



Douglas A. Ducey
Governor

State of Arizona
Oil and Gas Conservation Commission

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Dennis L. Turner, Oil and Gas Administrator

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

MINUTES OF MEETING
January 12, 2018

PRESENT:

Mr. Frank Thorwald, Chairman of the Arizona Oil & Gas Conservation Commission (OGCC)

Mr. Stephen R. Cooper, Member

Mr. Bill Feyerabend, Member

Mr. Rick Zeise, OGCC Counsel

Mr. Dennis Turner, OGCC Program Administrator

CALL TO ORDER

Mr. Thorwald called the OGCC Meeting of January 12, 2018 to order at 11:35 a.m. in Room 3100B at the Arizona Department of Environmental Quality, Phoenix, Arizona.

DISCUSSION AND APPROVAL OF MEETING MINUTES

Dr. Cooper moved, seconded by Mr. Feyerabend, that the following minutes be approved:

September 13, 2017 Executive Session.

October 25, 2017 Executive Session.

November 16, 2017 Public Meeting.

November 16, 2017 Executive Session.

All motions were carried unanimously in one vote.

REPORT BY THE OIL AND GAS ADMINISTRATOR

Plug and abandonment of the SunCor 1-19 and 1-24 in the Luke AFB – Goodyear area: Southwest Groundwater Consultants (SGC), consultant for Sunbelt Holdings (Sunbelt), proposes to plug and abandon the wells following the same procedure at the Kakerlee #1-12, which was plugged and abandoned in 2010. That procedure was approved by a previous administrator, but was not in accordance with the requirements of A.A.C. R12-7-127(C), 127(D) and 127 (F).

Copper Eagle Gas Storage LLC originally received 3 permits from the OGCC in 2001 – 2002 to drill the Kakerlee #1-12 (permit 912), SunCor 1-19 (permit 911) and SunCor 1-24 (permit 909) in the Luke AFB area. The sole purpose of these wells was a stratigraphic test to penetrate the Luke salt deposit and reach a total depth in basement rock. At that time, the area was being studied for possible development of a new underground natural gas storage facility. However, in 2004 the Arizona legislature enacted a ban on such facilities in areas with a population density 1.5 million or greater (see ARS § 49-1301 to 49-1303).

El Paso Natural Gas purchased Copper Eagle and its wells in 2003. In 2009 the wells' ownership transferred to SunCor Development, a company that is currently in bankruptcy and owned by Pinnacle

West Capital Corporation. Sunbelt purchased approximately 2000 acres from SunCor in 2010, which included the three wells.

The three wells were each granted a five-year temporary abandonment status in 2004 and renewed for two more years in 2009. No activity has occurred at any of these wells since 2011, except that the Kakerlee was plugged in 2010.

The Kakerlee #1-12 was plugged with 50 feet of cement and the top ten feet of casing was removed. The remainder of the wellbore below the cement plug and rubber packer was allowed to remain filled with water, instead of displacing it with properly weighted plugging mud. No above-ground marker was placed at the site. SGC proposed to follow the same procedure for the SunCor 1-19 and 1-24.

Commissioner Chairman Thorwald explained to representatives from Sunbelt and SGC that the OGCC was unaware of the approach taken for plugging the Kakerlee #1-12 and likely would not have approved it. Mr. Zeise reviewed the minimum requirements set forth in sections 127(C) through 127(F).

Mr. Turner explained at some length why the proposed plugging method was inadequate for a deep well that penetrates a salt body and outlined a preferred approach favored by the Commission.

This led to a more involved discussion by the Commission, SGC and Sunbelt about the pros and cons of SGC's proposal, the minimum requirements of the regulations and what measures the Commission expects for these two wells that adequately protects the public because they penetrated the Luke salt deposit. Mr. Turner also pointed out that there are several fresh water supply wells in the area in aquifers above the salt that need to remain isolated.

Mr. Turner recommended that Sunbelt first make a determination of the integrity of the casing and the cement job behind the casing, which may include running new cement bond logs (CBL) or evaluating CBLs run at the time of temporary abandonment in 2009; then setting a cast iron bridge plug above the salt and filling the entire wellbore above with cement (Type II Portland Cement would be acceptable). In addition, due to the developmental potential of the land, the absence of a permanent marker would be acceptable if the excavation around the cut off casing were backfilled with three to five feet of granular material infused with a bright colored dye and the remainder backfilled with native soil. Mr. Thorwald recommended that a temporary marker be placed at the surface that would be removed when construction begins. The site must be surveyed by GPS by a surveyor licensed in the state of Arizona.

Mr. Turner noted that Schlumberger provided a large portion of the electric downhole logs of record for the two wells and the company may be a good source for help with data interpretation. To that end, the Commission recommended that Sunbelt or SGC review the OGCC well files of the two wells for available logs.

Mr. Turner stated his preference for the use of a drilling contractor that is experienced in the oilfield services with workovers and plugging and abandonment work. If additional cement work must be performed on either well, the commission suggests use of an oil field service contractor that is equipped to perform the additional cement work behind casing.

