

HALLIBURTON

iCem[®] Service

TERRA ENERGY PARTNERS

For: Terra

Date: Saturday, September 08, 2018

CLOUGH NR 322-3 Production

Sincerely,

Grand Junction Cement Engineering

1.0 Real-Time Job Summary

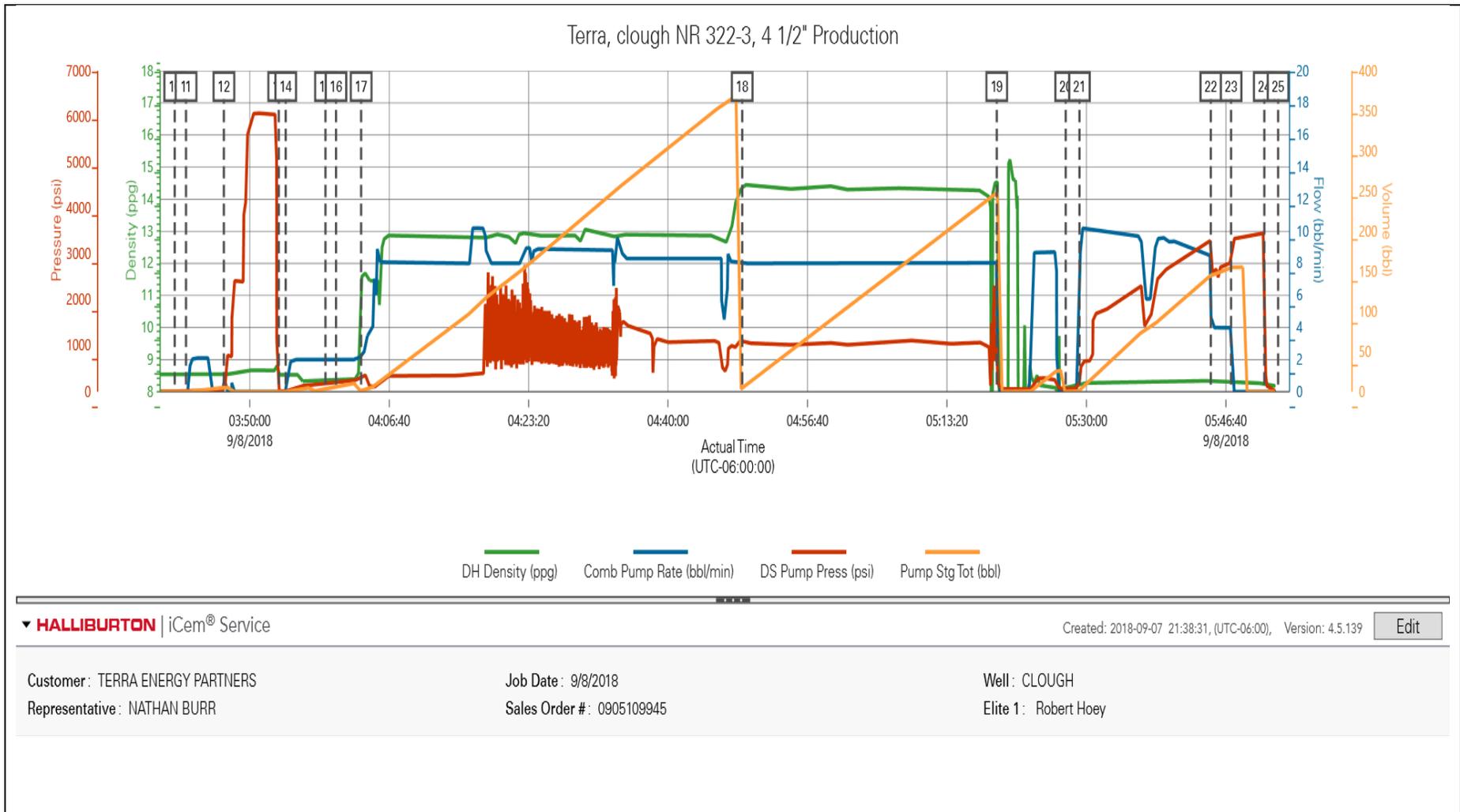
1.1 Job Event Log

| Type | Seq. No. | Graph Label | Date | Time | Source | DH Density <i>(ppg)</i> | Comb Pump Rate <i>(bbl/min)</i> | DS Pump Press <i>(psi)</i> | Pump Stg Tot <i>(bbl)</i> | Comments |
|-------|----------|---------------------------------------|----------|----------|--------|----------------------------|------------------------------------|-------------------------------|------------------------------|--|
| Event | 1 | Call Out | 9/7/2018 | 16:00:00 | | | | | | Requested on Location @ 22:00 |
| Event | 2 | Pre-Convoy Safety Meeting | 9/7/2018 | 18:00:00 | | | | | | |
| Event | 3 | Crew Leave Yard | 9/7/2018 | 18:05:00 | | | | | | 1 Elite, 1 660, 1 pickup |
| Event | 4 | Arrive At Loc | 9/7/2018 | 22:00:00 | | | | | | Rig running casing |
| Event | 5 | Assessment Of Location Safety Meeting | 9/7/2018 | 22:10:00 | | | | | | JSA completed - Customer offered/received SDS - water test pH 7.0, Cl <200, temp 83 degrees |
| Event | 6 | Pre-Rig Up Safety Meeting | 9/7/2018 | 22:15:00 | | | | | | |
