

**MINUTES OF THE JANUARY 15, 2021  
BOARD OF DIRECTORS MEETING OF  
NORTH PLAINS GROUNDWATER CONSERVATION DISTRICT**

The Board of Directors of North Plains Groundwater Conservation District met in regular session on January 15, 2021, at 9:00 a.m. at the offices of North Plains Groundwater Conservation District, 603 East First Street, Dumas, Texas 79029. Due to the restrictions of COVID-19, the meeting was held through Zoom Meeting in Dumas, Texas. The following persons participated in the Meeting:

**Members Present at 9:03 a.m.:**

Bob B. Zimmer;  
Mark Howard, Vice-President;  
Zac Yoder, Secretary;  
Daniel L. Krienke, Director  
Gene Born, Director; and,  
Harold Grall, Director.

**Staff present during part or all of the meeting:**

Steve Walthour, General Manager;  
Kirk Welch, Assistant General Manager — Outreach;  
Kristen Blackwell, Finance/Administration Manager;  
Odell Ward, Field Supervisor;  
Dusty Holt, Permitting Specialist;  
Dale Hallmark, Hydrologist; and,  
Curtis Schwertner, Natural Resource Specialist.

**Others present during part or all of the meeting:**

Coy Barton;  
Melissa Martinez;  
Mandi Boychuk, Natural Prairie & Northside Farmland;  
Tom Forbes, Esq.  
F. Keith Good, General Counsel for the District; and,  
Ellen Orr, Paralegal.

President Zimmer declared a quorum present and called the meeting to order at 9:03 a.m. Harold Grall gave the invocation and President Zimmer led the pledge.

**1 – Public Comment**

No Public Comment was made to the Board.

**2 – Consent Agenda**

The Consent Agenda was discussed by the Board and consisted of: the review and approval of the Minutes of the regularly scheduled Board of Directors Meeting held on November 10, 2020; the review and approval of un-audited District expenditures for November 1, 2020 through December 31, 2020, including the General Manager's expense and activity report; and the review and approval of payment to Lemon, Shearer, Phillips & Good, P.C. for professional services and out-of-pocket expenses incurred from November 1, 2020 through December 31, 2020, in the amount of \$20,916.94.

Harold Grall moved to approve the Consent Agenda. Mark Howard seconded the motion and it was unanimously approved by the Board.

***Action Agenda 3.a. - Recognize Dale Hallmark for 25 years of Service to the District.***

The General Manager recognized Dale Hallmark for 25 years of service to the District.

***Action Agenda 3.b. - Review and consider approval of District's annual financial report for the year ended September 30, 2020, from Coy Barton, CPA.***

Coy Barton, C.P.A. presented the District's Annual Financial Report, which included a report on internal controls, compliance and other matters, for the year ended September 30, 2020 and discussed the same with the Board. Mark Howard moved that the Board approve the North Plains Groundwater Conservation District Annual Financial Report for the year ended September 30, 2020. Daniel L. Krienke seconded the motion and it was unanimously approved by the Board.

Justin Crownover joined the meeting via ZOOM at 9:22 a.m.

***Action Agenda 3.c. - Review and consider approval of payment to Coy Barton, CPA for auditing services and preparation of the North Plains Groundwater Conservation District Annual Financial Report for the year ended September 30, 2020.***

Coy Barton, C.P.A. had submitted one invoice for auditing services and preparation of the North Plains Groundwater Conservation District's Annual Financial Report for the fiscal year ended September 30, 2020, totaling \$22,000.00.

The General Manager had reviewed this invoice for the District's audit for the year ended September 30, 2020, preparation of financial statements, and SAS fraud requirements. The General Manager has determined that the invoice is consistent with the services Coy Barton, C.P.A. has performed for the District's audit and recommended payment of the invoice. A copy of the invoice was provided to the Board at the meeting.

Daniel L. Krienke moved that the Board pay the invoice from Coy Barton, C.P.A. in the amount of \$22,000.00 for auditing services and preparation of the North Plains Groundwater Conservation District's Annual Financial Report for the fiscal year ended September 30, 2020. Zac Yoder seconded the motion and it was unanimously approved by the Board.

***Action Agenda 3.d. - Review and consider approval of letter of engagement for audit and non-audit services to be performed by Coy Barton, CPA for the fiscal year ending September 30, 2021.***

Coy Barton, C.P.A. submitted a letter to the District, dated December 17, 2020, confirming his firm's understanding of the audit and non-audit services to be provided to the District for the year ended September 30, 2021.

The letter also outlined the responsibilities of the District's management in the auditing process for 2021.

A copy of the letter from Coy Barton, C.P.A., dated December 17, 2020, was provided to the Board at the meeting.



Harold Grall moved that the Board approve the letter of engagement for Audit and Non-Audit Services to be performed for the District by Coy Barton, C.P.A. for fiscal year 2020-2021. Daniel L. Krienke seconded the motion and it was unanimously approved by the Board.

**Action Agenda 3.e. - Consider final compliance approval of Water Well Permits as active and complete wells.**

The General Manager reported that District Rule 2.13 provides, after the site inspection is complete, and it is determined that the Well (and all Wells within the Groundwater Production Unit) is/are in compliance with the Rules of the District, and the Well Permit application, the General Manager shall submit the Well Permit to the Board for final compliance approval.

The General Manager reported that the District staff had processed 28 Water Well Permits which are ready for Board consideration and approval. These permits, listed in the table below, represent completed Wells that have been inspected and are in compliance with District Rules. The inspections verify that the Wells were completed as required by the respective Permits, including proper Well location, Well classification, maximum yield, and proper installations of check valves and flow meters. Copies of the individual permits were presented to the Board.

Permit Number	Permit Status	Well Class	Quarter	Section	Block	Survey	Yards N S	Yards E W
DA-11025	Board	C	NW/4	44	8	CSS	629 N	500W
DA-11169	Board	B	SW/4	0	0	EA REEVES	125 S	380 E
DA-11209	Board	C	SE/4	2	B	S Clarke	1594 S	147 E
HA-11430	Board	D	NW/4	6	14	CSS	558 N	843 W
HA-11431	Board	D	NE/4	6	14	CSS	728 N	392 E
HA-11432	Board	D	SW/4	6	14	CSS	708 S	782 W
HA-11433	Board	D	SW/4	6	14	CSS	103 S	583 W
HA-11436	Board	D	NW/4	14	14	CSS	421 N	58 W
HA-11440	Board	D	NE/4	15	14	CSS	780 N	336 E
HA-11491	Board	D	SE/4	17	14	CSS	361 S	186 E
HA-11497	Board	D	SE/4	17	14	CSS	588 S	689 E
HA-11500	Board	D	NE/4	17	14	CSS	819 N	44 E
HA-11524	Board	D	NW/4	23	14	CSS	128 N	647 W
HA-11525	Board	D	NW/4	23	14	CSS	65 N	129 W
HA-11526	Board	D	SW/4	23	14	CSS	680 S	437 W
HA-11612	Board	C	SW/4	18	14	CSS	487 S	826 W
HA-11613	Board	C	NW/4	18	14	CSS	800 N	383 W
HA-11614	Board	C	SW/4	14	14	CSS	50 S	801 W
HN-11222	Board	D	NE/4	3	2	SA&MG	470 N	28 E
HU-11230	Board	C	SE/4	35	5-T	T&NO	114 S	442 E
LI-11240	Board	D	SW/4	60	10	HT&B	311 S	126 W
LI-11241	Board	D	SE/4	60	10	HT&B	888 S	386 E
SH-0092	Board	D	NW	5	1-C	GH&H	847 N	18 W
SH-10965	Board	C	SE/4	156	1-C	GH&H	297 S	340 E
SH-11049	Board	C	SW/4	9	2	GH&H	335 S	29 W
SH-11056	Board	D	NW/4	5	1-C	GH&H	221 N	302 W
SH-11178	Board	A	NE/4	244	1-T	T&NO	620 N	216 E
SH-11397	Board	C	SW/4	4	2-T	T&NO	885 S	134 W

Harold Grall moved to approve all of the Well Permits on the Well Permit Schedule noting that the Wells are properly equipped and otherwise comply with District Rules. Mark Howard seconded the motion and it was unanimously approved by the Board.

**Action Agenda 3.f. - Consider General Manager's proposal to allow non-exempt wells to be fitted with an additional smaller pump sized with the appropriate meter for domestic or livestock use and maintain the well's Classification.**



The General Manager stated that in November, a representative of a well owner within the District requested that the well owner be allowed to put a secondary pump for domestic and livestock use in a well that the owner wished to continue to use as a non-exempt permitted well for irrigation. The General Manager reported that he contemplated that the District may experience this type of request in the future with the increased submersible pump use. The District Rules do not contemplate wells that may contain multiple pumps. In the District, wells are permitted, or registered, based on the well capacity and the type of use. Small domestic and livestock wells normally are non-exempt and are not required to comply with the same rules as non-exempt wells, such as measuring discharge with a flow meter or alternative measuring device. The General Manager interpreted the District rules that a well that is capable of producing more than 25,000 gallons of groundwater per day is required to be permitted and a water flow meter must be installed to capture all of the water that could flow through the meter annually based on the well classification. Installing a meter based on the well classification for a small secondary well pump for domestic or livestock use creates a technical problem regarding the meter size related to the small pump discharge and measurement accuracy. Mr. Walthour reported that normally, he used the District's well classification system to determine the appropriate size of a meter.

The General Manager recommended that the Board allow a well owner the ability to put a secondary pump for domestic and livestock use in a well and meter the discharge to appropriately measure the water that can be produced by the pump consistent with continuous operation for a year, as long as all other production from the well is appropriately sized consistently with the well's classification.

The Board discussed Mr. Walthour's recommendation.

Gene Born moved that the Board authorize to install a small secondary pump for domestic and livestock use in a well and meter the discharge to appropriately measure the water that can be produced by the pump consistent with continuous operation for a year, as long as all other production from the well is appropriately sized consistently with the well's classification. Harold Grall seconded the motion.

The Board recessed at 10:05 a.m. and reconvened at 10:11. President Zimmer called for a vote on the motion and it passed by the majority vote of the Board with Mark Howard and Zac Yoder opposing the motion.

***Action Agenda 3.g. - Consider District's role in developing future water resources.***

*Drafter's Note: The following is a general discourse between the General Manager and each of the Board members regarding Agenda Item 3.g.*

**Steve Walthour**

The General Manager stated that this item has been on the Board Agenda for a couple of different times. At our last meeting, Director Krienke, provided his opinion on maybe not doing some of this, and then the rest of the Board asked for some additional information. The General Manager reported that he had provided links to all of the information he had as far as doing something like the interstate transfer, or potentially, working with playa lakes. Mr. Walthour reported that one of the things, if we were to do the interstate transfer project, would require federal dollars to do this type of study. Mr. Walthour stated that the District really can't afford to do the study itself because of the cost. It would, in fact, have to be a federal project.

The original 1982 study was done to consider bringing water to Kansas and some of the other states, including Texas. I have provided that information in the materials in the



packet. At this point, it looks like Congress is in the spending money mode. If we were going to get a grant or get Congress to appropriate some funding to follow up on any of these studies, this might be the time to do it. The question is do you want us to proceed on any of this, or do you want us not to proceed, I guess is the best way for me to put it.

The longshot is that we would actually end up getting surface water to the Texas Panhandle by canal potentially sometime in the next 50 years or so. In regard to the playa lake studies, there are plenty of playa lake studies. There is opportunity there, but the amount of water available is pretty small based upon the Water Development Board's playa lake recharge studies.

