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| Observers Log |
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| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|-------------|-------------|
| | SOL | EOL |
| Tape # | 1 | 3 |
| SP # | 1221 | 2148 |

| | |
|-----------|--------------|
| Line | MGL1905P1004 |
| Sequence | 01 |
| Direction | 155.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 1221 | 2184 |
| Date MM/DD/YY | 07/15/2019 | 7/15/2019 |
| Time UTC | 6:28 | 10:21 |
| Volume (cu in.) | 3240/3300 | 3300 |
| Wind (kts) | NW8kts | NW 10.6kts |
| Sea State (m) | 1m | 1m |
| Water Depth (m) | 1815m | 2228m |
| | | |

| Cable | Dead Channels |
|-------|---------------|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

| General / Line Comments |
|-------------------------|
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| EOL NOISY CHANNELS |
| |

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

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|----------------------|
| Observers Log |
|----------------------|

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|-------------|------------|
| | SOL | EOL |
| Tape # | 4 | 6 |
| SP # | 2117 | 921 |

| | |
|-----------|--------------|
| Line | MGL1905P1116 |
| Sequence | 02 |
| Direction | 335.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|-----------|
| SP | 2117 | 9221 |
| Date MM/DD/YY | 07/15/2019 | 7/15/2019 |
| Time UTC | 12:27 | 17:34 |
| Volume (cu in.) | 3240/3300 | 3240/3300 |
| Wind (kts) | N 8.3kts | W9.9kts |
| Sea State (m) | 1m | 1m |
| Water Depth (m) | 2164.1m | 2728.8m |
| | | |

| Cable | Dead Channels |
|-------|---------------|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

| General / Line Comments |
|-------------------------|
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| |
| EOL NOISY CHANNELS |
| |

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

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|----------------------|
| Observers Log |
|----------------------|

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|------------|-------------|
| | SOL | EOL |
| Tape # | 7 | 8 |
| SP # | 857 | 1303 |

| | |
|-----------|--------------|
| Line | MGL1905P1012 |
| Sequence | 03 |
| Direction | 155.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 857 | 1303 |
| Date MM/DD/YY | 07/15/2019 | 07/15/2019 |
| Time UTC | 19:19 | 21:11 |
| Volume (cu in.) | 3240/3300 | 3240/3300 |
| Wind (kts) | NW 11kts | W 10kts |
| Sea State (m) | 1 m | 1 m |
| Water Depth (m) | 2660m | 1600 m |
| | | |

| Cable | Dead Channels |
|-------|---------------|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

| General / Line Comments |
|--|
| Turn noise at start |
| Line interrupted after engine failure required to recover the guns to reduce drag and load on engine while troubleshooting |
| |
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| EOL NOISY CHANNELS |
| |

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

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|---------------|
| Observers Log |
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| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|-------------|------------|
| | SOL | EOL |
| Tape # | 9 | 10 |
| SP # | 1382 | 921 |

| | |
|-----------|--------------|
| Line | MGL1905P1124 |
| Sequence | 04 |
| Direction | 335.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 1382 | 921 |
| Date MM/DD/YY | 07/16/2019 | 07/16/2019 |
| Time UTC | 7:19 | 09:26 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | W 13.1kts | 16.6 Wkts |
| Sea State (m) | 1 m | 1m |
| Water Depth (m) | 1572.1m | 2535.7m |
| | | |

| Cable | Dead Channels |
|-------|---------------|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

| General / Line Comments |
|--|
| Line started late due to engine problems on previous line. |
| |
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| |
| EOL NOISY CHANNELS |
| |

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

Observers Log

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|------------|-------------|
| | SOL | EOL |
| Tape # | 11 | 13 |
| SP # | 958 | 2148 |

| | |
|------------------|---------------------|
| Line | MGL1905P1124 |
| Sequence | 05 |
| Direction | 155.7 |

| Streamer Parameters | | | | |
|-------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, µB | | | | |
| EOL Cable Noise, µB | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 958 | 2148 |
| Date MM/DD/YY | 07/16/2019 | 07/16/2019 |
| Time UTC | 11:34 | 17:01 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | NW 17.3kts | 7.4 Wkts |
| Sea State (m) | 1m | 1m |
| Water Depth (m) | 2708.2m | 2112.8m |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |

| General / Line Comments |
|-------------------------|
| EOL - Complete |
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| |
| |
| |
| |
| |
| EOL NOISY CHANNELS |

