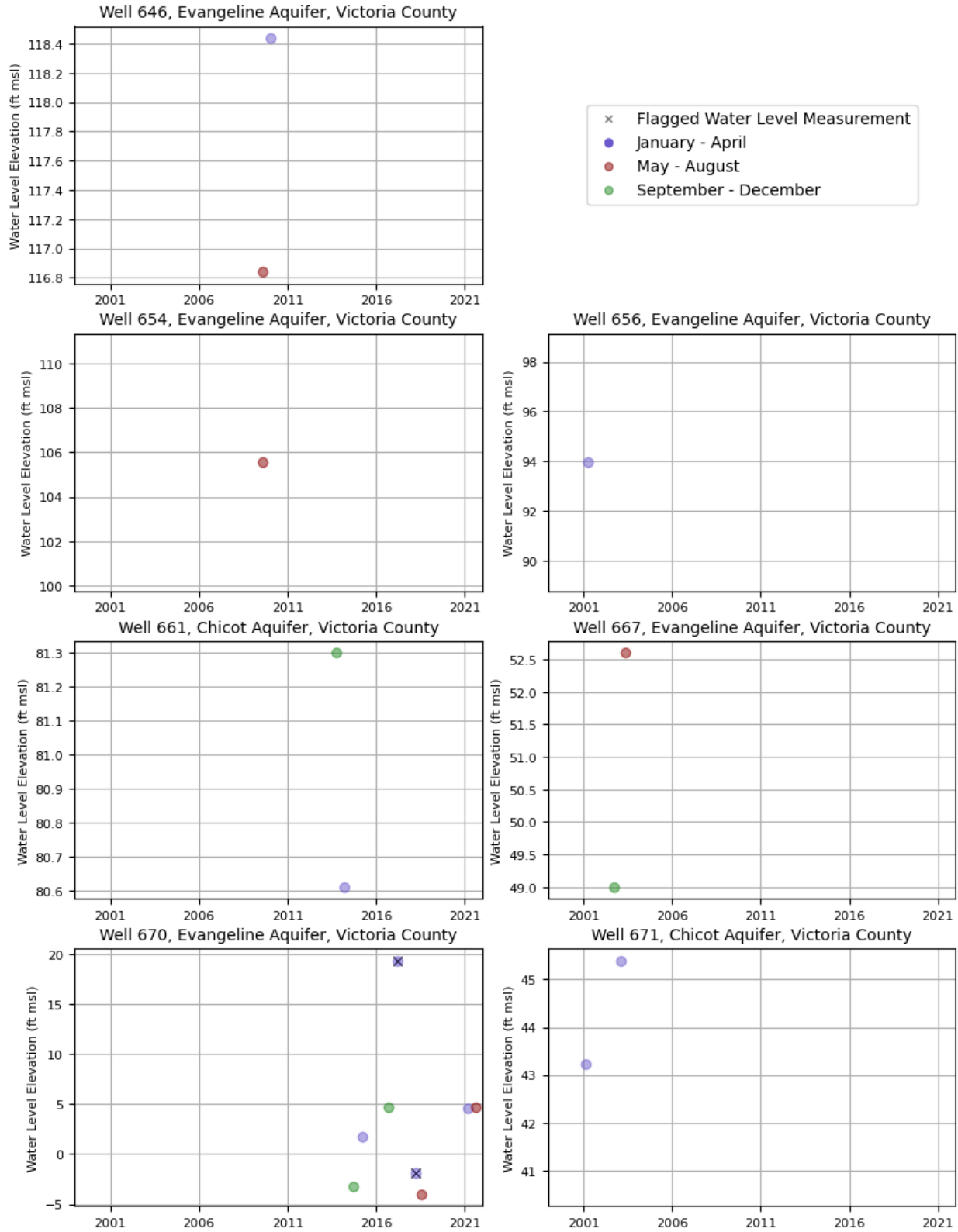


Figure 3B-33 Hydrographs for Wells 646, 654, 656, 661, 667, 670, and 671 in Victoria County



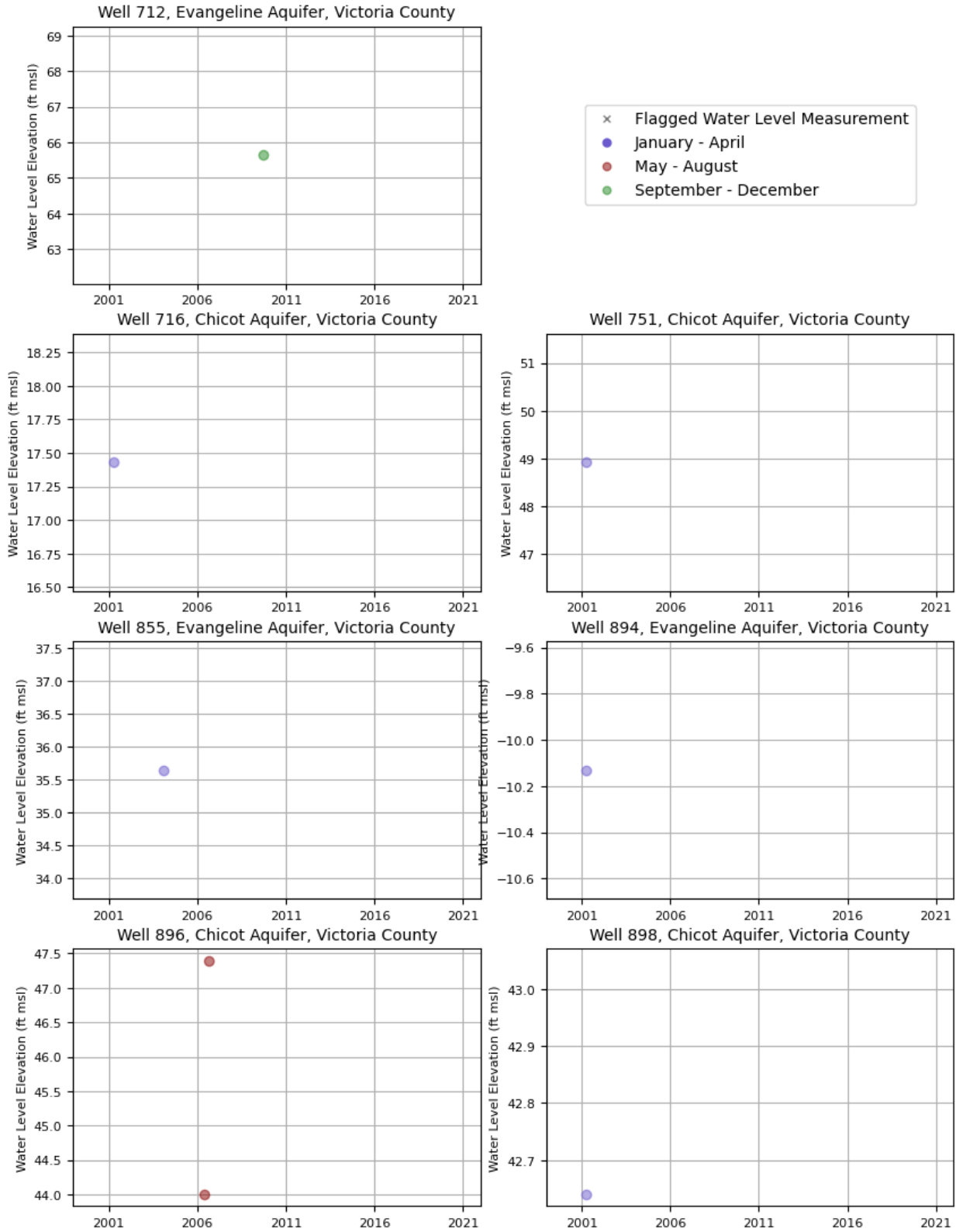


Figure 3B-34 Hydrographs for Wells 712, 716, 751, 855, 894, 896, and 898 in Victoria County

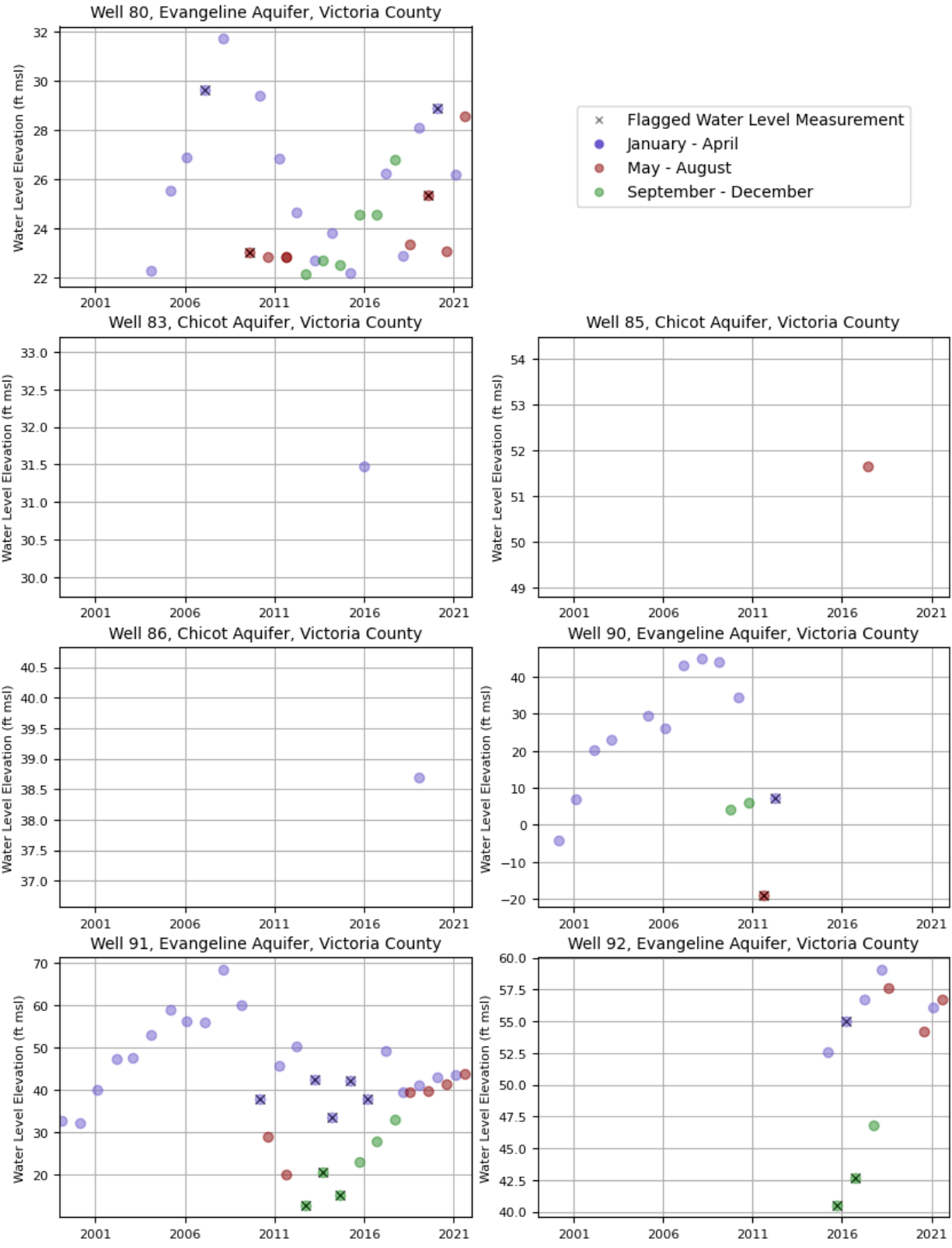


Figure 3B-35 Hydrographs for Wells 80, 83, 85, 86, 90, 91, and 92 in Victoria County

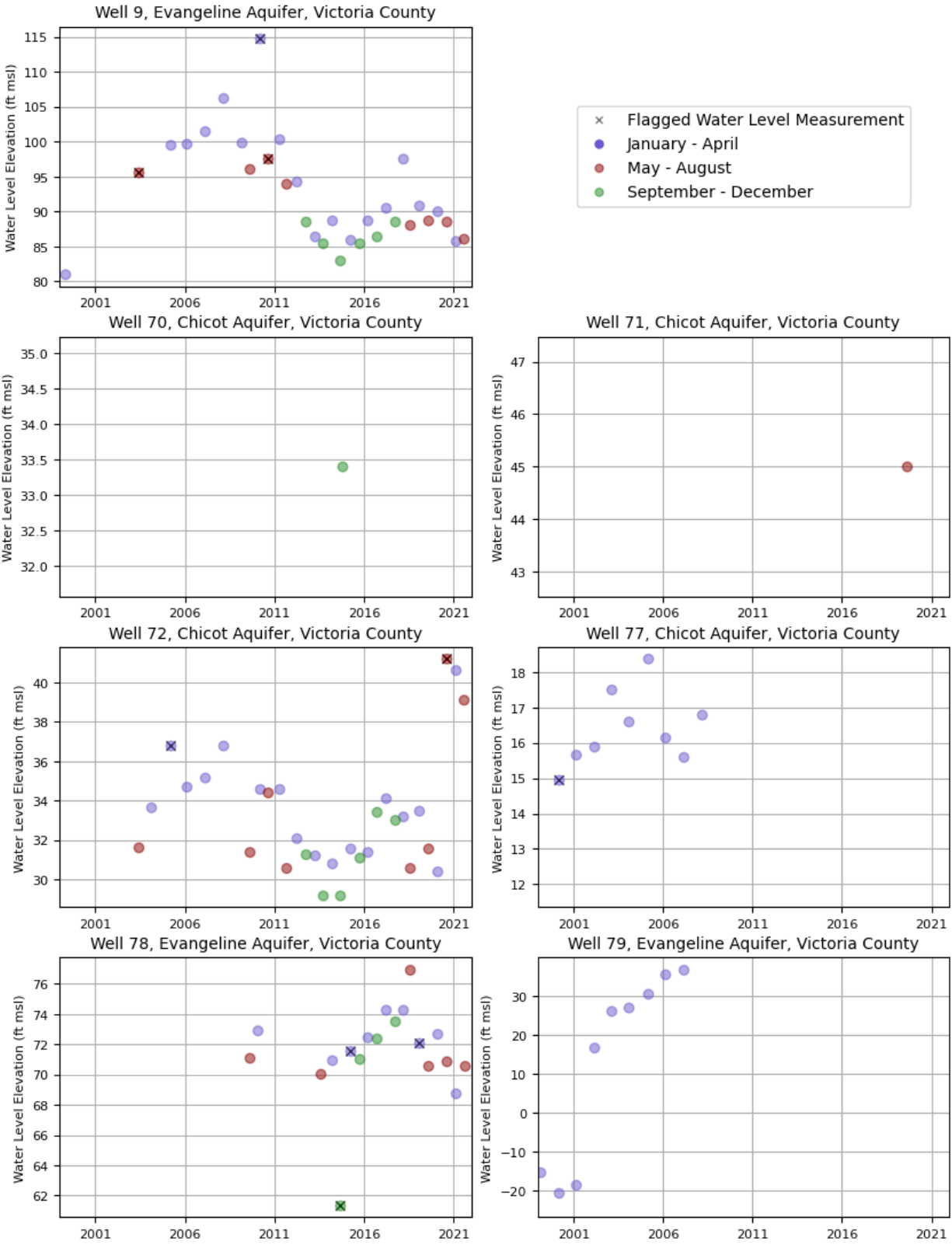


Figure 3B-36 Hydrographs for Wells 9, 70, 71, 72, 77, 78, and 79 in Victoria County

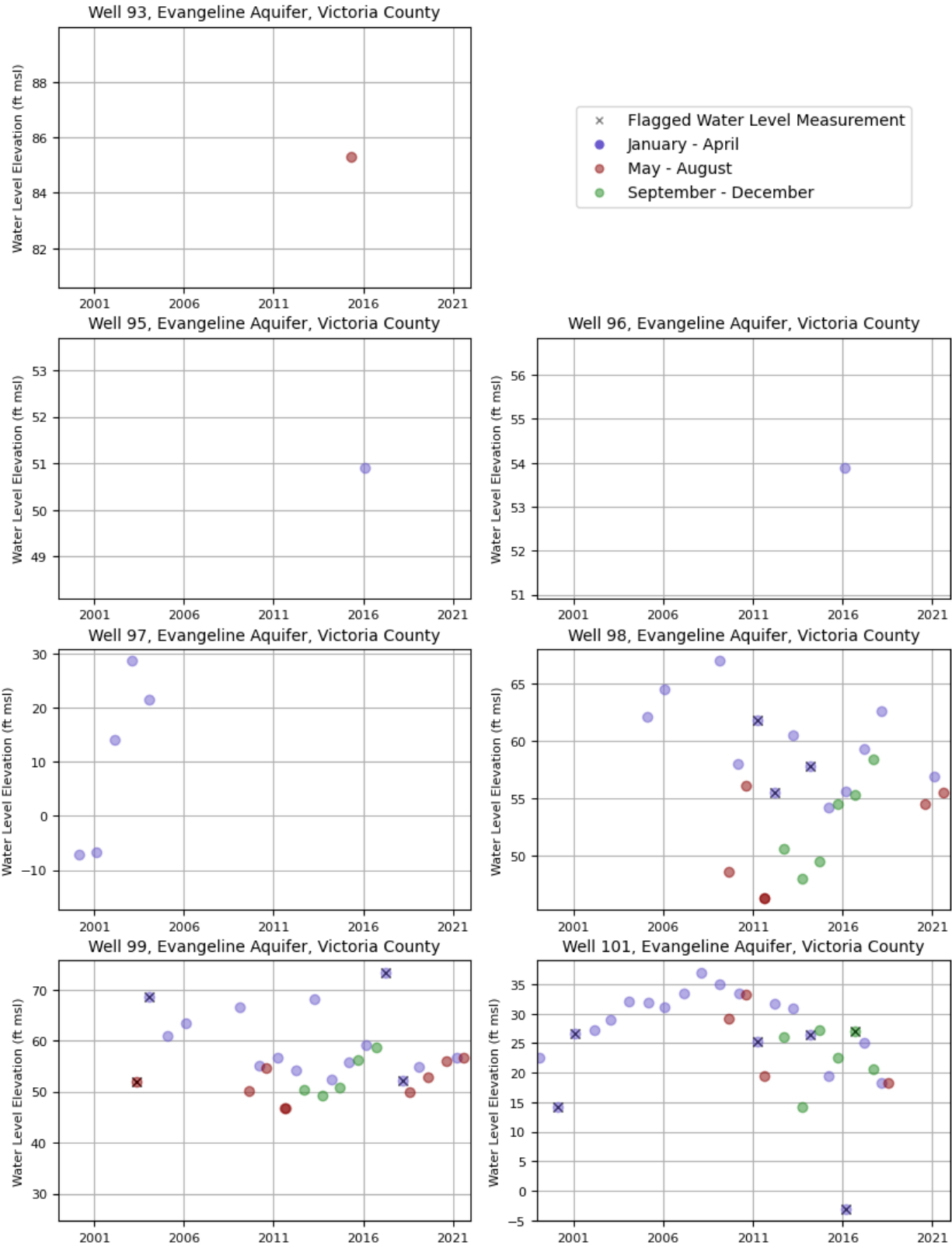


Figure 3B-37 Hydrographs for Wells 93, 95, 96, 97, 98, 99, and 101 in Victoria County

