**Header**

- **Company:** Zenergy Operating Company, LLC
- **Well:** Jost #2-30H
- **Field:** Unnamed
- **Location:** Marion
- **County:** Marion
- **State:** Kansas

**SPECTRAL GAMMA RAY**

- **Location:** 254’ FNL & 1,376’ FEL
- **Logging Date:** 01-Feb-2013
- **Run Number:** ONE
- **API Serial No.:** 15-115-21437

**Ground Level**

- **Drilling Measured From:** Kelly Bushing
- **Log Measured From:** Kelly Bushing above Perm. Datum

**Operational Run Summary**

- **Elev. of Log:** 1452.00 ft
- **Elev. of K.B.:** 1440.00 ft
- **GL:** 1451.00 ft
- **D.F.:** 1451.00 ft
- **Section:** 30
- **Township:** 18S
- **Range:** 2E

**Borehole Fluids**

- **Type Fluid In Hole:** Water
- **Density:** 9.1 lbm/gal
- **Viscosity:** 55 s
- **PH:** 5.8
- **Temperature:** 108 degF

**MUD**

- **Source of Sample:** Active Tank
- **RM @ Meas Temp:** 1.82 ohm.m @ 59.3 degF
- **RMF @ Meas Temp:** 1.54 ohm.m @ 59.3 degF
- **RMC @ Meas Temp:** 2.54 ohm.m @ 59.3 degF

**Source RMF**

- **RM @ BHT:** 1.05 @ 108 degF
- **RMF @ BHT:** 0.89 @ 108 degF

**Calculated**

- **RM @ BHT:** 1.05
- **RMF @ BHT:** 0.89
- **Max Recorded Temperatures:** 108 degF

**Circulation Stopped**

- **Time:** 31-Jan-2013 19:00:00

**Logger on Bottom**

- **Time:** 01-Feb-2013 10:59:21

**Unit Number**

- **Location:** Elk City, OK

**Recorded By**

- **Matt Cramer**

**Witnessed By**

- **Harvey Moore**

---

**Disclaimer**

THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY’S USE AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER’S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

---

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11.4 Parameter Listing
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12.1 Integration Summary
12.2 Composite Summary
12.3 Log (HNGS Basic)
12.4 Parameter Listing
### Borehole Size/Casing/Tubing Record

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bit Size (in)</td>
<td>6.125</td>
</tr>
<tr>
<td>Top Driller (ft)</td>
<td>3144</td>
</tr>
<tr>
<td>Top Logger (ft)</td>
<td>3144</td>
</tr>
<tr>
<td>Bottom Driller (ft)</td>
<td>5524</td>
</tr>
<tr>
<td>Bottom Logger (ft)</td>
<td>5292</td>
</tr>
</tbody>
</table>

### Casing

<table>
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<th>Parameter</th>
<th>Value</th>
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<tbody>
<tr>
<td>Size (in)</td>
<td>7</td>
</tr>
<tr>
<td>Weight (lbm/ft)</td>
<td>26</td>
</tr>
<tr>
<td>Inner Diameter (in)</td>
<td>6.283</td>
</tr>
<tr>
<td>Top Driller (ft)</td>
<td>0</td>
</tr>
<tr>
<td>Top Logger (ft)</td>
<td>0</td>
</tr>
<tr>
<td>Bottom Driller (ft)</td>
<td>3144</td>
</tr>
<tr>
<td>Bottom Logger (ft)</td>
<td>3144</td>
</tr>
</tbody>
</table>

### Operational Run Summary

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date Log Started</td>
<td>01-Feb-2013</td>
</tr>
<tr>
<td>Time Log Started</td>
<td>00:42:39</td>
</tr>
<tr>
<td>Date Log Finished</td>
<td>01-Feb-2013</td>
</tr>
<tr>
<td>Time Log Finished</td>
<td>16:37:19</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Depth (ft)</td>
<td>5292.00</td>
</tr>
</tbody>
</table>

### Additional Information

- **Logging Unit Number**: 2281
- **Logging Unit Location**: Elk City, OK
- **Recorded By**: Matt Cramer
- **Witnessed By**: Harvey Moore
- **Service Order Number**: BXV8-00075
Parameter (unit) | ONE
---|---
Fluid Type | Water
Max Recorded Temperatures (degF) | 108
Source of Sample | Active Tank
Salinity (ppm) | 3681.02
Density (lbm/gal) | 9.1
Funnel Viscosity (s) | 55
Fluid Loss (cm³) | 5.8
PH | 10

