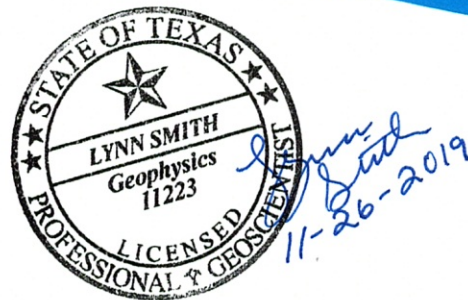


# Annual Report

Fiscal Year 2019

Lynn Smith, P.G. - General Manager

11/26/2019



This report describes the status of various goals that are stated in the District's Management Plan. It also serves to provide information to the Board of Directors and interested members of the public regarding activities performed by the District during the 2019 fiscal year.



## Executive Summary

In the 2019 fiscal year, the Mesquite Groundwater Conservation District continued to make progress toward becoming a stronger management agency in addition to the past data collection activities that continue. Whitney Wiebe and Lynn Smith continue in their full-time roles as Administrative Assistant and General Manager respectively. Troy Thomason and Dallen Skinner continue to serve the District as Field Technicians as needed. One new part-time staff member, Tasha McNeil, also contributed to the District's successes in the position of secretary.

The District began administering a new meter grant program. The grant monies are to be used for water meters involved in agricultural production and must be matched dollar-for-dollar by the landowner. The water meters are used to quantify water conservation strategies implemented within the District. Additionally, for previous grants, the fourth annual report was completed by the District this year and was accepted by the Texas Water Development Board (TWDB).

The TWDB completed the realignment of the Groundwater Management Area Two and Groundwater Management Area Six boundary on August 26, 2015. The realignment was undertaken to reflect actual hydrogeological conditions rather than following county boundaries. This realignment was supported by the District and has resulted in several parcels being annexed this fiscal year in eastern Briscoe County that were not contiguous to existing District lands. The District expects that trend to continue and likely increase as the District's work in eastern Briscoe County becomes well understood. As of this report's date, the District has 3,462 acres in Briscoe County.

New rules were adopted by the District that became effective in 2015. The most significant change was the requirement to meter and report all water produced by non-exempt wells. Metering and reporting were phased in over several years, becoming mandatory in 2017. Groundwater Production Units were also defined and implemented on the same schedule as metering. Annual Production Report submittal and receipt along with related enforcement activities have taken up the bulk of Staff time early this fiscal year.

The District spent significant time during the last fiscal year preparing a new Management Plan. It was pre-reviewed by Texas Water Development Board staff in September 2018. This year's Annual Report reflects the goals and objectives for that new Management Plan which was adopted by the District on October 19, 2018.

The District continues to measure water levels and rainfall. Several water quality tests were performed for wells within the District. Other District activities included providing educational seminars, well permitting, and sponsoring a scholarship program.

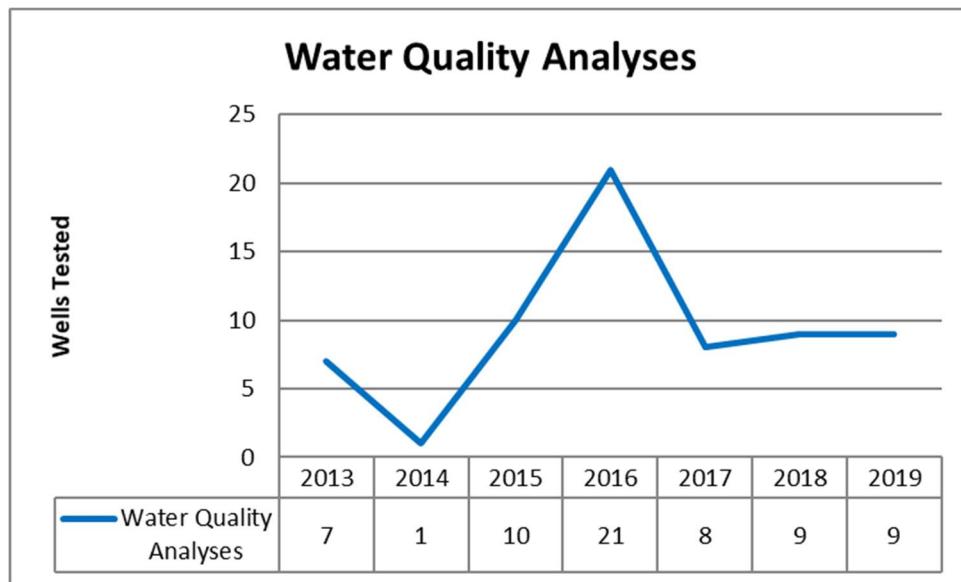
The remainder of this report provides details on activities of the District during this fiscal year. They are categorized into goals that appear in the District's Management Plan. Comparisons with previous year's data are made, where appropriate. It should be noted that some of the Management Plan goals and objectives were reorganized, deleted, or created in the new Management Plan. This report's organization follows the new Management Plan's organization.