| Event | 7 | Rig-Up Equipment | 9/7/2018 | 22:25:00 | | | | | | DME iron to ground manifold, standpipe, hardline to pit. Water hoses to both uprights, bulk hoses to Silo and 660's. |
| Event | 8 | Other | 9/7/2018 | 23:00:00 | | | | | | Rig Circulated 2 hrs prior to cement job at 5 bpm 1093 psi. Mud scales calibrated to drinking water prior to job. |
| Event | 9 | Pre-Job Safety Meeting | 9/7/2018 | 23:40:31 | | | | | | All HES personnel, rig crew, and company rep. |
| Event | 10 | Start Job | 9/8/2018 | 03:41:02 | | | | | | TD 10062', TP 10052', SJ 30.65', OH 8.75'', Csg 4.5" 11.6 lb/ft P-110 Prev. Csg. 9.625" 36# @ 1143', Mud 11.8 ppg. |
| Event | 11 | Fill Lines | 9/8/2018 | 03:42:23 | | 8.33 | 2 | 52 | 5 | Fresh Water |
| Event | 12 | Test Lines | 9/8/2018 | 03:46:55 | | | | 6080 | | Held pressure 2 minutes |
| Event | 14 | Pump Spacer | 9/8/2018 | 03:54:18 | | 8.33 | 2 | 125 | 5 | Fresh Water |
| Event | 15 | Pump Spacer | 9/8/2018 | 03:59:03 | | 8.4 | 2 | 212 | 10 | 80 lbs. Mud Flush III |
| Event | 16 | Check Weight | 9/8/2018 | 04:00:19 | | | | | | Density verified via mud cup |
| Event | 17 | Pump Lead Cement | 9/8/2018 | 04:03:19 | | 12.7 | 8 | 1600 | 219.1 | 665 sks, 12.7 ppg, 1.85 yield, 8.94 gal/sk |