If you're looking at the future, we're really trying to figure out what this District wants to do as far as future development of water supplies. You, the Board, can choose for us, at different levels, to continue to study and approach it where we actually go out and actively try to get something done, or you may decide that this is something that is outside of the realm of what a groundwater conservation district should be doing. So, all of these decisions are on the Board. I've included the list in the packet. I don't have a motion at this time because at the last meeting we moved from trying to do the 1982 study over to a re-evaluation at looking at a playa lake study. This is a follow up from that previous meeting. I'm prepared to do whatever you would like to do.

#### **Daniel L. Krienke**

Daniel L. Krienke stated, as I reported to you, if you will recall, various reasons, including trying to get that water permitted and then across other state lines that would want the water before it got here, that I thought it was going to be very difficult not only in cost, but in environmental. I have not studied, in depth, on the playa lakes. All I have for evidence is what I have myself. I've made a huge mistake. I may have told several of you that I took a tailwater pit and deepened it considerably to make a fishing pond out of it. I've got the bottom of it in the corner of a playa lake – it has a hump around it so water from the playa lake can drain into it, but it was originally intended for irrigation. Since I put fish in it and even in the winter time right now trying to keep that fishing hole full, I've disturbed the bottom enough where, in that particular area, it may not be that way everywhere, but that water is leaving that pond at a pretty rapid pace, and hardly any of it I would think would be evaporation right now. That may be anecdotal evidence, but my opinion, if we did anything, I would like to modify a playa lake and get down below the clay strip and it would take some monitoring, and maybe even a monitor well sort of right beside it, to see if that water goes down and if it has any effect on the aquifer. I don't know what that would cost, but for a couple of 10s of thousands of dollars, or something, it appears to me that we could do several of those in the county and let's just do our own study. I could do the same thing. I have a water well right there beside the pond and I could I could put a pump in it and turn it into a monitor well. I may do that myself just for my own satisfaction to determine whether that water is actually going back down into the aquifer. It is going somewhere, and I don't believe at this time of year right now, that so much of it is evaporating. Right now, I would say that that pond is about an acre and a half and there's a strip in there that's probably 35 feet deep and I believe that strip in there where a carryall went in to deepen it so if the pond started to go dry at least the fish could go into the deeper spot and survive until I could get water into the pond. I believe I have gotten below the clay and maybe even whatever caliche there. It takes at least a day and a half a week pumping at about 150 gallons per minutes to refill what it's lost in a week. That water is getting out of there pretty quick. So, I've got enough personal evidence for myself, I might even go ahead and equip that adjacent well and just make a monitor well out of it just for my own information here. That's my position and I'm ok with trying to do something else but after reading through all of that literature, and what Kansas particularly is the one that wants to get that water out of the Missouri River, I just think that there are a lot of environmental problems – water is becoming very, very serious in the western United States and the



attitude right now is that somebody is going to want to claim that water. So, I think that it is going to be very difficult for us to get that water across several states into Texas. What are the alternatives? Perhaps getting it out of the Mississippi, farther down, I don't know -- I'm just very skeptical -- the value of that water to a municipality, for example, would be far greater than it is for irrigated agriculture at this time. That's not to say that we shouldn't be thinking about that for municipalities sake, I don't know of any municipalities that would want to participate in this, but we could poll them and maybe ask them if they wanted to participate with us and see what the response is, but to me, that water would be very much more suited to possibly go into the Canadian River somewhere and go into Lake Meredith for municipal water supply. The cost of it is just pretty high for irrigation at today's crop values. Like, I say, there may be other uses in the future. Having said all of that my opinion is to see if we can legally manipulate some playa lakes and do our own study to see what kind of recharge we get and that sort of thing.

### **Mark Howard**

Mark Howard stated that he was skeptical too, but he doesn't ever want to be accused of not putting forth an effort. I don't know that we have to be lead on any of these projects, but I hate to ever not support somebody that was trying to do some research on this. Is there anybody else that's interested at this point in time? Is there anybody else working on this?

### **Steve Walthour**

Mr. Walthour responded that at this point Kansas has talked to us and I've had some conversations with Colorado. If y'all tell us to go seek out people to do this study, or to obtain this information, we can do that. I'm to the point, if you're really interested in seeing about going forward, if the answer is: go out and find us people and come back because we may want to do this and give you a list and get some people on board, we can do that before we take a step on a study. For us to get Congress to approve something to put financing for his study it probably would take, I call it a "grassroots effort" --- it would have to be not just North Plains and Kansas it would have to be some other states. I have Tom Forbes on the line here and he can talk to you about the process but if you get enough different people wanting to be involved, or to look into this again, then it could happen at the congressional level and there could be some funding put aside. This isn't just going to be just a North Plains thing --- but, somebody has to say ok, guys, let's go look at this to see if there's an odd possibility and that's really where we are at this point. I need y'all to tell me, to what extent do you want us to pursue this with other states, and to the extent that we get other state buy-in, what's the next step where you want to be. If you want to do playa lake studies, then you could do a motion for me to development a plan for a playa lake study and come back to you with that plan, including what I would recommend as far as requests for proposals and go forward with that. We think that to get the funding for this to move forward, it is probably going to cost about \$100,000 per year to get the thing going, not all to North Plains, but collectively from everyone who is involved, to get Congress to buy into it, which would include the cost for lobbyist representation and talking to the right people. That's where we are today and it's going to take quite a bit of work, but before I do anymore work on any of this, I really need to know where you want to go. Do you want to look into any of this, or not?

### **Harold Grall**

Harold Grall stated that he thought we needed to look into it and I'm talking about -- the playa lake studies -- there has been a lot of studies regarding the playa lakes done over the years and I don't think a lot of those have borne any fruit. I mean with our evaporation loss -- what we've seen in our immediate area -- our aquifer is so deep here, is we just don't gain a lot--- I mean we're getting a little bit of infiltration from what I



remember, but not anything close enough of the course of what we are using. Why would we not try to pursue bringing water in this area? Our economies are so dependent on water. I mean we're not talking about spending half of our budget on this project --- we just want to basically find some partners to get the ball rolling, would we not?

### **Steve Walthour**

Mr. Walthour responded to Mr. Grall's question regarding finding some partners to get the ball rolling and stated that's what the first step would be.

### **Harold Grall**

Mr. Grall stated that you know if we have to lead the charge on this, maybe not financially, but leadership wise, why wouldn't we? What's going to happen in this area in 50 years? There's an end game here and so, unless we're just going to give up on irrigated agriculture altogether, which ultimately, this may happen, we need to pursue some alternatives, Why would we not be proactive in this measure? Those are my thoughts. I'm not convinced that playa lake studies -- I not convinced that there's a lot we can do research wise except help fund some researchers to do the same old thing that they have done before.

### **Steve Walthour**

Mr. Walthour stated that this is up to the Board.

Mr. Grall stated that those were his thoughts and that he was not saying that we risk a lot financially, but why not lead the charge? I know that there are a lot of challenges, Danny, I realize that, but --- nothing ventured, nothing gained.

### **Justin Crowover**

Justin Crowover stated that my question is --- I get what Harold was saying and I'd love to figure out a way to bring water her, but you know from a natural--- are we going to do anything with it? Because there's a lot of times --- like in our business --- with all this data you get in ---it's cool to catch this data, but if you don't use it and make changes, it's really just collecting data. So, is there a change that we're going to be able to make because ultimately naturally you know today. we got we got rainfall and rainfall hasn't been enough with the current playas that are in place and the way that they are structured to put back in anywhere close to what we're drawing out of it so if the answer is yes, it helps, but it only adds whatever the number is are we going to say OK well it's nice to know? I don't know, if it works, I mean \$100,000 is quite a bit of money and are we going to be able to really make changes. I don't know, I come back and I'm like, maybe I just don't feel real wealthy today, so like, I don't want to spend any money.

### **Harold Grall**

Mr. Grall stated that he was not suggesting that we do a lot financially but pursue this legislatively and find out who we can get on board to help us get this done. You know we have changed our tillage practices so much over the last couple years -- you know, 40 years ago when I first came here, we were row watering -- there was so much water running off and down the borrow ditches into playa lakes -- you don't see that anymore -- I mean just we're putting all that water that we get off of rainfall into our profiles -- it's not running off like it used to -- I'm not sure -- you know, I don't want to be totally negative about the playa lake study, but I think we need to look at what's been done already, and see if we want to pursue to any further extent, that's all I'm saying.

Mr. Crowover stated, sure, now I get it, it sounds good, I just don't think I don't think we'll get any value out of the money that we spend and, ultimately, if we had a chance to reduce taxes and not charge taxes because we're not spending that, and that money



is stockpiling, or maybe a better program becomes available, but I would say I would not want to spend the money today --- that's just my opinion.

### **Zac Yoder**

Zac Yoder stated it would be great to see, and I would support, anything that could bring water into the area. It seems like wishful thinking at this point but maybe things can change, I don't know. So, I'm not against it, but I'm not anxious to jump out there at the front.

### **Mark Howard**

Mark Howard stated that there was not any way to do this without looking like an idiot to somebody. You are going to have people who will say why didn't you guys try to do something and then you will have those that say you spent money on what? I would have to say that my feelings align mostly with Harold. Don't send me to try to talk them into it but send somebody. We don't know what could be accomplished if enough people work on it. The problem is they don't value us enough, as they should, and don't realize what is here and what could be here with enough water. It's a big, big, big, challenge, but if you are not spending a lot of money to try to stir the pot a little bit, I guess that is what I would be in favor of doing.

### **Harold Grall**

Harold Grall stated that was exactly what he was suggesting. If there is some way that we could stir the pot a little bit and get some momentum here, who knows, it's a huge challenge.

### **Mark Howard**

Mr. Howard stated in the eastern side of the Panhandle, more rainfall is received than on the western side of the Panhandle. You can drill lots of holes in every lake over here but if it doesn't rain, it is not going to do anything. When you have all of those flood waters running down those rivers, it seems like to me, that is the water to go get.

Gene Born stated that he likes what has been discussed and the only possibility is to look at the flood waters. He believes that we should take a leadership role and not put any money into it at this time.

### **Bob B. Zimmer**

Mr. Zimmer stated that he believes that you have to divide the issue into two parts. You have to take a position on pursuing bringing the water from the Missouri River into Texas and then you need to take a position on the playa lake study.

Mr. Zimmer stated he didn't know how many of the Board members have ever driven the road from Hoover damn back to California and have looked at that canal for the entire distance from Hoover damn to California but it is pretty large and see the amount of water and every time it goes through a mountain or pumping station and starts back down again, but I think about for me, I always think about what's realistic or reasonable and I think about how much water we try to get out of just an 8-inch pipe for one circle --- what size of volume of canal are we going to have to build to irrigate the amount of water we pump in the Panhandle when you're talking about pumping 1,250,000 acre feet- how big of a canal is that? So, in reality, I think the first approach for me, is simply going to the cities and luring them in by showing that this is going to be a way for them to have water in the future when the aquifer is almost empty -- that's how you get them involved and get them interested to help you fight for this and work forward on it. I'm not wanting to kill it, I'm with y'all on pursuing it a little further and looking into it. I



don't know if I want to spend that much money on it either yet, but I'm thinking about the reality of the scope of the project.

