

# HALLIBURTON

iCem<sup>®</sup> Service

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

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

Job Date: Sunday, August 14, 2022

Sincerely,

**Meghan Van Zyl**

## Legal Notice

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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 11A-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 54 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> 9051840     |                        | <b>Quote #:</b>                          |                      | <b>Sales Order #:</b> 0908049056  |                               |                                  |                      |                      |                            |
| <b>Customer:</b> BISON OIL & GAS II LLC-EBUS             |                           |                               |                        | <b>Customer Rep:</b> Ryan Buford         |                      |                                   |                               |                                  |                      |                      |                            |
| <b>Well Name:</b> GROTHEER 5-61                          |                           |                               | <b>Well #:</b> 11A-2-3 |  |                      | <b>API/UWI #:</b> 05-123-51228-00 |                               |                                  |                      |                      |                            |
| <b>Field:</b> WATTENBERG                                 |                           | <b>City (SAP):</b> KERSEY     |                        | <b>County/Parish:</b> WELD               |                      |                                   | <b>State:</b> COLORADO        |                                  |                      |                      |                            |
| <b>Legal Description:</b> SW SW-11-5N-61W-460FSL-1181FWL |                           |                               |                        |  |                      |                                   |                               |                                  |                      |                      |                            |
| <b>Contractor:</b> ENSIGN DRLG                           |                           |                               |                        | <b>Rig/Platform Name/Num:</b> ENSIGN 140 |                      |                                   |                               |                                  |                      |                      |                            |
| <b>Job BOM:</b> 7523 7523                                |                           |                               |                        |  |                      |                                   |                               |                                  |                      |                      |                            |
| <b>Well Type:</b> HORIZONTAL OIL                         |                           |                               |                        |  |                      |                                   |                               |                                  |                      |                      |                            |
| <b>Sales Person:</b> HALAMERICA\HX41066                  |                           |                               |                        | <b>Srvc Supervisor:</b> Brandon Parker   |                      |                                   |                               |                                  |                      |                      |                            |
| <b>Job</b>   |                           |                               |                        |  |                      |                                   |                               |                                  |                      |                      |                            |
| <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>                                      |                           | 16358ft                       |                        |  | <b>Job Depth TVD</b> |                                   | 6235                          |                                  |                      |                      |                            |
| <b>Water Depth</b>                                       |                           |                               |                        |  |                      |                                   |                               |                                  |                      |                      |                            |
| <b>Wk Ht Above Floor</b> 4                               |                           |                               |                        |  |                      |                                   |                               |                                  |                      |                      |                            |
| <b>Perforation Depth (MD)</b>                            |                           | <b>From</b>                   |                        |  | <b>To</b>            |                                   |                               |                                  |                      |                      |                            |
| <b>Well Data</b>   |                           |                               |                        |  |                      |                                   |                               |                                  |                      |                      |                            |
| <b>Description</b>                                       | <b>New / Used</b>         | <b>Size in</b>                | <b>ID in</b>           | <b>Weight lbm/ft</b>                     | <b>Thread</b>        | <b>Grade</b>                      | <b>Top MD ft</b>              | <b>Bottom MD ft</b>              | <b>Top TVD ft</b>    | <b>Bottom TVD ft</b> |                            |
| Casing   |                           | 9.625                         | 8.921                  | 36                                       |                      |                                   | 0                             | 1975                             | 0                    | 1975                 |                            |
| Casing   |                           | 5.5                           | 4.892                  | 17                                       |                      |                                   | 0                             | 16346                            | 0                    | 6235                 |                            |
| Open Hole Section  |                           |                               | 8.5                    |  |                      |                                   | 1975                          | 16358                            | 1975                 | 6235                 |                            |