**APPENDIX 3C**  
**PROTOCOLS FOR MEASURING WATER LEVELS AND SPECIFIC**  
**CONDUCTANCE**

## 3C-1. STEEL TAPE (WETTED-TAPE) METHOD

### 3C-1.1 Appropriate Wells for this method:

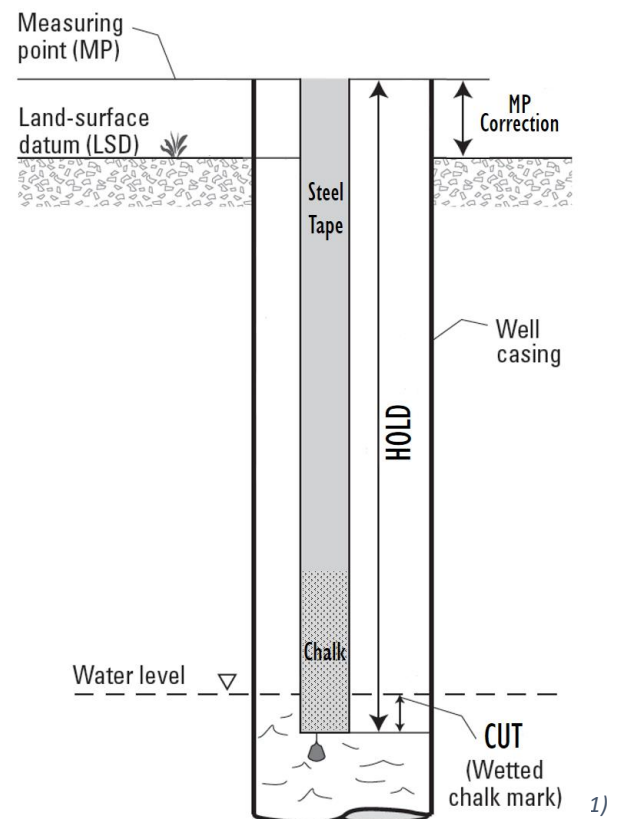
- ✓ water levels < 500 ft  
(< 200 ft for best results)
- ✓ an estimated water level is available
- X does NOT have angled casing
- X is NOT pumping
- X is NOT flowing
- X does NOT have water dripping into well or condensing on well casing

### 3C-1.2 Required Materials:

- Graduated steel tape.
- Non-lead break-away weight (to attach to the end of the tape, if necessary)
- Non-toxic blue carpenter's chalk
- Clean rag.
- Pencil or pen.
- Water-level measurement field form.
- Two wrenches with adjustable jaws or other tools for removing well cap.
- Cleaning supplies for water-level tapes.

### 3C-1.3 Steps:

7. If well is equipped with a submersible pump, confirm and record that the pump is not in operation. If the pump is operating, no water-level measurement should be taken or recorded. Obtain permission to collect measurement at a later time.
8. Record how long the pump has been off prior to taking the measurement. If the well has not been pumped for a period less than the prescribed shut off time for the well prior to taking the water-level measurement, try to reschedule the measurement for another time or estimate how long the well has been off and enter the time since pumping.
9. Identify a port or opening that provides access for the steel tape.
10. Measure and record the height of this opening above ground level. Record this as the measuring point correction value (**MP correction**). Describe the measuring point in the official record for the well, and use the same measuring point each time when measuring the water level. If not possible, record the height of the measuring point above land surface each time the static water level is measured.
11. Chalk the lowest 20 feet of the tape using a piece of blue carpenter's chalk.





12. Review recent measurements from the well and calculate a depth that is 10 feet lower than the last recorded static water level. Record this as the HOLD value.
13. Pinch the thumb and index finger on the tape at the HOLD value. Lower the weight and tape into the well the thumb and index finger meet the MP. The weight and tape should be lowered into the water slowly to prevent splashing.
14. Bring the tape to the surface. Record the length of the wetted chalk as the CUT value.
15. Subtract the CUT from the HOLD and record this number as the ***Depth to water from MP***.
16. Remove the wet chalk, wait 5 minutes and then make a check measurement by repeating steps 5 through 9 using a different HOLD value (1-2 feet lower or deeper) than that used for the original measurement.
17. If the check measurement does not agree with the original measurement within 0.02 foot, continue to make measurements until the measurements agree. If measurements continue to be unreliable, note in field log and reschedule the water-level measurement for a future date.
18. Subtract the ***MP correction*** from the ***Depth to water from MP*** value to get the depth to water below land-surface datum (LSD). Record the water level as the ***Depth to Water from Land Surface***. Note: If the water level is above LSD, record the depth to water in feet below land surface as a negative number.
19. Record date and time of measurement.
20. After completing the water-level measurement, remove the chalk and clean the lowest 30 feet with bleach wipes (0.525% sodium hypochlorite) or a chlorine bleach solution (minimum 0.5% sodium hypochlorite [NaOCl] and water). This will reduce the possibility of contamination of other wells from the tape.
21. Replace cap on any port in discharge head or casing. Leave the well and pump in the same condition as you found it prior to measurement.

### 3C-1.4 Data Recording

- Scan and enter handwritten field water level measurements and notes into the official District digital database within 2 weeks of the measurement.

### 3C-1.5 Other Considerations

- Periodically check the tape for rust, breaks, kinks, and stretching.
- Calibrate the tape annually by comparing to an unused (unstretched) tape.

## 3C-2. ELECTRIC TAPE (E-LINE) METHOD

### 3C-2.1 Appropriate Wells for this method:

- ✓ water levels < 500 ft (< 200 ft for best results)
- ✓ dripping or condensation on inside casing is OK
- X does NOT have very low specific conductance
- X does NOT have angled casing

### 3C-2.2 Required Materials:

- Electric tape and supply reel.
- Clean rag.
- Pencil or pen.
- Water-level measurement field form.
- Two wrenches with adjustable jaws or other tools for removing well cap.
- Cleaning supplies for water-level tapes.
- Replacement batteries

### 3C-2.3 Steps:

1. If well is equipped with a submersible pump, confirm and record that the pump is not in operation. If the pump is operating, no water-level measurement should be taken or recorded. Obtain permission to collect measurement at a later time.
2. Record how long the pump has been off prior to taking the measurement. If the well has not been pumped for a period less than the prescribed shut off time for the well prior to taking the water-level measurement, try to reschedule the measurement for another time or estimate how long the well has been off and enter the time since pumping.
3. Identify a port or opening that provides access for the steel tape.
4. Measure and record the height of this opening above ground level. Record this as the measuring point correction value (**MP correction**). Describe the measuring point in the official record for the well, and use the same measuring point each time when measuring the water level. If not possible, record the height of the

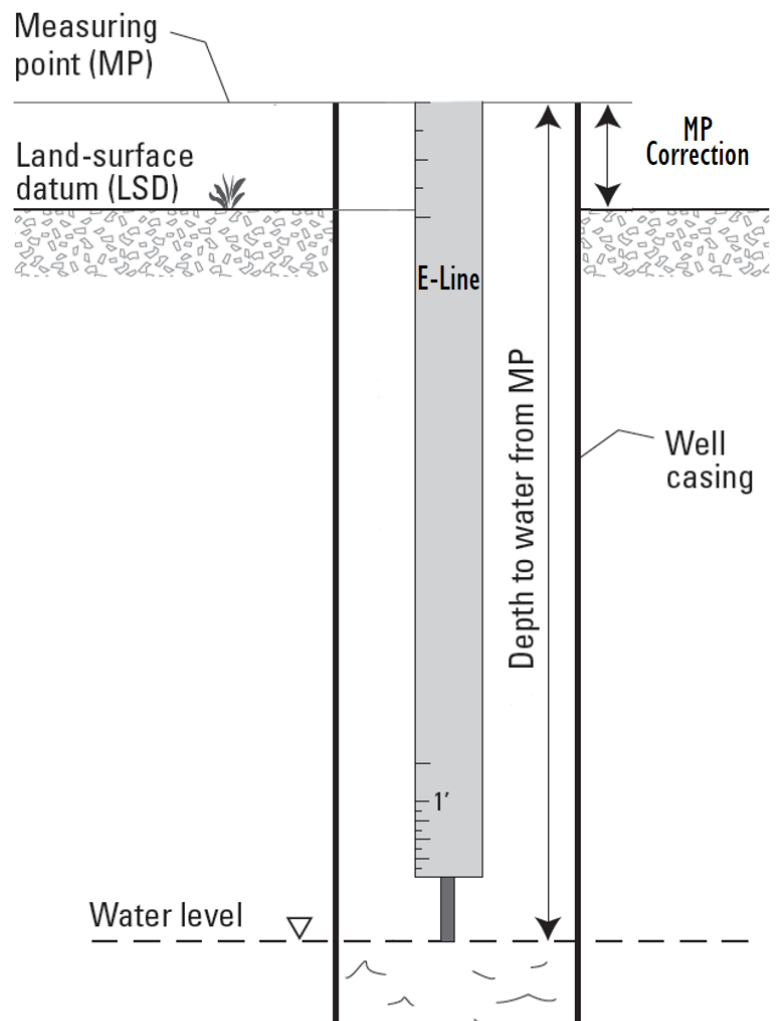


Figure E3C-2 Electric tape diagram (modified from USGS, 2011)

- measuring point above land surface each time the static water level is measured.
5. Prior to lowering the tape down the well, dip the probe into tap water to check whether the electric tape is working properly.
  6. Lower the tape slowly into the well until the indicator shows that the probe has made contact with the water surface.
  7. Retract the e-line about one foot above the water surface and slowly lower again until the probe makes contact with the water surface.
  8. Hold the electric line with a fingertip at the measuring point. Based on the 0.01 feet markings on the electric line, determine depth to water to the nearest 0.01 of a foot and record this value as the ***Depth to water from MP***.
  9. Retract the e-line about 5 feet, wait five minutes and then repeat the measurement.
  10. If the check measurement does not agree with the original measurement within 0.05 foot, continue to make measurements until the measurements agree. If measurements continue to be unreliable, note in field log and reschedule the water-level measurement for a future date.
  11. Subtract the ***MP correction*** from the ***Depth to water from MP*** value to get the depth to water below land-surface datum (LSD). Record the water level as the ***Depth to Water from Land Surface***. Note: If the water level is above LSD, record the depth to water in feet below land surface as a negative number.
  12. Record date and time of measurement.
  13. After completing the water-level measurement, remove the chalk and clean the lowest 30 feet with bleach wipes (0.525% sodium hypochlorite) or a chlorine bleach solution (minimum 0.5% sodium hypochlorite [NaOCl] and water). This will reduce the possibility of contamination of other wells from the tape.
  14. Replace cap on any port in discharge head or casing. Leave the well and pump in the same condition as you found it prior to measurement.

### 3C-2.4 Data Recording

- Scan and enter handwritten field water level measurements and notes into the official District digital database within 2 weeks of the measurement.

### 3C-2.5 Other Considerations

- Periodically check the tape for rust, breaks, kinks, and stretching.
- Calibrate the tape annually by comparing to an unused (unstretched) steel tape and/or checking measurements against measurements from a calibrated steel tape.
- Check battery strength regularly.

## 3C-3. AIR LINE METHOD

### 3C-3.1 Appropriate Wells for this method:

- ✓ Air line is already installed or can be installed
- ✓ Depth of air line is known

### 3C-3.2 Required Materials:

- 1/8 or 1/4-inch diameter air line (seamless copper tubing, brass tubing, galvanized pipe or flexible plastic tubing)
- suitable pipe tee for connecting an altitude or pressure gauge to air line.
- Calibrated altitude gauge (readings in feet) or pressure gauge (readings in psi), and spare gauges.
- Compressed air source (ex. tire pump) and corresponding valve stem (ex. Schrader valve)
- Small open-end wrench
- Wire or electrician's tape
- Graduated steel tape
- Blue carpenter's chalk
- Clean rag
- Field notebook
- Pencil or pen
- Water-level measurement field form

### 3C-3.3 Steps:

1. If well is equipped with a submersible pump, confirm and record that the pump is not in operation. If the pump is operating, no water-level measurement should be taken or recorded. Obtain permission to collect measurement at a later time.
2. Record how long the pump has been off prior to taking the measurement. If the well has not been pumped for a period less than the prescribed shut off time for the well prior to taking the water-level measurement, try to reschedule the measurement for another time or estimate how long the well has been off and enter the time since pumping..
3. Attach a pipe tee to the top end of the air line. On the opposite end of the pipe tee, attach a Schrader valve stem.

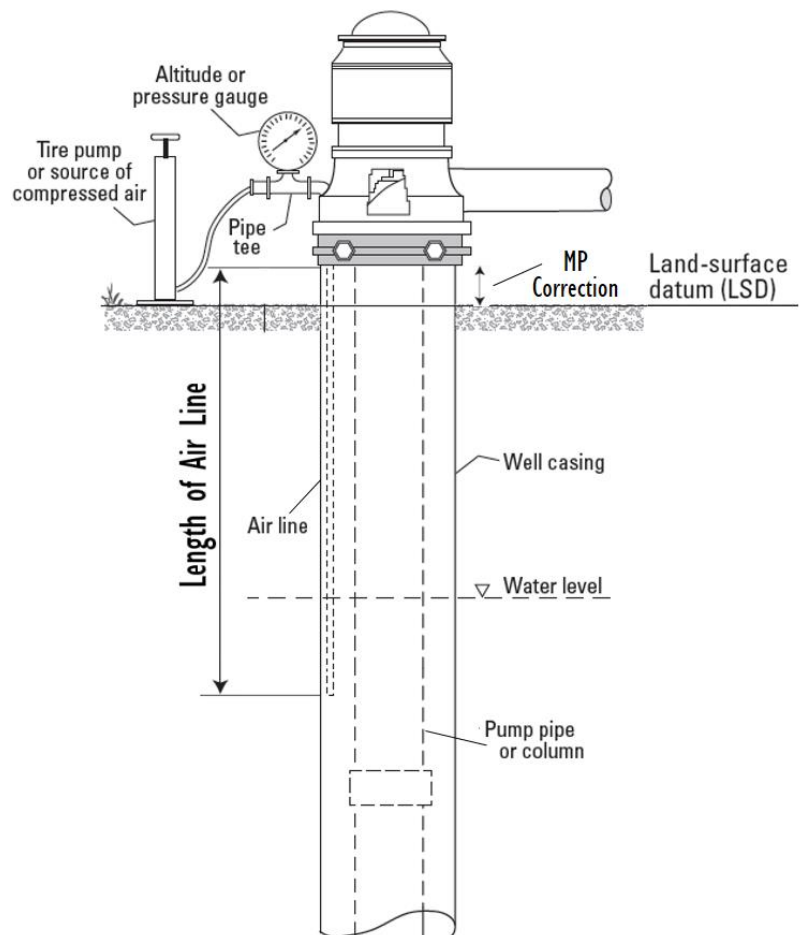


Figure E3C-3. Air line diagram (modified from USGS, 2011)

4. Use a wrench to connect an altitude gauge (readings in feet) or a pressure gauge (readings in psi) to the fitting on top of the pipe tee.
5. Connect a compressed air source to the valve stem fitting on the pipe tee.
6. Add compressed air to the air line and make sure that the gauge shows pressure is increasing. If the gauge does not move, this means there is a leak. Check connections and retry until problem is fixed. If problem cannot be fixed, retry with a different pressure gauge. If problem still cannot be fixed, measurement by air line is not possible.
7. Continue adding compressed air to the air line until gauge pressure stops increasing. This means all the water has been purged from the air line. Record this maximum pressure as the pressure at the bottom of the air line.
8. Remove the compressed air and make sure that the gauge shows pressure slowly decreasing. If the pressure instead decreases sharply to zero, this means there is a leak in the air line (ex. the tubing is cut or severed). If the pressure does not change, this means there is a blockage in the air line (ex. the tubing is plugged or crushed). In these cases, retry with a different pressure gauge. If problem cannot be fixed, measurement by air line is not possible until air line is replaced.
9. If air line and pressure gauge are working correctly, then after removing the compressed air, the gauge should slowly decrease and eventually stop at a constant pressure. Once the gauge holds constant for 5 minutes, record the gauge reading as the pressure of the water above the bottom of the air line.
10. Repeat steps 7 through 9 until gauge readings are consistent.
11. a) If using an altitude gauge (reads in feet), subtract the gauge reading from the total length of air line. Record this value as ***Depth to water from MP***.  
b) If using a pressure gauge (reads in psi), multiply the gauge reading by 2.31 to convert pressure to feet. Subtract this value from the total length of air line. Record this value as ***Depth to water from MP***.
12. Subtract the ***MP correction*** from the ***Depth to water from MP*** value to get the depth to water below land-surface datum (LSD). Record the water level as the ***Depth to Water from Land Surface***. Note: If the water level is above LSD, record the depth to water in feet below land surface as a negative number.
13. Record date and time of measurement.
14. Replace cap on any port in discharge head or casing. Leave the well and pump in the same condition as you found it prior to measurement.

