

POSGCD Well Mitigation Proposal

Twenty-Two Hills Community

by Fred Russell

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Water Issues we face in our community

- I. Commercial water production with associated drawdown resulting in wells going dry and
- II. the Little River Off-Channel Reservoir.

Commercial water production is the focus tonight. Mitigation won't solve the problem of over-pumping our aquifer but it will give a needed level of protection for our wells. This issue needs to be addressed before the Vista Ridge Regional Supply Project begins producing 50,000 AFY.

Main Topics

- ✓ Texas Water Law
- ✓ Vista Ridge Regional Supply Project
- ✓ Future demands on the Carrizo-Wilcox Aquifer
- ✓ Effects of Vista Ridge Pumping
- ✓ Railroad Commission of Texas Well Mitigation

Texas Water Law

Supreme Court of Texas

No. 98-0247

Decided: May 6, 1999

SIPRIANO v. GREAT SPRING WATERS OF AMERICA, INC.
a/k/a Ozarka Natural Spring Water Co.

- The Ozarka case (Texas 1999) involved a claim by a domestic well owner that Ozarka's nearby pumping had dried up his well. The landowner asked the court to protect his private-property interest in groundwater by imposing liability on Ozarka. The court unanimously affirmed the rule of capture and Ozarka was not held liable.

Texas Water Law

Interference with groundwater rights:

1. If an adjoining neighbor trespasses on the land to remove water either by drilling a well directly on the landowner's property or by drilling a "slant" well on adjoining property so that it crosses the subterranean property line, the injured landowner can sue for trespass.
2. There is malicious or wanton conduct in pumping water for the sole purpose of injuring an adjoining landowner.
3. Landowners waste artesian well water by allowing it to run off their land or to percolate back into the water table.
4. There is contamination of water in a landowner's well. No one is allowed to unlawfully pollute groundwater.
5. Land subsidence and surface injury result from negligent overpumping from adjoining lands.

Texas Water Law

Water law summary

- Other than "interference with groundwater rights" mentioned, the only other protection for a landowner's well in our district may be a DFC required reduction in pumping.
- A landowner has a right to pump all the water that he can from beneath his land regardless of the effect on wells of adjacent owners.
- A commercial producer has a right to pump all the water that his permit allows from beneath his land, leased or owned, regardless of the effect on wells of adjacent owners.
- Texas water law assigns no liability to commercial pumping if your well should go dry. It's your expense!

Vista Ridge Regional Supply Project Production

Well Field	Number of Wells	Production Capacity per Well (gpm)	Hours of Production per Day	Daily Production (gals)	Daily Production (acre-feet)	Days of Production per Year	Annual Production (acre-feet)	30 Years of Production (acre-feet)
Carrizo (shallow)	9	1,200 (a)	24	15,228,000	47	305	14,262	427,849
Simsboro (deep)	9	3,000 (b)	24	38,160,000	117	305	35,738	1,072,151
Estimated Total	18			53,388,000	164		50,000	1,500,000

(a) 8 Wells permitted at 1,200 gpm, 1 Well permitted at 975 gpm due to Well spacing and property off-set requirements.

(b) 8 Wells permitted at 3,000 gpm, 1 Well permitted at 2,500 gpm due to Well spacing and property off-set requirements.