Date/Time Circulation Stopped | 31-Jan-2013 19:00:00
Date Logger on Bottom | 01-Feb-2013
Time Logger on Bottom | 10:59:21
Source RMF | Calculated
RMC | Calculated
RM @ Meas Temp (ohm.m@degF) | 1.82 @ 59.3
RMF @ Meas Temp (ohm.m@degF) | 1.54 @ 59.3
RMC @ Meas Temp (ohm.m@degF) | 2.54 @ 59.3
RM @ BHT (ohm.m@degF) | 1.05 @ 108
RMF @ BHT (ohm.m@degF) | 0.89 @ 108
RMC @ BHT (ohm.m@degF) | 1.46 @ 108
Total Solid (%) | 
High Gravity Solids (%) | 

**Remarks and Equipment Summary**

**ONE: Remarks**

Tools ran per tool sketch
All presentations are as per client's request
Logs computed on Limestone matrix (MDEN=2.71 g/cc, DTM=47.6 us/ft).
Main Pass logged from SLB TD to CSG. No repeat pass due to risk involved with TLC operation.
Hole-Cement Volume computed given a future casing diameter of 4.5 inches
Maximum recorded temperature was 108 degF, obtained from HGNS
Tools powered off due to pulls taken at 3,797' and 3,477'. Logs continued without overlap as per client request.
Logs presented as three sections as they are not continuous (due to loss of tool power).
Thank you for choosing Schlumberger of Elk City, OK. 580-225-4300
Your crew today was Steve, Elmore, Mike and Matt.

**ONE: Toolstring**

<table>
<thead>
<tr>
<th>Equip name</th>
<th>Length</th>
<th>MP name</th>
<th>Offset</th>
</tr>
</thead>
<tbody>
<tr>
<td>DWCH-C</td>
<td>187.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AH-184[7]</td>
<td>179.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DTPC-A</td>
<td>177.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECH-KJ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DTPC-A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AH-169[2]</td>
<td>171.78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAH-F</td>
<td>170.44</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Conveyance Type: Drill Pipe (TLC)

Log Sequence: First trip to wellsite

Stretch Correction (ft): 3.29

Rig Type: Land Triple

**Depth Remark Parameters**

**ONE**

Depth Remark 1: All Schlumberger depth control policies and procedures were followed.

Depth Remark 2: IDW used as primary depth control measure. Pipe tally used as secondary control measure.

Depth Remark 3: First Trip to Wellsite. Logs correlated to driller's casing shoe
## Depth Measuring Device

- **Type**: IDW-B
- **Serial Number**: 5904
- **Calibration Date**: 13-Nov-2012
- **Calibrator Serial Number**: NA
- **Calibration Cable Type**: 7-46A XS
- **Wheel Correction 1**: -6
- **Wheel Correction 2**: -8

## Tension Device

- **Type**: CMFD-B/A
- **Serial Number**: 2576
- **Calibration Date**: 29-Dec-2012
- **Calibrator Serial Number**: 1018
- **Calibration Points**: 10
- **Calibration RMS**: 22
- **Calibration Peak Error**: 40

## Logging Cable

- **Type**: 7-46A-XS
- **Serial Number**: U711103
- **Logging Cable Length (ft)**: 17700.00

## Main Pass - 5" = 100'

### Integration Summary

<table>
<thead>
<tr>
<th>Output Channel(s)</th>
<th>Output Description</th>
<th>Input Parameter</th>
<th>Output Value</th>
<th>Unit</th>
</tr>
</thead>
</table>

### Pass Summary

<table>
<thead>
<tr>
<th>Run Name</th>
<th>Pass Objective</th>
<th>Direction</th>
<th>Top</th>
<th>Bottom</th>
<th>Start</th>
<th>Stop</th>
<th>Depth Shift</th>
<th>Include Parallel Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>ONE</td>
<td>Log[9]:Up</td>
<td>Up</td>
<td>3138.49 ft</td>
<td>3478.43 ft</td>
<td>01-Feb-2013 3:45:50 PM</td>
<td>01-Feb-2013 4:33:44 PM</td>
<td>7.69 ft</td>
<td></td>
</tr>
</tbody>
</table>

All depths are referenced to toolstring zero.