### 3C-3.3 Data Recording

- Scan and enter handwritten field water level measurements and notes into the official District digital database within 2 weeks of the measurement.

### 3C-3.4 Other Considerations

- If possible, air line length and measurement accuracy should be verified using an independent method (ex. steel tape measurement).
- The altitude/pressure gauge should be periodically calibrated.

## 3C-4. TRANSDUCER METHOD

### 3C-4.1 Appropriate Wells for this method:

- ✓ Transducer is already installed or can be installed
- ✓ Has reliable power supply
- X Water levels do NOT fluctuate beyond range of transducer

### 3C-4.2 Required Materials:

- Vented submersible pressure transducer (most installations) or non-vented submersible pressure transducer (for telemetry installations)
- Perforated PVC pipe to provide protective housing for transducer (necessary in pumping wells)
- Transducer Cables
- Suspension system for the transducer and cables (ex. wire ties)
- Power supply
- Computer with appropriate adapters and transducer software
- Graduated steel tape
- Blue carpenter's chalk
- Clean rag
- Field notebook
- Pencil or pen
- Contact-burnishing tool (ex. artist's eraser)
- Multi-meter
- Spare desiccant
- Replacement batteries
- Water-level measurement field form

### 3C-4.3 Steps (Initial Installation):

1. Based on known well characteristics, choose the appropriate type of transducer for the well. For wells with little or no pumping, a 30 psi transducer (which allows 69 feet of submergence) is sufficient. In high-volume pumping wells, a 100 psi transducer (which allows for up to 197 feet of submergence) may be necessary.
2. For pumping wells, determine the depth to the pump and manufacture a protective sleeve that is long enough to extend well head down to just above the pump. This will be used to isolate the transducer from any frequency or electrical noise that may be generated by the pump.
3. Prior to going to field, install manufacturer supplied software to computer(s) that will be used to interface with the transducers and make sure software is working correctly.
4. Follow manufacturer's instructions to install transducer onto cable and connect transducer cable to computer, allowing software to establish signal to transducer.
5. In the software, input settings for data recording task. Start with a data collection frequency of one measurement per hour. After signal established and transducer programmed, disconnect transducer from computer.



6. Measure the water level in the well with a steel tape following the steel tape measuring protocol.

7. Install transducer in well by lowering it (with its protective pipe, if used) into the well slowly until it is submerged below the water level measured with the steel tape. **\*\*Do NOT allow the transducer to free fall into the well.\*\***

8. Continue lowering the transducer until it is deep enough that it will not go dry under anticipated water levels. For wells with little to no pumping (30 psi transducer), lower the transducer to approximately 50 feet below depth to water. For wells with high-volume pumping (100 psi transducer), lower the transducer to either the depth to the pump or 150 feet below depth to water, whichever is shallower.

9. Secure transducer and cable following manufacturer's recommendations to keep unit stable.

10. Mark the cable at the hanging point so that any future slippage can be determined.

11. Reconnect transducer to computer and ensure that the channel, scan intervals, and other functions selected are correct. Activate the data logger and set the correct time. Check that the water level measured is consistent with the water level measured with the steel tape. Make sure the data logger is operating prior to disconnecting from computer.

12. Record well and measuring point (MP) configuration, including the MP correction length above the land surface, the hanging point, and the hanging depth.

13. If necessary, install an instrument shelter that will protect the transducer and data logger from vandalism and weather.

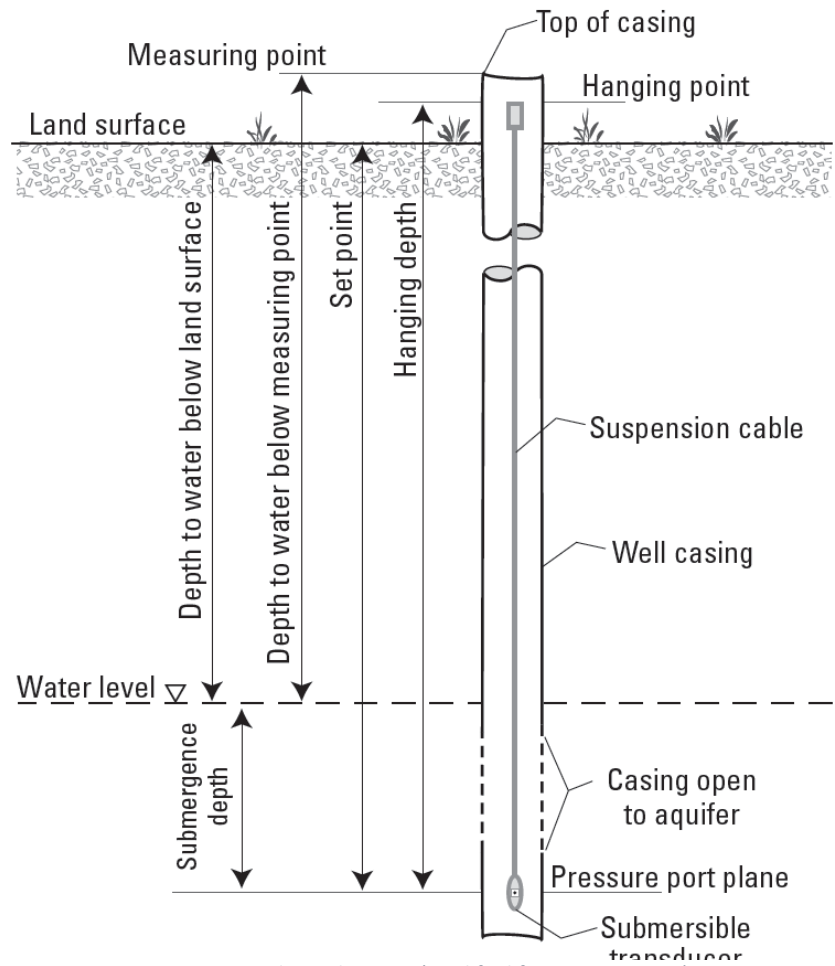


Figure E3C-4. Transducer diagram (modified from USGS, 2011)

### 3C-4.4 Steps (Existing Installation):

1. Every 3-4 months (or life expectancy of desiccant), retrieve groundwater data by connecting transducer cable to computer and using data logger software.
2. Record the current water level displayed by the sensor.

3. Measure the water level in the well with a steel tape following the steel tape measuring protocol and record this value.
4. If the water-level measurement and transducer reading differ by more than 1 foot:
  - a. Check that the transducer is working by raising the transducer in the well slightly and taking a reading. Return transducer exactly to its original position after this check.
  - b. Check for other causes of measurement inconsistency such as cable kinks or slippage.
  - c. Recalibrate or replace the transducer if necessary and reset the instrumentation to reflect the proper depth to water.
  - d. Note ALL changes in the record.
5. If the water-level measurements retrieved from the transducer over the past months show any periods of flat-lining, this means the transducer went dry and indicates that the water level fluctuation exceeded the range of the transducer. If a 30 psi transducer is being used, replace the transducer with a 100 psi transducer and lower it to a deeper depth. If a 100 psi transducer is being used, lower the transducer to a deeper depth. If problem persists, continuous water level monitoring may not be possible at that well.
6. Perform basic maintenance checks:
  - a. Check the charge on the battery and the charging current supply to the battery using a multimeter and replace batteries as necessary
  - b. Check connections to the data logger and tighten as necessary.
  - c. If corrosion is occurring, burnish contacts.
  - d. Check desiccant and replace if necessary.
7. Verify the logger channel and scan intervals, document any changes to the data logger program, and reactivate the data logger to resume data collection. Make sure the data logger is operating prior to disconnecting cable from computer.
8. Repeat Steps 1 through 6.

### **3C-4.5 Data Recording**

- Scan and enter handwritten field water level measurements and notes into the official District digital database within 2 weeks of the measurement.
- Process downloaded transducer data and enter into the official District digital database within 2 weeks of collection.
- If data is collected remotely via telemetry, upload to the official District digital database weekly every Sunday at midnight.

### **3C-4.6 Other Considerations**

- Transducers should be checked against other water level measurement methods regularly.
- Transducers may need to be periodically recalibrated and/or replaced.

## 3C-5. MEASURING WATER LEVELS IN A FLOWING WELLS

### 3C-5.1 Appropriate Wells for this method:

- ✓ Wells with groundwater that caused the water level to rise above land surface
- ✓ wells with a discharge pipe that has a faucet or an exit port that

X is a flowing well

X does NOT have angled casing

### 3C-5.2 Required Materials for Low-pressure head measurement:

- Short length of transparent plastic tubing
- Clamp or fitting that connects discharge pipe to transparent plastic tubing
- Step ladder
- Measuring tape .
- Pencil or pen
- Water-level measurement field form

### 3C-5.3 Required Materials for Low-pressure head measurement:

- Altitude or pressure gauge with proper pressure range and a spare gauge
- Small wrench
- Soil-pipe test plug, also known as a sanitary seal, is a length of pipe surrounded by a rubber packer. The packer can be expanded by a wingnut to fit tightly against the inside of the well casing or discharge pipe. The small diameter pipe is threaded so that it can be attached to a valve, hose or pressure gauge.
- Pencil or pen
- Water-level measurement field form

### 3C-5.4 Steps for Measurement in wells with low-pressure

1. If well is equipped with a submersible pump, confirm and record that the pump is not in operation. Record the time that the pump has been off.
2. Cut off flow from the discharge point
3. Attach a length of tubing to the discharge point

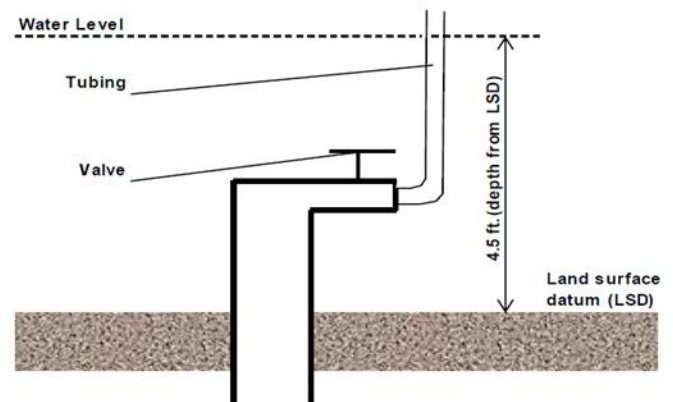


Figure E3C-5 Schematic showing a tubing connected to a discharge point for a flowing well that is under low hydraulic pressure (figure from Hopkins and Anderson (2018))

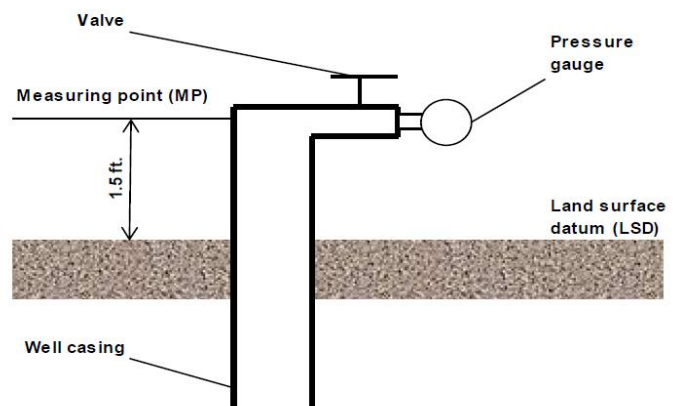


Figure E3C-6 Schematic showing the pressure gauge connected to a discharge point for a flowing well that is under a high hydraulic pressure (figure from Hopkins and Andersen (2018))

4. Close any other discharge point
5. Open the pressure and flow to the discharge point and raise the tubing until the water does not flow from the tubing. If the well is outside, use a step ladder to rise the tubing above the top of the well.
6. Measure the distance of the water level to a know datum (see Figure E3C-5)
7. Lower the tubing and then raise tubing, measuring again to ensure consistency

### 3C-5.5 Steps for Measurement in wells with high-pressure

1. If well is equipped with a submersible pump, confirm and record that the pump is not in operation. Record the time that the pump has been off.
2. Cut off flow from the discharge point
3. Connect a pressure gauge to the discharge point with a hose bib or a pipe with an adjustable valve
4. Close any other discharge point
5. Slowly open the water flow to a pressure gauge
6. Make note of the pressure reading. Multiply the pressure reading in psi (pounds per square inch) to get water above the measuring point (MP) see Figure E3C-6.
7. For flowing wells, the MP is added to the feet of water above the MP. For example (see Figure 6-8), if the feet of water above MP is 35.2 and the MP is +1.5, the calculation is  $35.2 + (1.5) = 36.7$  ft.

### 3C-5.6 Data Recording

- Scan and enter handwritten field water level measurements and notes into the official District digital database within 2 weeks of the measurement.
- Process downloaded transducer data and enter into the official District digital database within 2 weeks of collection.
- If data is collected remotely via telemetry, upload to the official District digital database weekly every Sunday at midnight.

### 3C-5.7 Other Considerations

- Low-pressure head measurements are most feasible with heads less than 6 feet above land surface.
- High pressure head measurements using a pressure gauge can be as accurate as 0.1 foot, but may only be accurate to 1 foot or more, depending on the gauge accuracy and range.
- Closing or opening a valve or test plug in a flowing well should be down gradually. If pressure is applied or released suddenly, the well could be permanently damaged by the “water-hammer effect”.
- Ideally, all flow from the well should be shut down so that a static water-level measurement can be made. However, because of well owner objections or system leaks, this is not always possible. If the well does not have a shut-down valve, it can be shut-in by temporarily installing a soil-pipe test plug on the well or discharge line.

## 3C-6. SPECIFIC CONDUCTANCE METER (TDS)

### 3C-6.1 Appropriate Wells for this method:

- ✓ Direct water sample retrievable
- ✓ Approx. TDS range known
- X Does NOT have high TDS values (that exceed range of meter)

### 3C-6.2 Required Materials:

- Specific conductance meter
- Standard solution for instrument calibration
- Deionized water
- Plastic wash bottle
- Kimwipes
- Pencil or pen
- Water-level measurement field form
- Lab collection container & lab-specific instructions [if sending sample to outside testing facility]

### 3C-6.3 Steps:

1. The meter should be calibrated on-site with two conductivity standards that bracket the expected conductivity of the sample. Pick these two standards and verify that they are not expired.
2. Bring standard solutions to the temperature of well water by suspending the standards in a bucket into which well water is flowing. Allow at least 15 minutes for temperature equilibration.
3. Rinse the probe with deionized water and blot dry.
4. Connect the probe to the meter and place the probe in one of the standardizing solutions.
5. Set the selector knob to conductivity and allow the reading to stabilize. Adjust the reading using the knob on the back of the instrument until the reading matches that of the standard.
6. Remove the conductivity probe from the standard solution, rinse with deionized water, and blot dry.
7. Repeat steps 4 through 6 with the second standardizing solution.
8. Submerge multimeter into well water and wait for temperature, pH and conductivity values to stabilize. Record temperature, pH and conductivity once readings have stabilized.
9. If taking a grab sample for further laboratory testing, acquire clean water sample from well after multimeter readings have stabilized. Follow the lab-specific instructions for collection and packaging of grab sample.
10. Remove probe, rinse with deionized water, and blot dry.
11. Turn meter off, disconnect probe, and pack both in their case.

### 3C-6.4 Data Recording

- Scan and enter handwritten field water level measurements and notes into the official District digital database within 2 weeks of the measurement.
- Process downloaded transducer data and enter into the official District digital database within 2 weeks of collection.

### **3C-6.5 Other Considerations**

- Meters need to be calibrated before each measurement.
- Calibration standard solutions need to be replaced regularly.
- Meters need regular maintenance and should be checked and calibrated periodically.



**APPENDIX 3D**

**DISTRICT HEALTH AND SAFETY PLAN FOR**

**PERFORMING WELL AND/OR TAP SAMPLING ACTIVITIES**

**Draft Health and Safety Plan for Performing Well and/or Tap Sampling Activities  
within the Victoria, Jackson, Calhoun, and Refugio Counties.**

Prepared for:

Calhoun County GCD  
Refugio GCD  
Texana GCD  
Victoria County GCD

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Austin, Texas 78759

October 2022  
version 1.0

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Table 2 Emergency Phone Numbers

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Figure HASP-1 Hospital Location Map- Rockdale Hospital

## **FORMS**

Form 1 Site Personnel Acknowledgement Form

Form 2 Safety Meeting Attendance Form

Form 3 Incident Investigation Report Form

Form 4 Site Visitor Log

## **APPENDICES**

Attachment A Health and Safety Requirements for Heavy and Light Equipment

Attachment B Heat and Cold Stress Casualty Prevention Plan

Attachment C Safety Data Sheets

## 1.0 INTRODUCTION

The District performs groundwater well sampling activities for multiple residences and public suppliers located within the District's jurisdiction. This Health and Safety Plan (HASP) establishes guidelines and requirements for the safety of personnel during the performance of the field activities. The specific field activities addressed by this plan are defined in Section 4.0. Employees and Contractors of the Districts are required to abide by the provisions of this plan.