The average daily production to meet the Annual Supply Amount (50,000 AF) is

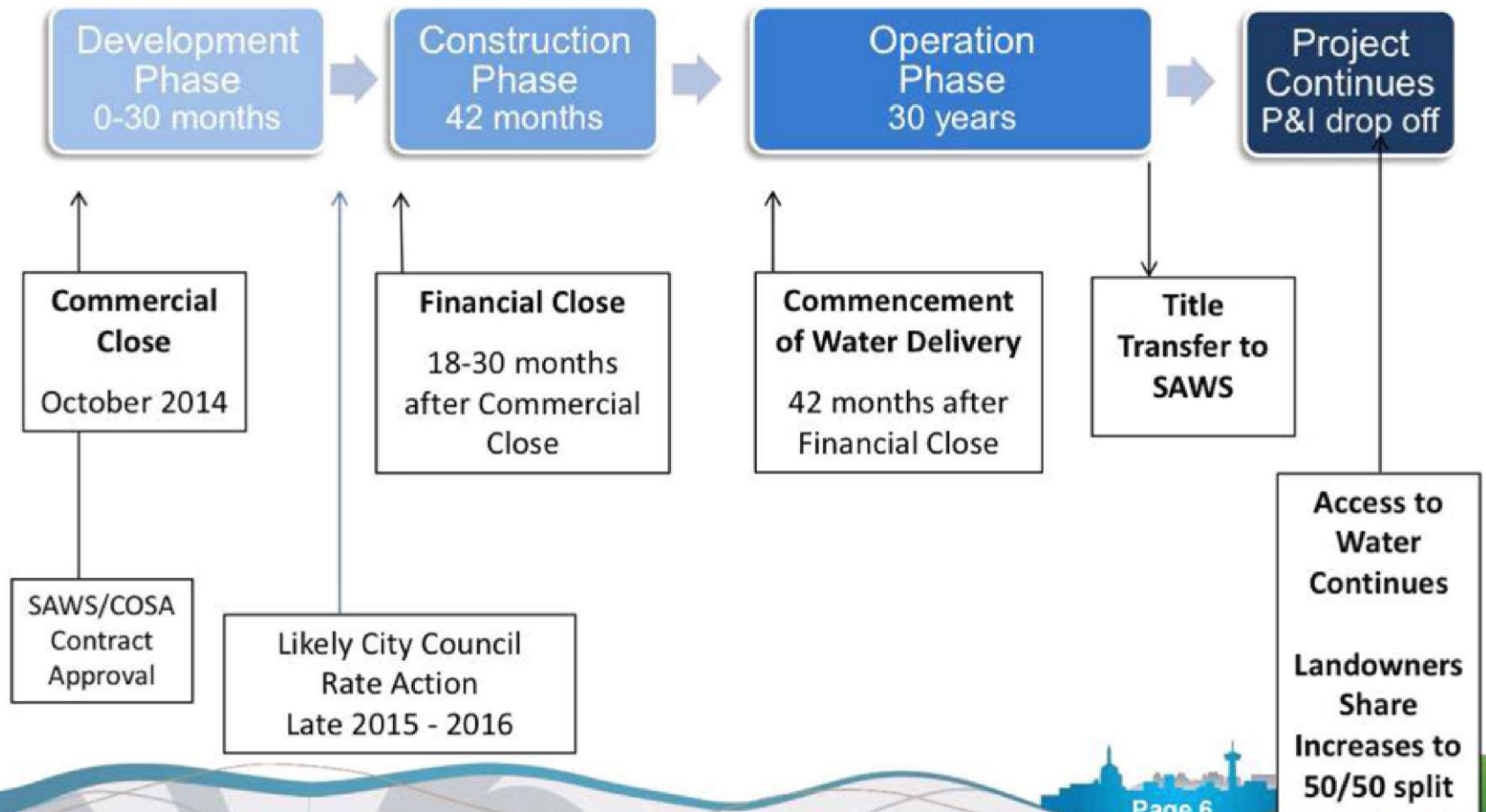
44,637,123 gals, supplies 253,620 people/day. Source: water.org

Landowner's Domestic Well Production

Well Field	Number of Wells	Production Capacity per Well (gpm)	Hours of Production per Day	Daily Production (gals)	Daily Production (acre-feet)	Days of Production per Year	Annual Production (acre-feet)	30 Years of Production (acre-feet)
Domestic, max	1	17	24	25,000	0.0767	365	28.0	840
Domestic, typical family of 4	1	17	0.7	704	0.0022	365	0.8	24

Timeline for Vista Ridge Project

Initial Water Deliveries Anticipated in 2019/2020



Development Phase

0 – 30 Months

- Vista Ridge
 - Basic engineering, surveys and additional aquifer studies
 - Easement reservation/acquisition
 - Financing
- SAWS
 - Basic engineering & revenue studies
- Either party can terminate prior to Financial Close
 - Reimburse actual development expenditures up to a maximum
 - Vista Ridge – \$40.1 M
 - SAWS – \$2.0 M
- Development Phase ends when Financial Close occurs
 - Permanent financing required for Financial Close