Mr. Zimmer stated, the second thing, is the playa lake study. Mr. Zimmer stated that he thought the study had to be more than they've ever done in past. We need to figure out a way for every time it rains to get that lake to drain faster into the aquifer with clean, safe, efficient water, whether it is a sand wick, or how ever else they build that before it can evaporate. I can give you an example, when we had that recent snow, I had some ruts out there where I go to my hay lot, and the ruts were six inches deep in water, then one day, about three weeks ago, when we had that high wind, it evaporated that 6 inches of water in one day in that area. So, even though it is winter, we can get in the type of humidities where we have huge evaporations. So, we have to approach the playa lake idea that it has to be drained quickly back into the aquifer. This goes to the idea of every drop counts and as we get more and more into a depleted aquifer, every drop counts. I think it's important to look for ways to yes, find more water, whether it be a playa lake or a canal or pipeline. I don't think the pipeline --- if we use an 8-inch pipe or 6-inch pipe to just water a 125-acre circle, how big does that pipe size have to be guys? I'm saying that it has to be a canal instead of a pipe and then you have to consider the issues that Danny brought up with the other states wanting their cut first -- so how much is left by the time you get it here? So, that's the ideas that I throw out to you.

### **Steve Walthour**

Mr. Walthour stated that the purpose of the study is to answer those questions and to see if it is even feasible to go forward. That is the reason that you would do at least that portion of the study. As far as our cost is concerned, if we could get other entities interested in the study, we would split the cost of the study with them. If there were five states or entities interested in doing this then you're talking about \$20,000 each, as opposed to \$100,000. As far as the amount of water we got, the 1982 study didn't really give us a bunch, but that was in 1982 and I don't know how interested we were when we did it that time. Texas Tech did some of the work. I think you look at it again. Even at 100,000-acre feet, or whatever we can get, I think if we could spend a few dollars, to at least get the ball rolling. There are a lot of people out there that are not in irrigated agriculture, that are tied to irrigated agriculture that along this line are going to be needing water sometime long after most all of us are gone and probably when Zac's grandkids have their kids are going be messing with this -- that's the purpose of this. We don't need to squander our funds, and I think that we don't write a large check, but we put a little bit of money into this, because we haven't yet, other than my time, to see where we can go with either one of these issues, whether it's the redo of the Missouri River 1982 study, or if playa lakes, it's going to require something -- that's my two cents. Danny Krienke inquired if Mr. Walthour had the time to devote to be the lead on this project. Mr. Walthour stated that if the Board desired to move forward with the project, he had time to devote to the project, but that he would not expend any further effort on the project unless he was directed to do so by the Board.

### **Daniel L. Krienke**

Mr. Krienke stated that agriculture was pumping on average approximately 1.5-million-acre feet or somewhere along that and inquired if any other Board member had read the 1982 report.

### **Harold Grall**

Mr. Grall responded no but that he remembered when that was going on and that he remembered going to some of those meetings.



## **Daniel L. Krienke**

Mr. Krienke stated that he challenged any of the Board members, if you read the Report, it's almost an insurmountable hill to climb for irrigated agriculture. Mr. Krienke said that they're talking about billions of dollars, with a "b", to get 500,000-acre feet of water into Kansas, if I recall correctly, so that's a part of it, after I read what I read, and I didn't read all of it, I just came away, just like I said, the money, the environmental, -- even if we did an update on the study, to me, what the update would be, is just making the project just that much more insurmountable, because if you look at today's environmental hoops that you have to crawl through, plus the amount of money that it would cost today versus 1982, to get 500,000-acre feet. If you study the Regional Water Plan, they're saying that we're going to drop, in some counties, a third of the irrigated use in 50 years that we're using today, so if we have to replace this to keep agriculture viable, if we even have to replace a million-acre-feet, then that's going to be pretty expensive. So, I like the idea of going forward, but I would like for the cities to actually commit some funds and be part of this study, not only from a monetary standpoint, but also from a political standpoint to help organize a grassroots effort to obtain federal funds. I would be in favor, if you want to make a motion that we go forward here, Harold, I will vote for the motion, but I would like for us to have our cities within the District at least, to commit to something. As I've studied the state water plan, I'm pretty skeptical that, say the City of Perryton, for example, other than to just see the study and to answer questions from their constituents as to what it is looking at 50 years down the road. According to the state water plan for Perryton, the answer is to drill more wells. Now, for Dumas, or somewhere out in the western side of the District, cities may not have that alternative, but if you're talking about whatever acre feet that a city would need compared to what irrigating even one circle of corn would be, for example, we are talking about at one time the City of Perryton used less than three circles of corn in comparison. So, the value of water to cities is dearer to them than it is to irrigated agriculture. So, my thinking it, that we're going to find something in the study or something to point to 50 years from now or 25 years from now that we're going to be able to bring enough water in to replace any amount, I'm saying 250,000 or maybe 500,000 acre-feet of water, from what I read in the study even, we if we could surmount those hurdles, that's going to be a lot of water to get across a couple of other states and into Texas without them wanting to have these floodwaters. That's the basic analysis as I understand it is take excess water out of the river when it's in a flood state but now then what are you going to do with the water? You have got to have reservoirs built to hold the water and it is not only the size of the aqueduct, Bob, that brings it to you, but then what are you going to do with the water once you get it here. I would be in favor of a motion, Harold, to move forward and be cautious with our funds, but I would like for us to poll our cities and see if they would commit anything, as far as leadership for the political side of it, and what kind of monetary assistance they could pledge, because to me, the cities are going to be the ones that benefit here, not irrigated agriculture.

## **Harold Grall**

Mr. Grall stated that he would happy to visit with his local official in Dumas because Dumas is right now facing some water issues challenges for the future. There are going to have to be some decisions made so I'd be happy to visit with them and go to City Council. I know this is a long shot, but you know, we tend to look at things how they are now, but look at 30-40 years with a growing population -- I mean we don't know what hunger is --- we may not have any water but we have the land to grow crops -- so I think it be worthwhile -- how do you put a value on that now? I'm just saying let's get some things rolling here --- and, really, this is for the next generation, not ours, but I'll be happy to do that and then report back to you and let you know what they think and if they would be willing to do whatever you know, I'm sure they're not going to put a lot of money into this.



**Mark Howard**

Mark Howard asked if there might a lot of unintended consequences by stirring this pot up and accelerating the pressure that's on agriculture in the area that's already there. Harold Grall stated Mark, it might. I don't know. I think that we need to proceed carefully.

**Steve Walthour**

Mr. Walthour stated that here's one thing for sure, is that 50 years from now, we are not going to be pumping the same amount of water from the ground that we are pumping today. We talk about replacing a million and a half acre feet, or a million acre-feet, man, I hope we are able to do that in 50 or 100 years from now. At some point, it's not in our lifetimes, that the area is going to be to where about as much water as we can get out of the ground is about 138-thousand-acre-feet of water a year based on what we get is recharge. At some point the future, that if far off, in our current physics, we're not going to have the water that we have today, unless we come up with something.

**Harold Grall**

Mr. Grall stated Mark, I don't know what your thoughts are maybe even on private industry, perhaps visiting with some of them about --- I'm sure they know --- what's going to happen--- even the corn growers--- if they would want to kick something into this --- I mean I wouldn't have any problem going to, you know, our areas largest dairy here, because they have to know what the end game is here and why would they not want to invest even a little bit to at least see if this is something that is feasible. There's a lot at stake for them, a lot more dollars for them than some of the others.

**Mark Howard**

Mr. Howard commented that he had to be honest and say that he had not read this 46-page document yet, and that he believed that maybe we need to table this at this time until we've all had a chance to read it, but that he would rather do some feasibility work before we went out into the general public and started talking about it. If we just deemed that the feasibility wasn't even achievable with a miracle, you know, maybe we don't even go there. I don't know, I hate to talk like we are giving up or something, but I'm as scared about the thought of those guys must be terribly, terribly, worried more than we are, and we better start changing things you know. That's the fear to go along with all of the other things.

**Harold Grall**

Mr. Grall responded to Mr. Howard that he appreciated his wisdom. You are absolutely right. I haven't read the document, I remember reading just a little bit of it a long, long, time ago, but I not going to pretend to remember anything in it.

**Steve Walthour**

Mr. Walthour stated that he would recommend to the Board, if the Board was interested in pursuing this somehow, if I were a Board member, I would want a plan, and how we would approach it. If the Board interested in that, I'll bring you a plan back in February for you to look at to see what the next step will be on any one of these, whether it be the play lake study or the redo of the 1982 study.



**Bob B. Zimmer**

Mr. Zimmer stated let's split it into two parts. Do you want to table the issue regarding the water from the Missouri, do you want to table it, do you want to wait a month and let everybody think about it, read about it, or do you want to move forward today?

**Conclusion**

By consensus, the Board decided to read the 1982 study and place the matter on the Board's agenda in February, and for Steve to bring a plan that would reflect what the next step would be in considering whether to progress with the redo of the 1982 study.

Mr. Zimmer asked where the Board was on the playa lake issue?

**Daniel L. Krienke**

Mr. Krienke stated that he felt more passionate about the playa lake study. He plans to do his own study and bring back something back to the Board. Mr. Krienke stated that he is not willing for the water District to spend funds on this right now. Mr. Krienke wants to obtain more information, although he knows what he believes, he does not want to spend any funds right now based upon that.

**Bob B. Zimmer**

Mr. Zimmer stated that he would like to work on the playa lake issue a little more but I'm not ready to commit funds to it yet.

**Gene Born**

Gene Born stated that he agreed with Harold's comments, and pretty much all of the comments made regarding these matters was good. I recall when we had a tailwater pit on section 1041 – we dug it down to the caliche and that pit never did get enough water into it to put a pump in it to reuse the water – it was just like a sieve when you pumped water in it and that water was gone by the next day. So, I think the playa lake deal, like Danny said he researched some of that, and I agree, the only chance I see for this flood water transportation concept – I don't think it is going to help irrigators – it's going to help the municipalities and preserve a way of life on the High Plains, but as far as irrigation water, I think that the spigot would be empty by the time that it got to us.

**Justin Crownover**

Mr. Crownover stated that he is interested in taking a looking at bringing water this way. On the playa lake deal, Mr. Crownover stated that he was less inclined.

**Zac Yoder**

Zac Yoder stated that on the playa lake matter - he is interested – but he would like to hear more about how we would go about collecting data from that before he would commit to wanting to do anything.

**Mark Howard**

Mark Howard stated that that he believes Steve's effort to bring us some more information and give us time to read and then Danny's attempt to do this somewhat on his own and nobody's ready to spend money on it -- and all that sounds fine.



## **Steve Walthour**

Mr. Walthour stated, one last thing, on this item in the Board packet, there are multiple links to both the Missouri River transfer water issues and all of the stuff the Water Development Board has on playa lakes, if you would like to look through that information.

## **Harold Grall**

Mr. Grall inquired if this study that Mr. Krienke is referring to is the six states High Plains Ogallala Regional study?

## **Steve Walthour**

Mr. Walthour responded, yes – that is the Missouri River study.

## **Harold Grall**

Mr. Grall asked if that was the only study that has ever been done?

## **Steve Walthour**

Mr. Walthour responded, the study itself was done by several universities and if Mr. Krienke had read everything that was actually produced for that study, he would still be reading. It is very large, and this is why you would want to reevaluate it. You may not do the entire study again. We may decide that ---- look, you know, there's not enough water there for us to use, but the climate of needing water today, is a heck of a lot different than it was in 1982.

## **Harold Grall**

Mr. Grall stated that he was not sure that the motivation at the meetings that he went to was more related to energy because from what he remembered, it was more pumping costs than the need for water. We still had a lot of water.

