



Douglas A. Ducey  
Governor

State of Arizona  
**Oil and Gas Conservation Commission**

1110 W. Washington Street, Phoenix, AZ 85007  
602-771-4501  
[www.azogcc.az.gov](http://www.azogcc.az.gov)  
Marta Hodan, Oil and Gas Administrator

Commissioners:  
Frank Thorwald, Chair  
J. Dale Nations, Ph.D., Vice Chair  
Stephen R. Cooper  
William C. Feyerabend

**MINUTES OF MEETING**  
**SEPTEMBER 25, 2020**

**PRESENT**

Mr. Frank Thorwald,	Chairman, Arizona Oil & Gas Conservation Commission (AOGCC)
Dr. Dale Nations,	AOGCC Vice Chairman
Mr. Bill Feyerabend,	AOGCC Member
Mr. Stephen Cooper,	AOGCC Member
Mr. Jay Skardon,	AOGCC Counsel, Office of the Attorney General
Ms. Marta Hodan,	AOGCC Program Administrator
Ms. Tawnya Cook,	Arizona Department of Environmental Quality (ADEQ)

**CALL TO ORDER**

Mr. Thorwald call the AOGCC Meeting of September 25, 2020 to order at 10:01 am via virtual meeting at the Arizona Department of Environmental Quality (ADEQ), Phoenix, Arizona. No one reported any conflicts of interest and the roll call confirmed a sufficient number were present for a quorum.

**DISCUSSION AND APPROVAL OF MEETING MINUTES**

Dr. Nations moved, seconded by Mr. Feyerabend, that:

THE MINUTES OF JULY 17, 2020 PUBLIC MEETING BE ACCEPTED AS PRESENTED

Motion carried unanimously.

**HALIBURTON VIRTUAL PRESENTATION ON ACID STIMULATION PRINCIPLES** (2:22)

Mr. Julio Vasquez, Product Manager with Haliburton, gave a presentation on acid stimulation principles. This presentation gives an overview of the different technologies for acidizing, specifically for sandstone and carbonate reservoirs. Some challenges in well production optimization are wellbore integrity, reservoir damage/depletion, sand production, scale/corrosion or undesired fluid production. Mr. Vasquez addresses reservoir damage/depletion in his presentation.

When and why we acidize – 3 scenarios of acidizing include – sandstone reservoirs, carbonates and unconventional/shales. There are significant differences in stimulation techniques dependent on formation permeability. Examples were given for acidizing to successfully remove damage inside the wellbore for the each scenario.

Mr. Vasquez discussed matrix acidizing in sandstone and carbonate formations. For a sandstone matrix reservoir, acidization is for removing near-wellbore damage. For carbonate reservoirs, acidization can be used for both near-wellbore damage and matrix stimulation due to the reactivity of the formation with the acid solution. This reactivity can create wormholing, used to provide a more effective near-wellbore reservoir stimulation.

For sandstone reservoirs, the most common types of acid used are a combination of hydrochloric acid and hydrofluoric acid, although other acids can be used. The ideal outcome would be complete restoration to the wellbore area. For carbonate reservoirs, the most common type of acid used is hydrochloric acid. This can be used to fix near-wellbore damage, but reactivity allows for deeper penetration into the matrix of the rock for more stimulated rock volume.

It is important to understand the mineralogy of the formation in order to plan the best stimulation for each specific well. Sandstone is mostly quartz, but it is also important to understand the types of clay that are in the formation to determine if the acid solution needs to be modified. The acid solutions used are not just acid – there are other specialty chemicals mixed with the HCl, (and/or) HF and water. Corrosion tests are done before pumping acid solution into the well to ensure no damage to the casing and wellbore.

Mr. Vasquez discussed the acidizing services that Haliburton has – Carbonate Acidizing, Sandstone Acidizing, Acid Diversion Technologies and stimulation software. He discussed briefly the sandstone & carbonate acidizing portfolios and the fluids that are used.

Lastly, Mr. Vasquez discussed diversion – fluid placement optimization and the diversion challenges in acidizing treatments. Proper placement is necessary to ensure effective treatment across an area. Some challenges are due to natural fractures, previously stimulated wells and high water production. Halliburton uses various diversion technologies to mitigate these challenges.

Q&A followed the presentation. It was asked if there was a range of distance that the acidizing has affect, or does it vary. It is near-wellbore clean-up, really not that big of a range of distance. It was asked how to get a handle on characterizing the reservoir if you are in a geologic system that is really variable? There are many acids that are conservative and there are best practices they use when they are dealing with sandstone in that scenario. For carbonates, and even mixed layers of carbonates and

sandstone, chelants are the best to use. How is it mitigated when there are dolomite cements? The problem with dolomites is the low temperature, they just have to take that into account – and is one of the reasons for the acid solubility tests prior to beginning the job. How does Haliburton protect aquifers? They make sure that the cement quality of the well is good, which creates a barrier between the wellbore, stimulation and the aquifer. They will also do diversion to divert the acid away from the aquifer. How much of the acid is neutralized by the geology of the area? That is a design consideration more brine would be added to push the acid further in and allow it to expend or react completely. There were questions surrounding the environmental aspect – regarding the additives in the stimulant and how to handle anything out of the ordinary that would occur. The discussion turned to preventing corrosion – it is Haliburton’s number 1 priority to prevent it. They have a database that gives the exact amount of corrosion inhibitor to put in the mix.

