



# RAILROAD COMMISSION OF TEXAS

## HEARINGS DIVISION

OIL AND GAS DOCKET NO. 08-0284499

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THE APPLICATION OF BHP BILLITON PET (TXLA OP) CO. PURSUANT TO STATEWIDE RULE 13(B)(2)(B), GELTEMEYER 4-21 LEASE, WELL NO. 1H, PHANTOM (WOLFCAMP) FIELD, REEVES COUNTY, TEXAS

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HEARD BY: Paul Dubois – Technical Examiner  
Laura Miles-Valdez – Legal Examiner

HEARING DATE: October 4, 2013

APPEARANCES: REPRESENTING:

APPLICANT:

Tim Smith  
Carey Holtzendorf

BHP Billiton

### EXAMINERS' REPORT AND RECOMMENDATION

#### STATEMENT OF THE CASE

BHP Billiton Pet (TxLA Op) Co., (BHPB) is requesting an exception to Statewide Rule 13(b)(2)(B) for its Geltemeyer 4-21 Lease, Well No. 1H (API No. 389-32847) in the Phantom (Wolfcamp) Field, Reeves County, Texas. The well experienced a loss of cement circulation in the long surface casing string resulting in top of cement being at about 770 feet below ground surface when the approved casing design required circulation to surface. BHPB failed to communicate with Commission District Staff, and was delinquent in filing completion reports. BHP acknowledged these issues and has (1) conducted a review of its other completions in the area to identify other potential cementing issues, (2) reiterated via policy communication and training the requirements to communicate with District Staff regarding casing and cementing issues, and (3) retained consulting services to assist with filing well compliance reports.

The examiners find the well includes four casing strings plus tubing and is constructed with in such a manner to protect the groundwater resources identified by the

Commission's Groundwater Advisory Unit (GAU). Further, in this case, available options for ensuring complete cementing would likely result in reduced wellbore integrity and a lesser degree of confidence in the protection of groundwater resources. Therefore the examiners recommend the exception be approved.

One day prior to the hearing, BHPB discovered that one operator entitled to notice, Occidental Permian LTD, was inadvertently left off of the service list. The hearing went forward and the matter held open until proper notice was given. The examiners sent Occidental a notice of the hearing and 15 days to protest. No protest was filed.

### DISCUSSION OF THE EVIDENCE

BHPB's Geltemeyer 4-21 Lease, Well No. 1H is completed in the Phantom (Wolfcamp) Field, Reeves County, Texas. The horizontal well is currently a producing gas well, but completion reports have not been approved because the surface casing does not meet the requirements of Statewide Rule 13(b)(2)(B). BHPB is seeking an exception to Statewide Rule 13 for this well, believes the groundwater zones are very well protected, and that any attempt to bring the well into technical compliance with Statewide Rule 13 may likely result in decreased well integrity and decreased groundwater protection.

Prior to drilling, Petrohawk Operating Co. (predecessor entity to BHPB) received a surface casing letter from the Texas Commission on Environmental Quality (TCEQ) identifying groundwater protection requirements for the well. The TCEQ letter states:

*"Water-bearing strata from the land surface to a depth of 850 feet and the Rustler, which is estimated to occur from 1,700 to 2,100 feet must be protected."*

To comply with this requirement, Petrohawk applied on May 19, 2011, and received approval on May 25, 2011, for an alternate surface casing program from the Commission District 8 office pursuant to Statewide Rule 13(b)(2)(G). This program specified the following:

- A 13 3/8-inch diameter pre-casing string set to 900 feet and cemented to surface to isolate the shallow groundwater zone.
- A 10 3/4-inch diameter surface casing string set to about 5,000 feet and cemented to surface using a DV tool set at about 2,200 to 2,250 feet to isolate the Rustler groundwater zone.

District approval of the "Application for Alternate Surface Casing Program" form requires the operator to, among other things, *"Notify District Office if cement does not circulate to ground surface."*

The Geltemeyer 4-21 No. 1H well was drilled and completed as follows:

- On June 19, 2011, the 13 3/8-inch pre-surface casing was set to 945 feet; cement did not circulate to the surface.
- On June 19, 2011 a temperature log run on the 13 3/8-inch casing indicated the top of cement to be at 107 feet; the cement was topped off to the surface the same day.
- On July 7, 2011, the 9 5/8-inch surface casing was set to 4,145 feet and cemented with a DV tool set at 2,176 feet, resulting in the lower leg being cemented but in the upper leg the cement did not circulate to the surface.
- The District Office was not notified of the failure of the cement to circulate to the surface.
- On July 8, 2011, a temperature log run on the 9 5/8-inch casing indicated the top of cement to be at 770 feet.
- On August 7, 2011, the 7-inch intermediate casing was set at a depth of 10,140 feet and cemented to 1,700 feet.
- On September 14, 2011, the tapered 5-inch to 4 ½-inch production string was set from the surface through the horizontal wellbore to 14,349 feet and cemented with a DV tool at 9,703 feet.