| <b>Tools and Accessories</b>                             |                           |                               |                        |  |                      |                                   |                               |                                  |                      |                      |                            |
| <b>Type</b>  | <b>Size in</b>            | <b>Qty</b>                    | <b>Make</b>            | <b>Depth ft</b>                          |                      | <b>Type</b>                       | <b>Size in</b>                | <b>Qty</b>                       | <b>Make</b>          |                      |                            |
| Guide Shoe   | 5.5                       |                               |                        |  |                      | Top Plug                          | 5.5                           | 1                                | citadel              |                      |                            |
| Float Shoe   | 5.5                       | 1                             | citadel                | 16348                                    |                      | Bottom Plug                       | 5.5                           | 1                                | HES                  |                      |                            |
| Float Collar   | 5.5                       | 1                             | citadel                | 16343                                    |                      | SSR plug set                      | 5.5                           |                                  | HES                  |                      |                            |
| Insert Float   | 5.5                       |                               |                        |  |                      | Plug Container                    | 5.5                           | 1                                | HES                  |                      |                            |
| Stage Tool   | 5.5                       |                               |                        |  |                      | Centralizers                      | 5.5                           | 233                              |                      |                      |                            |
| <b>Fluid Data</b>  |                           |                               |                        |  |                      |                                   |                               |                                  |                      |                      |                            |
| <b>Stage/Plug #: 1</b>                                   |                           |                               |                        |  |                      |                                   |                               |                                  |                      |                      |                            |
| <b>Fluid #</b>   | <b>Stage Type</b>         | <b>Fluid Name</b>             |                        |  | <b>Qty</b>           | <b>Qty UoM</b>                    | <b>Mixing Density lbm/gal</b> | <b>Yield ft<sup>3</sup>/sack</b> | <b>Mix Fluid Gal</b> | <b>Rate bbl/min</b>  | <b>Total Mix Fluid Gal</b> |
| 1  | Tuned Prime Cement Spacer | 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>ft3/sack | Mix Fluid<br>Gal | Rate<br>bbl/mi<br>n | Total Mix Fluid<br>Gal |
|---|----------------------|---------------------------|------|---------|---------------------------|-------------------|------------------|---------------------|------------------------|
| 2   | ElastiCem            | SBM CEM ELASTICEM™<br>SYS | 565  | sack    | 13                        | 1.66              | 8.3              | 9                   | 4689                   |
| 3   | IsoBond              | SBM CEM FDP-C1371 SYS     | 540  | sack    | 13                        | 1.55              | 7.22             | 9                   | 3898                   |
| 4   | ElastiCem            | SBM CEM ELASTICEM™<br>SYS | 1480 | sack    | 13.2                      | 1.59              | 7.76             | 9                   | 11484                  |
| 5   | MMCR<br>Displacement | MMCR Displacement         | 20   | bbl     | 8.33                      |                   |                  | 10                  | 840                    |
| 6   | Displacement         | Displacement              | 343  | bbl     | 8.33                      |                   |                  | 9                   | 14406                  |
| <b>Comment</b> 883bbbls 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 | 16:00:00 |                          |                            |                          |                        | crew called out to 5.5" production casing for Civitas on location time 13:30   |
| 2       | Pre-Convoy Safety Meeting                | 8/13/2022 | 17:00:00 |                          |                            |                          |                        | meeting with crew to discuss safety/hazards associated with traveling  |
| 3       | Depart from Service Center or Other Site | 8/13/2022 | 18:00:00 |                          |                            |                          |                        |  |
| 4       | Arrive at Location from Service Center   | 8/13/2022 | 22:00:00 |                          |                            |                          |                        | met with Mr. Jose with Civitas and went over job numbers, water sources and iron placement   |
| 5       | Assessment Of Location Safety Meeting    | 8/13/2022 | 22:01:00 |                          |                            |                          |                        | hazard hunt, check location, bulk and water volumes, temp 83, ph 6, chlo 0, td 16358, tp 16346, fc 16343, sj 5, oh 8.5", sp 1975, 9.625 36# surface casing, 5.5" 20# production casing, mw, 10, fe Citadel, top and bottom plug Citadel, cnt 233, kop 5582, eob 6554, tvd 6235 |
| 6       | Safety Meeting - Pre Rig-Up              | 8/13/2022 | 22:55:00 |                          |                            |                          |                        | meeting with hes personnel to discuss safety/hazards associated with rigging up  |
| 7       | Rig-Up Equipment                         | 8/13/2022 | 23:00:00 |                          |                            |                          |                        | rig in iron to red zone, water and bulk  |
| 8       | General Standby Start                    | 8/13/2022 | 23:45:00 |                          |                            |                          |                        | hes went into standby mode while rig ran casing  |
| 9       | Other                                    | 8/14/2022 | 00:45:00 | 0.06                     | 0.00                       | -16.86                   | 0.00                   |  |
| 10      | Casing on Bottom                         | 8/14/2022 | 01:00:00 | 0.06                     | 0.00                       | -16.88                   | 0.00                   | rig landed casing, TRK casing crew on location   |

