

**STATE OF NEW MEXICO
NEW MEXICO OIL CONSERVATION DIVISION**

**APPLICATION OF OIL CONSERVATION DIVISION
TO ADOPT 19.15.41, 19.15.42, AND 19.15.43 NMAC**

No. 25875

**DIRECT TECHNICAL TESTIMONY OF MR. MATTHEW (MATT) EALES
ON BEHALF OF THE OIL CONSERVATION DIVISION**

JUNE 29, 2026

INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. Matt Eales. 2404 North Parkland Avenue, Artesia, New Mexico 88210

Q. ON WHOSE BEHALF ARE YOU SUBMITTING DIRECT TESTIMONY?

A. The New Mexico Oil Conservation Division (OCD)

Q. BY WHOM ARE YOU EMPLOYED AND WHAT IS YOUR POSITION?

A. I am the CEO of CoolSky Energy Solutions.

Q. PLEASE DESCRIBE YOUR PAST EMPLOYMENT HISTORY.

A. My employment history includes 28 years of experience working in global and domestic environmental, health, safety and regulatory compliance roles for the oil and gas industry. Most of my career was with Schlumberger Limited and Smith International in various environmental, health and safety executive roles supporting the oilfield products and services field operations around the world. I then worked as the Vice President of environmental, health and safety for American Energy Partners and then Lucid Energy gas midstream in 2019. I then became the Vice President of Regulatory for Targa Resources in 2022, focusing on supporting the company's ten operating Class II UIC acid gas injection (AGI) wells and continued permitting and compliance program requirements. Since 2023, I have been with CoolSky Energy Solutions with a team of engineering, geology, regulatory and operational subject matter experts with a strong focus on Class II and Class VI injection wells. Since 2024, I have assisted the NMOCD in the technical aspects of Class VI regulation.

Q. PLEASE SUMMARIZE YOUR EDUCATION EXPERIENCE.

A. I have a Masters Degree in Environmental Engineering from the University of Kansas.

Q. HAVE YOU PREVIOUSLY TESTIFIED IN STATE OR FEDERAL REGULATORY PROCEEDINGS?

A. Yes. I have testified in three New Mexico Oil Conservation Division (OCD) and two Texas Railroad Commission (RRC) hearings related to application-to-inject applications for Class II UIC AGI wells.

Q. WHAT IS YOUR EXPERIENCE WITH THE FEDERAL CLASS VI INJECTION WELL PROCESS AND NEW MEXICO'S PATH TO GAINING PRIMACY OF THE CLASS VI PROGRAM?

A. I have been the technical advisor on the NMOCD team focused on gaining primacy of the Class VI program since inception. I have 28 years of experience in downhole products and services, all of which are crucial components for ensuring the completion and environmentally safe operation of a Class VI well. This involved participating in many Society of Petroleum Engineers (SPE) technical specification workgroups and International Association of Oil and Gas Producers (IOGP) task forces charged with developing technical guidance documentation to be shared across the industry to maximize environmental and safety solutions and cultures. This experience with the tools and techniques was then focused specifically within underground injection requirements including site identification, characterization, area of review research, modeling and final operation of Class II AGI wells in which both H₂S and CO₂ are injected and have similar behaviors. I work frequently with the Groundwater Protection Council as a technical advisor as well as with the federal and regional EPA UIC offices. In addition, CoolSky has developed ten EPA-approved Monitoring, Reporting and Verification (MRV) Plans which define the operational monitoring requirements to ensure ongoing compliance of

CO2 injection operations and our field personnel are actively monitoring these same locations.

PURPOSE OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to provide technical support for the Oil Conservation Division's proposed adoption of 19.15.41, 19.15.42, and 19.15.43 NMAC as part of New Mexico's application for Class VI Underground Injection Control primacy. My testimony addresses the technical and regulatory requirements applicable to Class VI wells, including Class VI well construction requirements, operating requirements, and related safeguards intended to protect underground sources of drinking water (USDWs).