## **Steve Walthour**

Mr. Walthour stated that we may find that pumping costs are still too expensive to do.

## **Conclusion**

As to the playa lake study, by consensus, the Board decided to permit Mr. Krienke to continue with his study and bring evidence back to the Board regarding his recharge findings and not to expend any District funds regarding that study at the present time.

## **Action Agenda 3.h. - Receive report regarding the District's Conservation Reserve Program.**

Mr. Walthour stated that in 2009, the Board adopted the Groundwater Conservation Reserve as a conservation measure in the District's Rule 6.3. The Rule provides:

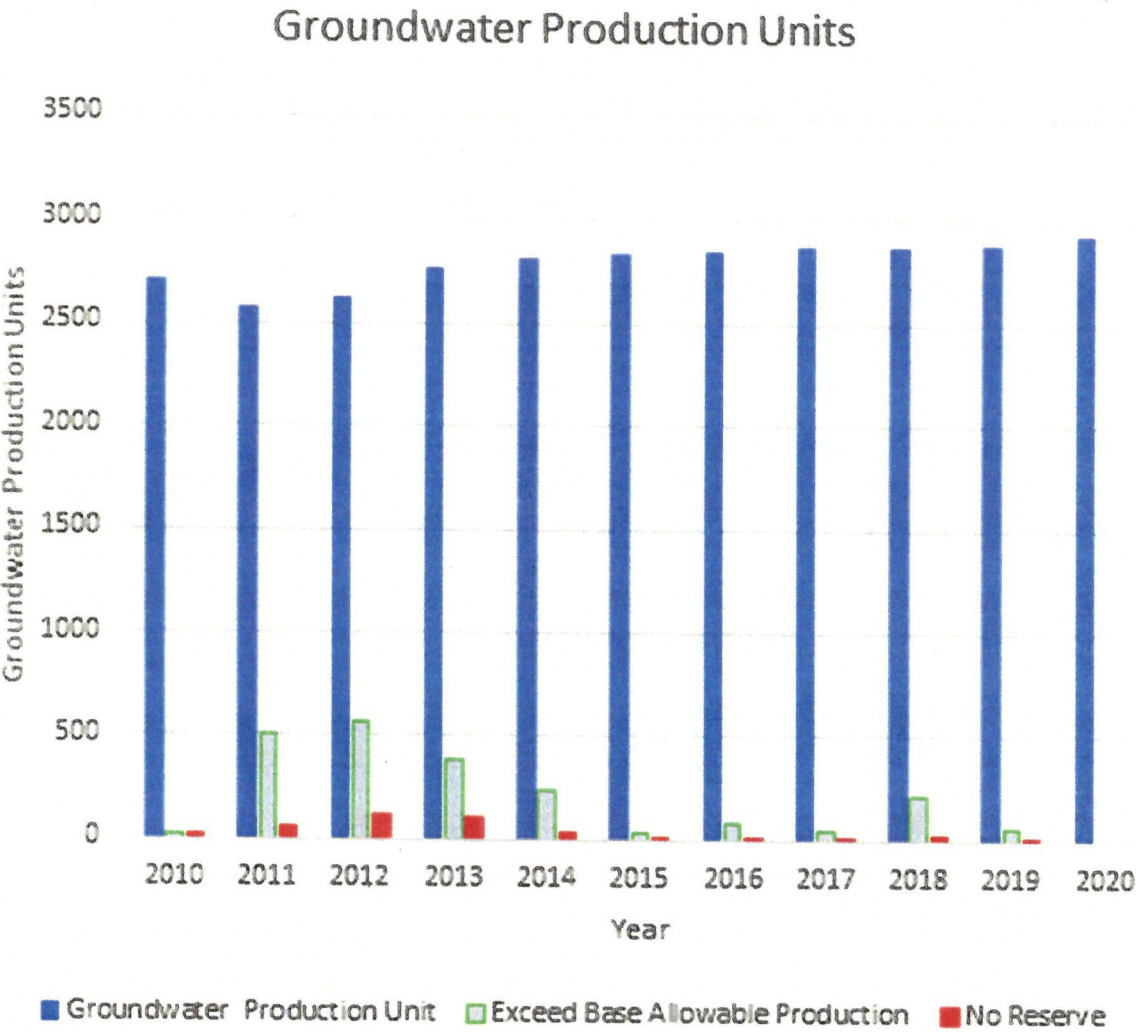
*District Rule 6.3 Groundwater Conservation Reserve: An Owner may accumulate a Groundwater Conservation Reserve ("Reserve") by reserving all, or a portion of, the current year's (Reserve Year) Allowable Annual Production on a GPU. Thereafter, the Owner may apply the GPU's Reserve, not to exceed 0.50 Acre-feet per acre Per year, to increase the GPU's Allowable Annual Production. If the Reserve is not utilized within the five-Year period following the Reserve Year, any accumulated Reserve terminates for the Reserve Year. The Reserve may only be used on the GPU on which the Allowable Annual*



*Production was reserved. The GPU must be developed for a Beneficial Use for a calendar Year before it is eligible for the Conservation Reserve. If a GPU is developed for Groundwater production on or before January 1 of a calendar Year, the GPU shall be eligible for the Reserve for that calendar Year. An Owner may not draw from a future Year's Allowable Annual Production to increase the current Year's Allowable Annual Production. The Reserve shall only be available to an Owner if Annual Production Reports for the GPU have been timely filed. Any Reserve may only be applied after the GPU's Allowable Annual Production for the current year has been depleted. If a GPU, or a portion of a GPU, is sold or transferred (including by gift or inheritance), the Conservation Reserve terminates as to the GPU, or the portion thereof, sold or transferred. Further, if the GPU is reduced in size or increased in size, or is otherwise altered, (except by sale or transfer of a portion of the GPU) the Conservation Reserve of the altered GPU terminates.*

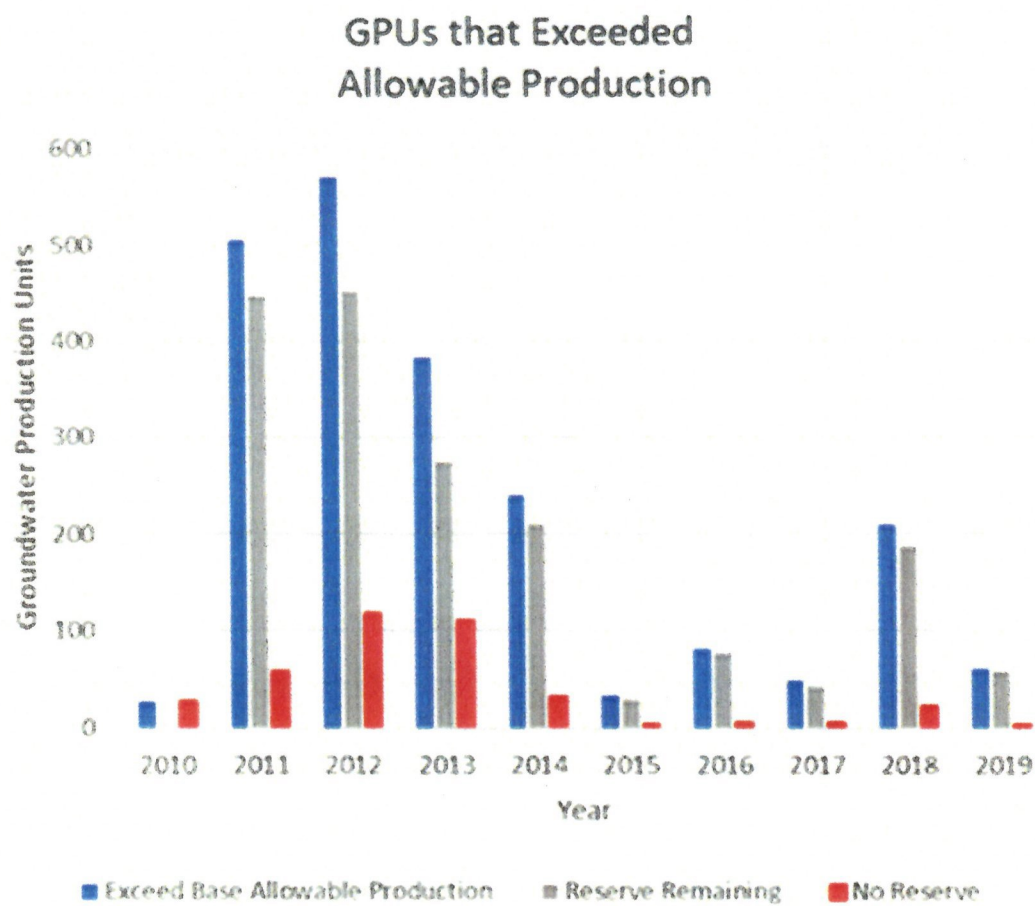
Beginning in 2010, the District automatically "reserves" any portion of the allowable annual production that has not been pumped during a year for an Owner to use if necessary, in a subsequent year. 2020 marks the 10th year that well owners could withdraw groundwater above the 1.5 acre-feet per acre annual allowable production for use in their operations. At the beginning of the 2020, over 5 million acre-feet was in the conservation reserve after the remaining 2014 unused reserve was removed from the total conservation reserve. For the year, Owners had a total 3,096,470 acre-feet allowable annual production limit and 862,495 acre-feet available from the Reserve for production in 2924 GPUs representing 2,064,313 acres. The general manager anticipates the total reserve will climb back to the above 6 million acre-feet before 2021 production begins.

The District's 10-year production history from 2010-2019, and its relationship to the District's Conservation Reserve, are captured in the following graphs and tables. The following graph shows the number of active GPUs from 2010 to 2020, the number of GPUs that Exceeded the Annual Allowable Production and used Conservation Reserve if it was available and the number of GPUs that had no reserve available at the end of the year.





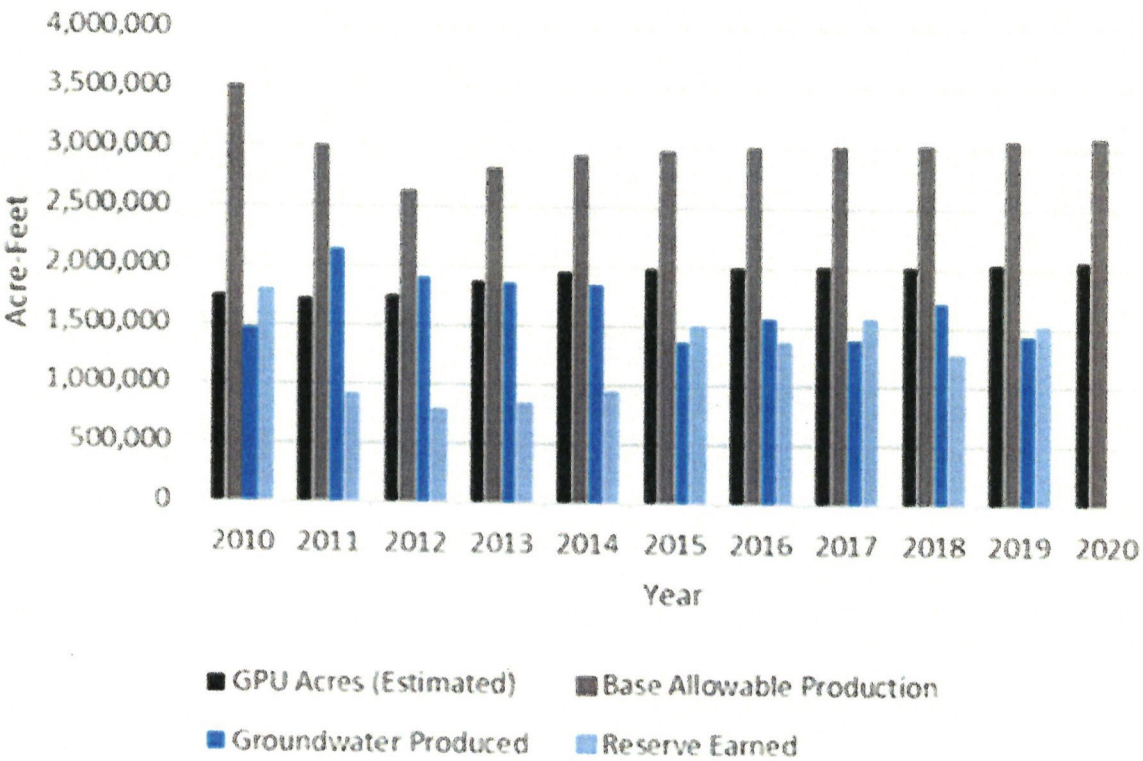
The following graph shows the outcome for GPUs that exceeded the annual allowable production limit that used conservation reserve if available, and those GPUs that did not have any reserve left by the end of the year.