|    |                        |           |          |       |      |        |        |   |
|----|------------------------|-----------|----------|-------|------|--------|--------|---|
| 11 | Other                  | 8/14/2022 | 01:03:00 | 0.06  | 0.00 | -17.08 | 0.00   | stabbed hes plug container  |
| 12 | Circulate Well         | 8/14/2022 | 01:11:00 | 0.06  | 0.00 | -17.35 | 0.00   | rig circulated at 12.4bpm, 1153psi and pumped 15000strokes  |
| 13 | Start Job              | 8/14/2022 | 02:41:17 | 0.06  | 0.00 | -17.46 | 0.00   | prime pumping unit  |
| 14 | Break Circulation      | 8/14/2022 | 02:59:00 | 8.48  | 0.00 | -16.23 | 13.92  | ko rig pumps, run hose to hes stand pipe  |
| 15 | Pre-Job Safety Meeting | 8/14/2022 | 03:00:00 | 8.48  | 0.00 | -16.83 | 13.92  | meeting with all personnel on location to discuss safety/hazards associated with job, also covered job procedures. all personnel signed jsa   |
| 16 | Start Job              | 8/14/2022 | 03:08:23 | 8.70  | 0.00 | -14.94 | 0.00   | start recording real time data  |
| 17 | Drop Bottom Plug       | 8/14/2022 | 03:09:09 | 8.49  | 0.00 | 8.44   | 0.00   | plug pre loaded prior to filling lines with FW, loaded by Mr. Ryan Burfrod and witnessed by HES supervisor. bottom plug departed plug container   |
| 18 | Pump Water - End       | 8/14/2022 | 03:09:20 | 8.52  | 0.00 | 10.28  | 0.00   | pumped 3bbbls of fw at 3bpm and top psi was 312   |
| 19 | Test Lines             | 8/14/2022 | 03:11:19 | 8.31  | 0.00 | 102.12 | 0.00   | test eko ko at 900, 5th gear stall 1860 and high test 5586  |
| 20 | Pump Spacer 1          | 8/14/2022 | 03:24:00 |       |      |        |        | pumped 50bbbls of tuned prime spacer, 11.5ppg, yield 3.74, 23.65 gal/sk pumped at 6bpm and average psi was 380. weight confirmed using pressurized mud scales. calculated all 50bbbls of spacer to surface well   |
| 21 | Pump Cap Cement        | 8/14/2022 | 03:32:00 | 11.51 | 6.10 | 397.20 | 49.09  | pumped 167bbbls of cap cmt, 565sks, 13.0ppg, yield 1.66, 8.30 gal/sk pumped at 9bpm and average psi was 600. weight confirmed using pressurized mud scales. calculated 451.43ft below surface shoe(18.4), calculated 52bbbls of cap to surface well. MW 4690, 70BC 6:09 |
| 22 | Other                  | 8/14/2022 | 03:38:06 | 13.15 | 9.11 | 424.08 | 42.69  | shutdown lost prime on 4x4 centrifigaul pump  |
| 23 | Check Weight           | 8/14/2022 | 03:50:21 | 12.91 | 9.43 | 435.66 | 129.65 |   |