Q. WHAT ARE THE AREAS THAT YOU ARE GOING TO BE ADDRESSING?

A. I will be addressing the Injection Well Construction Requirements¹, Injection Well Operating Requirements², Mechanical Integrity³, Testing and Monitoring Requirements⁴, Reporting Requirements⁵, and Emergency and Remedial Emergency Response⁶.

CLASS VI WELL CONSTRUCTION REQUIREMENTS

Q. HOW DOES THE PROPOSED CLASS VI PROGRAM REGULATE THE DESIGN OF A CLASS VI WELL?

A. The program regulates the design of the well with a general goal of ensuring that the wells are constructed and completed to prevent the movement of fluids into or between USDWs or into any unauthorized zones, permit the use of testing devices and workover tools, and

¹ OCD Exhibit 3 at section 19.15.43.9.(G)(1)

² *Id.* at 19.15.43.9.I(1)

³ *Id.* at 19.15.43.9.J(2)

⁴ *Id.* at 19.15.43.9.K

⁵ *Id.* at 19.15.43.9.L

⁶ *Id.* at 19.15.43.9.O(1)

permit continuous monitoring of the annulus space between the injection tubing and long string casing.⁷ The regulation specifically regulates casing and cementing of Class VI wells including the requirement that casing and cement or other materials used in the construction have sufficient structural strength and be designed for the life of the project.⁸ The regulation includes the requirement that surface casing for all Class VI wells shall be set and cemented through the base of the deepest known USDW and must extend into an underlying confining unit.⁹ In addition, it requires that at least one long string casing, using a sufficient number of centralizers, must extend to the injection zone.¹⁰ The requirements for circulation of cement through staging are defined further at proposed section 19.15.43.9.G(2)(d). Additionally, cement and cement additives are required to be compatible with the carbon dioxide stream and formation fluids are of sufficient quality and quantity to maintain integrity over the design life of the geologic sequestration project.¹¹ Tubing and packer requirements are specified, including their construction compatibility to injectate fluid and appropriate packer depth.¹² In order to determine acceptability, the operator is required to submit the planned setting depth, characteristics of the CO₂, maximum proposed injection pressure, maximum proposed annular pressure, proposed injection rate, size of tubing and casing and tubing tensile, burst and collapse strengths.¹³

⁷ *Id.* at 19.15.43.9.G(1)(a)-(c)

⁸ *Id.* at 19.15.43.9.G(2)(a)

⁹ *Id.* at 19.15.43.9.G(2)(b)

¹⁰ *Id.* at 19.15.43.9.G(2)(c)

¹¹ *Id.* at 19.15.43.9.G(2)(e)

¹² *Id.* at 19.15.43.9.G(3)

¹³ *Id.* at 19.15.43.9.G(3)(a-c)

Q. HOW DOES THE PROPOSED CLASS VI PROGRAM EVALUATE WHETHER WELL MATERIALS ARE SUITABLE FOR LONG-TERM CARBON DIOXIDE INJECTION?

A. The proposed Class VI program requires that the casing and cement used in the construction of each Class VI well must have sufficient structural strength and be designed for the life of the project. All materials must be compatible with fluids with which the materials may come into contact with.¹⁴ Considerations include depth to injection zone, injection pressure, external and internal pressure, hole size, size and grade of all casing strings, corrosiveness of the carbon dioxide string, downhole temperatures, lithology of the injection and confining zone, specified cement type or grade, quantity, and composition and temperature of the CO₂ stream.¹⁵

Q. HOW DOES THE PROPOSED PROGRAM ADDRESS CORROSION OR OTHER RISKS ASSOCIATED WITH THE CARBON DIOXIDE STREAM?

A. The program requires robust selection of casing and cement to be used in the construction of the well, based upon a chemical analysis of injectate, as well as ongoing Operating Requirements and Testing and Monitoring Requirements.¹⁶ These layers of protection provide assurance of proper material selection for expected requirements, operating requirements to assure that the operations stay within the specified operational requirements of the permit and, finally, required ongoing testing and monitoring requirements to provide assurance over the life of the well.

