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September 12, 2013

Rules Coordinator
Office of General Counsel
Railroad Commission of Texas
PO Box 12967
Austin, Texas 78711-2967

Submitted electronically to: veronica.larson@rrc.state.tx.us

RE: Request to Initiated Rulemaking to Amend Rule 9 (Disposal Wells), Rule 46 (Fluid Injection in Productive Formations), Rule 36 Cooperation in Hydrogen Sulfide Areas), and Rule 80 (Forms)

Dear Ms. Larson:

McGowan Working Partners, Inc. has been operating oil and gas wells in the mature hydrocarbon fields in the Gulf Coast Geological Region in Texas since the 1980's. We currently have over 180 active producing and injection wells in this area making close to 50 million barrels of produced fluid per year and about 500,000 barrels of crude per year.

McGowan appreciates the opportunity to comment on the proposed rulemaking amendments and we offer the attached comments for your consideration. We have attached a response to specific amendments being proposed plus we are submitting some information as to why some of the proposed amendments may be overreaching.

If any member of the staff who are proposing these amendments wish to meet with McGowan to discuss further and request additional information, please feel free to have them contact the undersigned.

Very truly yours,

McGowan Working Partners, Inc.

By: _____
David B. Russell
Its: President

DBR/fmg
Enclosures
RRC.rules coordinator0912

McGowan Working Partners, Inc.
Comments on draft amendments § 3.9; § 3.36; § 3.46

I. Rule 3.9 (a)(2)(A): Page 1, Lines 22-24

The proposed rule is designating as an "affected person" all lessees of record for tracts that have no designated operator and all owners of record of unleased mineral interests within one half mile of the proposed disposal well.

Concerns: By requiring to determine lessees of tracts with no operator, and unleased mineral interests you could possibly add $100,000.00 to the cost of the proposed disposal/injection well plus many months delay in determining mineral ownership. You would have to hire a landman/abstractor and depending on the complexity of the title the well would never get permitted. If you missed a mineral interest owner doing the title, could they protest at a later time and have a permit rescinded?

This part of the "affected person" definition should be deleted.

II. Rule 3.9 (d)(3)(C)(ii): Page 5, Lines 1-7

This requires a log to be run from top of the ground to total depth which includes the surface casing hole.

Concerns: First of all this may not be possible when large diameter surface casing holes are drilled. The logging tolls available may not adequately log a larger diameter hole.

Secondly, the risks involved in losing your hole could be significant depending on the geology of the area. In some formations if the surface casing is not set within a certain time frame your hole begins to collapse and you are unable to set your surface casing properly. Then there are the increased costs associated with logging and rig time. In recent years I have seen day rates on land based drilling rigs as high as $40,000.00 per day. To run a surface casing log (if possible) with having to keep your hole conditioned you may run into several days rig time.

This requirement needs to be deleted.

III. Rule 3.9 (d)(3)(E): Page 5, Lines 23-25

This concerns the determination of unleased mineral interests and lessees of record with no operator.

Concern: See comments for I.
Once again this proposed amendment should be stricken.

IV. Rule 3.9 (e)(1): Page 7, Lines 12-13

This requires the applicant to give notice by regular mail AND USPS certified mail, return receipt requested or private commercial carrier with documented delivery confirmation.

Concern: We all know people who will not sign for a certified letter. In addition there are people who possibly cannot be located even though there is valid address to have a private carrier deliver the notice. This requirement is too onerous and should be deleted. A revision to this could contain language to include: "operator must demonstrate a good faith effort to locate persons as required by regular mail and either USPS certified, return receipt requested or ....."

V. Rule 3.9 (g)(1): Page 14, Lines 27-29

This proposes that the director shall not approve a permit application that has an orphan well in the Area of Review (AOR) that penetrates the top of the injection interval.

Concern: This proposed amendment should be deleted as it puts an undue burden on the operator. It is not the current operator's responsibility to deal with orphan wells. They are the responsibility of the Oil and Gas Division. That is why operators pay into a plugging fund. Plus, if the orphaned well is not on the same lease as the proposed disposal well getting a right of ingress and egress to work on the well could be problematic. Even if the orphaned well was transferred to the applicant if the orphaned well is not on the same lease as the proposed disposal well there would be no right to work on the orphan well.

VI. Rule 3.9 (g)(1): Page 14, Lines 30-32

This proposed amendment states that all wells must be "cemented" across the injection interval in such a manner to prevent movement of fluids from the disposal interval into usable quality water.

Concern: A well does not have to have "cement" across the injection interval to prevent movement of disposal fluids into usable quality water. The sloughing nature of the shales/sands plus drilling mud left in the annulus in the well bores completed in the Gulf Coast Geological Region of Texas provide a barrier to upward migration. Please see comments listed as "Attachment A" for further explanation. Nowhere in the Gulf Coast Geological Region of Texas have we seen fluid from a disposal/injection well "migrate" up a well bore annulus into a usable quality water or a USDW. We have been operating since 1961.

In line 30 the term "cemented" should be changed to "completed".

VII. Rule 3.9 (g)(2)(A): Page 15, Lines 7-8

This proposed amendment lines out the factors for which you can obtain a variance to wells in the AOR that do not meet the cement requirements as proposed in 3.9 (g)(1).

Concerns: One way a variance is obtained is by using the EPA approved "pressure forward" or "migration potential" formula which takes into account several different factors including, but not limited to 1) amount of fluid to be injected; 2) hydrostatic head of the disposal zone and the Underground Source of Drinking Water (USDW)/base of usable quality water; 3) porosity of disposal zones; 4) etc. This formula tells you whether there is potential for migration into the USDW from the proposed disposal zone. Our experience with the Railroad Commission's saltwater disposal/permit department is they do not use the hydrostatic head of the USDW base of usable quality water in determining whether a variance should be given, They use 0 psi as the hydrostatic head of the USDW base of usable quality water which translates into no variance can be given.

McGowan suggests that language be added to 3.9 (g)(2)(A) to include ..... "said pressure increases to be calculated using the hydrostatic head of the USDW and/or usable quality water whichever is applicable.

Included is "Attachment B" which outlines the use of the "pressure forward" / "migration potential" formula as approved by EPA.

VIII. Rule 3.9 (g)(4)(B): Page 16, Line 5

Certified mail return receipt requested or private commercial carrier with documented delivery is required for notice.

Concern: See Comment IV. of Rule 3.9

IX. Rule 3.9 (h)(2): Page 18, Line 20-22

This proposed amendment requires that a disposal well permit not be approved for ANY well that does not have casing set and cemented from surface to the base of usable quality water.

Concern: This amendment makes no distinction between newly drilled wells and existing or newly converted Class II wells located in existing fields. A large majority of the existing wells drilled in the Gulf Coast Geological Region over the past decades would not meet this requirement. You are talking about 10's of thousands of wells. They may have been completed in compliance with the rules at the time they were drilled, but the depth of the base of the usable quality water has been lowered through the years.

In EPA Rule §146.22 Construction Requirement (see attachment 3) it states that all newly drilled Class II wells shall be cased and cemented to prevent movement of fluids into the USDW. It goes on to say that this requirement does apply to existing or newly converted Class II wells located in existing fields if certain conditions are met. The key thing to focus on is that EPA does not treat newly drilled and converted existing wells the same when considering a Class II permit application.

McGowan suggests that Rule 3.9 (h)(2) be changed as follows:

(2)(A) The director shall not approve an application for a disposal well permit under this section for any newly drilled well in which surface casing……

(B) The requirements in paragraph (2)(A) of this section need not apply to existing or newly converted Class II non-commercial wells located in existing fields if:

1) Regulatory controls for casing and cementing existed for those wells at the time of drilling and those wells are in compliance with those controls; and

2) Well injection will not result in the movement of fluids into an underground source of drinking water so as to create a significant risk to the health of persons.

(C) The director may grant a variance from the casing requirements of paragraph (2)(A) of this subsection upon proof that the variance will not result in a material increase in the risk of fluid movement for an area defined both vertical and laterally (such as a field) or for an individual well. An application for an areal variance need not be filed in conjunction with an individual permit application or application for permit amendment. Factors that may be considered by the director in granting a variance include:

(A) The area affected by pressure increases resulting from injection operations. Said pressure increases to be calculated

using the hydrostatic head of the USDW and/or usable quality water whichever is applicable.

(B) The presence of local geological conditions that preclude movement of fluid that could endanger underground sources of drinking water base of the unable quality water or the surface; or

(C) Other compelling evidence that the variance will not result in a material increase in the risk of fluid movement into the USDW usable-quality water or to the surface.

X. Rule 3.9 (j)(D); Page 20, Lines 1-2

See Comment II. of Rule 3.9 on logs run from surface to total depth.

General Rule Change:

Anywhere in 3.9 where 30 days is given as a requirement for notice by the operator, change it to 60 days, especially as it concerns getting notice affidavits from local newspapers.

Comments by McGowan Working Partners, Inc.
To Rule 3.46 Proposed Amendments

I. Rule 3.46 (a)(2)(A): Page 37, Lines 22-24

Affected persons
See Comment I. from Rule 3.9

II: Rule 3.46 (d)(3)(B)(11): Page 40, Lines 3-6

Log from surface to total depth
See Comment II. from Rule 3.9

III. Rule 3.46 (d)(3)(c)(v): Page 40, Line 28

Logs required from surface to total depth
See Comment II. from Rule 3.9

IV. Rule 3.46 (d)(3)(D); Page 41, Line 2

See Comment I. of 3.9 regarding the burden of listing lessees of record that have no designated operator and all owners of record of unleased mineral interests.

V. Rule 3.46 (e)(1): Page 43, Line 9

Certified mail, return receipt requested or a private commercial carrier with documented delivery confirmation.
See Comments IV. of 3.9

VI. Rule 3.46 (g)(1)

See Comments V. of 3.9 regarding the requirement of denying permit application due to an orphan well in the one-quarter (1/4) mile Area of Review (AOR).

VII. Rule 3.46 (g)(2): Page 50, Line 21

This proposed rule gives guidance on how to obtain a variance to a well in the AOR that does not meet the requirements of 3.46 (g)(1).

See Comment VII. of 3.9 for reasons the language in this proposed amendment should be changed.

VIII. Rule 3.46 (g)(2)(c)(i)(1): Page 51, Line 29

Requirement of certified mail, return receipt requested or a private commercial carrier with documented delivery confirmation.....
See Comment IV. of Rule 3.9

IX: Rule 3.46 (h)(2): Page 54, Line 11-12

See Comment IX. of Rule 3.9
Regarding making a distinction between newly drilled injection wells and newly converted injection wells in existing fields.

ATTACHMENT "A"

McGowan Working Partners, Inc. - David B. Russell
Comments to Proposed Rulemaking to Amend Rule 9 and Rule 46
June 29, 2012

The proposed amendment to Rule 9 and Rule 46 listed as "Enhance review of wells in the Area of Review" is addressing an issue that in our operating oil and gas production since 1961 we have never seen it to be a problem. We own and operate wells in the Gulf Coast Geological Region of Texas, Louisiana, Arkansas and Mississippi. We buy mature oil fields some of which have been producing in excess of 50 years when we take over. So we are in a fairly unique position to determine if there has been any fresh water contamination through uncemented portions of a wellbore which according to the proposed rulemaking ".....can act as a conduit for the escape of injected fluids from the permitted injection zone."

Our perspective comes from producing wells in the Gulf Coast Geological Region so our comments and observations are based on that. While it may be considered efficient to have a one size fits all rule change applied to the whole State of Texas, EPA statutes requires that the geology of a particular area be considered when making rules for disposal of produced fluids.

The traditional way of completing wells in Texas has been to run surface casing through the fresh water sands and cement to surface. Then run your long string to the anticipated productive zone and spot some cement at that point. It would have been unusual for the long string to be cemented back to the surface in the mature fields in Texas. So the typical well completed in Texas for the first 100 years of the industry would have a portion of the long string annulus uncemented. In the early days we are sure that the regulators were diligent in their protecting the freshwater resources in Texas. However, as the years moved on regulators began moving the base of the Underground Source of Drinking Water (USDW) deeper and deeper and deeper until now we are required to protect zones that contain 10,000 ppm of chlorides. While we can certainly protect the USDW at 10,000 ppm chlorides now, what about all those 10's of thousands of wells in the Texas Gulf Coast Region that when drilled were not required to be cased through 10,000 ppm chloride water.

These are the wells we believe that the proposed rule amendment is supposed to address. If you want to complete a disposal/injection well and one of these non-cemented well bores show up in your one-quarter mile (1/4) Area of Review (AOR) you need to "fix" the well. This is because we understand that the regulatory body thinks the additional pressure caused

by the disposal of produced fluid may cause a problem by pushing produced water into the 10,000 ppm USDW in the adjacent non-cemented well bores.

The question that should be asked at this point is – "Has this ever happened?" Has produced fluid disposed of into a well bore into a permitted disposal zone ever migrated up an adjacent well bore uncemented annulus and contaminated a USDW in the Gulf Coast Geological Region of Texas? Our answer is no. We have never seen it. If I were a regulator I would ask how can I know this or be sure it won't/can't happen.

The short answer is that there are a large number of shales and sands that collapse around the well bores after the well is drilled, and the mud used to keep the hole open dehydrates and gives way. Once the mud dehydrates it cannot hold back those unconsolidated sands from collapsing. Ask any driller why he has to keep his mud "weighted" up. If the formation will collapse during drilling if the mud is not kept hydrated, it will certainly do the same thing after the well is drilled. This is just one example of how we know the formation collapses against the well bore in the annulus.

How can you know that this has not happened in the Gulf Coast Geological Region in Texas? The first saltwater bearing sand beneath the USDW in this region is the Catahoula. Since it is too close to the USDW it is generally not used as a disposal/injection zone. However, the Catahoula has enough bottom hole pressure that it will stand a column of fluid to the top of the ground. That means it will have a positive pressure at the USDW which may be 300' below surface to 1500' below surface. The majority of the wells drilled in this region over last 100 years will not have surface casing through the USDW and/or cement between the Catahoula and the USDW. Therefore, the condition for polluting the USDW exists from the Catahoula without the injection of a single barrel of produced water. So if this contamination is possible you would think you could find at least one instance of the Catahoula contaminating the USDW in those 10's of thousands of well bores drilled over the last 100 yours. You have a way to tell if this contamination has ever happened I just described. You can look at the logs of the subsequent wells drilled next to wells that do not have a cemented annulus across the USDW and you can see that there has been no saltwater contamination. If you do see higher saliently salt water in a lower sallently/fresh water zone it is about as subtle as hitting your thumb with a hammer.

We have seen produced water in fresh water/lower saliently sands on logs. It got there by direct pumping into that lower saliently sand/fresh water; it did not migrate up from a sand below. We have examples of these logs. .

Why doesn't this happen if there is sufficient pressure to stand saltwater above a USDW? One reason is what I described above. There is not an "open" annulus. The sands and shales have collapsed around the well bore casing forming a seal only frac pressure could break. What if this fluid stands in a well bore across the USDW; and there was a hold in the casing. Could not the pressure exhibited by the fluid across the USDW go through the hole in the casing into the USDW. For the majority of the instances where this situation exists the answer is no, because the freshwater/USDW has a head of its own and is trying to flow into the well bore if there is a hole there. In most instances we find the pressure from the freshwater/USDW is greater trying to flow into the well bore than the pressure exhibited by the disposal/injection sand trying to flow out of the well bore at the freshwater/USDW.

In conclusion, we are of the opinion that the proposed rule to include all wells in the AOR that do not have cement between the USDW and the disposal/injection be remediated is unnecessary in the Gulf Coast Region of Texas and possibly other geological regions of Texas. The Railroad Commission should not authorize a rule that would greatly inhibit the recovery of economic hydrocarbons thereby causing waste to the State of Texas and mineral owners for a phenomenon that in our experience has never occurred.

Also attached to these comments is a memo written by one of our engineers on why this rule is unnecessary.

David B. Russell

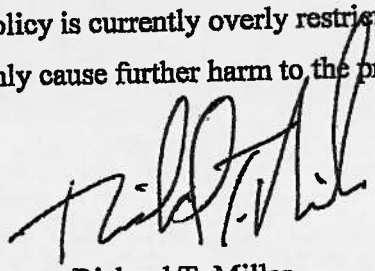
McGowan Working Partners - Richard (Cardy) Miller
Comments to proposed rule making to amend Rules 9 and 46
29 June 2012

The proposed changes to Rule 9 that extend the area of review requirement to unplugged well bores will cause unnecessary harm to producers in TX. Currently the RRC has a policy in direct opposition to EPA guidance. The policy followed by the RRC is to disregard the head of the freshwater when defining endangerment to the USDW. The RRC defines the AOR at a fixed ¼ mile radius then allows the use the EPA formula, for calculating the radius of endangering influence, to test individual non cemented wells within the AOR but requires the use of zero freshwater head. The use of the EPA formula with zero freshwater head makes the radius of influence infinite for any zone with a static saltwater head currently above the base of the USDW even before injection begins. With zero freshwater head allowed the calculation shows that any injection anywhere in the gulf region would impact every improperly plugged or cemented well in the gulf coast region. All wells in the Gulf Coast region have this condition for any zone not drawn down by production. The use of such a stringent requirement is damaging to the oil and gas industry and the extension of this policy to active wells without the typical required cement negates the use of many existing well bores for saltwater disposal unnecessarily and on some leases will rule out the possibility of drilling a salt water disposal well. Clearly the EPA and many states with primacy don't follow such an exceedingly strict method when defining danger to freshwater. States such as LA currently allow not only freshwater head but also the mud weight left in the borehole casing annulus after drilling to be used in the zone of endangering influence calculation.

In older fields entering active wells to perform remedial squeezes made necessary by this extension will cause casing damage which will lead to increased maintenance cost due to casing leaks and increase risk to the very freshwater to be protected by this action. This provision will cause additional hardship when an offset operator's active wells fall in the area of review and require remedial action. To ask an offset operator to remove his wells from production and cause damage his casing to allow you to remedial cement his casing in order to obtain a SWD permit for your lease is asking too much. The real

problem is the use of zero freshwater head is not reasonable or necessary when applying the radius of endangering influence equation. Freshwater head will never be drawn down that low and certainly not within the time frame of the permits. The lowest freshwater head on the gulf coast is in the city of Houston, Harris County TX where the freshwater head had been drawn down 300' by removing billions of gallons of water over a 100 years the levels are on the rise with a recent reduction in pumping, elsewhere on the gulf coast drawdown is closer to 100' with 100 years of pumping. Further under this policy every normal pressure formation in the gulf coast currently has the potential for endangering freshwater, and no injection well could ever be permitted because of the potential to endanger freshwater, it is only possible because of the arbitrary ¼ mile review distance. There are currently tens of thousands of wells in the gulf coast region that don't meet Texas RRC policy on cementing required in the AOR and further restricting the permitting of new SWD wells does nothing to change that. The reality is that there is no damage to freshwater from these uncemented wells. Current EPA AOR guidance states "that is conceivable that existing casing and cementing practices which are not "typical" may be considered adequate under s146.22(e) if it can be demonstrated that they have not resulted in contamination of USDWs and will not do so in the future". The fact is, with all the endangerment shown by the Texas calculation and the tens of thousands of wells uncemented through the base of the USDW, there is no pollution of the freshwater on the gulf coast attributable to flow up uncemented wellbores. The EPA also recognizes in its guidance that "local geologic conditions and hydrological conditions such as competent bedrock or plastic shales may make it possible to construct wells without long string casing or cement recirculated to the ground surface, as long as the injection zone is adequately isolated and there is no significant movement of fluids between aquifers through the wellbore. Such a demonstration should involve a monitoring program which will satisfy the director that the project has not contaminated USDWs, provided that the project has been in operation for a time sufficient to assure that migration of fluids into USDWs would have occurred if such an event were possible." Clearly the pressures in the saltwater sands immediately below the freshwater sands are sufficient to cause migration from uncemented wellbores across the gulf coast region and have for over 70 years. Yet the directors can know uncemented wellbores are

not polluting along the gulf coast because of the continuous drilling of wells in oil fields throughout the gulf coast. Highly saline water leaked from deeper zones would be easily identifiable on the resistivity log of newly drilled wells and examples are rare and are attributed to direct placement and not from leakage of uncemented wellbores. The Texas policy is currently overly restrictive and causing waste, its expansion to active wells will only cause further harm to the producers and the economy of the state.