## Management Goal 1: Addressing Conservation

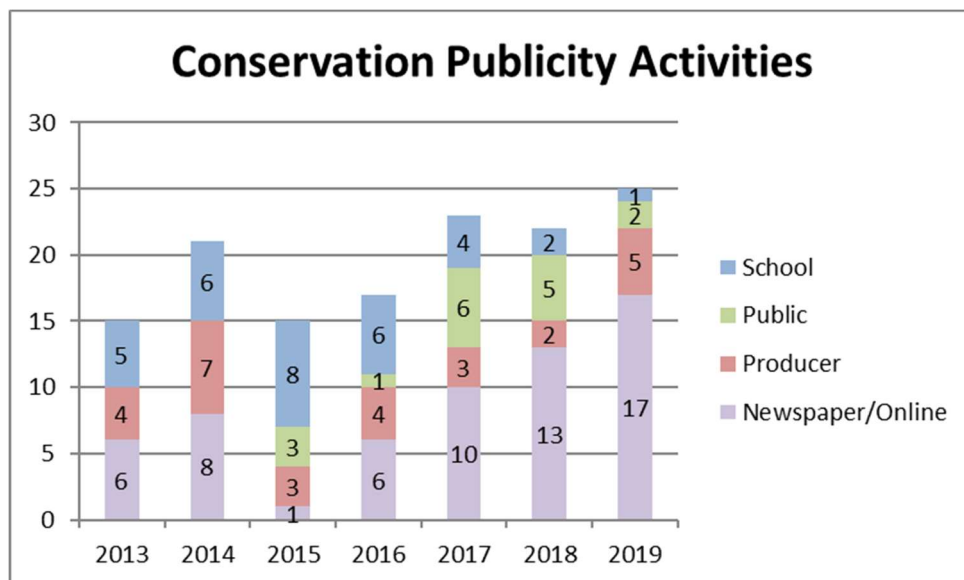
### Objective 1.1: Conduct water quality analyses of requested wells

The performance standard for this objective is to conduct the requested analyses within forty-eight hours of receipt of the water sample. Nine water quality analyses were requested this fiscal year; each was analyzed within forty-eight hours of receipt of the sample. Results were provided to the owner or well contractor as appropriate. Also, the water quality report form was updated to better track the time samples were taken and analyzed, as well as provide more details on the location and well if known.



## Objective 1.2: Publicize groundwater conservation issues through local newspapers, group presentations, schools, and other media opportunities

The performance standard for this objective is to publicize groundwater conservation issues using the above outlets on at least one occasion by September 30<sup>th</sup> of each year. Where applicable, the Texas Water Development Board conservation webpage and best management practices should be used. In this fiscal year, the District publicized conservation issues in seventeen newspaper/online articles, at five producer meetings, at two public meetings, and one school presentation. We also started tracking our publicity work through online outlets such as Facebook posts. They are combined with the print newspaper data. The District continues to maintain our website with conservation information and links to other conservation groups.