¹⁴ *Id.* 19.15.43.9.G(2)(a)

¹⁵ *Id.* 19.15.43.9G(2)(a)(i-ix)

¹⁶ *Id.* 19.15.43.9.G.(1); 19.15.43.9.I(1);19.15.43.9.K

Q. HOW DOES THE PROPOSED PROGRAM REGULATE CASING AND CEMENTING REQUIREMENTS FOR CLASS VI WELLS?

A. The proposed Class VI program requires that the casing and cement used in the construction of the Class VI well have sufficient structural strength and be designed for the life of the project. All well materials must be compatible with fluids with which the materials may be expected to come into contact.¹⁷

Q. HOW DOES PROPER CEMENTING SUPPORT WELL INTEGRITY?

A. Proper cementing prevents the movement of fluids into or between USDWs or into any unauthorized zones.¹⁸

Q. WHAT TYPES OF TESTING OR EVALUATION ARE REQUIRED TO CONFIRM WELL INTEGRITY?

A. The operator is required to perform an initial annulus pressure test and continuously monitor injection pressure, rate, injected volumes and pressure on the annulus between tubing and long-string casing as well as annulus fluid volume.¹⁹ At least once per year, the operator must use one of the following methods to determine the absence of fluid movement – an approved tracer survey or a temperature or noise log.²⁰ The operator may also be required to perform a casing inspection log.²¹

¹⁷ *Id.* 19.15.43.9.G(2)

¹⁸ *Id.* 19.15.49.9.G(1)(a)

¹⁹ *Id.* 19.15.43.9.J(2)

²⁰ *Id.* 19.15.43.9.J(3)

²¹ *Id.* 19.15.43.9.J(4)

Q. HOW DOES MAINTAINING WELL INTEGRITY SUPPORT CONTAINMENT OF THE CARBON DIOXIDE STREAM?

A. Maintaining well integrity ensures that the casing, cement and tubing continues to prevent movement of fluids into or between USDWs or into any unauthorized zones.

EMERGENCY AND REMEDIAL RESPONSE PLAN

Q. WHAT IS AN “EMERGENCY EVENT” IN THE CONTEXT OF THE PROPOSED CLASS VI PROGRAM?

A. An emergency event would be any event in which movement of the injection or formation fluids may cause an endangerment to a USDW during construction, operation, and post-injection site care period.²²

Q. HOW DOES THE PROPOSED PROGRAM REQUIRE OPERATORS TO PREPARE FOR POTENTIAL EMERGENCY EVENTS? WHAT TYPES OF INFORMATION MUST AN OPERATOR INCLUDE IN AN EMERGENCY AND REMEDIAL RESPONSE PLAN?

A. The proposed Class VI program requires that operators maintain and implement an approved plan which is directly enforceable regardless of whether the requirement is a condition of the permit.²³ The operator must conduct outreach with communities within the area of review (AoR) during development of the plan.²⁴ This outreach must identify the chain of command for notifying the public in the event of an emergency and incorporate this information in the plan as well as develop protocols for notifying the public about well related issues and emergencies.²⁵ The operator must provide training for local emergency

²² *Id.* 19.15.43.9.O(1)

²³ *Id.*

²⁴ *Id.*

²⁵ *Id.*

responders and include a summary of community outreach activities conducted prior to the plan's submittal.²⁶

Q. DOES THE STATE REVIEW EMERGENCY AND REMEDIAL RESPONSE PLANS BEFORE ISSUING A CLASS VI PERMIT? WHAT ARE THOSE CONSIDERATIONS?

A. Yes. The plan must describe actions the operator must take to address movement of the injection of formation fluids that may cause an endangerment to a USDW during construction, operation and post-injection site care periods.²⁷

Q. HOW ARE OPERATORS REQUIRED TO RESPOND IF MONITORING IDENTIFIES A POTENTIAL ENDANGERMENT TO UNDERGROUND SOURCES OF DRINKING WATER?