| | | | | | | | | | |
|-------|----|-----------------------------|----------|----------|------|----|------|-------|--|
| Event | 18 | Pump Tail Cement | 9/8/2018 | 04:48:51 | 14.2 | 8 | 1100 | 224.1 | 740 sks, 14.2 ppg, 1.7 Yield, 7.53 gal/sk |
| Event | 19 | Shutdown | 9/8/2018 | 05:19:17 | | | | | Wash lines to pit |
| Event | 20 | Drop Top Plug | 9/8/2018 | 05:27:31 | | | | | Co-Rep Verify Plug Launched |
| Event | 21 | Pump Displacement | 9/8/2018 | 05:29:10 | 8.4 | 10 | 3220 | 155 | 3 lbs BE-6, 1 gal MMCR, 2% KCl |
| Event | 22 | Slow Rate | 9/8/2018 | 05:44:52 | 8.4 | 4 | 2820 | 145 | Slow Rate 10 bbls to Calculated Displacement |
| Event | 23 | Bump Plug | 9/8/2018 | 05:47:17 | | | 3472 | | Plug Bumped at 2820 psi, Brought up to 3472 psi |
| Event | 24 | Check Floats | 9/8/2018 | 05:51:16 | | | | | Floats held – 2 bbl back |
| Event | 25 | End Job | 9/8/2018 | 05:52:55 | | | | | Good returns throughout job. Pipe was reciprocated during job. |
| Event | 26 | Pre-Rig Down Safety Meeting | 9/8/2018 | 05:59:47 | | | | | No sugar, HES top plug used, 0 add hours |
| Event | 27 | Rig-Down Equipment | 9/8/2018 | 06:00:34 | | | | | |
| Event | 28 | Pre-Convoy Safety Meeting | 9/8/2018 | 06:01:44 | | | | | |
| Event | 29 | Crew Leave Location | 9/8/2018 | 06:02:53 | | | | | Thanks for using Halliburton Cement, Chris Martinez and crew. |

2.0 Attachments

2.1 CLOUGH NR322-3-Custom Results.png



Job Information

| | | | | | |
|-----------------------|-----------------------|-----------------|-------------------|-------------------|----------------|
| Request/Slurry | 2497828/1 | Rig Name | H&P 318 | Date | 29/AUG/2018 |
| Submitted By | Lukas Van Zyl | Job Type | Production Casing | Bulk Plant | Grand Junction |
| Customer | Terra Energy Partners | Location | Garfield | Well | NR 322-3 |

Well Information

| | | | | | |
|--------------------------|----------|------------------|----------|-------------|---------------|
| Casing/Liner Size | 4.5 in | Depth MD | 10093 ft | BHST | 121°C / 250°F |
| Hole Size | 8.75 in | Depth TVD | 10014 ft | BHCT | 88°C / 190°F |
| Pressure | 6310 psi | | | | |

Drilling Fluid Information

| | | |
|--------------------------|-----------------------|----------------|
| Mud Supplier Name | Mud Trade Name | Density |
|--------------------------|-----------------------|----------------|

Cement Information - Lead Design

| <u>Conc</u> | <u>UOM</u> | <u>Cement/Additive</u> | <u>Sample Type</u> | <u>Sample Date</u> | <u>Lot No.</u> | Cement Properties | | |
|-------------|------------|------------------------|--------------------|--------------------|----------------|--------------------------|-------------|----------|
| | | NeoCem | | | | Slurry Density | 12.7 | lbm/gal |
| | | | | | | Slurry Yield | 1.852 | ft3/sack |
| | | | | | | Water Requirement | 8.959 | gal/sack |
| | | | | | | Total Mix Fluid | 8.959 | gal/sack |
| | | | | | | Water Source | Fresh Water | |
| | | | | | | Water Chloride | | |

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Operation Test Results Request ID 2497828/1

Thickening Time - ON-OFF-ON

03/SEP/2018

| Test Temp (degF) | Pressure (psi) | Reached in (min) | 30 Bc (hh:min) | 50 Bc (hh:min) | 70 Bc (hh:min) | 100 Bc (hh:min) | Start Bc | Stirring before stop (mins) | Static Period (min) | Peak reading (BC) |
|------------------|----------------|------------------|----------------|----------------|----------------|-----------------|----------|-----------------------------|---------------------|-------------------|
| 190 | 6310 | 50 | 3:14 | 3:18 | 3:44 | 3:52 | 13 | 60 | 15 | 14 |

