SOAH DOCKET NO. 582-23-15496
TCEQ DOCKET NO. 2022-1553-WDW

APPLICATION BY URANIUM ENERGY CORP. FOR RENEWAL AND AMENDMENT OF PERMITS WDW423 & WDW424	**§**	**BEFORE THE STATE OFFICE OF ADMINISTRATIVE HEARINGS**

URANIUM ENERGY CORP'S
EXCEPTIONS TO THE PROPOSAL FOR DECISION

Applicant, Uranium Energy Corp. ("UEC" or "Applicant"), respectfully submits these Exceptions to the Proposal for Decision.

INTRODUCTION

This application is for a renewal and amendment. The renewal aspect of this application is important because the local geology and the faults have not changed since the original application was granted by the Commission on May 10, 2010. UEC adequately characterized the local geology and has proven the suitability of the injection interval to receive waste, considering any potential problematic artificial penetrations. In fact, the TCEQ has found UEC's characterization to be adequate twice. Once in the original application and a second time in the renewal application ten years after the initial application and permit issuance. Since there has been no drilling activity, it is difficult to imagine the previous determination on geology when the permits were originally issued has changed. More troubling is that the ALJs seemed to go beyond the TCEQ rules and Instructions to the Application, opining that satisfying these burdens are not enough and applicants should go beyond the rules.

EXCEPTIONS

I. Exceptions regarding adequate characterization of the geology.

The ALJ's recognize that pursuant to the regulations applicable to this permit, "site-specific data will be collected after the wells are drilled."[1] Nonetheless, the ALJs assert that "TCEQ should [not] issue the permits based on its estimations and predictions of local geology."[2] These statements must be evaluated with the following in mind:

(1) The ALJs confuse "local" geology with "site-specific" geology. Throughout the PFD the ALJs use the terms interchangeably. But "local" geology can be broader than "site-specific" geology.[3] These terms should not be confused because some rules require "local" information and others require "site-specific" information.

(2) UEC provided adequate information about "local" geology to issue the permit – there is local geologic information in the record and to the extent purely local geologic data is not available, site-specific data will be collected after permit issuance to confirm any estimates.

(3) The ALJs' position undermines TCEQ's long standing interpretation of its own rule that "post permitting review and approval of well construction is an integral part of the permitting process, and that requiring additional information now, rather than later, is contrary to how permitting is done."[4]

[1] PFD at 65.
[2] PFD at 65.
[3] Even the Protestant's expert Ms. Gordon testified that while "local" can include site-specific information, it can be broader. Tr. Vol. 1 at 94.
[4] PFD at 80.

UEC expert Ms. Williams testified as to how TCEQ undertakes the process for processing permits and then making revisions based on site-specific data obtained when the well is drilled (but prior to any injection):

> Prior to a well being drilled, most of the valuations within the [application] . . . are projected based on geologic assessment. After a well has been drilled, you would have specific information about that site-specific location, including the most critical pieces of information, which is the permitted values of the formations.
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> . . . .
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> All of the values associated with the injection well would be projected prior to drilling the well, and they would be verified against data after the well has been constructed.
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> . . . .
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> It is significantly important to review . . . what the data shows after the well is drilled. In variations between what is projected and what is actually collected after the well is drilled, . . . that can vary.
>
> . . . .
>
> [P]rior to drilling a well, you make estimations of what we expect to find. And then after the well is drilled, you verify what is actually known.

Tr. Vol. 1 at 179:18 to 180:22 (Williams testifying).

The TCEQ has a process where estimates and predictions are, in fact, made for the issuance of the permit when local data might not be readily available. Unlike most other permitting programs, however, adjustments are made based on site-specific data obtained when the well is drilled (but before anything is injected). This is the process, and the process is justified. Localized geology, especially at depths of 3,000 feet, is difficult to acquire. In most cases, only oil and gas wells are drilled at that depth, so specific geologic information is subject to public information provided by oil and gas operators that has been submitted to the Railroad Commission of Texas. That is why regional geologic data is commonly used to make assumptions about localized

geologic features. Issuing the permit based on these assumptions is why the permit does not authorize injection activity until very specific localized information is acquired from the well bore when it is drilled. If the assumptions do not correlate with the site-specific data, then the operator does not receive authorization to inject without permit modifications. The same would be true even if very specific localized geologic information was provided in the application. The well would still have to be drilled and the site-specific data would have to be confirmed before injection would be authorized.

The Protestants and ALJs may not like this process, but it is the process that exists in this case, and the process takes into account the reality of what is available.

A. The local geology was adequately characterized.

The TCEQ rules state that before issuing a Class I injection well permit, TCEQ shall consider an analysis of the local geology and hydrogeology of the well site, "including, at a minimum, detailed information regarding stratigraphy, structure, and rock properties, aquifer hydrodynamics, and mineral resources." 30 TAC §331.121(c)(2). The question in this case, therefore, is whether this information was, in fact, provided such that the local geology could be adequately characterized. The answer is yes.

The ALJs acknowledge that "[t]he technical report in the Application contains a description of . . . local geology and hydrogeology."[5] The ALJs also acknowledge that UEC used geophysical logs from oil and gas wells in the vicinity of the UEC wells and seismic data – all local data.[6] Despite this, the ALJ's concluded that UEC did not use enough local data.

[5] PFD at 63 (citing UEC Ex. 1 at 1896-1924).
[6] PFD at 63. *See also*, PFD at 54.

(i) <u>The TCEQ Instructions dictate what is required.</u>

30 TAC §331.121(c)(2) describes what must be considered by the Commission prior to issuance – not the precise method of the demonstration. It does not suggest how that demonstration is to be made nor dictate the specific means by which the demonstration is made. Significantly, the ALJs recognize that "Section V of TCEQ's Instructions for a Permit Application to Dispose of Waste in a Class I Injection Well (Instructions) set forth the criteria for describing the geology in the vicinity of the proposed wells [and that] [t]he Instructions describe what is necessary to satisfy Rule 331.121(c)(2)(A), (B), and (C)."[7] As the ALJs acknowledge, the Instructions outline all the information the Commission needs for the Commission to consider an analysis of the local geology and hydrogeology.[8] Despite UEC having provided everything that was required by the Instructions, the ALJs decided that more was required. In other words, the ALJs substituted their own judgment for that which is required by TCEQ Instructions. The ALJs re-wrote the TCEQ Instructions. All the information required by the TCEQ Instructions was provided by UEC, and TCEQ considered that information.[9]

The Protestants and the ALJs essentially reject the notion that providing what is required by the Instructions provides what is necessary to satisfy Rule 331.121(c)(2)(A), (B), and (C). Instead, they set aside the Instructions and accept Protestants' alternative analysis of what must be provided to TCEQ. For example, the ALJs state that according to one of the Protestants' experts, "Mr. Hannah, it would be possible to measure porosity, permeability, bottom-hole temperature, and other characteristics of the injection zone by logging and coring a stratigraphic test well or a water well or by performing a pump test by drilling water wells."[10] But none of this is required

[7] PFD at 12.
[8] PFD at 12.
[9] This does not prohibit TCEQ from considering additional site-specific information after issuance of the permit.
[10] PFD at 67.

by TCEQ rules, the TCEQ Instructions, or by TCEQ Staff. Inexplicably, the ALJs have re-written the TCEQ Instructions by requiring what "would be possible" rather than what is required to satisfy Rule 331.121(c)(2)(A), (B), and (C).[11]

Instead of judging this Application by ad-hoc rules set-up by the Protestants, the ALJs should have determined whether the Applicant provided the information that is required by the TCEQ Instructions.

The Instructions expressly state that:

> The data must be of **sufficient quality** and quantity to accurately delineate the faulting in the area, so as to evaluate its effect on the injection reservoir and to address the transmissive fault issue under 30 TAC §331.121(a)(2)(P) and Section V.B.6 of this application. . . . The information submitted in the application will be used to determine the geologic suitability of the area, as required by 30 TAC §331.121(c) and to determine compliance with 30 TAC §331.121(a)(2)(D) & (E).

AppEx-2-02, APP004910 (Section V.A.) (emphasis added).

The Instructions, AppEx-2-02, set forth the criteria for describing the local geology in the vicinity of the proposed wells. Specifically, Section V.B. entitled, "***Local*** *Geology and Hydrogeology*," (emphasis added) requires a permit application to include the following characterizations (in the left-hand column of the chart below) in the Geology Report. UEC adequately characterized the local geology (in the right-hand column of the chart below) required by the Instructions, as reflected in AppEx-2, Pre-Filed Testimony of Stephanie K. Williams.

[11] The ALJs do say that they "are not in the position to identify or propose specific methods necessary to adequately characterize local geology and understand that the Class I injection well permit applicant is not required to drill, construct, core, test, and log a well before the injection well permit is issued . . . ." PFD at 67. Nevertheless, they say it "is concerning that UEC mainly relied on a regional study to make 'extrapolations' when other methods could be implemented to acquire local data." *Id.* The "methods" that should be used are those identified in the Instructions, not those imagined by the Protestant's expert or otherwise deemed "possible."

