



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)

Dennis L. Turner, Oil and Gas Administrator

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

## MINUTES OF MEETING

March 1, 2019

### PRESENT:

Mr. Frank Thorwald,	Chairman, Arizona Oil & Gas Conservation Commission (AOGCC)
Dr. Dale Nations,	AOGCC Vice Chairman (via phone)
Mr. Bill Feyerabend,	AOGCC Member
Mr. Stephen Cooper,	AOGCC Member
Mr. Rick Zeise,	AOGCC Counsel, Office of the Attorney General
Mr. Dennis Turner,	AOGCC Program Administrator
Ms. Madeline Greenbaum,	Arizona Department of Environmental Quality

### CALL TO ORDER

Mr. Thorwald called the AOGCC Meeting of March 1, 2019 to order at 10:03 a.m. in Room 145 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 following minutes be approved:

- o January 18, 2018 Public Meeting
- o January 18, 2018 Public Hearing (The Cobalt Group)

Both motions were carried unanimously in separate votes.

### "CAVERNS 101" PRESENTATION BY MR. MICHAEL OLESKO, MANAGER, CAVERN INTEGRITY, PLAINS MIDSTREAM CANADA

Mr. Olesko, manager at Plains Midstream Canada, gave a brief presentation on the basics of design, operation, and maintenance of typical salt caverns used for LPG storage. The presentation slides accompany these minutes.

After the presentation, Mr. Dixon and Dr. Nations led a general discussion on the climate and the geology necessary for bedded salt deposition. Dr. Nations pointed out that the Olesko presentation statement that evaporite deposits form in marine environments of Devonian age is not applicable to most of the Arizona salt deposits, which were formed in closed non-marine basins of late Tertiary age. Only the Holbrook Basin evaporite deposit is of marine origin, and it is of Permian age.

Mr. Olesko spoke on the process and evolution of salt cavern drilling and the variations in well casing sizes used in this process.

Mr. Waldhauser and Mr. Parker discussed which hydrocarbon gasses are typically stored in salt caverns. The capacity of a cavern is dependent on the physical volume of the cavern and how much brine is available at the site. This brine is used to displace the LPG in the cavern when the LPG is being removed. Water usage is minimal and includes recycled water.

Mr. Thorwald asked about security concerns at the sites. Mr. Olesko addressed this by saying that the salt caverns are underground storage sites. The intrinsic value of a cavern is that it is several hundred feet below the ground surface. In addition, anaerobic conditions provide security to combustion and slow down the corrosion process.

The security of the environment of the site, particularly groundwater, was further addressed by Plains LPG Services members who spoke on the measures used to prevent leakage and corrosion. These include lined impoundments, cemented surface casing, which seals off communication between aquifers, mechanical integrity tests performed every five years and workovers of the wells every 10 years to evaluate corrosion and replace equipment as needed.

#### REPORT BY THE OIL AND GAS ADMINISTRATOR

Mr. Turner reported on the following items.

##### Additions to the AOGCC Web Site

Dr. Nations suggested placing his slide show overview of Oil and Gas occurrence and potential in Arizona on the AOGCC web site. Mr. Turner said that Dr. Nations' presentation will be posted on the AOGCC website as well as links to Dr. Nations' "StoryMaps" series.

##### Report by the AOGCC Chairman

Mr. Thorwald reported that the AOGCC has been working with ADEQ to improve Program support, including resources for administrating the AOGCC website.

#### LEGISLATION AFFECTING THE ARIZONA OIL AND GAS CONSERVATION COMMISSION

Brief discussion on hydraulic fracturing issue as well as the possibility of a change in the AOGCC funding source from ADEQ.

#### CALL TO THE PUBLIC

Mr. Joe Dixon, State Land Department, reported that Blackstone Exploration's lease of the State #4 well on State land is at risk of default and the lease may be canceled. This could pose access problems for the company in the future. Mr. Dixon retires March 1. Several the Commissioners and members of the public wished him well.

#### REVIEW AND CONSIDER FUTURE AGENDA ITEMS

No report.

#### ANNOUNCEMENTS

Madeline Greenbaum will assist Mr. Turner in preparing meeting minutes other administrative duties. Ms. Greenbaum is currently the Administrative Assistant for the Air Monitoring and Assessment Section at ADEQ and is in the process of completing her masters in Environmental and Resource Management at Arizona State University (ASU).

#### ADJOURNMENT

Mr. Feyerabend moved, seconded by Mr. Cooper:

THAT THE MEETING BE ADJOURNED

Motion carried unanimously. The meeting was adjourned at 11:10 a.m.

REVIEWED



FRANK THORWALD  
Chairman

4/12/2019  
DATE

GUESTS IN ATTENDANCE

Mike Olesko, Plains Midstream  
Donald Waldhauser, Plains LPG Services  
Joe Dixon, AZ State Land Dept.

Greg Parker, Plains LPG Services  
Noa Bruhis, ASU  
Edwin Slade, ADEQ Administrative Council