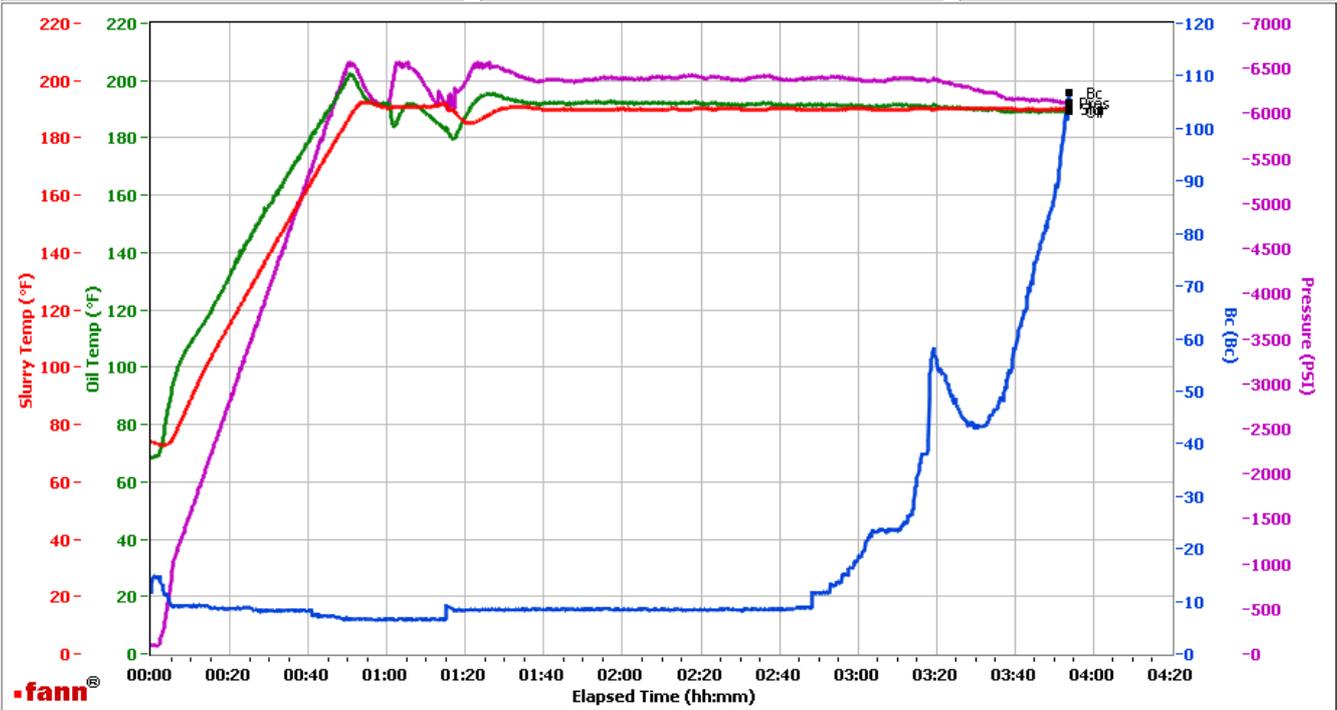
Total SKS = 665
 CS1929 TR#8677 400 SKS
 CS1932 TR#4080 265 SKS
 No deflection, 14Bc--> 14Bc

Grand Junction, Colorado

| Fields | Values |
|-------------------|--------------------------------------|
| Project Name | GJ2497828-1 TERRA PRODUCTION BULK LE |
| Test ID | 35777851 |
| Request ID | GJ2497828-1 TT |
| Tested by | DEBA |
| Customer | TERRA ENERGY PARTNERS |
| Well No | NR 322-3 |
| Rig | H&P 318 |
| Casing/Liner Size | 4.5" |

| Fields | Values |
|----------------|-------------------|
| Job Type | PRODUCTION CASING |
| Cement Type | GCC TYPE I-II |
| Cement Weight | Standard |
| Test Date | 09/02/18 |
| Test Time | 04:54 PM |
| Temp. Units | degF |
| Pressure Units | PSI |
| SW Version | 2.1.0.507 |

| Events | Results |
|-----------|---------|
| 30.00 Bc | 03h:14m |
| 40.00 Bc | 03h:18m |
| 50.00 Bc | 03h:18m |
| 70.00 Bc | 03h:44m |
| 100.00 Bc | 03h:52m |
| 00h:30m | 8.15 |
| 01h:00m | 6.57 |
| 01h:30m | 8.24 |