Required Characterizations in Instructions	Corresponding Permit Application Section
1. Stratigraphy, including a stratigraphic column.	"All the required information is found in the Application (AppEx-1) at the pages that are bates labeled AppEx1-001905 (page V-9) to AppEx1-001909 (page V-13). The application describes the stratigraphic units at the proposed injection well locations in detail and provides a stratigraphic column as Figure V-3 on bates labeled page AppEx1- 000084." AppEx-2 at 15:8-12.
2. Hydrostratigraphy, emphasizing major aquifers and USDWs within them. Describe the vertical and lateral limits of the USDWs and show direction of water APP004911 AppEx-2-02 TCEQ-0623 UIC Class I Injection Well Application Revised June 1, 2018 Page 29 of 55 movement, where known, in each USDW that may be affected by the injection activities. If applying for an aquifer exemption, provide a complete delineation of any aquifer or portion of an aquifer for which exempt status is sought. [30 TAC §305.49(a)(9)]	"All the required information is found in the Application (AppEx-1) at the pages that are bates labeled AppEx1-001909 (page V-13) to AppEx1-001910 (page V-14). The hydrostratigraphy is adequately described in the application and emphasizes the major aquifers and USDW." AppEx-2 at 15:17-20.
3. Definition and description, including but not limited to the lithology and rock properties, of the following: a. Lowest USDW - describe the configuration of the USDW base and method of its determination and the confining bed below the formation containing the lowest USDW; [30 TAC §331.62(a)(1)(A)] b. Confining zone - include structure and isopach maps and justification of its capability to act as a confining layer; c. Injection zone - include structure and isopach maps and justification of	"All the required information is found in the Application (AppEx-1) at the pages that are bates labeled AppEx1-001910 (page V-14) to AppEx1-001913 (page V-17). The approximate depths to the permitted horizons are listed on page V-14 (Bates labeled AppEx1-001910), as estimated for the proposed injection wells using log depths from nearby well Nugget Oil Corp Gleinser [No. 2]. The specified units are further described in detail on the listed pages." AppEx-2 at 15:27 and 16:4. "All the required information is found in the Application (AppEx-1) at the pages that are bates labeled AppEx1-000218 (Figure VIII-2). Requirement V.B.3.f is met with the Non-freshwater Artificial Penetration Location

	its capability to accept and contain the waste, including documentation that the injection zone has sufficient permeability, porosity, thickness and areal extent to prevent migration of fluids into USDWs or freshwater aquifers; d. Injection interval - include structure and isopach maps and discussion of existing, abandoned and anticipated completion intervals; and e. Confining strata beneath the injection zone, if applicable. f. Include an uninterpreted copy of the base map used in (b), (c) and (d).	Map provided in Figure VIII-2. The Non-freshwater Artificial Penetration Location Map was used as the base map for the structure and isopach maps used in requirement V.B.3 (b), (c) and (d).” AppEx-2 at 16:9-13.
4.	A minimum of two structural cross-sections, parallel to dip and strike, intersecting the (proposed) injection well location. These cross-sections should include available log control, with geologic units and lithology indicated (including USDWs and major aquifers), from the surface into the confining strata below the injection zone, or if a major structure exists below the injection zone, to as deep as necessary to define the structure.	“All the required information is found in the Application (AppEx-1) at the pages that are bates labeled AppEx1-001913 (page V-17) to AppEx1-001914 (page V-18). Two cross sections are provided as Figure V-18 (AppEx1-001931) and Figure V-19 (AppEx1-001932) and described within the specified pages.” AppEx-2 at 16:19-22.
5.	Discussion of the structural geology. This should include analysis of faults, fractures and any surface lineations. Maps additional to those listed in Section V.A.3. above may be included as necessary to adequately depict the structural geology.	“The structural geology is adequately described in the Application. All the required information is found in the Application (AppEx-1) at the pages that are bates labeled AppEx 1-001914 (page V-18) to AppExl-001915 (page V-19).” AppEx-2 at 17:1-3.
6.	Delineation of all faults within the AOR. This provision applies to all Class I injection wells, both hazardous and nonhazardous. Permits cannot be issued for wells that have a fault in the injection zone or within the AOR	“All the required information is found in the Application (AppEx-1) at the pages that are bates labeled AppExl-001916 (page V-20) to AppExl-001919 (page V-23). All faults within the AOR are delineated on the cross sections, structure maps and isopach maps provided in

	unless the applicant demonstrates that each fault is not sufficiently transmissive or vertically extensive to allow migration of hazardous constituents from the injection zone. Applicants who have already made a demonstration to the EPA or the TCEQ should provide the date of the demonstration and summarize the results of the agency's review of the demonstration in lieu of demonstration within this application. [30 TAC §331.121(a)(2)(P) and 335.205(a)(5)]	V.B.3 and V.B.4 of the application. Additional discussion is provided on the four major southwest-northeast trending faults that have been identified in the study area." AppEx-2 at 17:8-13
7.	A demonstration that the confining zone "is laterally continuous and free of transecting, transmissive faults or fractures over an area sufficient to prevent the movement of fluids into a USDW or freshwater aquifer." [30 TAC §331.121(c)(3)(B)(i)]	"All the required information is found in the Application (AppEx-1) at the pages that are bates labeled AppExl-001919 (page V-23). The application demonstrates that the Confining Zone is laterally continuous throughout the AOR. The Confining Zone consists of strata within the upper Frio Formation, which is regionally correlative and has a higher clay to sand ratio than the underlying upper Vicksburg Group. The higher clay ratio is significant as the dense, clay-rich shale layers have a lower permeability than sand layers and prevent vertical fluid movement. Additionally, the overall thickness of the upper Confining Zone within the UEC AOR ranges from 350 - 450 feet thick (Figure V-25). The upper Confining Zone consists of a thick clay/shale sequence with discontinuous interbedded sands located mainly within the lower and upper part of the unit. The middle part of the unit is comprised of a continuous clay/shale ~ 250 feet thick (Figures V-15, V-18 and V-19). In addition, the upper Confining Zone is overlain by the Anahuac Formation, which consists of a dense marine clay/shale that ranges from ~ 100 to 250 feet thick and provides an additional layer of containment above the upper Confining Zone. Therefore, considering the apparent displacement along the faults and the thick upper Confining Zone, it is extremely unlikely that the injection reservoir unit will be

		juxtaposed against sand or other potentially porous or permeable 10 strata that will conduct injected fluid out of the reservoir." AppEx-2 at 16:21 and 17:10.
8.	A demonstration that the confining zone "contains at least one formation of sufficient thickness and with lithologic and stress characteristics capable of preventing initiation and/or propagation of fractures." [30 TAC §331.121(c)(3)(B)(ii)]	"All the required information is found in the Application (AppEx-1) at the pages that are bates labeled AppExl-001920 (page V-24) to AppExl-001921 (page V-25). The application adequately describes that the confining zone "contains at least one formation of sufficient thickness with lithologic and stress characteristics capable of preventing initiation and/or propagation of fractures." The application details the upper Frio Formation within the Confining Zone. The Frio Formation consists of sand and shale sequences with a high density of dense, clay-rich shale. The shales are described to be plastic and ductile, which possess lithologic and stress characteristics capable of preventing the initiation and propagation of fractures. The application demonstrates the plastic nature of the region's shales, which seal fractures, preventing vertical movement of fluids up the fracture plane." AppEx-2 at 17:18-28.
9.	A demonstration that: a. the confining zone is separated from the base of the lowermost USDW by at least one sequence of permeable and less permeable strata that will provide an added layer of protection for the USDW in the event of fluid movement in an unlocated borehole or transmissive fault; or b. within the AOR, the potentiometric surface of the injection zone is less than the potentiometric surface of the lowermost USDW, considering fluid density effects, injection pressures, and any significant pumping in the overlying USDW; or	"All the required information is found in the Application (AppEx-1) at the pages that are bates labeled AppEx1-001921 (page V-25) to AppEx1-001922 (page V-26). The application makes the demonstration that the base of the lowermost USDW is separated from the Confining Zone by at least one sequence of permeable (which would allow "bleed off" for further dissipation of any increasing pressure or fluids) and less permeable strata (which prevent upward migration of fluids). The application identifies the 597 feet of alternating permeable (sand) and less permeable (shale) strata within the Anahuac and Catahoula Tuff Formations between the base of the lowermost USDW and top of the Confining Zone as meeting this requirement. The application

	c. no USDW is present. [30 TAC §331.121(c)(4)]	also demonstrates that the potentiometric surface (the level to which water will rise in a well) of the Injection Zone is less than the potentiometric surface of the lowermost USDW." AppEx-2 at 19:5-15.
10.	An assessment of the potential for injection into the well to result in a seismic (earthquake) event. This assessment shall consider: a. a description of any recorded seismic activity (natural and artificially induced) in the area, with a description of location, depth, severity, and impact on subsurface structures (e.g., wellbores); b. within the AOR, the location of all injection wells that are authorized to inject fluids into the proposed injection zone; c. the pattern of injection (injection volumes, rates, and time periods) for each well identified in b. above; d. the thickness of sediments or rocks between the base of the injection zone and the top of the basement rocks at the location of the well. If the top of the basement is not known, then the thickness of sediments or rocks from the base of the injection zone to the lowermost depth to which this interval has been penetrated by drilling activity with the AOR; e. the character of the sediments or rocks identified in d. above; and f. the location and nature of all faults within the AOR that may provide a pathway for injected fluids to travel from the injection zone to the basement rocks. If this assessment indicates there is a	"All the required information is found in the Application (AppEx-1) at the pages that are bates labeled AppEx1-001922 (page V-26) to AppEx1-001923 (page V-27). The application assesses the potential for injection into the well to result in a seismic (earthquake) event. The application details seismic history in the AOR and states the local study area has little potential for earthquake damage in part due to the relatively low level of tectonic activity. The application also makes a demonstration that there is sufficient thickness of sediments below the lower Confining Zone to act as a barrier against a potential migration of injected fluids between the Injection Zone and lower basement rocks." AppEx-2 at 19:21 to 20:2.

	potential for injection into the well to result in a seismic event, provide a proposed plan for mitigation of this potential.	
11.	A brief description of the surface geology. Include a map showing detail equal to or greater than that shown at a 1:250,000 scale; indicate location of injection well, facility and known or suspected faults.	"The surface geology is adequately described in the Application. All the required information is found in the Application (AppEx-1) at the pages that are bates labeled AppEx1-001924 (page V-28)." AppEx-2 at 20:7-9.