The following graph compares the GPU Acres, Allowable Production, Groundwater Produced and Reserve Earned for the year.

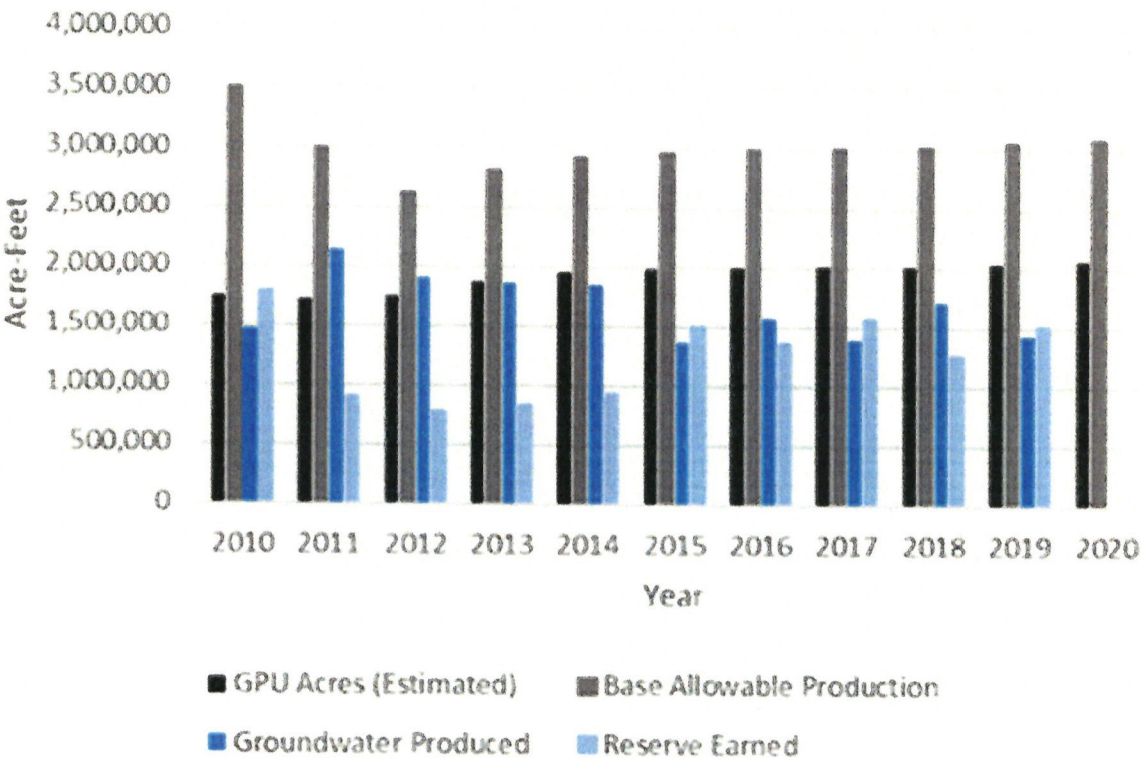


GPU Acres, Allowable Production, Groundwater Produced, Reserve Earned



The following graph compares the GPU Acres, Allowable Production, Groundwater Produced and Reserve Earned for the year.

GPU Acres, Allowable Production, Groundwater Produced, Reserve Earned



The Board had a general discussion about the Conservation Reserve and whether it was meeting the needs of producers.



**Action Agenda 3.i.- Receive report and consider action regarding the District's agriculture conservation programs.**

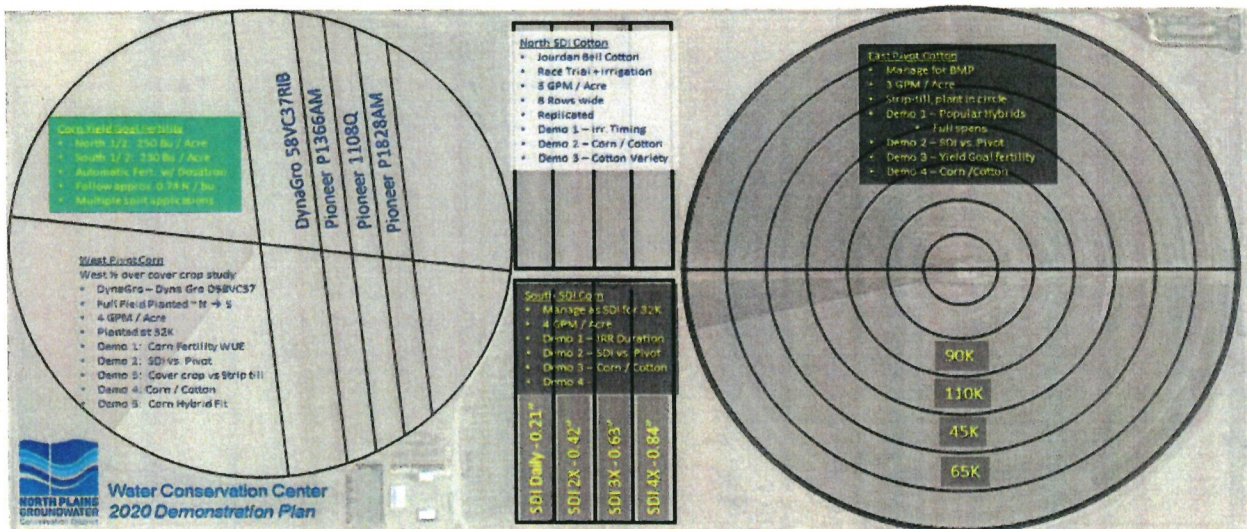
Assistant General Manager, Kirk Welch, presented the following reports to the Board:

**WCC Conservation Demonstration Updates**

8 January 2021 – NPGCD Water Conservation Center Update

Prepared by Nicholas Kenny, P. E.

Figure 1: 2020 WCC Field plan for Corn and Cotton Rotation



**Summary of 2020 Cropping Season**

The 2020 cropping season at the Water Conservation Center was successful at identifying valuable crop production practices regarding a corn and cotton rotation and maximizing water use efficiency. The following are points of interest from the 2020 season:

1. There is a higher likelihood of pre-water in corn following a cotton crop
2. Permanent soil moisture probes are a preferred tool for soil moisture monitoring
3. Higher cotton populations lead to improved water use efficiency, yield, turnout and quality
4. Early season cotton management is critical
5. Consistent irrigation frequency in SDI increases yield and water use efficiency
6. Highly managed SDI yields better than LEPA in corn with less water

**Pre-Water in Corn / Cotton rotation**

When the corn / cotton rotation at the Water Conservation Center was initiated, there were many unknowns about the long-term strategies that would be required for sustainable production. One of the informed discussion points was the aggressive mining of soil water by cotton following a corn crop that leaves a fair portion of water behind. The 2019 crop indicated that the gross water extraction by cotton above corn was approximately 10" over the two-year span. The concern was that a dry winter following a cotton crop would not adequately recharge the soil moisture before a subsequent corn crop.

Early in 2020, it was obvious that there was a dangerous deficit in soil moisture prior to the corn crop in the West Pivot. This was verified by the use of the GroGuru soil moisture probes which over-wintered in the north half of the pivot. 2.75-inches were applied in mid-April while watering in the pre-emergent herbicide.



Figure 2: Soil moisture summary from the 2020 crop season. Notice the Red column on the right that indicates the water consumed from each foot in the soil profile. The corn crop removed 5.41-inches and the cotton crop removed 6.31-inches from the aggregate 8-foot depth. Two items of note are that the cotton crop was successful at taking every foot of the 8-foot profile to zero plant available water. (The 1.96-inches at the top were the result of an October rainfall event that contributed to the soil moisture between defoliation and harvest.) This is of course, in contrast with the corn crop that did not take any foot of the soil profile to zero. Note that the beginning corn figures include the 2.75-inches of pre-water applied to the corn at time of pre-emergent herbicide.

	Sampling Depth (ft)	Plant Available Water (in.)	% Max PAW	Plant Available Water (in.)	% Max PAW	Difference
NPGCD WCC West Pivot Sherm Clay Loam 2020 - Corn 2019 - Cotton 2018 - Corn	1 ft.	2.47	123%	0.82	41%	1.65
	2 ft.	1.98	99%	0.95	48%	1.03
	3 ft.	1.96	98%	0.73	37%	1.23
	4 ft.	1.59	80%	1.18	59%	0.41
	5 ft.	1.70	85%	1.38	69%	0.32
	6 ft.	1.09	55%	0.87	43%	0.22
	7 ft.	1.08	54%	0.84	42%	0.24
	8 ft.	0.83	41%	0.53	27%	0.30
		12.70	79%	7.29	46%	5.41
NPGCD WCC East Pivot Sherm Clay Loam 2020 - Cotton 2019 - Corn 2018 - Cotton	1 ft.	2.58	129%	1.96	98%	0.62
	2 ft.	1.84	92%	0.06	3%	1.78
	3 ft.	1.34	67%	-0.02	-1%	1.36
	4 ft.	1.03	52%	-0.04	-2%	1.07
	5 ft.	0.78	39%	-0.28	-14%	1.06
	6 ft.	-0.02	-1%	0.22	11%	0.24
	7 ft.	0.52	26%	0.18	9%	0.34
	8 ft.	0.55	27%	0.22	11%	0.32
		8.62	54%	2.31	14%	6.31
		21 May 2020 Corn 5 May 2020 Cotton		14 October 2020 Corn 13 November 2020 Cotton		

Figure 3: GroGuru chart of the entire season on the West Pivot corn. Notice the circled locations: mid-April when 2.75-inches was applied prior to planting, early-June when the profile is "full" prior to the critical management point, and the full profile in late-July just prior to pollination due to beneficial rainfalls during July.





## **Permanent Soil Moisture Probes**

Three permanent GroGuru soil moisture probes were installed at the WCC for the summer crops in 2019; one each in the West Pivot, East Pivot, and in a dryland corner. The probes remained installed through the 2019 harvest, overwintered, were in place for planting, through all field operations, and again through the 2020 harvest. The probes have continued to record and transmit data consistently through this period.

The telemetry portion of the GroGuru probe is a separate unit from the probe itself and is easily removed and re-installed for field operations. The annual maintenance requires replacing common batteries in the telemetry unit.