Data File C:\Documents and Settings\M290\Desktop\Test Data\GJ2497828-1 TERRA PRODUCTION BULK LEAD.tdms
 Comments CS1929 TR#8677 400 SKS AND CS1932 TR#4080 265 SKS

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Job Information

| | | | | | |
|-----------------------|-----------------------|-----------------|-------------------|-------------------|----------------|
| Request/Slurry | 2497829/1 | Rig Name | H&P 318 | Date | 29/AUG/2018 |
| Submitted By | Lukas Van Zyl | Job Type | Production Casing | Bulk Plant | Grand Junction |
| Customer | Terra Energy Partners | Location | Garfield | Well | NR 322-3 |

Well Information

| | | | | | |
|--------------------------|----------|------------------|----------|-------------|---------------|
| Casing/Liner Size | 4.5 in | Depth MD | 10093 ft | BHST | 121°C / 250°F |
| Hole Size | 8.75 in | Depth TVD | 10014 ft | BHCT | 88°C / 190°F |
| Pressure | 6310 psi | | | | |

Drilling Fluid Information

| | | | | | |
|--------------------------|--|-----------------------|--|----------------|--|
| Mud Supplier Name | | Mud Trade Name | | Density | |
|--------------------------|--|-----------------------|--|----------------|--|

Cement Information - Tail Design

| <u>Conc</u> | <u>UOM</u> | <u>Cement/Additive</u> | <u>Sample Type</u> | <u>Sample Date</u> | <u>Lot No.</u> | <u>Cement Properties</u> | | |
|-------------|------------|------------------------|--------------------|--------------------|----------------|--------------------------|-------------|-----------------------|
| | | ThermaCem | | | | Slurry Density | 14.2 | lbm/gal |
| | | | | | | Slurry Yield | 1.704 | ft ³ /sack |
| | | | | | | Water Requirement | 7.53 | gal/sack |
| | | | | | | Total Mix Fluid | 7.53 | gal/sack |
| | | | | | | Water Source | Fresh Water | |
| | | | | | | Water Chloride | | |

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Operation Test Results Request ID 2497829/1

Thickening Time - ON-OFF-ON

03/SEP/2018

| Test Temp (degF) | Pressure (psi) | Reached in (min) | 30 Bc (hh:min) | 50 Bc (hh:min) | 70 Bc (hh:min) | 100 Bc (hh:min) | Start Bc | Stirring before stop (mins) | Static Period (min) | Peak reading (BC) |
|------------------|----------------|------------------|----------------|----------------|----------------|-----------------|----------|-----------------------------|---------------------|-------------------|
| 190 | 6310 | 50 | 2:41 | 2:43 | 2:46 | 2:52 | 13 | 60 | 15 | 13 |