Neither the ALJs nor the Protestants have pointed to a single element that is missing from the list of required items from Section V.B. of the Instructions. Because UEC provided all the information that is required by the TCEQ Instructions for an analysis of local geology, UEC expert Stephanie Williams testified that she confidently described the geology in the location of UEC's proposed disposal wells.[12] Ms. Williams further testified that she confidently described the porosity and permeability of the disposal formation.[13] And finally, she testified "I feel confident that the artificial penetrations are described accurately . . . ."[14]

(ii) <u>The Loucks Paper.</u>

The ALJs complain that UEC "mainly used" the Loucks Paper to support its analysis of the local geology.[15] As UEC expert Stephanie Williams pointed out, "[w]e used the Loucks paper to assess regional values and to make an estimation of what we expect to find at the local study area."[16] In fact, UEC looked for site-specific data, and explained how it analyzed local geology based on known information:

[12] Tr. Vol.1 at 193:9-16.
[13] Tr. Vol.1 at 193:17-22.
[14] Tr. Vol.1 at 207:24-25.
[15] PFD at 63-68.
[16] Tr. Vol. 1 at 187:13-15; see also Tr. Vol. 1 at 189:13-21 ("we used the Loucks study to make a determination of the average porosity and permeability that we projected to find at the study area. . . . It looks at porosity and permeability

> Section VII.A.2 of the application requires the applicant to discuss the injection reservoir stratigraphy, lithology, porosity, permeability, thickness, and temperature. In the case of a proposed well, the proposed location will likely not have site-specific reservoir parameters, and therefore regional data must be used to estimate the reservoir characteristics. In order to characterize the Vicksburg Formation at the depth of the Injection Interval at the proposed well location, published values for permeability and porosity were used to estimate the reservoir characteristics. The Loucks and others (1979) (District Ex. 302) published report was used to estimate the porosity and permeability at the proposed location prior to the collection of site-specific data, which will be obtained during drilling.
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> Loucks and others (1979) (District Ex. 302) performed an analysis of wells within the onshore Texas Gulf Coast to assess the reservoir quality of lower tertiary sandstones. The major objective of the regional investigation was to delineate the Texas Gulf Coast lower tertiary stratigraphic section with emphasis on formation, preservation, and vertical and lateral distribution of porosity and permeability to develop predictive tools of favorable reservoir areas. The proposed locations of WDW-423 and WDW-424 are within the study area of the Loucks investigation, and the proposed Injection Interval for WDW-423 and WDW-424 are within the lower tertiary stratigraphic section of the Loucks investigation. See District Ex. 302. The analysis performed by Loucks and others in 1979 (District Ex. 302) uses core analysis in the Texas Gulf Coast region to develop a predictive tool of depth versus porosity and depth versus permeability. The study is used to develop an estimate of anticipated porosity and permeability at the proposed well locations prior to drilling WDW-423 and WDW-424.

AppEx-2 at 21:11-22:6 (Williams prefiled).

But the issuance of this Permit does not end the analysis or TCEQ's ability to impose new requirements.[17] The application, the Permit, and the regulations specifically contemplate imposing additional requirements based on the site-specific data that is generated when WDW-423 and WDW-424 are drilled and completed.[18] In other words, renewal and amendment of these permits are just the first steps – TCEQ oversight and pre-injection regulation continue as additional steps are taken.[19] Ms. Williams further explains this process:

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within the region, and we use that to make a determination of what -- or make a reasonable expectation of what we expect to find in the local study area.").

[17] AppEx-2 at 22:8-13 (Williams prefiled).

[18] *Id.*

[19] *Id.*

In order to collect site-specific geologic data, ample geologic data will be collected from WDW-423 and WDW-424 during the drilling and completion of the proposed wells. The permit application states that a full-hole core will be collected from the Injection Interval during the drilling of both WDW-423 and WDW-424, as stated in AppEx1-001961 (page VI-25) to AppEx1-001962 (page VI-26). If full hole coring is not possible or feasible during the drilling, sufficient sidewall cores will be collected. The cores collected during the drilling of WDW-423 and WDW-424 will be used to measure the porosity of the Confining Zone, Injection Zone and Injection Interval as specified in Section VI.A.9.c.i of the application (AppEx1-001961 (page VI-25) to AppEx1-001962 (page VI-26)).

Additionally, pressure falloff testing will be conducted at the conclusion of the completion activities on each well as required by 30 TAC §331.62 (a)(8). Pressure falloff testing follows guidelines published by United States Environmental Protection Agency in the UIC Pressure Falloff Testing Guideline published August 8, 2002 pursuant to 40 CFR 146.68(e)(1). The pressure falloff testing will be used to determine the reservoir characteristics of the Injection Interval, including the reservoir fluid pressure, transmissibility, permeability, faulting or other boundaries, evidence of dual porosity, skin factor, completion anomalies and other physical characteristics of the reservoir to satisfy requirement VI.A.11 of the instructions found at AppEx-2-02 (Bates labeled APP004918). The pressure falloff test is used to quantify the reservoir properties at the well location and develop a representative value of permeability in a heterogenous reservoir. The pressure falloff testing will be completed at the conclusion of the drilling and completion activities and repeated once annually during the wells' lifetimes as part of the mechanical integrity testing required by 30 TAC §331.64(h)(2). The annual testing provides a duplication of the test measurement and allows for repeatability of the reservoir characterization.

At the conclusion of the drilling and completion activities, UEC will submit a Completion Report to the TCEQ which documents the construction and testing activities associated with the injection wells as required by 30 TAC §331.65(b)(1). The TCEQ will compare the measured and derived geologic reservoir values collected by direct and indirect sources through the drilling activities (core data, logging, pressure falloff testing) and compare the reservoir characterization against the pressure model provided in the permit application. Commission rule 30 TAC §331.45 lists data and procedures that the executive director must approve in determining whether to certify the construction and completion of an injection well, including results of Injection Zone and Confining Zone testing as required in 30 TAC §331.62(a)(7)(C), §331.62(a)(8), and 30 TAC §331.65(a). Specifically, the core analysis shall include a determination of permeability and porosity as required in 30 TAC §331.62(a)(7)(C). Geologic information obtained during the drilling of the well (such as site-specific porosity and permeability) is used to recalculate the Area of Review and Cone of Influence in the completion report as required by 30 TAC §331.65(b)(1). Specifically, the TCEQ compares the porosity and permeability values of the Injection Interval from the drilling activities against the

> permit application to ensure the pressure modeling remains conservative. In the completion report, the calculated Area of Review and Cone of Influence are based on data obtained during logging and testing of the well and the formation, and where necessary, revisions to the information are submitted under §331.121. If the geologic values estimated in the regional studies differ significantly from the site-specific values, the applicant must revise the pressure modeling. Before operations begin, the permittee must obtain written approval from the Executive Director in accordance with 30 TAC §331.65(a)(4).
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> Consequently, the regional values used in the pressure modeling in the permit application are compared against the site-specific values obtained during drilling. The TCEQ would not provide written approval from the Executive Director before injection operations begin if the data provided in the Completion Report did not support the reservoir characterization and pressure modeling in the permit application in accordance with 30 TAC §331.45.

AppEx-2 at 22:15 to 24:15 (Williams prefiled). Nothing in the statute, rules, or Instructions suggest or imply that this approach is inadequate.[20] In fact, as Ms. Williams points out, this is precisely the process contemplated by the TCEQ rules. The ALJs, however, have decided that the site-specific data that is required by drilling the wells and preparing a Completion Report must be gathered before the Permit is issued. This is not the TCEQ process.

The ALJs assert that the "Commission cannot issue Class I injection well permits until after the applicant proves that all USDWs are protected from migration of fluids from the proposed injection interval."[21] Proof that they are protected comes in the form of estimates prior to drilling followed by the requirements for a Completion Report that verifies the estimates. In other words, part of the proof is the regulatory and permitting requirement that UEC provide site-specific data that confirms its estimates prior to TCEQ allowing any injection. As the ALJs noted, "UEC and the ED provided extensive testimony about post permit issuance process—once the wells are

[20] AppEx-2 at 25:13-17.
[21] PFD at 64.

drilled, site-specific data will be collected to confirm the adequacy of characterization of local geology and to ensure that no USDWs are polluted prior to beginning any injection operations."[22]

TCEQ's standard procedure has been to accept extrapolated local geologic characteristics from regional characteristics in the preparation of Class I non-hazardous well applications. As discussed earlier, site-specific data is hard to acquire at these depths, so the extrapolations must be confirmed with actual well bore data collected from the well site when the wells are drilled. UEC is not aware of any Class I non-hazardous well application in the state of Texas that was required to drill, construct, core, test or log in order to get site-specific information before a permit to construct was issued.

(iii) Porosity and Permeability Values

The ALJs assert that UEC "presented no credible evidence to support the decision to use a porosity value of 25% from the Loucks Paper for the project site."[23] Once again, however, the point in the Application is not to have a definitive number, but a number that is based on some reasonable estimate that can then be verified by post-permitting site-specific testing. As Ms. Williams explained:

> Regional data is used to estimate the site-specific porosity value at the proposed well locations. Prior to drilling the proposed wells, porosity values must be estimated for the Injection Interval in order to perform pressure modeling. As no porosity measurements in the Vicksburg Formation at the well site exist, the Loucks paper was used to estimate the site-specific porosity values. District Ex. 302.
>
> The application states on Page VI-24 through VI-25 (AppEx1-001960 through AppEx1-11 001961), "During the drilling and construction of the injection well, appropriate logs and tests will be run to determine or verify the depth, thickness, porosity, permeability, rock type, and the salinity of any entrained fluids, in all relevant geologic units to assure conformance with applicable regulations, and to establish accurate baseline data against which future measurements may be compared."

[22] PFD at 65 (citing Tr. Vol. 1 at 180, 198-201; ED Ex. 6 at Bates ED–09.000074; UEC Ex. 2 (Williams Dir.) at 22-23; ED Ex. 1 (Hannah Dir.) at 9, 12-13.
[23] PFD at 68.

> As stated in Section VI.A.9.c.i (AppEx1-001961 through AppEx1-001962), full-hole cores will be collected during the drilling of WDW-423 and WDW-424 and used to measure the site-specific porosity. The Loucks paper (District Ex. 302) details regional porosity and was used to estimate the porosity prior to drilling the wells. In Loucks' paper (District Ex. 302), porosity for the Texas Gulf Coast region was estimated by depth and the information is used in Figure VII-1 of the application (AppEx1-100191) to determine the average porosity at the top of the Injection Interval. While discrete porosity values will vary within the Injection Interval, one value for the porosity of the reservoir is selected for pressure modeling. Using the Loucks paper (District Ex. 302) to describe the regional porosity at the proposed well location, the porosity at the top of the Injection Interval was selected from the line of best fit of the average porosity at depth.

AppEx-2 at 27:4-27 (Williams prefiled). This same process applies to the permeability calculations.[24]

(iv) Cone of Influence

The ALJs' analysis about the Cone of Influence shows precisely why one cannot confuse local information required pre-permitting with site-specific information obtained post-permitting. The ALJs state that "by using different input parameters for porosity and permeability values found in the Loucks Paper, a different result for COI could be estimated."[25] Of course Protestants' experts could estimate a different COI. But a definitive measurement of the COI is not required by any rule or TCEQ Instruction. Instead, TCEQ has in-place a procedure to estimate the COI prior to permit issuance and to verify a definitive measurement post-permit issuance.