Richard T. Miller

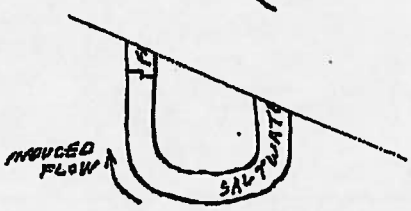
LOUISIANA OFFICE OF CONSERVATION ATTACHMENT "B"

Injection and Mining Division

DETERMINING "ZONE OF ENDANGERING INFLUENCE" IN A DISPOSAL WELL

In order to determine the Zone of Endangering Influence, it must first be determined whether a potential exists for fluid migration into a USDW. If the potential exists, then it must be determined how far from the disposal well it exists. And finally, the cement both inside and outside well casings or in abandoned boreholes that are located within this "potential" area that penetrate or come close to the disposal zone need to be verified. The first two statements assume that the pathway for fluid migration does exist, and the third is to attempt to confirm that it doesn't. All the following narrative deals with only the first two statements.

In cases where the static fluid level in a disposal well is nearly the same as the static fluid level in a nearby water well, the potential for migration into a USDW exist[illegible] the saltwater in the disposal formation is denser than freshwater. It can be [illegible]-tube:



With both fluid levels being approximately the same, and since the saltwater is heavier, a flow will be induced into the freshwater if a pathway exists.

If the saltwater level is higher or about the same as the freshwater level, it is obvious that potential for flow into a USDW exists regardless of the distance from the disposal well to another well. This is true even if no fluid (or no additional fluid) is injected into the disposal well! Therefore, if this is the case, all wells within the area of review should be checked for adequate cement outside the casing (and inside the casing or hole for P&A'd wells).

Should the freshwater level be significantly higher (or the saltwater level significantly lower), there will be enough freshwater head to prevent a flow, even if a pathway exists. Freshwater might even flow down into a saltwater formation, decreasing the water levels in the freshwater sands.

If the freshwater level is higher than the saltwater level, then it needs to be determined whether the freshwater column is high enough (or the saltwater column is low enough) to counteract a potential for flow into a USDW. To do this, we need to calculate the weight differences (actually pressure) in the two columns, one column with disposal formation fluid only and one column with some disposal formation fluid and some freshwater.

To calculate whether the potential exists, we need to know:

1) the static fluid level in the disposal well filled with formation fluid;
2) the density of the formation fluid;
3) the water level in a water well screened in the deepest USDW (although a shallower well will probably have to do);
4) the depth to the base of the deepest USDW.

The potential for migration--that is, pressure difference, P-- is calculated by:

$$P = 0.433 ((U - W) - S(U - F))$$

U = depth to base of deepest USDW, ft

W = water level in deep water well, ft - See USGS Book by Parish

S = density of fluid in injection zone, gm/cc

F = fluid level in injection well, ft

Note that U, W, and F must all be measured from the same datum. (If bottom hole pressure, BHP, in the injection well is known, can use:

$$P = 0.433 ((U - W) + S(I - U)) - BHP$$

I = depth at which BHP was measured, ft)

If P is negative, migration will occur if the pathway exists, regardless of the

distance, and all wells within the area of review should be checked for adequate cement outside the casing (and inside the casing or hole for P&A'd wells). If P is positive, additional pressure can be added to the aquifer by the amount calculated above before migration could occur. The pressure in a disposal formation during or after injection is greatest at the well and declines exponentially with distance from the well. The pressure calculated above lies somewhere along that exponential curve. All points within the circle defined by this pressure at radius, r, on the exponential curve will have a pressure potential for fluid migration, and those outside the circle won't. To find this radius, the formula given in the Federal Register (Vol. 45, No. 123, P. 43504, June 24, 1980) or in Julius Langlinais' report (September 30, 1981, P. 48) can be used. The problem with figuring the radius this way is that since the pressure curve declines exponentially with distance, a small pressure change represents a very large distance variation. That is, a small change in any value in the exponent of either equation (that is, P, k, h, q, or u) results in a very large radius difference. Since it would be extremely difficult to obtain virtually exact values for k, h, and q, I don't see the practicality of trying to use either of these formulas (in one example I tried using a permeability of 500 md and calculated a 533-ft radius; using 550 md--a 10% increase--with no other changes gave a 322-ft radius--a 40% drop). Rather, I think it more practical to calculate the pressure change with distance and pick a distance that is "reasonably" close to the calculated P. Savvy? I didn't think so. So, I'll continue.... If the same formula is rearranged to solve for P given different choices for radius, the formula becomes:

$$P = 162.6 \frac{q\,u}{k\,h} \log \frac{k\,t}{70.4\,\phi\,u\,c\,r^2}$$

q = injection rate, bbls/day

u = viscosity of formation fluid, cp

k = permeability of disposal formation, md

h = thickness of immediate disposal formation, ft

t = time of injection, days

ϕ = porosity, decimal

c = formation compressibility (1×10^{-5})

r = distance from injection well, ft

This formula is valid only where $\frac{3950\ \phi\ u\ c\ r^2}{k\ t} < 1$. The quantity will usually be <1 for most values encountered. If it is not <1, increase the time, t, or shorten the radius, r, until the expression is valid. Since some of the difficult-to-arrive-at-accurately factors are now in a log term, a change in any of 'em isn't so critical. I'd suggest calculating P's at several r's, write 'em down; then pick a radius that gives a P within about 10 psi higher than originally calculated. 10 psi would be an extra 23 ft of freshwater head, and I'd guess it'd take at least that much more to induce a flow, given some of the inhomogeneities it's gotta go through. Still confused, aren't you? Thass what I figgered. Well, less try an example.

EXAMPLE:

Calculate P, given:

1) a disposal well with a fluid level 478 ft below RKB, which is 12 ft above land surface (datum); i.e., fluid level is 466 ft below land surface;
2) saltwater in the disposal formation is 1.07 gm/cc;
3) USDW is 2440 ft below land surface;
4) water level in a 1900-ft deep water well is 262 ft below land surface.

A. It can be seen right off the bat that the freshwater level is above the saltwater level and we need to see if it's sufficient--that is, whether P is positive:

$$P = 0.433\ ((2440 - 262) - 1.07(2440 - 466))$$

$$= 29 \text{ psi}$$

B. Since P is positive, there is "room" in the formation to pressure it up some more. We now want to find out how far out this 29 psi will travel during the

expected lifetime of the disposal well. It is within this distance that we want to check the cement on all wells penetrating (or within 100 ft above) the disposal zone, unless this distance is farther (or izat further?) than the radius of the area of review. So,

C. Calculate P at various distances, r, given:

1) a 10-year life expectancy or 3653 days;
2) immediate disposal sand thickness of 40 ft;
3) an expected injection rate of 1100 bbls/day;
4) a disposal depth of 4250 ft (used to approximate a viscosity of 0.76 cp for 103°F 8.9 ppg fluid);
5) with assumptions of 500 md permeability, 25% porosity, and formation compressibility of 10^{-5}.

For r = 500 ft,

$$P = 162.6 \frac{(1100)(0.76)}{(500)(40)} \log \frac{(500)(3653)}{(70.4)(0.25)(0.76)(10^{-5})(500^2)}$$

$$= 32 \text{ psi}$$

For r = 1 ft, P = 69 psi;
5 ft, 59 psi;
20 ft, 51 psi;
50 ft, 46 psi;
100 ft, 42 psi;
200 ft, 38 psi;
300 ft, 35 psi;
700 ft, 30 psi;
1000 ft, 28 psi;
1320 ft, 26 psi at ¼-mi radius.

D. In practice, you don't need to calculate that many radii, but this was to illustrate the exponential decline with distance. You can see that the 29 psi

limit lies between 700 and 1000 ft away. However, at 300 ft the pressure is only 6 psi higher and judgement needs to be used to determine how much more pressure would be a reasonable allowance. 6 psi equals 14 ft of additional freshwater head. And 10 psi higher occurs at 170 ft. I'd be inclined to say that this is too close in this case, but I'd say that somewhere in the neighborhood of 300-500 ft would be an adequate area of review for checking cement records. And I'd let the number of wells within that area determine which radius to choose; that is, if there are, say, 7 wells within 300 ft and 16 within 500 ft, I'd choose the 300 ft; or if one well is 200 ft away and another is 700 ft away, I'd checkum both.. Also notice that if k were to vary by 10%, the calculated P would be about 10% different, since the k in the log term would have very little effect. And changes in q or h would give a linear change in the calculated P. Conversely, variations to t, ϕ, c, and r have little effect, since they are exclusively part of the log term.

Other factors can be considered such as, the seasonal fluctuations in the water levels in wells in freshwater sands, the continuity of the disposal sand thickness and extent, the viscosity of the mixed formation and disposal fluids, but this is already complicated enough. Also, in order to calculate a conservative (that is, larger) pressure at a given distance, the values in the denominators of the equation should be minimized and those in the numerators should be maximized. That is, if you want to be sure to get a large enough area of review and are uncertain what some of the values should be, use smaller values for k, h, ϕ, and c and larger values for q, u, and t.

WHWalter
14 May 84

Mig-Pot Calculations for Walter Kitchens SWD #1

$P_1 = (433)(U-W) - S(U-F)$

where

U = USDW at DeQuincy 2810'; Jasper Acquifer

W = Water level in Jasper Acquifer which is +100' (verified with Bill Walter)

S = Specific gravity of injection zone fluid = .457/433 or 1.06

F = Fluid level of injection zone: -110'

$P = 1\ (2810 + 100) - 1.06(2810 - 110')$

$P. = 48\#$

Potential for Migration at wells in AOR

$$P = (162.6)\frac{qu}{Kh}\log\frac{kt}{(70.4)(\phi)UCR^2}$$

Where h = 90'

q = 2000 barrels/day

u = .76

$c = 10^{-5}$

k = 2500 md

t = 3653 days

ϕ = 33%

r = 685' (closest well in AOR)

$$\frac{(3950)(\phi)(UCR^2)}{Kt} < 1$$

$$= \frac{(3950)(.33)(.76)(10^{-5})(675)^2}{(2500)(3653)}$$

= .0005 which is<1

$$P = (162.6)\frac{(2000)(.76)}{(2500)(90)}\log\frac{(2500)(3653)}{(70.4)(.33)(.76)(10^{-5})(675)^2}$$

$= (1.10)(5.06)$

$= 5.6\#$

FLUID LEVEL OF THE JASPER AQUIFER
FOR
MIGRATION POTENTIAL CALCULATIONS IN KINDER FIELD, LA

Reference: "Hydrology of the Jasper Aquifer in the Southeast Texas Coastal Plain"
Report 295
October, 1986
by the Texas Water Development Board

The nearest wells in the Jasper Aquifer to Kinder Field that serve as data in the report are in the DeRidder, LA to Kirbyville, TX area. These wells show a fluid level in the Jasper Aquifer of +153' (above sea level) at DeRidder to +148' (above sea level) at Kirbyville. The authors extrapolate a fluid level of about +140' above sea level in North Allen Parish and North Beauregard Parish, Louisiana area.

From this data and the fact that the Jasper Aquifer becomes too saline in the Parishes of Beauregard and Allen to be subject to withdrawals, the fluid level of the Jasper Aquifer in the Kinder Field should be approximately +140' (above sea level).

The ground level elevation in Kinder Field at the proposed AOR is 48' (USGS Topo Map).

The fluid level in the Jasper Aquifer at the AOR well should be approximately 140' above sea level or 92' above ground level.

J:\JOE\FLJASPER.WR1

drilled, location, depth, record of plugging and/or completion, and any additional information the Director may require;

(4) Maps and cross sections indicating the general vertical and lateral limits of all underground sources of drinking water within the area of review, their position relative to the injection formation and the direction of water movement, where known, in each underground source of drinking water which may be affected by the proposed injection;

(5) Maps and cross sections detailing the geologic structure of the local area;

(6) Generalized maps and cross sections illustrating the regional geologic setting;

(7) Proposed operating data:

(i) Average and maximum daily rate and volume of the fluid to be injected;

(ii) Average and maximum injection pressure; and

(iii) Source and an analysis of the chemical, physical, radiological and biological characteristics of injection fluids;

(8) Proposed formation testing program to obtain an analysis of the chemical, physical and radiological characteristics of and other information on the receiving formation;

(9) Proposed stimulation program;

(10) Proposed injection procedure;

(11) Schematic or other appropriate drawings of the surface and subsurface construction details of the well.

(12) Contingency plans to cope with all shut-ins or well failures so as to prevent migration of fluids into any underground source of drinking water;

(13) Plans (including maps) for meeting the monitoring requirements in §146.13(b);

(14) For wells within the area of review which penetrate the injection zone but are not properly completed or plugged, the corrective action proposed to be taken under 40 CFR 144.55;

(15) Construction procedures including a cementing and casing program, logging procedures, deviation checks, and a drilling, testing, and coring program; and

(16) A certificate that the applicant has assured, through a performance bond or other appropriate means, the resources necessary to close, plug or abandon the well as required by 40 CFR 122.42(g).

(b) Prior to granting approval for the operation of a Class I well the Director shall consider the following information:

(1) All available logging and testing program data on the well;

(2) A demonstration of mechanical integrity pursuant to §146.8;

(3) The anticipated maximum pressure and flow rate at which the permittee will operate;

(4) The results of the formation testing program;

(5) The actual injection procedure;

(6) The compatibility of injected waste with fluids in the injection zone and minerals in both the injection zone and the confining zone; and

(7) The status of corrective action on defective wells in the area of review.

(c) Prior to granting approval for the plugging and abandonment of a Class I well the Director shall consider the following information:

(1) The type and number of plugs to be used;

(2) The placement of each plug including the elevation of the top and bottom;

(3) The type and grade and quantity of cement to be used;

(4) The method for placement of the plugs; and

(5) The procedure to be used to meet the requirement of §146.10(c).

(Clean Water Act, Safe Drinking Water Act, Clean Air Act, Resource Conservation and Recovery Act: 42 U.S.C. 6905, 6912, 6925, 6927, 6974)

[45 FR 42500, June 24, 1980, as amended at 46 FR 43162, Aug. 27, 1981; 48 FR 14293, Apr. 1, 1983]

Subpart C—Criteria and Standards Applicable to Class II Wells

§146.21 Applicability.

This subpart establishes criteria and standards for underground injection control programs to regulate Class II wells.

§146.22 Construction requirements.

(a) All new Class II wells shall be sited in such a fashion that they inject into a formation which is separated from any USDW by a confining zone

that is free of known open faults or fractures within the area of review.

(b)(1) All Class II injection wells shall be cased and cemented to prevent movement of fluids into or between underground sources of drinking water. The casing and cement used in the construction of each newly drilled well shall be designed for the life expectancy of the well. In determining and specifying casing and cementing requirements, the following factors shall be considered:

(i) Depth to the injection zone;

(ii) Depth to the bottom of all USDWs; and

(iii) Estimated maximum and average injection pressures;

(2) In addition the Director may consider information on:

(i) Nature of formation fluids;

(ii) Lithology of injection and confining zones;

(iii) External pressure, internal pressure, and axial loading;

(iv) Hole size;

(v) Size and grade of all casing strings; and

(vi) Class of cement.

(c) The requirements in paragraph (b) of this section need not apply to existing or newly converted Class II wells located in existing fields if:

(1) Regulatory controls for casing and cementing existed for those wells at the time of drilling and those wells are in compliance with those controls; and

(2) Well injection will not result in the movement of fluids into an underground source of drinking water so as to create a significant risk to the health of persons.

(d) The requirements in paragraph (b) of this section need not apply to newly drilled wells in existing fields if;

(1) They meet the requirements of the State for casing and cementing applicable to that field at the time of submission of the State program to the Administrator; and

(2) Well injection will not result in the movement of fluids into an underground source of drinking water so as to create a significant risk to the health of persons.

(e) Where a State did not have regulatory controls for casing and cementing prior to the time of the submission of the State program to the Administrator, the Director need not apply the casing and cementing requirements in paragraph (b) of this section if he submits as a part of his application for primacy, an appropriate plan for casing and cementing of existing, newly converted, and newly drilled wells in existing fields, and the Administrator approves the plan.

(f) Appropriate logs and other tests shall be conducted during the drilling and construction of new Class II wells. A descriptive report interpreting the results of that portion of those logs and tests which specifically relate to (1) an USDW and the confining zone adjacent to it, and (2) the injection and adjacent formations shall be prepared by a knowledgeable log analyst and submitted to the director. At a minimum, these logs and tests shall include:

(1) Deviation checks on all holes constructed by first drilling a pilot hole and then enlarging the pilot hole, by reaming or another method. Such checks shall be at sufficiently frequent intervals to assure that vertical avenues for fluid movement in the form of diverging holes are not created during drilling.

(2) Such other logs and tests as may be needed after taking into account the availability of similar data in the area of the drilling site, the construction plan, and the need for additional information that may arise from time to time as the construction of the well progresses. In determining which logs and tests shall be required the following shall be considered by the Director in setting logging and testing requirements:

(i) For surface casing intended to protect underground sources of drinking water in areas where the lithology has not been determined:

(A) Electric and caliper logs before casing is installed; and

(B) A cement bond, temperature, or density log after the casing is set and cemented.

(ii) for intermediate and long strings of casing intended to facilitate injection:

(A) Electric porosity and gamma ray logs before the casing is installed;

(B) Fracture finder logs; and

(C) A cement bond, temperature, or density log after the casing is set and cemented.

(g) At a minimum, the following information concerning the injection formation shall be determined or calculated for new Class II wells or projects:

(1) Fluid pressure;

(2) Estimated fracture pressure;

(3) Physical and chemical characteristics of the injection zone.

[45 FR 42500, June 24, 1980, as amended at 46 FR 43162, Aug. 27, 1981; 47 FR 5000, Feb. 3, 1982]

§ 146.23 Operating, monitoring, and reporting requirements.

(a) *Operating requirements.* Operating requirements shall, at a minimum, specify that:

(1) Injection pressure at the wellhead shall not exceed a maximum which shall be calculated so as to assure that the pressure during injection does not initiate new fractures or propagate existing fractures in the confining zone adjacent to the USDWs. In no case shall injection pressure cause the movement of injection or formation fluids into an underground source of drinking water

(2) Injection between the outermost casing protecting underground sources of drinking water and the well bore shall be prohibited.

(b) *Monitoring requirements.* Monitoring requirements shall, at a minimum, include:

(1) Monitoring of the nature of injected fluids at time intervals sufficiently frequent to yield data representative of their characteristics;

(2) Observation of injection pressure, flow rate, and cumulative volume at least with the following frequencies:

(i) Weekly for produced fluid disposal operations;

(ii) Monthly for enhanced recovery operations;

(iii) Daily during the injection of liquid hydrocarbons and injection for withdrawal of stored hydrocarbons; and

(iv) Daily during the injection phase of cyclic steam operations

And recording of one observation of injection pressure, flow rate and cumulative volume at reasonable intervals no greater than 30 days.