BHPB acknowledges disorganization with regard to the filing of completion reports during this time. BHPB has since filed two on-line completion reports (Commission Form G-1) with tracking numbers 57667 (well record only) and 75866 (initial potential). These were filed long after the drilling operations were complete. Additionally, the Form W-15 cementing reports for each of the casing strings and cement jobs were typically filed more than a year after the cementing work was done. These documents are a part of the record in this matter and were submitted as exhibits by BHPB. Further analysis of these issues will not be conducted in this report.

During its review of the completion reports, District Staff identified the cementing issue with the 9 5/8-inch surface casing. Specifically, the cement did not circulate to the surface, but the top of cement was determined by temperature log to be at a depth of 770 feet. BHP was instructed to submit a plan of action to remedy this issue to the District. BHPB requested a hearing to seek an exception to Statewide Rule 13.

At hearing, BHP stated its engineering opinion that, although the cementing on the 9 5/8-inch casing might be in violation of Statewide Rule 13(b)(2)(B), the groundwater resources were well protected by the well construction as a whole. BHPB stated that it was investigating whether other of its wells completed in the area had also experienced a failure to notify the District when casing and cementing issues arose. The examiners requested a summary of BHPB's investigation, which it provided as late-filed exhibit. No circulation problems were identified in 23 other wells pending completion approval.

Additionally, the examiners requested that BHPB provide a summary of remedial alternatives to bring the well into compliance with Statewide Rule 13. BHPB provided this summary as a late-filed exhibit. Two potential remedies were evaluated by BHP:

- To attempt a top-off though with a 1-inch work string or coiled tubing to a depth of 750 feet in the annular space between the 13 3/8-inch and 9 5/8-inch casing strings, and pumping cement until circulation is achieved.
- To attempt a cement squeeze on the 9 5/8-inch casing, which would require pulling a portion of the production casing and perforating through the 7-inch and 9 5/8-inch pipe.

BHPB believes the first alternative would be difficult to perform, risk losing equipment, and would be difficult to assess whether an effective cementing job was achieved. The second alternative is not desirable, either, as it would actually weaken groundwater protection (by perforating two stages of casing) with no assurance of a better ultimate degree of groundwater protection.

BHPB has acted to ensure its processes are protective and compliant. BHPB issued to its engineering staff a memorandum clarifying casing and cementing requirements, and, in particular, requirements to communicate and seek direction from Commission District staff. BHPB has also retained the services of a consulting company to assist it with timely and correct filing of completion paperwork and associated supporting material.

Finally, BHPB argues that the well, as constructed, does in fact adequately and sufficiently protect the shallow groundwater resources. BHPB's exhibit No. 7, a surface casing detail diagram, is attached for reference. Although the 9 5/8 casing failed to circulate to the surface, it does overlap the pre-surface casing by about 175 feet. In addition, the redundant casing strings, cemented intervals, and tubing provide significant isolation of produced fluids from the shallow groundwater zones. Therefore, BHPB requests that an exception to Statewide Rule 13(b)(2)(B) be granted for this well.

**FINDINGS OF FACT**

1. Proper notice of this hearing was given. The surface owner, adjacent surface owners, and all operators of wells within ½ mile of the surface location were notified at least ten days prior to the date of hearing. One operator inadvertently omitted from the service list was noticed after the hearing and afforded an opportunity to protest. There were no protests.
2. An alternate surface casing program was approved for the well that specified the following:
  - a. A 13 3/8-inch diameter pre-casing string set to 900 feet and cemented to surface to isolate the shallow groundwater zone.
  - b. A 10 3/4-inch diameter surface casing string set to about 5,000 feet and cemented to surface using a DV tool set at about 2,200 to 2,250 feet to isolate the Rustler groundwater zone.
3. On July 7, 2011, the 9 5/8-inch surface casing was set to 4,145 feet and cemented with a DV tool set at 2,176 feet, resulting in the lower leg being cemented but in the upper leg the cement did not circulate to the surface.
4. The District Office was not notified of the failure of the cement to circulate to the surface.
5. On July 8, 2011, a temperature log run on the 9 5/8-inch casing indicated the top of cement to be at 770 feet.
6. The well is in violation of the approved alternate surface casing program.
7. Completion papers for the Geltemeyer 4-21 No. 1H well were not filed in a complete and timely manner.
8. No circulation problems were identified in 23 other BHPB wells pending completion approval.
9. BHPB evaluated two potential remedies to bring the well into compliance:
  - a. To attempt a top-off though with a 1-inch work string or coiled tubing to a depth of 750 feet in the annular space between the 13 3/8-inch and 9 5/8-inch casing strings, and pumping cement until circulation is achieved.