In 2020, GroGuru probes were installed in the four irrigation frequency demonstrations in the South SDI field, making 7 total probes at the WCC. It is likely that permanent probes will be additionally installed in the North SDI zones for the 2021 season.

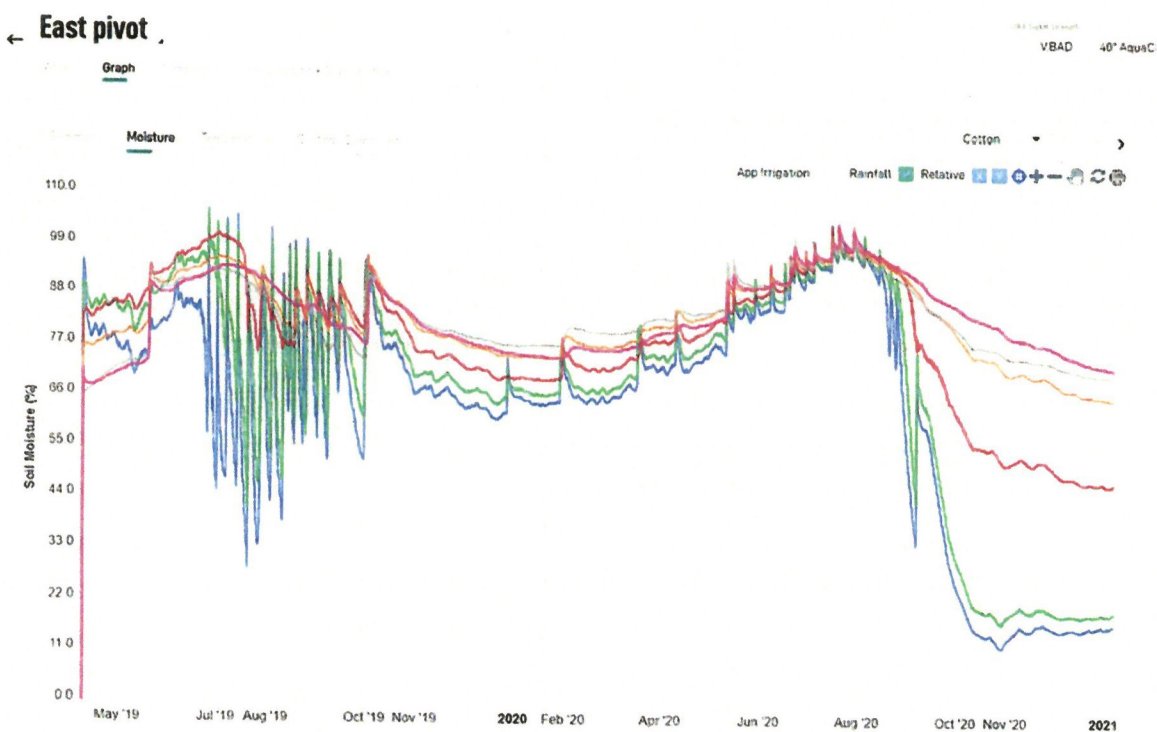
In operation, the permanently installed probes are a proper upgrade on the existing soil moisture probes like the AquaSpy. It is likely that modifications will be made to the AquaSpy hardware to offer permanent installation in field crops as their platform is currently being used permanently in orchard settings.

Unique irrigation decisions were made in 2020 because of input by the permanent soil moisture probes. The first was the confidence to initiate a pre-water event in the West Pivot Corn. This decision was made 7-weeks prior to the date when a standard probe would be installed in the West Pivot. During the season, the GroGuru and AquaSpy probes functioned similarly and in all respects were comparable products. After the AquaSpy probes were removed at the end of the season, the GroGuru probes continued to share data. This continued data was very helpful in following the water extraction rates in both the corn and cotton crop through harvest. Post-harvest, the GroGuru probes were immediately providing off-season data and are currently logging 7 locations at the WCC.

Without residual expenses of installation and removal of the probes, the GroGuru price point is significantly less than the AquaSpy probe if used for more than one season. It is suggested that the installed probe should be functional for 5-7 years with the current battery and energy consumption. The continuity of a permanently installed probe should prove to offer a better, more consistent measurement of the actual soil for each specific location. This should address one of the principle criticisms of capacitance-based probes. This will be under review at the WCC.



Figure 4: GroGuru chart of the East Pivot from May 2019 through December 2020. The 2019 crop was corn and the 2020 crop was cotton. The permanent probe allows for comparison between the two crops in the same field from season to season and a relative probe calibration for each site. Additionally, off-season precipitation can be tracked for depth of infiltration, etc.





Early season cotton management is critical

For the past two years, the planting date at WCC has occurred on the first week of May and has been followed almost immediately by a sustained cold front.

- 1. North Plains heat unit accumulation is known to be a challenge for cotton production. The focus has historically been on late-season limitations, along the lines of "there just isn't enough time to finish the crop".
- 2. There are more options for control of the crop early in the season than later in the season. Additionally, the decisions made in early season management appear to impact later season performance better than any measure that can be implemented late in the season.

Examples of that include securing a solid first position boll set and a managing internode length.

- 3. In the region, slightly earlier planting dates appear to perform better than the early May dates. Similarly, later planting dates (such as replant dates) do not appear to fair well at all.
- 4. Approximately 17-acres were replanted in the East pivot during 2020 to address marginalized stands on the outside span. In hindsight, this was not considered a useful effort as the cotton did not mature well. It likely contributed slightly to yield. The 2019 and 2020 seasons appear to indicate that a replanting is not as good of an option as just riding out a marginalized stand.
- 5. Variety work has been performed by Dr. Jourdan Bell at the WCC and consideration should be given to adapting some of RACE Trials results to larger plots to help with adoption of best suited varieties to the North Plains.

Figure 6: Summary of water use and yield at WCC during the 2020 cropping season.

2020		Hybrid / Variety	Population	Yield <sup>2</sup>	Irr	Rain	Soil (6ft.)	Total Water	Water Use Efficiency <sup>3</sup>
North Drip - Cotton Limited	RACE Trials	65K		7.54	12.58	7.62	27.74	0.0	
North Drip - Cotton FULL	RACE Trials	65K		8.88	12.58	7.34	28.80	0.0	
East Pivot - Cotton	Span 3 N - 90K	90K	2.76	7.30	12.58	4.78	24.66	56.0	
East Pivot - Cotton	Span 4 N - 110K	110K	2.77	7.30	12.58	3.15	23.03	60.1	
East Pivot - Cotton	Span 5 N - 45K	45K	2.30	7.30	12.58	3.74	23.62	48.7	
East Pivot - Cotton	Span 6 N - 65K	65K	2.45	7.30	12.58	3.68	23.56	52.0	
West Pivot - Corn	DynaGro 58VC37	32K	242.3	21.67	9.02	2.33	33.02	7.3	
West Pivot - Corn	Pioneer 1366	32K	241.3	21.67	9.02	2.33	33.02	7.3	
West Pivot - Corn	Pioneer 1108Q	32K	255.7	21.67	9.02	2.33	33.02	7.7	
West Pivot - Corn	Pioneer 1828	32K	230.2	21.67	9.02	2.33	33.02	7.0	
South Drip - Corn - 1X	DynaGro 58VC37	32K	248.2	16.84	9.02	3.29	29.15	8.5	
South Drip - Corn - 2X	DynaGro 58VC37	32K	245.4	14.82	9.02	4.83	28.67	8.6	
South Drip - Corn - 3X	DynaGro 58VC37	32K	243.8	17.69	9.02	3.68	30.39	8.0	
South Drip - Corn - 4X	DynaGro 58VC37	32K	248.1	17.58	9.02	4.35	30.95	8.0	

Highly Managed SDI outperforms LEPA in Corn

Historically, corn on subsurface drip at WCC has been a respectable performer but had not matched or exceeded the comparable LEPA pivot in yield. Upon review of the SDI corn management from previous years, it was noticed that a consistent pattern was never followed. For 2020, a detailed schedule was defined to include four different irrigation frequencies.

With SDI, irrigation frequency can be increased substantially compared to a pivot. To determine the most suitable frequency, the South SDI field was split into 4 zones with irrigation frequencies of every day, every second day, every third day, and every fourth day, all based on an irrigation system capacity of 4 GPM / acre. The premise is that the same amount of water could be applied to each plot with a difference in the frequency and duration of irrigation.



Irrigation programming created challenges due to the complexity of the schedule which was non- symmetrical; meaning that the schedule could not easily be put on a daily loop. Over the course of the season, the 1, 3, and 4-day treatments were very consistent. The irrigation measurements for the 2nd day treatment is suspect and cannot be utilized for comparisons. The yields on all 4 treatments are valid.

The consistent irrigation across all the South SDI plots maintained excellent color and vigor throughout the season.

At the end of the season, the irrigation treatment that received 0.84-inches every 4 days promoted a larger root structure and appeared to have the most consistent water extraction from the soil. This irrigation interval similarly matched summer rainfall events. The 4th day treatment yielded 248 bushels /acre on 17.58-inches of irrigation.

The soil moisture signature of the daily irrigation zone did not look as "ideal" as the fourth day treatment. However, at the end of the season, the daily irrigation treatment matched the yield of 248 bushels / acre with approximately one-inch less irrigation and one-inch less extraction from the soil, leading to the highest water use efficiency at the WCC; 8.5- bushels / acre.

The take home from this effort is that consistent irrigation management is vital for maximized performance in SDI. This principle transfers to pivots as well.

Figure 7: SDI schedule at WCC. Because of the 1, 2, 3, and 4-day frequency on the South SDI corn, this schedule is looped on a 12-day cycle. A more sophisticated irrigation controller would be necessary for a more complex schedule.

Day 1			Day 2			Day 3			Day 4			Day 5			Day 6			Day 7		
WRT	Hours		WRT	Hours		WRT	Hours		WRT	Hours		WRT	Hours		WRT	Hours		WRT	Hours	
9+10	2	2:51	9+10	2	2:51	9+10	2	2:51	9+10	2	2:51	9+10	2	2:51	9+10	2	2:51	9+10	2	2:51
13+14	5	8:33	11+12	3	5:42	17	9	21:09	11+12	3	5:42	15+16	7	11:24	11+12	3	5:42	13+14	5	8:33
15+16	7	11:24	1+2	10	3:57			0:00	13+14	5	8:33	17	6	9:45	1+2	10	3:57	17	8	12:36
17	1	1:12	3+4	10	3:57				1+2	11	3:27			0:00	3+4	10	3:57			0:00
		0:00	17	4	7:33				3+4	11	3:27				17	4	7:33			
					0:00				17					0:00			0:00			
											0:00									
Day 8			Day 9			Day 10			Day 11			Day 12								
WRT	Hours		WRT	Hours		WRT	Hours		WRT	Hours		WRT	Hours							
9+10	2	2:51	9+10	2	2:51	9+10	2	2:51	9+10	2	2:51	9+10	2	2:51						
11+12	3	5:42	15+16	7	11:24	11+12	3	5:42	17	9	21:09	11+12	3	5:42						
1+2	5	8:33	17	6	9:45	13+14	5	8:33			0:00	1+2	10	3:57						
3+4	11	3:27			0:00	1+2	11	3:27				3+4	10	3:57						
17	11	3:27				3+4	11	3:27				17	4	7:33						
		0:00				17								0:00						

### Highly managed SDI outperforms LEPA in corn

The best yielding corn plot on the WCC was the Pioneer 1108Q plot on the West Pivot which produced 255.7 bushels / acre. The baseline hybrid at WCC was Dyna-Gro 58VC37 which was planted on the West Pivot and in the South SDI field at 32K seed per acre. In the West Pivot, 58VC37 was the second-best yielder at 242.3 bushels / acre.