(3) A demonstration of mechanical integrity pursuant to §146.8 at least once every five years during the life of the injection well;

(4) Maintenance of the results of all monitoring until the next permit review (see 40 CFR 144.52(a)(5)); and

(5) Hydrocarbon storage and enhanced recovery may be monitored on a field or project basis rather than on an individual well basis by manifold monitoring. Manifold monitoring may be used in cases of facilities consisting of more than one injection well, operating with a common manifold. Separate monitoring systems for each well are not required provided the owner/operator demonstrates that manifold monitoring is comparable to individual well monitoring.

(c) *Reporting requirements.* (1) Reporting requirements shall at a minimum include an annual report to the Director summarizing the results of monitoring required under paragraph (b) of this section. Such summary shall include monthly records of injected fluids, and any major changes in characteristics or sources of injected fluid. Previously submitted information may be included by reference.

(2) Owners or operators of hydrocarbon storage and enhanced recovery projects may report on a field or project basis rather than an individual well basis where manifold monitoring is used.

(Clean Water Act, Safe Drinking Water Act, Clean Air Act, Resource Conservation and Recovery Act; 42 U.S.C. 6905, 6912, 6925, 6927, 6974)

[45 FR 42500, June 24, 1980, as amended at 46 FR 43162, Aug. 27, 1981; 47 FR 5000, Feb. 3, 1982; 48 FR 14293, Apr. 1, 1983; 48 FR 31404, July 8, 1983]

§ 146.24 Information to be considered by the Director.

This section sets forth the information which must be considered by the Director in authorizing Class II wells. Certain maps, cross-sections, tabulations of wells within the area of review, and other data may be included in the application by reference provided they are current, readily available to the Director (for example, in the permitting agency's files) and sufficiently identified to be retrieved. In cases where

Proposed Amendments for SWRs 9, 36, and 46
Association of Energy Service Companies Comments

Proposed Rule	Comments
§3.9 (a) (2) Definitions (A) Affected person--A person who may suffer actual injury or economic damage other than as a member of the general public or as a competitor. The term includes surface owners of property on which a well is located, commission-designated operators of wells located within one-half mile of a proposed disposal well, and for all tracts within one-half mile of the proposed disposal well, all lessees of record for tracts that have no designated operator and all owners of record of unleased mineral interests. (B) Commercial disposal well--A well that is primarily operated to provide disposal services to operators other than the operator of the disposal well, whether or not the oil field fluids or oil and gas waste is trucked or piped to the facility. A commercial disposal well includes the associated storage and/or receiving facilities, even if such facilities are located on a different tract. (C) Director--The director of the Oil and Gas Division of the Railroad Commission of Texas or the director's delegate. (D) Groundwater Advisory Unit—The Groundwater Advisory Unit of the Oil and Gas Division of the Railroad Commission of Texas. (E) Hauling of oil field fluids or oil and gas wastes--Transportation of oil field fluids or oil and gas wastes by truck or other vehicle other than a pipeline or a flowline. (F) Orphaned well--A well issued a permit by the commission with no reported production or activity for the preceding 12 months and whose designated operator's organization report has become delinquent or inactive.	**3.9(a)(2).** The language "for all tracts within one-half mile of the proposed disposal well, all lessees of record for tracts that have no designated operator and all owners of record of unleased mineral interests" causes a number of concerns. Our first recommendation is the language be deleted. Essentially, this language requires a title opinion on all lands within the one half mile area which raises cost-benefit questions. The phrase clearly has cost-benefit concerns where the disposal well will be injecting into a non-productive zone.

(G) Owner of record--Person or persons shown as an owner of a tract by public records including but not limited to deed records, tax records, appraisal district records, and probate records. (H) Permitted injection interval—The depth interval stated on the permit within which fluids must remain confined. The entire formation or reservoir is not authorized for injection unless the stipulated depth intervals correspond to the entire formation or reservoir. (I) Potential flow zone-- A zone as defined in §3.13(a)(2)(N) of this title (relating to Casing, Cementing, Drilling, Well Control, and Completion Requirements). (J) Protection depth—Depth as defined in §3.13(a)(2)(C) of this title. (K) Underground source of drinking water—Water as defined in §3.30(e)(7)(B)(ii), relating to Memorandum of Understanding between the Railroad Commission of Texas (RRC) and the Texas Commission on Environmental Quality (TCEQ). (L) Usable-quality water--Water as defined in §3.30(e)(7)(B)(i), relating to Memorandum of Understanding between the Railroad Commission of Texas (RRC) and the Texas Commission on Environmental Quality (TCEQ).	
§3.9 (b) Permit Required (1) Permit required. Before any person engages in the disposal of saltwater or other oil and gas waste, as that term is defined in the Texas Water Code, Chapter 27, by injection into a porous formation that is not productive of oil, gas, or geothermal resources and that is not an underground source of drinking water , the person shall apply for, and obtain, a permit from the commission authorizing the disposal in accordance with Texas Water Code, Chapter 27, Texas Natural Resources Code, Title 3, and this section.	

(2) Permit expiration. (A) A disposal well permit with a stated term expires on the last day of that term if, in the case of a new well, the operator has not spudded the well, or, in the case of the conversion of an existing well, the operator has not commenced operations on the well specific to the conversion of the well to injection.	
(B) A disposal well permit that does not contain a stated term or expiration date and that was issued prior to {INSERT MONTH} 1, 2014, will expire on {INSERT MONTH} 1, 2016, if the operator has not spudded the well, or, in the case of the conversion of an existing well, the operator has not commenced operations on the well specific to the conversion of the well to injection prior to that date.	**3.9(b)(2)(B).** We believe this subsection retroactively amends the provisions of existing permitted wells. We believe the better approach is to be prospective only, as set out in 3.9(b)(2)(C) below. Therefore we request 3.9(b)(2)(B) be deleted.
(C) A disposal well permit issued on or after {INSERT MONTH} 1, 2014, that does not contain a stated term or expiration date will expire three years after the date the permit is if the operator has not spudded the well, or, in the case of the conversion of an existing well, the operator has not commenced operations on the well specific to the conversion of the well to injection prior to that date. (3) Permit for injection of fluids containing hydrogen sulfide. The commission shall not issue a permit for injection of fluids containing hydrogen sulfide unless the applicant also complies with the requirements of §3.36 of this title (relating to Oil, Gas, or Geothermal Resource Operation in Hydrogen Sulfide Areas).	**3.9(b)(2)(C).** For clarification purposes, we believe this subsection should be amended as follows: "(C) A disposal well permit issued on or after {INSERT MONTH} 1, 2014, that does not contain a stated term or expiration date will expire three years after the date the permit is <u>issued</u> if the operator has not spudded the well..."
§3.9 (c) Geological Requirements. (1) Before any intervals are approved for disposal use, the applicant shall show that the intervals are separated from usable quality water and underground sources of drinking water by impervious beds which will give adequate protection to such usable-quality water and underground sources of drinking water. The applicant shall show that such geologic separation consists of a minimum of 250 feet of impermeable strata between the base of usable-quality water and the top of the	

injection interval and that the 250 feet of impermeable strata includes at least one zone with a continuous thickness of at least 100 feet. In addition, the applicant shall show that there is a minimum of 100 feet of continuous impermeable strata between the base of the deepest underground source of drinking water and the top of the injection interval. (2) The applicant must submit a Groundwater Protection Determination from the Groundwater Advisory Unit of the Oil and Gas Division stating that the use of such formation will not endanger the usable-quality water in that area and that the formations to be used for disposal are not underground sources of drinking water. To obtain the Groundwater Protection Determination, the applicant shall submit to the Groundwater Advisory Unit all of the following information: (A) one copy of the completed Form W-14 (Application to Dispose of Oil & Gas Waste by Injection into a Porous Formation Not Productive of Oil or Gas); (B) one copy of a scaled map showing the proposed well location and surrounding survey lines; (C) a copy of the current Groundwater Protection Determination for the well, 8 or, if no Groundwater Protection Determination exists or the Groundwater Protection Determination is over five (5) years old, a completed Form GW-1 (Groundwater Protection Determination Request); (D) a copy of a representative electrical log that includes the log header and the interval from the land surface through the injection interval for an existing well or for a nearby well that is deep enough to show the proposed injection interval, if the disposal well application is for a new well. If such a log is not available, a copy of a representative electrical log that includes the log header and the interval from the land surface through the base of the deepest underground source of drinking water, and, if available, through the proposed injection interval; and	**3.9(c)(2)(D).** Please understand that the requirement of this being down from the surface will in most cases require a separate run for the conductor. Please note also that due to stability of the bore it may not be suitable to run a log from the surface through the conductor.

(E) upon request, additional electric logs run on wells in the area.	
§3.9 (d) Filing of application. (1) Application. An application to dispose of saltwater or other oil and gas waste by injection into a porous formation not productive of oil, gas, or geothermal resources shall be filed with the commission in Austin. On the same date, one copy of the application shall be filed with the appropriate district office. The application form shall be executed by a person having knowledge of the facts entered in the application. (2) Fees. The applicant shall pay the fees prescribed in §3.78 of this title (relating to Fees and Financial Security Requirements). (3) Required information for a new disposal well permit application. An application for a new disposal well permit under this section shall contain the following information: (A) A completed Form W-14 (Application to Dispose of Oil & Gas Waste by Injection into a Porous Formation Not Productive of Oil or Gas); (B) The drilling permit number. The operator must obtain a drilling permit for 31 the proposed well prior to submitting an application for a new disposal well permit. (C) All required logs: (i) If the application is for a new permit for an existing well, a complete electric log of the proposed disposal well or a complete log of a nearby well.	
(ii) If the application is for a new permit for a well to be drilled, a complete electric log of a nearby well. Once the well has been drilled, the permittee shall submit to the commission a complete log of the well from surface to total depth. The formations behind the surface casing and any intermediate casing shall be open hole logged prior to setting the surface casing and intermediate casing. Drilling shall be performed in such a manner that the formations are protected from drilling fluid invasion that would result in shallow, medium, and deep resistivity readings being equal to each other on the log.	**3.9(d)(3)(C)(ii).** Please note again that if required to run from the surface we will be encountering hole stability issues in many of the wells. Again, we question the cost benefit ratio of this requirement. **3.9(d)(3)(C)(iii).** AESC members question the need for four logs on the well. As to a salt water disposal well, the spontaneous potential log more

(iii) At a minimum, such logging shall consist of a spontaneous potential log, resistivity log, a natural gamma ray log, and a porosity log. (iv) An operator may request approval of an exception to this requirement by filing with the director a written request for such approval with pertinent information to support the exception request. In determining whether to grant an exception, the director may consider the availability and quality of existing logs for wells in close proximity to the well that is the subject of the exception request. (D) A Groundwater Protection Determination stating the protection depth to which usable-quality water must be protected, and that the formations or strata to be used for disposal are not underground sources of drinking water. The date of issuance of the Groundwater Protection Determination shall be no more than five years prior to the date the disposal well permit application is filed with the commission. (E) A map showing the location of all wells of public record within both the one-quarter mile radius and one-half mile radius of the proposed disposal well. The map shall indicate the commission-designated operator of each well and unexpired drilling permit within one-half mile of the proposed disposal well. The map shall indicate all lessees of record for tracts that have no designated operator and all owners of record of unleased mineral interests within one-half mile of the proposed disposal well. For a commercial disposal well permit application, the map also shall outline the proposed disposal well tract and the surface tracts that adjoin the proposed commercial disposal well tract, and indicate the owners of record for the proposed disposal well tract and the adjoining surface tracts. For a commercial disposal well, the proposed disposal well tract includes the associated storage and/or receiving facilities, even if such facilities are located on a different tract.	than satisfies the technical and geologic data needed by the Commission. **3.9(d)(3)(E).** We reiterate our comment above as to "all lessees of record for tracts that have no designated operator and all owners of record of unleased mineral interests within one-half mile of the proposed disposal well". Our first recommendation is the language be deleted. Essentially, this language requires a title opinion on all lands within the one half mile area which raises cost-benefit questions. The phrase clearly has cost-benefit concerns where the disposal well will be injecting into a non-productive zone. **3.9(d)(3)(F).** We would suggest subsection F be revised to read: "A table prepared by Applicant, using best available information, of all wells of

(F) A table of all wells of public record that penetrate the top of the proposed disposal interval and that are within a one-quarter mile radius of the proposed disposal well. The table shall include the well identification, date drilled, total depth, current status, and the plugging dates of those wells that are plugged. The table shall identify any wells that are not adequately cased and/or cemented, and that are unplugged, improperly plugged, or orphaned, and that penetrate the top of the proposed injection interval. In addition, the table shall identify any wells within the one-quarter mile radius that lack cement behind the casing through the proposed disposal interval. Alternatively, an applicant may request a variance under subsection (g)(2) of this section. (G) A list of the names and mailing addresses of all individuals and local governments who were notified of the application as required by subsection (e)(2) of this section and when the notification was mailed, and a signed statement attesting to notification of the listed persons and local governments. (H) An affidavit of publication signed by the publisher that the notice required by subsection (e)(3) of this section has been published in a newspaper of general circulation in the county where the disposal well will be located, including a newspaper clipping of the published notice. If the application is for a commercial disposal well, that fact must be stated in the published notice. (I) Any other technical information that the director may require as necessary to facilitate the review of the application. Such information may include, but is not limited to, a cement bond log, a cementing record, a well bore sketch, injection well density, and reservoir pressure. (4) Required information and attachments for amendment of an existing permit. If the applicant seeks to amend an existing permit issued under this section, the applicant shall provide the following information and attachments: Figure 16	public records..." We suggest "best available information" for the reason that the information is what it is. It is difficult to determine whether information found about other operators is correct. As stated above, we have concerns as to lessees of record with no operators and unleased mineral interests as set out in Figure: 16 TAC

TAC Sec. 3.9 (d)(4) (5) Commercial disposal well. An applicant for a permit to dispose of oil and gas waste in a commercial disposal well shall clearly indicate on the application and in the individual and published notice of the application that the application is for a commercial disposal well permit.	§3.9(d)(4).
§3.9 (e) Notice and Opportunity for Hearing. (1) Notice of new application. The applicant shall give notice as required by paragraph (2) of this subsection by mailing by regular United States Postal Service (USPS) mail and either USPS certified mail, return receipt requested, or a private commercial carrier with documented delivery confirmation, on, or not more than 30 days before, the date the application is submitted to the commission, the following: (A) a copy of the front and back of the application; (B) a map identifying the location of the proposed well, showing a north arrow; scale; geographic subdivisions appropriate for the scale; and by inset or otherwise, landmarks or other features such as roads and highways in relation to the proposed well insufficient detail to allow a person to reasonably ascertain where an owned or occupied property is with respect to the proposed disposal well location; and (C) the following notice, with the information relating to the specific application completed. 16 Figure: 16 TAC § 3.9 (e)(1)(C) Notice of Application For A Disposal Well Permit. Attached is a copy of an application for a disposal well permit under the Railroad Commission's Statewide Rule 9 (16 Texas Administrative Code §3.9), relating to Disposal Wells. [Company name and	

address] is applying to the Railroad Commission of Texas for a permit to dispose of produced saltwater or other oil and gas waste by well injection into a porous formation not productive of oil or gas. The applicant proposes to dispose of oil and gas waste into the [formation name]; [lease name]; [well number(s)] and engage in surface activities associated with the operation of the proposed disposal well. The proposed disposal well is located at [address, or if no address, a physical description of the location (i.e., intersection of highways)]; approximately [direction and number of miles from nearest town] in the [field name] in [County or Counties]. The water will be injected into strata in the subsurface depth interval from _____ to _____ feet. Attached is a copy of the application form and a map identifying the location of the proposed well.	
You are receiving this notice because you have been identified as a potentially affected person or local government to which 16 TAC §3.9(e) requires that the applicant for a disposal well permit provide notice.	In Figure: 16 TAC §3.9(e)(1)(C), change the 'may' to 'will' in the following sentence: "Protests to the application from local governments or persons who object and can show that they will be adversely affected...."
If you have objections to the issuance of a disposal well permit for this well, you may submit a letter of protest. Protests to the application from local governments or persons who object and can show that they may be adversely affected, or requests for further information concerning any aspect of the application, should be submitted in writing to the Director, Oil and Gas Division, Railroad Commission of Texas, P. O. Box 12967, 1701 North Congress Avenue, Austin, Texas 78711. Unless the Commission receives a protest to the application, the director may take final administrative action on the application (e.g., may approve, deny, return, or refer the application to hearing) no fewer than 15 days after the date the application is filed with the commission; however, the director will consider any protest the director receives up until the time that the	The provision that "(h)owever, the director will consider any protest the director receives up until the time the director takes administrative action on the application" creates regulatory uncertainty. The date or time

director takes administrative action on the application. Please be advised that the Railroad Commission of Texas does not have jurisdiction over roads, traffic, property values, zoning, noise, odors, esthetics, leasing, pipeline easements, or royalty payments. LEGAL AUTHORITY: Texas Water Code, Chapter 27, as amended; Texas Natural Resources Code, Title 3, as amended; and the Railroad Commission's Oil and Gas Division Rules (Statewide Rules) at 16 Tex. Admin. Code, Chapter 3. (2) Notice to individuals and local governments. On or not more than 30 days before the applicant files the application with the commission, the applicant shall give notice of the application to the following affected persons and local governments: (A) each owner of record of the surface tract on which the well is located; (B) each commission-designated operator of any well or any well for which an unexpired drilling permit has been issued located within one-half mile of the proposed disposal well; (C) for all tracts within one-half mile of the proposed disposal well, all lessees of record for tracts that have no designated operator and all owners of record of unleased mineral interests; (D) the county clerk of the county in which the well is located; (E) the city clerk or other appropriate city official of any city where the well is located within the municipal boundaries of the city. (F) the groundwater conservation district, if the well is to be located in an area covered by a groundwater conservation district that has an established mailing address; (G) if the application is for a commercial disposal well permit, owners of record of each surface tract that adjoins the proposed disposal tract; and	period for the receipt of protests is open ended. It is recommended this provision be deleted and that protests be received by the Commission within 15 days after the date the application is filed with the Commission. In Figure: 16 TAC §3.9(e)(1)(C), amend the statement on page 8, lines 31 & 32 to state: "Please be advised that the Railroad Commission of Texas does not have jurisdiction over, and will not consider protests related to, roads, traffic, property values, zoning, noise, odors, esthetics, leasing, pipeline easements, nuisance, or royalty payments. **3.9(e)(2)(C).** For the reasons set out above, we oppose the "all lessees of record for tracts that have no designated operator and all owners of record of unleased mineral interests" language. This requirement is particularly burdensome where the well will be injecting into a non-productive zone. If the well is injecting into a previously productive zone then the requirement should be limited to the lessees and mineral owners in the previously productive zone. **3.9(e)(2)(F).** The AESC opposes these proposed changes on notice and standing to groundwater districts, because they are contrary to the statutory authority of the Railroad Commission of Texas and groundwater districts; they are contrary to actions by the Legislature over the recent years; they create regulatory uncertainty; and they increase costs with no offsetting benefits. See, attached Memorandum on Notice and Standing of Groundwater Districts.