The health and safety guidelines and requirements presented are based on a review of available information and an evaluation of potential hazards. This HASP outlines the health and safety procedures and equipment required for activities at this site. This is a dynamic document. In the event that the contents of this HASP need to be changed, site personnel shall be informed of the change(s) and shall then be responsible for abiding by the protocol of those revisions. The Project Manager, the Project Health and Safety Officer, or the Site Safety Officer may modify this plan in response to additional information obtained regarding the potential hazards to personnel and conditions at the site. Consultation between the Project Manager and a Health and Safety Officer is recommended before establishing HASP modifications.

## 2.0 POLICY

The District considers the prevention of illness, injury, and accidents in the workplace to have greater importance than any other facet of the work. Safety shall always take precedence over expediency or shortcuts, and every attempt shall be made to reduce the possibility of injury, illness, or accident occurrence. Site activities assigned under a subcontract or purchase order issued shall be conducted in accordance with the established safety regulations of the Occupational Safety and Health Administration (OSHA), and other applicable Federal, State, County, and City regulations. Personnel, including District subcontractors, lower tier subcontractors, consultants, and service personnel, who perform any task in relation to site activities or are visitors to the site, shall adhere to the provisions of these requirements. This HASP does not apply to owner representatives.

## 3.0 KEY PERSONNEL

**Project Manager:** Tim Andruss (361-648-9762 (m), 361-579-6863(o))

For this project, the Project Manager has the following responsibilities:

- Supervise the preparation and implementation of an approved HASP for this project;
- Ensure that the project is performed in a manner consistent with the HASP; and
- Ensure compliance with the HASP by District personnel.

The Project Manager has the authority to take the following actions:

- Suspend field activities if the health and safety of personnel are endangered, pending further consideration by the Project Health and Safety Officer or the Site Safety Officer (SSO); and
- Dismiss or suspend an individual from field activities for infractions of the HASP, pending further consideration by the Project Health and Safety Officer or the SSO.

**Project Health and Safety Officer:** Bobby Bazan (512-455-9900)

The Project Health and Safety Officer has the following responsibilities:

- Coordinate with the Project Manager as required in matters of health and safety;
- Develop a HASP for the project and to submit it to the Project Manager for approval;
- Appoint or approve a SSO to assist in implementing the HASP;
- Monitor compliance with the approved HASP;
- Assist the Project Manager in seeing that proper health and safety equipment is available for the project; and
- Approve personnel to work on this site according to appropriate medical monitoring, and health and safety training.

The Project Health and Safety Officer has the authority to take the following actions:

- Suspend work or otherwise limit exposure to personnel if the HASP appears to be unsuitable or inadequate;
- Direct personnel to change work practices if they are deemed to be hazardous to health and safety of personnel; and
- Remove personnel from the project if their actions or condition endangers their health and safety or the health and safety of co-workers.

**Site Safety Officer (SSO): Bobby Bazan (512-455-9900)**

The SSO has the following responsibilities:

- Direct health and safety activities on site;
- Report safety-related incidents or accidents to the Project Manager and the Project Health and Safety Officer;
- Assist the Project Manager in implementing the HASP; and
- Maintain health and safety equipment on site, as specified in the HASP.

The SSO has the authority to take the following actions:

- Suspend field activities if the health and safety of personnel are endangered, pending further consideration by the Project Manager and the Project Health and Safety Officer; and
- Dismiss or suspend an individual or subcontractor from field activities for infractions of the HASP, pending further consideration by the Project Manager and the Project Health and Safety Officer.

## 4.0 Site Activities

The District performs groundwater well sampling activities for multiple residences and public suppliers located within the District's jurisdiction. This Health and Safety Plan encompasses activities required to complete the assessment objectives.

Activities for the groundwater well sampling activities include:

- Meeting or communicating with well owner to determine which wells will be sampled;
- If not personally performing the water sampling, a District representative will then escort subcontracted field personnel to each well for sampling activities;

For water level measurements:

- Documenting location of well to be sampled in field notebook and with photographs;



- Documenting the measured field parameters in field notebook or appropriate District field measurement form;

For water quality sampling:

- Identifying the tap located at, or nearest, to the wellhead;
- Purging the water well in accordance with Texas Commission on Environmental Quality (TCEQ) standard operating procedure (SOP) number 7.9;
- Documenting location of tap to be sampled in field notebook and with photographs;
- Documenting the measured field parameters during well purging including pH, conductivity, temperature, dissolved oxygen, turbidity and ORP;
- Collecting a representative sample in accordance with TCEQ SOP No. 7.10 in laboratory containers provided by the laboratory;
- And ice preservation of all samples collected for delivery to the analytical laboratory.

Groundwater quality samples will be submitted to DHL Analytical in Round Rock, Texas and samples will be analyzed for TAL metals plus cations by EPA method 6020A, anions by method E300, alkalinity by method M2320 B, dissolved silica by HACH 8185, specific conductance by method M2510 B, and volatile organic compounds (VOCs) by EPA method 8260C.

## **5.0 HAZARD ASSESSMENT**

An assessment of the hazards has been made for each of the activities specified in Section 4.0.

The following hazards have been identified:

- Physical hazards associated with slips, trips, and falls;
- Physical hazards associated with driving from one site to the next;
- Physical hazards associated with water well sampling and heavy lifting;
- Physical hazards associated with extreme weather;
- Biological hazards related to insect and snake bites; and
- Chemical hazards of collecting potentially impacted groundwater samples.

On-site personnel and site visitors shall be made aware of and protected against the potential hazards listed above.

### **5.1 Physical Hazards**

The on-site physical hazards that exist for well sampling primarily revolve around working on unfamiliar terrain around the well heads and driving from well location to well location. If the District has not been to these well locations previously, care must be taken when walking around and determining sample locations near the well heads as there is a potential for on-site physical injury resulting from slips, trips and falls. Driving is a potential hazard so limit your distractions while behind the wheel, i.e. no texting or talking on mobile phones. Know your route to the next well location before you leave to avoid getting lost.

Additionally, multiple supplies and/or equipment may be used to assist in collecting the tap samples and heavy lifting may present itself. Use gloves when handling meters and sampling containers and ask someone to help when lifting heavy items. Do not try to lift by yourself or the potential of self-injury may occur.

Central Texas has the potential to be dramatic and extreme. In case of adverse weather or other environmental conditions, the SSO will determine if work can continue without compromising worker health and safety. The following adverse conditions could prompt a safety review:

- High winds;
- Extreme cold;
- Heavy precipitation;
- Fog; or
- Lightning storms.

## 5.2 Biological Hazards

Numerous types of pest organisms may be present at the site. Mosquitoes, bees, fire ants, chiggers or scorpions may be present at the site. Field personnel are encouraged to use insect repellents before venturing on site. Additionally, snakes may be present at the site and caution should be exercised especially around items such as tall grass and/or debris.

## 5.3 Chemical Hazards

For groundwater contamination sampling, field personnel will be collecting tap samples and analyzing them for TAL metals plus cations, anions, alkalinity, dissolved silica, specific conductance, and VOCs. It has not been confirmed whether groundwater is affected with these analytes so it is not known what chemical hazards exist at each residence. The best assurance of protection against potentially hazardous chemicals is avoidance. During the field event, it will be mandatory that field personnel wear safety glasses as to avoid potentially contaminated groundwater contact with the eyes. Nitrile gloves are also required when sampling to avoid potentially contaminated soil contact with the skin.

Ingestion of chemical hazards shall be controlled on this site by prohibiting eating, smoking, and drinking in the Exclusion Zone (refer to Section 6.2 for definitions of work zones), and by requiring field personnel to decontaminate themselves upon leaving the Exclusion Zone.

If contact is unavoidable in order to perform a required task, potential hazards will be minimized by using appropriate PPE to protect against exposure to dangerous or hazardous materials. Personal protective equipment (PPE) to protect the body against contact with known or anticipated chemical hazards has been divided into four categories by the EPA (i.e., Levels A, B, C, and D) according to the degree of protection afforded.

At this site, the levels of protection selected for activities specified in Section 4.0 are:

**Level D** – for site workers expected to come in direct contact with potentially impacted soil or water.

The following PPE is required for Level D Protection at the discretion of the SSO:

- Coveralls or appropriate work clothes;
- Safety-toed boots;
- Safety glasses or chemical splash goggles;
- Leather or heavy cotton gloves, as required, and nitrile gloves during sampling activities;
- Rain gear, as required;
- Hard hat, if overhead equipment is present; and
- Hearing protection, if heavy machinery is present.

## **6.0 GENERAL HEALTH AND SAFETY REQUIREMENTS**

Safety equipment and PPE are discussed in this section so protection of the head, eyes, skin, feet, and respiratory system can be better understood. The SSO has the authority to make PPE exceptions for site personnel if he/she deems it in the best interest of the field personnel's well being. Such a PPE exception (i.e., modification to the HASP) shall be based on site specific information such as air monitoring data, visual observations, and weather data/observations. One example of such a modification to the HASP would be to decrease the use of respirators, hard hats, or poorly breathable clothing if heat stress is a primary concern during site activities and the use of the PPE was intended for a low-risk precaution. Under no circumstances shall the SSO make a PPE exception/modification if personnel shall be without the protection needed to be safe or to properly protect their health. If it appears that proposed PPE is inadequate, site work shall be suspended until new PPE or planning allows personnel to work safely.

### **6.1 Safety Equipment**

In addition to the personal protective equipment listed below, the following general safety equipment shall be available: OSHA-approved first-aid kit, fire extinguisher, insect repellent/treatment, rinse water, and decontamination water. Table 1 provides a checklist for the health and safety equipment.

#### **6.1.1 Head Protection**

Hard hats shall be worn on-site when overhead hazards are present such as during drilling activities and when light and/or heavy equipment is on-site. Drilling and heavy equipment is not scheduled during this field event so hard hats are not warranted.

#### **6.1.2 Eye Protection**

For water quality sampling, District personnel working on site shall wear safety glasses. Additionally, when personnel are performing activities where the potential exists for increased exposure due to splash, dust, particle, or vapor, safety goggles, face shields, or full-face masks shall be worn as appropriate.

#### **6.1.3 Skin Protection**

District personnel working on site shall wear cotton clothing. Due to risks of working near electrical hazards and the possibility of electric shocks, cotton clothing, unlike synthetic materials, will be less likely to melt onto the skin and produce a more severe injury.

At the discretion of the SSO, site personnel may be required to wear disposable, chemically resistant clothing, and inner and outer gloves during soil excavation and/or sampling. This PPE shall be disposed of at the decontamination station after each use or when they become worn or punctured. The suit materials selected shall be resistant to the known or anticipated chemicals at the site. If the disposable protective suits appear to be deteriorating under chemical action, the SSO shall be notified. The seams between the sleeves and gloves, and the pant legs and boots shall be taped to prevent exposure in these areas.

#### **6.1.4 Hearing Protection**

At the discretion of the SSO, site personnel may be required to wear hearing protection, such as ear plugs, if loud noises exist on site and are considered a hazard to one's hearing.

#### **6.1.5 Footwear**

Personnel engaged in field activities at the site shall wear safety-toed boots at all times. If required by the site-specific HASP or the SSO, footwear may also need to be chemical resistant or boot covers may need to be added.

### **6.2 Decontamination**

During field activities, if equipment needs to be decontaminated it will be carefully decontaminated as specified below.

#### **6.2.1 Equipment Decontamination**

For water quality sampling, District plans to sample directly from the tap if possible but if downhole sampling equipment is required only disposable equipment will be utilized; therefore, decontamination is not needed. However, if non-disposable equipment is used and contacts potentially contaminated media, it will be decontaminated upon completion of field activities. Spray bottles with distilled water and a liquinox/water mixture will be on site if decontamination is warranted.

#### **6.2.2 Personnel Decontamination**

Personnel decontamination facilities are to be established, if needed, and are to include the following:

- Hand and face wash; and
- Receptacles for disposal of used personal protective equipment (PPE).

This field effort will include personnel wearing appropriate PPE prior to initiating work at the site each day and will remove and throw away disposable PPE before leaving the site and/or moving to the next sampling location. Used nitrile gloves and disposable spoons will be disposed of in trash bags and the trash bags will be dumped in trash receptacles at the end of each day.

### **6.3 Medical Examination/OSHA Training**

For potentially hazardous field activities such as contaminated water sampling, District plans to use appropriately trained subcontractors. Subcontractors involved in potentially hazardous field activities shall provide for medical examinations for their employees. Records of proof of medical examination shall be provided to the District by other subcontractors and maintained in the project files.

In the case of potentially hazardous field activities, project personnel on site shall be 40-hour OSHA HAZWOPER trained. Proof of certification shall be available. If a field office is established, a copy of employees' certificates shall be kept in a file on site during work activities and in the project file in the office after the field activities are completed.

## **6.4 Site Activities Manager Notification**

Field personnel shall inform the SSO or his/her designated representative before entering the site. If any previously unidentified potential hazards are discovered during fieldwork, personnel shall notify the SSO for further instructions.

## **6.5 Project Safety Meetings/Compliance Agreement**

A safety meeting shall be conducted by the SSO at the start of each field effort, and thereafter, at the beginning of each day, or as appropriate, due to changing field conditions or the start of new tasks. Safety concerns associated with that day's activities shall be discussed. An attendance record shall be kept for safety meetings.

During the first safety meeting or prior to commencement of fieldwork, District personnel shall be provided with a copy of this HASP. Personnel shall be given the opportunity to review the plan and ask any questions. A log will be maintained where by project personnel will sign signifying that they have read and understood the HASP.

Project safety information shall be recorded in a field logbook. As appropriate, safety information shall include the following:

- Names of District, subcontractor, and visitor personnel;
- Dates and times for entry and exit of personnel at the site;
- Lists of accidents, injuries, illnesses, and incidences of safety infractions;
- Air quality and personal exposure monitoring data, if necessary; and
- Other information related to safety matters.

Accidents, illnesses, and/or other incidents shall be reported immediately to the SAM, the SSO, and/or the Project Health and Safety Officer.

## **6.6 Prohibitions**

The following activities are prohibited at the site:

- Smoking, eating, drinking, chewing gum or tobacco, and storing food or food containers in the sampling area;
- Approach or entry into areas or spaces where toxic or explosive concentrations of gases or dust may exist without proper equipment available to enable safe entry and exit; and
- Unauthorized entry into confined spaces.

Field personnel shall practice good personal hygiene to avoid ingesting contaminants or spreading contaminated materials.

## **6.7 Site Visitors**

Visits involving entry to the site by persons not directly involved in tasks identified in the Work Plan are discouraged. Persons designated Site Visitors shall be briefed by the District SSO as to on-site procedures, conditions, and hazards and shall be required to sign the project safety log before entering the site. Site Visitors shall be accompanied by authorized District site personnel while on site and shall be expected to follow directives from the SSO. Site Visitors shall provide their own PPE required for the area that they are visiting and shall be expected to follow applicable procedures and protocols.

## **7.0 LABORATORY CONSIDERATIONS**

The laboratory directors or contacts shall be informed of any known contaminant levels in the samples that would require special handling procedures to prevent risks to the health and safety of laboratory personnel.

## **8.0 CONFINED SPACE ENTRY**

A confined space is a space that by design has limited openings for entry and exit, unfavorable natural ventilation that could contain or produce dangerous air contaminants, and is not intended for human occupancy without the proper training and procedures. If any confined spaces are encountered, they are not to be entered and shall be reported to the SSO.

## **9.0 Shipping of samples**

Although it is highly unexpected, hazardous materials will be shipped by or under the supervision of a DOT trained member of the District staff or subcontracted personnel.

## **10.0 HAZARD COMMUNICATION (HAZCOM) PROGRAM**

The Hazard Communication (Hazcom) Program is an important component of this Health and Safety Plan. The Hazcom Program designates the project personnel responsible for the implementation and maintenance of hazardous chemical labeling, and employee training and information requirements. The Hazcom Program also includes the hazardous chemical list for the site, and describes the labeling and information requirements associated with the hazardous chemicals likely to be used on-site.

### **10.1 Roles of Personnel**

The SSO shall be the administrator of the site's Hazcom program in coordinating labeling, training, SDS (Safety Data Sheet, formerly known as Material Safety Data Sheet) information, hazardous chemical listings, subcontractor and client Hazcom communications and information exchange, and any necessary trade secret requests. The SSO shall also maintain the site's written Hazcom Program and monitor the implementation and effectiveness of this program. Subcontractors are responsible for complying with applicable District policies on hazardous chemicals and for providing Hazcom information to the SSO for hazardous chemicals brought to the site; the SSO shall then incorporate the subcontractor Hazcom information into the site's overall Hazcom program. District site personnel, other than the SSO, are responsible for the following:

- Know the site location of the SDSs and the Hazcom written program.
- Identifying the Hazcom program administrator.
- Competence in reading a SDS and a label, and how to use the applicable sections for safe job performance.
- Understanding potential hazards associated with chemicals in your work area.
- Sending received SDSs to the SSO.
- Notify the SSO of products received with no labels or damaged labels or if you are uncertain of whether a SDS is needed.



## 10.2 Information and Training

The SSO shall also be responsible for informing and training on site project personnel of the requirements of this plan, and the location and availability of the written Hazcom Program, including the list of hazardous chemicals and their SDSs. The SSO shall be responsible for updating the Hazardous Chemicals List and the associated SDS information.

