SOAH Docket No. 582-07-2673
TCEQ Docket No. 2007-0204-WDW

APPLICATION BY TEXCOM GULF DISPOSAL, LLC, FOR TCEQ UIC PERMIT NOS. WDW410, WDW411, WDW412, AND WDW413	§ § § § § § § § § § §	**TEXAS COMMISSION ON ENVIRONMENTAL QUALITY**

EXECUTIVE DIRECTOR'S EXCEPTIONS TO AMENDED PROPOSAL FOR DECISION AFTER REMAND

TO THE HONORABLE COMMISSIONERS AND ADMINISTRATIVE LAW JUDGES OF THE STATE OFFICE OF ADMINISTRATIVE HEARINGS:

The Executive Director of the Texas Commission on Environmental Quality files his Exceptions in response to the Supplemental Proposal for Decision prepared by the Administrative Law Judges in the above-referenced matter.

The Executive Director (ED) respectfully disagrees with the Administrative Law Judges' (ALJs) conclusion that TexCom Gulf Disposal LLC's (TexCom or Applicant) application for Underground Injection Control (UIC) Permits No. WDW410, WDW411, WDW412, and WDW413 (Application) should be denied and contends that the Applicant has met its burden of proof on all issues. The ED continues to recommend that the Application be granted.

It appears that the ALJs' recommendation to deny the applications for the injection wells is based on their determination that wastewaters that TexCom proposes to inject into the Lower Cockfield formation could migrate to the Upper Cockfield formation and be brought to the surface by protestant, Denbury Onshore LLC's (Denbury), current and future oil production activities within the Upper Cockfield formation. The ALJs conclude that because this could

occur that ground and surface freshwater would not be protected from pollution as required by Texas Water Code § 27.051(a)(3).

Based on the same concern that Denbury could produce and bring to the surface TexCom's injected wastewater if that wastewater migrated to the Upper Cockfleld, the ALJs also conclude that the use or installation of the proposed TexCom injection wells is not in the public interest under Texas Water Code § 27.051. For all other issues, it appears that the ALJs determined that the proposed applications meet all applicable requirements of Texas Water Code Chapter 27 and Title 30, Texas Administrative Code Chapter 331 (Chapter 331).

Because the ED considers the evidence in the record sufficiently establishes that wastewater injected by TexCom in the injection interval within the Lower Cockfield formation will stay in the Lower Cockfield formation, the ED does not agree that the TexCom wastewaters could be brought to the surface by Denbury's current or future oil activity within the Upper Cockfield formation. The ED believes that the applications meet all applicable statutory and regulatory requirements and therefore recommends that the commission find that the use or installation of the proposed injection wells is in the public interest and that with proper safeguards, both ground and surface fresh water can be adequately protected from pollution. The ED recommends that the ALJs' findings of fact, conclusions of law, and ordering provisions be modified as shown in Attachment A.

Geologic evidence shows injected fluids will be contained in the Lower Cockfield

The ED considers the evidence sufficient to show that the geology of the Lower Cockfield is appropriate to contain the injected fluid within the Lower Cockfield. The ALJs found that the geology of the area was described confidently.[1] The proposed permits include the Upper, Middle

[1] *Amended Proposal for Decision after Remand*, SOAH Docket No. 582-07-267; TCEQ Docket No. 2007-0204-WDW, Proposed Order (PFD Proposed Order), Finding of Fact (FF) No. 84 (Nov. 8, 2010)(finding that "[t]he geology of the area was described confidently and the limits of waste fate and transport can be accurately predicted" utilizing data and modeling).

and Lower Cockfield formations within the injection zone,[2] but the injection interval is limited to 145 feet within the Lower Cockfield formation.[3] The injection interval is that part of the injection zone in which the well is authorized to be perforated.[4] While injected fluids may be authorized to be within the injection zone, the evidence does not show that injected fluids will actually migrate throughout the full vertical extent of the injection zone. The ED agrees with the finding that the Lower Cockfield consists of 345 feet of shales and shaley sands and that the sharp upper contact of the Lower Cockfield is the lower boundary of a 35-foot thick layer of alternating beds of shale, silt, and sand at the base of the Middle Cockfield.[5] The ED agrees with the ALJs' finding that "[t]he Lower Cockfield has sufficient thickness, areal extent and lateral continuity to contain the proposed amount of injected fluid."[6] The ED agrees with the ALJs' finding that the Lower, Middle, and Upper Cockfield are separated from one another by layers of alternating beds of shale, silt, and sand.[7] The ED agrees with the ALJs' conclusion that TexCom's proposed wells would be sited in an area that is geologically suitable.[8]

Modeling shows waste plume contained within Lower Cockfield

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[2] FF No. 65 (describing the depth below ground level of the Cockfield formations).