(H) members of any other class of persons the director determines, after review of the application, should receive notice of that application. (3) Notice by publication. (A) In order to give notice to other local governments, interested, or affected persons, notice of the application shall be published once by the applicant in a newspaper of general circulation for the county where the well will be located. If the application is for a commercial disposal well, that fact shall be stated in the published notice. Such notice shall be published no more than 30 days before the applicant submits the application to the commission. (B) The following notice, with the information relating to the specific application completed, shall be used: Figure 16 TAC Sec. 3.9(e)(3)(B) Notice of Application for Commercial Oil & Gas Waste Disposal Well Permit. [Company name and address] is applying to the Railroad Commission of Texas for a permit to dispose of produced saltwater or other oil and gas waste by well injection into a porous formation not productive of oil or gas. The applicant proposes to dispose of oil and gas waste into the [formation name]; [lease name]; [well number(s)] and engage in surface activities associated with the operation of the proposed disposal well. The proposed disposal well is located at [address, or if no address, a physical description of the location (i.e., intersection of highways)]; approximately [direction and number of miles from nearest town] in the [field name] in [County or Counties]. The water will be injected into strata in the subsurface depth interval from _____ to _____ feet. If you have objections to the issuance of a disposal well permit for this well, you may submit a letter of protest. Protests to the application from local government or persons who object and can show that they	In Figure: 16 TAC §3.9(e)(1)(C), change the 'may' to 'will' in the following sentence: "Protests to the application from local governments or persons who object and can show that they <u>will</u> be adversely affected...."

may be adversely affected, or requests for further information concerning any aspect of the application, should be submitted in writing to the Director, Oil and Gas Division, Railroad Commission of Texas, P. O. Box 12967, 1701 North Congress Avenue, Austin, Texas 78711. Unless the commission receives a protest to the application, the director may take final administrative action on the application (e.g., approve, deny, return, or refer to hearing) no fewer than 15 days after the date the application is filed with the commission; however, the director will consider any protest the director receives up until the time that the director takes final administrative action on the application. Please be advised that the Railroad Commission of Texas does not have jurisdiction over roads, traffic, property values, zoning, noise, odors, esthetics, leasing, pipeline easements, or royalty payments. LEGAL AUTHORITY: Texas Water Code, Chapter 27, as amended; Texas Natural Resources Code, Title 3, as amended; and the Railroad Commission's Oil and Gas Division Rules (Statewide Rules) at 16 Tex. Admin. Code, Chapter 3. (C) The applicant shall file with the commission in Austin proof of publication prior to the hearing or administrative approval. The following affidavit of publication format may be used: Figure: 16 TAC §3.9(e)(3)(C) Affidavit of Publication (4) Notice requirements for amended permit applications. If the applicant seeks to amend an existing permit issued under this section, the applicant shall provide notice as follows: Figure 16 TAC § 3.9 (e)(5). (5) Protested applications. The director shall not approve any application fewer than 15 days after notice has been given to	The provision that "(h)owever, the director will consider any protest the director receives up until the time the director takes administrative action on the application" creates regulatory uncertainty. The date or time period for the receipt of protests is open ended. It is recommended this provision be deleted and that protests be received by the Commission within 15 days after the date the application is filed with the Commission. In Figure: 16 TAC §3.9(e)(3)(B), amend the statement on page 10, lines 28 & 29 to state: "Please be advised that the Railroad Commission of Texas does not have jurisdiction over, and will not consider protests related to, roads, traffic, property values, zoning, noise, odors, esthetics, leasing, pipeline easements, nuisance, or royalty payments.

all affected persons as required by this section. If the commission receives a protest from an affected person or local government before the commission staff takes final administrative action on an application or if the director determines that a hearing is in the public interest, and the director receives a written request from the applicant for a hearing, then the commission will hold a hearing on the application after giving notice of the hearing to the individuals and local governments specified in subsection (e)(2) of this section and any other individual or entity that has expressed, in writing, an interest in the application. (6) Unprotested applications. If no protest from an affected person or local government has been received by the commission, the director may administratively approve the application no fewer than 15 days from the date the commission receives the application, the date of the required individual notice, or the date of publication, whichever is later. If the director denies administrative approval, the applicant shall have a right to a hearing upon written request. After hearing, the examiner shall recommend a final action by the commission.	
§3.9 (f) Subsequent Commission Action. (1) A permit to dispose of saltwater or other oil and gas waste by injection may be modified, suspended, or terminated by the commission for just cause after notice and opportunity for hearing, if: (A) a material change of conditions occurs in the operation or completion of the disposal well, or there are material changes in the information originally furnished; (B) continued operation of the well is likely to endanger underground sources of drinking water or human health or safety; (C) there are substantial violations of the terms and provisions of the permit or of commission rules; (D) the applicant has provided incorrect information, has failed to provide the	

required notice, or has misrepresented any material facts during the permit issuance process; (E) injected fluids are escaping from the permitted disposal interval; and/or (F) waste of oil, gas, or geothermal resources is occurring or is likely to occur as a result of the permitted operations. (2) Except for commercial disposal well permits, a disposal well permit may be transferred from one operator to another operator by filing Form P-4 (Producer's Certificate of Compliance and Transportation Authority), unless the director notifies the present permit holder of an objection to the transfer prior to the date the lease is transferred on Commission records. Transfer of a commercial disposal well permit requires written approval by the director after an inspection and a review that confirms compliance with a permit issued under this section and applicable commission rules.	We would ask for clarity as to "inspection and review". We would ask for objective criteria such as a physical inspection and a review of the operation.
§3.9 (g) Area of Review. (1) Except as otherwise provided in this subsection, the applicant shall review the public record for wells that penetrate the top of the proposed disposal interval within a 1/4 mile radius of the proposed disposal well to determine if all wells have been cased and cemented or plugged in a manner that will prevent the movement of fluids from the disposal interval into usable-quality water. The applicant shall identify in the application any wells which appear from such review of public records, or of which the applicant has knowledge, to be not adequately cased and/or cemented, and unplugged, improperly plugged, or orphaned, and that penetrate the top of the proposed injection interval. The director shall not approve a permit application under this section for a disposal well for which the area of review includes any orphaned wells that penetrate the top of the injection interval. The applicant shall review the public record for wells that penetrate the proposed disposal interval within a 1/4 mile radius of the proposed	

disposal well to determine if all wells are cemented across the injection interval in such a manner as to prevent the movement of fluids from the disposal interval into usable-quality water. (2) The director may grant a variance from the area of review requirements of paragraph (1) of this subsection upon proof that the variance will not result in a material increase in the risk of fluid movement into usable-quality water or to the surface. Such a variance may be granted for an area defined both vertically and laterally (such as a field) or for an individual well. An application for an areal variance need not be filed in conjunction with an individual permit application or application for permit amendment. Factors that may be considered by the director in granting a variance include: (A) the area affected by pressure increases resulting from injection operations; (B) the presence of local geological conditions that preclude movement of fluid that could endanger underground sources of drinking water or the surface; or (C) other compelling evidence that the variance will not result in a material increase in the risk of fluid movement into usable-quality water [freshwater strata] or to the surface. (3) Persons applying for a variance from the area of review requirements of paragraph (1) of this subsection on the basis of factors set out in paragraph (2)(B) or (C) of this subsection for an individual well shall provide notice of the application in accordance with subsection (e) of this section. (4) Individual and published notice of an application for an areal variance from the area of review requirements under paragraph (1) of this subsection shall be given on or not more than 30 days before the date the application is filed with the commission.	

(A) Published notice. The applicant shall give notice by publication once in a newspaper having general circulation in each county, or portion thereof, where the variance would apply. Such notice shall be in a form approved by the director prior to publication and must be at least three inches by five inches in size. The notice shall state that protests to the application shall be filed with the commission in writing and that, unless the commission receives a protest, the director may take final action on the application no fewer than 15 days after the date of publication of notice, the date that individual notice was given, or the date that the commission received the permit application, whichever is later. The notice shall appear in a section of the newspaper containing state or local news items.

(B) Individual notice.

(i) The applicant shall give individual notice by mailing by regular United States Postal Service (USPS) mail and either USPS certified mail return receipt requested, or a private commercial carrier with documented delivery confirmation, the following:

(I) a copy of the front and back of the application

(II) a map identifying the location of the proposed well, showing a north arrow; scale; geographic subdivisions appropriate for the scale; and by inset or otherwise, landmarks or other features such as roads and highways in relation to the proposed well in sufficient detail to allow a person to reasonably ascertain where an owned or occupied property is with respect to the proposed disposal well location; and

(III) the following notice, with the information relating to the application completed:

Figure16 TAC §3.9(g)(4)(B)(i)(III)
Notice of Application For A Disposal Well Permit With Exception To Area of Review Requirements.

Attached is a copy of an application for a disposal well permit under the Railroad

Commission's Statewide Rule 9 (16 Texas Administrative Code §3.9), relating to Disposal Wells. [Company name and address] is applying to the Railroad Commission of Texas for a permit to dispose of produced saltwater or other oil and gas waste by well injection into a porous formation not productive of oil or gas. The applicant proposes to dispose of oil and gas waste into the [formation name]; [lease name]; [well number(s)]. The proposed disposal well is located at [address, or if no address, a physical description of the location (i.e., intersection of highways)]; approximately [direction and number of miles from nearest town] in the [field name] in [County or Counties]. The water will be injected into strata in the subsurface depth interval from _____ to _____ feet. The applicant also has requested a variance from the area of review requirements in Statewide Rule 9(g)(1). The commission's rules can be reviewed on the commission's website at www.rrc.state.tx.us. Attached is a copy of the application form and a map identifying the location of the proposed well. You are receiving this notice because you have been identified as a potentially affected person or local government to which 16 TAC §3.9(e) requires that the applicant for a disposal well permit provide notice. If you have objections to the issuance of a disposal well permit for this well, you may submit a letter of protest. Protests to the application from local governments or persons who object and can show that they may be adversely affected, or requests for further information concerning any aspect of the application, should be submitted in writing to the Director, Oil and Gas Division, Railroad Commission of Texas, P. O. Box 12967, 1701 North Congress Avenue, Austin, Texas 78711. Unless the director receives a protest to the application, the director may take final administrative	In Figure: 16 TAC §3.9(g)(4)(B)(i)(III), change the 'may' to 'will' in the following sentence: "Protests to the application from local governments or persons who object and can show that they <u>will</u> be adversely affected...."

action on the application (e.g., may approve, deny, return, or refer the application to hearing) no fewer than 15 days after the date the application is filed with the director; however, the director will consider any protest it receives up until the time that the director takes final administrative action on the application. Please be advised that the Railroad Commission of Texas does not have jurisdiction over roads, traffic, property values, zoning, noise, odors, esthetics, leasing, pipeline easements, or royalty payments. LEGAL AUTHORITY: Texas Water Code, Chapter 27, as amended; Texas Natural Resources Code, Title 3, as amended; and the Railroad Commission's Oil and Gas Division Rules (Statewide Rules) at 16 Tex. Admin. Code, Chapter 3.	The provision that "(h)owever, the director will consider any protest the director receives up until the time the director takes administrative action on the application" creates regulatory uncertainty. The date or time period for the receipt of protests is open ended. It is recommended this provision be deleted and that protests be received by the Commission within 15 days after the date the application is filed with the Commission. In Figure: 16 TAC §3.9(e)(3)(B), amend the statement on page 10, lines 28 & 29 to state: "Please be advised that the Railroad Commission of Texas does not have jurisdiction over, and will not consider protests related to, roads, traffic, property values, zoning, noise, odors, esthetics, leasing, pipeline easements, nuisance, or royalty payments.
(ii) Individual notice shall be given to the following affected persons and local governments: (I) each groundwater conservation district in which the variance would apply, if any; (II) the city clerk or other appropriate official of each incorporated city in which the variance would apply, if any; (III) the county clerk of each county in which the variance would apply; and (IV) any other person or persons that the director determines should receive notice of the application. (5) If a protest to an application for an areal variance is made to the commission by an affected person, local government, groundwater conservation district, or other state agency prior to the director taking a final action on the application, or if the director determines that a hearing on the application is in the public interest, then a hearing will be held on the application after the commission provides notice of the hearing to all local governments,	The AESC opposes these proposed changes on notice and standing to groundwater districts, because they are contrary to the statutory authority of the Railroad Commission of Texas and groundwater districts; they are contrary to actions by the Legislature over the recent years; they create regulatory uncertainty; and they increase costs with no offsetting benefits. See, attached Memorandum on Notice and Standing of Groundwater Districts.

groundwater conservation districts, state agencies, or other persons, who express an interest, in writing, in the application. If no protest from an affected person is received by the commission, the director may administratively approve the application. If the application is denied administratively, the person(s) filing the application shall have a right to hearing upon written request. After hearing, the examiner shall recommend a final action by the commission. (6) An <u>areal</u> variance granted under the provisions of this subsection may be modified, terminated, or suspended by the commission after notice and opportunity for hearing is provided to each person shown on commission records to operate an oil or gas lease in the area in which the proposed modification, termination, or suspension would apply. If a hearing on a proposal to modify, terminate, or suspend an areal variance is held, any applications filed subsequent to the date notice of hearing is given must include the area of review information required under paragraph (1) of this subsection.	Change 'areal' to area.
§3.9 (h) Casing. (1) Disposal wells shall be cased and the casing cemented in compliance with §3.13 of this title in such a manner that the injected fluids will not endanger oil, gas, geothermal resources or underground sources of drinking water. (2) The director shall not approve an application for a disposal well permit under this section for any well in which the surface casing is not set and cemented from the ground surface to the base of usable-quality water as determined by the Groundwater Advisory Unit. (3) The director shall not approve an application for a disposal well under this section for any well in which the casing is not cemented across and extending above the base of the deepest underground	

source of drinking water, as follows: (A) if the top of cement is determined through calculation, at least 600 feet (measured depth) above the permitted formations; (B) if the top of cement is determined through the performance of a temperature survey conducted immediately after cementing, 250 feet (measured depth) above the permitted formations; (C) if the top of cement is determined through the performance of a cement evaluation log, 100 feet (measured depth) above the permitted formations; (D) at least 200 feet into the previous casing shoe (or to surface if the shoe 34 is less than 200 feet from the surface); or (E) as otherwise approved by the district director. (4) All wells to be permitted under this section shall comply with §3.11 of this title (relating to Inclination and Directional Surveys Required) and §3.12 of this title (relating to Directional Survey Company Report). If an inclination report filed in compliance with §3.11 of this title shows a cumulative displacement beyond the boundaries of the tract upon which the well is located, the operator shall run a directional survey in accordance with §3.12 of this title to demonstrate that the bottom-hole is within the boundaries of the tract. If the directional survey indicates that the bottom-hole is not within the boundaries of the tract, the permit is subject to suspension, modification, or termination pursuant to subsection (f) of this section.	
§3.9 (i) Special equipment. (1) Tubing and packer. Wells drilled or converted for disposal shall be equipped with tubing set on a mechanical packer. Packers shall be set no higher than 100 feet above the top of the permitted interval. For purposes of this section, the term "tubing" refers to a string of pipe through which injection may occur and which is neither	

wholly nor partially cemented in place. A string of pipe that is wholly or partially cemented in place is considered casing for purposes of this section. (2) Pressure valve. The wellhead shall be equipped with a pressure observation valve on the tubing and for each annulus of the well. (3) Exceptions. The director may grant an exception to any provision of this subsection upon proof of good cause and payment of the fees required by §3.78 of this title. If the director denies an exception, the operator shall have a right to a hearing upon written request. After hearing, the examiner shall recommend a final action by the commission.	
§3.9 (j) Permit Conditions. (1) Standard conditions. (A) Injection must be through tubing set on a packer. The packer must be set no higher than 100 feet above the top of the permitted interval. (B) Unless the district office has approved shorter notice, the appropriate district office must be notified 48 hours prior to: (i) running tubing and setting packer; (ii) beginning any work over or remedial operation; (iii) conducting any required pressure tests or surveys. (C) The wellhead must be equipped with a pressure observation valve on the tubing and for each annulus. (D) If the disposal well is a new well that will be drilled, once the well is drilled, a log of the well from surface to total depth shall be submitted to the director. The formations behind the surface casing and any intermediate casing shall be open hole logged prior to setting the surface casing and intermediate casing. At a minimum, such logging shall consist of a spontaneous potential log, resistivity log, a natural gamma ray log, and a porosity log. An operator may request approval of an exception to this requirement by filing with	Please note again that if required to run from the surface we will be encountering hole stability issues in many of the wells. Again, we question the cost benefit ratio of this requirement.

the director a written request for such approval providing all pertinent information to support the exception request. In determining whether to grant an exception, the director may consider the availability and quality of existing logs for wells in close proximity to the well that is the subject of the exception request. (E) Prior to beginning injection and subsequently after any work over, an annulus pressure test must be performed. The test pressure must equal the maximum authorized injection pressure or 500 psig, whichever is less, but must be at least 200 psig. Unless the district office has approved shorter notice, the appropriate district office must be notified at least 48 hours before the test is conducted to give the district office an opportunity to witness the test. The test must be performed and the results submitted in accordance with the instructions of Form H-5 (Disposal/Injection Well Pressure Test Report). (F) The injection pressure and injection volume must be monitored at least monthly and reported annually on Form H-10 (Annual Disposal/Injection Well Monitoring Report) to the commission's Austin office. (G) Within 30 days after completion, conversion to disposal, or any work over which results in a change in well completion, a new Form W-2 (Oil Well Potential Test, Completion or Recompletion Report, and Log) or Form G-1 (Gas Well Back Pressure Test, Completion or Recompletion Report, and Log) must be filed with the commission to show the current completion status of the well. The date of the disposal well permit and the permit number must be included on the new Form W-2 or G-1. (H) Unless the well is a commercial disposal well, a disposal well permit transfers from one operator to another upon approval of Form P-4 (Producer's Certificate of Compliance and Transportation Authority). (I) Unless otherwise required by conditions of the permit, completion and operation of the well shall be in accordance	Since a tubing-casing annulus monitoring option is deleted, is the Form H-10 still a valid form to use at all? What would be the purpose of such a form if this monitoring is now removed as an option?