## 10.3 Hazardous Chemical List

Hazardous chemicals are not known at these sites; however, Alconox will be onsite if decontamination is warranted. The potential Hazardous Chemical List for the site during this assessment is:

- Alconox

The SDS for this chemical is in Attachment D. In the event that additional chemicals are purchased for use on-site, the Hazcom guidelines shall be followed.

## 10.4 Safety Data Sheets

SDSs for the chemicals identified on the Hazardous Chemical List are included as paper copies in Attachment D of this Health and Safety Plan (HASP). SDSs provide detailed information on specific chemicals, including potential hazardous effects, physical and chemical characteristics, and recommendations for appropriate protective measures. In order to maintain the SDSs in an accessible central place in the field, the SSO shall be responsible for keeping the HASP with the SDS (Attachment D) in the field vehicle at the site. Project personnel working on site shall be informed of its location and shall personally have access to the SDS information. The SSO is also responsible for ensuring that all SDSs are maintained and available, and that SDSs are obtained for new chemicals shipped to the site prior to their use.

## 11.0 EMERGENCIES/ACCIDENTS

### 11.1 On-Site Personnel and Visitors

Illnesses, injuries, and accidents occurring on site shall be addressed immediately in the following manner:

- Check the accident scene to determine if you or anyone else is in danger;
- Call the emergency phone number (911) if the emergency or accident appears serious. Emergency numbers are listed in Table 2;
- Begin care for the injured or exposed person(s) by removing them from immediate danger if a neck or back injury is not suspected;
- Render minor first aid as necessary; decontaminate affected personnel as necessary;
- Evacuate other personnel on site to a safe place until the SSO determines that it is safe for work to resume;
- Report the accident to the District Health and Safety Officer, the Project Health and Safety Officer, and the SSO immediately;
- Complete an Incident Investigation Report for near misses and injuries requiring medical attention;

- Collaborate with the District and Project Health and Safety Officer, the SSO, and the Project Manager to develop procedures to prevent a recurrence.

Should an emergency site evacuation become necessary for any reason, the SSO shall alert personnel to leave the site. An assembly point will be designated by the Site Manager/Health and Safety Officer at the beginning of the field work. Personnel shall not return to the site until an all-clear notification has been received from the SSO. In the event the accident is minor enough to transport the injured personnel to the hospital, follow the directions to the hospital provided on Figure HASP-1.

## **11.2 Surrounding Community**

In the highly unlikely event that a site emergency has the potential to affect the community surrounding the site, the SSO shall be responsible for notifying the police and the fire departments using the telephone numbers listed in Table 2. The SSO shall provide whatever technical assistance is needed by these agencies.

## **12.0 REFERENCES**

U.S. Code of Federal Regulations, 1995, Title 29, as cited.

## **TABLES**

**Table E3D-1  
Site Health and Safety Equipment Inventory Checklist**

Include items as applicable for site activities

EMERGENCY RESPONSE	
<input type="checkbox"/>	OSHA-APPROVED INDUSTRIAL FIRST AID KIT
<input type="checkbox"/>	FIRE EXTINGUISHER (1 per field vehicle)
<input type="checkbox"/>	EYE WASH
PERSONNEL PROTECTION	
<input type="checkbox"/>	INSECT REPELLENT
<input type="checkbox"/>	SNAKE GUARDS
<input type="checkbox"/>	SAFETY VESTS
<input type="checkbox"/>	SAFETY GLASSES
<input type="checkbox"/>	NITRILE GLOVES (Outer)
<input type="checkbox"/>	IGLOO™ WATER COOLER/CUPS
<input type="checkbox"/>	GATORADE™
<input type="checkbox"/>	DUCT TAPE
<input type="checkbox"/>	CHEMICAL RESISTANT SAFETY-TOED RUBBER BOOTS OR BOOT COVERS
<input type="checkbox"/>	HARD HAT
PERSONNEL DECONTAMINATION	
<input type="checkbox"/>	4-MIL PLASTIC DROP CLOTHS
<input type="checkbox"/>	PLASTIC WASHTUBS
<input type="checkbox"/>	SPRAYER
<input type="checkbox"/>	BRUSHES
<input type="checkbox"/>	TRASH BAGS
<input type="checkbox"/>	DETERGENT
<input type="checkbox"/>	POTABLE OR DISTILLED WATER

**Table E3D-2  
Emergency Phone Numbers**

EMERGENCY SERVICE	LOCATION OR NOTE	TELEPHONE NO.
Fire Department	Call Emergency No.	911 or 713-692-1945 (non-emergency)
Police Department	Call Emergency No.	911 or 713-222-5408 (non-emergency)
Ambulance	Call Emergency No.	911
Hospital – DeTar Hospital Navarro, 506 E. San Antonio St., Victoria, TX 77901	Call Emergency No. Main Number 361-575-7441	911 or (512) 446-4500
Poison Control Center	Call Emergency No.	911 or 800-764-7661
District Health and Safety Officer	Tim Andruss	361-579-6863 office 361-648-9762mobile

## Appendix 6A – List of Candidate Wells for Monitoring Areas in Calhoun County

Priority/Level	Aquifer	SDR No.	Total Depth (ft. bgs)	Well Use	Lat.	Long.	Well Owner
C1/Level 1	CH	43952	72	Domestic	28.53	-96.7186	Travis Tatum
C1/Level 1	CH	609598	83	Domestic	28.4926	-96.7447	Mallory P. Galloway
C1/Level 1	CH	93560	220	Rig Supply	28.4653	-96.6978	Bob McCarn
C1/Level 1	CH	28747	225	Domestic	28.4628	-96.7033	JOHN F. SMITH
C1/Level 1	CH	560358	253	Domestic	28.5275	-96.7283	Kevin D. Haun
C1/Level 1	CH	252253	258	Domestic	28.5411	-96.7069	Willam Hahn
C1/Level 1	CH	43959	265	Domestic	28.5075	-96.675	Eddie Stribling
C1/Level 1	CH	197201	265	Domestic	28.5244	-96.7178	Crystal Priest
C1/Level 1	CH	106049	290	Domestic	28.5353	-96.675	C & E OPERATING
C1/Level 1	CH	251970	300	Rig Supply	28.5117	-96.7036	C&E Operating
C1/Level 1	CH	123249	300	Rig Supply	28.4714	-96.6917	C & E OPERATING
C1/Level 1	CH	106046	320	Domestic	28.4872	-96.7247	C & E OPERATING
C1/Level 1	CH	43955	365	Domestic	28.5211	-96.7272	M.G. Simons
C2/Level 1	CH	119941	130	Domestic	28.5042	-96.5617	Barbara Thedford
C2/Level 1	CH	36589	280	Irrigation	28.5144	-96.5442	Aransas National Wildlife Refuge
C2/Level 1	CH	586698	300	Domestic	28.5157	-96.4921	Jack Thibodeauex
C2/Level 1	CH	594536	301	Domestic	28.5136	-96.5067	Mike McGreight
C2/Level 1	CH	589657	320	Domestic	28.5159	-96.4923	Stacy A. Mueller
C2/Level 1	CH	543458	337	Domestic	28.5564	-96.5478	John M. Bees
C2/Level 1	CH	553509	342	Domestic	28.5517	-96.5492	Edgeofit Development, LLC
C2/Level 1	CH	36588	360	Irrigation	28.5133	-96.5447	Aransas National Wildlife Refuge
C3/Level 1	CH	98119	60	Domestic	28.7075	-96.5614	H M Browning
C3/Level 1	CH	98121	120	Domestic	28.7075	-96.5614	H M Browning
C3/Level 1	CH	114094	315	Domestic	28.7075	-96.5614	H.M. Browning
C3/Level 1	CH	372456	320	Rig Supply	28.7003	-96.55	J L Resources
C3/Level 1	CH	148370	345	Domestic	28.7039	-96.5606	Greg + Sonya Williams
C3/Level 1	CH	147544	350	Domestic	28.7028	-96.5597	Robin + Janet Masek
C3/Level 1	CH	526605	510	Domestic	28.6983	-96.5575	JAMES CONTI
C1R/Level 2	CH	251368	140	Rig Supply	28.4208	-96.7394	Brigham Oil & Gas LP
C1R/Level 2	CH	94353	330	Rig Supply	28.4219	-96.7261	C & E OPERATING
C2R/Level 2	CH	203950	240	Rig Supply	28.4533	-96.4933	Chesapeake Operating, Inc.
C3R/Level 2	CH	374765	160	Rig Supply	28.6408	-96.7903	BOPCO, LP
C3R/Level 2	CH	375130	160	Rig Supply	28.6508	-96.7847	BOPCO, LP
C3R/Level 2	CH	201853	180	Rig Supply	28.6669	-96.7503	Acocck-Anqua Operators
C4R/Level 2	CH	35570	120	Rig Supply	28.6183	-96.8994	Arrow Drilling Company



Priority/Level	Aquifer	SDR No.	Total Depth (ft. bgs)	Well Use	Lat.	Long.	Well Owner
C4R/Level 2	CH	201135	150	Rig Supply	28.5989	-96.8936	Phillips Energy, Inc.
C4R/Level 2	CH	139368	160	Rig Supply	28.5958	-96.8667	ROTARY EXPLORATION
C4R/Level 2	CH	489369	195	Rig Supply	28.6124	-96.8548	FROSTWOOD ENERGY
C1S/Level 3	CH	208637	70	Domestic	28.4856	-96.8792	CHARLIE FARRIAS
C1S/Level 3	CH	86201	90	Domestic	28.5011	-96.8803	Paul Ramirez
C1S/Level 3	CH	465124	98	Domestic	28.5031	-96.8695	Marty Stracos
C1S/Level 3	CH	376238	100	Domestic	28.4958	-96.8761	Randy Olascuaga
C1S/Level 3	CH	387718	100	Domestic	28.5047	-96.88	Bradley Stansic
C1S/Level 3	CH	263272	100	Domestic	28.4897	-96.8694	Larry Urban
C1S/Level 3	CH	263274	100	Domestic	28.4889	-96.8686	Adrian Creasy
C1S/Level 3	CH	263757	100	Domestic	28.49	-96.87	Matt Johnson

## Appendix 6B – List of Candidate Wells for Monitoring Areas in Jackson County

Priority/Level	Aquifer	SDR No.	Total Depth (ft. bgs)	Well Use	Lat.	Long.	Well Owner
J1/Level 1	CH	428849	135	Domestic	28.8856	-96.4514	John & Jayme Bickings
J1/Level 1	CH	52698	135	Domestic	28.8422	-96.4619	Tori Anderson
J1/Level 1	CH	560347	138	Domestic	28.8418	-96.4609	Miguel angle Chombo S.
J1/Level 1	CH	66846	140	Domestic	28.8225	-96.4156	Florence Hafernick
J1/Level 1	CH	130476	140	Irrigation	28.8667	-96.4336	Rodney Cooper Turf
J1/Level 1	CH	130477	140	Irrigation	28.8333	-96.4336	Rodney Cooper Turf
J1/Level 1	CH	547245	140	Domestic	28.8503	-96.466	Breanne Dix
J1/Level 1	CH	575370	140	Domestic	28.8501	-96.4651	Eldo and Crystal Fernandez
J1/Level 1	CH	130523	157	Irrigation	28.8667	-96.45	Cooper Turf
J1/Level 1	CH	252977	160	Domestic	28.8578	-96.4475	VIN-E FARMS
J1/Level 1	CH	148847	160	Rig Supply	28.85	-96.4833	Commerce Resources. LLC
J1/Level 1	CH	222417	165	Rig Supply	28.8286	-96.4383	FORT APACHE ENERGY
J1/Level 1	CH	210572	185	Rig Supply	28.8292	-96.4639	Ginger Oil Company
J2/Level 1	CH	139644	170	Domestic	29.1514	-96.6508	Aarow Drilling
J2/Level 1	CH	13295	190	Domestic	29.1358	-96.6242	ESPINOSA BROTHERS
J2/Level 1	CH	198475	200	Domestic	29.1456	-96.6542	Crosstex Energy
J2/Level 1	CH	266199	220	Rig Supply	29.1333	-96.65	Blazer Construction
J2/Level 1	CH	241095	230	Domestic	29.1156	-96.6269	GLENN FILIP
J2/Level 1	CH	525592	264	Rig Supply	29.1174	-96.6495	New Century Exploration, Inc.
J2/Level 1	CH	61262	280	Rig Supply	29.1478	-96.6564	Arrow Drilling Company
J2/Level 1	CH	237173	285	Rig Supply	29.1458	-96.6572	O'TOOL OIL & GAS CO.
J2/Level 1	CH	51214	290	Domestic	29.1367	-96.6331	TED SCHOENEGER
J2/Level 1	CH	319773	380	Irrigation	29.1431	-96.6528	Burrs Farms
J2/Level 1	CH	319772	400	Irrigation	29.1431	-96.6344	Burrs Farms
J2/Level 1	CH	463987	550	Irrigation	29.1135	-96.6294	Drew Johnson
J3/Level 1	EV	287876	400	Domestic	29.1108	-96.8089	MANO DEAYALA
J3/Level 1	EV	427988	909	Irrigation	29.1498	-96.8085	Dorothoy Ploeger
J3/Level 1	EV	516784	991	Irrigation	29.097	-96.7908	Dean Halewyn
J4/Level 1	EV	471906	750	Irrigation	29.1372	-96.5297	The Louise McColloch Trust
J4/Level 1	EV	52091	760	Irrigation	29.0864	-96.5428	Don L. Srubar
J5/Level 1	CH	467717	220	Domestic	29.2416	-96.6717	Douglas G. Clark
J5/Level 1	CH	204145	250	Rig Supply	29.2522	-96.6711	Garrison, Ltd
J1R/Level 2	CH	174101	170	Rig Supply	29.1167	-96.8269	Black Creek Drilling, Inc.
J1R/Level 2	CH	36211	180	Rig Supply	29.1058	-96.8194	Laddie Matussek, Jr.
J1R/Level 2	CH	566885	180	Rig Supply	29.0867	-96.8254	Kemp Properties LP

Priority/Level	Aquifer	SDR No.	Total Depth (ft. bgs)	Well Use	Lat.	Long.	Well Owner
J1R/Level 2	CH	115398	200	Rig Supply	29.0833	-96.8669	Opal Energy
J1R/Level 2	CH	78038	220	Rig Supply	29.0753	-96.7842	Tri-C Resources, Inc.
J1R/Level 2	CH	469129	240	Rig Supply	29.0957	-96.7754	SDS
J2R/Level 2	CH	99940	115	Rig Supply	28.9628	-96.6694	Donnie Sparks
J2R/Level 2	CH	45963	170	Rig Supply	28.9936	-96.6967	Cox & Perkins Exploration
J2R/Level 2	CH	532104	235	Rig Supply	29.0184	-96.6639	Decker Operation Company
J2R/Level 2	CH	120271	260	Rig Supply	29.0144	-96.6722	Cox & Perkins Exploration
J3R/Level 2	CH	29514	230	Rig Supply	29.1772	-96.65	GEO NATURAL RESOURCES
J3R/Level 2	CH	47485	240	Rig Supply	29.1814	-96.6475	Geonatural Resources, Inc.
J3R/Level 2	CH	58893	250	Rig Supply	29.1811	-96.6356	Jamex Inc.
J3R/Level 2	CH	204145	250	Rig Supply	29.2522	-96.6711	Garrison, Ltd
J3R/Level 2	CH	46516	255	Rig Supply	29.2325	-96.6264	Scorpion Exploration
J3R/Level 2	CH	62971	255	Rig Supply	29.1742	-96.6431	Tri-C Resources, Inc.
J3R/Level 2	CH	101017	260	Rig Supply	29.2197	-96.6139	JAMEX INC.
J3R/Level 2	CH	66321	260	Rig Supply	29.1814	-96.6392	Jamex Inc.
J3R/Level 2	CH	115476	260	Rig Supply	29.1828	-96.6725	Sue Ann Operating
J3R/Level 2	CH	65450	265	Rig Supply	29.1789	-96.6406	Tri-C Resources, Inc.
J4R/Level 2	CH	172290	100	Rig Supply	28.8119	-96.3231	Garrison Ltd.
J4R/Level 2	CH	531082	108	Rig Supply	28.7819	-96.3269	REXCO INC.
J4R/Level 2	CH	85327	120	Rig Supply	28.8114	-96.3558	Garrison Ltd.
J4R/Level 2	CH	100558	150	Rig Supply	28.7772	-96.3436	MARQUEE CORPORATION
J4R/Level 2	CH	178214	240	Rig Supply	28.8169	-96.3833	Foundation Oil Co.
J4R/Level 2	CH	98414	310	Rig Supply	28.8178	-96.3483	Hunter Thomas
J4R/Level 2	CH	159930	320	Rig Supply	28.8183	-96.3567	Garrison Ltd.
J1S/Level 3	CH	477957	95	Domestic	29.0699	-96.6725	Sue Quinn
J1S/Level 3	CH	15163	100	Domestic	29.0708	-96.6853	CARLTON
J1S/Level 3	CH	20612	100	Domestic	29.0633	-96.6878	TOM CUNNINGS
J2S/Level 3	CH	130419	80	Domestic	28.95	-96.6969	James Hunt
J2S/Level 3	CH	544880	92	Domestic	28.9689	-96.6824	Jack Motley
J3S/Level 3	CH	76170	90	Domestic	29.0256	-96.5469	Clinton Green
J3S/Level 3	CH	547742	95	Domestic	29.0162	-96.546	YVETTE & JEFF SMITH