[3] FF No. 64 (describing 145 feet of perforations in the Lower Cockfield formation and injection interval at depths at depths between 6,045 and 6,390 feet).

[4] 30 TEX. ADMIN. CODE § 331.2(50).

[5] FF No. 91 (describing a 35-foot thick layer at the contact between the Upper and Middle Cockfield formations).

[6] FF No. 92.

[7] FF No. 93.

[8] PFD, Proposed Order, Conclusion of Law (CL) No. 21(Nov. 8, 2010)(concluding that "[i]n accordance with 30 TEX. ADMIN. CODE § 331.121(c)(3)(A), TexCom's proposed wells would be sited in an area that is geologically suitable").

The evidence shows that the predicted waste plume will be contained within the Lower Cockfield.[9] The ALJs found that the limits of waste fate and transport can be accurately predicted through the data obtained from the existing well and the use of analytical and numerical models.[10] The ED agrees with the ALJs' finding that the applicant's reservoir modeling analysis determined that injected waste fluids would travel 2,770 feet from the wellbore within the Lower Cockfield over the lifetime of the facility.[11] The ED also agrees with the ALJs' finding that the injected wastewater should not reach the fault 4,400 feet south of the site, and would remain contained in the Lower Cockfield.[12] No party offered any other waste fate model predicting waste migration into the Upper Cockfield.[13]

Migration from TexCom's wells to Denbury's wells is unlikely

The ALJs' theory that wastewater disposed in the Lower Cockfield could be produced in Denbury's oil and gas production wells requires that first the wastewater migrate from the injection interval in the Lower Cockfield to the to the Upper Cockfield mineral producing zone.[14]

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9 FF No. 84 (finding that "[t]he geology of the area was described confidently and the limits of waste fate and transport can be accurately predicted" utilizing data and modeling), FF No. 92 (finding that "[t]he Lower Cockfield has sufficient thickness, areal extent and lateral continuity to contain the proposed amount of injected fluid"), and FF No. 178 (finding that "[t]he injected wastewater should not reach the fault 4,400 feet south of the site, and would remain contained in the Lower Cockfield").

10 FF No. 84 (described at foot note No. 9), FF No. 177 (finding "[t]he injected wastewater (waste plume) was conservatively determined to travel a maximum of 2,770 feet from the wellbore within the Lower Cockfield over the lifetime of the Facility").

11 FF No. 153.

12 FF No. 178 (described at foot note No. 9).

13 Remand Transcript (Tr.) at 1470:18-25 (Cross Examination Testimony of Mr. Swadener)(answering "no" to the questions "[d]o you have any modeling that you've done that demonstrates that fluid movement [from the Lower Cockfield to the Upper Cockfield]" and "[d]o you have any map that demonstrates that fluid movement [from the Lower Cockfield to the Upper Cockfield]").

14 FF No. 114, (finding that "*[i]f* TexCom's wastewater plume migrates from the Lower Cockfield Injection Interval to the Upper Cockfield portion of the Injection Zone, it could

The weight of the evidence supports that TexCom's injected wastewater is unlikely to migrate from the injection in the Lower Cockfield up into the Upper Cockfield and would not reach Denbury's closest production well in the Upper Cockfield. The ALJs eliminate artificial penetrations as potential migration pathways from the Lower to the Upper Cockfield leaving only faults and fractures as *potential* pathways.[15] The ALJs appear to rely on EW-4000-S fault as the potential migration pathway from the Lower to the Upper Cockfield.[16] Vertical transmissivity is generally lower than horizontal transmissivity, and stratification of shale layers in the Middle and Upper Cockfield further reduces the vertical transmissivity in this area.[17] Even

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eventually be pumped to the surface through Denbury's production wells" [emphasis added]), FF 198 (finding "*[i]f* the wastewater injected by TexCom migrates to the Upper Cockfield, the oil and gas production . . . could pull the wastewater back to the surface" [emphasis added]), FF No. 199 (finding "TexCom failed to prove by a preponderance of the evidence that the waste it injects into the Lower Cockfield would not *migrate into the Upper Cockfield* where it could be drawn to the surface through oil and gas production. [emphasis added]), and Conclusion of Law (CL) No. 29 (concluding that "Denbury's hydrocarbon production wells completed in the Upper Cockfield portion of the Injection Zone could pump to the surface the wastewater injected by TexCom into the Lower Cockfield Injection Interval *that migrates to the Upper Cockfield*"[emphasis added]).