**ARIZONA ENERGY PARTNERS AEP 16-1:** (1:12:17)

Ms. Hodan gave a brief background on Arizona energy partners 16-1 – this is a consideration for extension of confidentiality. The Operator had made a written request on May 13. Mr. Leblanc asked to have it put on the agenda. Mr. Leblanc had requested a year extension back in May. The temporary abandonment status was extended through August 12, 2021. Ms. Hodan recommends the extension of the confidentiality to that date as well.

Dr. Nations moved, seconded by Mr. Feyerabend to:

EXTEND THE CONFIDENTIALITY OF AEP 16-1 TO AUGUST 12, 2021

Motion carried unanimously.

**RARE EARTH EXPLORATION LLC 12-1 STATE AND 28-1 STATE:** (1:14:17)

Ms. Hodan gave a brief background on this well. Rare Earth 12-1 & 28-1 were granted extension for plug and abandonment from July 31, 2020 to August 30, 2020. Mr. Haycraft was on call at the time and requested the additional month. The Commission asked if would that be enough time to perform the work, he assured that it would. Ms. Hodan has since sent multiple reminders of the due date, a letter letting him know he is past the deadline and the potential actions we could take against them. Ms. Hodan has received no response to any of the correspondence since July. The Commission has extended the plug and abandonment 4 times, beginning in November of last year. Ms. Hodan wants to open this to the Commission for discussion and potential discussion of forfeiture of the bond or potential extension of deadline.

Dr. Nations expressed that he does not think the Commission should extend the deadline anymore as we have been very helpful to get him to do it for both of the wells. Dr. Nations suggested that the Commission move to order the plug and abandonment of Rare Earth 12-1 State & 28-1 State. Mr. Skardon confirmed that the motion also included the forfeiture of the bond.

Mr. Thorwald asked Mr. Skardon if there were any other issues that needed to be discussed with this motion. Mr. Skardon answered no, we have the right to forfeit the bond and use the money for plug and abandonment. It will need to be determined how much it will cost as the bond may not cover what we need. Ms. Hodan explained that based on her understanding of this type of bond it would have to be sent out for bid and the Commission would likely accept lowest bid. Commissioner Cooper requested that the Commission call for the record if Mr. Haycraft is present. Mr. Thorwald asked if Mr. Haycraft was present, to which it was confirmed he was not. Mr. Thorwald checked with Ms. Hodan to see what efforts she had made to reach Mr. Haycraft. Multiple email correspondences have been sent to him – 3 since the July meeting. Former Administrator Mr. Turner had spoken to him on the phone after the last meeting. Mr. Haycraft submitted an incomplete application, Mr. Turner responded back and informed him the application was incomplete and let him know what changes were needed. Neither Mr. Turner nor Ms. Hodan received a response back. Ms. Hodan reiterated the same correspondence to Mr. Haycraft in August, and then let him know he was past due in September.

Dr. Nations moved, seconded by Mr. Feyerabend to:

ORDER THE PLUG & ABANDONMENT OF RARE EARTH 12-1 STATE & 28-1 STATE AND THE FORFEITURE OF THE BOND

Motion carried unanimously.

**REPORT BY THE OIL & GAS ADMINISTRATOR**

Pollard Helium 36-1: This is another well that the bond was forfeited. The Administrator has pursued an Operator to help plug & abandon the well. Ms. Hodan has been working with the Operator to get him the correct documentation to understand the history of the well to schedule a date for plug & abandonment. No date has been scheduled as of yet.

Pinta South Operating Company: There has been new drilling activity since the last meeting. They have 2 additional wells drilled. They are waiting on completion.

Desert Mountain Energy: The 2 wells they had drilled in June have been completed and Ms. Hodan has received the proper paperwork on them. They are working on getting temporary abandonment status on those wells while they decide when they are going to bring them on to production.

Ranger: Have had one additional well spud since the last meeting and they have not completed drilling on that well yet.

Prize Energy Resources, Inc.: The last update Ms. Hodan has is they are working with the APP group on their permit and at last check it was still in process.

Website redesign: Ms. Hodan is working on a priority list on what order we want to update things on the website. This will take some time and will likely go in to next year.

**REPORT BY THE AOGCC CHAIRMAN**

Legislation: No legislative activities discussed.

**ANNOUNCEMENTS**

Ms. Hodan is putting together a matrix to see the status of everything at once to see what actions have been taken and those which have not been taken, etc.

**ADJOURN**

Mr. Thorwald moved, seconded by Mr. Feyerabend that  
THE MEETING BE ADJOURNED

Motion carried unanimously. The meeting was adjourned at 11:26 a.m.

**REVIEWED**



FRANK THORWALD  
CHAIRMAN

11/20/2020

DATE

**GUESTS IN ATTENDANCE**

Michael Allison

Julio Vasquez, Haliburton

Erin Stone

Jim Ballard

Noa Bruhis, ASU

Rosanna

Wesley Marshall, Pro Helium

Naveen Savarirayan, ADEQ

Nyal Niemuth

Louis Rozs

Maribeth Greenslade

Mike Chang

Mike Sonenberg, ADEQ

Mike Olesko

Lauren Baader

Joe Dixon

Daniel Reeder

Diana Gutierrez

Wayne Pearce

Felicia French

John Stuckey

David Haag, AZ State Land

