

Town Council Meeting November 2, 2009

Produced Water Pipelines and Centralized Tank Facilities

Produced Water Pipelines

- Produced water or production fluid and flowback water is the fluid or wastewater resulting from the drilling, completion, and production processes.
- The produced water has a high saline content and contains other additives associated with the drilling and production processes.
- The composition of flowback and produced water varies and the additives or specific composition are not required to be disclosed.

Formation Fracturing Additives

- Staff contacted six regional operators requesting an analysis of the flowback and/or produced water and a listing of the fracturing additives.
- To date, three operators provided staff with information such as material safety data sheets, a Department of Energy listing of representative compounds, and an analysis of water from a separator.
- Some fracturing fluid additives include:
 - Biocides
 - Acids
 - Corrosion inhibitors
 - Friction reducers
 - Surfactants
 - Scaling inhibitors

Produced Water Pipelines

- The Town's regulations allow for produced water pipelines on permitted gas well pad sites for storage and removal from the same permitted pad site.
- Ordinance amendments in 2007 included requiring a centralized tank battery serving wells on a single tract of land to comply with all gas well setback requirements.
- Wastewater hauling trucks remove the produced water from the site as necessary.

Produced Water Pipelines

- Staff received a proposal for a produced water gathering and storage system.
- The system would transport produced water from other pad sites/locations to a central storage location for removal by wastewater hauling trucks.
- The Town's regulations do not address the gathering system and will not allow the centralized collection facility as proposed.
- Amendments to the oil and gas well drilling and pipeline regulations would be required to establish standards for a gathering and storage system.

Centralized Facilities

● Centralized Tank Battery

- Typical configuration of storage tanks is two tanks per gas well.
- A centralized facility would divert the wastewater from the pad sites to a central location.
- The current number of storage tanks would not be necessary on the gas well sites; tanks would be relocated to a centralized tank battery.
- Centralized facilities may provide for a reduction in the total number of tanks; truck traffic would be diverted from one location to another.
- There would be a number of factors and assumptions involved to accurately determine if a net reduction in truck traffic on roadways would result from a centralized facility; removal of full wastewater loads versus removing partial loads could lead to less truck traffic.

Centralized Facilities

- “Gas Lift” facilities and the associated gas lift pipelines have also been discussed relative to regulating centralized facilities.
- Gas lift is a method of injecting gas into a completed well to enhance production; it is often conducted on an as needed and temporary basis for wells.
- A centralized gas lift facility and pipeline system would consist of a centralized compressor utilized to transport the gas to off-site gas wells.

Gas Wells – No Tank Battery



Gas Well and Tank Battery



Centralized Tank Battery 18 Tanks (2 rows of 9 tanks)



Ordinance Amendments

- Ordinance amendments would be necessary to effectively address the installation and operation of produced water pipeline systems and centralized collection and distribution systems.
 - Chapter 34 “Natural Gas Well Drilling and Operations”
 - Chapter 34 “Oil and Gas Pipeline Standards”
 - Chapter 98 “Zoning”

Gas Well Drilling and Pipeline Ordinance History

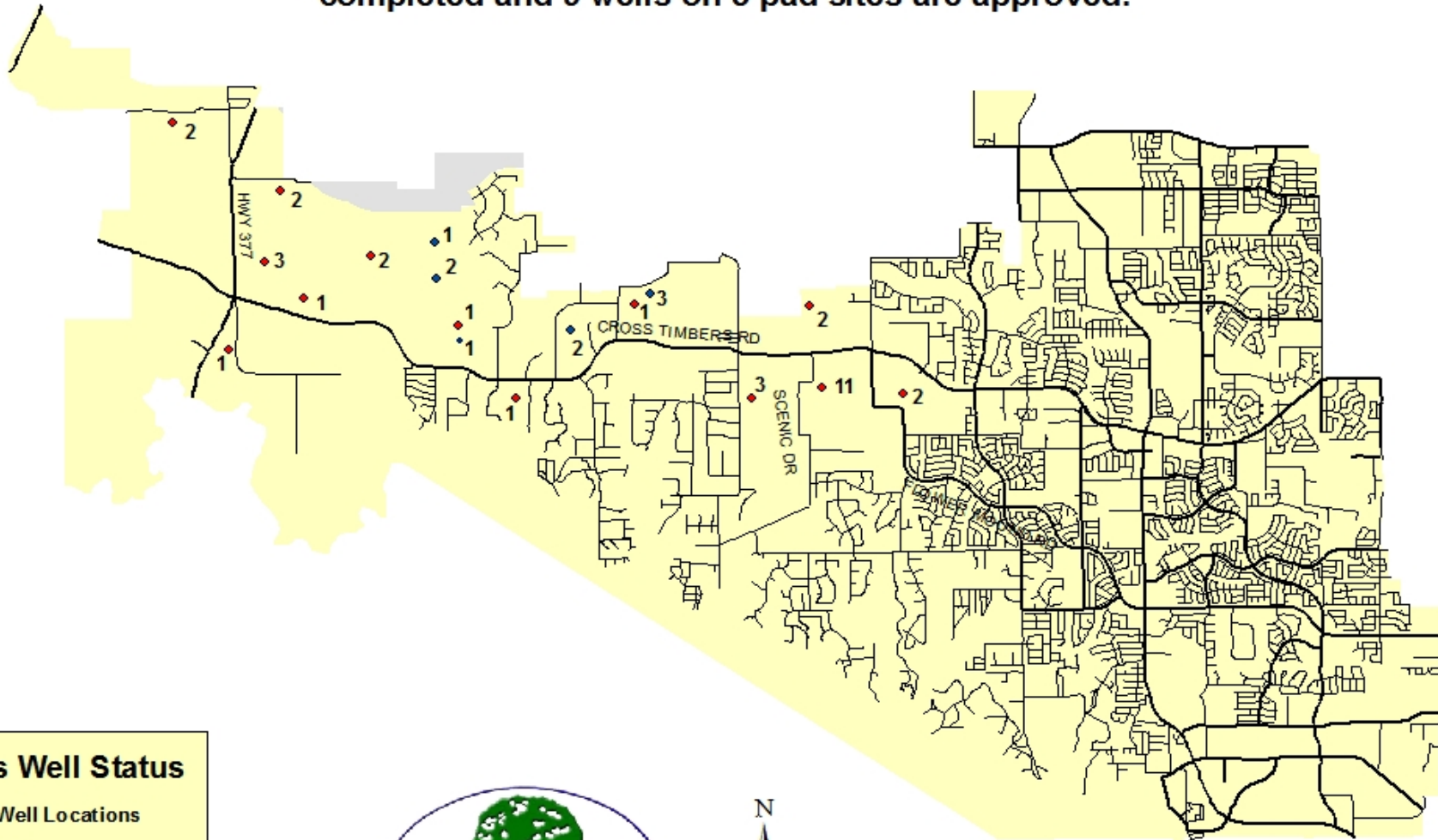
- Initial drilling ordinance was adopted in 2003.
- Minor amendments occurred in 2005.
- In 2005, the ordinance review process began with the formation of a stakeholder group.
- Following numerous stakeholder meetings, public meetings, and Town Council meetings, ordinance amendments were adopted in 2007.
- Pipeline standards ordinance was adopted in 2007.
- Fees were updated in 2009.