[15] *Amended Proposal for Decision after Remand*, SOAH Docket No. 582-07-267; TCEQ Docket No. 2007-0204-WDW, Introduction (PFD Narrative Introduction), Nov. 8, 2010, at 47 (rejecting Denbury's suggestion that cross flow in unplugged well bores could provide a migration pathway from the Lower Cockfield to the Middle and Upper Cockfield), *Id at* 40 (stating that "the wells of concern cited by Mr. Grant do not threaten USDWs or fresh water resources within the AOR"), *Id at* 42 (stating that "the two wells cited by Mr. Smith do not present a risk of contamination to the USDWs"), FF No. 105 (finding that "Cockfield Shale Members are free of transecting, vertically transmissive faults and fractures"), CL No. 43 (concluding that [n]o corrective actions are needed with respect to any known artificial penetrations in the area in order to prevent or correct pollution of USDWs as contemplated by 30 TEX. ADMIN. CODE §§ 305.152 and 331.44").

[16] FF No. 116 (finding only two relevant faults located within the AOR, ES-4400-S and a parallel fault "mapped on the extreme southern edge of the AOR"), FF No. 120 (finding that "[i]f other small faults exist within the area, they would not influence the safety margins of the project"), CL No. 105 (concluding that "Cockfield Shale Members are free of transecting, vertically transmissive faults and fractures"), Remand Tr. at 1441:25-1442:1-5 (Cross Examination of Mr. Herber)(providing opinion testimony that the EW-4400-S fault is a "communication device into the Upper Cockfield").

[17] PFD Narrative Introduction at 70-71 (citing Mr. Grant testifying on cross examination that the Lower Cockfield and the Middle Cockfield are not in communication in the

if EW-4400-S fault were vertically transmissive, it is unlikely that TexCom's waste plume will reach the fault during the 30-year life of the facility. TexCom's waste plume has been accurately and conservatively predicted to travel only 2,770 feet horizontally from the well bore during the 30-year life of the facility.[18] Injected wastewater would have to travel horizontally 4,400 feet to reach the fault[19] and vertically 400 feet[20] through various layers of shales and shaley sands, including a 35-foot thick layer of alternating beds of shale, silt, and sand to reach the Upper Cockfield.[21] Even if the unlikely vertical migration could occur without the fault as a pathway, injected wastewater would not travel the combined distances of 3,000 feet horizontally and 400 feet vertically through the afore described layers to reach Denbury's nearest production well during the 30-year life of the facility.[22] Denbury's plans to conduct enhanced oil recovery (EOR) with carbon dioxide (CO_2) five years from now do not increase the likelihood of vertical migration of TexCom's waste plume because the mechanics of pressurization would prevent the waste plume from migrating toward the producing interval. If Denbury commences EOR with CO_2 in five or even in ten years and TexCom's waste plume has not migrated into the Upper

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area between the wellbore and EW-4400-S fault, vertical transmissivity in sands of the Lower Cockfield is lower than horizontal transmissivity and that stratification of sands with shale layers would also reduce vertical transmissivity and citing Mr. Herber, and Mr. Casey testifying that vertical transmissivity is lower than horizontal transmissivity).

[18] FF No. 84 (described at foot note No. 9), FF No. 153 (finding "[t]he reservoir modeling results were used to calculate an estimated lateral extent of the injected effluent into the Lower Cockfield through volumetric analysis [and that] [t]his analysis determined that the injected waste fluids would travel 2,770 feet from the wellbore within the Lower Cockfield over the lifetime of the facility"), FF No. 175 (described at foot note No. 9), and FF No. 177 (described at foot note No. 10).

[19] FF No. 178 (described at foot note No. 9).

[20] FF No. 65 (describing the depth below ground level of the Cockfield formations).

[21] FF No. 91 (describing a 35-foot thick layer at the contact between the Upper and Middle Cockfield formations).