As UEC expert Ms. Williams explained, TCEQ's permitting regime has numerous safeguards in place to assure the Cone of Influence is properly calculated:

> Geologic information obtained during the drilling of the well is used to recalculate the Area of Review and Cone of Influence in the Completion Report as required by 30 TAC §331.65(b)(1). Specifically, the TCEQ will compare results of the Injection Zone and Confining Zone testing program against the estimated values in the permit application to assess the calculated Area of Review and Cone of Influence based on data obtained during logging and testing of the well and the

[24] AppEx-2 at 28:23-28 (Williams prefiled).
[25] PFD at 70.

> formation as required in 30 TAC §331.45(1)(E) and (H). In the Completion Report, the calculated Area of Review and Cone of Influence are based on data obtained during logging and testing of the well and the formation, and where necessary, revisions to the information are submitted under §331.121. If the geologic values estimated from the regional studies differ significantly from the site specific values, the applicant must revise the pressure modeling. Before operations begin, the permittee must obtain written approval from the Executive Director in accordance with 30 TAC §331.65(a)(4).

AppEx-2 at 31:15-28. While the ALJs and Protestants might prefer a different methodology, UEC calculated the COI correctly and accurately. This measurement will be confirmed and verified by further site-specific activities, confirmed in the Completion Report, and reviewed and approved by TCEQ before any injection is allowed to occur.

Neither the ALJs nor the Protestants identify a specific statute, rule, or regulation that requires an applicant to follow the method of calculation advocated by the Protestants. The record does not contain any evidence to support the proposition that UEC allegedly did not calculate the COI correctly. The TCEQ Instructions require that the Cone of Influence be calculated – not measured – in Section A.7 of the Reservoir Mechanics Report. The Cone of Influence calculations are provided in that section of the Application's Reservoir Mechanics Report. App Ex 1 – 002037 to 002039 (pdf pages 2037 to 2039). This section of the application was not challenged. And for good reason.

B. <u>Specific exceptions related to local geology characterization.</u>

Based on the foregoing, Applicant excepts to Findings of Fact 26, 27, and 28. Applicant asserts that the following Findings of Fact should be changed as indicated (strikeout to be deleted, double underlined to be added):

> 26. The Application ~~does not~~ include<u>s</u> adequate data on the local geology and hydrogeology of the project site.
>
> 27. UEC ~~failed to~~ confidently describe<u>s</u> the local geology within the 2.5-mile Area of Review (AOR) at the project site.

28. The Cone of Influence (COI) included in the Application was adequately determined based on parameters ~~not proven~~ shown to be representative of the Vicksburg Formation at the project site~~, potentially underestimating the COI~~. Geologic information obtained during the drilling of the well will be used to recalculate the COI as required by 30 TAC §331.65(b)(1). If the values estimated differ significantly from the post-permitted site specific values, the permittee must revise the pressure modeling. Before operations begin, the permittee must obtain written approval from the Executive Director in accordance with 30 TAC §331.65(a)(4).

Based on the foregoing, Applicant also excepts to Conclusions of Law 8, 15, and 26. Applicant asserts that the following Conclusions of Law should be changed as indicated (strikeout to be deleted, double underlined to be added):

8. UEC ~~failed to meet~~ met its burden to prove that the Application and Draft Permits meet all applicable state and federal requirements on all issues referred by TCEQ. 30 Tex. Admin. Code § 80.17(a).

15. UEC's Application ~~failed to~~ included an analysis of local geology and hydrogeology and ~~failed to~~ included detailed information regarding stratigraphy, structure, and rock properties, aquifer hydrodynamic, and mineral resources. Consequently, UEC ~~failed to~~ confidently described the local geology at the project site. 30 Tex. Admin. Code § 331.121(c)(2).

26. The Application for renewal and amendment of Permits WDW423 and WDW424 provides ~~in~~sufficient information, ~~fails to satisfy~~ satisfies TCEQ rules and requirements, and ~~should be remanded so UEC can develop additional information, or in the alternative,~~ the Application should be granted~~denied~~.

C. The assessment of faults was adequate.

30 TAC § 331.121(a)(2)(P) requires that before issuing a Class I Injection Well Permit TCEQ shall consider the "delineation of all faults within the area of review, together with a demonstration, *unless previously demonstrated to the commission* . . . that the fault is not sufficiently transmissive or vertically extensive to allow migration of hazardous constituents out of the injection zone."[26]

[26] 30 TAC § 331.121(a)(2)(P) (emphasis added).

This is a renewal application. Permits WDW423 and WDW424 were previously issued for these Class I injection wells on May 25, 2010 for a term of ten years.[27] The amendment portion of this Application does not change the number of faults that were involved in the initial permit issuance. There are 11 faults in the AOR.[28] There were the same 11 faults identified and evaluated in the initial application.[29] Because these permits were issued, it was "previously demonstrated to the commission" that these eleven faults were not transmissive – otherwise they could not have been issued under 30 TAC § 331.121(a)(2)(P). Therefore, no demonstration of transmissivity was required in this case. That should be the end of the discussion on transmissivity.

The ALJs state that the rules require that "an applicant must demonstrate that the fault is not sufficiently transmissive or vertically extensive to allow migration of hazardous constituents out of the injection zone before a Class I permit is issued."[30] That is incorrect. Such a demonstration is required "unless previously demonstrated to the commission." 30 TAC § 331.121(a)(2)(P). This demonstration was made for these 11 faults upon issuance of the permit for which this proceeding is a renewal.

Even if a new showing of no transmissivity is required in this case, a contention with which UEC disagrees, such a showing was made.

The basis for the assessment that the faults are not transmissive are found at pages 13-17 of Mr. Grant's prefiled testimony. Specifically, Mr. Grant testified that with respect to each of the

[27] *Executive Director's Response To Public Comments* at 2.
[28] Finding of Fact 33, Proposed Order at 5.
[29] *See* PFD at 52 ("After technical review by TCEQ, it was discovered that the Application did not include all the faults that were identified in the original application and the technical report was subsequently revised and resubmitted."); *see also* TR. Vol. 2 at 35:18 to 38:4 (UEC had cross sections showing all 11 faults in its original application).
[30] PFD at 76.

faults, there is a "juxtaposition of shale to shale across the fault [that] provides a vertical seal to injectate movement, limiting transmissivity."[31] Mr. Grant further explained:

> Because the shales at the UEC site are plastic and unconsolidated at the depths of interest, the application demonstrates that it is unlikely that coherent, transmissive fractures or fault planes exist. When two bodies of unconsolidated shale, or shale and sand, slide past each other along a fault, the UEC application demonstrates in Section V.B.6 (AppEx1-001916 (page V-20) through AppEx1-001919 (page V-23)) that it is likely that the fault plane will become filled and sealed with plastic shale. Due to the very plastic nature of the Gulf Coast Region shales and clays, faults tend to seal themselves, allowing no vertical fluid movement up the fault plane. The large thickness of shale strata above the Injection Interval, which provides extensive shale to shale contact along the fault plane, combined with possible shale smearing along the fault plane, provides adequate sealing to prevent any vertical migration of formation and/or injected fluids along the fault plane. It is evident that the placement of the injection wells will not result in upward movement of injected fluids via vertical fault conduits and would not contaminate an aquifer containing usable quality water. The presence of shale to shale contact across the confining zone strata, plus shale smearing within the fault plane precludes vertical transmission of fluids up the fault planes.

AppEx-4 at 16:22 to 17:10 (Grant prefiled). The ALJs assert that further investigation is warranted.

The ALJs state that "the Jones Paper provides that the Gulf Coast Region has numerous subsurface faults[,] which *must be investigated on a site-by-site basis*."[32] First, the TCEQ Rules and Instructions, not the Jones Paper, dictates the kind of analysis needs to be undertaken. As discussed above, this analysis was undertaken in this case.

Second, the ALJs take the site-by-site investigation statement out of context. This statement was made in the context of monitoring. The Jones Paper generally stands for the proposition that self-sealing faults in the Gulf Coast Region protect against transmissivity:

> A majority of the faults that do occur near a Gulf Coast Region Class I well have the following common properties which reduce or eliminate their effect on the injection operations. In these circumstances, no monitoring well is needed.

[31] AppEx-4 at 14:25-26 (fault 1), 15:9-11 (fault 2), 15:23-24 (fault 3), 16:7-8 (fault 4), and 16:17-18 (faults 5-11).
[32] PFD at 75 (citing Tr. Vol. 2 at 67) (emphasis in original of PFD, but not in the transcript).

. . . .

• The fault is sealing and does not compromise the confinement system

> Should a geologic investigation reveal that a fault poses a potential pathway for the contamination of a USDW, then a monitoring well could be considered.

District Cross Ex. 505, p. 307. The Jones Paper does not stand for the proposition that the permit should be denied, but rather, that if there is proof that a fault is transmissive, a monitoring well "could be considered." TCEQ regulations are written to follow precisely these recommendations. First, there must be an analysis to determine whether faults are transmissive. If that showing is made, then when the well is drilled, additional tests will be mandated, and based on the results of those site-specific tests, monitoring may be required.[33] This is precisely the process envisioned in the Jones Paper.

The ALJs correctly recognized that "the presence of hydrocarbon reservoirs or fields along faults provides an indication of the sealing ability of the fault based on its ability to trap hydrocarbons."[34] The ALJs assert, however, that because there were no deep hydrocarbons at the location of the faults, local hydrocarbon traps could not support the proposition that the faults were sealing.[35] But it is not only deep hydrocarbons that demonstrate sealing. And the ALJs assertion belies the evidence. Mr. Grant explained that shallower hydrocarbon traps can provide useful information:

> [t]he source of the hydrocarbons doesn't all have to be at great depth. It could be generated in formations that sit similar to the Fleming in the shale intervals and then move into the sandstones.

[33] AppEx-2 at 44:12 to 45:19 (Williams prefiled).
[34] PFD at 75.
[35] PFD at 75.

