

# HALLIBURTON

iCem<sup>®</sup> Service

## **BISON OIL & GAS II LLC-EBUS**

**Grotheer 5-61 11B-2-3 Production**

Job Date: Saturday, August 13, 2022

Sincerely,

**Meghan Van Zyl**

## Legal Notice

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### Disclaimer:

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## 1.0 Cementing Job Summary

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### 1.1 Executive Summary

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Halliburton appreciates the opportunity to perform the cementing services on the **Grotheer 5-61 11B-2-3** cement **Production** casing job. A pre-job safety meeting was held before the job where details of the job were discussed, potential safety hazards were reviewed, and environmental compliance procedures were outlined.

**Approximately 56 bbls of cement were returned to surface.**

Halliburton maintains a continuous quality improvement process and appreciates any comments or suggestions that you may have. Halliburton again thanks you for the opportunity to perform service work on this well. We hope to be your solutions provider for future projects.

Respectfully,

**Halliburton Fort Lupton**

|  |                               |   |                                   |
|--|-------------------------------|---|-----------------------------------|
| <b>Sold To #:</b> 324725                     | <b>Ship To #:</b> 9063268     | <b>Quote #:</b>                             | <b>Sales Order #:</b> 0908049519  |
| <b>Customer:</b> BISON OIL & GAS II LLC-EBUS |                               | <b>Customer Rep:</b> Josh Johnson           |                                   |
| <b>Well Name:</b> GROTHEER 5-61              |                               | <b>Well #:</b> 11B-2-3                      | <b>API/UWI #:</b> 05-123-51440-00 |
| <b>Field:</b>                                | <b>City (SAP):</b> BRIGGSDALE | <b>County/Parish:</b> WELD                  | <b>State:</b> COLORADO            |
| <b>Legal Description:</b> 11-5N-61W          |                               |   |                                   |
| <b>Contractor:</b> PATTERSON-UTI ENERGY      |                               | <b>Rig/Platform Name/Num:</b> PATTERSON 345 |                                   |
| <b>Job BOM:</b> 7523 7523                    |                               |   |                                   |
| <b>Well Type:</b> VERTICAL OIL               |                               |   |                                   |
| <b>Sales Person:</b> HALAMERICA\HB47954      |                               | <b>Srvc Supervisor:</b> Brandon Parker      |                                   |

**Job**

|                               |             |                          |               |
|-------------------------------|-------------|--------------------------|---------------|
| <b>Formation Name</b>         |             |                          |               |
| <b>Formation Depth (MD)</b>   | <b>Top</b>  |                          | <b>Bottom</b> |
| <b>Form Type</b>              | <b>BHST</b> |                          |               |
| <b>Job depth MD</b>           | 16253ft     | <b>Job Depth TVD</b>     | 6140          |
| <b>Water Depth</b>            |             | <b>Wk Ht Above Floor</b> | 4             |
| <b>Perforation Depth (MD)</b> | <b>From</b> |                          | <b>To</b>     |

**Well Data**

| Description       | New / Used | Size in | ID in | Weight lbm/ft | Thread | Grade | Top MD ft | Bottom MD ft | Top TVD ft | Bottom TVD ft |
|-------------------|------------|---------|-------|---------------|--------|-------|-----------|--------------|------------|---------------|
| Casing            |            | 9.625   | 8.835 | 36            |        |       | 0         | 1976         | 0          | 1976          |
| Casing            |            | 5.5     | 4.892 | 17            |        |       | 0         | 16247        | 0          | 6140          |
| Open Hole Section |            |         | 8.5   |               |        |       | 1976      | 16253        | 1976       | 6140          |

**Tools and Accessories**

| Type         | Size in | Qty | Make    | Depth ft | Type           | Size in | Qty | Make    |
|--------------|---------|-----|---------|----------|----------------|---------|-----|---------|
| Guide Shoe   | 5.5     |     |         |          | Top Plug       | 5.5     | 1   | citadel |
| Float Shoe   | 5.5     | 1   | citadel | 16247    | Bottom Plug    | 5.5     | 1   | citadel |
| Float Collar | 5.5     | 1   | citadel | 16242    | SSR plug set   | 5.5     |     | HES     |
| Insert Float | 5.5     |     |         |          | Plug Container | 5.5     | 1   | HES     |
| Stage Tool   | 5.5     |     |         |          | Centralizers   | 5.5     | 270 | scepter |