[22] FF No. 65 (described at foot note No. 20) FF No. 84 (described at foot note No. 9), FF No. 111 (describing one Denbury production well located approximately 3,000 feet from proposed WDW410), FN No. 153 (described at foot note No. 18), FF No. 175 (described at foot note No.9), and FF No. 177 (described at foot note No. 10).

Cockfield, the pressure from the CO_2 would have the effect of forcing native brines and other fluids present in the formation down into the formations away from the producing wells. [23]

Adequate safeguards are in place to protect ground and surface water

The evidence shows that there are adequate safeguards to protect both ground and surface fresh water from pollution. Compliance with the commission's underground injection control rules in Chapter 331 and with the provisions of an injection well permit assures the safeguards needed to protect groundwater and surface water from pollution. The purpose of Chapter 331 is to implement the Injection Well Act consistent with the goal of preventing underground injection that may pollute freshwater.[24] An injection well permit must include terms and conditions reasonably necessary to protect fresh water from pollution.[25] The rules and the permit require design, construction, operation, maintenance, and closure of the injection well to protect freshwater from pollution. The ED agrees with the ALJs' conclusion that the evidence in the record is sufficient to meet the requirements of applicable law of such permit, including the Injection Well Act and Chapter 331.[26]

There are specific requirements to assure that other wells in the vicinity of the injection well do not serve as a pathway for the escape of injected fluids. This includes an analysis of the artificial

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[23] Denbury Exhibit 18 at 13:10 (Prefiled Direct Testimony of Mr. Swadener)(testifying that "Denbury anticipates initial EOR production within five years"), Tr. at 1556:9-15 and 19-22, 1557:12-14 (Redirect Testimony of Mr. Swadener)(describing that Denbury's planned EOR with CO_2 would have the effect of forcing bulk water fluids located in the Upper Cockfield that had not been produced by oil and gas production wells back down into the Middle and Upper Cockfield formations), *See also Id* at 1565:14-25(Recross Examination Testimony of Mr. Swadener).

[24] 30 TEX. ADMIN. CODE § 331.1(a).

[25] 30 TEX. ADMIN. CODE § 331.5(a).

[26] CL No. 6 (concluding that "[t]he evidence in the record is sufficient to meet the requirements of applicable law for issuance of such permit, including the TEX. WATER CODE, Chapter 27 (the Injection Well) and 30 TEX. ADMIN. CODE Chapter 331").

penetrations within the area of review that penetrate the confining or injection zones and a determination whether corrective action is needed for those penetrations.[27] For wells within the area of review which are inadequately constructed, completed, plugged, or abandoned, or for which plugging or completion information is unavailable, the applicant shall submit a plan consisting of such steps or modifications as are necessary to prevent movement of fluids into or between USDWs or fresh water aquifers.[28] An injection well permit must prescribe conditions that require corrective action for wells within the area of review which are inadequately constructed, completed, or abandoned, and which as a result of the injection activities may cause the pollution of fresh water.[29]

The commission ordered that modeling be conducted utilizing assumptions that could predict a greater pressure build up in the reservoir and enlarge the AOR.[30] Because an expanded AOR would potentially increase the radius of investigation of artificial penetrations, it is considered a more conservative model and more protective of USDWs.[31] Other conservative assumptions, including assuming a 24-hour a day operation injecting at maximum permitted pressures and rates over the life of the facility, were utilized to model the predicted pressure build up in the reservoir.[32] The Applicant produced well records, records of artificial penetrations, for the

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27 30 TEX. ADMIN. CODE § 331.44.

28 30 TEX. ADMIN. CODE § 331.44(b).

29 30 TEX. ADMIN. CODE § 305.44(1).

30 *TCEQ Interim Order* TCEQ Docket No. 2007-0204-WDW; SOAH Docket No. 582-072673 (Dec. 12, 2008), *See also* FF No. 53 (describing the commission's Remand Order).

31 (FF No. 171)(*See also* Tr. P. 594:5-15 (Cross Examination Testimony of Mr. Grant)(describing how conservative assumptions provide the greatest protection of USDWs).