Tr. Vol. 2 at 83:13-17 (Grant testifying). Simply stated, prominent deep hydrocarbon traps are not required to demonstrate that faults are self-sealing. The evidence shows shallow production.[36]

Finally, UEC's expert, Mr. Grant provided testimony about the transmissivity of Fault 6. With respect to fault 6, As Phil Grant testified regarding Faults 5-11: "All of these faults are mapped at Figure V-18 (AppEx1-001931). These faults also provide shale to shale contact across these faults and limit vertical transmissivity, as described above for the Faults 1-4."[37] As Mr. Grant further explained specifically with regard to Fault 6, "Based on the maximum vertical displacement of the Confining Zone juxtaposing the upthrown block of the fault against the downthrown block, the fault juxtaposes low permeability shale against low permeability shale and does not present a risk of injectate migrating out of the Injection Zone. This juxtaposition of shale to shale across the fault provides a vertical seal to injectate movement, limiting transmissivity."[38]

Finally, the ALJs assert that because the formations have sand, UEC did not demonstrate the lack of transmissivity.[39] The presence of sand, however, does not undercut UEC's arguments. Mr. Grant testified that "[w]hen two bodies of unconsolidated shale, or shale and sand, slide past each other along a fault, the UEC application demonstrates that it is likely the fault plane will become filled and sealed with plastic shale."[40] The presence of sand does not change that conclusion.

D. <u>Specific exceptions related to assessment of faults.</u>

Based on the foregoing, Applicant excepts to Findings of Fact 38, 41, 42, and 43. Applicant asserts that the following Findings of Fact should be changed as indicated (strikeout to be deleted,

[36] Tr. Vol. 2 at 82:24 to 83:3 (Grant testifying).
[37] AppEx-4 at 16:10-13 (Grant pre-filed).
[38] AppEx-4 at 16:13-18 (Grant pre-filed).
[39] PFD at 78.
[40] Tr. Vol. 2 at 59:25 to 60:5. (Grant testifying).

double underlined to be added) to reflect the fact that 30 TAC § 331.121(a)(2)(P) contains the language "unless previously demonstrated to the commission":

> 38. Permits WDW423 and WDW424 were previously issued for these Class I injection wells on May 25, 2010 for a term of ten years. The same 11 faults that were evaluated with the original issuance were the subject of this proceeding. The issuance of those original permits shows that UEC demonstrated to the Commission that the 11 faults in the AOR are not sufficiently transmissive or vertically extensive to allow migration of hazardous constituents out of the injection zone. Pursuant to 30 TAC § 331.121(a)(2)(P), such demonstration is not required in this proceeding. ~~UEC did not conduct a site-specific investigation to determine whether the faults within the AOR are transmissive.~~
>
> 41. The Application ~~fails to~~ adequately identif~~y~~ies the faults within the AOR and UEC previously demonstrated to the commission that the faults are not sufficiently transmissive or vertically extensive to allow migration of hazardous constituents out of the injection zone.~~assessment the transmissivity of the faults within the AOR.~~
>
> 42. The Application ~~fails to~~ adequately describes the porosity and permeability of the disposal formation.
>
> 43. The Application ~~fails to~~ adequately shows that the faults in the vicinity of the UEC wells are self-sealing.

Or, in the alternative, if the ALJs or the Commission rejects the plain language of 30 TAC § 331.121(a)(2)(P), Applicant asserts that the following Findings of Fact should be changed as indicated (strikeout to be deleted, double underlined to be added):

> 38. Due to the very plastic nature of the Gulf Coast Region shales and clays, faults tend to seal themselves, allowing no vertical fluid movement up the fault plane. The large thickness of shale strata above the Injection Interval, which provides extensive shale to shale contact along the fault plane, combined with possible shale smearing along the fault plane, provides adequate sealing to prevent any vertical migration of formation and/or injected fluids along the fault plane. It is evident that the placement of the injection wells will not result in upward movement of injected fluids via vertical fault conduits and would not contaminate an aquifer containing usable quality water. The presence of shale to shale contact across the confining zone strata, plus shale smearing within the fault plane precludes vertical transmission of fluids up the fault planes. Based on these facts, UEC demonstrated that the faults within the AOR are not sufficiently transmissive or vertically extensive to allow migration of hazardous constituents out of the injection zone. ~~UEC did not conduct a site-specific investigation to determine whether the faults within the AOR are transmissive.~~

41. The Application ~~fails to~~ adequately identif~~y~~ies and assesses the transmissivity of the faults within the AOR.

42. The Application ~~fails to~~ adequately describes the porosity and permeability of the disposal formation.

43. The Application ~~fails to~~ adequately shows that the faults in the vicinity of the UEC wells are self-sealing.

Based on the foregoing, Applicant also excepts to Conclusions of Law 8, 10, 12, 15, 16, 17, 22 and 26. Applicant asserts that the following Conclusions of Law should be changed as indicated (strikeout to be deleted, double underlined to be added) to reflect the fact that 30 TAC § 331.121(a)(2)(P) contains the language "unless previously demonstrated to the commission":

8. UEC ~~failed to meet~~ met its burden to prove that the Application and Draft Permits meet all applicable state and federal requirements on all issues referred by TCEQ. 30 Tex. Admin. Code § 80.17(a).

10. ~~TCEQ is prohibited from issuing a permit for a Class I injection well if a fault exists within 2.5 miles from the proposed Class I injection well unless the applicant demonstrates to the satisfaction of the Commission that the fault is not sufficiently transmissive or vertically extensive to allow migration of hazardous constituents out of the injection zone. 30 Tex. Admin. Code §335.205(a)(5)(A).~~ 30 TAC § 331.121(a)(2)(P) requires that before issuing a Class I Injection Well Permit TCEQ shall consider the delineation of all faults within the area of review, together with a demonstration, unless previously demonstrated to the commission, that the fault is not sufficiently transmissive or vertically extensive to allow migration of hazardous constituents out of the injection zone.

12. UEC previously demonstrated to the commission that the eleven faults identified in UEC's Application are not sufficiently transmissive or vertically extensive to allow migration of hazardous constituents out of the injection zone.~~UEC failed to prove that the faults within 2.5 miles of its proposed disposal wells are not sufficiently transmissive or vertically extensive to allow migration of hazardous constituents out of the injection zone.~~ Consequently, UEC ~~failed to~~ proved that fresh groundwater can be adequately protected from pollution. Tex. Water Code § 27.051(a)(3); 30 Tex. Admin. Code §§ 335.205(a)(5)(A), 331.5(a), 331.63.

15. UEC's Application ~~failed to~~ included an analysis of local geology and hydrogeology and ~~failed to~~ included detailed information regarding stratigraphy, structure, and rock properties, aquifer hydrodynamic, and mineral resources.

Consequently, UEC ~~failed to~~ confidently described the local geology at the project site. 30 Tex. Admin. Code § 331.121(c)(2).

16. Before issuing a Class I injection well permit, TCEQ shall consider the delineation of all faults within the AOR, and unless previously demonstrated to the commission, shall consider whether the fault is not sufficiently transmissive or vertically extensive to allow migration of hazardous constituents out of the injection zone.~~together with a demonstration that the fault is not sufficiently transmissive or vertically extensive to allow migration of hazardous constituents out of the injection zone~~. 30 Tex. Admin. Code § 331.121(a)(2)(P).

17. Because UEC previously demonstrated to the commission that the faults are not sufficiently transmissive or vertically extensive to allow migration of hazardous constituents out of the injection zone, UEC ~~failed to prove~~ satisfied its burden to show that the faults in the AOR are not sufficiently transmissive or vertically extensive to allow migration of hazardous constituents out of the injection zone. 30 Tex. Admin. Code § 331.121(a)(2)(P).

22. UEC ~~failed to~~ demonstrated the proposed disposal wells will prevent movement of fluids that would result in pollution of a USDW. 30 Tex. Admin. Code § 331.63(b).

26. The Application for renewal and amendment of Permits WDW423 and WDW424 provides ~~in~~sufficient information, ~~fails to satisfy~~ satisfies TCEQ rules and requirements, and ~~should be remanded so UEC can develop additional information, or in the alternative,~~ the Application should be granted~~denied~~.

Or, in the alternative, if the ALJs or the Commission rejects the plain language of 30 TAC § 331.121(a)(2)(P), Applicant asserts that the following Conclusions of Law should be changed as indicated (strikeout to be deleted, double underlined to be added):

8. UEC ~~failed to meet~~ met its burden to prove that the Application and Draft Permits meet all applicable state and federal requirements on all issues referred by TCEQ. 30 Tex. Admin. Code § 80.17(a).

12. UEC ~~failed to~~ proved that the faults within 2.5 miles of its proposed disposal wells are not sufficiently transmissive or vertically extensive to allow migration of hazardous constituents out of the injection zone. Consequently, UEC ~~failed to~~ proved that fresh groundwater can be adequately protected from pollution. Tex. Water Code § 27.051(a)(3); 30 Tex. Admin. Code §§ 335.205(a)(5)(A), 331.5(a), 331.63.

15. UEC's Application ~~failed to~~ included an analysis of local geology and hydrogeology and ~~failed to~~ included detailed information regarding stratigraphy,

structure, and rock properties, aquifer hydrodynamic, and mineral resources. Consequently, UEC ~~failed to~~ confidently described the local geology at the project site. 30 Tex. Admin. Code § 331.121(c)(2).

16. Before issuing a Class I injection well permit, TCEQ shall consider the delineation of all faults within the AOR, and unless previously demonstrated to the commission, shall consider whether the fault is not sufficiently transmissive or vertically extensive to allow migration of hazardous constituents out of the injection zone.~~together with a demonstration that the fault is not sufficiently transmissive or vertically extensive to allow migration of hazardous constituents out of the injection zone~~. 30 Tex. Admin. Code § 331.121(a)(2)(P).

17. UEC ~~failed to prove~~ satisfied its burden to show that the faults in the AOR are not sufficiently transmissive or vertically extensive to allow migration of hazardous constituents out of the injection zone. 30 Tex. Admin. Code § 331.121(a)(2)(P).

22. UEC ~~failed to~~ demonstrated the proposed disposal wells will prevent movement of fluids that would result in pollution of a USDW. 30 Tex. Admin. Code § 331.63(b).

26. The Application for renewal and amendment of Permits WDW423 and WDW424 provides ~~in~~sufficient information, ~~fails to satisfy~~ satisfies TCEQ rules and requirements, and ~~should be remanded so UEC can develop additional information, or in the alternative,~~ the Application should be granted~~denied~~.