- b. To attempt a cement squeeze on the 9 5/8-inch casing, which would require pulling a portion of the production casing and perforating through the 7-inch and 9 5/8-inch pipe.
- 10. Neither of these two potential remedies are assured to improve groundwater protection; the second remedy, in particular, has a significant risk of reducing protectiveness.
- 11. BHPB has acted to ensure its processes are protective and compliant by clarifying casing and cementing requirements, and, in particular, requirements to communicate and seek direction from Commission District staff and by retaining the services of a consulting company to assist it with timely and correct filing of completion paperwork and associated supporting material.
- 12. The redundant casing strings, cemented intervals, and tubing provide significant isolation of produced fluids and are protective of the shallow groundwater zones.

**CONCLUSIONS OF LAW**

- 1. Proper notice was issued as required by all applicable statutes and regulatory codes.
- 2. All things have occurred and been accomplished to give the Commission jurisdiction in this matter.
- 3. Approval of the requested exception to Statewide Rule 13(b)(2)(B) will not harm groundwater resources.

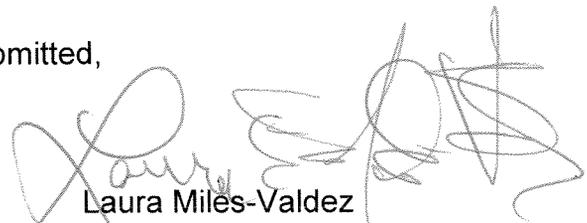
**EXAMINERS' RECOMMENDATION**

Based on the above findings of fact and conclusions of law, the examiners recommend that the Commission grant an exception to Statewide Rule 13(b)(2)(B) for the subject well, as requested by BHP Billiton.

Respectfully submitted,

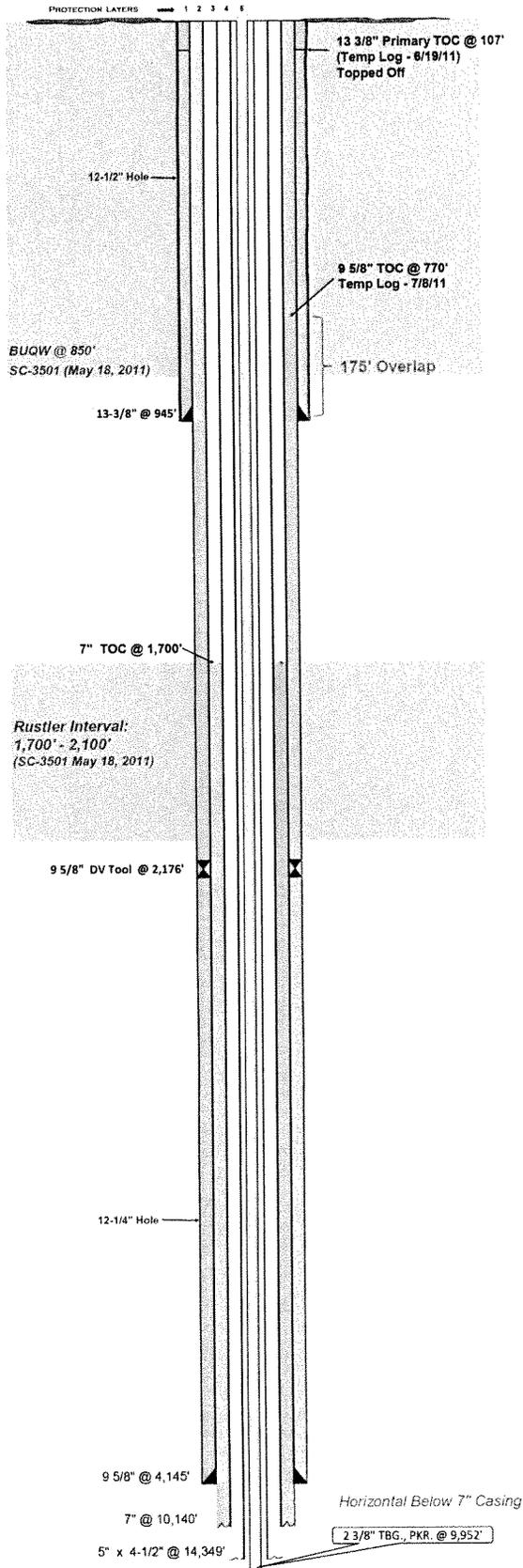


Paul Dubois  
Technical Examiner



Laura Miles-Valdez  
Legal Examiner

BHP BILLITON PET (TXLA OP) CO  
**GELTEMEYER 4-21 #1H**  
 SURFACE CASING DETAIL  
 REEVES COUNTY, TEXAS



BHP Billiton Pet (TXLA OP) CO		
Exhibit No.:	7	08-0284499
Docket No.:		10/4/2013
Date:		