End of Term Contract Provisions

Enduring Water Supply

- After the Contract ends
 - Assets and infrastructure transfer automatically to SAWS
 - Pipeline to have another 30-50 years life available
- SAWS has agreement with Blue Water to continue buying water for another 30 years
 - Price to be average cost of SAWS 2-year Edwards leases over last five years of contract
 - 50% of payments (after GCD fees) go to landowners

Baseline Annual Volume Variance

Contract Year Ending	Capital Charge(\$)	Water Payment (\$460/AF)	Capital and Raw Groundwater Charge(\$)	Baseline Annual Volume (AF)	Capital and Raw Groundwater Unit Price (\$/AF)
First complete year of pipeline operation ending 12/31/20	69,618,000	23,000,000	92,618,000	50,000	1,852
	69,618,000	20,700,000	90,318,000	45,000	2,007
	69,618,000	18,400,000	88,018,000	40,000	2,200
	69,618,000	16,100,000	85,718,000	35,000	2,449
	69,618,000	13,800,000	83,418,000	30,000	2,781
	69,618,000	11,500,000	81,118,000	25,000	3,245
	69,618,000	9,200,000	78,818,000	20,000	3,941
	69,618,000	6,900,000	76,518,000	15,000	5,101
	69,618,000	4,600,000	74,218,000	10,000	7,422
	69,618,000	2,300,000	71,918,000	5,000	14,384

Convenience Termination Option

Would SAWS cancel?

-
- San Antonio will need more water than they currently get from the Edwards Aquifer.
 - The maximum amount of reimbursable costs SAWS could have to pay to the Project Company is \$40.1 million.
 - If SAWS undertakes a project substantially similar to the Water Transmission & Purchase Agreement within 5 years after termination, SAWS must pay the Project Company a project assumption fee of \$10 million.

Convenience Termination Option

Would Abengoa cancel?

- Abengoa is a 70-year old multinational company.
- Globally, Abengoa has successfully completed more than 100 infrastructure projects.
- Total investment in these projects is in excess of \$21 billion and has involved more than 70 banks and financial institutions.
- Abengoa operates in more than 50 countries and employs over 26,000 people.
- Abengoa is listed on the NASDAQ.

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Blue Water agrees to hold and maintain 50,000 acres of the Leases in the Groundwater Area to make available for, and sell to, SAWS each year the Annual Supply Amount from the Groundwater Area during the Term of this Agreement.

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DFC Insurance

Groundwater Supply Agreement

Agreement \$5

BlueWater Systems and SAWS

DFC Insurance

How it works

Normal Commercial Production

Leased water rights ("pooled" acreage)	25,000
Production permitted before any DFC reduction (AF/acre)	2.00
Annual Supply Amount (AF)	50,000

DFC Reduced Commercial Production

Reduced production due to DFCs (AF/acre)	1.75
Annual Supply Amount reduced by DFCs (AF)	43,750
Annual Supply Amount deficit (AF)	6,250
Apply for another Permit (with additional "pooled" acreage)	3,571

