

September 17, 2020

Melodie Sanjari  
Marathon Oil  
4111 S. Tidwell  
Carlsbad, NM 88220

Re: Groundwater determination for HF7, Eddy County, New Mexico

Mrs. Sanjari:

Atkins Engineering Associates, Inc. (AEA) submits this report of a groundwater determination for the HF7 site located at approximately 32.317898° -104.030269° in the SW Lot 3 of Section 07, Township 23 South, Range 29 East, N.M.P.M. Eddy County, New Mexico.

### Drilling Operations

On August 20, 2020, the New Mexico Office of the State Engineer (OSE) approved a *Permit to Drill a Well with No Water Right* under file C-4470 POD1 (attached).

On September 03, 2020, AEA advanced a boring using 4.25" hollow stem augers (HSA) to approximately 55 feet below ground surface (bgs). Temporary well materials consisting of 20 feet of 0.020" slotted 2" Sch 40 PVC screen were set at 35-55 feet bgs with riser to above ground surface. A water level probe was lowered within well to total depth and no groundwater was detected.

### Plugging Operations

On September 8, 2020, AEA re-mobilized to site. A water level probe was lowered within well to total depth and no water was detected. The temporary well materials were removed from boring then backed filled with drill cutting from total depth to 10' bgs. A slurry of Portland Type I/II Neat cement mixed at 5.20 gallons per 94 lb. sack was landed from 10' bgs to surface. A total of two sacks were mixed and landed, checked for drops, and covered with native fill. AEA filed a well record of the plugged boring to the D2 OSE (attached).

### Summary

No water was encountered to 55' below ground surface at Marathons HF7 location.

If you have any questions, please contact me at [lucas@atkinseng.com](mailto:lucas@atkinseng.com) or 575.499.9244.

Sincerely



Lucas Middleton- Staff Geoscientist

09/14/2020

DII-NMOSE  
1900 W 2<sup>nd</sup> Street  
Roswell, NM 88201

*Hand Delivered to the DII Office of the State Engineer*

Re: Well Record C-4470 Pod1 and Plugging Record

To whom it may concern:

Attached please find a Well Record and Plugging Record, in duplicate, for C-4470 POD1, a boring that did not encounter water, was not converted permanently and plugged.

If you have any questions, please contact me at 575.499.9244 or [lucas@atkinseng.com](mailto:lucas@atkinseng.com).

Sincerely,



Lucas Middleton

Enclosures: as noted above




CSE DT SEP 14 2020 #1132



APPLICANT COPY

|                      |         |  |             |
|----------------------|---------|--|-------------|
| FOR OSE INTERNAL USE |         | WR-20 WELL RECORD & LOG (Version 06/30/17) |             |
| FILE NO.             | POD NO. | TRN NO.                                    |             |
| LOCATION             |         | WELL TAG ID NO.                            | PAGE 1 OF 2 |

| 4. HYDROGEOLOGIC LOG OF WELL  | DEPTH (feet bgl)  |   | THICKNESS<br>(feet) | COLOR AND TYPE OF MATERIAL ENCOUNTERED -<br>INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES<br>(attach supplemental sheets to fully describe all units) | WATER<br>BEARING?<br>(YES / NO)           | ESTIMATED<br>YIELD FOR<br>WATER-<br>BEARING<br>ZONES (gpm) |
|---|---|---|---------------------|--|---|--|
|   | FROM  | TO  |                     |  |   |  |
|   | 0   | 4   | 4                   | Caliche with fine-grained sand, Pink (7.5 yr 7/5)  | Y ✓ N                                     |  |
|   | 4   | 14  | 10                  | Sand, fine-grained, poorly graded with caliche layers, Pink (7.5 yr 7/5)   | Y ✓ N                                     |  |
|   | 14  | 19  | 5                   | Sand, fine-grained, poorly graded with clay, Pink (7.5 yr 7/5)   | Y ✓ N                                     |  |
|   | 19  | 34  | 15                  | Sand, fine-grained, poorly graded with increasing clay, Brown (7.5 yr 5/8)   | Y ✓ N                                     |  |
|   | 34  | 49  | 15                  | Clay, Hard , Brown (5 yr 4/6)  | Y ✓ N                                     |  |
|   | 49  | 55  | 6                   | Sand, Fine grained, poorly graded, cemented , Brown (7.5 yr 5/6)   | Y ✓ N                                     |  |
|   |   |   |                     |  | Y N                                       |  |
|   |   |   |                     |  | Y N                                       |  |
|   |   |   |                     |  | Y N                                       |  |
|   |   |   |                     |  | Y N                                       |  |
|   |   |   |                     |  | Y N                                       |  |
|   |   |   |                     |  | Y N                                       |  |
|   |   |   |                     |  | Y N                                       |  |
|   |   |   |                     |  | Y N                                       |  |
|   |   |   |                     |  | Y N                                       |  |
|   |   |   |                     |  | Y N                                       |  |
|   |   |   |                     |  | Y N                                       |  |
|   |   |   |                     |  | Y N                                       |  |
|   |   |   |                     |  | Y N                                       |  |
|   |   |   |                     |  | Y N                                       |  |
|   |   |   |                     |  | Y N                                       |  |
|   |   |   |                     |  | Y N                                       |  |
|   |   |   |                     |  | Y N                                       |  |
| METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA:  |   |   |                     |  | TOTAL ESTIMATED<br>WELL YIELD (gpm): 0.00 |  |
| <input type="checkbox"/> PUMP <input type="checkbox"/> AIR LIFT <input type="checkbox"/> BAILER <input type="checkbox"/> OTHER - SPECIFY: |   |   |                     |  |   |  |
| 5. TEST; RIG SUPERVISION  | WELL TEST   | TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD. |                     |  |   |  |
|   | MISCELLANEOUS INFORMATION: Removed well materials, abandoned boring by using drill cutting from total depth to 10' bgs then landed a slurry of Portland TYPE I/II Neat cement 5.2 gallons of water per 94 lb. sack from 10' bgs to land surface. No pump test.  |   |                     |  |   |  |
|   | PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE:<br>Shane Eldridge   |   |                     |  |   |  |
| 6. SIGNATURE  | THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 30 DAYS AFTER COMPLETION OF WELL DRILLING:<br><br><div style="display: flex; justify-content: space-between;"> <div> <br/>             SIGNATURE OF DRILLER / PRINT SIGNEE NAME           </div> <div>             Jackie D. Atkins<br/>             DATE           </div> </div> |   |                     |  |   |  |