with the information represented on the application (Form W-14). (J) A permit will expire when the Form W-3 (Plugging Record) is filed with the commission. Permits issued under this section for wells to be drilled or converted will expire three years from the date of issuance of the permit unless the permittee has commenced operations to drill or convert the well. (K) If the well is a commercial disposal well, the operator shall be responsible for complying with the following requirements prior to beginning operations so as to ensure that discharges of oil and gas waste will not occur: (i) All collecting pits, skimming pits, or washout pits must be permitted under the requirements of §3.8 of this title (relating to Water Protection). (ii) A catch basin constructed of concrete, steel, or fiberglass must be installed to catch oil and gas waste which may spill as a result of connecting and disconnecting hoses or other apparatus while transferring oil and gas waste from tank trucks to the disposal facility. (iii) All fabricated waste storage and pretreatment facilities (tanks, separators, or flow lines) shall be constructed of steel, concrete, fiberglass, or other materials approved by the director. (I) These facilities must be maintained so as to prevent discharges of oil and gas waste. (II) Each storage tank shall be equipped with a device (visual gauge or alarm) to alert drivers when each tank is within 130 barrels from being full. (iv) Dikes shall be placed around all tanks, waste storage, pretreatment, or disposal facilities. The dikes shall be designed so as to be able to contain a volume equal to the maximum holding capacity of all such facilities. Any liquids or wastes that accumulate in the containment area shall be removed within 24 hours and disposed of in an authorized disposal facility. (v) All storage tanks at commercial disposal wells shall be placed on a liner that	**3.9(j)(1)(K)(iv).** It is assumed that the Commission will exercise discretion on this 24 hour requirement if conditions exists over which the well operator has no control. As an example, an ice storm prevents trucks from traveling to remove the accumulated waste. **3.9(j)(1)(K)(v).** We understand these new requirements as to liners will be prospective only as to new facilities. If our understanding is incorrect, please advise. We would suggest that the term "synthetic plastic" be changed to "synthetic material". We believe the change will give the Commission

is designed, constructed, and installed to prevent any migration of materials from the storage tank into adjacent subsurface soils, ground water, or surface water at any time during the life of the tank. (-a-) The liner shall be made of concrete or doubled-lined with synthetic plastic. The liner system shall be installed according to standard industry practices and shall be constructed of materials that have sufficient chemical and physical properties, including thickness, to prevent failure during the expected life of the tank. All liners shall have a hydraulic conductivity that is 1.0 X 10 -7 cm/sec or less. (-b-) The permittee shall establish procedures to monitor the integrity of the liner on which the tank(s) is placed. If the liner is constructed of concrete, the concrete liner shall be inspected quarterly to ensure that the liner integrity has not been compromised. If the liner is made of synthetic plastic, the leak detection system shall be inspected quarterly to determine whether the primary liner has failed. The primary liner has failed if the volume of water passing through the primary liner exceeds the action leakage rate, as calculated using accepted procedures, or 100 gallons per acre per day, whichever is larger. The permittee shall maintain records of such inspections for a period of three (3) years and shall make the records available to commission personnel upon request. The permittee shall notify the appropriate district office within 48 hours of discovery of liner failure and shall repair the liner system within 30 days of the discovery of the failure. Alternative monitoring procedures may be approved by the director if the operator demonstrates that the alternative is at least equivalent in the protection of surface and subsurface water. (vi) If the permittee uses an on-site sewage system at a commercial facility, the system must be designed by a professional engineer or sewage system installer licensed in the State of Texas, and the design, construction, operation and maintenance of the on-site sewage system	and Operators a wider range of materials to serve as liners rather than be restricted to plastic.

must comply with all applicable local, county and state requirements for construction, operation and maintenance of an on-site sewage system. (vii) The facility shall have security to prevent unauthorized access. Access shall be secured by a 24-hour attendant, a fence and locked gate when unattended, or a key controlled access system. For a facility without a 24-hour attendant, fencing shall be required unless terrain or vegetation prevents truck access except through entrances with lockable gates. (viii) Only an operator with a commercial disposal well permit may provide an oil and gas waste hauler with a certified Form WH-3, Oil and Gas Waste Hauler's Authority to Use Approved Disposal/Injection System, allowing the hauler to use the operator's disposal well. (L) If fluids are not confined to the permitted injection interval, then the operator shall immediately notify the appropriate district office and shall immediately shut-in the well until the well has been remediated and the director has approved recommencement of injection. (M) Failure to comply with all of the conditions of a permit issued under this section may result in the operator being referred to enforcement to consider assessment of administrative penalties as described in subsection (o) of this section and/or the modification, suspension, or termination of the permit. (2) Special conditions. The commission may include in a permit issued under this section any special conditions necessary to ensure the injection achieves the intent of this section as described in subsection (a) of this section. Such special conditions may include, but are not limited to, conditions related to well construction, injection volume, maximum operating surface injection pressure, monitoring, testing or injection interval.	
§3.9 (k) Well record. (k) Well record. Within 30 days after the	

completion or conversion of a disposal well, the operator shall file with the commission a complete record of the well as required by §3.16 of this title (relating to Log and Completion or Plugging Report), showing the current completion.	
§3.9 (l) Monitoring and Reporting. (1) The operator shall monitor the injection pressure and injection rate of each disposal well on at least a monthly basis. (2) The results of the monitoring shall be reported annually to the commission on Form H-10 (Annual Disposal/Injection Well Monitoring Report). (3) All monitoring records shall be retained by the operator for at least five years. (4) The operator shall report to the appropriate district office within 24 hours any significant pressure changes or other monitoring data indicating the presence of leaks in the well or that fluids are not confined to the permitted injection interval. (5) The director may require alternative tests, including, but not limited to, bottom-hole pressure surveys and casing inspection logs.	Since a tubing-casing annulus monitoring option is deleted, is the Form H-10 still a valid form to use at all? What would be the purpose of such a form if this monitoring is now removed as an option?
§3.9 (m) Mechanical integrity testing. (1) Purpose. The mechanical integrity of a disposal well shall be evaluated by conducting pressure tests to determine whether the well tubing, packer, or casing have sufficient mechanical integrity to meet the performance standards of this rule, or by alternative testing methods under paragraph (5) of this subsection. (2) Applicability. Mechanical integrity of each disposal well shall be demonstrated in accordance with provisions of paragraph (4) and paragraph (5) of this subsection prior to initial use. In addition, mechanical integrity shall be tested periodically thereafter as described in paragraph (3) of this subsection. The operator of any well that fails a mechanical integrity test shall immediately notify the appropriate district office and shut-in the well until the well has been remediated, a successful mechanical	

integrity test completed on the well, and the director approves the results of the mechanical integrity test.

(3) Frequency.

(A)Each disposal well completed with surface casing set and cemented through the entire interval of protected usable-quality water shall be tested for mechanical integrity at least once every five years.

(B) In addition to testing required under subparagraph (A) of this paragraph, each disposal well shall be tested for mechanical integrity after every work-over of the well that disturbs the seal between the tubing, packer, and casing or after any repair work has been performed on the casing.

(C) A disposal well that is completed without surface casing set and cemented through the entire interval of protected usable-quality water shall be tested at the frequency prescribed in the disposal well permit.

(D) The director may prescribe a schedule and mail notification to operators to allow for orderly and timely compliance with the requirements in subparagraphs (A) and (B) of this paragraph. Such testing schedule shall not apply to a disposal well for which a disposal well permit has been issued but the well has not been drilled or converted to disposal.

(E) The test pressure must equal the maximum authorized injection pressure or 500 psig, whichever is less, but must be at least 200 psig. Unless the district office has approved shorter notice, the appropriate district office shall be notified at least 48 hours before the test is conducted to give the district office an opportunity to witness the test. The test must be performed and the results submitted in accordance with the instructions of Form H-5 (Disposal/Injection Well Pressure Test Report).

(F) The director may grant an exception to this paragraph for a one-time period of no more than six months upon proof of good cause and payment of the fees required by §3.78 of this title. If the director denies an exception, the operator

shall have a right to a hearing upon written request. After hearing, the examiner shall recommend a final action by the commission.

(4) Pressure tests.

(A) Test pressure.

(i) The test pressure for wells equipped to dispose through tubing and packer shall equal the maximum authorized injection pressure or 500 psig, whichever is less, but shall be at least 200 psig.

(ii) The test pressure for wells that are permitted for disposal through casing shall equal the maximum permitted injection pressure or 200 psig, whichever is greater.

(B) Pressure stabilization. The test pressure shall stabilize within 10% of the test pressure required in subparagraph (A) of this paragraph prior to commencement of the test.

(C) Pressure differential. A pressure differential of at least 200 psig shall be maintained between the test pressure on the tubing-casing annulus and the tubing pressure.

(D) Test duration. A pressure test shall be conducted for a duration of 30 minutes when the test medium is liquid or for 60 minutes when the test medium is air or gas.

(E) Pressure recorder. Except for tests performed on wells permitted for disposal through casing, a pressure recorder shall be used to monitor and record the tubing-casing annulus pressure during the test. The recorder clock shall not exceed 24 hours. The recorder scale shall be set so that the test pressure is 20 to 70% of full scale, unless otherwise authorized by the director.

(F) Test fluid.

(i) The tubing-casing annulus fluid used in a pressure test shall be liquid for wells that inject liquid unless the director authorizes the use of a different test fluid for good cause.

(ii) The tubing-casing annulus fluid used in a pressure test shall contain no additives that may affect the sensitivity or otherwise reduce the effectiveness of the

test.

(G) Pressure test results. The director will consider, in evaluating the results of a test, the level of pollution risk that loss of well integrity would cause. Factors that may be taken into account in assessing pollution risk include injection pressure, frequency of testing and monitoring, and whether there is sufficient surface casing to cover the entire interval of usable-quality water. A pressure test may be rejected by the director [commission or its delegate] after consideration of the following factors:

(i) the degree of pressure change during the test, if any;

(ii) the level of risk to underground sources of drinking water if mechanical integrity of the well is lost;

(iii) whether circumstances surrounding the administration of the test make the test inconclusive;

(iv) starting the test prior to schedule;

(v) failure to use a chart;

(vi) failure to label chart with pressure spring range and/or chart rotation time;

(vii) incomplete or illegible test report or recording chart;

(viii) no signature; and/or

(ix) other factors that result in the commission being unable to determine whether or not the test or test report successfully demonstrate mechanical integrity.

(5) Alternative testing methods.
The director may grant an exception for viable alternative tests or surveys or may require alternative tests or surveys as a permit condition. A request for an exception must include proof of good cause and payment of any fees required by §3.78 of this title.

(6) Notice to district office. Unless the district office has approved shorter notice, the operator shall notify the appropriate district office at least 48 hours prior to the testing. Testing shall not commence before the end of the 48-hour period unless

authorized by the district office. (7) Test records. A complete record of all tests shall be filed in duplicate in the appropriate district office on Form H-5 (Disposal/Injection Well Pressure Test Report) or on-line with the commission if the commission has implemented an on-line reporting program for Form H-5, within 30 days after the testing. The recorder chart shall be submitted to the commission as an attachment to Form H-5. (8) Alternate test frequency. In the case of permits issued under this section which require pressure testing more frequently than once every five years, the director may, by letter of authorization, reduce the required frequency of pressure tests, provided that such tests are required at least once every three years. The commission shall consider the permit to have been amended to require pressure tests at the frequency specified in the letter of authorization. (9) Exceptions. The director may grant an exception to any provision of this subsection upon proof of good cause and payment of the fees required by §3.78 of this title. If the director denies an exception, the operator shall have a right to a hearing upon written request. After hearing, the examiner shall recommend a final action by the commission.	
'§3.9 (n) Plugging. Disposal wells shall be plugged upon abandonment in accordance with §3.14 of this title (relating to Plugging).	
§3.9 (o) Penalties. (1) Violations of this section and/or a permit issued under this section may subject the operator to penalties and remedies specified in §3.107 of this title (relating to Penalty Guidelines for Oil and Gas Violations), the Texas Water Code, Chapter 27, and the Natural Resources	

Code, Title 3. (2) The certificate of compliance for any oil, gas, or geothermal resource well may be revoked in the manner provided in §3.73 of this title (relating to Pipeline Connection; Cancellation of Certification of Compliance; Severance) for violation of this section.	
§3.36 Oil, Gas, or Geothermal Resource Operation in Hydrogen Sulfide Areas **(a) Applicability.** Each operator who conducts operations as described in paragraph (1) of this subsection shall be subject to this section and shall provide safeguards to protect the general public from the harmful effects of hydrogen sulfide. This section applies to both intentional and accidental releases of hydrogen sulfide. (1) Operations including drilling, completing, working over, producing, injecting, gathering, processing, transporting, and storage of hydrocarbon fluids or other fluids that are part of, or directly related to, field production, transportation, and handling of hydrocarbon fluids, or other fluids that contain gas in the system which has hydrogen sulfide as a constituent of the gas, to the extent as specified in subsection (c) of this section. (2) This section shall not apply to: (A) operations involving processing oil, gas, hydrocarbon fluids, or other fluids which are either an industrial modification or products from industrial modification, such as refining, petrochemical plants, or chemical plants; (B) operations involving gathering, storing, and transporting stabilized liquid hydrocarbons; (C) operations where the concentration of hydrogen sulfide in the system is less than 100 ppm. (3) API Publication RP-55, Recommended Practices for Oil and Gas Producing and Gas Processing Plant Operations Involving	

Hydrogen Sulfide, is referenced as a suggested guideline for operations subject to this section.	
§3.36 (b) Definitions. (1) - (12) (No change.). (13) Definition of referenced organizations and publications. (A) ANSI--American National Standard Institute, 1430 Broadway, New York, New York 10018, Table I, Standard Z535.1, Marking Physical Hazards Safety Color Code (R2011, Reaffirmation of ANSI Z535.1-2006). (B) API--American Petroleum Institute, 300 Corrigan Tower Building, Dallas, Texas 75201, Publication API RP-49, Recommended Practice for Drilling and Well Servicing Operations Involving Hydrogen Sulfide (3rd edition, 2001), Publication API RP-14E, Recommended Practice for Design and Installation of Offshore Platform Piping Systems, (5th edition, 1991), Sections 1.7(c), relating to Sulfide Stress Cracking, 2.1(c), relating to Sulfide Stress Cracking Service, and 4.7, relating to Special Requirements for Sulfide Stress Cracking Service; and RP-55, Recommended Practices for Oil and Gas Producing and Gas Processing Plant Operations Involving Hydrogen Sulfide (2nd edition, 1995). (C) GPA--Gas Processors Association, 6526 E. 60th Street, Tulsa, Oklahoma 74145, GPA Standard 2286-95, Tentative Method of Extended Analysis for Natural Gas and Similar Gaseous Mixtures by Temperature Programmed Gas Chromatography (1995). (D) NACE--National Association of Corrosion Engineers, 1440 South Creek Drive, Houston, Texas 77084-4906, Standard MR-0175, relating to Materials for Use in H2S-Containing Environments in Oil and Gas Production (2009 edition). (E) DOT--Department of Transportation, Office of Pipeline Safety, 1200 New Jersey Ave., SE, Washington, D.C. 20590, Title 49, Code of Federal Regulations, Parts 192, relating to Transportation of Natural and	

Other Gas by Pipeline: Minimum Federal Safety Standards, and 195, relating to Transportation of Hazardous Liquids by Pipeline. (F) OSHA--Occupational Safety and Health Administration, United States Department of Labor, 200 Constitution Avenue, NW, Washington D.C. 20210, Title 29, Code of Federal Regulations, Part 1910.145, relating to Specifications for accident prevention signs and tags. (G) RRC--Railroad Commission of Texas, Gas Services Division, P.O. Box 12967, Capitol Station, Austin, Texas 78711, Gas Utilities Dockets 446 and 183.	
§3.36 (c) General Provisions. (1) Each operator shall determine the hydrogen sulfide concentration in the gaseous mixture in the operation or system. (A) Tests conducted for the purpose of making this determination shall be made in accordance with GPA Standard 2286-95, Tentative Method of Extended Analysis for Natural Gas and Similar Gaseous Mixtures by Temperature Programmed Gas Chromatography or other methods approved by the director. (B) Test of vapor accumulation in storage tanks may be made with industry accepted colormetric tubes. (2) For all operations subject to this section, the radius of exposure shall be determined, except in the cases of storage tanks, by the following Pasquill-Gifford equations, or by other methods that have been approved by the director. (A) - (B) (No change.) (3) (No change.). (4) For the drilling, completion,	

recompletion, workover, or servicing of a well in an area where insufficient data exists to calculate a radius of exposure, but where hydrogen sulfide may be expected, a 100 ppm radius of exposure equal to 3,000 feet shall be assumed. The director will consider a smaller radius upon the applicant's written request setting out the justification.

(5) Storage tank provision. An operator need not determine a radius of exposure for storage tanks that are used as a part of a production operation, and that are operated at or near atmospheric pressure, and where the vapor accumulation has a hydrogen sulfide concentration in excess of 500 ppm, but such tanks shall be subject to the following.

(A) Operators shall post a [A] warning sign [shall be posted] on or within 50 feet of the facility to alert the general public of the potential danger.

(B) Operators shall install fencing as a security measure when storage tanks are located inside the limits of a townsite or city, or where the public may be exposed to the contents of the storage tanks.

(C) Operators shall comply with the warning and marker provisions in paragraph (6)(A)(i), (ii), and (iv) of this subsection.

(D) Operators shall comply with the certificate of compliance provisions in subsection (d)(1) of this section.

(6) All operators whose operations are subject to this section, and where the 100 ppm radius of exposure is in excess of 50 feet, shall be subject to the following.

(A) Warning and marker provision.

(i) No change.

(ii) In public areas, such as town-sites and cities where the use of signs is not considered to be acceptable, an alternative warning plan may be approved upon written request to the director.

(iii) For buried lines subject to this section, the operator shall comply with the following.

(I) – (II) (No change.)

(III) The marker sign shall contain sufficient information to establish the ownership and existence of the line and shall indicate by the use of the words "Poison Gas" that a potential danger exists. Markers installed in compliance with the regulations of the federal Department of Transportation at 49 Code of Federal Regulations §192.707 or §195.410 shall satisfy the requirements of this provision.

(iv) In satisfying the sign requirement of clause (i) of this subparagraph, the following will be acceptable.

(I) (No change.)

(II) New signs constructed to satisfy this section shall use the language of "Caution" and "Poison Gas" with a black and yellow color contrast. Colors shall satisfy Table I of American National Standard Institute Standard Z53.1. Signs installed to satisfy this section are to be compatible with the regulations of the federal Occupational Safety and Health Administration at 29 Code of Federal Regulations Part 1910.145.

(III) (No change.)

(B) (No change.)

(C) Materials and equipment provision.

(i) For new construction or modification of facilities (including materials and equipment to be used in drilling, completion and workover operations), the metal components shall be those metals which have been selected and manufactured so as to be resistant to hydrogen sulfide stress cracking under the operating conditions for which their use is intended, provided that they satisfy the requirements described in NACE Standard MR-0175 and API RP-14E, sections 1.7(c), 2.1(c), and 4.7. The handling and installation of materials and equipment used in hydrogen sulfide service are to be performed in such a manner so as not to induce susceptibility to sulfide stress cracking. Other materials which are non-susceptible to sulfide stress cracking, such as fiberglass and plastics, may be used in hydrogen sulfide service provided such materials have been manufactured and inspected in a manner which will satisfy the

latest published, applicable industry standard, specifications, or recommended practices. (ii) Other materials and equipment (including materials and equipment used in drilling, completion and workover operations) which are not included within the provision of clause (i) of this subparagraph may be used for hydrogen sulfide service provided: (I) (No change.) (II) the director has approved the use of said materials and equipment for the specific uses after written application. (iii) Existing facilities (including materials in present common usage for drilling, completion and workover operations in hydrogen sulfide areas) which are in operation prior to the effective date of this section, and where there has been no failure of existing equipment attributed to sulfide stress cracking, shall satisfy the requirements of this section. (iv) In the event of a failure of any element of an existing system as the result of hydrogen sulfide stress cracking, the compliance status of the system shall be determined by the director after the operator has submitted to the director a detailed written report on the failure. (7) All operations subject to subsection (a) of this section shall be subject to the additional control and equipment safety provision in paragraph (8) of this subsection and the contingency plan provision in paragraph (9) of this subsection, if any of the following conditions apply: (A) - (C) (No change.) (8) Control and equipment safety provision. Operators subject to this provision shall install safety devices and maintain them in an operable condition or shall establish safety procedures designed to prevent the undetected continuing escape of hydrogen sulfide. For intentional releases of a potentially hazardous volume of hydrogen sulfide gas, the gas must be flared unless permission to vent is obtained	

from the director. Venting will be allowed only upon a showing that the venting will not pose an unreasonable risk of harm to the public.

(9) Contingency plan provision.

(A) – (F) (No change.)

(G) The plan shall include a call list which shall include the following as they may be applicable:

(i) – (ix) (No change.)

(x) the appropriate district office;

(xi) – (xii) (No change.)

(H) (No change.)

(I) The plan shall include names and telephone numbers of residents within the area of exposure, except in cases where the reaction plan option has been approved by the director in accordance with subparagraph (L) of this paragraph.

(J) - (K) (No change.).