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargable SP |
| FCSP - First Chargable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| |
|---------------|
| Observers Log |
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| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|-------------|------------|
| | SOL | EOL |
| Tape # | 14 | 16 |
| SP # | 2130 | 921 |

| | |
|------------------|---------------------|
| Line | MGL1905P1132 |
| Sequence | 06 |
| Direction | 335.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|------------------------|------------|------------|
| SP | 2130 | 921 |
| Date MM/DD/YY | 07/16/2019 | 07/17/2019 |
| Time UTC | 19:05 | 00:33 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | W 14kts | SW 12 kts |
| Sea State (m) | 0.5 m | 1 m |
| Water Depth (m) | 2283 m | 2598 m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP- First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

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|----------------------|
| Observers Log |
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| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|------------|-------------|
| | SOL | EOL |
| Tape # | 17 | 19 |
| SP # | 925 | 2148 |

| | |
|------------------|---------------------|
| Line | MGL1905P1028 |
| Sequence | 07 |
| Direction | 155.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 925 | 2148 |
| Date MM/DD/YY | 07/17/2019 | 07/17/2019 |
| Time UTC | 2:33 | 08:00 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | SW 21kts | 19.4 Wkts |
| Sea State (m) | 1.5 m | 1.5m |
| Water Depth (m) | 2580 m | 2054m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| |
|----------------------|
| Observers Log |
|----------------------|

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|-------------|------------|
| | SOL | EOL |
| Tape # | 20 | 22 |
| SP # | 2100 | 921 |

| | |
|-----------|--------------|
| Line | MGL1905P1140 |
| Sequence | 08 |
| Direction | 335.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 2100 | 921 |
| Date MM/DD/YY | 07/17/2019 | 07/17/2019 |
| Time UTC | 10:15 | 16:00 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | 19.8 Wkts | 19.4 NWkts |
| Sea State (m) | 2m | 3m |
| Water Depth (m) | 2224.1m | 2668.6m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| |
|---------------|
| Observers Log |
|---------------|

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|------------|-------------|
| | SOL | EOL |
| Tape # | 23 | 25 |
| SP # | 982 | 2148 |

| | |
|------------------|---------------------|
| Line | MGL1905P1036 |
| Sequence | 09 |
| Direction | 155.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|------------------------|------------|------------|
| SP | 982 | 2148 |
| Date MM/DD/YY | 07/17/2019 | 07/17/2019 |
| Time UTC | 18:03 | 23:01 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | 18.1 NWkts | NW 15 kts |
| Sea State (m) | 3m | 2 m |
| Water Depth (m) | 2694.6m | 2106m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| |
|---------------|
| Observers Log |
|---------------|

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|-------------|------------|
| | SOL | EOL |
| Tape # | 26 | 28 |
| SP # | 2066 | 921 |

| | |
|-----------|--------------|
| Line | MGL1905P1148 |
| Sequence | 010 |
| Direction | 335.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 2066 | 921 |
| Date MM/DD/YY | 07/18/2019 | 07/18/2019 |
| Time UTC | 1:24 | 06:51 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | NW 22 kts | NW 16 kts |
| Sea State (m) | 3 m | 2 m |
| Water Depth (m) | 2130 m | 2670 m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

Observers Log

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|------------|-------------|
| | SOL | EOL |
| Tape # | 29 | 31 |
| SP # | 968 | 2148 |

| | |
|------------------|---------------------|
| Line | MGL1905P1044 |
| Sequence | 011 |
| Direction | 155.7 |

| Streamer Parameters | | | | |
|-------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, µB | | | | |
| EOL Cable Noise, µB | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 968 | 2148 |
| Date MM/DD/YY | 07/18/2019 | 07/18/2019 |
| Time UTC | 9:08 | 14:10 |
| Volume (cu in.) | 3300/3300 | 3300/3260 |
| Wind (kts) | 15.8 NWkts | 12.2 NWkts |
| Sea State (m) | 2.5m | 2.0m |
| Water Depth (m) | 2715.1m | 2115.6m |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |

| General / Line Comments |
|---|
| SP 2103 Gun 4-3 disabled. New S2 Volume is 3260 |
| |
| EOL Complete |
| |
| |
| |
| |
| |
| |
| |
| |