32 FF No. 157 (finding the reservoir pressure at the wellbore was calculated assuming "injection at the maximum permitted rates continuously for 30 years"), FF No. 175 (finding TexCom calculated the COI assuming that it would continuous injecting wastewater at its maximum injection rate (350 gallons per minute), 24-hours a day, 365 days a year, for 30 years"), FF No. 176 (finding "TexCom's model assumed that reservoir pressures would increase continuously for 30 years without interruption").

expanded AOR.[33] The evidence is sufficient to show that all artificial penetrations, including all of Denbury's existing wells within the area of review were carefully considered and that no corrective action for those artificial penetrations is warranted. The ED agrees with the ALJs' finding that TexCom adequately investigated and accounted for artificial penetrations with the area of review.[34] The ED also agrees with the ALJs' conclusion that no corrective actions are needed with respect to any known artificial penetrations in the area in order to prevent or correct pollution of USDWs as contemplated by Title 30, Texas Administrative Code §§ 305.152 and 331.144.[35] No Denbury well was identified within the AOR that would require corrective action.

RRC did not conclude that Upper Cockfield formation would be injured

The proposed injection wells are located within the Conroe Oil Field.[36] Within the Cockfield formation, most historical oil production within the Conroe Oil Field has been from the Upper Cockfield and none has been from the Lower Cockfield.[37] The Railroad Commission of Texas (RRC) issued a letter that was submitted as evidence in this hearing. The letter stated that the RRC had conducted a review of the proposed TexCom application, specifically studied aspects relating to injection operation, geology and artificial penetrations with ¼ mile of the facility and concluded that operation of the facility would not injure or endanger any known oil or gas reservoir.[38] This letter is a requirement for injection well permits issued by the TCEQ under Texas Water Code § 27.015. The RRC did not express a concern that oil operators in the Upper

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33 FF No 151 (finding that "TexCom adequately investigated and accounted for artificial penetrations within the AOR").

34 *Id.*

35 CL No. 43 (described at foot note No. 15).

36 FF No. 84 (described at foot note No. 9).

37 FF No. 90 (finding that "[w]ithin the Cockfield formation, most historical oil production within the Conroe Oil Field has been from the Upper Cockfield [and] [n]one has been from the Lower Cockfield").

38 FF No. 37.

Cockfield could produce and bring to the surface the TexCom fluids injected into the Lower Cockfield.

No evidence that Denbury is polluting groundwater or surface waters

There is no evidence in the record that that Denbury isn't properly managing and disposing of the wastewater it generates or that the oil and formation fluids brought to the surface by Denbury operations are polluting groundwater or surface freshwater in violation of Texas Natural Resources Code § 91.101.

Conclusion

Because the evidence supports a determination that the TexCom fluids injected into the Lower Cockfield formation will remain in the Lower Cockfield formation, the ED disagrees with the ALJs determination that the injected fluids may be brought to the surface by current or future Denbury operations. The ED respectfully recommends that commission grant the applications and issue the permits.

Respectfully submitted,

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ATTACHMENT A

SOAH Docket No. 582-07-2673; TCEQ Docket No. 2007-0204-WDW
Executive Director's Exceptions to Amended Proposal for Decision after Remand

The Executive Director recommends changes or deletion of certain findings, conclusions, and ordering provisions as described below.

Finding of Fact (FF) No. 93: The Executive Director recommends changes to FF. No. 93.

> 93. The Lower, Middle, and Upper Cockfield Members are separated from one another by layers of altemating beds of shale, silt, and sand. ~~It was not established by a preponderance of the evidence that these layers would prevent injected wastewater or other fluids from passing vertically between the Lower, Middle, and Upper Cockfield..~~

This finding is contradicted by: **FF No. 84** finding that the geology of the area was described confidently and the limits of waste fate and transport can be accurately predicted utilizing data and modeling; **FF No. 92** finding that the Lower Cockfield has sufficient thickness, areal extent, and lateral continuity to contain the proposed amount of injected fluid; **FF No. 153** finding that an analysis of data determined the waste plume would travel 2,770 feet from the well bore within the Lower Cockfield over the lifetime of the facility; **FF No. 178** finding that the injected wastewater should not reach the fault 4,400 feet south of the site, and would remain contained in the Lower Cockfield; **CL No. 21** concluding that TexCom's wells would be sited in an area that is geologically suitable; **CL No.6** concluding that the evidence in the record is sufficient to meet the requirements of Chapter 27 of the Tex. Water Code and Chapter 331; **CL No. 10** concluding that the contents of the draft permits meet the requirements of Tex. Water Code §§ 27.011 and 27.051; and **CL No. 40** concluding that the draft permits contain appropriate conditions to assure compliance with all applicable requirements of Tex. Water Code, Chapter 27 and Chapter 331 Additionally, the evidentiary record supports that migration of fluids up into the Upper Cockfield from the Lower Cockfield is unlikely.