**Fluid Data**

| <b>Stage/Plug #: 1</b> |             |                               |     |         |                        |                             |               |              |                     |
|------------------------|-------------|-------------------------------|-----|---------|------------------------|-----------------------------|---------------|--------------|---------------------|
| Fluid #                | Stage Type  | Fluid Name                    | Qty | Qty UoM | Mixing Density lbm/gal | Yield ft <sup>3</sup> /sack | Mix Fluid Gal | Rate bbl/min | Total Mix Fluid Gal |
| 1                      | Tuned Prime | TUNED PRIME CEMENT SPACER SYS | 50  | bbl     | 11.5                   | 3.74                        | 23.65         | 6            | 1775                |

| Fluid #                                       | Stage Type               | Fluid Name                | Qty  | Qty UoM | Mixing Density<br>lbm/gal | Yield<br>ft <sup>3</sup> /sack | Mix Fluid<br>Gal | Rate<br>bbl/mi<br>n | Total Mix Fluid<br>Gal |
|---|--------------------------|---------------------------|------|---------|---------------------------|--------------------------------|------------------|---------------------|------------------------|
| 2   | ElastiCem Cap<br>Cement  | SBM CEM ELASTICEM™<br>SYS | 460  | sack    | 13                        | 1.66                           | 8.3              | 9                   | 3818                   |
| 3   | IsoBond Lead<br>Cement   | SBM CEM FDP-C1371 SYS     | 600  | sack    | 13                        | 1.55                           | 7.22             | 9                   | 4332                   |
| 4   | ElastiCem Tail<br>Cement | SBM CEM ELASTICEM™<br>SYS | 1510 | sack    | 13.2                      | 1.59                           | 7.78             | 9                   | 11747                  |
| 5   | MMCR<br>Displacement     | MMCR Displacement         | 377  | bbl     | 8.33                      |                                |                  | 10                  | 15834                  |
|   |                          |                           |      |         |                           |                                |                  |                     |                        |
| <b>Comment</b> 893bbbls mix water total used. |                          |                           |      |         |                           |                                |                  |                     |                        |

2.0 Real-Time Job Summary

2.1 Job Event Log

| Seq No. | Activity                                 | Date      | Time     | Dwnhole Density<br>(ppg) | Cmb Pump Rate<br>(bbl/min) | Pump A Pressure<br>(psi) | Cmb Stg Total<br>(bbl) | Comments   |
|---------|--|-----------|----------|--------------------------|----------------------------|--------------------------|------------------------|--|
| 1       | Call Out                                 | 8/13/2022 | 01:30:00 |                          |                            |                          |                        | crew called out to 5.5" production casing with an on location time 07:30 for Civitas   |
| 2       | Pre-Convoy Safety Meeting                | 8/13/2022 | 05:00:00 |                          |                            |                          |                        | meeting with crew to discuss safety/hazards associated with traveling  |
| 3       | Depart from Service Center or Other Site | 8/13/2022 | 05:15:00 |                          |                            |                          |                        |  |
| 4       | Arrive at Location from Service Center   | 8/13/2022 | 07:00:00 |                          |                            |                          |                        | met with Josh Kliesen/Josh Johnson with Crestone and went over job numbers, water sources, cmt volumes and iron placement  |
| 5       | Assessment Of Location Safety Meeting    | 8/13/2022 | 07:01:11 |                          |                            |                          |                        | hazard hunt, check location, bulk and water volumes, fuel in bins, water 82, ph 6, chlo 0, td 16253, tp 16247, sj 5', fc 16242, sp 1976, surface casing 9.625 36#, production casing 5.5" 17#, wf 9.1ppg, tvd 6140, Citadel top/bottom plugs and fe, cnt used 270. |
| 6       | Safety Meeting - Pre Rig-Up              | 8/13/2022 | 07:55:00 |                          |                            |                          |                        | meeting with hes personnel to discuss safety/hazards associated with rigging up  |
| 7       | Rig-Up Equipment                         | 8/13/2022 | 08:00:00 |                          |                            |                          |                        | rig up iron to red zone, water and bulk  |
| 8       | Casing on Bottom                         | 8/13/2022 | 08:50:00 |                          |                            |                          |                        | rig landed casing . TRK casing company   |
| 9       | Rig-Up Equipment                         | 8/13/2022 | 08:58:00 |                          |                            |                          |                        | stab plug container so rig could begin circulating   |

