

Cases No. 23686 and 23687: OCD Exhibit 11A: Comparison of the Original OCD Recommendations, the Conditions for Approval of the Proposed UIC Permits, and Proposed Modified OCD Recommendations

OCD Exhibit No. 11: OCD Recommendations for Administrative Approval of UIC Disposal Wells in the DMG	Corresponding Conditions of Approval Proposed for UIC Permits for Wells in Chevron Applications	Revised OCD Recommendations for Administrative Approval of UIC Disposal Wells in the DMG
1. <u>C-108 Application: Criteria for selection of new location for proposed disposal well to be approved through the administrative review process*</u>		
a. Approve locations outside of the identified Avalon production as delineated by NMOGA and provided in Exhibit 6.	The Chevron applications were originally proposed for Division hearing after filing for administrative review.	Administratively approve locations outside of the identified Avalon production as delineated by the recommendations of NMOGA. Refer proposed locations within the Avalon production area for Division hearing with the opportunity to remand to administrative review if no protests are received for the application. [Modified]
b. Exclude locations for proposed wells previously denied at hearing.	Not applicable to the Chevron applications.	Exclude locations for proposed wells previously denied at hearing. [Unchanged]
c. Exclude locations that have demonstrated waterflows / interference problems or have issues for the proper completion of the proposed well.	Criteria assessed during technical review of C-108 applications by OCD UIC Group.	Exclude locations that have demonstrated waterflows / interference problems or have issues for the proper completion of the proposed well. [Unchanged]
d. Uniform distance between wells with Delaware Mountain Group (“DMG”) disposal intervals: OCD is recommending the use of the current area of review (“AOR”) radius of one-half mile as an initial buffer around the individual wells. When applied to the technical review process, this would result in a distance of one mile between the surface locations of new DMG wells. For this criteria OCD would exclude DMG disposal wells that are plugged and active DMG disposal wells that are restricted by volume or source of disposal fluids.	SPECIAL CONDITION 2. <u>Restrictions on Surface Location to Adjacent Well Types:</u> Once injection has commenced, the OCD shall only administratively approve permits for UIC Class II disposal wells for injection of produced water in the DMG that are greater than two (2) miles from the Well. Additionally, this Well is greater than three (3) miles from any adjacent UIC Class II disposal wells classified by OCD as acid gas injection wells that are permitted to inject treated acid gas.	Uniform distance between wells with Delaware Mountain Group (“DMG”) disposal interval. Based on testimony, OCD is recommending the use of a one-mile radius around the surface location of the proposed well for permit approval. This would result in a distance of two miles between surface locations of DMG disposal wells with the opportunity for infilling at a later date. For this criteria OCD would exclude DMG disposal wells that are plugged and active DMG disposal wells that are restricted by volume or source of disposal fluids. [Modified]
e. Exclude surface locations within three (3) miles of a gas processing facility that are currently approved by the Commission for disposal of treated acid gas in the DMG.	SPECIAL CONDITION 2.	Exclude surface locations within three (3) miles of a gas processing facility that are currently approved for disposal of treated acid gas in the DMG. [Modified]
2. <u>C-108 Application: Criteria for selection of injection interval</u>		
a. Exclude the Lamar Limestone from inclusion in the permitted interval.	The Chevron applications identified the base of the Lamar as a confining layer for the proposed injection interval.	Exclude the Lamar Limestone from inclusion in the permitted interval. [Unchanged]