## Appendix 6C – List of Candidate Wells for Monitoring Areas in Refugio County

Priority/Level	Aquifer	SDR No.	Total Depth (ft. bgs)	Well Use	Lat.	Long.	Well Owner
R1/Level 1	CH	272363	200	Domestic	28.2242	-97.1061	BRAMAN RANCHES
R1/Level 1	CH	227985	276	Rig Supply	28.2169	-97.1425	T.C. OIL
R1/Level 1	CH	591204	320	Rig Supply	28.2057	-97.169	TC OIL COMPANY
R1/Level 1	CH	433589	360	Domestic	28.1827	-97.1565	Braman Ranches, LLC
R2/Level 1	CH	42195	180	Domestic	28.3914	-97.0917	HilCorp
R2/Level 1	CH	42228	180	Domestic	28.3961	-97.0994	O'Connor Bros
R2/Level 1	CH	156190	180	Domestic	28.3997	-97.0583	OConnor Bros Ranchers
R2/Level 1	CH	251960	180	Rig Supply	28.4069	-97.0842	Hilcorp
R2/Level 1	CH	278916	180	Rig Supply	28.4278	-97.1172	KEBO OIL & GAS, LLC
R2/Level 1	CH	355121	180	Rig Supply	28.4461	-97.1094	KEBO OIL & GAS
R2/Level 1	CH	213855	200	Rig Supply	28.4092	-97.0828	HILCORP ENERGY CORP.
R2/Level 1	CH	302806	200	Rig Supply	28.3944	-97.1022	HILCORP ENERGY CO
R2/Level 1	CH	341748	200	Rig Supply	28.4003	-97.0878	HILCORP ENERGY CO.
R2/Level 1	CH	151186	210	Domestic	28.4053	-97.0997	Hilcorp
R2/Level 1	CH	156193	240	Domestic	28.4456	-97.0144	OConnor Brothers
R2/Level 1	CH	252552	240	Rig Supply	28.4211	-97.0464	Hilcorp
R3/Level 1	EV	269400	290	Domestic	28.3267	-97.4156	CHARLES & SHARON MILLER
R3/Level 1	EV	151195	320	Domestic	28.2969	-97.4228	Paul Taylor
R3/Level 1	EV	113959	430	Irrigation	28.2867	-97.4017	Swyka Ranch
R4/Level 1	EV	302738	300	Domestic	28.3611	-97.3625	MARVIN DON / VENICIA CLAYTON
R4/Level 1	EV	304546	300	Domestic	28.3406	-97.3361	STEVEN CARTER
R4/Level 1	EV	445148	300	Domestic	28.3761	-97.3266	Preston Ramirez
R4/Level 1	EV	583823	300	Domestic	28.376	-97.3049	HAYSAM DAWOOD
R4/Level 1	EV	155061	300	Rig Supply	28.3781	-97.3228	Arrow Drilling Company, Inc
R4/Level 1	EV	94559	310	Domestic	28.3753	-97.3711	JOHN WILLIAMSON
R4/Level 1	EV	56202	320	Domestic	28.3831	-97.3622	Dave Morris
R4/Level 1	EV	155082	320	Rig Supply	28.3856	-97.3083	Arrow Drilling Company, LLC
R4/Level 1	EV	251949	330	Domestic	28.3539	-97.3042	JM OBrien
R4/Level 1	EV	251918	330	Domestic	28.3789	-97.3561	Homer Hines
R5/Level 1	CH	82957	136	Domestic	28.2917	-97.0414	Hilbert Bludau
R7/Level 1	CH	213853	180	Rig Supply	28.3425	-97.1228	HILCORP ENERGY CORP.
R1R/Level 2	CH	253543	160	Rig Supply	28.1956	-97.4208	COASTAL PLAINS EXPLORATION
R1R/Level 2	CH	606136	160	Rig Supply	28.2002	-97.4244	CIMARRON ENGINEERING
R1R/Level 2	CH	160442	168	Rig Supply	28.1728	-97.4269	SALIDA EXPLORATION
R1R/Level 2	CH	123039	180	Rig Supply	28.1725	-97.4222	SALIDA EXPLORATION

Priority/Level	Aquifer	SDR No.	Total Depth (ft. bgs)	Well Use	Lat.	Long.	Well Owner
R1R/Level 2	CH	170632	180	Rig Supply	28.1672	-97.4219	SALIDA EXPLORATION
R1R/Level 2	CH	187991	180	Rig Supply	28.1636	-97.4258	SALIDA EXPLORATION
R1R/Level 2	CH	250829	180	Rig Supply	28.1792	-97.4167	SALIDA EXPLORATION
R1R/Level 2	CH	361755	180	Rig Supply	28.1808	-97.3822	KEBO OIL & GAS
R1R/Level 2	CH	470754	180	Rig Supply	28.1914	-97.404	Ricochet Energy
R1R/Level 2	CH	244426	230	Rig Supply	28.1725	-97.4656	sandalwood exploration
R2R/Level 2	CH	140235	140	Rig Supply	28.4594	-97.1622	CHARRO OPERATING
R2R/Level 2	CH	214918	143	Rig Supply	28.4361	-97.1875	J.F. WELDER HEIRS
R2R/Level 2	CH	299494	160	Rig Supply	28.4589	-97.2053	CHARRO OPERATING
R2R/Level 2	CH	136966	160	Rig Supply	28.5017	-97.1211	T.C. OIL
R2R/Level 2	CH	170050	170	Rig Supply	28.4822	-97.11	KEBO OIL & GAS
R2R/Level 2	CH	204026	180	Rig Supply	28.4644	-97.1142	Susan Heard
R2R/Level 2	CH	139380	200	Rig Supply	28.495	-97.1375	CHARRO OPERATING
R2R/Level 2	CH	139366	200	Rig Supply	28.5125	-97.1172	T.C. OIL
R2R/Level 2	CH	112849	220	Rig Supply	28.4669	-97.1064	Kebo Oil & Gas
R3R/Level 2	CH	162128	165	Rig Supply	28.3914	-97.3114	RIDDLE ENGINEERING CORP
R3R/Level 2	CH	114794	180	Rig Supply	28.3353	-97.3489	AURORA RESOURCES CORP.
R3R/Level 2	CH	132184	180	Rig Supply	28.3711	-97.3756	CHARRO OPERATING
R3R/Level 2	CH	474638	210	Rig Supply	28.3299	-97.3454	MILLENIUM EXPLORATION
R4R/Level 2	CH	252551	160	Rig Supply	28.3869	-97.1486	Hilcorp
R4R/Level 2	CH	252554	170	Rig Supply	28.3436	-97.1894	Hilcorp
R4R/Level 2	CH	372726	180	Rig Supply	28.4064	-97.1697	KEBO OIL & GAS
R4R/Level 2	CH	133471	200	Rig Supply	28.3922	-97.2033	HILCORP
R4R/Level 2	CH	237744	200	Rig Supply	28.3794	-97.16	HILCORP ENERGY CORP.
R4R/Level 2	CH	251959	200	Rig Supply	28.3689	-97.2172	Hilcorp
R4R/Level 2	CH	275168	255	Rig Supply	28.38	-97.19	DEWBRE PETROLEUM
R4R/Level 2	CH	112037	280	Rig Supply	28.3814	-97.2211	ACOCK-ANAGUA
R4R/Level 2	CH	139390	300	Rig Supply	28.3703	-97.2097	HILCORP
R4R/Level 2	CH	239202	330	Rig Supply	28.3875	-97.1811	ACOCK / ANAQUA OPERATING
R5R/Level 2	CH	195412	160	Rig Supply	28.4556	-97.2556	CHARRO OPERATING
R6R/Level 2	EV	147370	265	Rig Supply	28.4372	-97.2756	NEUMIN PRODUCTION CO.
R6R/Level 2	EV	155061	300	Rig Supply	28.3781	-97.3228	Arrow Drilling Company, Inc
R6R/Level 2	EV	155082	320	Rig Supply	28.3856	-97.3083	Arrow Drilling Company, LLC
R7R/Level 2	EV	252563	320	Rig Supply	28.2417	-97.4458	Opal Energy

## Appendix 6D – List of Candidate Wells for Monitoring Areas in Victoria County

Priority/Level	Aquifer	SDR No.	Total Depth (ft. bgs)	Well Use	Lat.	Long.	Well Owner
V1/Level 1	CH	42943	60	Domestic	28.9225	-96.9389	PRESTON COPELAND
V1/Level 1	CH	144508	65	Domestic	28.9292	-96.9308	W H Kickendahl
V1/Level 1	CH	121955	75	Domestic	28.9072	-96.9417	Chris Konarik
V1/Level 1	CH	500830	78	Domestic	28.9078	-96.9056	Brandon Bayer
V1/Level 1	CH	49419	90	Domestic	28.9039	-96.9425	Diebel Cattle Co.
V1/Level 1	CH	117335	90	Domestic	28.9308	-96.9317	RUSSELL HESSLER
V1/Level 1	CH	282163	90	Domestic	28.9067	-96.9428	thomas la grega
V1/Level 1	CH	62867	100	Domestic	28.9314	-96.93	RANDALL LAU
V1/Level 1	CH	373658	100	Domestic	28.9308	-96.9128	Janice Ohrt
V1/Level 1	CH	123059	100	Rig Supply	28.9206	-96.9267	Brayton Operating Services
V1/Level 1	CH	86525	140	Rig Supply	28.8944	-96.9408	Brayton Operating Service
V1/Level 1	CH	67719	220	Rig Supply	28.8922	-96.9358	Brayton Operating Services
V1/Level 1	CH	43293	235	Rig Supply	28.9106	-96.9172	Arrow Drilling Company
V1/Level 1	CH	292278	240	Rig Supply	28.95	-96.9333	Sue-Ann Operating
V1/Level 1	CH	51602	260	Rig Supply	28.9142	-96.9222	Arrow Drilling Company
V2/Level 1	EV	481848	185	Domestic	29.023	-97.0397	5 C Ranch + Minerals, LLC
V2/Level 1	EV	600505	185	Rig Supply	29.0354	-97.062	Field Petroleum Group
V2/Level 1	EV	478489	188	Domestic	29.0204	-97.0372	P. Embry Canterbury 5 C Ranch
V2/Level 1	EV	203778	195	Rig Supply	29.0433	-97.0058	Chesapeake Operating Inc
V2/Level 1	EV	250598	202	Domestic	29.0097	-97.0281	joe blackshree
V2/Level 1	EV	178840	203	Domestic	29.0394	-97.0358	Klesel, David
V2/Level 1	EV	170239	205	Domestic	29.0419	-97.0375	Klesel, David
V2/Level 1	EV	595577	205	Rig Supply	29.0264	-97.0558	Field Petroleum Corp
V2/Level 1	EV	314535	215	Domestic	29.0456	-97.0497	James F. & Carol Ann Moore
V2/Level 1	EV	6622	242	Domestic	29.0531	-97.0347	Carlos Saenz
V2/Level 1	EV	587924	260	Domestic	29.0381	-97	Kimberlite Homes
V2/Level 1	EV	394440	276	Domestic	29.0483	-97.0211	DANIEL KLESEL JR
V2/Level 1	EV	317449	280	Domestic	29.0406	-96.9967	Les Zeplin
V3/Level 1	CH	75974	123	Domestic	28.7858	-97.05	david reeves
V3/Level 1	CH	155306	124	Domestic	28.8167	-97.05	foster parents of victoria inc.
V3/Level 1	CH	179806	124	Domestic	28.7844	-97.0494	fredd flores
V3/Level 1	CH	205088	124	Domestic	28.7833	-97.05	james pilgreen
V3/Level 1	CH	233909	125	Domestic	28.7992	-97.0353	terry & sherry reinhecke
V3/Level 1	CH	62216	130	Domestic	28.8006	-97.0544	Richard Hogan
V3/Level 1	CH	81757	130	Domestic	28.8022	-97.03	Mark and Kim Phillips



Priority/Level	Aquifer	SDR No.	Total Depth (ft. bgs)	Well Use	Lat.	Long.	Well Owner
V3/Level 1	CH	100605	133	Domestic	28.7836	-97.05	aruther calbo
V3/Level 1	CH	169953	134	Domestic	28.7953	-97.0542	J.R. Olguin
V3/Level 1	CH	301425	134	Domestic	28.7836	-97.0514	gregory & janet hermis
V4/Level 1	EV	351509	195	Domestic	28.9372	-97.0172	Raul F. + Mary Camacho
V4/Level 1	EV	436951	195	Domestic	28.9309	-97.0141	Linda + John Larson
V4/Level 1	EV	534758	195	Domestic	28.9324	-97.0132	Ramon Gonzales + Mary Rodriguez
V4/Level 1	EV	550560	195	Domestic	28.9328	-97.0224	Michael Ponton
V4/Level 1	EV	593939	195	Domestic	28.9386	-97.0133	INES TIJERINA
V4/Level 1	EV	594315	195	Domestic	28.9415	-97.0154	Dora Santizo
V4/Level 1	EV	349699	197	Domestic	28.9406	-97.0058	Randy Schachterle
V4/Level 1	EV	500815	197	Domestic	28.9395	-97.0123	Patricia Phillips
V4/Level 1	EV	367834	198	Domestic	28.9422	-97.0089	David L. + Mredith T. Alcantar
V4/Level 1	EV	446073	198	Domestic	28.9274	-97.0184	Kelly + Victoria Hubert
V4/Level 1	EV	167393	270	Rig Supply	28.9169	-96.9667	Holliman Oil Corporation
V4/Level 1	EV	100858	355	Rig Supply	28.9439	-96.9583	ORION DRILLING CO., LP
V5/Level 1	EV	74199	870	Irrigation	28.7456	-96.8722	Howard Book
V6/Level 1	EV	187653	152	Domestic	28.695	-97.1492	Russell Brandt
V6/Level 1	EV	142748	173	Domestic	28.6864	-97.1406	Sara Agrine
V6/Level 1	EV	480096	182	Domestic	28.6893	-97.1317	Terri L. Tait
V6/Level 1	EV	302864	200	Rig Supply	28.6925	-97.1172	PETRODOME ENERGY
V6/Level 1	EV	480085	254	Domestic	28.6887	-97.1324	Nora Pineda
V6/Level 1	EV	53341	262	Domestic	28.6686	-97.1278	Peggy Christensen
V6/Level 1	EV	46246	270	Domestic	28.6969	-97.1208	Edgar Lehnert
V6/Level 1	EV	187887	355	Rig Supply	28.6808	-97.1286	Mohican Oil & Gas
V6/Level 1	EV	272190	365	Domestic	28.6883	-97.0864	Morres Van Beveren
V1R/Level 2	EV	126971	194	Rig Supply	28.6272	-97.1517	APEX ENERGY
V1R/Level 2	EV	288829	200	Rig Supply	28.6164	-97.1586	DOUBLE PLAY OIL & GAS
V2R/Level 2	EV	55331	180	Rig Supply	28.8683	-97.1914	Firststrike Energy Corp.
V2R/Level 2	EV	35934	190	Rig Supply	28.8611	-97.2594	Grey Wolf Drilling
V2R/Level 2	EV	284159	200	Rig Supply	28.8875	-97.2367	ABECO OPERATING
V2R/Level 2	EV	223078	215	Rig Supply	28.8514	-97.1803	Wayne Fredricks
V2R/Level 2	EV	42945	220	Rig Supply	28.8814	-97.2569	Firststrike Energy Corp.
V2R/Level 2	EV	92542	300	Rig Supply	28.8836	-97.2333	pitchfork oil & gas
V2R/Level 2	EV	93497	300	Rig Supply	28.8836	-97.2333	pitchfork oil & gas
V3R/Level 2	EV	232783	200	Rig Supply	28.9092	-97.0011	tim rampey
V3R/Level 2	EV	167393	270	Rig Supply	28.9169	-96.9667	Holliman Oil Corporation
V3R/Level 2	EV	49188	310	Rig Supply	28.8742	-96.9611	Brayton Operating Company
V3R/Level 2	EV	100858	355	Rig Supply	28.9439	-96.9583	ORION DRILLING CO., LP
V4R/Level 2	CH	29646	140	Rig Supply	28.9583	-97.0211	WILCOX OPERATING

Priority/Level	Aquifer	SDR No.	Total Depth (ft. bgs)	Well Use	Lat.	Long.	Well Owner
V5R/Level 2	CH	134712	140	Rig Supply	28.5328	-97.1011	Kebo Oil & Gas
V5R/Level 2	CH	157386	160	Rig Supply	28.5325	-97.0944	KEBO OIL & GAS
V5R/Level 2	CH	222066	180	Rig Supply	28.5625	-97.1375	CHARRO OPERATING
V5R/Level 2	CH	161688	180	Rig Supply	28.6	-97.0883	APEX ENERGY
V5R/Level 2	CH	155099	220	Rig Supply	28.5469	-97.0822	Arrow Drilling Company, LLC
V5R/Level 2	CH	238030	220	Rig Supply	28.5875	-97.0889	T.C. OIL
V5R/Level 2	CH	129733	240	Rig Supply	28.5667	-97.0772	T.C. OIL
V1S/Level 3	EV	170109	92	Domestic	28.87	-97.2181	Lacy Rumme
V2S/Level 3	EV	328208	82	Domestic	28.8306	-97.1858	Jim Cook
V2S/Level 3	EV	424481	90	Domestic	28.8298	-97.1849	RICHARD GALLARDO
V2S/Level 3	EV	198924	100	Domestic	28.8222	-97.1756	Alton Lassmann
V2S/Level 3	EV	424025	100	Domestic	28.8294	-97.185	West Homes,LLC
V2S/Level 3	EV	557886	100	Domestic	28.8426	-97.1781	Stanley L Marlow
V3S/Level 3	CH	583699	71	Domestic	28.7239	-97.142	Orbit Hosey & Bernice Hosey
V4S/Level 3	CH	10714	70	Domestic	28.8881	-96.8283	STEVEN SEWALT
V4S/Level 3	CH	261106	75	Domestic	28.8892	-96.8194	jeremy stout
V4S/Level 3	CH	372478	75	Domestic	28.8831	-96.8158	Ronnie Schuelke
V4S/Level 3	CH	419336	75	Domestic	28.8895	-96.835	Arthur W. Strother
V4S/Level 3	CH	558187	76	Domestic	28.8792	-96.8271	JENNIFER SAPPINGTON
V4S/Level 3	CH	566214	84	Domestic	28.8844	-96.8347	WERNER SCHMIDT
V4S/Level 3	CH	114913	86	Domestic	28.8833	-96.8167	armando diaz
V4S/Level 3	CH	213209	88	Domestic	28.8933	-96.835	Stephen Griffin
V4S/Level 3	CH	478553	95	Domestic	28.8927	-96.8269	Steven Sewalt
V4S/Level 3	CH	569634	96	Domestic	28.8889	-96.8358	Chad & Kelsey Harrison

# APPENDIX 7A: BID DOCUMENT TEMPLATE FOR CONSTRUCTION OF PVC MONITOR WELLS

## PART 1 -- GENERAL

### 1.1 THE REQUIREMENT

- A. Monitor Well: The monitor well will be used to monitor water levels in the XX aquifer. The anticipated depth of the deep monitor well is between X and XX feet below ground surface.
- B. Sequence of Work
  - 1. Contractor mobilizes all equipment necessary to perform the work to the project site.
  - 2. Install and Develop Deep Monitor Well
    - a. Drill pilot borehole(s)
    - b. Collect and deliver lithologic samples to the ENGINEER.
    - c. Assist in conducting the pilot borehole geophysical logging suite.
    - d. Provide screen recommendation
    - e. Ream pilot borehole to final completion diameter (9 5/8-inch) if required
    - f. Set and cement in place 5-inch OD PVC Certa-Lok casing and screen assembly.
    - g. Develop the well in accordance with general plans and specifications
    - h. Site Clean-up and Demobilization

### 1.2 CONTRACTOR SUBMITTALS

- A Geophysical Logging: The ENGINEER will provide and manage the geophysical logging services of the borehole. The CONTRACTOR will provide availability of the rig and crew to assist the geophysical logging subcontractor.
- B Drilling Log: A log of the formations encountered from surface to total depth, indicating the depth of each change in formation and including all difficulties and unusual conditions met during drilling shall be prepared by the CONTRACTOR. The drilling log shall be available for inspection at the site at all times. Legible forms covering the previous day suitable for photocopying shall be submitted to the ENGINEER on a daily basis.