|    |                   |           |          |       |      |         |        |  |
|----|-------------------|-----------|----------|-------|------|---------|--------|--|
| 24 | Pump Lead Cement  | 8/14/2022 | 03:55:07 | 12.88 | 7.76 | 326.48  | 173.32 | pumped 149bbls of lead cmt(latex), 540 sks, 13ppg, 1.55 yield, 7.22 gal/sk pumped at 9bpm and average psi was 660. weight confirmed using pressurized mud scales. calculated top of lead cmt at 2426.43ft. MW 3899, 70BC 6:11hrs |
| 25 | Pump Tail Cement  | 8/14/2022 | 04:11:55 | 12.96 | 8.39 | 455.91  | 0.35   | pumped 419.1bbls of tail cmt, 1480sks, 13.2ppg, yield 1.59, 7.78gal/sk pumped at 9bpm and average psi 700. weight confirmed using pressurized mud scales. calculated top of tail cmt at 6078.39ft. MW 11514, 70BC 4:33hrs        |
| 26 | Check Weight      | 8/14/2022 | 04:14:39 | 13.30 | 9.29 | 466.67  | 23.65  |  |
| 27 | Shutdown          | 8/14/2022 | 04:58:40 | 13.07 | 8.71 | 992.17  | 429.81 | done pumping cmt   |
| 28 | Other             | 8/14/2022 | 05:03:47 | 13.23 | 1.60 | -5.95   | 0.03   | clean lines and pumps to 4sided tank below shakers. pumped 22bbls . load top plug  |
| 29 | Shutdown          | 8/14/2022 | 05:10:37 | 7.98  | 0.27 | 163.58  | 21.49  |  |
| 30 | Drop Top Plug     | 8/14/2022 | 05:13:36 | 7.93  | 0.00 | 3.10    | 0.00   | top plug preloaded while hes was cleaning lines and pumps. loaded by Mr. Ryan Buford, witnessed by HES supervisor. (plug left plug container)  |
| 31 | Pump Displacement | 8/14/2022 | 05:13:50 | 7.91  | 0.00 | 18.70   | 0.00   | FC set at 16343 X .0222(5.5"20# factor)= 362.8bbls. 10 gallons MMCR first 20bbls   |
| 32 | Other             | 8/14/2022 | 05:17:02 | 8.40  | 0.99 | 414.52  | 20.17  | replace cap seal on hes plug container. 20bbls away  |
| 33 | Resume Pumping    | 8/14/2022 | 05:19:15 | 8.33  | 1.59 | -3.81   | 20.19  | back online with displacement  |
| 34 | Other             | 8/14/2022 | 05:54:36 | 8.38  | 4.97 | 2566.54 | 349.89 | slow rate from 9bpm 2900 psi to 4bpm 2225psi   |
| 35 | Bump Plug         | 8/14/2022 | 05:58:22 | 8.37  | 4.02 | 2656.77 | 365.28 | plug bumped at calculated 362.8bbls, psi 2200ko pumps at 2800. psi climbed to 2970   |
| 36 | Other             | 8/14/2022 | 06:01:16 | 8.38  | 0.00 | 2990.15 | 0.00   | Citadel floats held 4bbls back to the pump trk   |

|    |  |           |          |      |      |        |       |   |
|----|--|-----------|----------|------|------|--------|-------|---|
| 37 | End Job  | 8/14/2022 | 06:02:54 | 8.20 | 0.00 | -19.66 | 0.00  | job complete  |
| 38 | Other  | 8/14/2022 | 06:06:00 | 8.19 | 0.00 | -17.95 | 0.00  | pumped 30bbls of sugar water through the rigs stack (100lbs)              |
| 39 | Shutdown   | 8/14/2022 | 06:12:00 | 1.76 | 5.95 | 13.09  | 29.02 |   |
| 40 | Spacer Returns to Surface                        | 8/14/2022 | 06:13:00 | 0.47 | 5.95 | 0.38   | 34.86 | 50bbls tuned prime to surface   |
| 41 | Cement Returns to Surface                        | 8/14/2022 | 06:14:00 | 1.40 | 5.93 | -3.93  | 40.90 | 54bbls of cap cmt to surface  |
| 42 | Pre-Rig Down Safety Meeting                      | 8/14/2022 | 06:15:00 | 1.29 | 5.96 | 52.40  | 46.84 | meeting to discuss safety/hazards associated with rigging down            |
| 43 | Rig-Down Equipment                               | 8/14/2022 | 06:20:00 |      |      |        |       |   |
| 44 | Depart Location for Service Center or Other Site | 8/14/2022 | 07:45:00 |      |      |        |       |   |
| 45 | Other  | 8/14/2022 | 07:46:00 |      |      |        |       | Thank You for Choosing Halliburton Cement. Parker and Crew. (970)397-4969 |

3.0 Attachments

3.1 Real Time iCem Job Chart