After prolonged discussion, the Commission approved the following procedures to plug and abandon the two referenced wells, which were also captured in a letter to Sunbelt dated January 31, 2018:

1. Sunbelt Holdings shall comply with A.A.C. R12-7-127(C)(3) to ensure that no annular space in each well extends from above the top of salt to the surface through any casing string. To document this condition to the satisfaction of the Commission, the recommended method is either to run a cement bond log, or a casing integrity log. Cement and casing integrity may be

determined with existing or new cement bond logs or other evidence that the well is sealed from the surrounding formations and aquifers and from the Luke salt body below.

2. Place a cast iron bridge plug (CIBP) in each well at the approximate top of the salt body. The Commission recommended the CIBP be placed at a minimum depth of 2100 feet in both wells.*
3. Below the CIBP, the entire wellbore shall be filled with plugging mud at the minimum weight specified in R12-7-127(D). Above the CIBP, the entire wellbore shall be filled with plugging cement to the surface. The preferred plugging cement slurry is that recommended by the American Petroleum Institute (API) Environmental Guidance Document: Well Abandonment and Inactive Well Practices for U.S. Exploration and Production Operations, i.e., a neat cement slurry mixed to API standards. The plugging cement slurry shall be allowed to cure for the times specified by API before proceeding with excavation work.
4. Remove the upper ten (10) feet of all well casing materials and all surface structures and install a heavy metal plate over all tubulars. The well location and identity shall be permanently inscribed on the plate as required in A.A.C. R12-7-106(A).
5. The excavated portion around well shall be backfilled first with three (3) to five (5) feet of granular material, liberally infused with bright colored, highly visible and permanent dye.
6. Over this layer, place clean imported fill material, compacted with wheel and bucket tamping.
7. The installation of a permanent above-ground well marker, pursuant to A.A.C. R12-7-127(F), is waived. Upon completion of placement of the five (5) feet of clean imported fill as cited in item 7 above, the ground surface shall be returned to its current condition.
8. The site shall be surveyed by a surveyor licensed in the state of Arizona, which shall include geodetic coordinates. The location shall be surveyed before the site is backfilled with the specified materials.
9. A temporary marker, the same or similar to that currently at the site, shall be placed above ground at the location of the well after all work is completed.
10. Photo-document the above required closure steps to confirm completion of the plug and abandonment of the wells to statute and rule.
11. The Application to Plug and Abandon, Attachment A, is hereby incorporated by reference as to Details of Proposed Plan of Work that are in agreement with the above stated conditions. The conditions as noted above control where there is any disagreement with Attachment A.

*NOTE: Mr. Hebert later requested approval to substitute steel for cast iron in the bridge plug, stating that it would be more permanent. In the covering email Mr. Turner sent on January 31, 2018 with the letter attached, he said the Commission would agree to that, however, the CIBP is preferred because it is easier to drill out if the well ever had to be reentered to address problems, such as communication up-hole or down-hole between fresh water aquifers or the salt strata.

REPORT BY THE OIL AND GAS CONSERVATION COMMISSION CHAIRMAN:

Mr. Thorwald announced that he had spoken to Bret Park again and that there was agreement that the OGCC web site will remain independent and ADEQ staff will work with the OGCC to update it as needed. ADEQ has a clearer understanding of the OGCC's autonomy and recognizes it as such. In addition, the two agreed that ADEQ's performance metrics and management of licensing time frames are inappropriate for the OGCC permitting and inspection processes.

CALL TO THE PUBLIC

Joe Dixon announced that state land leases had dropped by the end of the year to the lowest number of oil and gas leases since 2006. At the beginning of 2018, the State Land Department had 251 Oil and Gas Leases covering 450,604 acres, down significantly from just six months ago from 430 Leases on 776,655 acres at the beginning of FY2018 (July 1, 2017), and from the peak of 519 Leases on 1,004,792 acres in FY2008. He submitted a brief report, which is appended to the meeting files that accompany these minutes.

ANNOUNCEMENTS

No announcements.

At 12:41 p.m. the Commission convened an Executive Session for the purpose of obtaining legal advice on Blackstone Exploration's permits' status.

The OGCC returned to the Regular Session at 12:45 p.m.

The Commission declined to vote on any matter raised during the Executive Session.

ADJOURNMENT

Mr. Thorwald moved, seconded by Mr. Cooper:

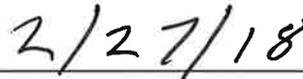
THAT THE MEETING BE ADJOURNED

Motion carried unanimously. The meeting was adjourned at 12:45 p.m.

REVIEWED



FRANK THORWALD
CHAIRMAN



DATE

GUESTS IN ATTENDANCE:

- | | |
|---|--|
| Joe Dixon, AZ State Land Dept. | Michele Van Quathem, Attorney |
| Clare Bellendir, Aztec Land & Cattle Co. | James H. Ballard |
| Ray Hobbs, United Helium | Tony Hines, IACX |
| Bob Bambauer, Sunbelt Holdings | Kurt Constenius, Twin Bridges |
| Kevin Hebert, Southwest Groundwater Consultants | Nathan Miller, Southwest Groundwater Consultants |
| Nyal Niemuth, Geologist | |