## PART 2 -- PRODUCTS

### 2.1 CASING, SCREEN, AND APPURTENANCES

- A PVC Well Casing: Where specified, the 5-inch ID PVC blank well casings and well screen shall be Schedule 80 PVC, if well is meeting Certa-Lock connections accordance with requirements of ASTM F480 and factory assembled in 20-foot lengths. Smaller lengths of 5 and 10 feet shall also be furnished to accommodate the final well design established by the ENGINEER.
- B Casing joints: Casing joints shall be Certa-Lok, or equal. Where specified, casing joints shall be attached in accordance with the requirements of ASTM F480. Pipe shall be joined using non-metallic couplings which, together, have been designed as an integral system for maximum reliability and interchangeability. The CONTRACTOR shall coordinate the method of coupling casing and screen with both the manufacturer of the Schedule 40 PVC casing and the screen. All PVC casing, blank, and screen shall be new and white in color.

- C Well Casing Guides: Materials shall be compatible physically and chemically with the well casing. Casing centralizers shall be fitted at 100 foot intervals
- D Mill-Slotted PVC Screens: Where specified, the 5-inch ID well screens shall be mill-slotted PVC or approved equal. The well screens shall be, designed and manufactured to withstand tensile and collapse pressures for typical installations to a depth of the well installation. For bidding purposes, a screen slot size range from 0.020 to 0.040 inches should be assumed. Actual slot size and screen length will be determined by the ENGINEER based on the sieve analyses from cuttings collected in the monitor wells. The ENGINEER shall approve the final screen design.

## 2.2 SEALING MATERIAL

- A Cement: Material used in sealing of the surface casing and borehole annular space shall consist of API Class A cement. The cement shall contain not more than 5.2 gal of water per 94-lb sack of cement.
- B Additives: Additives may be mixed with the sealing material to reduce hydraulic collapse strength and temperature while providing an adequate borehole seal. They shall not exceed the following:
  1. Not more than 4 percent, by weight, bentonite.
  2. Calcium chloride shall not be used.
  3. All additives shall be approved prior to use by the ENGINEER. The use of salt or brine as a method of increasing the mud weight during drilling will not be permitted under any circumstances during the construction of the well. Any materials proposed for controlling the flow must be reviewed and approved by the ENGINEER, prior to use.

## 2.3 GRAVEL FILTER PACK MATERIAL

Gravel Pack for the monitoring wells shall consist of silica sand ranging from 8-16 to 12-20 for the screened section and 2-foot thick layer of 20-40 silica sand barrier above the main filter pack to prevent cement migration in the screened interval. Final selection of gravel filter pack materials will be based on the sieve analyses from monitor well construction. Based on current data, the anticipated material is 8-16 sand.

All material for the stabilizing gravel filter pack shall be hard, well rounded, water-worn sands or gravels composed of at least 90 percent silica, washed clean of silt, dirt and foreign matter; crushed rock will not be accepted. A sample and sieve analysis of filter packing materials to be delivered to the site must be submitted to the ENGINEER for review and acceptance at least 3 days prior to anticipated placement of the material in the well annulus. A Certified Testing Laboratory shall submit a sieve analysis of the delivered material to verify conformance with the approved sample. Failure to meet gradation of approved sample shall be grounds for rejection of the material. The gravel filter pack, if stockpiled at the well site, shall be kept free of all foreign matter. The filter pack must conform to the following criteria listed in the table.

# PART 3 -- EXECUTION

## 3.1 GENERAL

- A Method:

1. Alternate 1: Direct Mud Rotary Method: Material for drilling fluid for well construction by the rotary method shall be **Aquagel**™, or equal. The drilling fluid shall possess such characteristics as are required to adequately condition the walls of the hole to prevent caving of the walls as drilling progresses, and to permit recovery of representative samples of cuttings. The CONTRACTOR shall provide equipment for measuring drilling fluid properties including a viscosimeter and a fluid density balance.
  - a. Water and Additives: Drilling water shall be of fresh quality. Any other drilling additives to be used shall require approval of the ENGINEER. The CONTRACTOR shall be responsible for maintaining the quality of the drilling fluid to assure protection of the water bearing formations exposed in the borehole to adequately maintain the walls of the hole to prevent caving of the walls as drilling progresses, and to permit recovery of representative samples of cutting.
  - b. Control: The CONTRACTOR shall maintain complete control over drilling fluid characteristics during the entire operation of well construction. If proper control of the drilling fluid is not maintained, the CONTRACTOR may be required, at the CONTRACTOR's expense, to retain or employ an experienced, qualified mud engineer on the job during all operations to supervise and maintain drilling fluid characteristics.
  - c. Holding Tanks: The CONTRACTOR shall provide holding tanks for handling the drilling fluids. The ground surface shall be restored to its original condition.
  - d. Depths and Lengths: The estimated depths and lengths for boreholes and casings are shown in the construction drawings, and will be based on the actual lithology found in the pilot hole of the respective well. Payment will be based on actual quantities furnished, installed, or constructed, in accordance with the schedule of values
  - e. Repeat Work: All work required to be repeated, resulting from the CONTRACTOR's performance, including all additional materials, labor and equipment required, shall be furnished at the expense of the CONTRACTOR and no claim for additional compensation shall be made or be allowed therefore, except as specifically provided herein.

### 3.2 CONDUCTOR CASING

- A The CONTRACTOR shall set a 8-5/8" OD-inch conductor casing to a determined by the CONTRACTOR and approved by the ENGINEER. The borehole for the conductor casing shall not be less than 12-1/4" inches in diameter.
- B All field joints shall be welded during installation by qualified welders in accordance with the requirements of AWWA C206. Three steel guides, attached near the base, middle, and top of the casing, shall be provided in order to center and hold the casing in the proper position until the grout seal is in place.

### 3.3 PILOT BOREHOLES

- A Drilling: The pilot hole shall have a nominal diameter of eight(8) inches if drilled using direct mud rotary method from surface to total depth of XX feet. No pilot borehole will be drilled for the shallow monitor well.

- B **Cuttings Collection:** The first sample shall be taken at 10 feet below existing ground surface and additional samples taken at every increment of 10 feet in drilling depth. Additional samples shall be taken at every change of formation regardless of where encountered. To ensure the most representative formation samples during drilling, the pilot hole penetration rate shall not exceed the ability of the mud system to condition the mud. The ENGINEER reserves the right to request the CONTRACTOR to slow or temporarily halt pilot hole drilling to allow for representative cuttings collection, including sand collection. Cuttings shall be recirculated to surface and discharged into a container of adequate volume to ensure collection of fine formation sediments. Each sample shall be clearly labeled to indicate the depth from which the sample was taken and preserved in a sturdy container. All sample bags shall be stored in sturdy storage containers in a manner to prevent damage, loss, or breakage. The CONTRACTOR will deliver geological samples from each well to the OWNER within three (3) days of well completion.
- C **Maintenance of Open Hole:** The CONTRACTOR will maintain the straightness of the borehole and prevent sloughing and collapse of the borehole during geophysical logging of the pilot hole.
- D **Abandonment of Pilot Borehole Below Production Zone:** Upon completion of the pilot borehole drilling the CONTRACTOR shall abandon the borehole to a depth determined by the ENGINEER after a study of the driller's log, the geophysical logs, and the formation samples. The CONTRACTOR shall plug the borehole by filling it to the level determined by the Engineer with neat cement using positive displacement tremie method in accordance with Texas Water Well Driller's rules.

### 3.4 DOWNHOLE GEOPHYSICAL SURVEYS

- A **General:** The geophysical logging firm will be provided and managed by the ENGINEER. The Contractor shall assume an 5 hour standby time while the geophysical surveys are being performed. The CONTRACTOR will be paid a stand-by rate during the geophysical log survey.

### 3.5 OWNER INSTRUCTIONS TO PROCEED

- A **Termination of Work:** If information indicates that the completion of a well at the pilot hole site is not warranted, the OWNER reserves the right to terminate all further work at the site.
1. The CONTRACTOR shall be required to abandon the test hole as directed by the ENGINEER in accordance with regulations formulated by governmental agencies having such jurisdiction.
  2. The OWNER reserves the right upon termination of work at the site to have the CONTRACTOR move to another site selected by the OWNER within a one-mile radius of the terminated hole site, and to drill another test hole.
- B **Proceed with Work:** If information indicates that completion of a well at the pilot hole site is warranted, the ENGINEER shall instruct the CONTRACTOR to proceed with reaming the pilot hole.

### 3.6 WELL CONSTRUCTION

- A **Reamed Borehole:** The borehole for the well casing having a diameter of 9 5/8" nominal inches shall be drilled to a depth indicated in the Construction Drawings, or as determined by the ENGINEER. The anticipated depth of the deep monitor well is between XX and XX feet.



- B Well and Screen Assembly: The 5-inch diameter well casing and screen assembly shall be lowered into the borehole and the weight of the casing shall be supported by the drilling rig.
- C Filter Pack Installation: Filter pack shall be installed by the tremie method with maximum free fall distance from bottom of tremie pipe of 20 feet.
- D Failure to Complete: If the casing cannot be landed in the correct position or at a depth approved by the ENGINEER, the CONTRACTOR shall construct another well immediately adjacent to the original location and complete this well in accordance with the Contract Documents at no additional cost to the OWNER. The abandoned hole shall be sealed in accordance with all State of Texas regulations.
- E Collapsed Casing: If the casing should collapse for any reason prior to well completion, it shall be withdrawn and replaced at the CONTRACTOR's expense.
- F Casing Installation: The casings shall be lowered into the borehole open-ended and the weight of the casing shall be supported by the drilling rig. The hook load of the drilling rig must exceed the maximum casing weight to be encountered during the construction of the well. Alternative methods of casing installation may be proposed by the CONTRACTOR by submitting the proposed method to the ENGINEER for approval.

### 3.7 GROUTING OF CASINGS

- A General: The cement shall be pumped as a slurry of thoroughly mixed components in stages that are designed to fill the annular space without exceeding the collapse pressure of the casing pipe to which the cement is applied by the tremie method. It is the CONTRACTOR's responsibility to conduct the cementing operations in such a manner that the collapse strengths and tensile strengths of the casing (with safety factor) are not exceeded and casing failure does not occur. Cement will be pumped or placed so that the pressure of the slurry and the pressure applied inside the casing pipe do not affect the bond.
- B Cementing Procedures: Cementing by the tremie method shall be continuous for each stage after cementing begins. If there is a loss of circulation or there are no returns at the surface, the ENGINEER shall be informed immediately of remedial procedures that will be used to re-establish circulation and complete the cementing program according to the well design and technical specifications.

### 3.8 WELL DEVELOPMENT

- A General: After the well has been completely constructed in accordance with the requirements of the Contract Documents, the CONTRACTOR shall notify the ENGINEER and shall make the necessary arrangements for conducting the well development, and the production tests. Development shall be executed using the following techniques, or other techniques proposed by the CONTRACTOR and subject to the approval of the ENGINEER. Development or testing at any well can be suspended at any time, at the discretion of the ENGINEER to minimize impacts during data collection activities in the wellfield. Development shall continue until parameters of turbidity, sand production, conductivity, and pumping water levels have stabilized over a 12-hour period while surging.
- B Development by Airlifting:
  1. Airlifting shall commence at the uppermost portion of the screened interval and proceed downward using an educator pipe. Upon reaching the lowermost portion of the

well, airlifting shall continue from that point until such times as the ENGINEER deems the process to be completed. The CONTRACTOR shall maintain the total length of the drilled hole during development, and will be required to clean that borehole from time to time, as directed by the ENGINEER.

2. The CONTRACTOR shall be responsible for providing an on-site tank or tanks of sufficient size and construction to accommodate development discharge from the well. The purpose of the tank is to minimize area flooding during direct airlifting activities. The tank shall be constructed with baffles to encourage sediment settlement prior to pumpage from the tank to the designated discharge point. The CONTRACTOR shall furnish, install, operate, and remove a pump of sufficient size and horsepower to continuously pump stored discharge water as required from the tank(s) to the discharge point. This discharge point shall be designated by the ENGINEER at a maximum distance of 300 feet from the well. The CONTRACTOR shall furnish and install discharge piping for the pumping unit of sufficient size and length to sedimentation and infiltration basins as approved by the ENGINEER. The CONTRACTOR shall prevent any site flooding or erosion, which might be caused by the discharge. The CONTRACTOR shall install the discharge pipe to the point of discharge selected by the ENGINEER. Any necessary crossings over the discharge piping shall be constructed and maintained by the CONTRACTOR.

**C Development by Swabbing and Bailing:**

1. After receiving the ENGINEER'S authorization to proceed, the CONTRACTOR shall commence to develop with a swab or surge block.
2. Development of the well with the swab or surge block shall commence by gentle surging beginning at the top of the uppermost perforated interval. Periodically the CONTRACTOR shall measure and remove from the well all sand and mud which has accumulated at the bottom of the well. Swabbing shall continue until no additional appreciable quantity of sand and mud is brought into the well. The surging tool (i.e., swab or surge block) shall be progressively lowered and the preceding process repeated until the bottom of the perforated interval is reached. This top and bottom surging procedure shall be repeated for each perforated interval in the well. Swabbing shall continue until directed to stop by the ENGINEER.

**D Development by Pumping:** Within 24 hours after development by airlifting, the CONTRACTOR shall commence well development by pump surging using the test pump. The CONTRACTOR shall furnish, install, operate, and remove a submersible pump for developing the well. The pump and driving unit shall have a capacity to pump up to 30 gpm with a pump suction inlet setting at a depth of up to approximately 150 feet. The prime mover shall be a variable-speed type.

3.9 CAPPING, SURFACE SLAB, AND OUTER PROTECTIVE CASING

- A General: Upon completion of all work in connection with each well completion the well will be equipped with a casing well seal and a minimum 2' x 2' x 4-inch thick concrete slab in accordance with TDLR Rules & Regulations. The monitoring well will have a stick up above ground surface between 24 inches and 36 inches.
- B Outer Protective Casing: An outer protective casing will be installed on both the deep and the shallow monitoring wells. The protective casing will be comprised of steel, be 6-inches square,

and include a hinged, locking cap. Figure 2 shows an example of a protective casing. The protective casing will have a weep hole to allow drainage of accumulated rain or spilled purge water. The weep hole should be drilled into the protective casing just above the top of the concrete slab. The protective casing will be installed into and through the concrete slab.

### 3.10 DISPOSAL OF WASTES

- A General: Drill Cutting and sediments generated from drilling, completion, cementing, and well development may be left on site as part of surface restoration efforts. All waste material (i.e. cement sacs, health & safety supplies, etc....) shall be collected and disposed of by contractor.

### 3.11 DISPOSAL OF DEVELOPMENT AND TEST WATER

- A General: The CONTRACTOR shall provide all pipeline and handling systems to direct well development fluids to a designated location on site. Caution will be exercised to prevent erosion at the point of discharge (i.e. bull rock or plastic sheeting).