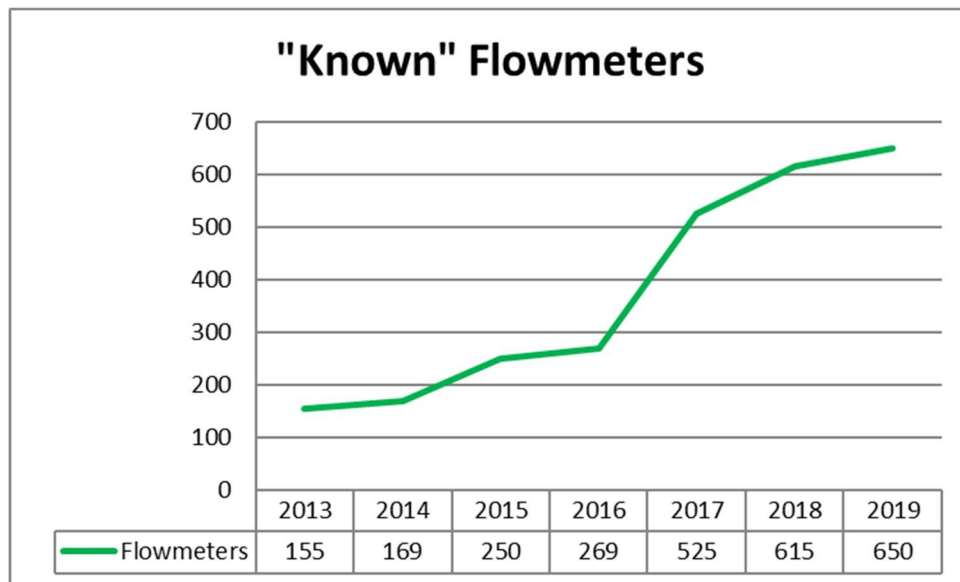


## Management Goal 2: Providing the Most Efficient Use of Groundwater

### Objective 2.1: Monitor flowmeters on wells to facilitate water usage efficiency studies

The performance standard for this objective is to read and record pumping data from at least ninety percent of flowmeter locations by May 1<sup>st</sup> each year. District staff received water production data from Producers this fiscal year and then performed quality control checks as needed to determine if the correct meters were being read and also to determine if meters that were reported as broken were, in fact, broken or if they were readable by an experienced technician. It was determined that 439 flowmeter readings reported by Producers or obtained by District staff were useable. This amounts to 67.5 percent of the known flowmeter locations that year. An additional 207 meter readings were either non-sensical or not acquire-able due to the electronic meter being broken. Those 207 readings were reported to the District as being broken or some similar condition. Four meter readings were not reported to the District prior to May 1<sup>st</sup>. Ninety-nine percent of known meter readings were reported in some fashion prior to May 1<sup>st</sup> but, as noted, only 67.5 percent of those reading were initially useful with the others needed inspection, repair, or replacement.

The popularity of electronic meters coupled with the potential for losing an entire year of data if they fail makes interpreting the District's meeting or failing to meet this objective a difficult task. We did receive data on greater than ninety percent of the meters by May 1<sup>st</sup> but not all of that data was useable for the intended purpose. The District will continue to monitor this situation and may develop a different strategy to deal with electronic meter failures in the future. For the fiscal year, thirty-five new flowmeters were installed within the District. District staff inspected each flowmeter location and recorded initial production data at those locations.



## **Objective 2.2: Publicize the need for efficient use of groundwater through local newspapers, group presentations, schools, and other media opportunities**

The performance standard for this objective is to publicize groundwater efficiency issues using the above outlets on at least one occasion by September 30<sup>th</sup> each year. During this fiscal year, the District publicized efficiency issues at three producer meetings, one public meeting, one school presentation, and maintained our website with conservation and water use efficiency information.

## **Management Goal 3: Controlling and Preventing Waste of Groundwater**

### **Objective 3.1: Identify and address local irrigation practices that are wasteful of groundwater resources**

The performance standard for this objective is to educate the public on wasteful irrigation practices with at least one news article, group presentation, or other local publicity opportunity by September 30<sup>th</sup> each year. District staff presented three educational seminars that addressed wasteful irrigation practices. Additionally, the District Board reviewed one instance of potential water wasting. Investigation revealed that it was due to road maintenance by a Collingsworth County work crew. No action was deemed necessary by the Board.