Figure 8: Dyna-Gro 58VC37 yields across the South Drip management zones and on the West Pivot.

Plot	Yield	WUE
South Drip - Corn - 1X	248.2	8.5
South Drip - Corn - 2X	245.4	NA
South Drip - Corn - 3X	243.8	8.0
South Drip - Corn - 4X	248.1	8.0
West Pivot - Corn	242.3	7.3

All treatments on the South SDI out-yielded the equal plantings in the West Pivot. Nominally, the SDI treatments required 4-inches less irrigation water than the LEPA pivot with slight variations based on irrigation timing. All treatments were limited to 4 GPM / acre.

The differences in applied irrigation between SDI and LEPA was related to three principles: Improved irrigation efficiency, frequency of irrigation, and the ability to stop and start irrigations quickly.

In 2020, beneficial rainfall events during the summer allowed for multiple pauses in irrigation due to adequate soil water storage. The pivot strategy was to make 1.68-inch



irrigation application, which equates to an 8-day lap. Starting and stopping a pivot requires some effort and the risk of getting a pivot stuck after sitting for a few days is a real consideration. Further, since the pivot takes a full lap to return to the location immediately previous to its current location, a rainfall event less than the application rate is usually not cause to stop the pivot.

However, with drip irrigation, the system can immediately begin irrigating exactly where the system was paused and can be paused for any duration of time. For instance, a ½-inch rainfall event would equate to 2.5-days of irrigation capacity. Thus, an SDI system can reasonably be paused for a 2-3-day window and be restarted exactly where it stopped following a ½-inch rainfall event. In 2020, this led to the SDI system being able to be shut down for nearly 20-days during the summer and still entered pollination with a full soil profile. This 20-day downtime is the major contributor to the difference in irrigation volume between SDI and L Nicholas Kenny, P.E. will provide information regarding demonstrations at the WCC at a later date.

### **Master Irrigator 2021**

To date, 23 of the registrants for the 2020 program have elected to keep their places reserved for the 2021 Master Irrigator. Outreach staff are currently working to fill the remaining spots available. Dates for the 2021 Master Irrigator Program are March 24 & 31 and April 7 & 14.

### **Virtual Field Day**

The District produced a virtual field day in early November 2020 with District contract ag engineer Nich Kenny during cotton harvest. This field day covered seven separate topics including: cotton overview, the weighing system used during harvest, RACE trials, harvesting cotton in corn residue, field prep for cotton, research at the WCC, and information on the pivot used at the WCC. Each topic was edited into its own video and uploaded to YouTube in December 2020. Collectively, these seven videos have received 14 views. The Outreach Team will continue to promote the current virtual field day videos and will produce end of season videos to summarize the findings of the 2020 demonstration season.

The virtual field days were started last year, prior to the pandemic, to try to make the information more accessible to all District growers, as well as those outside the geographic area. Since the onset of COVID-19 the idea has even more merit and practical application.

### **WCC Rainwater Harvesting Project**

The United States Department of Agriculture - Natural Resources Conservation Service (NRCS) has reimbursed \$5,000 for expenses related to the rainwater harvesting/pollinator garden project. Crafted Landscaping of Dumas has continued work during the fall and winter on the landscaping and hardscape. They will place plants in the spring to insure the best chance for survival. The rainwater system and the demonstration garden are a cooperative effort of the District and NRCS. The site will be designated with signage from NRCS as one of the NRCS Texas Urban and Rural Conservation Projects.

### **Agricultural Loan Program Campaign**

The loan program campaign continues through the first of the year. The campaign includes a mix of social media, email, radio, newspaper, and community presentations as opportunities are available. Advertising was distributed on November 11 and started running on 11/16 with the following outlets, KEYE, KXIT, KDDD, KXDJ, Booker News, High Plains Observer, The Dalhart Texan, Perryton Herald, and the Moore County News Press/Moore News Online. The District has approximately \$900,000 available at 2.59 percent interest for loans on new, more efficient pivot irrigation systems and upgrades that will improve the efficiency of the system. To date, 12 inquiries have been received and we are opting to continue the campaign through January.



**Action Agenda 3.j. - Receive Quarterly Investment Report ending September 30, 2020.**

**Introduction**

This quarterly investment report for the period from July 1, 2020 through September 30, 2020 reflects the North Plains Groundwater Conservation District investment transactions for all District funds subject to the District's Public Funds Investment Policy.

The report describes in detail the District's investment position as of September 30, 2020; states the maturity date of each separately invested asset that has a maturity date; and states the compliance of the investment portfolio of the District with the investment strategy expressed in the District's investment policy; and relevant provisions of Public Funds Investment Act, Chapter 2256, Texas Government Code (the "Act").

**Standard of Care**

The Board directs that public funds investments shall be made with judgment and care, under prevailing circumstances, that a person of prudence, discretion, and intelligence would exercise in the management of the person's own affairs, not for speculation, but for investment, considering the probable safety of capital and the probable income to be derived. The order of investment priorities are as follows:

Preservation and safety of principal. Liquidity, and

**Yield**

In determining whether an investment officer has exercised prudence with respect to an investment decision, the determination shall be made taking into consideration the investment of all funds, or funds under the District's control, over which the officer had responsibility rather than a consideration as to the prudence of a single investment; and whether the investment decision was consistent with the District's written investment policy.

**Investments**

The District may invest in obligations of, or guaranteed by, governmental entities as provided in Section 2256.009(a) of the Act. The District's Board has authorized Perryton National Bank (PNB) as its primary depository and First State Bank as secondary depository as follows:

Bank Accounts	Account Name	Account Number	09/30/20	Interest Rate
Perryton National Bank	Main Account	337	\$ 1,730,381.00	0.01%
Perryton National Bank	Default Reserve	116	\$ 11,225.00	Non- Interest Bearing
Perryton National Bank	Interest & Sinking	256	\$ 100.00	Non- Interest Bearing
First State Bank	Late Filer Fees	9005805	\$ 13,335.80	Non- Interest Bearing
Perryton National Bank	Ag Loan - Interest & Sinking	531	\$ 100.00	Non- Interest Bearing
Perryton National Bank	Ag Loan Default Reserve	566	\$ 108,599.00	Non- Interest Bearing

Perryton National Bank is the District's primary financial institution that provides the District's main operating account. The main operating account and CDs at Perryton National Bank exceeds the FDIC insurance coverage so the bank pledges funds that the



District is currently holding pledged securities with an original face value of \$3,195,000. Texas Water Development Board funds of \$1,000,000 are deposited in the Perryton National Bank Main Account. The Default Reserve Account, the Interest & Sinking Account, the Ag Loan Interest & Sinking Account, and the Ag Loan Default Reserve Account are non-interest-bearing accounts used to service Texas Water Development Board Loans for Water Conservation Center agriculture equipment construction and Ag Loans for Equipment to qualified agriculture growers. By contract these accounts are required to be non-interest bearing. The District holds \$112.35 in petty cash at its offices. The First State Bank Account is used by the District to secure funds of well owners that filed their 2019 production reports late. Funds in the account will be refunded to the late filers if they turn in their 2020 Production Report by January 15, 2021. Afterward, all remaining funds are swept from the account and are deposited in the District's operating account at Perryton National Bank.

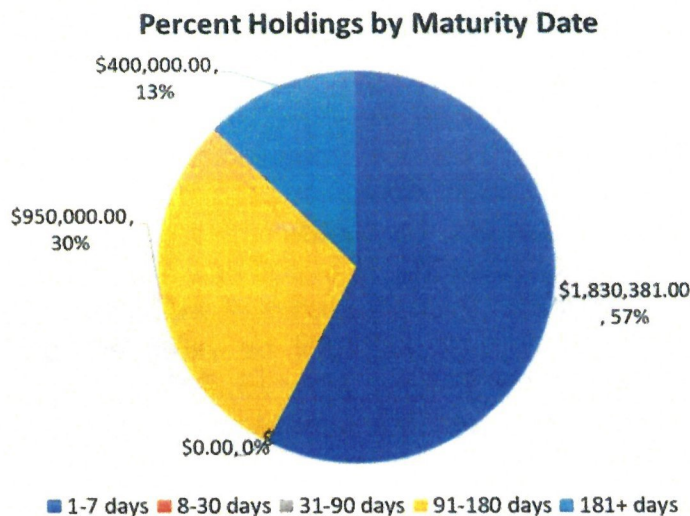
The District primarily secures its funds in certificate of deposits (CDs) issued by a state or national bank domiciled in Texas, a savings and loan association domiciled in Texas and is guaranteed or insured by the Federal Deposit Insurance Corporation (FDIC) or its successor. The maximum allowable maturity of any authorized investment is two (2) years. The District's Board has approved a list of depositories for the District to purchase CDs.

All interest from the CDs are paid by check to the District and deposited into the District's Perryton National Bank main operating account. On September 30, 2020, the District has 1 CD that is set to renew within the next 90 days and there are 6 CDs set to mature between 91-180 days. The largest amount of the District's investments is held in both the main operating account and certificates of deposit (CD) with a maturity date from 91-180 days. A summary of District funds by dollar amount, number of days until maturity, and weighted average maturity (WAM) and the approved listing of depositories for the District are as follows:

Security Description	Investment Amount	Mat. in Days (DTM)	WAM
Perryton National Bank Main Account	\$1,730,381.00	1	0.54
First Bank Southwest CD 10000222	\$100,000.00	3	0.09
First State Bank - Spearman CD 45152	\$150,000.00	115	5.42
Dalhart Federal Savings & Loan CD 602-609183-3	\$150,000.00	139	6.56
Happy State Bank CD 11297	\$150,000.00	138	6.51
Western State Bank CD 20855	\$250,000.00	141	11.08
First State Bank CD 21046	\$100,000.00	185	5.82
Dalhart Federal Savings & Loan CD 602-608808-8	\$100,000.00	215	6.76
Happy State Bank CD 12046	\$100,000.00	311	9.78
Perryton National Bank CD 21457	\$100,000.00	327	10.28
First National Bank CD 82818	\$100,000.00	108	3.40
Interstate Bank SSB CD 9361-13004190	\$150,000.00	178	8.40
<b>Total</b>	<b>\$3,180,381.00</b>		<b>74.64</b>

The Ag Loan- Interest & Sinking Account, the Ag Loan -Default Reserve Account, the Default Reserve Account, Interest & Sinking Account, and the Late Filer Fees Account are non- interest-bearing accounts and are not included in this analysis. The WAM is used to illustrate the average amount of days it takes District investments to mature. The Perryton National Bank Account is the main operating account used by the District. Funds within this account are available within one day and are shown in the 1-7-day maturity date in the pie chart below. The District is currently operating on a 74.64-day WAM. The following pie chart represents the percent of holdings in investments based on the days to maturity:





This chart shows a snapshot of what percent of District's money is being held in longer investments versus money on hand. Fifty seven percent of the District's investments are held in the main operating with less than seven days maturity, whereas 12.58 percent of the District's investments are held in CD's with a maturity date of over 180 days. The final three pieces of the pie are investments that are held for a period of 8-30 days, 31-90 days, and 91-180 days. The highest interest rates the District receives on CD's is 2.00 percent.