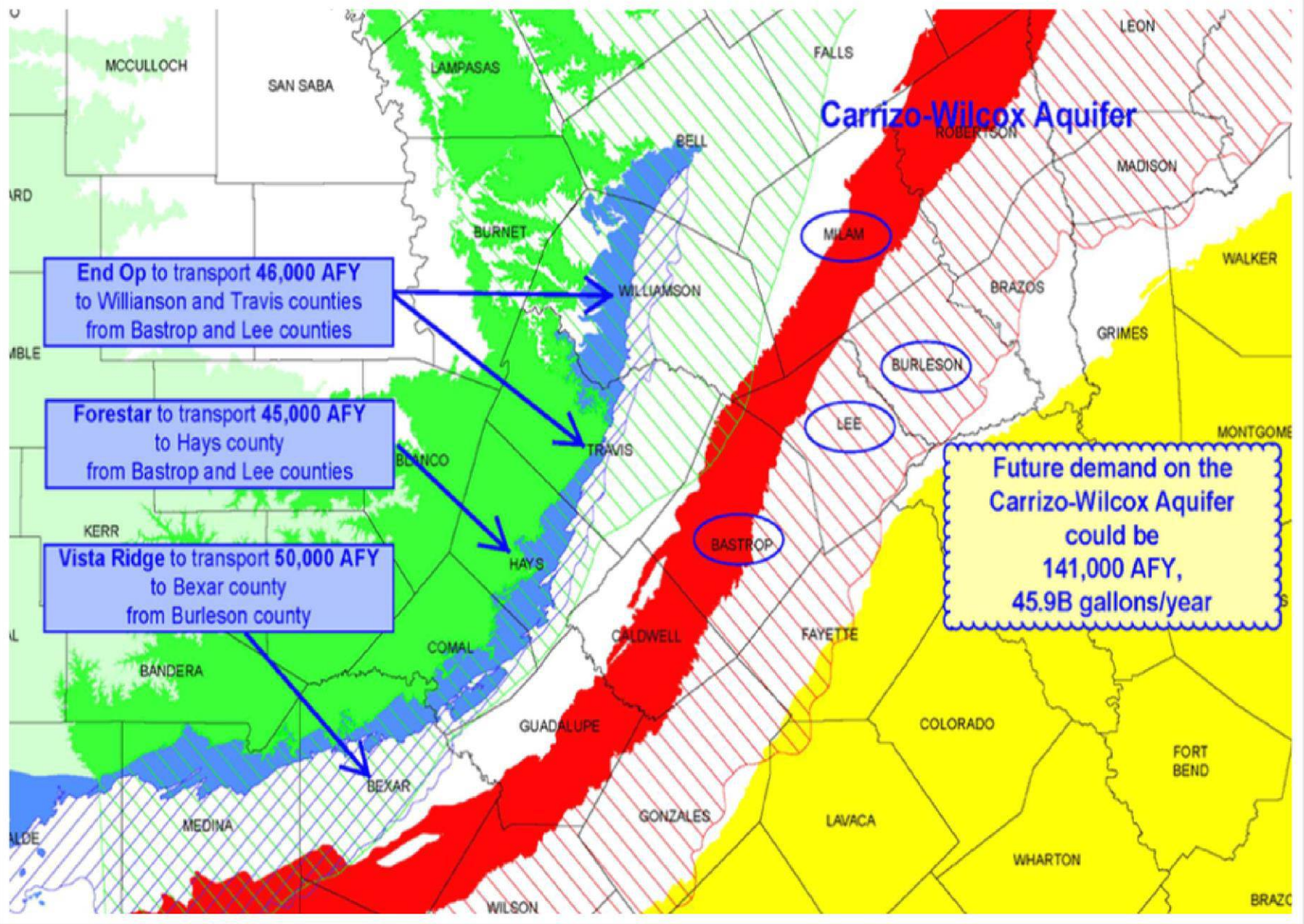
Water Supply Agreement §5 Insurance

Reduced production due to DFCs (AF/acre)	1.00
Leased water rights insurance ("pooled" acreage)	50,000
Annual Supply Amount (AF)	50,000

Well Mitigation Policy

SAWS & BlueWater Systems

- SAWS and BlueWater Systems are under no obligation to mitigate a landowner's well that stops producing due to pumping in the Vista Ridge well field.
 - SAWS – "Because SAWS has no authority in managing and regulating any impacts of well production, I would encourage you to contact the Post Oak Savannah Groundwater Conservation District to see what specific mitigation plans are in place." Donovan Burton, VP
 - BlueWater – "BlueWater will follow all of the rules of the District." Patrick Reilly, Chief Operating Officer No Rules, no mitigation!



Effects of Vista Ridge Pumping on Groundwater and Surface Water in the Lost Pines GCD and POSGCD

by George Rice, September 22, 2015

Conclusions

The Vista Ridge pumping would:

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- Reduce hydraulic heads in the Hooper, Simsboro, Calvert Bluff, Carrizo, and Queen City aquifers;
 - Where these aquifers are confined, the reduced heads would cause water levels in wells to decline;
 - Where these aquifers are unconfined (recharge areas), the reduced heads would cause dewatering of portions of the aquifers;
 - Result in the LPGCD and POSGCD exceeding their adopted Simsboro Aquifer DFCs by 2060; and
 - Reduce groundwater discharge to the Colorado and Brazos rivers, thereby reducing the amount of water flowing in these streams.