### **Objective 3.2: Maintain a program to identify, locate, and obtain closure of abandoned wells**

3.2a The performance standard for this sub-objective is to inspect and complete a report on each open or abandoned well within thirty days of receipt of the report of such well. District staff did not receive any reports of abandoned wells this fiscal year.

3.2b The performance standard for this sub-objective is to notify owners of any open or uncovered well described in 3.2a and seek compliance with Rules and statute. District staff did not receive any reports of abandoned wells this fiscal year.



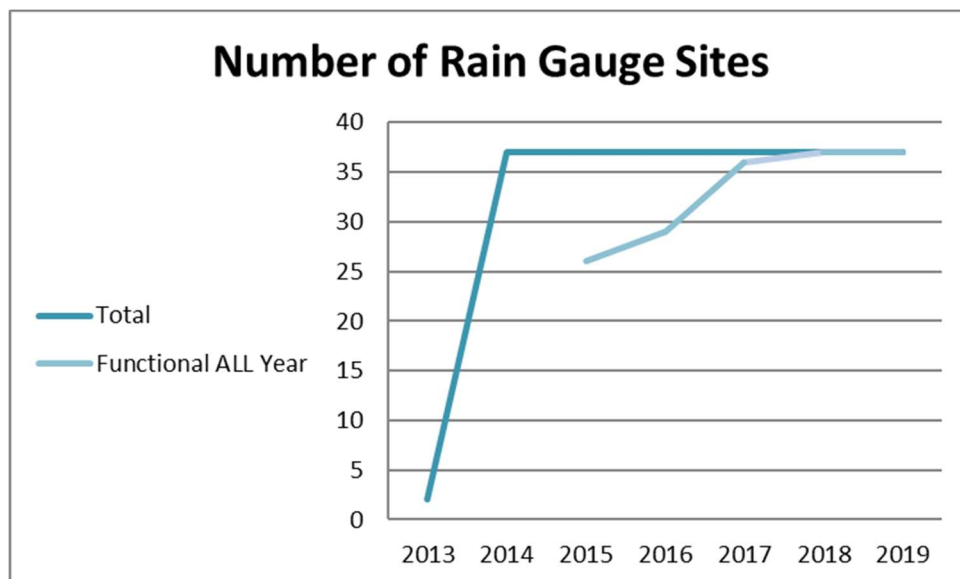
## Management Goal 4: Addressing drought conditions