II. Exceptions regarding adequate monitoring.

A. The draft permit contains adequate monitoring provisions.

The ALJs assert that they see "value" in requiring monitoring wells.[41] That is not the standard nor does it address the question that was referred by the Commission to SOAH. The referred question was whether "the draft permit provides for adequate monitoring of migration of injected fluids in the vicinity of the proposed injection wells."[42]

All parties, including UEC, agree with the ALJs[43] that 30 Texas Admin Code § 331.64(h) contemplates that there may be monitoring. The ALJs, however, re-write 331.64(h) by making it applicable to a pre-permitting process rather than a post-permitting process. Notably, 30 Texas

[41] PFD at 84.
[42] Interim Order at 2.
[43] PFD at 84.

Admin Code § 331.64(h) is not part of Subchapter G, which is entitled "Consideration Prior To Permit Issuance." By making 331.64(h) a pre-permitting requirement, the ALJs have moved a Subchapter D rule to Subchapter G.

The evidence shows that at the conclusion of its drilling and completion activities, UEC will submit a Completion Report to the TCEQ that documents the construction and testing activities associated with the injection wells, as required by 30 TAC §331.65(b)(1).[44] The Completion Report will adjust formation pressure calculations, fluid front calculations, and update cross sections of the Confining Zone and Injection Zones based on the data obtained during the construction and testing.[45] Commission rule 30 TAC §331.45 sets forth the data and procedures that the Executive Director must review and approve when determining whether to certify the construction and completion of an injection well. This data includes the results of the Injection Zone and Confining Zone testing required by 30 TAC §331.62(a)(7)(C), §331.62(a)(8), and 30 TAC §331.65(a).[46] After the post-issuance site-specific assessment of the potential for fluid movement from the well or Injection Zone—which will be undertaken when the Completion Report is submitted—the Executive Director will determine whether there is potential value for monitoring wells to detect fluid movement.[47] If so, the Executive Director will require the owner to develop a monitoring plan as specified in 30 TAC § 331.64 (h)(1).[48]

TCEQ rules are clear: After the drilling and completion of WDW-423 and WDW-424, a site-specific assessment of the Completion Report will be reviewed by the TCEQ, and the

[44] AppEx-2 at 44:24-26.
[45] AppEx-2 at 44:26 to 45:1.
[46] AppEx-2 at 45:1-5.
[47] AppEx-2 at 45:5-9.
[48] AppEx-2 at 45:5-9.

Executive Director will determine whether additional monitoring is required. AppEx-2 at 45:11-15.

The ALJs are not convinced "that the 'site-specific assessment' referenced in Rule 331.64(h)(1) requires awaiting a completion report and a separate, post-hearing process."[49] This position ignores, however, the regulatory process described above. It also ignores TCEQ's long standing interpretation of its own rule that "post permitting review and approval of well construction is an integral part of the permitting process, and that requiring additional information now, rather than later, is contrary to how permitting is done."[50] An agency is due deference in how it interprets its own rules.[51]

The ALJs note that the Commission referred the question of monitoring, and therefore monitoring wells under Rule 331.64(h) must have been contemplated by the Commission at this phase of the process. The ALJs ignore, however, the fact that the Permit contains monitoring provisions.

Mr. Hannah, the ED's expert provided the following testimony:

> Under Provision IX of the draft permits, the wells would be required to be tested and monitored in accordance with 30 TAC §§305.125, 305.154, and 331.64. These requirements include annual mechanical integrity testing of the casing, injection tubing, annular seal, and bottom-hole cement for leaks using a pressure test and radioactive tracer survey, annual pressure build-up analysis, evaluation of fluid movement every five years using an approved geophysical method, and evaluation of the casing each time the well is subjected to workover procedures. Provision IX would also require injected fluids to be analyzed in accordance with the approved Waste Analysis Plan in Section IX of the Application. Waste analysis must be performed in accordance with methods specified in the current editions of EPA SW-846 or other methods accepted by the TCEQ and must be done at a laboratory certified in accordance with the requirements in 30 TAC Chapter 25. Additionally, Provision IX would require continuous corrosion monitoring that must be performed on the wellhead, injection tubing, packer and casing materials. Ambient

[49] PFD at 84.
[50] PFD at 80.
[51] *TGS-NOPEC Geophysical Co. v. Combs*, 340 S.W.3d 432, 438 (Tex. 2011); *Public Util. Comm'n v. Gulf States Utils. Co.*, 809 S.W.2d 201, 207 (Tex. 1991).

> monitoring of the injection zone is required by the annual monitoring of the pressure buildup in the injection zone conducted in a pressure fall-off test under 30 TAC § 331.64(h)(2).

ED Ex. 1 (Hannah Dir.) at 10. None of these monitoring provisions were challenged as being inadequate. The question referred was not whether monitoring wells should be installed, but rather whether "the draft permit provides for adequate monitoring of migration of injected fluids in the vicinity of the proposed injection wells."[52] There was no testimony that asserted that any of the draft permit Provision IX requirements were inadequate.

Class I non-hazardous injection wells are designed with multilayers of protection to prevent fluids from entering USDWs and have a complex and continuous operational monitoring system:

- The annulus differential pressure, injection pressure and the flow rate are continuously monitored to ensure the well is operated as approved by the final completion report and specific geologic characteristics. 30 Tex. Admin. Code § 331.64 (d).
- Injection pressure is continuously monitored to ensure pressure in the injection zone does not initiate new fractures or propagate existing fractures in the injection zone, initiate new fractures or propagate existing fractures in the confining zone or cause movement of fluid out of the injection zone that may contaminate USDWs and fresh water. Permit Condition VIII.B.
- A positive pressure of at least 100 psig over tubing injection pressures shall be maintained in the tubing casing annulus for the purpose of leak detection. Deviations from this requirement automatically force the well to cease injection. Permit Condition VIII.F.

[52] Interim Order at 2.

- The integrity of the long string casing, injection tubing and annular seal shall be tested by an approved pressure test annually. Permit Condition IX.B.
- The integrity of the cement within the injection zone shall be tested by means of an approved radioactive tracer survey annually. Permit Condition IX.B.
- Pressure buildup in the injection zone shall be monitored annually. Permit Condition IX.C.
- A temperature log, noise log, oxygen activation log or other approved log is required at least once every five years to test for fluid movement along the entire borehole. Permit Condition IX.D.
- A casing inspection, casing evaluation or other approved log shall be run whenever the owner or operator conducts a workover in which the injection string is pulled. Permit Condition IX.E.
- pH and specific gravity are monitored every 24 hours. Permit Condition IX.G.
- Corrosion monitoring of well materials is conducted quarterly. Permit Condition IX.H.

30 TAC § 331.64(h)(1) can require monitoring based on (1) a site-specific assessment (not a "local assessment") of the potential for fluid movement from the well or Injection Zone, and (2) *the potential value of monitoring wells to detect fluid movement*.[53] This second requirement is critical, because if fluid movement cannot be detected, then what good is a monitor well? Stated differently, if the injection stream is cleaner than the formation fluid it is being injected into, then how will the injection stream be detected by a monitor well? The technical review assessed the

[53] AppEx-2 at 44:16-18.

potential for fluid movement from the well and the ED determined that monitoring of the injection fluid and operating parameters at the well site was sufficient. The ED's approval of the initial application and the renewal application also included an assessment to determine the value of monitoring wells to detect fluid movement. The inability to differentiate disposal fluid from groundwater with poorer quality in the overlying zone undermines the purpose of a monitor well, thus a monitor well was not required.

Based on a site-specific assessment, which will be conducted only after the wells are drilled, the Executive Director may require UEC to develop a monitoring program.[54] Ignoring this procedure, the District wants to put the cart before the horse, without evidence or example. Again, Mr. Wall has managed the permitting and compliance of two Class I wells each in Brooks County, Karnes County, Duval County, Bee County and Goliad County, none of which required monitor wells because site specific data from the well bore were used to set operating parameters that would prevent vertical migration of injection fluid. Although TCEQ rules contemplate potential monitoring, they do not contemplate imposing such a requirement at this stage of the proceeding. AppEx-2 at 44:21-22.

Instead, as discussed above, at the conclusion of its drilling and completion activities, UEC will submit a Completion Report to the TCEQ that documents the construction and testing activities associated with the injection wells as required by 30 TAC §331.65(b)(1).[55] The Executive Director will then determine whether a monitoring plan as specified in 30 TAC § 331.64 (h)(1) will be required.[56]

[54] AppEx-2 at 44:18-20.
[55] AppEx-2 at 44:24-26.
[56] AppEx-2 at 45:5-9.

B. Specific exceptions related to monitoring.

Based on the foregoing, Applicant excepts to Findings of Fact 44, 45, 46, and 47. Applicant asserts that the following Findings of Fact should be changed as indicated (strikeout to be deleted, double underlined to be added):

> 44. The Draft Permits include Monitoring and Testing Requirements at Provision IX. Specifically, under Provision IX of the draft permits, the wells would be required to be tested and monitored in accordance with 30 TAC §§305.125, 305.154, and 331.64. These requirements include annual mechanical integrity testing of the casing, injection tubing, annular seal, and bottom-hole cement for leaks using a pressure test and radioactive tracer survey, annual pressure build-up analysis, evaluation of fluid movement every five years using an approved geophysical method, and evaluation of the casing each time the well is subjected to workover procedures. Provision IX would also require injected fluids to be analyzed in accordance with the approved Waste Analysis Plan in Section IX of the Application. Waste analysis must be performed in accordance with methods specified in the current editions of EPA SW-846 or other methods accepted by the TCEQ and must be done at a laboratory certified in accordance with the requirements in 30 TAC Chapter 25. Additionally, Provision IX would require continuous corrosion monitoring that must be performed on the wellhead, injection tubing, packer and casing materials. Ambient monitoring of the injection zone is required by the annual monitoring of the pressure buildup in the injection zone conducted in a pressure fall-off test under 30 TAC §331.64(h)(2).~~, but do not require UEC to conduct ambient monitoring to detect fluid movement out of the injection zone.~~
>
> 45. In accordance with Provision IX of the draft permit, ~~Based on the~~ site-specific evidence will be obtained to determine whether there is potential movement of fluid from the well or injection zone.
>
> 46. Based on the site-specific evidence gathered in accordance with Provision IX of the draft permit, the ED will determine whether there is potential value of monitoring wells to detect fluid movement.
>
> 47. The monitoring and testing requirements in the Draft Permits provides for adequate monitoring of migration of injected fluids in the vicinity of the proposed injection wells.~~ are inadequate to detect fluid movement outside of the injection zone.~~

Based on the foregoing, Applicant also excepts to Conclusions of Law 8 and 26 and proposes that a new Conclusion of Law be inserted between 17 and 18 (identified below as 17(A)).