Permit History

	Gas Well/Pad Site Permits Issued	Pipeline Permits Issued
2003	0	0
2004	2	0
2005	5	0
2006	1	0
2007	2	0
2008	5	2
2009	3	2

Gas Well Permit Status

As of October 2009, 32 wells on 13 pad sites are completed and 9 wells on 5 pad sites are approved.

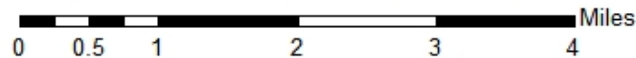


Gas Well Status

Gas Well Locations

Status

- ◆ Approved = 9
- ◆ Completed = 32
- ◆ In Application = 0



Gas Well Drilling Regulations

- Amendments to the current gas well drilling regulations to address produced water and centralized facilities may include:
 - amending definitions to address centralized tanks and associated facilities;
 - amending pad site requirements for storage tanks as it would apply to centralized facilities and the off-site gas well pad sites, emergency or secondary storage;
 - amending the applicable waste disposal requirements in the drilling and operations regulations.

Pipeline Regulations

- Amendments to the current pipeline regulations may include:
 - adding new definitions for produced water and produced water pipelines;
 - adding construction standards and specifications for produced water pipelines;
 - adding leak detection and prevention regulations;
 - enhancing the liability insurance requirements to address pollution coverage.

Land Use / Zoning Issues

- A gas well pad site is allowed in any zoning district.
- A produced water centralized collection and storage facility may have other structures and facilities located on it other than storage tanks.
- The produced water centralized collection and storage use does not fit any uses described in the Zoning Ordinance.

Land Use / Zoning Issues

- The Town's Zoning Ordinance describes in detail the uses that are permitted on agriculturally zoned land and those uses which require a specific use permit.
- Agriculturally zoned property does not support the contention that a centralized collection and storage facility for produced water is permitted in such zoning classification.
- The facility is more of an industrial use.
 - None of the listed uses or specific uses for either the Industrial-1 (I-1) or Industrial-2 (I-2) districts is applicable and there are no established definitions or standards for this type of use.

Land Use / Zoning Issues

- A use shall be classified into the use category that most closely portrays the overall nature of such activity. Any use that cannot be so classified shall not be permitted in any district. Code of Ordinances, § 98-952(b).
- A centralized produced water collection and storage facility is neither a permitted use nor a specific use under any zoning classification in the Town.

Land Use / Zoning Issues

- A central collection facility for produced water could require up to three of the following approvals:
 - an amendment to the Zoning Ordinance to permit the produced water central collection facility as a permitted use or specific use in a zoning district;
 - an amendment to the zoning on the tract;
 - a Master Plan amendment.
- Additionally, potential platting requirements would be reviewed before any permits could be issued.

Review Process and Direction

- Continue to administer the current gas well drilling/pipeline regulations and zoning regulations; centralized collection and storage facilities would be prohibited.
- Initiate an ordinance review process and subsequent public meetings.
- Proceed with concurrent amendments to the drilling and pipeline regulations and the zoning regulations to address produced water system/facilities.

Other Items for Consideration

- Annual ordinance review consisting of a general review of ordinance administration, review of technological advances, and staff concerns.
- Air quality.
- Setback distance review.
- Review allowable operating times for wastewater trucks; traffic impact analysis.

Discussion / Questions