(L) In the event of a high density of population, or the case where the population density may be unpredictable, a reaction type of plan, in lieu of advance briefing for public notification, will be acceptable. The reaction plan option must be approved by the director.

(M) (No change.).

(N) The appropriate district office shall be notified as follows if the contingency plan is activated:

(i) – (iii) No change.

(O) - (P) (No change.).

(Q) Operators shall update the plans to insure their current applicability. Operators shall review the hydrogen sulfide contingency plan and make appropriate amendments as necessary at least once a year, upon a public infringement, or at any time an element addressed in the plan materially changes. If the commission determines that a hydrogen sulfide contingency plan is inadequate to protect public safety, the commission may require the person to add provisions to the plan or otherwise amend the plan as necessary to protect public safety.

(10) Injection provision.

(A) Injection of fluids containing

hydrogen sulfide shall not be allowed under the conditions specified in this provision unless first approved by the commission after public hearing:

(i) No change.

(ii) where the hydrogen sulfide content of the gas or gaseous mixture to be injected has been increased by a processing plant operation or any process that increases the concentration of the hydrogen sulfide gas.

(B) (No change.).

(C) Notice of an application for an injection well for injection of fluids containing hydrogen sulfide shall be given as follows:

(i) Individual notice.

(I) Individual notice shall be given by mailing by certified mail, return receipt requested, the following information:

(-a-) a copy of the front and back of the application;

(-b-) a map identifying the location of the proposed well, showing a north arrow; scale; geographic subdivisions appropriate for the scale; and by inset or otherwise, landmarks or other features such as roads and highways in relation to the proposed well in sufficient detail to allow a person to reasonably ascertain where an owned or occupied property is with respect to the proposed disposal well location; and

(-c-) a letter explaining why the person received the notice and how the person may submit a protest, as well as a statement that any protest to the application should be filed with the commission within 15 days of the date of the application is filed with the commission.

(II) Individual notice shall be given to the following affected persons and local governments:

(-a-) the surface owner of the tract on which the injection well is located;

(-b-) each adjacent landowner located within the area of exposure;

(-c-) the city clerk or other appropriate official of the incorporated city in which the injection well is located, if any;

(-d-) the county clerk of the each county in which the injection well is; and

(-e-) any other person or persons that the director determines should receive notice of the application.

(ii) County notice. For each county that contains all or part of the area of influence of the proposed injection well, the applicant shall cause to be delivered to the county clerk no later than the first date of publication in that county a copy of the following items:

(I) a properly completed application; and

(II) a plat which meets the requirements of clause (v)(IV) of this subparagraph and identifies the boundaries of surveys and blocks or sections as appropriate within the area of influence;

(iii) Published notice. The applicant shall publish notice of the application in a newspaper of general circulation in each county that contains all or a portion of the area of influence of the proposed injection well. Such notice shall meet the requirements of clause (v) of this subparagraph and be published in a section of the newspaper containing news items of state or local interest.

(iv) Final action may not be taken on any application under this section until proof of notice, evidenced as follows, is provided:

(I) a return receipt from each county clerk with whom an application form and plat is required to be filed pursuant to clause (ii) of this subparagraph; and

(II) the full page or pages of the newspaper containing the published notice required under this subparagraph including the name of the paper, the date the notice was published, and the page number.

(v) The published notice of application shall be at least three inches by five inches in size, exclusive of the plat, and shall contain the following:

(I) the name, business address, and telephone number of the applicant and of the applicant's authorized

representative, if any;

(II) a description of the geographic location of the proposed sour gas injection well and the area of influence, to the extent not clearly identified in the plat required to be published in sub-clause (IV) of this clause;

(III) the following statement, completed as appropriate: "This proposed injection well will inject fluids containing 100 parts per million, or more, of hydrogen sulfide. A copy of application forms and a map showing the location of the proposed injection well is available for public inspection at the offices of the (insert County name) County Clerk, located at the following address: (insert address of County Clerk). Any owner or occupant of land located within the area of influence of the proposed injection well desiring to protest this application can do so by mailing or otherwise delivering a letter referring to the application (by docket number if available) and stating their desire to protest to: Director, Oil and Gas Division, Railroad Commission of Texas, P.O. Box 12967, Austin, Texas 78711-2967. Protests shall be in writing and received by the Oil and Gas Division not later than (specify 30th day after the first date notice of the application is to be published). The letter shall include the name, address, and telephone number of every person on whose behalf the protest is filed and shall state the reasons each such person believes that the person is the owner or occupant of property within the area of influence of the proposed injection well. It is recommended that a copy of this notice be included with the letter."; and

(IV) a plat identifying:

(-a-) the location of the proposed injection well;

(-b-) area of influence;

(-c-) north arrow;

(-d-) scale;

(-e-) geographic subdivisions appropriate for the scale; and

(-f-) by inset or otherwise, landmarks or other features such as roads and highways in relation to the proposed

location of the injection well. These landmarks or other features shall be of sufficient detail to allow a person to reasonably ascertain whether an owned or occupied property that is within the area of influence of the proposed injection well.

(11) In addition to any other requirements of this section, drilling, completion and workover operations, and gasoline plant sites where the 100 ppm radius of exposure is 50 feet or greater shall be subject to the following.

(A) – (C) (No change.)

(12) Drilling provision. Drilling, completion and workover operations where the 100 ppm radius of exposure includes a public area or is 3,000 feet or greater shall be subject to the following additional provisions.

(A) – (E) (No change.)

(F) The appropriate district office shall be notified of the intention to conduct a drill stem test of a formation containing hydrogen sulfide in sufficient concentration to meet the requirements of this provision.

(G) A certificate of compliance shall be required on each well subject to this section even if well is located on certificated lease. A certificate of compliance shall be required on each well subject to this section if the well is perforated in a field or zone that has been identified to contain a concentration of hydrogen sulfide 100 parts per million or greater, whether or not the perforations are for production or injection.

(H) Full compliance with all the requirements of this provision must be satisfied before the well is drilled to a depth that is within 1,000 feet of the hydrogen sulfide zone. Alternate depths may be approved in advance by the appropriate district office.

(I) API Publication RP-49 is referenced as a suggested guideline for drilling, completion and workover of wells subject to this provision.

(J) Blowout preventers and well control systems shall be pressure tested at or near

compliance depth or at depth of nearest bit change prior to reaching compliance depth. The appropriate district office must be notified at least four hours prior to the test. (13) - (14) (No change.).	
§3.36 (d) - (e) (No change.)	
§3.46 Fluid Injection into Productive Reservoirs. **(a)(1) Intent.** (A) Any person who injects fluid into a reservoir productive of oil, gas, or geothermal resources shall be responsible for complying with this section, Texas Water Code, Chapter 27, and Title 3 of the Texas Natural Resources Code. (B) It is the intent of this section that the applicant demonstrates, and the director finds, that: (i) the injected fluids will be confined to the permitted injection interval; (ii) all usable-quality water as defined by the Groundwater Advisory Unit will be isolated and sealed off to effectively prevent contamination and harm from migration of injected fluids or displaced formation fluids; (iii) all potentially productive zones and potential flow zones will be isolated and sealed off to prevent vertical migration of fluids or gases behind the casing; and (iv) the injection of fluids will not endanger underground sources of drinking water or injure human health and safety.	
§3.46 (a)(2) Definitions. (A) Affected person--A person who may suffer actual injury or economic damage other than as a member of the general public or as a competitor. The term includes surface owners of property on which a well is located and commission-designated operators of wells located within one-half mile of a proposed injection well, and for all tracts within one-half mile of the proposed injection well, all lessees of record for tracts that have no designated	**3.46(a)(2)(A).** The language "for all tracts within one-half mile of the proposed disposal well, all lessees of record for tracts that have no designated operator and all owners of record of unleased mineral interests" causes a number of concerns. Our first recommendation is the

operator and all owners of record of un-leased mineral interests. (B) Commercial disposal well--A well that is primarily operated to provide disposal services to operators other than the operator of the disposal well, whether or not the oil field fluids or oil and gas waste is trucked or piped to the facility. A commercial disposal well includes the associated storage and/or receiving facilities, even if such facilities are located on a different tract. (C) Director--The director of the Oil and Gas Division of the Railroad Commission of Texas or the director's delegate. (D) Groundwater Advisory Unit—the Groundwater Advisory Unit of the Oil and Gas Division of the Railroad Commission of Texas. (E) Hauling of oil field fluids or oil and gas wastes--Transportation of oil field fluids or oil and gas wastes by truck or other vehicle other than a pipeline or a flowline. (F) Orphaned well--A well issued a permit by the commission with no reported production or activity for the preceding 12 months and whose designated operator's organization report has become delinquent or inactive. (G) Owner of record--Person or persons shown as an owner of a tract by public records including but not limited to deed records, tax records, appraisal district records, and probate records. (H) Permitted injection interval—The depth interval stated on the permit within which injected fluid must remain confined. The entire formation or reservoir is not authorized for injection unless the stipulated depth intervals correspond to the entire formation or reservoir. (I) Potential flow zone-- A zone as defined in §3.13(a)(2)(N), relating to Casing, Cementing, Drilling, Well Control, and Completion Requirements. (J) Protection depth-- Depth as defined in §3.13(a)(2)(C), relating to Casing, Cementing, Drilling, Well Control, and Completion Requirements. (K) Underground Source of Drinking Water—Water as defined in	language be deleted. Essentially, this language requires a title opinion on all lands within the one half mile area which raises cost-benefit questions. The phrase clearly has cost-benefit concerns where the disposal well will be injecting into a non-productive zone.

§3.30(e)(7)(B)(ii), relating to Memorandum of Understanding between the Railroad Commission of Texas (RRC) and the Texas Commission on Environmental Quality (TCEQ). (L) Usable-quality water--Water as defined in §3.30(e)(7)(B)(i), relating to Memorandum of Understanding between the Railroad Commission of Texas (RRC) and the Texas Commission on Environmental Quality (TCEQ).	
§3.46 (b) Permit required. (1) Permit required. Before any person engages in fluid injection operations in reservoirs productive of oil, gas, or geothermal resources, that person must apply for and obtain a permit from the commission under this section. (2) Permit expiration. (A) A disposal well permit with a stated term expires on the last day of that term if, in the case of a new well, the operator has not spudded the well, or, in the case of the conversion of an existing well, the operator has not commenced operations on the well specific to the conversion of the well to injection. (B) A disposal well permit that does not contain a stated term or expiration date and that was issued prior to {INSERT MONTH}, 2014, will expire on {INSERT MONTH} 1, 2016, if the operator has not spudded the well, or, in the case of the conversion of an existing well, the operator has not commenced operations on the well specific to the conversion of the well to injection prior to that date. (C) A disposal well permit issued on or after {INSERT MONTH} 1, 2014, that does not contain a stated term or expiration date will expire three years after the date the permit is if the operator has not spudded the well, or, in the case of the conversion of an existing well, the operator has not commenced operations on the well specific to the conversion of the well to injection prior to that date.	**3.46(b)(2)(B).** We believe this subsection retroactively amends the provisions of existing permitted wells. We believe the better approach is to be prospective only, as set out in 3.46(b)(2)(C) below. Therefore we request 3.46(b)(2)(B) be deleted.

(3) Permit for injection of fluids containing hydrogen sulfide. The commission shall not issue a permit for injection of fluids containing hydrogen sulfide unless the applicant also complies with the requirements of §3.36 of this title (relating to Oil, Gas, or Geothermal Resource Operation in Hydrogen Sulfide Areas).	
§3.46 (c) Geological requirements. (1) Injection into a productive zone above the base of the underground source of drinking water shall be limited to fluids produced from that zone. (2) Commercial or off-lease disposal of oil and gas waste above the base of the deepest underground source of drinking water is prohibited.	
§3.46 (f) Filing of application. (1) Application. An application to conduct fluid injection operations in a reservoir productive of oil, gas, or geothermal resources shall be filed with the commission in Austin. On the same date, one copy of the application shall be filed with the appropriate district office. The form shall be executed by a person having knowledge of the facts entered on the form. The applicant shall file the freshwater injection data form (Form H-7), if fresh water is to be injected. (2) Fees. The applicant shall pay the fees prescribed in §3.78 of this title (relating to Fees and Financial Security Requirements). (3) Required information for a new injection well permit application. An application for an injection well under this section shall contain the following information: (A) a completed Form H-1 (Application to Inject Fluid into a Reservoir Productive of Oil or Gas) and Form H-1A (Injection Well Data for H-1 Application); (B) all required logs: (I) if the application is for a new permit for an existing well, a complete	

electrical log of the proposed well or a complete log of a nearby well; (II) if the application is for a new injection well to be drilled, once the injection well has been drilled, the permittee shall submit to the commission a complete log of the well from surface to total depth. The formations behind the surface casing and any intermediate casing shall be open hole logged prior to setting the surface casing and intermediate casing; (III) at a minimum, such logging shall consist of a spontaneous potential log, resistivity log, a natural gamma ray log, and a porosity log; (IV) an operator may request approval of an exception to this requirement by filing with the director a written request for such approval providing all pertinent information to support the exception. In determining whether to grant an exception, the director may consider the availability and quality of existing logs for wells in close proximity to the well that is the subject of the exception request; (C) If the purpose of the injection well is disposal of oil and gas waste, applicant must submit a Groundwater Protection Determination stating that the use of such formation will not endanger the usable-quality water in that area and that the formations to be used for disposal are not underground sources of drinking water. To obtain the Groundwater Protection Determination, the applicant shall submit to the Groundwater Advisory Unit all of the following information. (i) One copy of the completed Form H-1 (Application to Inject Fluid into a Reservoir Productive of Oil or Gas). (ii) A completed Form H-1A (Injection Well Data for H-1 Application). (iii) One copy of a scaled map showing the well location and surrounding survey lines. (iv) A copy of the current Groundwater Protection Determination for the well, or, if no Groundwater Protection Determination exists or if it is over five (5) years old, a completed Form GW-1 (Groundwater Protection Determination	**3.46(f)(3)(B)(i); (ii);(iii).** Please note again that if required to run from the surface we will be encountering hole stability issues in many of the wells. Again, we question the cost benefit ratio of this requirement. AESC supports the proposed language of TXOGA for this subsection: "Upon request by the commission, the formations behind the surface casing and any intermediate casing shall be open hole logged prior to setting the surface casing and intermediate casing. " AESC members question the need for four logs on the well. As to a salt water disposal well, the spontaneous potential log more than satisfies the technical and geologic data needed by the Commission.

Request). (v) A copy of a representative electrical log that includes the log header and the interval from the land surface through the injection interval for an existing well or for a nearby well that is deep enough to show the proposed injection interval, if the disposal well application is for a new well. (vi) Upon request, additional electric logs run on wells in the area. (D) a map showing the location of all wells of public record and unexpired drilling permits within both the one-quarter mile radius and one-half mile radius of the proposed injection well. The map shall indicate the commission-designated operator of each well and unexpired drilling permit within one-half mile of the proposed injection well location. The map shall indicate all lessees of record for tracts that have no designated operator and all owners of record of un-leased mineral interests within one-half mile of the proposed injection well location. For a commercial disposal well application, the map also shall outline the proposed injection well tract and the surface tracts that adjoin the proposed injection well tract, and indicate the owners of record for the proposed disposal well tract (for a commercial disposal well, the proposed disposal well tract includes the associated storage and/or receiving facilities, even if such facilities are located on a different tract) and the adjoining surface tracts; (E) a table of all wells of public record that penetrate the top of the proposed injection interval and that are within a one-quarter mile radius of the proposed injection well. The table shall include the well identification, date drilled, total depth, current status, and the plugging dates of those wells that are plugged. The table shall identify any wells that are not adequately cased and/or cemented and unplugged, improperly plugged, or orphaned and penetrate the top of the proposed injection interval. In addition, the table shall identify any wells within the one-quarter mile radius that lack cement	**3.46(f)(3)(E).** We would suggest subsection F be revised to read: "A table prepared by Applicant, <u>using best available information</u>, of all wells of public records..." We suggest "best available information" for the reason that the information is what it is. It is difficult to determine whether information found about other operators is correct.

behind the casing through the proposed injection interval. Alternatively, an applicant may request a variance under subsection (g)(2) of this section; (F) a list of the names and mailing addresses of all persons and local governments who were notified of the application as required by subsection (e)(2) of this section, and a signed statement attesting to notification of the listed persons and local governments; (G) an affidavit of publication signed by the publisher that the notice required by subsection (e)(3) of this section has been published in a newspaper of general circulation in the county where the injection well will be located, including a newspaper clipping of the published notice. If the application is for a commercial disposal well, that fact must be stated in the published notice; (H) any other technical information that the director may require as necessary to facilitate the review of the application. Such information may include, but is not limited to, a cement bond log, a cementing record, or a well bore sketch. (4) Required information and attachments for amendment of an existing permit. If the applicant seeks to amend an existing permit issued under this section, the applicant shall provide notice as indicated in the following figure: Figure: 16 TAC §3.46(d)(4). (5) Commercial disposal well. An applicant for a permit to dispose of oil and gas waste in a commercial disposal well shall clearly indicate on the application and in the individual and published notice of application that the application is for a commercial disposal well permit.	As stated above, we have concerns as to lessees of record with no operators and unleased mineral interests as set out in Figure: 16 TAC §3.46(d)(4).
§3.46 (e) Notice and opportunity for hearing. (1) Notice of new application. The applicant shall give notice as required by paragraph (2) of this subsection by mailing by regular United States Postal Service (USPS) mail	

and either USPS certified mail, return receipt requested, or a private commercial carrier with documented delivery confirmation, on, or not more than 30 days before, the date the application is submitted to the commission, the following:

(A) a copy of the front and back of the application;

(B) a map identifying the location of the proposed well, showing a north arrow; scale; geographic subdivisions appropriate for the scale; and by inset or otherwise, landmarks or other features such as roads and highways in relation to the proposed well in sufficient detail to allow a person to reasonably ascertain where an owned or occupied property is with respect to the proposed injection well location; and

(C) the following notice, with the information relating to the specific application completed:

Figure: 16 TAC §3.46(e)(1)(C).

NOTICE OF APPLICATION FOR AN INJECTION WELL PERMIT

Attached is a copy of an application for an injection well permit under the Railroad Commission's Statewide Rule 46 (16 Texas Administrative Code §3.46), relating to Fluid Injection into Productive Reservoirs. [Company name and address] is applying to the Railroad Commission of Texas for a permit to inject fluid into a productive reservoir. The applicant proposes to inject fluid into the [formation name]; [lease name]; [well number(s)] and engage in surface activities associated with the operation of the proposed injection well. The proposed injection well is located at [address, or if no address, a physical description of the location (i.e., 30 intersection of highways)]; approximately [direction and number of miles from nearest town] in the [field name] in [County or Counties]. The fluid will be injected into strata in the subsurface depth interval from _____ to _____ feet. Attached is a copy of the application form and a map identifying the location of the proposed well.