Applicant asserts that the following Conclusions of Law should be changed or added as indicated (strikeout to be deleted, double underlined to be added):

> 8. UEC ~~failed to meet~~ met its burden to prove that the Application and Draft Permits meet all applicable state and federal requirements on all issues referred by TCEQ. 30 Tex. Admin. Code § 80.17(a).
>
> 17(A). The testing and monitoring requirements in Provision IX of the draft permits (requiring testing and monitoring in accordance with 30 TAC §§305.125, 305.154, and 331.64) provide for adequate monitoring of migration of injected fluids in the vicinity of the proposed injection wells.
>
> 26. The Application for renewal and amendment of Permits WDW423 and WDW424 provides ~~in~~sufficient information, ~~fails to satisfy~~ satisfies TCEQ rules and requirements, and ~~should be remanded so UEC can develop additional information, or in the alternative,~~ the Application should be granted~~denied~~.

III. Exceptions regarding location of the wells.

A. The Gleinser No. 2 Well does not warrant corrective action.

The presumption that Gleinser No. 2 is improperly plugged is not supported by the evidence. The well records for Map ID No. 105 (Gleinser No. 2) are provided in AppEx1-001074 through AppEx1-001083.[57] The cementing report provided on page AppEx1-001082 states Plug #1 was pumped on August 31, 1982, with a calculated top of plug at 1,811 feet.[58] But this is not the only evidence.

Although the ALJs assert that Gleinser No. 2 records are conflicting, they fail to account for the commercially available scout ticket that was purchased for the Gleinser No. 2 well (AppEx-2-03).[59] Using the scout ticket and the well records sourced through the RRC, the following drilling and completion history of the well can be gathered.[60] The well was spudded on August

[57] AppEx-2 at 39:14 to 40:16.
[58] *Id.*
[59] *Id.*
[60] *Id.*

25, 1982, and was drilled to a total depth of 5,604 feet.[61] The well was reported to have been plugged back to a calculated depth of 1,811 feet on August 31, 1982.[62] A measurement of the top of the cement plug was not reported.[63] On September 1, 1982, production casing was run to 1,908 feet, which is deeper than the calculated top of cement plug pumped on the previous day.[64] However, the cement plug was reported to have been pumped, and must be assumed to be in the well, as the well was completed to produce gas in a shallower interval.[65] While Plug #1 does not appear to be present at the calculated depth of 1,811 feet, the well was plugged at the deeper interval in order to produce gas from a shallower interval.[66] After the production casing was run to 1,908 feet, a calculated annular volume of 605 cubic feet of cement was pumped to cement the production casing with an annular height of 2,656 feet (which is deeper than the production casing at 1,908 feet).[67] The production casing was cemented with enough calculated cement to have a cement sheath in the annular space from 1,908 feet to ground surface.[68] After the plug was cemented at a deeper depth than 1,811 feet and the production casing was run and cemented to surface, the well was perforated and produced gas from 557 to 560 feet.[69] The well was plugged and abandoned in the following year in November 1983, so not only was the production tubing cemented in place to prevent migration of fluids up the annulus, the inside of the production tubing was also cemented to prevent migration of fluids through the tubing.

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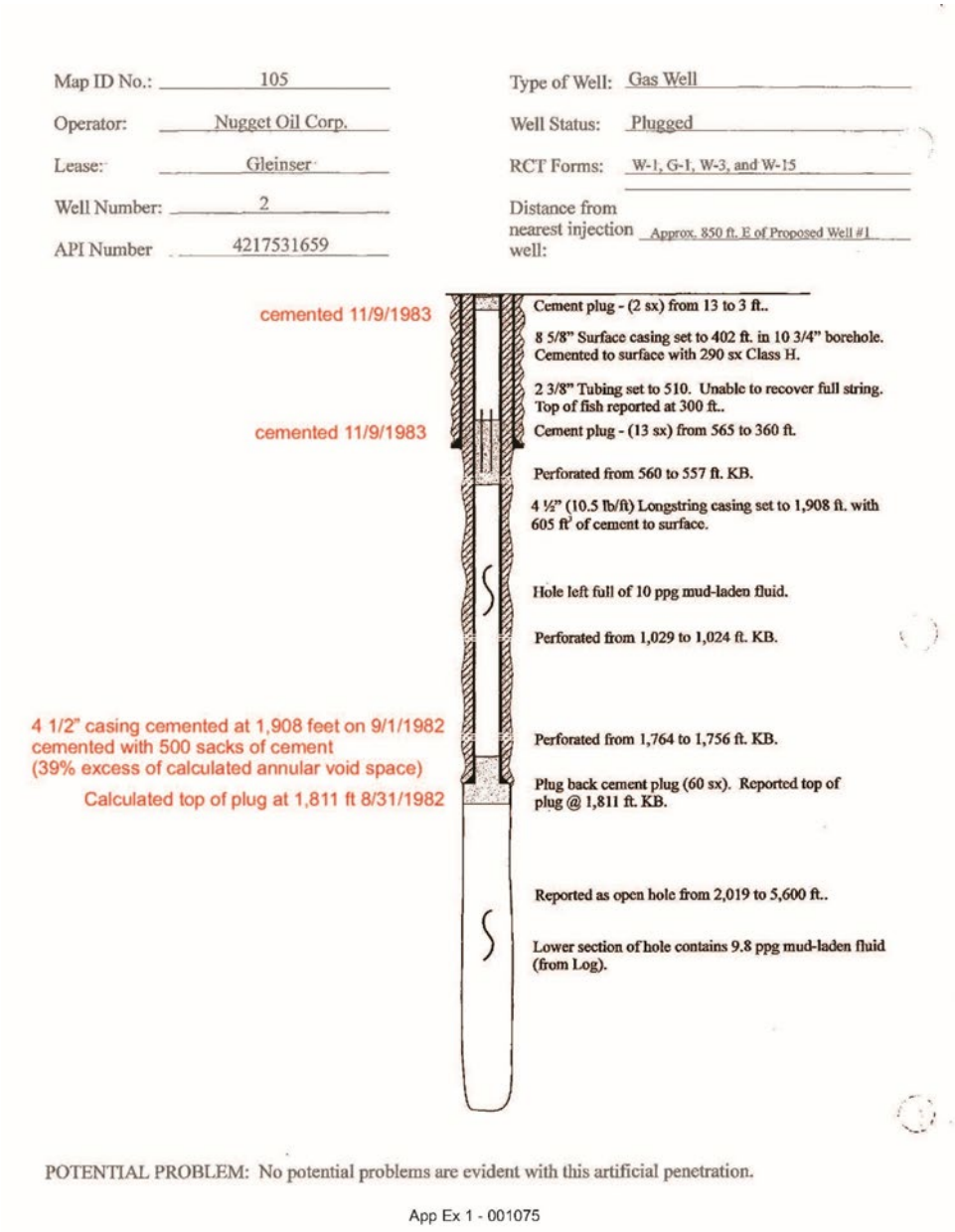
[61] *Id*.
[62] *Id*.
[63] *Id*.
[64] *Id*.
[65] *Id*.
[66] *Id*.
[67] *Id*.
[68] *Id*. The cement sheath is 258' deeper than the depth of deepest fresh water listed as 1,650' on the plugging report Form W-3.
[69] *Id*.

Contrary to the ALJs' concerns and Protestant's speculation, the ability of the well to produce gas through the perforations from 557 to 560 feet provides concrete evidence that Plug #1 is present in the well below the production casing.[70] Plug #1 provides a cement barrier to flow between the Injection Interval and the base of the USDW.[71] Additionally, the production casing was cemented to surface and provides another barrier between the Injection Interval and the lowermost USDW.[72] All of this is illustrated at Figure 1:

[70] *Id*.
[71] *Id*.
[72] *Id*.

FIGURE 1[73]



In the end, there are two options for deciding whether the Gleinser No. 2 well is plugged. Either believe that the plugging report is an accurate document or believe the operator who is legally responsible and liable for properly plugging the well, lied about plugging it, falsely completed the plugging report and intentionally submitted a false record to a regulatory agency.

[73] Figure 1 is taken from the record at AppEx-1-001075. The red text in Figure 1, however, is not in the record but is included for demonstrative and explanatory purposes.

UEC believes the evidence of a plugging report supports the position that the Gleinser No. 2 well is plugged. If one chooses to believe that the plugging report was falsely submitted, the operational parameters and monitoring systems required for Class I non-hazardous wells, mandate that unplugged or improperly plugged boreholes do not become conduits for injection fluid to travel vertically into USDWs. In other words, even if the plugging report was falsely reported, the rules and permit conditions for operating a class I well, specifically pressure modeling, are such that improperly plugged boreholes still will not become conduits for injection fluid to travel vertically into USDWs because the pressure will not be high enough to force injection fluid upward through improperly plugged wells. 30 Tex. Admin. Code § 331.63(c) and Permit Condition VIII.B.3.[74]

B. <u>The Hausman No. 2 Well does not warrant corrective action.</u>

The ALJ's conclusion that the Hausman No. 2 well poses a threat to USDW is likewise unsupported by the record. The well records for that well are identified as Map ID No. 47 throughout the application and can be found at pages AppEx1-000603 through AppEx1-000614.[75] The record reflects that the space between the outer wall of the production casing and the wall of the formation (referred to as the annulus) is filled with the drilling mud used during the original drilling of the well.[76] Ms. Gordon states that the mud is an insufficient barrier to flow to prevent injected fluids from moving uphole due to the ability of the mud to deteriorate and separate into liquid and solid components over time.[77] However, clay water-based drilling fluids have been

[74] 30 Tex. Admin. Code § 331.63(c) provides that "Except during well stimulation, injection pressure at the wellhead shall not exceed a maximum which shall be calculated so as to assure that the pressure in the injection zone during injection does not initiate new fractures or propagate existing fractures in the injection zone, initiate new fractures or propagate existing fractures in the confining zone, or cause movement of fluid out of the injection zone that may pollute USDWs or surface water." Permit Condition VIII.B.3 provides that "[s]urface injection pressure shall not cause pressure in the injection zone to…cause movement of fluid out of the injection zone that may contaminate USDWs, and fresh water."
[75] AppEx-2 at 41:12 to 42:14.
[76] *Id.*
[77] *Id.*

shown to remain fluid and relatively unchanged after an extended period of time, as demonstrated in Pearce (1989) submitted as Exhibit AppEx-2-04.[78] Further, studies of gelled mud have demonstrated long-term mud properties that are expected to provide more resistance to vertical migration of fluid than the original mud (Pearce (1989)).[79] The Pearce (1989) study details that gel strength (which is a natural phenomenon of electrically charged clay particles aligning over periods of quiescence) increases over time and keeps solid materials in the drilling mud suspended over extended periods of time.[80] Pearce demonstrates that clay, water-based drilling fluids provide adequate protection against vertical fluid migration.[81] Protestants provided no testimony to refute these findings.