A. If the operator obtains evidence that the injected carbon dioxide stream and associated pressure front may cause an endangerment to a USDW, they must immediately cease injection, take all steps reasonable necessary to identify and characterize any release, notify the director within 24 hours and implement the emergency and remedial response plan.²⁸

Q. HOW DOES THE PROPOSED PROGRAM EVALUATE WHETHER CORRECTIVE ACTION IS NOT NECESSARY?

A. If the operator is able to demonstrate that the injection operation will not endanger USDWs.²⁹

²⁶ *Id.* 19.15.43.9.O(2)

²⁷ *Id.* 19.15.43.9.O(1)

²⁸ *Id.* 19.15.43.9.O(3)

²⁹ *Id.* 19.15.43.9.O(4)

Q. CAN THE PROPOSED CLASS VI PROGRAM REQUIRE ADDITIONAL MONITORING, TESTING, OR CORRECTIVE ACTION IN RESPONSE TO EMERGENCY CONDITIONS? HOW IS THIS MONITORED?

A. Yes, the proposed Class VI program can require additional monitoring, testing or corrective action in response to emergency conditions. The operator would be required to revise its emergency and remedial response plan and include the additional monitoring requirements in its existing monitoring program.³⁰

Q. CAN THE PROPOSED CLASS VI PROGRAM MODIFY OPERATIONS OR REQUIRE SHUTDOWN OF INJECTION ACTIVITIES IF NECESSARY?

A. Yes the proposed Class VI program can modify operations or require shutdown of injection activities if it deems the injection is a risk to the USDW.

CLASS VI INJECTION WELL AND AREA OF REVIEW MONITORING

Q. WHAT TYPES OF INFORMATION ARE OPERATORS REQUIRED TO MONITOR DURING INJECTION OPERATIONS?

A. Operators are required to perform an analysis of the carbon dioxide stream with sufficient frequency to yield data representative of its chemical and physical characteristics.³¹ They are also required to install and use, during workovers, continuous recording devices to monitor injection pressure, rate, volume; the pressure on the annulus between the tubing and the long string casing; and the annulus fluid volume added.³² Corrosion monitoring of the well materials for loss of mass, thickness, cracking, pitting and other signs of corrosion must be performed on a quarterly basis to ensure that the well components meet the

³⁰ *Id.* 19.15.43.9.O(5)

³¹ *Id.* 19.15.43.9.K(1)

³² *Id.* 19.15.43.9.K(2)

minimum standard for material strength and performance.³³ Quarterly monitoring of the groundwater quality and geochemical changes above the confining zone(s) that may be a result of carbon dioxide movement through the confining zone is required.³⁴ A demonstration of external mechanical integrity at least once per year is required.³⁵ A pressure fall-off test at least once every five years is required.³⁶ Testing and monitoring to track the extent of the carbon dioxide plume and the pressure or absence of elevated pressure is also required.³⁷ Soil gas monitoring is required to detect movement of carbon dioxide that could endanger a USDW is required.³⁸ The Director may require surface air monitoring to detect movement of carbon dioxide that could endanger a USDW, including in oil and gas field or other areas with a high density of legacy wellbores.³⁹ Seismicity monitoring is required as part of the operational and post injection program.⁴⁰

Q. HOW DOES THE PROPOSED CLASS VI PROGRAM MONITOR WELL INTEGRITY DURING OPERATIONS?

A. The proposed Class VI program requires a number of means for protecting well integrity during operations including the requirement for installation of continuous recording devices that monitor the injection pressure; the rate, volume and/or mass, and temperature of the carbon dioxide stream; and the pressure on the annulus between the tubing and the long string casing and annulus fluid volume.⁴¹ In addition, corrosion monitoring is required of the well materials for loss of mass, thickness, cracking, pitting and other signs of

³³ *Id.* 19.15.43.9.K(3)

³⁴ *Id.* 19.15.43.9.K(4)

³⁵ *Id.* 19.15.43.9.K(5)

³⁶ *Id.* 19.15.43.9.K(6)