Railroad Commission of Texas

Well Mitigation

Surface Mining & Reclamation Division

- Rule §12.128 Ground-water Information
- Rule §12.130 Alternative Water Supply Information
- Rule §12.146 Reclamation Plan: Protection of Hydrologic Balance.

John E. Caudle, P.E. Director SMRD

Scott Englemann, Mgr. Inspection & Enforcement Section

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Protect or replace the rights of present users of surface and ground water.

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Rule §12.146 Reclamation Plan: Protection of Hydrologic Balance.

Railroad Commission of Texas

Chapter 12 Coal Mining Regulations

Railroad Commission of Texas

Well Mitigation

How do these mitigation rules work?

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- The Surface Mining and Reclamation Division (SMRD) accepts complaints made by telephone or email.
 - It is recommend that the complainant first contact the mining company to investigate the well in question. If the well owner is not satisfied with the mining company results.
 - An investigation can then be scheduled with an SMRD inspector.
 - SMRD hydrology staff reviews results to determine if the well was indeed impacted by the mining company.
 - If impacted, then SMRD would contact the company to inform them of the need to mitigate the effects to the well.
 - For impacted wells, the law requires that the company make the landowner whole, by which ever means are agreed upon with the well owner.

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for **sustainability**

Appendix II.



September 2015 Progress Report

Abengoa Vista Ridge

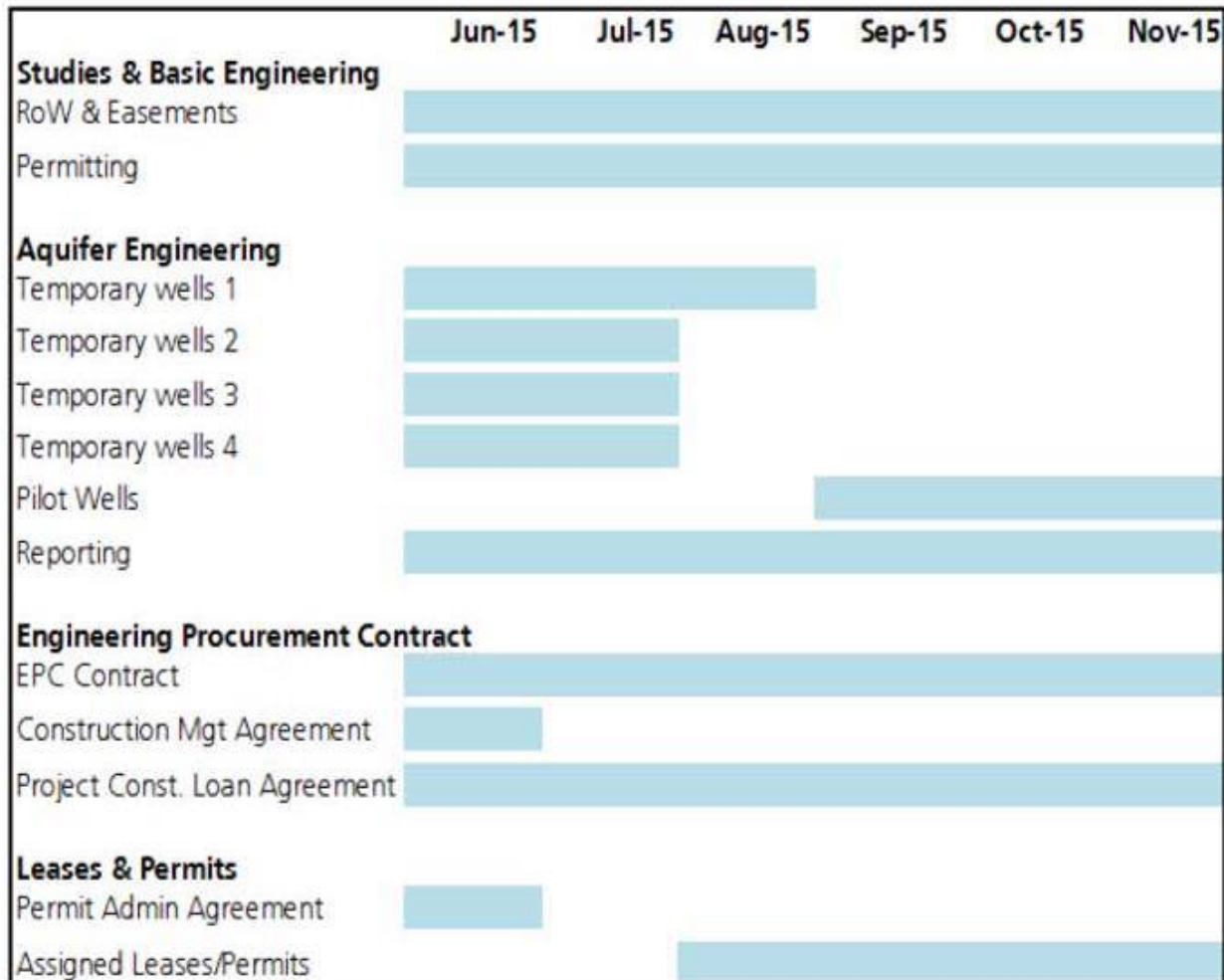


Project Progress Overview

- On time and on budget.
- Ahead of schedule on hydrogeology. All test wells have been completed.
- Right of Entry progressing well with 92% positive response rate.
- Preliminary engineering continues.
- Continue to work closely with SAWS through technical, finance and communication meetings.



General Project Timeline



Technical Progress

Hydrogeology: RW Harden

- All test wells completed
- Water samples shared with SAWS

- Water quality analysis completed in September