Total sks = 740

CS1930 TR#2878 370 sks

CS1931 TR#1513 370 sks

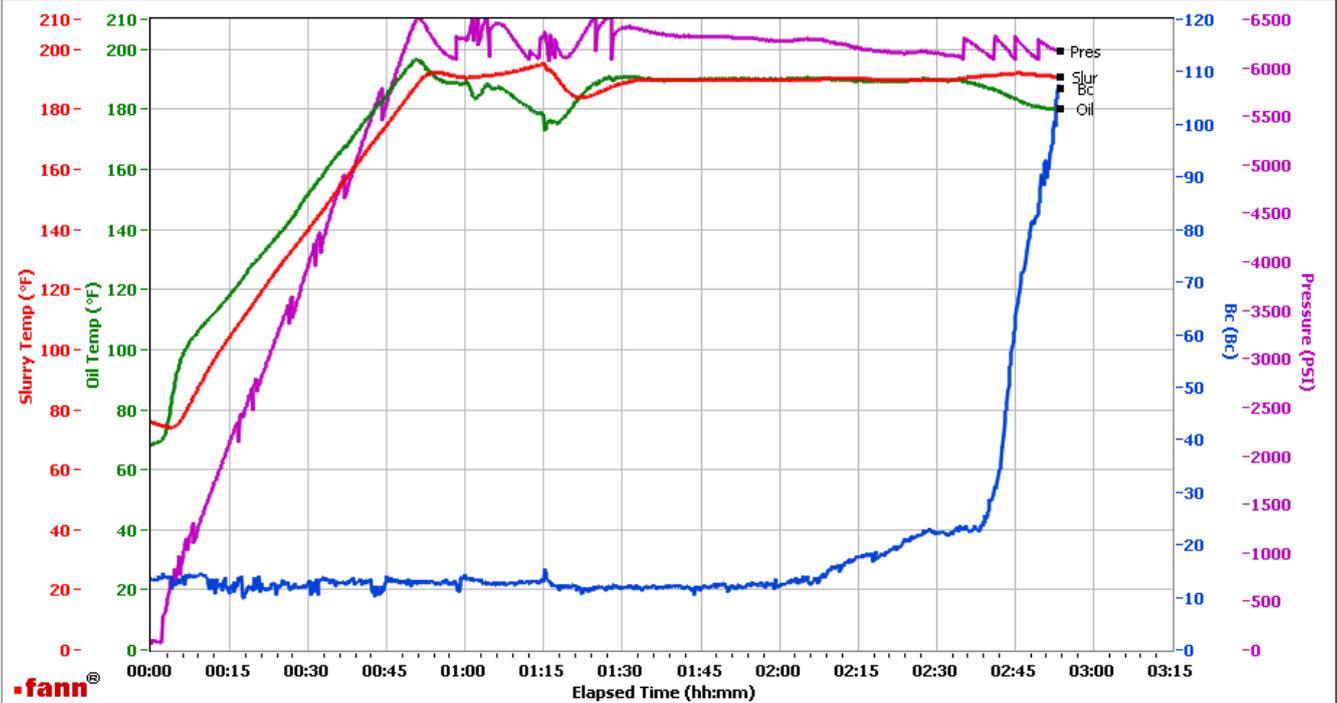
no deflection, 13Bc--- > 13Bc please note heat of hydration on the graph at 2:34

Grand Junction Colorado

| Fields | Values |
|-------------------|--------------------------------------|
| Project Name | GJ2497829-1 TERRA PRODUCTION BULK TA |
| Test ID | 35777853 |
| Request ID | GJ2497829-1 TT |
| Tested by | DEBA |
| Customer | TERRA ENERGY PARTNERS |
| Well No | NR 322-3 |
| Rig | H&P 318 |
| Casing/Liner Size | 4.5' |

| Fields | Values |
|----------------|-------------------|
| Job Type | production casing |
| Cement Type | MOUNTAIN G |
| Cement Weight | Standard |
| Test Date | 09/02/18 |
| Test Time | 04:21 PM |
| Temp. Units | degF |
| Pressure Units | PSI |
| SW Version | 2.1.0.1219 |

| Events | Results |
|-----------|---------|
| 30.00 Bc | 02h:41m |
| 40.00 Bc | 02h:42m |
| 50.00 Bc | 02h:43m |
| 70.00 Bc | 02h:46m |
| 100.00 Bc | 02h:52m |
| 00h:30m | 12.81 |
| 01h:00m | 14.32 |
| 01h:30m | 11.94 |



Data File C:\Documents and Settings\HPHT\Local Settings\Temporary Internet Files\Content.IE5\09ERK9UM\GJ2497829-1 TERRA PRODUCTION BULK TAIL[1].tdms

Comments CS1930 TR#2878 370 SKS AND CS1931 TR#1513 370 SKS

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