³⁷ *Id.* 19.15.43.9.K(7)

³⁸ *Id.* 19.15.43.9.K(8)

³⁹ *Id.* 19.15.43.9.K(9)

⁴⁰ *Id.* 19.15.43.9.K(10)

⁴¹ *Id.* 19.15.43.9.I(5)

corrosion must be performed on a quarterly basis to ensure that the well components meet the minimum standard for material strength and performance.⁴² Also, a demonstration of external mechanical integrity at least once per year is required.⁴³

Q. WHAT IS THE “AREA OF REVIEW”? WHAT IS THE PURPOSE OF MONITORING WITHIN THE AREA OF REVIEW?

A. The area of review, or “AoR”, means the area surrounding an injection well described according to the criteria set forth in 40 C.F.R. 146.06 or in the case of an area permit, is the project area plus a circumscribing area the width of which is either a quarter of a mile or a number calculated according to the criteria set forth in 40 CFR 146.06.⁴⁴ More specifically, the AoR is the region surrounding the geologic sequestration project where USDWs may be endangered by the injection activity. The AoR is delineated using computational modeling that accounts for the physical and chemical properties of all phases of the injected carbon dioxide stream and is based on available site characterization, monitoring and operational data.⁴⁵ The purpose for monitoring within the area of review is to ensure compliance with the standards under proposed section 19.15.42.9.B NMAC which requires that no operator shall construct, operate, maintain, convert, plug, abandon, or conduct any other injection activity in a manner that allows the movement of fluid containing any contaminant into drinking water.⁴⁶

⁴² *Id.* 19.15.43.9.K(3)

⁴³ *Id.* 19.15.43.9.K(5)

⁴⁴ OCD Exhibit 2 at section 19.15.42.7.C

⁴⁵ OCD Exhibit 3 at section 19.15.43.9.E(1)

⁴⁶ *Id.* 19.15.43.9.K(9)(b)

Q. WHY IS IT IMPORTANT TO MONITOR FOR UNANTICIPATED FLUID MOVEMENT?

A. This is important to ensure that there is no communication between formations behind the casing or any unexpected movement outside of the intended injection zone in order to ensure no movement of fluid containing any contaminant into drinking water.⁴⁷

OPERATIONAL REQUIREMENTS

Q. GENERALLY, WHAT ARE THE OPERATIONAL REQUIREMENTS FOR CLASS VI WELLS?

A. Generally, the operator must ensure that injection pressure does not exceed ninety percent of the fracture pressure of the injection zone(s) so as to ensure that the injection does not initiate new fractures or propagate existing fractures in the injection zone(s). In no case may injection pressure initiate fractures in the confining zone(s) or cause the movement of injection of formation fluids that endangers a USDW.⁴⁸ This is achieved through a number of operational requirements including prohibition of injection between outermost casing protecting USDWs and the well bore, monitoring of annulus between the tubing and the long string casing, maintenance of mechanical integrity at all times, and several monitoring requirements.⁴⁹

Q. HOW DOES THE PROPOSED CLASS VI PROGRAM REGULATE INJECTION PRESSURE FOR CLASS VI OPERATIONS? WHY IS IT IMPORTANT TO LIMIT INJECTION PRESSURE IN A CLASS VI WELL?

⁴⁷ OCD Exhibit 2 at section 19.15.42.9.B

⁴⁸ OCD Exhibit 3 at section 19.15.43.9.I(1)

⁴⁹ *Id.* 19.15.43.9.I(2)-(5)

A. As discussed above the proposed Class VI program has several measures in place to ensure that injection pressure does not exceed ninety percent of the fracture pressure of the injection zone(s) so as to ensure that the injection does not initiate new fractures or propagate existing fractures in the injection zone(s). In no case may injection pressure initiate fractures in the confining zone(s) or cause the movement of injection of formation fluids that endangers a USDW.⁵⁰

Q. WHAT ARE THE VARIOUS ZONES INJECTION CAN OCCUR? IS IT POSSIBLE TO EVALUATE WHETHER PROPOSED INJECTION PRESSURES ARE PROTECTIVE OF THE CONFINING ZONE?