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<p>b. Exclude the lower Brushy Canyon formation of the DMG from permitted interval and provide sufficient information in the application to demonstrate a lower confining layer to prevent vertical migration of injection fluid.</p>	<p>SPECIAL CONDITION 10. <u>Additional Reporting: Data Collection from Brushy Canyon formation:</u> Permittee shall be authorized to conduct diagnostic fracture injection tests (“DFIT”) in the Upper Brushy Canyon formation. Permittee shall submit a Form C-103 Notice of Intent to the OCD prior to conducting the DFIT with details on methodology and the proposed schedule for the test. With the completion of the DFIT, the Well shall be plugged back so as to not allow injection into the Brushy Canyon formation. OCD shall retain the authority to require the Permittee to conduct injection surveys should this be required.</p>	<p>Exclude the lower Brushy Canyon formation of the DMG from permitted interval and provide sufficient information in the application to demonstrate a lower confining layer to prevent vertical migration of injection fluid. Sufficient information is to include the use of DFIT or prior formation testing in proximity of the proposed well, subsurface geologic mapping, stratigraphic correlation of injection interval and confining zones, and performance modeling of the injection operation of the well for the twenty (20) term of the permit. [Modified]</p>
<p>c. Application should include a review of the AOR and assessment for evidence of natural fracture systems or faults. The proposed well would not be subjected to the requirements of a Seismic Response Area unless shallow disposal is indicated as a contributing source to the induced seismicity.</p>	<p>The Chevron applications contained risk assessments for the probability of seismic activity associated with injection and included additional subsurface formation testing that would identify occurrences of formation fracturing.</p>	<p>Application should include a review of the AOR and assessment for evidence of natural fracture systems or faults. Additional testing requirements:</p> <ol style="list-style-type: none"> 1. Formation microimaging (“FMI”) log for the proposed injection interval; selection of borehole to be imaged based on prior geophysical logs. 2. Assessment of 3-D seismic for lineaments or fracture occurrences in the DMG. <p>The proposed well would not be subjected to the requirements of an existing Seismic Response Area unless shallow disposal is indicated as a contributing source to the induced seismicity. [Modified]</p>
<p>3. <u>UIC Permit: Conditions of Approval: Well Design and Construction</u></p>		
<p>a. Only new well construction to be approved administratively: injection is through perforated casing; all casing to be cemented to surface; dedicated string of casing for isolation of the Capitan Reef; and dedicated string of casing for isolation of the Salado formation.</p>	<p>The Chevron applications were submitted with casing and cement criteria addressed. The locations of the proposed wells excluded them from the Capitan Reef and Salado requirements.</p>	<p>Only new well construction to be approved administratively: injection is through perforated casing; all casing to be cemented to surface; dedicated string of casing for isolation of the Capitan Reef; and dedicated string of casing for isolation of the Salado formation within the Known Potash Lease Area (as currently defined in R-111-P). [Modified]</p>
<p>b. Limit the outside diameter for injection tubing to 5.5 inches.</p>	<p>The Chevron applications contain proposed well completions that satisfy this specification.</p>	<p>Limit the outside diameter for injection tubing to 5.5 inches. Require hearing for approval of larger diameter tubing. [Modified]</p>

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<p>c. Prohibit well stimulation that induces new fracture systems or propagates existing fracture and any use of proppants in stimulation.</p>	<p>SPECIAL CONDITION 1. <u>Restrictions on Well Construction and Well Stimulation:</u> The Well shall be constructed for the purpose of disposal. No permit shall be approved for conversion of existing wells previously plugged and abandoned or used for production to UIC Class II disposal wells. Any stimulation of the Well shall not use proppants or other materials during completion or subsequent workovers.</p>	<p>Prohibit well stimulation that induces new fracture systems or propagates existing fracture and any use of proppants in stimulation. [Unchanged]</p>
4. <u>UIC Permit: Additional Testing and Monitoring:</u>		
<p>a. Permittee is required to conduct a cement bond log (“CBL”) for each casing string in addition to observing the circulation of cement to surface.</p>	<p>SPECIAL CONDITION 5. <u>Additional Testing: CBL for Surface Casing and Geophysical Logging:</u> Permittee shall complete a CBL for the surface casing and provide the complete log to the OCD prior to commencing injection. Permittee shall complete a geophysical log suite described as a “triple combo” and submit the logs to the OCD.</p>	<p>Permittee is required to conduct a cement bond log (“CBL”) for each casing string in addition to observing the circulation of cement to surface. [Unchanged]</p>
<p>b. Permittee is required to conduct, at a minimum, a suite of open-hole logs over the approved injection interval and submit this information to the OCD.</p>	<p>SPECIAL CONDITION 5.</p>	<p>Permittee is required to conduct a suite of open-hole logs for the well to include gamma ray, resistivity, neutron density and sonic (“quad combo”) logs. This information is to be submitted to the OCD prior to commencement of injection. [Modified]</p>
<p>c. Permittee to conduct a successful step-rate test (“SRT”) before injection commences. The OCD may reduce the maximum surface injection pressure of the UIC permit should the results of the SRT show that the permitted pressure (as calculated using a gradient of 0.2 PSI per foot of depth to the top perforation) exceeds the formation parting pressure.</p>	<p>SPECIAL CONDITION 4. <u>Additional Testing: Requirement for Initial Step-Rate Test:</u> Permittee shall prepare and submit a separate Form C-103 Notice of Intent for a step-rate test (“SRT”) to be completed prior to commencing injection. OCD shall require separate testing for each formation of the DMG approved as the injection interval approved in Appendix A and determined using the data obtained in Special Condition 5. Injection shall commence only with the approval of a Form C-103 Subsequent Report that contains the results of the SRT.</p>	<p>Permittee to conduct a successful step-rate test (“SRT”) before injection commences. The OCD may reduce the maximum surface injection pressure of the UIC permit should the results of the SRT show that the permitted pressure (as calculated using a gradient of 0.2 PSI per foot of depth to the top perforation) exceeds the formation parting pressure. [Unchanged]</p>