You are receiving this notice because you have been identified as a potentially affected person or local government to which 16 TAC §3.46(e) requires that the applicant for an injection well permit provide notice.	
If you have objections to the issuance of an injection well permit for this well, you may submit a letter of protest. Protests to the application from local governments or persons who object and can show that they may be adversely affected, or requests for further information concerning any aspect of the application, should be submitted in writing to the Director, Oil and Gas Division, Railroad Commission of Texas, P. O. Box 12967, 1701 North Congress Avenue, Austin, Texas 78711. Unless the director receives a protest to the application, the director may take final administrative action on the application (e.g., may approve, deny, return, or refer the application to hearing) no fewer than 15 days after the date the application is filed with the director; however, the director will consider any protest the director receives up until the time that the director takes final administrative action on the application.	In Figure: 16 TAC §3.46(e)(1)(C), change the 'may' to 'will' in the following sentence: "Protests to the application from local governments or persons who object and can show that they <u>will</u> be adversely affected...." Comment by Complete Energy Services. The provision that "(h)owever, the director will consider any protest the director receives up until the time the director takes administrative action on the application" creates regulatory uncertainty. The date or time period for the receipt of protests is open ended. It is recommended this provision be deleted and that protests be received by the Commission within 15 days after the date the application is filed with the Commission.
Please be advised that the Railroad Commission of Texas does not have jurisdiction over roads, traffic, property values, zoning, noise, odors, esthetics, leasing, pipeline easements, or royalty payments. LEGAL AUTHORITY: Texas Water Code, Chapter 27, as amended; Texas Natural Resources Code, Title 3, as amended; and the Railroad Commission's Oil and Gas Division Rules (Statewide Rules) at 16 Tex. Admin. Code, Chapter 3.	In Figure: 16 TAC §3.9(e)(3)(B), amend the statement on page 10, lines 28 & 29 to state: "Please be advised that the Railroad Commission of Texas does not have jurisdiction over<u>, and will not consider protests related to,</u> roads, traffic, property values, zoning, noise, odors, esthetics, leasing, pipeline easements, <u>nuisance</u>, or royalty payments.
(2) Notice to individuals and local governments. On or not more than 30 days before the date the application is mailed to or filed with the commission, the applicant shall give notice of the application to the	

following affected persons and local governments: (A) each owner of record of the surface tract on which the well is located; (B) each commission-designated operator of any well or any well for which an unexpired drilling permit has been issued located within one half mile of the proposed injection well; (C) for all tracts within one-half mile of the proposed injection well, all lessees of record for tracts that have no designated operator and all owners of record of un-leased mineral interests; (D) the county clerks of the counties in which the well or wells are located; (E) the city clerks or other appropriate city officials of any city where the well or wells are located within the municipal boundaries; (F) if the application is for a commercial disposal well permit, owners of record of each surface tract that adjoins the proposed injection tract and the groundwater conservation district, if the well is to be located in an area covered by a groundwater conservation district; and members of any other class of persons the director determines, after review of the application, should receive notice of that application. (3) Notice by publication. (A) In order to give notice to other local governments, interested, or affected persons, notice of the application shall be published once by the applicant in a newspaper of general circulation for the county where the well will be located. If the application is for a commercial disposal well, that fact shall be stated in the published notice. Such notice shall be published no more than 30 days before the applicant submits the application to the commission. (B) The following notice, with the information relating to the specific application completed, shall be used: Figure: 16 TAC §3.46(e)(3)(B). NOTICE OF APPLICATION FOR	The AESC opposes these proposed changes on notice and standing to groundwater districts, because they are contrary to the statutory authority of the Railroad Commission of Texas and groundwater districts; they are contrary to actions by the Legislature over the recent years; they create regulatory uncertainty; and they increase costs with no offsetting benefits. See, attached Memorandum on Notice and Standing of Groundwater Districts.

COMMERCIAL FLUID INJECTION WELL PERMIT [Company name and address] is applying to the Railroad Commission of Texas for a permit to inject oil and gas waste into a formation that is productive of oil and gas. The applicant proposes to inject oil and gas waste into the [formation name]; [lease name]; [well number(s)] and engage in surface activities associated with the operation of the proposed injection well. The proposed injection well is located at [address, or if no address, a physical description of the location (i.e., intersection of highways)]; approximately [direction and number of miles from nearest town] in the [field name] in [County or Counties]. Oil and gas waste will be injected into strata in the subsurface depth interval from _____ to _____ feet. If you have objections to the issuance of a injection well permit for this well, you may submit a letter of protest. Protests to the application from local governments or persons who object and can show that they may be adversely affected, or requests for further information concerning any aspect of the application, should be submitted in writing to the Director, Oil and Gas Division, Railroad Commission of Texas, P. O. Box 12967, 1701 North Congress Avenue, Austin, Texas 78711. Unless the director receives a protest to the application, the director may take final administrative action on the application (e.g., may approve, deny, return, or refer the application to hearing) no fewer than 15 days after the date the application is filed with the director; however, the director will consider any protest the director receives up until the time that the director takes final administrative action on the application. Please be advised that the Railroad Commission of Texas does not have jurisdiction over roads, traffic, property values, zoning, noise, odors, esthetics, leasing, pipeline easements, or royalty payments.	In Figure: 16 TAC §3.46(e)(3)(B), change the 'may' to 'will' in the following sentence: "Protests to the application from local governments or persons who object and can show that they will be adversely affected...." The provision that "(h)owever, the director will consider any protest the director receives up until the time the director takes administrative action on the application" creates regulatory uncertainty. The date or time period for the receipt of protests is open ended. It is recommended this provision be deleted and that protests be received by the Commission within 15 days after the date the application is filed with the Commission. In Figure: 16 TAC §3.9(e)(3)(B), amend the statement on page 10, lines 28 & 29 to state: "Please be advised that the Railroad Commission of Texas does not have jurisdiction over, and will not consider protests related to, roads, traffic, property values, zoning, noise, odors, esthetics, leasing, pipeline easements, nuisance, or royalty payments.

LEGAL AUTHORITY: Texas Water Code, Chapter 27, as amended; Texas Natural Resources Code, Title 3, as amended; and the Railroad Commission's Oil and Gas Division Rules (Statewide Rules) at 16 Tex. Admin. Code, Chapter 3.

(C) The applicant shall file with the commission in Austin proof of publication prior to the hearing or administrative approval. The following affidavit of publication format may be used: Figure: 16 TAC §3.46(e)(3)(C).

(4) Notice requirements for amended permit applications. If the applicant seeks to amend an existing permit issued under this section, the applicant shall provide notice as follows: Figure: 16 TAC §3.46(e)(5).

(6) Protested applications. The director shall not approve any application fewer than 15 days after notice has been given to all affected persons as required by this section. If the commission receives a protest from an affected person or local government before the commission staff takes final administrative action on an application or if the director determines that a hearing is in the public interest and the director receives a written request from the applicant for a hearing, then the commission will hold a hearing on the application after giving notice of the hearing to the individuals and local governments specified in subsection (e)(2) of this section and any other person or entity that has expressed, in writing, an interest in the application.

(7) Unprotested applications. If no protest from an affected person or local government is received by the commission, the director may administratively approve the application no fewer than 15 days from the date the commission received the application, the date of the required individual notice, or the date of publication, whichever is later. If the director denies

administrative approval, the applicant shall have a right to a hearing upon written request. After hearing, the examiner shall recommend a final action by the commission.	
§3.46 (f) Subsequent Commission Action. (1) An injection well permit may be modified, suspended, or terminated by the commission for just cause after notice and opportunity for hearing, if: (A) a material change of conditions occurs in the operation or completion of the injection well, or there are material changes in the information originally furnished; (B) continued operation of the well is likely to endanger underground sources of drinking water or human health or safety; (C) there are substantial violations of the terms and provisions of the permit or of commission rules; (D) the applicant has provided incorrect information, has failed to provide the required notice, or has misrepresented any material facts during the permit issuance process; (E) injected fluids or displaced formation fluids are escaping from the permitted injection interval; or (F) waste of oil, gas, or geothermal resources is occurring or is likely to occur as a result of the permitted operations. (2) Except for commercial disposal well permits, an injection well permit may be transferred from one operator to another operator by filing Form P-4 (Producer's Certificate of Compliance and Transportation Authority), unless the director notifies the present permit holder of an objection to the transfer prior to the date the lease is transferred on commission records. Transfer of a commercial disposal well permit requires written approval of the director after an inspection and a review confirming compliance with the permit issued under this section and applicable commission rules.	

(3) Voluntary permit suspension. (A) An operator may apply to temporarily suspend its injection authority by filing a written request for permit suspension with the commission in Austin, and attaching to the written request the results of an MIT test performed during the previous three-month period in accordance with the provisions of subsection (m)(4) of this section. The provisions of this paragraph shall not apply to any well that is permitted as a commercial injection well. (B) The director may grant the permit suspension upon determining that the results of the MIT test submitted under subparagraph (A) of this paragraph indicate that the well meets the performance standards of subsection (m)(4) of this section. (C) During the period of permit suspension, the operator shall not use the well for injection or disposal purposes. (D) During the period of permit suspension, the operator shall comply with all applicable well testing requirements of §3.14 of this title (relating to Plugging) but need not perform the MIT test that would otherwise be required under the provisions of subsection (m)(4) of this section or the permit. Further, during the period of permit suspension, the provisions of subsection (i)(1) - (3) of this section shall not apply. (E) The operator may reinstate injection authority under a suspended permit by filing a written notification with the commission in Austin. The written notification shall be accompanied by an MIT test performed during the three-month period prior to the date notice of reinstatement is filed. The MIT test shall have been performed in accordance with the provisions and standards of subsection (m)(4) of this section.	
§3.46 (g) Area of Review. (1) Area of review. Except as otherwise provided in this subsection, the applicant shall review the public record for wells that	

penetrate the top of the proposed injection interval within a 1/4 mile radius of the proposed injection well to determine if all wells have been cased and cemented or plugged in a manner that will prevent the movement of fluids from the injection interval into usable-quality water. The applicant shall identify in the application any wells which appear from such review of public records to be not adequately cased and/or cemented, unplugged or improperly plugged and any other unplugged or improperly plugged wells of which the applicant has actual knowledge. The director shall not approve a permit application under this section for an injection well for which the area of review includes any orphaned wells that penetrate the top of the injection interval. The applicant shall review the public record for wells that penetrate the top of the proposed injection interval within a 1/4 mile radius of the proposed injection well to determine if all wells are cemented across the injection interval in such a manner to prevent the movement of fluids from the injection interval into usable-quality water. (2) Area of review variance. (A) The director may grant a variance from the area of review requirements of paragraph (1) of this subsection upon proof that the variance will not result in a material increase in the risk of fluid movement into underground sources of drinking water or to the surface. Such a variance may be granted for an area defined both vertically and laterally (such as a field) or for an individual well. An application for an areal variance need not be filed in conjunction with an individual permit application or application for permit amendment. (B) Factors that may be considered by the director in granting a variance include: (i) the area affected by pressure increases resulting from injection operations; (ii) the presence of local geological conditions that preclude movement of fluid	Change areal to area?

that could endanger underground sources of drinking water or the surface; or (iii) other compelling evidence that the variance will not result in a material increase in the risk of fluid movement into underground sources of drinking water or to the surface. (C) Persons applying for a variance from the area of review requirements of paragraph (1) of this subsection on the basis of factors set out in paragraph (2)(B) of this subsection for an individual well shall provide notice of the application in accordance with subsection (e) of this section. (i) Individual and published notice of an application for an areal variance from the area of review requirements under paragraph (1) of this subsection shall be given on or not more than 30 days before the date the application is filed with the commission. (I) Published notice. The application shall give notice by publication once in a newspaper having general circulation in each county, or portion thereof, where the variance would apply. Such notice shall be in a form approved by the director prior to publication and must be at least three inches by five inches in size. The notice shall state that protests to the application shall be filed with the director in writing and that, unless the director receives a protest to the application, the director may take final action on the application no fewer than 15 days after the date of publication, the date that individual notice was given, or the date that the director received the permit application, whichever is later. The notice shall appear in a section of the newspaper containing state or local news items. (II) Individual notice. (i) The applicant shall give individual notice as required by paragraph (4) of this subsection by mailing by regular United States Postal Service (USPS) mail and either USPS certified mail, return receipt requested, or a private commercial carrier with documented delivery confirmation, the following:	In (I), change the word 'application' to 'applicant'.

(I) a copy of the front and back of the application;

(II) a map identifying the location of the proposed injection well, showing a north arrow; scale; geographic subdivisions appropriate for the scale; and by inset or otherwise, landmarks or other features such as roads and highways in relation to the proposed well in sufficient detail to allow a person to reasonably ascertain where an
owned or occupied property is with respect to the proposed injection well location; and

(III) the following notice, with the information relating to the specific application completed:

21 Figure: 16 TAC §3.46(g)(4)(B)(i)(III)

NOTICE OF APPLICATION FOR AN INJECTION WELL PERMIT WITH EXCEPTION TO AREA OF REVIEW REQUIREMENTS

Attached is a copy of an application for an injection well permit under the Railroad Commission's Statewide Rule 46 (16 Texas Administrative Code §3.46), relating to Fluid Injection into Productive Reservoirs. [Company name and address] is applying to the Railroad Commission of Texas for a permit to inject fluid. The applicant proposes to inject fluid into the [formation name]; [lease name]; [well number(s)]. The proposed injection well is located at [address, or if no address, a physical description of the location (i.e., intersection of highways)]; approximately [direction and number of miles from nearest town] in the [field name] in [County or Counties]. The fluid will be injected into strata in the subsurface depth interval from _____ to _____ feet. The applicant also has requested a variance from the area of review requirements in Statewide Rule 46(g)(1).

The commission's rules can be reviewed on the commission's website at www.rrc.state.tx.us. Attached is a copy of the application form and a map identifying the location of the proposed well.

You are receiving this notice because you have been identified as a potentially affected person or local government to which 16 TAC §3.46(e) requires that the applicant for an injection well permit provide notice. If you have objections to the issuance of an injection well permit for this well, you may submit a letter of protest. Protests to the application from local governments or persons who object and can show that they may be adversely affected, or requests for further information concerning any aspect of the application, should be submitted in writing to the Director, Oil and Gas Division, Railroad Commission of Texas, P. O. Box 12967, 1701 North Congress Avenue, Austin, Texas 78711. Unless the director receives a protest to the application, the director may take final administrative action on the application (e.g., may approve, deny, return, or refer the application to hearing) no fewer than 15 days after the date the application is filed with the director; however, the director will consider any protest the director receives up until the time that the director takes final administrative action on the application. Please be advised that the Railroad Commission of Texas does not have jurisdiction over roads, traffic, property values, zoning, noise, odors, esthetics, leasing, pipeline easements, or royalty payments. LEGAL AUTHORITY: Texas Water Code, Chapter 27, as amended; Texas Natural Resources Code, Title 3, as amended; and the Railroad Commission's Oil and Gas Division Rules (Statewide Rules) at 16 Tex. Admin. Code, Chapter 3. (ii) Individual notice shall be given to the following affected persons and local governments: (I) each groundwater conservation district in which the variance would apply, if any;	In Figure: 16 TAC §3.46(g)(4)(B)(i)(III), change the 'may' to 'will' in the following sentence: "Protests to the application from local governments or persons who object and can show that they will be adversely affected...." The provision that "(h)owever, the director will consider any protest the director receives up until the time the director takes administrative action on the application" creates regulatory uncertainty. The date or time period for the receipt of protests is open ended. It is recommended this provision be deleted and that protests be received by the Commission within 15 days after the date the application is filed with the Commission. In Figure: 16 TAC §3.9(e)(3)(B), amend the statement on page 10, lines 28 & 29 to state: "Please be advised that the Railroad Commission of Texas does not have jurisdiction over, and will not consider protests related to, roads, traffic, property values, zoning, noise, odors, esthetics, leasing, pipeline easements, nuisance, or royalty payments.

(II) the city clerk or other appropriate official of each incorporated city in which the variance would apply, if any; (III) the county clerk of each county in which the variance would apply; and (IV) any other class of person or persons that the director determines should receive notice of the application. (5) If a protest to an application for an areal variance is made to the director by an affected person, local government, ~~groundwater conservation district~~, or other state agency prior to the director taking final action on the application, or if the director determines that a hearing on the application is in the public interest, then a hearing will be held on the application after the commission provides notice of the hearing to all local governments, ~~groundwater conservation districts~~, state agencies, or other persons, who express an interest, in writing, in the application. If no protest from an affected person is received by the director, the director may administratively approve the application. If the application is denied administratively, the person(s) filing the application shall have a right to hearing upon written request. After hearing, the examiner shall recommend a final action by the commission. (6) An areal variance granted under the provisions of this subsection may be modified, terminated, or suspended by the commission after notice and opportunity for hearing is provided to each person shown on commission records to operate an oil or gas lease in the area in which the proposed modification, termination, or suspension would apply. If a hearing on a proposal to modify, terminate, or suspend an areal variance is held, any applications filed subsequent to the date notice of hearing is given must include the area of review information required under paragraph (1) of this subsection pending issuance of a final order.	

§3.46 (h) Casing. (1) Injection wells shall be cased and the casing cemented in compliance with §3.13 of this title in such a manner that the injected fluids will not endanger oil, gas, or geothermal resources and will not endanger formations that contain underground sources of drinking water not productive of oil, gas, or geothermal resources. (2) The director shall not approve an application for a disposal well permit under this section for any well in which the surface casing is not set and cemented from the ground surface to the base of usable-quality water as determined by the Groundwater Advisory Unit. (3) The director shall not approve an application for a disposal well under this section for any well in which the casing is not cemented across and extending above the base of the deepest underground source of drinking water, as follows: (A) if the top of cement is determined through calculation, at least 600 feet (measured depth) above the permitted formations; (B) if the top of cement is determined through the performance of a temperature survey conducted immediately after cementing, 250 feet (measured depth) above the permitted formations; (C) if the top of cement is determined through the performance of a cement evaluation log, 100 feet (measured depth) above the permitted formations; (D) at least 200 feet into the previous casing shoe (or to surface if the shoe is less than 200 feet from the surface); or (E) as otherwise approved by the district director. (4) All disposal wells to be permitted under this section shall comply with §3.11 of this title (relating to Inclination and Directional Surveys Required) and §3.12 of this title (relating to Directional Survey Company Report). If an inclination report filed in	

compliance with §3.11 of this title shows a cumulative displacement beyond the boundaries of the tract upon which the well is located, the operator shall run a directional survey in accordance with §3.12 of this title to demonstrate that the bottom-hole is within the boundaries of the tract. If the directional survey indicates that the bottom-hole is not within the boundaries of the tract, the permit is subject to suspension, modification, or termination pursuant to subsection (f) of this section.	
§3.46 (i) Special equipment. (1) Tubing and packer. Wells drilled or converted for injection shall be equipped with tubing set on a mechanical packer. Packers shall be set no higher than 100 feet below the known top of cement behind the long string casing. If the well is completed in a county regular field, the packer shall be set no higher than 200 feet below the known top of cement behind the long string casing but in no case higher than 150 feet below the base of usable-quality water. For purposes of this section, the term "tubing" refers to a string of pipe through which injection may occur and which is neither wholly nor partially cemented in place. A string of pipe that is wholly or partially cemented in place is considered casing for purposes of this section. (2) Pressure valve. The wellhead shall be equipped with a pressure observation valve on the tubing and for each annulus of the well. (3) Exceptions. The director may grant an exception to any provision of this subsection upon proof of good cause and payment of the fees required by §3.78 of this title. If the director denies an exception, the operator shall have a right to a hearing upon written request. After hearing, the examiner shall recommend a final action by the commission.	
§3.46 (j) Permit Conditions.	