A. There are known injection zones in New Mexico such as the Delaware Mountain Group or Siluro-Devonian zones in the Delaware Basin. Yes, it is possible to evaluate whether proposed injection pressures are protective of the confining zone - defined as a geological formation, group of formations, or part of a formation that is capable of limiting fluid movement above an injection zone⁵¹ - through a number of means. During the construction of the well, the program requires that the operator take whole cores or sidewall cores of the injection zone and confining system and formation fluid samples from the injection zone.⁵² In addition, the operator must submit a detailed report prepared by a log analyst that includes: well log analyses (including well logs), core analyses, and formation fluid sample information.⁵³ In addition, the operator must record the fluid temperature, pH, conductivity, reservoir pressure and the static fluid level of the injection zone(s).⁵⁴ At a minimum, the

⁵⁰ *Id.* 19.15.43.9.I(1)

⁵¹ *Id.* 19.15.43.7.F

⁵² *Id.* 19.15.43.9.H(2)

⁵³ *Id.*

⁵⁴ *Id.* 19.15.43.9.H(3)

operator must calculate the following information concerning the injection and the confining zone(s): fracture pressure, other physical and chemical characteristics of the injection and confining zone(s), physical and chemical characteristics of the formation fluids in the injection zone(s).⁵⁵ Upon completion, but prior to operation, the operator must then conduct a pressure fall-off test, pump test or injectivity test.⁵⁶

Q. HOW DO INJECTION PRESSURE LIMITATIONS HELP PREVENT FRACTURING OR LOSS OF CONTAINMENT?

A. Injection pressure limitations help prevent fracturing or loss of containment by ensuring that the injection pressures in injection zone do not exceed the fracture pressures of formation.

Q. WHAT TYPES OF OPERATIONAL CONTROLS ARE REQUIRED TO ENSURE COMPLIANCE WITH PRESSURE LIMITATIONS?

A. The proposed Class VI permit establishes maximum injection volumes and pressures necessary to assure that fractures are not initiated in the confining zones, that injected fluids do not migrate into any underground source of drinking water, and that formation fluids are not displaced into any underground source of drinking water.⁵⁷ In addition, operators are required to install and use, during workovers, continuous recording devices to monitor injection pressure, rate, volume; the pressure on the annulus between the tubing and the long string casing; and the annulus fluid volume added.⁵⁸ The operator is required to install, use and maintain continuous recording devices to monitor the injection pressure; the rate,

⁵⁵ *Id.* 19.15.43.9.H(4)

⁵⁶ *Id.* 19.15.43.9.H(5)

⁵⁷ OCD Exhibit 2 at section 19.15.42.12.B(2)(c)

⁵⁸ OCD Exhibit 3 at section 19.15.43.9.K(2)

volume and/or mass, and the temperature of the carbon dioxide stream.⁵⁹ The operator is required to install alarms and automatic surface shut-off systems or, at the discretion of the Director, down-hole shut-off systems (e.g. automatic shut-off check valves).⁶⁰ All alarms are to be integrated with an automated shutdown system to ensure immediate response to critical operating conditions.⁶¹ If a shutdown is triggered, the operator must immediately investigate and identify the cause.⁶² The operator must immediately cease injection, take all steps to determine whether there may have been a release of injected carbon dioxide stream or formation fluids into any unauthorized zone, notify the director within 24 hours, restore and demonstrate mechanical integrity and notify the Director when injection can be expected to resume.⁶³

Q. DOES THE PROPOSED CLASS VI PROGRAM REQUIRE AUTOMATIC SHUT-OFF DEVICES OR OTHER SAFETY MEASURES?

A. Yes, the proposed Class VI program requires automatic shut-off devices.⁶⁴

Q. HOW DO AUTOMATIC SHUT-OFF DEVICES HELP PREVENT UNAUTHORIZED OR UNSAFE INJECTION CONDITIONS?

A. The automatic shut-off devices immediately stop injection when a pressure limitation is exceeded which, in turn, stops that injection in the formation before the fracture pressure is exceeded.