|    |                        |           |          |       |      |        |       |  |   |
|----|------------------------|-----------|----------|-------|------|--------|-------|--|---|
| 10 | Circulate Well         | 8/13/2022 | 09:05:00 |       |      |        |       |  | start circulation, pumped at 10.6bpm, 13040 strokes and 920psi  |
| 11 | Pre-Job Safety Meeting | 8/13/2022 | 10:38:00 | 8.27  | 0.00 | -16.97 | 13.29 |  | meeting with all personnel on location to discuss safety/hazards associated with job, also covered job procedures. all personnel signed jsa   |
| 12 | Break Circulation      | 8/13/2022 | 10:58:00 | 8.27  | 0.00 | -15.81 | 0.00  |  | ko rig pumps, run hes hose to standpipe   |
| 13 | Start Job              | 8/13/2022 | 11:09:44 | 8.27  | 0.00 | -15.76 | 0.00  |  | start recording real time data  |
| 14 | Drop Bottom Plug       | 8/13/2022 | 11:11:43 | 6.47  | 0.00 | -15.58 | 0.00  |  | bottom plug pre loaded prior to starting cmt job. plug loaded by Josh Johnson with Crestone   |
| 15 | Pump Water             | 8/13/2022 | 11:11:58 | 0.25  | 1.03 | -14.34 | 0.02  |  | pumped 3bbls at 3bpm and top psi 203  |
| 16 | Test Lines             | 8/13/2022 | 11:13:57 | 8.35  | 0.23 | 180.92 | 0.04  |  | test eko, 5th gear stall, high test 5257 held for 2 minutes final psi was 5266  |
| 17 | Pump Spacer 1          | 8/13/2022 | 11:22:29 | 8.44  | 0.00 | 12.58  | 0.00  |  | pumped 50bbls of tuned prime, 11.5ppg, 3.74 yield, 23.65 gal/sk pumped at 6bpm and average psi was 250. weight confirmed using pressurized mud scales. calculated all 50bbls of spacer to surface |
| 18 | Other                  | 8/13/2022 | 11:23:49 | 10.80 | 0.16 | 63.79  | 2.89  |  | shutdown communication issues between operator and bulk hand.   |
| 19 | Resume Pumping         | 8/13/2022 | 11:25:23 | 11.27 | 0.80 | 46.79  | 2.90  |  | online pumping spacer   |
| 20 | Other                  | 8/13/2022 | 11:27:04 | 12.47 | 1.94 | 100.31 | 5.97  |  | shutdown mixing issue, had operator shutdown to resolve the issue and to scale spacer before pumping dh   |
| 21 | Resume Pumping         | 8/13/2022 | 11:28:49 | 12.12 | 0.00 | 36.40  | 6.05  |  | online pumping spacer   |
| 22 | Pump Cement            | 8/13/2022 | 11:35:39 | 11.66 | 6.12 | 130.46 | 0.41  |  | pumped 136bbls of cap cement, 460sks, 13ppg, 1.66 yield, 8.3 gal/sk pumped at 9bpm and average psi was 300. weight confirmed using pressurized mud scales. set time at 70bc                       |