### Objective 4.1: Maintain the District's Drought Contingency Plan

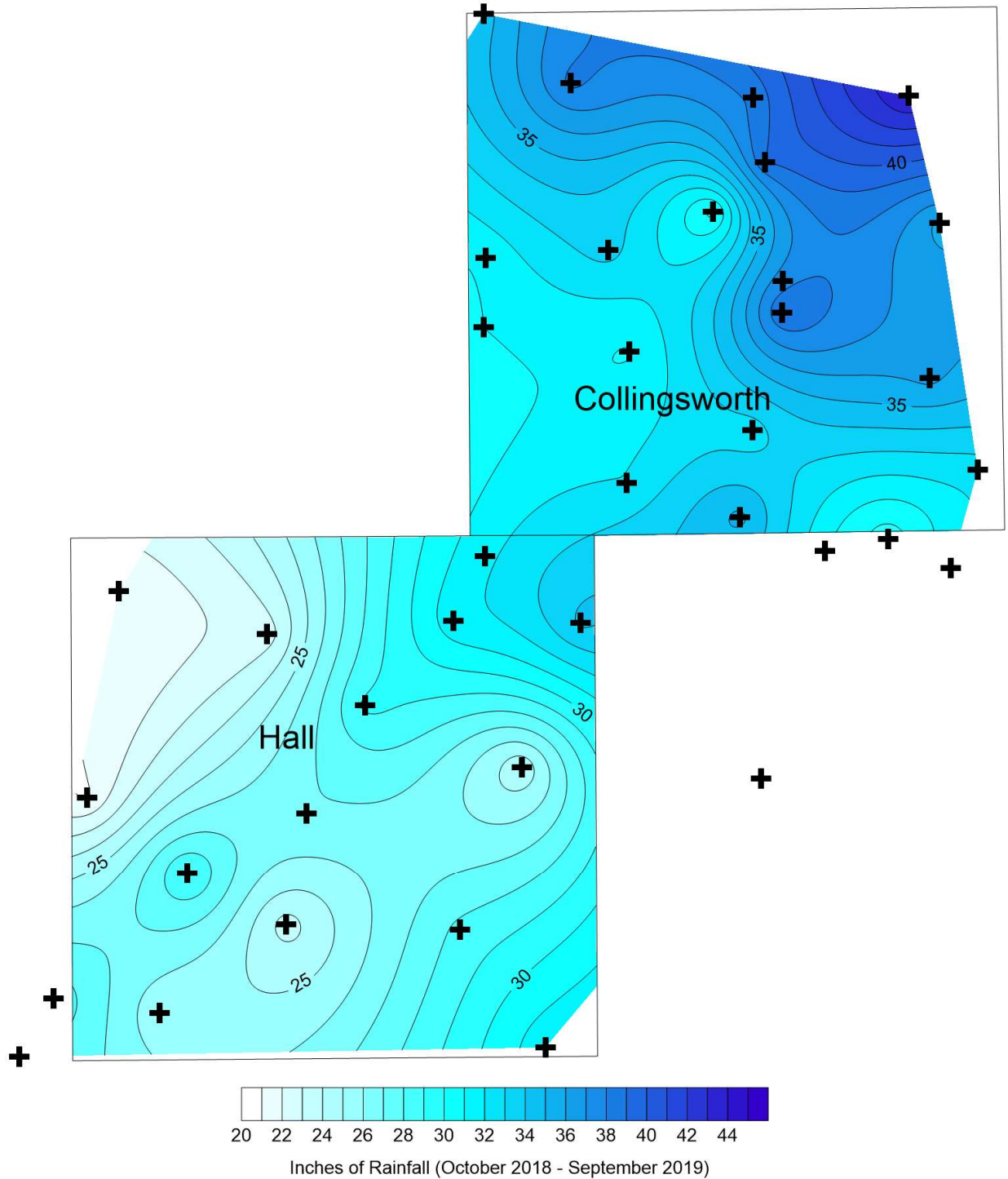
4.1a The performance standards for this sub-objective are to review and update the Drought Contingency Plan by September 30<sup>th</sup> each year. The Drought Contingency Plan was reviewed at the August Board meeting. No updates were deemed necessary at that time. The District continues to monitor rainfall utilizing a network of thirty-six rain gauges maintained by the District and one additional gauge maintained by the National Weather Service.

4.1b The performance standard for this sub-objective is to incorporate newly annexed areas into the District's Drought Contingency Plan within a year of annexation. The District annexed a few small parcels in Briscoe County this fiscal year. The District considered those new parcels during its review in August and deemed that no changes to the plan were warranted at that time. The District will likely annex additional parcels in eastern Briscoe County in the future and is looking at several options for placing another rain gauge in that area. The graph below shows how the number of gauged sites has increased over time as well as the sites that remained functional for the entire year. The map on page six depicts the rainfall amounts that were recorded at thirty-seven gauge sites that remained functional for the entire fiscal year. The data has been gridded and contoured to estimate likely rainfall amounts between gauge sites. For the sites that were functional in FY 2018 and FY 2019, the average rainfall was 6.7 inches greater in FY 2019. This represents an average of 31.3 inches of rain across the District. As always, there are outliers with specific gauges showing anywhere from eleven inches less than last year to seventeen inches more than last year.

The District spent significant time upgrading the rain gauge sites to be more resistant to being chewed up by rats and other animals in 2017 and 2018. That effort is shown in the high percentage of gauges that remained functional for more than a full fiscal year.