Finding of Fact No. 113: The Executive Director recommends omitting FF. No. 113.

> 113. ~~The evidence was uncertain as to whether the layers of shale, silt, and sand that separate the different member of the Cockfield formations would prevent the upward migration of fluids from the Lower Cockfield Injection to the Middle and Upper Cockfield members of the Injection Zone.~~

This is not a requisite finding when the regulatory definition of injection zone is "[a] formation, a group of formations, or part of a formation that receives fluid through a well" [1] and when the applicant's burden of proof is limited to whether the application complies with all applicable statutory and regulatory requirements.[2] Additionally, the evidentiary record supports that migration of fluids up into the Upper Cockfield from the Lower Cockfield is unlikely. Finally, this finding conflicts with: **FF No. 84** finding that the geology of the area was described confidently and the limits of waste fate and transport can be accurately predicted utilizing data and modeling; **FF No. 92** finding that the Lower Cockfield has sufficient thickness, areal extent, and lateral continuity to contain the proposed amount of injected fluid; **FF No. 153** finding that an analysis of data determined the waste plume would travel 2,770 feet from the well bore within the Lower Cockfield over the lifetime of the facility; **FF No. 178** finding that the injected wastewater should not reach the fault 4,400 feet south of the site, and would remain contained in the Lower Cockfield; and **CL No. 21** concluding that TexCom's wells would be sited in an area that is geologically suitable.

Finding of Fact No. 114: The Executive Director recommends deleting FF. No. 114.

> 114. ~~If TexCom's wastewater plume migrates from the Lower Cockfield Injection Interval to the Upper Cockfield portion of the InjectionZone, it could eventually be pumped to the surface through Denbury's production wells.~~

This is not a requisite finding. This finding is contradicted by **FF No. 37** finding that TexCom submitted the UIC application to the Texas Railroad Commission (RRC), that the RRC provided a letter stating that it had reviewed TexCom's Application, specifically studied aspects relating to injection operation, geology, and artificial penetrations within ¼ mile of the Facility and concluding that operation of TexCom's proposed Facility would not injure or endanger any known oil or gas reservoir and by **FF No. 151** finding that TexCom adequately identified and accounted for artificial penetrations in the Area of Review (AOR). Additionally, the assumptions required to reach the "if" in this finding are contradicted by: **FF No. 92** finding that the Lower Cockfield has sufficient thickness, areal extent, and lateral continuity to contain the

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1 30 TEX ADMIN. CODE 31.2 (54).

2 TEX. WATER CODE § 5.557 (a).

proposed amount of injected fluid; **FF No. 153** finding that an analysis of data determined the waste plume would travel 2,770 feet from the well bore within the Lower Cockfield over the lifetime of the facility; and **FF No. 178** finding that the injected wastewater should not reach the fault 4,400 feet south of the site, and would remain contained in the Lower Cockfield.

Finding of Fact No. 128: The Executive Director recommends changes to FF. No. 128.

> Water with less than 10,000 parts per million (ppm) total dissolved solids (TDS) is ~~considered suitable for~~ defined as an underground source of drinking water (USDW). Below the Catahoula, the pore water is approximately 35,000 ppm TDS and is frequently mixed with varying amounts of hydrocarbons.

Finding of Fact No. 198: The Executive Director recommends deleting FF. No. 198.

> ~~If the wastewater injected by TexCom migrates to the Upper Cockfield, the oil and gas production in the Conroe Oil Field, particularly the proposed carbon dioxide enhanced oil recovery, could pull the wastewater back to the surface.~~

This is not a requisite finding. This finding is contradicted by: **FF No. 37** which finds that the RRC provided a letter concluding that operation of the Facility would not injure or endanger any known oil or gas reservoir and stating that RRC's conclusion was based on RRC's review of TexCom's Application and that this review included specifically studying aspects relating to injection operation, geology, and artificial penetrations within ¼ mile of the Facility; **FF No. 92** finding that the Lower Cockfield has sufficient thickness, areal extent, and lateral continuity to contain the proposed amount of injected fluid; **FF No. 153** finding that an analysis of data determined the waste plume would travel 2,770 feet from the well bore within the Lower Cockfield over the lifetime of the facility; **FF No. 178** finding that the injected wastewater should not reach the fault 4,400 feet south of the site, and would remain contained in the Lower Cockfield; **CL No. 22** concluding that concluding that wells would be sited such that the Injection Zone has sufficient permeability, porosity, thickness, and areal extent to hold the injected wastewater; **CL No. 43** concluding that no corrective action is required for any known artificial penetrations in the area in order to prevent or correct pollution of USDWs; and **CL No. 47** concluding that concluding that no impairment oil or gas mineral rights would result from use and installation of the wells.