⁵⁹ *Id.* 19.15.43.9.I(5)(a)

⁶⁰ *Id.* 19.15.43.9.I(5)(b)

⁶¹ *Id.*

⁶² *Id.* 19.15.43.9.I(6)

⁶³ *Id.*

⁶⁴ *Id.* 19.15.43.9.I(5)(b)

Q. HOW DO THOSE DEVICES SUPPORT PROTECTION OF UNDERGROUND SOURCES OF DRINKING WATER?

A. These devices ensure the integrity of the well is maintained, including its casing and injection, which provides protection to underground sources of drinking water.

Q. HOW ARE THOSE SAFETY SYSTEMS EVALUATED TO ENSURE THEY ARE FUNCTIONING PROPERLY?

A. The mechanical integrity requirements of the proposed program ensure that the safety systems are evaluated. The mechanical integrity testing program ensures there is no significant leak in the casing, tubing or packer; and there is no significant fluid movement into a USDW through channels adjacent to the injection wellbore.⁶⁵

SEISMICITY—RISK EVALUATION AND MONITORING

Q. WHAT IS SEISMICITY? ARE YOU FAMILIAR WITH HOW SEISMICITY IS EVALUATED UNDER THE PROPOSED CLASS VI PROGRAM?

A. Seismicity refers to the occurrence or frequency of earthquakes in a region. Yes, I am familiar with how seismicity is evaluated under the proposed Class VI program.

Q. HOW DOES THE PROPOSED CLASS VI PROGRAM ADDRESS POTENTIAL INDUCED SEISMICITY RISKS ASSOCIATED WITH INJECTION?

A. Seismicity monitoring is required as part of the operational and post injection monitoring program for all Class VI injection projects. The operator is required to design and implement a site-specific seismic monitoring plan capable of detecting and characterizing induced seismicity that may result from injection activities.⁶⁶

⁶⁵ *Id.* 19.15.43.9.J

⁶⁶ *Id.* 19.15.43.9.K(10)

Q. WHAT ROLE DOES SITE CHARACTERIZATION PLAY IN ASSESSING SEISMIC RISK?

A. The design of the Class VI seismicity monitoring must be based on the potential risk of disturbing the confinement zone and endangering USDWs with the area of review that was determined during the site characterization phase.⁶⁷

Q. HOW CAN INJECTION OPERATIONS BE MODIFIED IF SEISMICITY IS DETECTED OR SUSPECTED?

A. The injection operations can be modified by reducing permitted volumes or pressure, up to and including the shut in of well. The operator is required to periodically review the testing and monitoring plan to incorporate monitoring data.⁶⁸ An initial review of the testing and monitoring plan shall occur two years after injection begins, and at no time may exceed four years.⁶⁹ Based on this review, the operator shall submit an amended testing and monitoring plan or demonstrate to the Director that no amendment to the testing and monitoring plan is needed.⁷⁰

Q. HOW DOES MONITORING SUPPORT EARLY IDENTIFICATION OF SEISMICITY CONCERNS?

A. Monitoring provides a baseline of conditions prior to initiation of injection as well as provides awareness of seismicity during injection operations which, if occurring, can produce a triangulation of seismicity source and resultant remedial action planning.

⁶⁷ *Id.* 19.15.43.9.K(10)(a)

⁶⁸ *Id.* 19.15.43.9.K(12)

⁶⁹ *Id.*

⁷⁰ *Id.*

Q. HOW DOES MECHANICAL INTEGRITY TESTING HELP REDUCE THE RISK OF INDUCED SEISMICITY?

A. The assurance provided by continuously monitoring injection pressure, rate and injected volumes helps reduce the risk of induced seismicity.⁷¹

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

/s/ Matthew Eales

Matthew Eales

⁷¹ *Id.* 19.15.43.9.J(2)