### Log

**Description**: HNGS Basic  
**Format**: Log (HNGS Basic)  
**Index Scale**: 5 in per 100 ft  
**Index Unit**: ft  
**Index Type**: Measured Depth  
**Creation Date**: 01-Feb-2013 19:19:18

**TIME_1900** - Time Marked every 60.00 (s)

#### Uranium Indicator

- **Concentration**: 0 ppm

#### Gamma Ray Contribution from Thorium and Potassium (CGR) HNGS-BA

- **Concentration**: 0 gAPI

#### Spectroscopy Gamma Ray (SGR) HNGS-BA

- **Concentration**: 0 gAPI

#### Cable Tension (TENS) HDRS-H

- **Tension**: 8000 lbf

#### Caliper (CALI) HDRS-H

- **Width**: 2 in

#### Thorium Concentration (THOR) HNGS-BA

- **Concentration**: 30 ppm

#### Potassium Concentration (POTA) HNGS-BA

- **Concentration**: 0 %

#### Uranium Concentration (URAN) HNGS-BA

- **Concentration**: 30 ppm

---

![Casing Shoe @ 3,144']
**Channel Processing Parameters**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Tool</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>BARI</td>
<td>Barite Mud Presence Flag</td>
<td>Borehole</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>BHK</td>
<td>Drilling Fluid Potassium Concentration</td>
<td>Borehole</td>
<td>0</td>
<td>%</td>
</tr>
<tr>
<td>BHS</td>
<td>Borehole Status (Open or Cased Hole)</td>
<td>Borehole</td>
<td>Open</td>
<td></td>
</tr>
<tr>
<td>BS</td>
<td>Bit Size</td>
<td>WLSESSION</td>
<td>Depth Zoned</td>
<td>in</td>
</tr>
<tr>
<td>CALI SHIFT</td>
<td>CALI Supplementary Offset</td>
<td>HDRS-H</td>
<td>0</td>
<td>in</td>
</tr>
<tr>
<td>CBLO</td>
<td>Casing Bottom (Logger)</td>
<td>WLSESSION</td>
<td>3144</td>
<td>ft</td>
</tr>
<tr>
<td>DBCC</td>
<td>Barite Constant Correction Flag</td>
<td>HNGS-BA</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>DFD</td>
<td>Drilling Fluid Density</td>
<td>Borehole</td>
<td>9.1</td>
<td>lbm/gal</td>
</tr>
<tr>
<td>GCSE_DOWN_PASS</td>
<td>Generalized Caliper Selection for WL Log Down Passes</td>
<td>Borehole</td>
<td>BS</td>
<td></td>
</tr>
<tr>
<td>GCSE_UP_PASS</td>
<td>Generalized Caliper Selection for WL Log Up Passes</td>
<td>Borehole</td>
<td>CALI</td>
<td></td>
</tr>
<tr>
<td>HCRB</td>
<td>Apply Borehole Potassium Correction</td>
<td>HNGS-BA</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>HEMA</td>
<td>Hematite Presence Flag</td>
<td>Borehole</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>SGRC</td>
<td>Standard Gamma Ray Correction Flag</td>
<td>HNGS-BA</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

**Depth Zone Parameters**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Start ( ft )</th>
<th>Stop ( ft )</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS</td>
<td>0</td>
<td>3130</td>
<td>3144</td>
</tr>
<tr>
<td>BS</td>
<td>6.125</td>
<td>3144</td>
<td>3350</td>
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</table>

All depths are actual.

**Tool Control Parameters**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Tool</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAX_LOG_SPEED</td>
<td>Toolstring Maximum Logging Speed</td>
<td>WLSESSION</td>
<td>1800</td>
<td>ft/h</td>
</tr>
</tbody>
</table>

**ONE**

**Main Pass - 5" = 100'**

**Integration Summary**

<table>
<thead>
<tr>
<th>Output Channel(s)</th>
<th>Output Description</th>
<th>Input Parameter</th>
<th>Output Value</th>
<th>Unit</th>
</tr>
</thead>
</table>

**Pass Summary**

<table>
<thead>
<tr>
<th>Run Name</th>
<th>Pass Objective</th>
<th>Direction</th>
<th>Top</th>
<th>Bottom</th>
<th>Start</th>
<th>Stop</th>
<th>Depth Shift</th>
<th>Include Parallel Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>ONE</td>
<td>Log[8]:Up</td>
<td>Up</td>
<td>3478.45 ft</td>
<td>3800.45 ft</td>
<td>01-Feb-2013 2:50:10 PM</td>
<td>01-Feb-2013 3:40:46 PM</td>
<td>7.69 ft</td>
<td></td>
</tr>
</tbody>
</table>

All depths are referenced to toolstring zero.