5:29hrs, MW 3818, calculated 52bbbls of cap cmt to surface, 83.8bbbls left inside surface casing

|    |                   |           |          |       |      |         |        |  |
|----|-------------------|-----------|----------|-------|------|---------|--------|--|
| 23 | Pump Lead Cement  | 8/13/2022 | 11:56:13 | 12.97 | 7.19 | 198.08  | 177.49 | pumped 165.6bbbls of latex cmt, 600sks, 13ppg, 1.55 yield, 7.22gal/sk pumped at 9bpm and average psi was 500. weight confirmed using pressurized mud scales. set time at 70bc 5:19hrs. MW 4332, calculated top of lead cmt at 1749.7ft.        |
| 24 | Pump Tail Cement  | 8/13/2022 | 12:20:20 | 12.81 | 7.39 | 284.23  | 0.49   | pumped 427.6bbbls of tail cmt, 1510sks, 13.2ppg, 1.59 yield, 7.78 gal/sk pumped at 9bpm and average psi was 400. weight confirmed using pressurized mud scales. set time at 70bc is 4:31hrs, MW 11748, calculated top of tail cmt at 5769.06ft |
| 25 | Other             | 8/13/2022 | 12:25:31 | 13.37 | 8.96 | 400.50  | 45.51  | citadel bottom plug ruptured at 837psi   |
| 26 | Shutdown          | 8/13/2022 | 13:25:37 | 12.54 | 7.46 | 263.23  | 518.30 | done pumping cmt   |
| 27 | Clean Lines       | 8/13/2022 | 13:30:59 | 12.80 | 0.82 | -7.64   | 0.01   | closed three valves on hes manifold to well. cleaned lines and pump to 4sided tank below rig stairs. pumped 23bbbls to clean lines and pump. pre load top plug   |
| 28 | Other             | 8/13/2022 | 13:47:05 | 8.19  | 1.46 | 23.58   | 23.28  |  |
| 29 | Drop Top Plug     | 8/13/2022 | 13:49:12 | 8.21  | 0.00 | -14.25  | 0.00   | top plug pre loaded while hes was washing lines and pumps. loaded by Crestone company rep Josh Johnson and witnessed by HES supervisor   |
| 30 | Pump Displacement | 8/13/2022 | 13:49:22 | 8.18  | 0.84 | -5.57   | 0.02   | calculated disp. fc st at 16242 x .0232 =376.8bbbls  |
| 31 | Slow Rate         | 8/13/2022 | 14:31:28 | 8.39  | 8.80 | 2726.03 | 369.73 | slow rate 8.6bpm 2600 psi to 4bpm 2115psi at 356bbbls  |
| 32 | Bump Plug         | 8/13/2022 | 14:34:38 | 8.39  | 0.00 | 2577.52 | 382.68 | plug bumped at calculated volumes of 376.8bbbls, psi 2150 and ko pumps at 2750, psi climbed to 2850 and held solid   |
| 33 | Check Floats      | 8/13/2022 | 14:36:39 | 8.42  | 0.00 | 2769.11 | 0.00   | citadel floats held 3.5bbbls back to the pump truck  |
| 34 | End Job           | 8/13/2022 | 14:37:53 | 8.27  | 0.00 | -17.24  | 0.00   |  |

|    |  |           |          |      |      |        |       |   |
|----|--|-----------|----------|------|------|--------|-------|---|
| 35 | Pump Water                                       | 8/13/2022 | 14:45:00 | 8.33 | 0.00 | -14.66 | 13.87 | pumped 40bbls at 8bpm through stack with 100lbs sugar                     |
| 36 | Spacer Returns to Surface                        | 8/13/2022 | 14:50:00 | 8.22 | 8.27 | 176.06 | 23.88 | rig took back 50bbls of tuned prime spacer                                |
| 37 | Cement Returns to Surface                        | 8/13/2022 | 14:51:00 | 8.20 | 8.26 | 169.63 | 32.28 | rig took back 56bbls of cap cmt   |
| 38 | Pre-Rig Down Safety Meeting                      | 8/13/2022 | 14:52:00 | 8.19 | 4.21 | 142.25 | 40.44 | meeting to discuss safety/hazards associated with rigging down            |
| 39 | Rig-Down Equipment                               | 8/13/2022 | 14:53:00 | 8.18 | 4.83 | 36.48  | 44.47 |   |
| 40 | Depart Location for Service Center or Other Site | 8/13/2022 | 16:30:00 |      |      |        |       |   |
| 41 | Other  | 8/13/2022 | 16:31:00 |      |      |        |       | Thank You for Choosing Halliburton Cement. Parker and Crew. (970)397-4969 |

3.0 Attachments

3.1 Real Time iCem Job Chart