The Hausman No. 2 well has four cement plugs in the wellbore and is filled with 9.5 lb/gal mud in between the cement plugs.[82] Additionally, the annular space between the production casing and formation is filled with drilling mud, which will have gelled since the well was cemented.[83] Therefore, the Hausman No. 2 well has adequate cement plugs and mud barriers to prevent fluid from migrating uphole to the lowermost USDW because the depth of deepest fresh water is indicated on the plugging report, Form W-3 at 1,625 ft.[84] In sum, the location of the injection wells and pre-injection facilities are adequate.

The ALJs conclude their analysis by stating that the solution to their concerns is ambient monitoring under 30 Tex. Admin. Code § 331.64(h)(1). But the draft permit already contains a

[78] AppEx-2 at 41:12 to 42:14. The ALJs assert that Ms. Williams "disavowed" the Pearce Paper as support for the fact that the mud-filled wellbore will not be a conduit here. PFD at 96. She did not disavow the Pearce Paper. She merely stated that the intention of discussing the Pearce Paper in her testimony "is . . . to show that the mud does not separate in periods of quiescence." Tr. Vol. 1 at 233-234.
[79] AppExX-2 at 41:12 to 42:14 (citing AppEx-2-04).
[80] *Id.*
[81] *Id.*
[82] *Id.*
[83] *Id.*
[84] *Id.*

provision that requires compliance with Rule 331.64(h)(1). As Mr. Hannah, the ED's expert witness testified, "[u]nder Provision IX of the draft permits, the wells would be required to be tested and monitored in accordance with 30 TAC §§305.125, 305.154, and 331.64."[85] Thus, even if the ALJs were correct, a remand would be a useless effort because what the ALJs suggest should happen is already contained in the draft permit. Even accepting the ALJs' arguments concerning the Hausman No. 2 Well, the "location . . . of the injection wells and pre-injection facilities are adequate" because the draft permit provides for adequate monitoring of migration of injected fluids in the vicinity of the proposed injection wells.

Protestants had no site-specific information to support their position that increased pressure will likely be sufficient to drive fluids into and up the wellbore. Nobody will know what the final injection pressure will be to make this assumption until the well is drilled and site-specific data is actually collected. As with other aspects of this proceeding, the ALJs impose post-permitting processes on permit issuance.

C. Corrective action generally.

Rule 305.152(1) provides as follows:

> 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, the commission shall prescribe or incorporate into the permit conditions requiring corrective action adequate to prevent such pollution. Corrective action will be required unless the owner or operator demonstrates to the executive director that, despite the owner or operator's best efforts, he is unable to obtain the necessary permission to undertake such action.

Rule 305.152(4) provides that as part of the corrective action plan (required in 305.152(1)) the "commission may impose an injection pressure limitation that does not cause the pressure in the injection zone to exceed hydrostatic pressure in [inadequate] wells . . ., which condition shall

[85] ED Ex. 1 (Hannah Dir.) at 10.

expire upon completion of all corrective action measures. Rule 305.152(5) provides that "[a]ction prescribed by a corrective action plan for new wells or new areas must be completed to the satisfaction of the executive director ***before operation of the well begins***," not before the issuance of the permit. (Emphasis added).

Because the Gleisner No. 2 well and Hausman No. 2 well records are disputed among the parties, the executive director may assess site-specific characteristics from the completion report once the well is drilled. This very site-specific information will be used to calculate a maximum injection pressure and flow rate that will prevent fluids from migrating vertically into USDWs, and only then will injection be authorized. All of this has to happen before operation of the well begins, not before a permit is issued.

D. Pounds per gallon of Mud.

The ALJs cite Ms. Gordon as testifying that "[t]he Gleisner No. 2 well is presumed to have been plugged with 9.8 pounds-per-gallon mud."[86] In fact, the Plugging Report Form W-3 shows 10 pounds-per-gallon mud in box 33 of the form. This form is in the Record at Dist. Ex. 309 (see page 2, box 33).

E. Design of wells.

Although the ALJs acknowledge that "[i]t is undisputed that the design of the injection well and pre-injection facilities are adequate," there is no Finding of Fact to reflect the fact that no evidence was presented to rebut UEC's prima facie case under Tex. Gov't Code § 2003.047(i-1); 30 Tex. Admin. Code § 80.17(c)(1). UEC requests that Finding of Fact No. 56 be revised to include such a finding (double underlined to be added):

> 56. No evidence was presented to rebut UEC's prima facie case under Tex. Gov't Code § 2003.047(i-1); 30 Tex. Admin. Code § 80.17(c)(1). The design of the UEC wells and pre-injection facilities is adequate.

[86] PFD at 87 and 88.

F. Specific exceptions related to location.

Based on the foregoing, Applicant excepts to Findings of Fact 51, 53, 54, 55, 56, and 57. Applicant asserts that the following Findings of Fact should be changed as indicated (strikeout to be deleted, double underlined to be added):

> 51. Documentation from the Railroad Commission of Texas and a scout ticket establish~~es~~ that the Gleisner No. 2 well has the ability to produce gas through the perforations from 557 to 560 feet and therefore provide evidence that Plug #1 is present in the well below the production casing. Plug #1 provides a cement barrier to flow between the Injection Interval and the base of the USDW. Additionally, the production casing was cemented to surface and provides another barrier between the Injection Interval and the lowermost USDW. Therefore, the Gleisner No. 2 well is ~~may not be~~ properly plugged to prevent migration of fluids from the injection interval into a USDW.
>
> 52. The Gleisner No. 2 well is presumed to have been plugged with ~~9.8~~10 pounds-per-gallon mud.
>
> ~~53. Calculations using appropriate injection interval parameters showed increased formation pressure at the Gleisner No. 2 well caused by UEC's proposed disposal operations sufficient to cause upward movement of fluid in the wellbore and into USDW within the first six months of UEC's operations.~~
>
> 54. Documentation from the Railroad Commission of Texas establishes that the Mamie Hausman No. 2 (Hausman No. 2) well ~~may not be~~ is plugged to prevent migration of fluids from the injection interval into a USDW.
>
> 55. The Hausman No. 2 well has four cement plugs in the wellbore and is filled with 9.5 lb/gal mud in between the cement plugs. Additionally, the annular space between the production casing and formation is filled with drilling mud, which will have gelled since the well was cemented. Therefore, the Hausman No. 2 well has adequate cement plugs and mud barriers to prevent fluid from migrating uphole to the lowermost USDW.~~Calculations using appropriate injection interval parameters showed increased formation pressure at the Hausman No. 2 well caused by UEC's proposed disposal operations sufficient to cause upward movement of fluid in the wellbore and into USDW within three years of UEC's operations.~~
>
> 56. No evidence was presented to rebut the prima facie case under Tex. Gov't Code § 2003.047(i-1) and 30 Tex. Admin. Code § 80.17(c)(1) that the design of the UEC wells and pre-injection facilities is adequate. Therefore, t~~T~~he design of the UEC wells and pre-injection facilities is adequate.

57. The location of the UEC wells is ~~not~~ adequate.

Based on the foregoing, Applicant also excepts to Conclusions of Law 8, 19, and 26. Applicant also requests that Conclusion of Law 18A be added. Applicant asserts that the following Conclusions of Law should be changed or added as indicated (strikeout to be deleted, double underlined to be added):

> 8. UEC ~~failed to meet~~ met its burden to prove that the Application and Draft Permits meet all applicable state and federal requirements on all issues referred by TCEQ. 30 Tex. Admin. Code § 80.17(a).
>
> 18A. The completion and plugging reports suggest the wells within the AOR which penetrate the injection zone are adequately constructed, completed and plugged.
>
> 19. ~~UEC failed to prove necessary~~ No corrective action is necessary for the ~~will be taken on the~~ Gleisner No. 2 ~~and~~ or the Hausman No. 2~~,~~ wells ~~that are not adequately plugged to prevent migration of fluids out of the injection interval.~~ pursuant to 30 Tex. Admin. Code § 331.121(a)(2)(N).
>
> 26. The Application for renewal and amendment of Permits WDW423 and WDW424 provides ~~in~~sufficient information, ~~fails to satisfy~~ satisfies TCEQ rules and requirements, and ~~should be remanded so UEC can develop additional information, or in the alternative,~~ the Application should be granted~~denied~~.

IV. Exceptions regarding Ordering Provisions.

Based on Sections I-III of these exceptions, Applicant excepts to Ordering Provision 1 and asserts that it should be modified as follows (strikeout to be deleted, double underlined to be added):

> 1. UEC's Application for renewal and amendment of Permits WDW423 andWDW424 is granted~~remanded so UEC can develop additional information~~.

CONCLUSION AND PRAYER

For the reasons set forth herein, Applicant Uranium Energy Corp. respectfully excepts to the proposed Findings of Fact, Conclusions of Law, and Ordering Provisions as set forth herein and requests that the ALJs or the Commission modify the proposed Findings of Fact, Conclusions of Law, and Ordering Provisions as set forth herein.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing document was served on the following parties as shown below on this 30th day of April 2024 as follows:

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