As of September 30, 2020 (last trading day of month), the US Department of Treasury Yield Curve Rates for one month is 0.08 percent and the one year is 0.12 percent. Treasury Yield Curve Rates are commonly referred to as "Constant Maturity Treasury" rates, or CMTs. Yields are interpolated by the Treasury from the daily yield curve. This curve, which relates the yield on a security to its time to maturity is based on the closing market bid yields on actively traded Treasury securities in the over-the-counter market. These market yields are calculated from composites of indicative, bid-side market quotations (not actual transactions) obtained by the Federal Reserve Bank of New York at or near 3:30 PM each trading day.

### District Loan Obligations

The District entered into two loan agreements with the Texas Water Development Board. The first loan agreement was executed in October 2014 for \$620,000.00 to equip the North Plains Water Conservation Center. The loan is for ten years with an 0.11 percent annual fixed interest rate. Five years are remaining on the loan. The account number the remaining loan amount as of September 30, 2020 and the remaining number of payments are as follows:

Loan	Account #	September 30, 2020	Notes
TWDB	21743	\$248,000.00	4 annual payments + 0.11% interest

The schedule of loan payments including interest is as follows:

Amount	Year
62,273	2021
62,205	2022
62,136	2023
62,068	2024

The second loan agreement was executed in November 2019 for \$1,000,000.00 to loan agriculture producers' funds to update existing irrigation systems for conservation and efficiency purposes. The loan is for ten years with a 1.59 percent annual fixed interest



rate. The board has elected to add an additional 1% interest rate to loan amounts to producers to cover District costs for administering the program.  
 The account number the remaining loan amount as of September 30, 2020 and the remaining number of payments are as follows:

Loan	Account #	September 30, 2020	Notes
TWDB	21781	\$900,000.00	9 annual payments + 1.59% interest

The schedule of loan payments, including interest, is as follows:

Amount	Year
114,310	2021
112,720	2022
111,130	2023
109,540	2024
107,950	2025
106,360	2026
104,777	2027
103,180	2028
101,590	2029

Mark Howard moved that the Board accept the District Quarterly Investment Report ending September 30, 2020. Harold Grall seconded the motion and it was unanimously approved by the Board.

***Action Agenda 3.k. - Receive report regarding 2020 Annual Production Reporting.***

General Manager, Steve Walthour, reported to the Board that Approximately 2,928 production reports for 2020 were sent to producers via mail, or email, by December 4, 2020. As of January 7, 2021, One Hundred Forty-Four (144) production reports have been received and One Hundred Thirty-Seven (137) reports have been checked and entered.

***Action Agenda 3.l. - Receive report regarding 2020 Annual Production Reporting.***

Steve Walthour and Odell Ward presented the following report regarding the District’s groundwater level measurements:

This year's groundwater level measurements began on January 7 and will continue until completed. Odell Ward conducted water level training with the District staff on January 6, 2021. The refresher training focused on using electronic lines and steel tapes to obtain the water level measurement. District staff reviewed the District’s SOP procedures on using the measuring equipment and collecting the data.

Mr. Ward further instructed the staff in the use of the Fulcrum application to record the water level measurement and the data on the program datasheets. To conclude the training, District staff went into the field, and each member conducted field measurements. Each District staff member was encouraged to provide input on the techniques and procedures.

The field staff is determined to visit all 433 wells in the program and successfully measure at least 80% of those wells. The goal of the staff is to complete the measurements by March 1st. Each member of the field staff will have a list of approximately 108 wells from



across the District. Revisits will follow the completion of this year's measuring cycle as needed. Dale will use the data to compile the District's annual Hydrology Report.

***Action Agenda 3.m. - Receive report regarding IRS depletion program.***

The General Manager stated that calculations for the 2020 depletion assignments wrapped up in December with 1,225 letters mailed out to participants on January 2nd and 3rd, 2021. Dale Hallmark and Odell Ward are answering calls and email concerning the assignments and updating the mailing list as requested by the program participants.

***Action Agenda 3.n. and 3.o. - Receive report and consider action related to 87th Texas Legislative Session and Issues and receive report and consider action regarding compliance matters before the District.***

**Executive Session - Section 551.071 of the Texas Government Code.**

At 11:35 a.m., Harold Grall moved to go into Executive Session in compliance with the Texas Open Meetings Act, Chapter 551 of the Texas Government Code, §551.071, to obtain legal advice on matters in which the duty of attorneys to the governmental body under the Texas Disciplinary Rules of Professional Conduct of the State Bar of Texas conflicts with Chapter 551. Zac Yoder seconded the motion and it was unanimously approved by the Board.

The Board recessed at 11:35 a.m. and reconvened at 11:41 a.m.

Executive Session: At 11:41 a.m., the Board went into Executive Session. At 1:18 p.m., Harold Grall moved that the Board reconvene into regular session. Daniel L. Krienke seconded the motion and it was unanimously approved by the remaining Board members with Justin Crownover and Gene Born having left the meeting.

The Board reconvened into regular session at 1:18 p.m.

Mr. Zimmer inquired if any action needed to be taken concerning matters discussed in Executive Session.

Mr. Krienke stated that he needed a clarification. I thought that when we did our Rules the last time we talked about that small property and fixing some way that they could have at least one Well – So, this issue, if it's a domestic well, or if it's a large well -- I think our Rules -- that's not even an issue – we are 100 yards from property line – if the smaller well wants to come up closer to that -- the little well is only 50 yards, or some other, so I think our Rules already address that -- just a suggestion, if, and when, you go talk to our legislative people, that any of those Rules that we already have that pertains to these issues, we need to articulate that this is a local deal -- we're taking care of business -- and to open up 36 to address some of these things that we are already doing --- if we can point out on a positive note --- I believe we've already addressed Billy's issue if it's the 50 yard deal -- because if that's a small area – you said 28-acre-feet -- is a domestic well – and our Rule with an acre and a half means that you would have to have --help me out here, 15 and half would be 7—16, 17, 18 and 9 is 27 and there could be little slim properties some way that that would someway -- don't we address that smaller tract already in our Rules?

Mr. Walthour responded to Mr. Krienke that District representatives will go through that with Senator Perry when we get there. There are a couple of different issues. First of all, we've got to the point that we don't really care how big a well that you drill it's all based on the size of your acres. I think that if someone had a problem where we would space someone out -- I think there are remedies in our Rules to deal with that already.



I don't think you would prohibit someone who has 10 acres from drilling a class D well – it would be stupid because you would only get 15-acre feet. You can pump that 15-acre feet in a day.

Mr. Krienke stated that you could pump that with a domestic well. You could get 28-acre feet. So, Billy's comment still bothers me a little bit with a larger one coming in and infringing on the water rights of the smaller property. We protect all of our water rights, unless you can show me different.

Mr. Walthour asked Mr. Good if a motion was needed on any matter discussed in Executive Session for Mr. Walthour and his staff to move forward. Mr. Good responded, that no motion was necessary.

***Discussion Agenda 5.- Discuss Items for Future Board Meeting Agendas and Set Next Meeting Date and Time.***

By consensus, the Board set its next regular Board meeting via ZOOM at 9:00 a.m. on February 9, 2021.

Mr. Good stated that it would be a good time to alert the Board that Mr. Good and Mr. Walthour had been talking to TAGD about a possible amicus brief that they are going to send. Mr. Good has been investigating it and reported that there is a case pending before the Texas Supreme Court and the Court has not yet made a decision regarding whether to take it up yet. It happens to be the case of *Neches and Trinity Valley Groundwater Conservation District vs. Mountain Pure LLC*. Mountain Pure is the defendant in the case and the groundwater district is the plaintiff. The groundwater district lost in the trial court – it is down by Palestine – and then appealed it to the 12<sup>th</sup> Circuit Appellate Court and the Appellate Court ruled solidly in favor of the groundwater district and now, Mountain Pure LLC, which is a public water bottling company, is appealing it to the Texas Supreme Court and Mountain Pure's brief is due the 23<sup>rd</sup> of this month. The Court will ultimately make a decision on whether it is going to take it up or not. Then, if it does – the issues up before the Supreme Court are takings issues on a regulatory enforcement action. Mountain Pure is contending that the groundwater district took their private property rights by trying to enforce the district's rules. There is a lot more that we can go into about it but clearly, that needs to be set aside, and hopefully, the Supreme Court won't take it up, but if it does, we will be talking to you about an amicus brief to support the groundwater conservation district before the Supreme Court. The defendant, Mountain Pure, says that they are pumping water out of a spring and that the groundwater conservation district has absolutely no right to enforce its rules against Mountain Pure. The basic issue is that Mountain Pure sank a five-foot diameter concrete casing approximately 15 to 20 feet down into the ground with a submersible pump in it. Mountain Pure claims that it is not a well because it is regulated by the TCEQ. It is regulated by the TCEQ because it is a public water supply. A hole in the ground with a pump in it, to an old country boy like me, is a well.

Mr. Walthour stated that one of the reasons that we would be interested in this is not the well itself, but essentially regarding whether a district has the authority to enforce its rules, or at least to request information enough to make a determination, without it being a taking. If a hole in the ground is a well, and that is where they are at this point, and they have not even gotten to a final decision yet as far as the district is concerned, and the question before the Supreme Court is a taking issue without any other issues attached, is that correct, Keith?

Mr. Good responded to Mr. Walthour that he was correct. Further, Mr. Good stated that the District hasn't filed any other enforcement actions other than an action to require Mountain Pure to obtain a permit. That is all the groundwater district has done – it hasn't charged them anything – it hasn't done anything to hinder them. Mr. Good stated that



he thought the real problem was that Mountain Pure had a party, Icy Springs, who was buying the water and selling it and there was a multi-million dollar deal on the table for Icy Springs to buy Mountain Pure's interest in that well and when the district got involved, and, of course, their deal with Icy Springs went away and so that is the reason Mountain Pure is contending that its property has been de-valued as a result of the groundwater conservation district.

Mr. Good stated that Steve is right, that the fear from our standpoint, as a groundwater conservation district, is if we go to enforce our rules, we don't want someone to have the right to file a taking claim and that is what this is kind of about. Next Board meeting, if we can be together, I've got an engineering diagram of that well that is pretty interesting. I will show everyone here – but it is quite a deal.

President Zimmer asked if anyone had anything to be placed on the February 2021 Agenda.

Mr. Good stated that he could possibly report further on the Supreme Court matter at the February meeting – however, he didn't know how fast the Supreme Court would move after the Appellant's brief is filed, but it probably will not be by the 9<sup>th</sup> of February.

***Action Agenda 4.a. - District Director Reports regarding meetings and/or seminars attended, weather conditions and economic development in each Director's precinct.***

District Director reports were presented to the Board regarding meetings and/or seminars attended, weather conditions and economic development in each Director's precinct.

***Discussion Agenda 4 b. - Committee Reports.***

No Committee reports were presented to the Board.

***Discussion Agenda 4 c. - General Manager's Report.***

Steve Walthour presented a written report to the Board in the Board packet, which included the General Manager's activity summary, the District's activity summary, permits issued by the District in November and December, 2020, post-drill well inspections during November and December 2020, capped well and random inspection compliance from July through December, 2020, and upcoming meetings and conferences.

***Agenda 6 - Adjournment.***

There being no further business to come before the meeting, Mark Howard moved to adjourn the meeting. Harold Grall seconded the motion and it was unanimously approved by the Board. President Zimmer declared the meeting adjourned at 1:33 p.m.

  
\_\_\_\_\_  
Bob B. Zimmer, President

  
\_\_\_\_\_  
Zac Yoder, Secretary