**Log**

**ONE: Log[8]:Up**

Description: HNGS Basic  Format: Log ( HNGS Basic )  Index Scale: 5 in per 100 ft  Index Unit: ft  Index Type: Measured Depth  Creation Date: 01-Feb-2013 19:19:19

TIME_1900 - Time Marked every 60.00 (s)
Uranium Indicator

Gamma Ray Contribution from Thorium and Potassium (CGR) HNGS-BA

Spectroscopy Gamma Ray (SGR) HNGS-BA

Cable Tension (TENS) HDRS-H

Caliper (CALI) HDRS-H

Thorium Concentration (THOR) HNGS-BA

Potassium Concentration (POTA) HNGS-BA

Uranium Concentration (URAN) HNGS-BA
Description: HNGS Basic    Format: Log (HNGS Basic)    Index Scale: 5 in per 100 ft    Index Unit: ft    Index Type: Measured Depth    Creation Date: 01-Feb-2013 19:19:19

Uranium Indicator
Gamma Ray Contribution from Thorium and Potassium (CGR) HNGS-BA
0 gAPI 150
Spectroscopy Gamma Ray (SGR) HNGS-BA
0 gAPI 150
Caliper (CALI) HDRS-H
2 in 12
TIME_1900 - Time Marked every 60.00 (s)
### Parameter Table

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Tool</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>BARI</td>
<td>Barite Mud Presence Flag</td>
<td>Borehole</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>BHK</td>
<td>Drilling Fluid Potassium Concentration</td>
<td>Borehole</td>
<td>0</td>
<td>%</td>
</tr>
<tr>
<td>BHS</td>
<td>Borehole Status (Open or Cased Hole)</td>
<td>Borehole</td>
<td>Open</td>
<td></td>
</tr>
<tr>
<td>BS</td>
<td>Bit Size</td>
<td>WLSESSION</td>
<td>6.125</td>
<td>in</td>
</tr>
<tr>
<td>CALI_SHIFT</td>
<td>CALI Supplementary Offset</td>
<td>HDRS-H</td>
<td>0</td>
<td>in</td>
</tr>
<tr>
<td>CBLO</td>
<td>Casing Bottom (Logger)</td>
<td>WLSESSION</td>
<td>3144</td>
<td>ft</td>
</tr>
<tr>
<td>DBCC</td>
<td>Barite Constant Correction Flag</td>
<td>HNGS-BA</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>DFD</td>
<td>Drilling Fluid Density</td>
<td>Borehole</td>
<td>9.1</td>
<td>lbm/gal</td>
</tr>
<tr>
<td>GCSE_DOWN_PASS</td>
<td>Generalized Caliper Selection for WL Down Passes</td>
<td>Borehole</td>
<td>BS</td>
<td></td>
</tr>
<tr>
<td>GCSE_UP_PASS</td>
<td>Generalized Caliper Selection for WL Up Passes</td>
<td>Borehole</td>
<td>CALI</td>
<td></td>
</tr>
<tr>
<td>HCRB</td>
<td>Apply Borehole Potassium Correction</td>
<td>HNGS-BA</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>HEMA</td>
<td>Hematite Presence Flag</td>
<td>Borehole</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>SGRC</td>
<td>Standard Gamma Ray Correction Flag</td>
<td>HNGS-BA</td>
<td>Yes</td>
<td></td>
</tr>
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</table>

### Tool Control Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Tool</th>
<th>Value</th>
<th>Unit</th>
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</thead>
<tbody>
<tr>
<td>MAX_LOG_SPEED</td>
<td>Toolstring Maximum Logging Speed</td>
<td>WLSESSION</td>
<td>1800</td>
<td>ft/h</td>
</tr>
</tbody>
</table>