# PLUGGING RECORD



**NOTE: A Well Plugging Plan of Operations shall be approved by the State Engineer prior to plugging - 19.27.4 NMAC**

## I. GENERAL / WELL OWNERSHIP:

State Engineer Well Number: C-4470-POD1(SB-1)

Well owner: Marathon Oil

Phone No.: 575-988-8753

Mailing address: 4111 S. Tidwell

City: Carlsbad

State: NM

Zip code: 88220

## II. WELL PLUGGING INFORMATION:

- 1) Name of well drilling company that plugged well: Jackie D. Atkins (Atkins Engineering Associates, Inc.)
- 2) New Mexico Well Driller License No.: 1249 Expiration Date: 04/30/2021
- 3) Well plugging activities were supervised by the following well driller(s)/rig supervisor(s): Shane Eldridge
- 4) Date well plugging began: 09/08/2020 Date well plugging concluded: 09/08/2020
- 5) GPS Well Location: Latitude: 32 deg, 19 min, 4.43 sec  
Longitude: 104 deg, 1 min, 48.97 sec, WGS 84
- 6) Depth of well confirmed at initiation of plugging as: 55 ft below ground level (bgl),  
by the following manner: weighted tape
- 7) Static water level measured at initiation of plugging: none ft bgl
- 8) Date well plugging plan of operations was approved by the State Engineer: 08/19/20
- 9) Were all plugging activities consistent with an approved plugging plan? No If not, please describe differences between the approved plugging plan and the well as it was plugged (attach additional pages as needed):

Used Portland TYPE I/II Neat cement (5.2 gallons of water per 94 lb. sack) in place of hydrated bentonite

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- 10) Log of Plugging Activities - Label vertical scale with depths, and indicate separate plugging intervals with horizontal lines as necessary to illustrate material or methodology changes. Attach additional pages if necessary.

For each interval plugged, describe within the following columns:

| <u>Depth</u><br>(ft bgl) | <u>Plugging Material Used</u><br>(include any additives used)         | <u>Volume of Material Placed</u><br>(gallons) | <u>Theoretical Volume of Borehole/ Casing</u><br>(gallons) | <u>Placement Method</u><br>(tremie pipe, other) | <u>Comments</u><br>("casing perforated first", "open annular space also plugged", etc.) |
|--------------------------|---|---|--|---|---|
| 0'-10'                   | Portland TYPE I/II Neat cement (5.2 gallons of water per 94 lb. sack) | 18 gallons                                    | 17 gallons   | Auger as tremie                                 |   |
| 10'-55'                  | Drill Cuttings  | unknown                                       | 77 gallons   | Boring  |   |

| MULTIPLY             | BY | AND OBTAIN |
|----------------------|----|------------|
| cubic feet x 7.4805  | =  | gallons    |
| cubic yards x 201.97 | =  | gallons    |

### III. SIGNATURE:

I, Jackie D. Atkins, say that I am familiar with the rules of the Office of the State Engineer pertaining to the plugging of wells and that each and all of the statements in this Plugging Record and attachments are true to the best of my knowledge and belief.

*Jackie Atkins*

Signature of Well Driller

09/11/2020

Date