(1) Standard conditions. (A) Injection must be through tubing set on a packer. The packer must be set no higher than 100 feet above the top of the permitted interval. (B) Unless the district office has approved shorter notice, the appropriate district office must be notified 48 hours prior to: (i) running tubing and setting packer; (ii) beginning any work over or remedial operation; (iii) conducting any required pressure tests or surveys. (C) The wellhead must be equipped with a pressure observation valve on the tubing and for each annulus. (D) If the injection well is a new well that will be drilled, once the well is drilled, a log of the well from surface to total depth shall be submitted to the commission. The formations behind the surface casing and any intermediate casing shall be open hole logged prior to setting the surface casing and intermediate casing. At a minimum, such logging shall consist of a spontaneous potential log, resistivity log, a natural gamma ray log, and a porosity log. An operator may request approval of an exception to this requirement by filing with the director a written request for such approval providing all pertinent information to support the exception. In determining whether to grant an exception, the director may consider the availability and quality of existing logs for wells in close proximity to the well that is the subject of the exception request (E) Prior to beginning injection and subsequently after any work over, an annulus pressure test must be performed. The test pressure must equal the maximum authorized injection pressure or 500 psig, whichever is less, but must be at least 200 psig. Unless the district office has approved shorter notice, the appropriate district office shall be notified at least 48 hours before the test is conducted to give the district office an opportunity to witness the test. The test must be performed and the results submitted in accordance with the	**3.46 (j)(1)(D)**. Please note again that if required to run from the surface we will be encountering hole stability issues in many of the wells. Again, we question the cost benefit ratio of this requirement. AESC supports the proposed language of TXOGA for this subsection: <u>Upon request by the commission, the formations behind the surface casing and any intermediate casing shall be open hole logged prior to setting the surface casing and intermediate casing.</u> AESC members question the need for four logs on the well. As to a salt water disposal well, the spontaneous potential log more than satisfies the technical and geologic data needed by the Commission.

instructions of Form H-5 (Disposal/Injection Well Pressure Test Report). (F) The injection pressure and injection volume must be monitored at least monthly and reported annually on Form H-10 (Annual Disposal/Injection Well Monitoring Report) to the commission's Austin office. (G) Within 30 days after completion, conversion to injection or any work-over which results in a change in well completion, a new Form W-2 (Oil Well Potential Test, Completion or Recompletion Report, and Log) or Form G-1 (Gas Well Back Pressure Test, Completion or Recompletion Report, and Log) must be filed with the commission to show the current completion status of the well. The date of the injection well permit and the permit number must be included on the new Form W-2 or G-1. (H) Unless the well is a commercial disposal well, an injection well permit transfers from one operator to another upon approval of Form P-4 (Producer's Certificate of Compliance and Transportation Authority). (I) Unless otherwise required by conditions of the permit, completion and operation of the well shall be in accordance with the information represented on the application (Forms H-1 and H-1A). (J) A permit will expire when the Form W-3 (Plugging Record) is filed with the commission. Permits issued under this section for wells to be drilled or converted will expire three years from the date of issuance of the permit unless the permittee has commenced operations to drill or convert the well. (K) If the well is a commercial disposal well, the operator shall be responsible for complying with the following requirements prior to beginning operations so as to assure that discharges of oil and gas waste will not occur: (i) All collecting pits, skimming pits, or washout pits must be permitted under the requirements of §3.8 of this title (relating to Water Protection). (ii) A catch basin constructed of	Since a tubing-casing annulus monitoring option is deleted, is the Form H-10 still a valid form to use at all? What would be the purpose of such a form if this monitoring is now removed as an option?

concrete, steel, or fiberglass must be installed to catch oil and gas waste which may spill as a result of connecting and disconnecting hoses or other apparatus while transferring oil and gas waste from tank trucks to the disposal facility. (iii) All fabricated waste storage and pretreatment facilities (tanks, separators, or flow lines) shall be constructed of steel, concrete, fiberglass, or other materials approved by the director. These facilities must be maintained so as to prevent discharges of oil and gas waste. (I) These facilities must be maintained so as to prevent discharges of oil and gas waste. (II) Each storage tank shall be equipped with a device (visual gauge or alarm) to alert drivers when each tank is within 130 barrels from being full. (iv) Dikes shall be placed around all tanks, waste storage, pretreatment, or disposal facilities. The dikes shall be designed so as to be able to contain a volume equal to the maximum holding capacity of all such facilities. Any liquids or wastes that accumulate in the containment area shall be removed within 24 hours and disposed of in an authorized disposal facility. (v) All storage tanks at commercial disposal wells shall be placed on a liner that is designed, constructed, and installed to prevent any migration of materials from the storage tank into adjacent subsurface soils, ground water, or surface water at any time during the life of the tank. (-a-) The liner shall be made of concrete or doubled-lined with synthetic plastic. The liner system shall be installed according to standard industry practices and shall be constructed of materials that have sufficient chemical and physical properties, including thickness, to prevent failure during the expected life of the tank. All liners shall have a hydraulic conductivity that is 1.0 X 10 -7 cm/sec or less. (-b-) The permittee shall establish procedures to monitor the integrity of the liner on which the tank(s) is placed. If the liner is constructed of	**3.46(j)(1)(K)(iv).** It is assumed that the Commission will exercise discretion on this 24 hour requirement if conditions exists over which the well operator has no control. As an example, an ice storm prevents trucks from traveling to remove the accumulated waste. **3.46(j)(1)(K)(v).** We understand these new requirements as to liners will be prospective only as to new facilities. If our understanding is incorrect, please advise. We would suggest that the term "synthetic plastic" be changed to "synthetic material". We believe the change will give the Commission and Operators a wider range of materials to serve as liners rather than be restricted to plastic.

concrete, the concrete liner shall be inspected quarterly to ensure that the liner integrity has not been compromised. If the liner is made of synthetic plastic, the leak detection system shall be inspected quarterly to determine whether the primary liner has failed. The primary liner has failed if the volume of water passing through the primary liner exceeds the action leakage rate, as calculated using accepted procedures, or 100 gallons per acre per day, whichever is larger. The permittee shall maintain records of such inspections for a period of three (3) years and shall make the records available to commission personnel upon request. The permittee shall notify the appropriate district office within 48 hours of discovery of liner failure and shall repair the liner system within 30 days of the discovery of the failure. Alternative monitoring procedures may be approved by the director if the operator demonstrates that the alternative is at least equivalent in the protection of surface and subsurface water.

(vi) If the permittee uses an on-site sewage system at a commercial facility, the system must be designed by a professional engineer or sewage system installer licensed in the State of Texas, and the design, construction, operation and maintenance of the on-site sewage system must comply with all applicable local, county and state requirements for construction, operation and maintenance of an on-site sewage system.

(vii) The facility shall have security to prevent unauthorized access. Access shall be secured by a 24-hour attendant, a fence and locked gate when unattended, or a key controlled access system. For a facility without a 24-hour attendant, fencing shall be required unless terrain or vegetation prevents truck access except through entrances with lockable gates.

(viii) Only an operator with a commercial disposal well permit may provide an oil and gas waste hauler with a certified Form WH-3, Oil and Gas Waste Hauler's Authority to Use Approved Disposal/Injection System, allowing the

hauler to use the operator's disposal well. (L) If the permittee has reason to believe that fluids are not confined to the permitted injection interval, the operator shall immediately notify the appropriate district office and shall immediately shut-in the well until the well has been remediated and the director has approved recommencement of injection. (M) Failure to comply with all of the conditions of a permit issued under this section may result in the operator being referred to enforcement to consider assessment of administrative penalties as described in subsection (o) of this section and/or the modification, suspension, or termination of the permit. (2) Special conditions. The commission may include in the permit any special conditions necessary to ensure the injection achieves the intent of this section as described in subsection (a) of this section. Such special conditions may include, but are not limited to, conditions related to well construction, injection volume, maximum operating surface injection pressure, monitoring, testing or injection interval.	
§3.46 (k) Well record. Within 30 days after the completion or conversion of an injection well, the operator shall file with the commission a complete record of the well as required by §3.16 of this title (relating to Log and Completion or Plugging Report), showing the current completion.	
§3.46 (l) Monitoring and reporting. (1) The operator shall monitor the injection pressure and injection rate of each injection well on at least a monthly basis. (2) The results of the monitoring shall be reported annually to the commission on Form H-10 (Annual Disposal/Injection Well Monitoring Report). (3) All monitoring records shall be retained by the operator for at least five years.	Since a tubing-casing annulus monitoring option is deleted, is the Form H-10 still a valid form to use at all? What would be the purpose of such a form if this monitoring is now removed as an option?

(4) The operator shall report to the appropriate district office within 24 hours any significant pressure changes or other monitoring data indicating the presence of leaks in the well, or that fluids are not confined to the permitted injection interval. (5) The director may require alternative tests, including, but not limited to, bottom-hole pressure surveys and casing inspection logs.	
§3.46 (m) Mechanical integrity testing. (1) Purpose. The mechanical integrity of an injection well shall be evaluated by conducting pressure tests to determine whether the well tubing, packer, or casing have sufficient mechanical integrity to meet the performance standards of this rule, or by alternative testing methods under paragraph (5) of this subsection. (2) Applicability. Mechanical integrity of each injection well shall be demonstrated in accordance with provisions of paragraphs (4) and (5) of this subsection prior to initial use. In addition, mechanical integrity shall be tested periodically thereafter as described in paragraph (3) of this subsection. The operator of any well that fails a mechanical integrity test shall immediately notify the appropriate district office and shut-in the well until the well has been remediated, a successful mechanical integrity test completed on the well, and the director approves the results of the mechanical integrity test. (3) Frequency. (A) Each injection well completed with surface casing set and cemented through the entire interval of protected usable-quality water shall be tested for mechanical integrity at least once every five years. (B) In addition to testing required under subparagraph (A), each injection well shall be tested for mechanical integrity after every work-over of the well that disturbs the seal between the tubing, packer, and	

casing or after any repair work has been performed on the casing. (C) An injection well that is completed without surface casing set and cemented through the entire interval of protected usable-quality water shall be tested at the frequency prescribed in the injection permit. (D) The director may prescribe a schedule and mail notification to operators to allow for orderly and timely compliance with the requirements in subparagraph (A) and subparagraph (B) of this paragraph. Such testing schedule shall not apply to an injection well for which an injection well permit has been issued but the well has not been drilled or converted to injection. (E) The test pressure must equal the maximum authorized injection pressure or 500 psig, whichever is less, but must be at least 200 psig. Unless the district office has approved shorter notice, the appropriate district office shall be notified at least 48 hours before the test is conducted to give the district office an opportunity to witness the test. The test must be performed and the results submitted in accordance with the instructions of Form H-5 (Disposal/Injection Well Pressure Test Report). (F) The director may grant an exception to this paragraph for a one-time period of no more than six months upon proof of good cause and payment of the fees required by §3.78 of this title. If the director denies an exception, the operator shall have a right to a hearing upon written request. After hearing, the examiner shall recommend a final action by the commission. (4) Pressure tests. (A) Test pressure. (i) The test pressure for wells equipped to inject through tubing and packer shall equal the maximum authorized injection pressure or 500 psig, whichever is less, but shall be at least 200 psig. (ii) The test pressure for wells that are permitted for injection through casing shall equal the maximum permitted injection	

pressure or 200 psig, whichever is greater. (B) Pressure stabilization. The test pressure shall stabilize within 10% of the test pressure required in subparagraph (A) of this paragraph prior to commencement of the test. (C) Pressure differential. A pressure differential of at least 200 psig shall be maintained between the test pressure on the tubing-casing annulus and the tubing pressure. (D) Test duration. A pressure test shall be conducted for duration of 30 minutes when the test medium is liquid or for 60 minutes when the test medium is air or gas. (E) Pressure recorder. Except for tests performed on wells permitted for injection through casing, a pressure recorder shall be used to monitor and record the tubing-casing annulus pressure during the test. The recorder clock shall not exceed 24 hours. The recorder scale shall be set so that the test pressure is 20 to 70% of full scale, unless otherwise authorized by the director. (F) Test fluid. (i) The tubing-casing annulus fluid used in a pressure test shall be liquid for wells that inject liquid unless the director authorizes use of a different test fluid for good cause. (ii) The tubing-casing annulus fluid used in a pressure test shall contain no additives that may affect the sensitivity or otherwise reduce the effectiveness of the test. (G) Pressure test results. The director will consider, in evaluating the results of a test, the level of pollution risk that loss of well integrity would cause. Factors that may be taken into account in assessing pollution risk include injection pressure, frequency of testing and monitoring, and whether there is sufficient surface casing to cover the entire interval of protected usable-quality water. A pressure test may be rejected by the director after consideration of the following factors: (i) the degree of pressure change during the test, if any; (ii) the level of risk to underground	

sources of drinking water if mechanical integrity of the well is lost; (iii) whether circumstances surrounding the administration of the test make the test inconclusive; (iv) starting the test prior to schedule; (v) failure to use a chart; (vi) failure to label chart with pressure spring range and/or chart rotation time; (vii) incomplete or illegible test report or recording chart; (viii) no signature; and/or (ix) other factors that result in the commission being unable to determine whether or not the test or test report successfully demonstrate mechanical integrity. (5) Alternative testing methods. The director may grant an exception for viable alternative tests or surveys or may require alternative tests or surveys as a permit condition. A request for an exception must include proof of good cause and payment of any fees required by §3.78 of this title. (6) Notice to district office. Unless the district office has approved shorter notice, the operator shall notify the appropriate district office at least 48 hours prior to the testing. Testing shall not commence before the end of the 48-hour period unless authorized by the district office. (7) Test records. A complete record of all tests shall be filed in duplicate in the appropriate district office on Form H-5 (Disposal/Injection Well Pressure Test Report), or on-line with the commission if the commission has implemented an on-line reporting program for Form H-5, within 30 days after the testing. The recorder chart shall be submitted to the commission as an attachment to Form H-5. (8) Alternate test frequency. In the case of permits issued under this section which require pressure testing more frequently	

than once every five years, the director may, by letter of authorization, reduce the required frequency of pressure tests, provided that such tests are required at least once every three years. The commission shall consider the permit to have been amended to require pressure tests at the frequency specified in the letter of authorization. (9) Exceptions. The director may grant an exception to any provision of this subsection upon proof of good cause and payment of the fees required by §3.78 of this title. If the director denies an exception, the operator shall have a right to a hearing upon written request. After hearing, the examiner shall recommend a final action by the commission.	
§3.46 (n) Area Permits. A person may apply for an area permit that authorizes injection into new or converted wells located within the area specified in the area permit. For purposes of this subsection, the term "permit area" shall mean the area covered or proposed to be covered by an area permit. Except as specifically provided in this subsection, the provisions of this section applicable to injection wells shall apply in the case of an area permit and all injection wells converted, completed, operated, or maintained in accordance with that permit. Except as otherwise specified in the area permit, once an area permit has been issued, the operator may apply to operate individual wells within the permit area as injection wells as specified in paragraph (3) of this subsection. (1) An application for an area permit must be accompanied by an application for at least one injection well. The applicant must: (A) identify the maximum number of injection wells that will be operated within the permit area; (B) identify the depth(s) of usable-quality water within the permit area, as	

determined by the Groundwater Advisory Unit; (C) for each existing well in the permit area that may be converted to injection under the area permit, provide a wellbore diagram that specifies the casing and liner sizes and depths, packer setting depth, types and volumes of cement, and the cement tops for the well. A single wellbore diagram may be submitted for multiple wells that have the same configuration, provided that each well with that type of configuration is identified on the wellbore diagram and the diagram identifies the deepest cement top for each string of casing among all the wells covered by that diagram. (D) provide a wellbore diagram(s) showing the type(s) of completion(s) that will be used for injection wells drilled after the date the application for the area permit is filed including casing and liner sizes and depths and a statement indicating that such wells will be cemented in accordance with the cementing requirements of §3.13 of this title; (E) identify the type or types of fluids that are proposed to be injected into any well within the permit area; (F) identify the depths from top to bottom of the injection interval throughout the permit area; (G) specify the maximum surface injection pressure for any well in the permit area covered by the area permit; (H) specify the maximum amount of fluid that will be injected daily into any individual well within the permit area as well as the maximum cumulative amount of fluid that will be injected daily in the permit area; (I) in lieu of the area of review required under subsection (e) of this section and subject to the area of review variance provisions of subsection (e) of this section, review the data of public record for wells that penetrate the top of the proposed injection interval within the permit area and the area 1/4 mile beyond the outer boundary of the permit area to determine if all abandoned wells have been plugged in	

a manner that will prevent the movement of fluids from the injection interval into usable-quality water. The applicant shall identify in the application the wells which appear from the review of such public records, or of which the applicant has knowledge, to be not adequately cased and/or cemented and, unplugged, improperly plugged, or orphaned, and that penetrate the top of the proposed injection interval. The applicant shall also identify in the application the date of plugging of each abandoned well within the permit area and the area 1/4 mile beyond the outer boundary of the permit area; and

(J) furnish a map showing the location of each existing well that may be converted to injection under the area permit and the location of each well that the operator intends, at the time of application, to drill within the permit area for use for injection. The map shall be keyed to identify the configuration of all such wells as described in subparagraphs (C) and (D) of this paragraph.

(2) In lieu of the notice required under subsection (e)(1) of this section, notice of an area permit shall be given by providing a copy of the area permit application to each surface owner of record within the permit area; each commission-designated operator of a well or unexpired drilling permit located within one-half mile of the permit area; the county clerk of each county in which all or part of the permit area is located; and the city clerk or other appropriate city official of any incorporated city which is located wholly or partially within the permit area, on or no more than 30 days before the date the application is mailed to or filed with the commission. Notice of an application for an area permit shall also be given in accordance with the requirements of subsection (e)(2) of this section. If, in connection with a particular application, the director determines that another class of persons, such as adjacent surface owners or an appropriate groundwater conservation district, should receive notice of the application, the

director may require the applicant to mail or deliver a copy of the application to members of that class.

(3) Once an area permit has been issued and except as otherwise provided in the permit, no notice shall be required when an application for an individual injection well permit for any well covered by the area permit is filed.

(4) Prior to commencement of injection operations in any well within the permit area, the operator shall file Form H-1S (Application for an Injection Well Under an Area Permit) with the commission in Austin. The individual well permit application shall include the following:

(A) the well identification and, for a new well, a location plat;

(B) the location of any well drilled within 1/4 mile of the injection well after the date of application for the area permit and the status of any well located within 1/4 mile of the injection well that has been abandoned since the date the area permit was issued, including the plugging date if such well has been plugged;

(C) a description of the well configuration, including casing and liner sizes and setting depths, the type and amount of cement used to cement each casing string, depth of cement tops, and tubing and packer setting depths;

(D) application fees required by §3.78 of this title; and

(E) any other information required by the area permit.

(5) The director may issue an individual well permit. The director must notify the applicant in writing of a denial of an individual well permit within 20 days of receipt of the application. If the director does not issue the notice of denial in writing within 20 days of receipt of the application, the individual well permit shall be deemed issued.

(6) All individual injection wells covered by an area permit must be permitted in

accordance with the requirements of this subsection and converted or completed, operated, maintained, and plugged in accordance with the requirements of this section and the area permit.	
§3.46 (o) Gas storage operations. Storage of gas in productive or depleted reservoirs shall be subject to the provisions of §3.96 of this title (relating to Underground Storage of Gas in Productive or Depleted Reservoirs).	
§3.46 (p) Plugging. Injection wells shall be plugged upon abandonment in accordance with §3.14 of this title (relating to Plugging).	
§3.46 (q) Penalties. (1) Violations of this section and/or a permit issued under this section may subject the operator to penalties and remedies specified in §3.107 of this title (relating to Penalty Guidelines for Oil and Gas Violations), Title 3 of the Natural Resources Code and any other statutes administered by the commission. (2) The certificate of compliance for any oil, gas, or geothermal resource well may be revoked in the manner provided in §3.73 of this title (relating to Pipeline Connection; Cancellation of Certificate of Compliance; Severance) for violation of this section.	