**END OF SECTION**

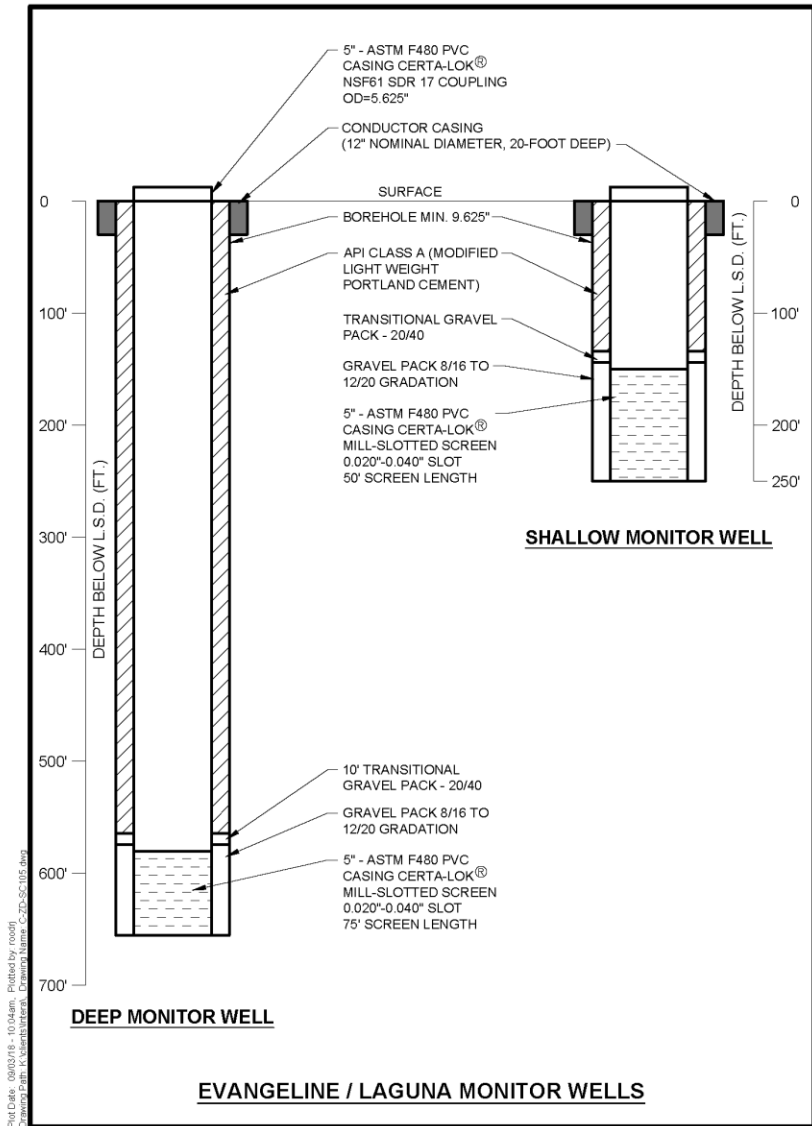


Figure 7A-1 Schematic showing the example construction for a shallow and a deep monitor wells.



Figure 7A-2 Example of outer protective steel casing with a hinged, locking cap

**APPENDIX 7B: RAILROAD COMMISSION OF TEXAS FORM P-13 APPLICATION OF  
LANDOWNER TO CONDITION AN ABANDONED WELL FOR FRESH WATER  
PRODUCTION**



RAILROAD COMMISSION OF TEXAS OIL AND GAS DIVISION		APPLICATION OF LANDOWNER TO CONDITION AN ABANDONED WELL FOR FRESH WATER PRODUCTION		FORM P-13 EFF 10/04	
1. Field Name (as per RRC Records or Wildcat):		2. Field No.:		3. RRC District No.:	
4. Operator Name (as shown on P-5):		5. Operator P-5 No.:		6. County:	
7. Lease Name:		8. RRC Lease/Gas ID No.:		9. API No.:	
				42-	
10. Well No.:					
11. Location (Section, Block, and Survey):					
12. If the Operator has changed within the last 60 days, provide the name, the P-5 No., and the address of the former Operator:					
13. If the well has been worked over, provide the former Field name (and reservoir name) and number:					
14. Is this an Abandoned Producer or a Dry Hole? <input type="checkbox"/> YES <input type="checkbox"/> NO If this is a Dry Hole, or if the Operator did not file current completion data, <b>ATTACH</b> casing and cement data for casings penetrating groundwater depths.					
15. Type of Electric or other Log run:			16. Completion date of the well:		
17. Proposed Plug-Back Depth of well for fresh water production (ft):		18. Base of Usable Quality Water (ft.):		19. Date of TCEQ letter:	
				TCEQ File No.: SC-	
20. FOR COMPLETION BY LANDOWNER: Information concerning groundwater conservation districts may be found at <a href="http://www.texasgroundwater.org">www.texasgroundwater.org</a> .					
<input type="checkbox"/> I have permitted the well as a water well with the _____ Groundwater Conservation District. <input type="checkbox"/> I have registered the water well with the _____ Groundwater Conservation District. <input type="checkbox"/> The _____ Groundwater Conservation District does not require that the water well be permitted or registered. <input type="checkbox"/> There is no groundwater conservation district for the area in which the well is located.					
<p>The undersigned Operator and Landowner hereby make application for the Operator to be authorized to plug the above well in such a manner that the well bore be left open to the above depth so that the Landowner may condition and equip such well bore to that depth for production of fresh water.</p> <p>The undersigned Landowner further obligates himself, his heirs, successors, and assignees, as a condition to the Commission's approval of this application, to complete the plugging of the well if and when it is abandoned as a fresh water well, or when, because of the condition of the well is found to constitute a menace to any oil, gas, or fresh water strata in that area, such plugging is ordered by the Commission.</p> <p>Under §89.011, Tex. Nat. Res. Code, the duty to properly plug the well ends only when the well has been properly plugged in accordance with Commission requirements up to the base of usable quality water stratum; the Commission has approved the application to condition the well for usable quality water production operations; and the landowner has registered the well with, or has obtained a permit for the well from, the groundwater conservation district, if applicable.</p> <p>The authority to complete this well in the manner prescribed shall not be construed as authority for any party to produce fresh water from the well.</p>					
<b>CERTIFICATION</b>					
I declare under penalties prescribed in §91.143, Tex. Nat. Res. Code, that I am authorized to make this report, that this report was prepared by me or under my supervision and direction, and that data and facts stated therein are true, correct, and complete, to the best of my knowledge.					
<b>LANDOWNER</b>			<b>OPERATOR</b>		
Date:			Date:		
Signature of Landowner:			Signature of Operator or Authorized Representative:		
Name of Landowner: (type or print)			Name of Person and Title: (type or print)		
Street Address or P. O. Box:			Street Address or P. O. Box:		
City, State, Zip Code:			City, State, Zip Code:		
Telephone ( )			Telephone ( )		
<b>FILING INSTRUCTIONS</b>					
1. The completed original of this form must be recorded in the county in which the well is located. SEE the back of this form.					
2. Form P-13 showing the recording data, along with the Notice of Intent to Plug and Abandon (Form W-3A) must be filed in the appropriate Commission District Office, along with a copy of the TNRCC/TCEQ Surface Casing MC 151 letter (or other acceptable equivalent letter).					
3. After plugging back the well, the Operator shall file one copy of the Commission-approved Form P-13 with the original and one copy of Form W-3 (Plugging Record), in the appropriate Commission District Office.					
<b>RAILROAD COMMISSION APPROVAL:</b> _____ <b>DATE OF APPROVAL:</b> _____ (Signature of RRC Representative)					
<b>DISTRIBUTION:</b> The Commission will mail a copy of the approved form to the: (1) Landowner; (2) Operator; (3) Texas Commission on Environmental Quality (TCEQ); (4) Ground Water Conservation District, if applicable; (5) Texas Department of Licensing and Regulation (TDLR); and (5) Commission District Office.					

THE STATE OF TEXAS

COUNTY OF \_\_\_\_\_

BEFORE ME, the acknowledged authority, on this day personally appeared \_\_\_\_\_, referred to as landowner in the instrument attached hereto, and being by me duly sworn acknowledged to me that he or she executed said instrument for the purposes and consideration therein expressed.

\_\_\_\_\_  
Notary Public in and for

\_\_\_\_\_ County, Texas

Recorded this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

\_\_\_\_\_ Clerk

**FOR USE OF COUNTY CLERK**

**RECORDING DATA:**

**APPENDIX 7C POST OAK SAVANNAH GROUNDWATER CONSERVATION  
DISTRICT MONITORING WELL AGREEMENT**

**MONITORING WELL AGREEMENT**

Post Oak Savannah Groundwater Conservation District

**THE STATE OF TEXAS**

**COUNTY OF \_\_\_\_\_**

**PARTIES TO AGREEMENT**

**Grantor:**

**Grantor's Mailing Address:**

**Grantee:** Post Oak Savannah Groundwater Conservation District (POSGCD or District)

**Grantee's Mailing Address:** P.O. Box 92, Milano, Texas 76566

**AGREEMENT DESCRIPTION:**

- I. **Date of Commencement.** The agreement between the Grantor and POSGCD ("Agreement") is effective as of \_\_\_\_\_, 20\_\_.
- II. **Consideration.** TEN AND NO/100 DOLLARS (\$10.00) and other good and valuable consideration, the receipt and sufficiency of which are acknowledged by Grantor. This Agreement shall not be filed of record in \_\_\_\_\_ County, Texas (the "County").
- III. **Use and Purpose of Well.** The Grantor will provide POSGCD with the use of a Grantor water well which is appropriately registered and/or permitted by the District ("Well") and the well site associated with the Well located as set forth in paragraph IV below. POSGCD will use the well for the purpose of monitoring the groundwater level for inclusion in POSGCD's groundwater monitoring program ("Program"), the collection of water quality samples, and other studies of groundwater that the two parties may agree upon in the future. Monitoring wells are used to establish historic groundwater information. Therefore, POSGCD hopes Grantor and POSGCD will develop a long-term relationship for the better management of the groundwater resources of POSGCD through the use of the Well by POSGCD. POSGCD realizes this Agreement does not convey an interest in land and is limited to agreement that POSGCD may use the Well and Well site as set forth in this Agreement, and that future conditions can arise that may require early termination of this agreement or modifications to the data collection process.
- IV. **Location of Well and Grantor Property.** The Well is located \_\_\_\_\_ on \_\_\_\_\_ property owned by or under the control of Grantor ("Grantor Property"). The Well is known as \_\_\_\_\_ . The Well was drilled in \_\_\_\_\_ by \_\_\_\_\_ to a depth of \_\_\_\_\_ feet. When used herein, the word "Property" means and includes the land on which the Well referenced and described herein is located.

- V. Regulatory Compliance.** POSGCD will comply at all times, at its sole cost, with all applicable federal, state and local laws, rules, regulations and standards, including POSGCD's rules, in connection with its activities hereunder, including, without limitation, the use, operation, maintenance and repair of POSGCD's equipment and appurtenances.
- VI. Expenses.** POSGCD shall pay all costs associated with the installation, operation and maintenance of the equipment used in the Program. These costs may include the installation of a water level monitoring probe and any mobile radio or telephone equipment (telemetry) used to relay the water level information to POSGCD, and the costs for installation of the telemetry equipment and service. POSGCD shall pay all costs associated with the monthly operations expense of the water monitoring equipment, telemetry equipment and service.
- VII. Description of Water Level Observation Well Program.** POSGCD may manually take water level measurements periodically using appropriate equipment, or may install a monitoring probe to be placed in the well to collect data. If a probe is placed in the well, it will be below the static water level with a cable that will run from the probe to the surface. The probe will measure and store data on water level changes. POSGCD personnel will download these readings at appropriate times either at the well site or via equipment installed at the well site by POSGCD which transmits the information to POSGCD. POSGCD personnel may collect water samples from the Well for water quality analysis, and conduct other studies mutually agreeable to the parties which further the knowledge of groundwater conditions in the area.
- VIII. Termination.** This Agreement shall be and remain in full force and effect until such time as it is terminated by written notice given by Grantor or POSGCD, or their respective grantees and successors, as provided in this Section VIII. Upon termination, the terms, provisions and conditions hereof that provide POSGCD will be responsible for all claims and causes of action or require performance by POSGCD upon or after termination, shall remain in full force and effect. Grantor may terminate this Agreement in the event POSGCD defaults in the performance of its obligations pursuant to this Agreement and does not remedy or correct such default within sixty (60) days after written notice of default being given to POSGCD by Grantor. POSGCD may terminate this Agreement at any time after the date of execution of this Agreement by giving Grantor one hundred twenty (120) days written notice of such termination. The parties further agree this agreement may be terminated at any time by mutual written agreement of the parties. In the event of such termination, Grantor may request POSGCD to properly plug the Well or Grantor may regain use of the Well if allowed to do so by applicable laws and regulations, including the rules of POSGCD with respect to the operation of or production from the Well. All equipment belonging to or installed by POSGCD at the site shall belong to POSGCD and, in the event of termination of this Agreement, Grantor will allow POSGCD reasonable time to remove any such equipment from the site. If this Agreement is terminated, POSGCD agrees to restore the Well site to the original condition to the extent practicable.
- IX. Terms and Conditions.** Grantor grants and conveys to POSGCD the right to use the Well and related facilities, such as electric utility and telephone lines and roadways, on Grantor's Property to obtain groundwater resource data and information.

POSGCD shall not interfere with Grantor's use and occupancy of the Property or Well.

POSGCD shall have the right of pedestrian and vehicular ingress and egress over, across and upon Grantor's Property for the purpose of operating, repairing, inspecting, maintaining, replacing, and removing equipment in the Well, the roadways needed to provide access to the site of the Well, and the electric and telephone lines needed to provide the telecommunications and electrical services to the site of the Well, provided Grantor shall have the right to approve the location of any roadways and utility lines, and any costs for such roadways or utility lines shall be at the sole expense of POSGCD. Grantor shall not unreasonably withhold approval of such roadways, utility lines, or such structures as may be necessary to achieve POSGCDs goals as stated in this Agreement. POSGCD shall, however, to the fullest extent practical limit its vehicle traffic to existing roadways/paths.

POSGCD will restore the surface of any roadway or ground damaged, if any, during the process of equipping the Well or providing utility service to the Well site to the extent reasonably practicable. POSGCD shall be responsible for any damages, claims or causes of action caused by or resulting from actions by, or failure to act by, POSGCD, its agents, contractors, and employees.

Grantor reserves the right to build fences that may cross roadways or utility lines related to the Well site but POSGCD shall not be denied access to the Well site. POSGCD may install locks on any fences or gates POSGCD constructs to protect the Well site but Grantor shall be given keys or combinations for any such locks and Grantor shall have full access to, and may not be denied access to, the Well or Well site.

Grantor agrees that if Grantor needs to drill a water well, install a septic tank, septic tank drain field or any other activity that could disrupt the groundwater data collection from the Well, Grantor shall make diligent effort to avoid unreasonable interference with the Program or studies, and will notify POSGCD in advance of any such project in an effort to find a location agreeable to both parties which will minimize any interference with POSGCD's Program or studies.

POSGCD further agrees as follows: (a) the Well shall not produce any noticeable noise except during the time of its development; (b) POSGCD shall make available to the Grantor at no cost a copy of all logs obtained from the Well; (c) POSGCD shall make available to the Grantor data gathered from the Well; and (d) the Well shall be used by POSGCD solely for the purpose of monitoring groundwater quality and/or quantity, and any other purposes which advance the understanding of local groundwater conditions that are mutually agreed upon in writing by the parties, and POSGCD shall not use the Well for any other private or commercial purpose without the written consent of Grantor.

The rights granted under this Agreement are subject to all encumbrances of record in the county public records or which are visible and on the ground in a manner that a corrected survey would reveal. POSGCD takes the right to use and occupy the Property for the purposes herein set forth, and POSGCD takes the Property, AS IS, and without any obligation of Grantor, either expressed or implied, regarding the condition of the Property.



The grant of rights under this Agreement and all of the terms, provisions and obligations hereof shall be inure to the benefit of and be binding upon Grantor and POSGCD and their respective administrators and successors whether or not the Agreement is referenced or described in any conveyance of all or such portion of the Property by Grantor. POSGCD's rights hereunder may also be exercised, at POSGCD's option, by POSGCD's assigns, lessees, contractors, or agents. The grant of rights under this Agreement shall not be assigned by POSGCD without the prior written consent of the Grantor.

Grantor expressly reserves for itself, its successors or assigns, all right, title and interest in and to the Property and Well, grants the POSGCD only the rights to use the Property as set forth herein, and further agrees Grantor intends to use the Property in a manner that will not interfere with the exercise by POSGCD of the rights granted under this Agreement. Further, as provided above, Grantor specifically reserves the right to terminate this Agreement.

This Agreement shall be construed under and in accordance with the laws of the State of Texas, and that all obligations of the parties created under this Agreement shall be performable in the County.

No amendment, modification, or alteration of the terms of this Agreement shall be binding unless it is in writing, dated subsequent to the date of this Agreement, and duly executed by the parties to this Agreement.

In the event one or more provisions contained in this Agreement shall be held invalid, illegal, or unenforceable in any respect, such invalidity, illegality, or unenforceability shall not affect any other provision hereof and this Agreement shall be construed as if such invalid, illegal, or unenforceable provision had never been contained herein.

This Agreement may be executed in duplicate originals on the respective dates of acknowledgment set forth below and shall be effective as of the latest date of acknowledgment set forth below.

**GRANTOR:**

\_\_\_\_\_

\_\_\_\_\_

Date

**POST OAK SAVANNAH GCD:**

\_\_\_\_\_

Sidney Youngblood, President

\_\_\_\_\_

Date

\_\_\_\_\_

Gary Westbrook, General Manager

\_\_\_\_\_

Date