# Total Rainfall FY 2019



November 25, 2019

## **Management Goal 5: Address recharge enhancement**

### **Objective 5.1: Recharge Enhancement**

5.1a The performance standard for this sub-objective is to review and update the District's Recharge Enhancement Feasibility Study by September 30<sup>th</sup>, at least once annually. The District completed the study on July 1, 2018. It was reviewed by the District's Board during their August 2019 meeting with no updates being deemed necessary.

5.1b The performance standard for this sub-objective is, if opportunity and funding become available, to team with private or public entities on Recharge Enhancement projects within the District. No projects were available to be funded or performed during the 2019 fiscal year.

## **Management Goal 6: Addressing Rainwater Harvesting**

### **Objective 6.1: Rainwater Harvesting**

6.1a The performance standard for this sub-objective is to publish an article in a newspaper of standard circulation at least once per year regarding rainwater harvesting with a focus on any projects established within the District. One article was published in a local newspaper highlighting rainwater harvesting projects within the District.

6.2b The performance standard for this sub-objective is to provide a summary of rainwater harvesting projects within the District.

A rainwater harvesting demonstration project was constructed at Ellison Park in Wellington in the spring and summer of 2014. The District cooperated with Bawcom Supply, AgriLife, and the City of Wellington to construct the project. FY2015 year saw the tank fill with water from rainfall. AgriLife has accepted responsibility for continuing the project as of August 2015 and plans to use it for students to learn about the principles of rainwater harvesting and strategies for conservation irrigation. No projects were performed during the 2019 fiscal year.

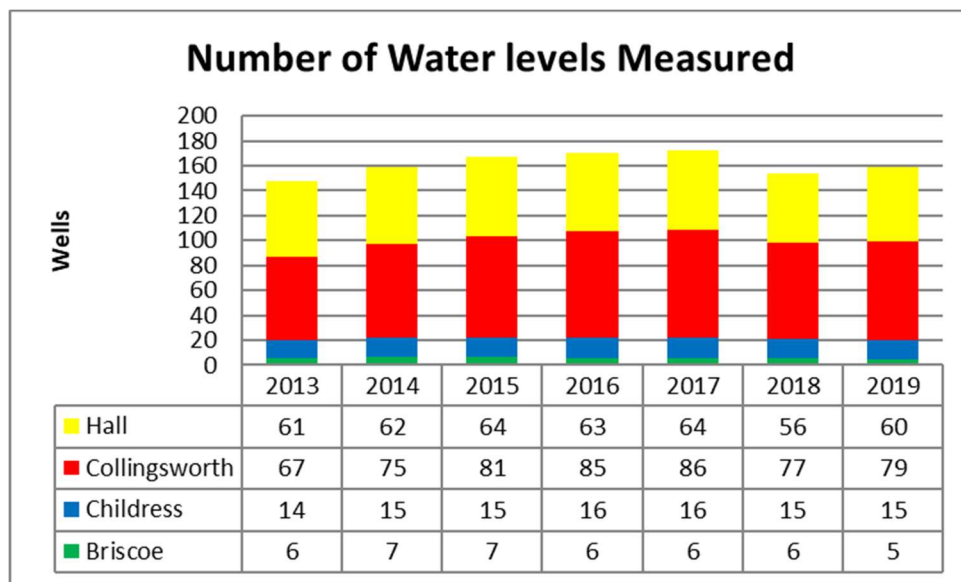
A rainwater harvesting project was constructed at the office of First Priority Irrigation in Collingsworth County. The project is successfully providing water for use as sprayer make-up water.

## Management Goal 7: Addressing the Desired Future Conditions Adopted by the District

### Objective 7.1: Monitor static water levels in selected wells

The performance standard for this objective is to measure the static water level in at least 100 wells within the District by April 1<sup>st</sup>. The District measured water levels in 159 wells within the District. The District will likely annex additional parcels in Briscoe County in the near future and is looking at several options for monitoring additional wells in that area.

The District has invested in two automated water level monitoring systems this fiscal year. One is installed in Collingsworth County within Seymour Aquifer Pod One. The other is in Hall County within Seymour Aquifer Pod Two. They were installed after this year’s reporting period and are not reflected in the graph below. The District continues to refine this program and will be adding new locations for water level measurements in the near future.