### Integration Summary

#### Main Pass - 5" = 100'

### Log Summary

#### Run Name: Log[7]:Up

<table>
<thead>
<tr>
<th>Pass Objective</th>
<th>Direction</th>
<th>Top</th>
<th>Bottom</th>
<th>Start</th>
<th>Stop</th>
<th>Depth Shift</th>
<th>Include Parallel Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>ONE</td>
<td>Log[7]:Up</td>
<td>Up</td>
<td>3800.46 ft</td>
<td>01-Feb-2013 11:33:20 AM</td>
<td>01-Feb-2013 2:37:02 PM</td>
<td>7.69 ft</td>
<td></td>
</tr>
</tbody>
</table>

All depths are referenced to toolstring zero

### Log Data

**Description:** HNGS Basic  
**Format:** Log ( HNGS Basic )  
**Index Scale:** 5 in per 100 ft  
**Index Unit:** ft  
**Index Type:** Measured Depth  
**Creation Date:** 01-Feb-2013 19:19:21

**TIME_1900 - Time Marked every 60.00 (s)**

- **Gamma Ray Indicator**
- **Spectroscopy Gamma Ray (SGR) HNGS-BA**
- **Thorium Concentration (THOR) HNGS-BA**
  - **Cable Tension (TENS)**
    - 8000 lbf
  - **ppm**
    - 0
  - **%**
    - 10
- **Potassium Concentration (POTA) HNGS-BA**
  - **ppm**
    - 0
  - **%**
    - 10
- **Uranium Concentration (URAN) HNGS-BA**
  - **ppm**
    - 0
  - **%**
    - 10
Description: HNGS Basic  Format: Log (HNGS Basic)  Index Scale: 5 in per 100 ft  Index Unit: ft  Index Type: Measured Depth  Creation Date: 01-Feb-2013 19:19:21

**Channel Processing Parameters**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Tool</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>BARI</td>
<td>Barite Mud Presence Flag</td>
<td>Borehole</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>BHK</td>
<td>Drilling Fluid Potassium Concentration</td>
<td>Borehole</td>
<td>0</td>
<td>%</td>
</tr>
<tr>
<td>BHS</td>
<td>Borehole Status (Open or Cased Hole)</td>
<td>Borehole</td>
<td>Open</td>
<td></td>
</tr>
<tr>
<td>BS</td>
<td>Bit Size</td>
<td>WLSESSION</td>
<td>6.125</td>
<td>in</td>
</tr>
<tr>
<td>CALI_SHIFT</td>
<td>CALI Supplementary Offset</td>
<td>HDRS-H</td>
<td>0</td>
<td>in</td>
</tr>
<tr>
<td>CBLD</td>
<td>Casing Bottom (Logger)</td>
<td>WLSESSION</td>
<td>3144</td>
<td>ft</td>
</tr>
<tr>
<td>DBCC</td>
<td>Barite Constant Correction Flag</td>
<td>HNGS-BA</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>DFD</td>
<td>Drilling Fluid Density</td>
<td>Borehole</td>
<td>9.1</td>
<td>lbm/gal</td>
</tr>
<tr>
<td>GCSE_DOWN_PASS</td>
<td>Generalized Caliper Selection for WL Log Down Passes</td>
<td>Borehole</td>
<td>BS</td>
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**Tool Control Parameters**

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**Calibration Report**

EBST-F (Full-Bore Scanner Tool F) Calibration - Run ONE
GPIT-DHRU Sensor Block - F  DHRU-F  1956  
FullBore Scanner Sonde  FBSS-B  773

**Calibration Parameter:**
- Small Ring Size (Caliper Calibration Small Ring)  8.00
- Large Ring Size (Caliper Calibration Large Ring)  12.00

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### GPIT-F Accelerometers Master Calibration - Signals and Temperature Correction for Accelerometers

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### GPIT-F Accelerometers Master Calibration - Perpendicular Correction for Accelerometers

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### GPIT-F Magnetometers Master Calibration - Signals and Temperature Correction for Magnetometer

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### GPIT-F Magnetometers Master Calibration - Perpendicular Correction for Magnetometer

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### GPIT-F DHRU102 Master Calibration -

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### GPIT-F DHRU102 Master Calibration -