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

[illegible]

| |
|----------------------|
| Observers Log |
|----------------------|

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|-------------|------------|
| | SOL | EOL |
| Tape # | 32 | 34 |
| SP # | 2062 | 921 |

| | |
|------------------|---------------------|
| Line | MGL1905P1156 |
| Sequence | 012 |
| Direction | 335.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|-------------|------------|
| SP | 2062 | 921 |
| Date MM/DD/YY | 07/18/2019 | 07/18/2019 |
| Time UTC | 16:46 | 22:17 |
| Volume (cu in.) | 3300/3260 | 3300/3260 |
| Wind (kts) | 13.3 NWWkts | NW 15 kts |
| Sea State (m) | 5m | 3 m |
| Water Depth (m) | 2108.2m | 2700 m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| |
|----------------------|
| Observers Log |
|----------------------|

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|------------|-------------|
| | SOL | EOL |
| Tape # | 35 | 37 |
| SP # | 922 | 2148 |

| | |
|------------------|---------------------|
| Line | MGL1905P1052 |
| Sequence | 013 |
| Direction | 155.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|------------------------|------------|------------|
| SP | 981 | 2148 |
| Date MM/DD/YY | 07/19/2019 | 07/19/2019 |
| Time UTC | 0:36 | 05:52 |
| Volume (cu in.) | 3300/3260 | 3300/3260 |
| Wind (kts) | NW 15 kts | NW 15 kts |
| Sea State (m) | 2 m | 2 m |
| Water Depth (m) | 2720m | 2250 m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|---------------------------------------|-----------------------------------|
| <i>SOL/EOL - Start/End of Line</i> | <i>LGSP - Last Good SP</i> |
| <i>FGSP - First Good SP</i> | <i>LCSP - Last Chargeable SP</i> |
| <i>FCSP - First Chargeable SP</i> | <i>LFFSP - Last Full Fold SP</i> |
| <i>FOLSP - First Overlap SP</i> | <i>Fa - Feather Angle</i> |
| <i>BOT/EOT - Begin/End of Tape</i> | <i>SI - Seismic Interference</i> |
| <i>NDR - No Data Recorded</i> | <i>ITB - Imitation Time Break</i> |
| <i>NDR - No Data Recorded</i> | <i>ITB - Internal Time Break</i> |
| <i>N.T.B.P. - Not To Be Processed</i> | |

Observers Log

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|-------------|------------|
| | SOL | EOL |
| Tape # | 38 | 40 |
| SP # | 2092 | 921 |

| | |
|------------------|---------------------|
| Line | MGL1905P1164 |
| Sequence | 014 |
| Direction | 335.7 |

| Streamer Parameters | | | | |
|-------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, µB | | | | |
| EOL Cable Noise, µB | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 2092 | 921 |
| Date MM/DD/YY | 07/19/2019 | 07/19/2019 |
| Time UTC | 7:59 | 13:45 |
| Volume (cu in.) | 3300/3260 | 3300/3260 |
| Wind (kts) | 12.5 NWkts | 12.4 NWkts |
| Sea State (m) | 1.5m | 1.5m |
| Water Depth (m) | 2235.6m | 2778.9m |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |

| General / Line Comments |
|-----------------------------------|
| |
| |
| gun 4-3 disabled - Sce 2 Vol 3260 |
| |
| EOL Complete |
| |
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| |
| |
| |

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|---|
| 7:59 | 13674 | 2092 | 38 | SOL MGL1905P1164 - Sce 1: S1-2G5 spare,Vol: 3300 in3; Sce 2: S3-4G5 spare, S4G3 off, Vol: 3260in3 |
| 10:08 | 14110 | 1656 | 39 | BOT # 39 |
| 12:20 | 14546 | 1220 | 40 | BOT # 40 |
| 13:45 | 14845 | 921 | 40 | EOL MGL1905P1164 - Sce 1: S1-2G5 spare,Vol: 3300 in3; Sce 2: S3-4G5 spare, S4G3 off, Vol: 3260in3 |
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Observers Log