## **Objective 7.2: Complete hydrographs in monitored wells**

The performance standard for this objective is to complete the hydrographs for the monitored wells by July 1<sup>st</sup> and provide them to the Board at their next regularly scheduled meeting. Hydrographs were provided to the Board at their June and August meetings.

Part of the presentation of hydrographs was a discussion of an emerging issue in Seymour Aquifer Pod One where the water level trend is at or slightly exceeding the District's Desired Future Condition (DFC) that was set for that Aquifer. The District has taken action to discuss the implications of over-production with water users of that aquifer. The District will closely monitor water production and water levels from that area and take further action as warranted.

## **Other District Activities**

### **Data and Mapping**

The District completed scanning and geo-referencing driller's logs, permits, and well registrations that existed in the District's hardcopy files in 2015. New well data is scanned and geo-referenced as it is received. Meter location and cumulative readings are now being entered into a database and can be analyzed and mapped as needed. Rainfall gauge locations and monthly measurements are also being entered into a database and can now be analyzed and mapped. This data is readily available to individuals to support decisions such as plugging, drilling, or rehabilitating a well, as well as to the District Board in support of setting Desired Future Conditions and other conservation actions by it.

Declaration of Groundwater Production Units (GPUs) is complete. ArcGIS mapping software was used to capture the extents of each GPU, as well as features unique to each one. The addition of GPUs to District records will enable a much more streamlined response to water wasting complaints and similar matters. Eventually, they may be the basis for production limits if aquifer Desired Future Conditions are not being met.

Aquifer assignments for each well in the database started being made in FY 2016. Prior to that, some wells had been assigned to an aquifer by the Texas Water Development Board and others. The initial focus of the District has been on the group of wells the District measures water levels in. There are approximately 800 additional wells with cutting descriptions sufficiently detailed enough to assign to an aquifer. The District has some form of data on an additional 3,000 wells but it is insufficient for assigning an aquifer. This work will continue and be refined as additional data becomes available. The District has also found it useful to assign aquifers to meters. This work has started but is not yet complete.

A special study of the water level decline within Seymour Aquifer Pod One is being considered. It will likely be funded in FY2020 and provide greater understanding of that pod. The District recognizes the potential need for more stringent rules in that pod to address water level declines which may exceed the District's DFC for that pod.

Long term, all of this data will be used to measure the District's compliance with our Desired Future Condition statement. While it is hoped that the Desired Future Condition is met in all geographic areas

of the District, the data may also be useful to indicate areas where additional conservation efforts are needed without placing burdens on all the District water users as a whole.

## **Joint Planning**

The District is actively involved in joint planning activities at the Area, Regional, and State level. The District has a voting membership in the Groundwater Management Area Six and the Region A Water Planning Group. These groups make decisions that affect the District both from a goal/rule setting standpoint and a monetary standpoint. All groups are on track with their planning and have held all required meetings. All full-time staff attend at least two state-wide meetings of groundwater conservation districts each year. The District is a voting member of the Texas Alliance of Groundwater Districts. As the Legislature continues to set more mandates for these groups (and the District); participation in them will only grow in importance.

## **Extra-District Activities**

District staff participated in several organizations this year such as Texas Association of Groundwater Districts and the Texas Groundwater Association. Lynn currently serves on the TAGD Groundwater Protection Committee, Legislative Committee, GCD Index Audit Group, and the Education & Outreach Committee. Whitney is currently active in the Groundwater Educational Outreach Collaborative. She also is a volunteer in the local 4H club. While these organizations do not directly manage groundwater, they do provide opportunities for inter-district cooperation and education on many levels. They provide an excellent source of training for District staff. They also provide a good opportunity for staff to network with other agencies, water well contractors, and the general public.

## **Certifications and Seals**

Mr. Lynn Smith, Texas Professional Geoscientist #11223, provided data analysis and prepared or supervised the preparation of the graphs and maps that occur within this report. He, in his capacity as General Manager and a Professional Geoscientist is responsible for the opinions and conclusions herein.