Finding of Fact No. 199: The Executive Director recommends deleting FF. No. 199.

> ~~TexCom failed to prove by a preponderance of the evidence that the waste it injects into the Lower Cockfield would not migrate into the Upper Cockfield where it could be drawn to the surface through oil and gas production.~~

This is not a requisite finding when the regulatory definition of injection zone is "[a] formation, a group of formations, or part of a formation that receives fluid through a well" and when the applicant's burden of proof under Texas Water Code § 5.557 is limited to whether the application complies with all applicable statutory and regulatory requirements.[3]

Finding of Fact No. 200: The Executive Director recommends deleting FF. No. 200.

> ~~TexCom did not establish by a preponderance of the evidence that with proper safeguards both ground and surface fresh water can be adequately protected from TexCom's wastewater~~.

This finding conflicts with **CL No.6** concluding that the evidence in the record is sufficient to meet the requirements of Chapter 27 of the Tex. Water Code and Title 30, Chapter 331 (Chapter 331) and would appear to assume facts that are not in evidence because it equates fluids being drawn to the surface by oil and gas production with inadequate protection of groundwater or surface water, and there is no evidence that Denbury's operations are polluting groundwater and surface water in violation of state laws. (*see* TEX. NAT. RES. CODE § 91.101).

Conclusion of Law (CL) No. 8: The Executive Director recommends deleting CL. No. 8.

> ~~The four Class I UIC wells, if constructed and operated in accordance with the Injection Well Act, 30 TEX. ADMIN. CODE Chapter 331, and the Draft Permits, could adversely affect public health or the environment.~~

This finding conflicts with **CL No.6** concluding that the evidence in the record is sufficient to meet the requirements of Chapter 27 of the Tex. Water Code and Chapter 331 and with **CL No. 10** concluding that the contents of the draft permits meet the requirements of Tex. Water Code §§ 27.011 and 27.051.

Conclusion of Law No. 9: The Executive Director recommends deleting CL. No. 9.

> ~~If the Facility is operated in compliance with applicable law, issuance of the Draft Permits could adversely affect the environment and the public health and welfare.~~

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[3] 30 TEX ADMIN. CODE §331.2 (54), TEX. WATER CODE § 5.557 (a).

This finding conflicts with **CL No.6** concluding that the evidence in the record is sufficient to meet the requirements of Chapter 27 of the Tex. Water Code and Chapter 331 and with **CL No. 10** concluding that the contents of the draft permits meet the requirements of Tex. Water Code §§ 27.011 and 27.051.

Conclusion of Law No. 29: The Executive Director recommends deleting CL. No. 29.

> ~~Denbury's hydrocarbon production wells completed in the Upper Cockfield portion of the Injection Zone could pump to the surface the wastewater injected by TexCom into the Lower Cockfield Injection Interval that migrates to the Upper Cockfield.~~

This is not a requisite finding and is contradicted by **FF No. 37** finding that TexCom submitted the Application to the RRC and that the RRC by letter indicated it conducted a review of the Application, during which it specifically studied aspects relating to injection operation, geology, and artificial penetrations within ¼ mile of the Facility, and concluded that operation of the Facility would not injure or endanger any known oil or gas reservoir; and by **FF No. 151** when the assumptions required to reach the "if" are contradicted by: **FF No. 92** finding that the Lower Cockfield has sufficient thickness, areal extent, and lateral continuity to contain the proposed amount of injected fluid; **FF No. 153** finding that an analysis of data determined the waste plume would travel 2,770 feet from the well bore within the Lower Cockfield over the lifetime of the facility; and **FF No. 178** finding that the injected wastewater should not reach the fault 4,400 feet south of the site, and would remain contained in the Lower Cockfield.

Conclusion of Law No. 42: The Executive Director recommends changes to CL. No. 42.

> In accordance with TEX. WATER CODE § 27.051(a)(1), use of existing Well ~~WDW-315~~ WDW410 and installation of the three additional wells proposed by TexCom ~~is not~~ are in the public interest.