**Master (EEPROM):** 00:00:00 21-Jan-2012

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### FBST-E Caliper Calibration - Caliper Accumulations

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### HDRS-H (HILT Density and Rxo Sonde, 150 degC) Calibration - Run ONE

**Primary Equipment:**
- HILT High-Resolution Control Cartridge, 150 degC HRCC-H 4770
- HILT Resistivity Gamma-Ray Density Device, 150 degC HRGD-H

**Auxiliary Equipment:**
- HRDD Backscatter Detector Backscatter 28941
- HRDD Long Spacing Detector Long Spacing 27775
- HRDD Short Spacing Detector Cesium 137 Gamma-Ray Logging Source GSR-J 5347
- HILT High Resolution Control Cartridge, 150 degC HRCC-H
HDTRS Caliper Calibration - Caliper Accumulations

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HDTRS Density Calibration - Inversion Results

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HDTRS Density Calibration - Deviation Summary

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HDTRS Density Calibration - Photo-multiplier High Voltages

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HDTRS Density Calibration - Crystal Quality Resolutions

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Calibration Parameter:

Small Ring Size (Caliper Calibration Small Ring): 8.00
Large Ring Size (Caliper Calibration Large Ring): 12.00
**BS Crystal Resolution**

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**SS Crystal Resolution**

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**HRLT-B Sonde**

**HRLTS-B**

**HRLT-B Calibration - HRLT M0-M1 Voltage Plus**

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**HRLT-B Calibration - HRLT M1-M2 Voltage Plus**

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### HRLT B Calibration - HRLT Torpedo-M0 Voltage

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### HRLT B Calibration - HRLT Bridle#9-M0 Voltage

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**HRLT-B Calibration - HRLT Source Current Plus**

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**HRLT-B Calibration - HRLT Vertical Voltage PI**

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**HRLT-B Calibration - HRLT Calibration Temperature**
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### HGNS-H (HILT Gamma-Ray and Neutron Sonde, 150 degC) Calibration - Run ONE

**Primary Equipment:**
- HILT Gamma-Ray and Neutron Sonde, 150 degC
- HGNS-H

**Auxiliary Equipment:**
- HGNS Accelerometer, 150 degC  
  HACCZ-H  
  4166
- AmBe Neutron Logging Source  
  NSR-F  
  5075

**Calibration Parameter:**
- Water Temperature
- Housing Size
- JIG-BKG (Jig minus background reference)  
  160

### HGNS Accelerometer Calibration - Accelerometer Accumulations

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**Master (EEPROM):** 00:00:00 15-Jul-2005

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### HGNS Neutron Calibration - HGNS Neutron Accumulations

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**Before (Measured):** 16:56:44 28-Jan-2013  
**After:** Expired by 2 days

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### HGNS Gamma-Ray Calibration - Gamma-Ray Accumulations

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### HNSG-BA (Hostile-environment Natural Gamma-ray Sonde) Calibration - Run ONE

Primary Equipment:
- HGNS Sonde Element: HNGS-BA 201

Auxiliary Equipment:
- Hostile Natural Gamma Ray Cartridge: HNGC-B 451
- HGNS Housing Element: HEH-K 198
- Housing for the HNGC: HNGH-A 0

### HNGS Background and Na22 Set Point Determination - Detector 1 Check

Master (EEPROM): 10:15:12 07-Dec-2012 Before (Measured): 16:58:30 28-Jan-2013 After:

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### HNGS Background and Na22 Set Point Determination - Ratio of Detector 1 to Detector 2

**Master (EEPROM):** 10:15:12 07-Dec-2012  
**Before (Measured):** 16:58:30 28-Jan-2013  
**After:**

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<th>Actual</th>
<th>High Limit</th>
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### HNGS Background and Na22 Set Point Determination - Detector 1 Calibration

**Master (EEPROM):** 10:15:12 07-Dec-2012  
**Before (Measured):** 16:58:30 28-Jan-2013  
**After:**

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### Background Count Rate

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### Gain Ratio - 0

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### HNGS Background and Na22 Set Point Determination - Detector 2 Calibration

**Master (EEPROM):** 10:15:12 07-Dec-2012  
**Before (Measured):** 16:58:30 28-Jan-2013  
**After:**

#### Measurement | Unit | Phase | Nominal | Low Limit | Actual | High Limit |
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