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<p>d. Every two years after commencement of injection: permittee shall obtain a static bottomhole pressure and permittee shall review and provide a summary on the performance of the disposal well including analysis by Hall's plot method.</p>	<p>SPECIAL CONDITION 6. <u>Additional Reporting: Annual Injection Data Review:</u> In addition to the requirements under I. General Conditions, F. Reporting, 1. Monthly Reporting; Permittee shall compile, from the parameters continuously monitored by the operator, sufficient data for a twelve (12) month period to construct a Hall's plot for the Well. This assessment shall be completed annually and submitted to the OCD using Form C-103 Subsequent Report. With the plot, Permittee shall note any result which may indicate anomalies in injection operation and permit restrictions.</p> <p>and</p> <p>SPECIAL CONDITION 7. <u>Additional Reporting: Bottomhole Pressure:</u> In addition to paragraph (e) of I. General Conditions, B. Duties and Responsibilities, 2. Test and Reports, Permittee shall obtain a static bottomhole pressure every two years after commencement of injection. This information shall be provided using a Form C-103 Subsequent Report no later than January 31 of the calendar year following the year in which the data was collected.</p> <p>and</p> <p>SPECIAL CONDITION 8. <u>Additional Reporting: Project Report to the Oil Conservation Commission:</u> Permittee shall submit a report to the Oil Conservation Commission ("OCC") following the second year after the date injection commenced. The report shall include a summary of a well performance based on injection volumes, injection pressure, and any additional data collected from the Well during this period. Permittee shall submit this report to the OCC within months (3) months of the anniversary date. The OCC shall make a recommendation on the permit status of the project and any modifications to the requirements of the Permit, if necessary.</p> <p>and</p> <p>SPECIAL CONDITION 9. <u>Additional Reporting: Five-Year Well Performance Report:</u> Permittee shall submit a report to OCD every fifth year following the date injection commenced. The report shall include a summary of a well performance based on injection volumes, injection pressure, and any additional data collected from the Well. This</p>	<p>Every two years after commencement of injection: permittee shall obtain a static bottomhole pressure and permittee shall review and provide a summary on the performance of the disposal well. The report is to include a summary of a well performance based on injection volumes, injection pressure, and any additional data collected from the well during this period. The evaluation is also to include a delineation of the injection pressure front and include a Hall's plot for each year of operation. Additional requirements every four years include:</p> <ol style="list-style-type: none"> 1. Injection survey of operating disposal well 2. Monitoring of any production wells identified as potentially impacted by the disposal operation. <p>Optional requirements available for inclusion in the UIC permit or requested based the results :</p> <ol style="list-style-type: none"> 1. Formation water sampling 2. Increased monitoring of production wells to include downhole pressure measurements 3. Additional SRTs or DFITs 4. Falloff test 5. Tracer survey <p>These reports are to be filed with the OCD within sixty (60) days of the end date for the reporting period. [Modified]</p>

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	evaluation shall include a delineation of the injection pressure front and include the use of Hall's plot for each year of operation as detailed in Special Condition 6. Permittee and OCD shall coordinate regarding the information to be included in the five-year reports should there be changes in operation or injection performance. Permittee shall submit these reports to the OCD within sixty (60) days of the end date for the reporting period.	
e. If warranted, permittee may be required to establish a public seismic monitoring station where the new well location is not covered by the current public array.	SPECIAL CONDITION 11. <u>Additional Monitoring: Seismic Monitoring Station:</u> Within the submittal of the Project Report to the Commission, Permittee and OCD shall make a recommendation to the Commission any requirement to establish a seismic monitoring station in proximity to the Well to be included in the public seismic monitoring array. Permittee shall contact the New Mexico Tech Seismological Observatory to obtain technical specifications of equipment to be installed and shall periodically transfer all unprocessed data to the public repository.	If warranted, permittee may be required to establish a public seismic monitoring station where the new well location is not covered by the current public array. [Unchnaged]
f. OCD should establish a process to allow the use of existing DMG disposal wells as observation wells including pressure monitoring.	Not proposed in applications for these cases.	OCD should establish a process to allow the use of existing DMG disposal wells as observation wells including pressure monitoring. [Unchanged] <i>OCD is currently working with an operator for the conversion of a DMG SWD well to an observation well. Items being addressed are cancellation of injection authority, approval of the new status of the well, information to be provided by the well, and requirements for testing of the well in the monitoring status.</i>