This conclusion should refer to the permit number that TexCom is applying for, WDW410, instead of the permit number formerly assigned to the well, and is contradicted by **CL. No. 10** concluding that the contents of the draft permits meet the requirements of Tex. Water Code §§27.011 and 27.051 and by **COL No. 40** concluding that the draft permits contain appropriate conditions to assure compliance with all applicable requirements of Tex. Water Code, Chapter

27 and Chapter 331; **FF No. 233** finding that TexCom has an average compliance history rating; **FF No. 236** finding that TexCom presented evidence regarding its analysis of whether any other alternative methods of disposal were feasible; **FF Nos. 187 through 196** discussing the ALJs' consideration of evidence regarding alternative disposal options; and **FF No. 41** finding that state policy includes provision of adequate capacity for the proper management of industrial waste.

Conclusion of Law No. 44: The Executive Director recommends changes to CL. No. 44.

> TexCom's wells, if constructed and operated in accordance with the specifications listed in the UIC Application and the requirements of the Draft Permits, ~~may not~~ will prevent the movement of fluid that would result in the pollution of a USDW, as required by 30 TEX. ADMIN. CODE § 331.5(a).

This conclusion is contradicted by: **CL No. 10** concluding that the contents of the draft permits meet the requirements of Tex. Water Code §§ 27.011 and 27.051 and **CL No. 40** concluding that the draft permits contain appropriate conditions to assure compliance with all applicable requirements of Tex. Water Code, Chapter 27 and Chapter 331.

Conclusion of Law No. 45: The Executive Director recommends deleting CL. No. 45.

> ~~TexCom's wells, if constructed and operated in accordance with the specifications listed in TexCom's UIC Application and the requirements of the Draft Permits, may cause pollution of fresh water as defined by TEX. WATER CODE § 27.002(4).~~

This conclusion is contradicted by **CL No. 6** concluding that the evidence in the record is sufficient to meet the requirements of Chapter 27 of the Tex. Water Code and Chapter 331 and by **CL No. 40** concluding that the draft permits contain appropriate conditions to assure compliance with all applicable requirements of Tex. Water Code, Chapter 27 and Chapter 331.

Conclusion of Law No. 46: The Executive Director recommends changes to CL No. 46.

> In accordance with TEX. WATER CODE § 27.051(a)(3), both ground and surface fresh water ~~may not~~ can be adequately protected from pollution if TexCom's proposed wells are operated in with the specifications listed in the UIC Application and the requirements of the Draft Permits.

This conclusion is contradicted by: **CL No.6** concluding that the evidence in the record is sufficient to meet the requirements of Chapter 27 of the Tex. Water Code and Chapter 331; **CL No. 10** concluding that the contents of the draft permits meet the requirements of Tex. Water Code §§ 27.011 and 27.051; and **CL No. 40** concluding that the draft permits contain appropriate conditions to assure compliance with all applicable requirements of Tex. Water Code, Chapter 27 and Chapter 331; **FF No. 185** finding that the draft permits contain all of the same requirements, or substantively similar equivalents, found in permits issued by TCEQ to other facilities; and by **FF No. 186** finding that the terms and conditions in the draft permits are similar to and at least as stringent as those found in other UIC permits issued by TCEQ.

Conclusion of Law No. 49:

> In accordance with TEX. WATER CODE § 5.557, TexCom's UIC Application ~~does not satisfy~~ satisfies all applicable statutory and regulatory requirements.

This conclusion is contradicted by: **CL No.6** concluding that the evidence in the record is sufficient to meet the requirements of Chapter 27 of the Tex. Water Code and Chapter 331; **CL No. 10** concluding that the contents of the draft permits meet the requirements of Tex. Water Code §§ 27.011 and 27.051; and **CL No. 40** concluding that the draft permits contain appropriate conditions to assure compliance with all applicable requirements of Tex. Water Code, Chapter 27 and Chapter 331.

Ordering Provision No. 1: The Executive Director recommends changes to Ordering Provision No. 1.

> Permit Nos. WDW410, WDW411, WDW412, and WDW413 for four Class I Underground Injection Control wells in Montgomery County, Texas, are hereby ~~denied~~ granted.

CERTIFICATE OF SERVICE

I certify that on November 29, 2010, a true and correct copy of the "Executive Director's Exceptions To Amended Proposal for Decision After Remand" was transmitted to the persons identified on the attached mailing list by the methods indicated.

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