- Pilot wells begun in September



Right of Entry and Right of Way

Right of Way/ Right of Entry (RoW/RoE)

- Received 92% positive responses
- RoE to be completed in October

- Offers for RoW have begun and ongoing



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Engineering Progress


**Engineering:
PD & CPY**

- Environmental surveys ongoing
- Land surveys ongoing
- Hydraulic analysis ongoing

- Environmental and construction permitting



Financial Progress

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- Strong appetite for this project in financial markets
 - Exploring other bank financing as back-up
 - In conversations with Texas Bond Review Board on Private Activity Bond (PAB) allocation



Financial Progress: Cost Detail (By Quarter)

	31-Jan-15	30-Apr-15	31-Jul-15	31-Oct-15	31-Jan-16	30-Apr-16
Wages or salaries	504,965	548,946	548,946	571,279	571,279	571,280
Travel & Lodging	136,694	75,882	75,882	78,349	83,749	78,349
Employee Benefits	65,277	75,297	75,298	82,590	82,590	82,590
Aquifer Study	-	1,985,000	912,156	3,042,844	1,645,000	-
Professional fees	408,938	1,125,000	313,901	267,349	140,346	-
Basic engineering	-	1,102,747	434,400	295,887	491,049	1,175,927
Eminent domain	-	-	-	323,529	588,235	588,235
Financial costs	33,867	142,508	281,526	419,003	543,717	1,537,256
Geotechnical surveys	-	-	42,500	531,860	372,080	344,160
Lenders technical advisors	-	-	-	514,286	514,286	171,429
Lease maintenance costs	1,274,825	1,274,825	1,274,825	1,274,825	1,274,825	1,275,875
Permitting	-	357,733	-	752,019	7,500	181,658
Rating services	-	-	2,500	497,500	960,000	-
Right of way acquisition	-	-	-	-	-	-
Rights of way reservation	-	876,264	1,206,836	1,919,128	2,247,452	1,371,925
Project company overhead	-	46,448	86,527	46,755	46,755	87,755
Topography surveys	-	194,000	378,502	378,099	50,000	-
Total	2,424,566	7,804,650	5,633,800	10,995,302	9,618,863	7,466,439
Accum.	2,424,566	10,229,216	15,863,016	26,859,000	36,477,000	43,943,00
Reimbursable cap	40,100,000	40,100,000	40,100,000	40,100,000	40,100,000	40,100,000

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There is never time to do it right, but
always time to do it over.

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