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|-------------|-------------|
| | SOL | EOL |
| Tape # | 41 | 43 |
| SP # | 1171 | 2148 |

| | |
|------------------|---------------------|
| Line | MGL1905P1060 |
| Sequence | 015 |
| Direction | 155.7 |

| Streamer Parameters | | | | |
|-------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, µB | | | | |
| EOL Cable Noise, µB | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 1171 | 2148 |
| Date MM/DD/YY | 07/19/2019 | 07/19/2019 |
| Time UTC | 16:52 | 21:24 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | 11.4 NWkts | NW 7 kts |
| Sea State (m) | 2 m | 1 m |
| Water Depth (m) | 1969.4m | 2120 m |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |

| |
|---|
| General / Line Comments |
| SOL delayed due to whales, unable to ramp up |
| Bad volumes SP1171-1178 and missed SP 1179, 1180 & 1187 at SOL due to DigiShot problems |
| |
| |
| EOL Incomplete |
| |
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| |
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| |

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP- First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------------|-----------|------|--|
| 16:52 | 14846 | 1171 | 41 | SOL MGL1905P1060 - Sce 1: S1-2G5 spare,Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 16:52 | 14846-14853 | 1171-1178 | 41 | Wrong volumesdue to DigiShot problems |
| 16:55 | | 1179-1180 | 41 | Missed shots while reconfiguring digishot |
| 16:57 | | 1187 | 41 | Missed shot while reconfiguring digishot |
| 18:57 | 15282 | 1609 | 42 | BOT # 42 |
| 20:56 | 15718 | 2045 | 43 | BOT # 43 |
| 21:24 | 15821 | 2148 | 43 | EOL MGL1905P1060 - Sce 1: S1-2G5 spare,Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
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|----------------------|
| Observers Log |
|----------------------|

| | |
|-------------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|-------------|------------|
| | SOL | EOL |
| Tape # | 44 | 46 |
| SP # | 2161 | 921 |

| | |
|-----------|--------------|
| Line | MGL1905P1172 |
| Sequence | 016 |
| Direction | 335.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|------------------------|------------|------------|
| SP | 2161 | 921 |
| Date MM/DD/YY | 07/19/2019 | 07/20/2019 |
| Time UTC | 23:17 | 05:19 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | NW 7 kts | NW 4 kts |
| Sea State (m) | 1 m | 1 m |
| Water Depth (m) | 2370 m | 2826 m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|--|
| 23:17 | 15822 | 2161 | 44 | SOL MGL1905P1172 - Sce 1: S1-2G5 spare,Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 01:25 | 16258 | 1725 | 45 | BOT # 45 |
| 03:34 | 16694 | 1289 | 46 | BOT # 46 |
| 05:19 | 17062 | 921 | 46 | EOL MGL1905P1172 - Sce 1: S1-2G5 spare,Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
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Observers Log

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | |
|------------------|---------------------|
| Line | MGL1905P1068 |
| Sequence | 017 |
| Direction | 155.7 |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP- First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|---------------|-------------|-----------|------|---|
| 7:16 | 17063 | 972 | 47 | SOL MGL1905P1068 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 09:18 | 17499 | 1408 | 48 | BOT # 48 |
| 10:46 | 17816 | 1725 | 48 | Lost power on Streamer #1 |
| 10:46 - 10:53 | 17821-17847 | 1731-1747 | 48 | Trouble shooting streamer #1 - missed shot points 1731-1747 |
| 10:53 | 17823 | 1748 | 48 | Continue shooting with streamers #2 - #4 and partial #1 |
| 11:26 | 17935 | 1860 | 49 | BOT # 49 |
| 12:43 | 18223 | 2148 | 49 | EOL MGL1905P1068 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
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Observers Log

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|------------|-------------|
| | SOL | EOL |
| Tape # | 50 | 53 |
| SP # | 911 | 2148 |

| | |
|------------------|---------------------|
| Line | MGL1905P1076 |
| Sequence | 018 |
| Direction | 155.7 |

| Streamer Parameters | | | | |
|-------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, µB | | | | |
| EOL Cable Noise, µB | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 911 | 2148 |
| Date MM/DD/YY | 07/21/2019 | 07/21/2019 |
| Time UTC | 03:26 | 09:21 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | S 11 kts | 7.8 Skts |
| Sea State (m) | 1 m | 0.5m |
| Water Depth (m) | 2720 m | 2141m |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |

| General / Line Comments |
|---|
| Failure of streamer 4 LAUXM at the beginning of the line - several interruptions with incomplete files in between |
| Most files on tapes 50 and many files on tapes 51 and 52 are missing traces from streamer 4 |
| Tape 51 started after first series of troubleshooting and terminated after replacement of streamer 4 LAUXM |
| Missed the following shot points during the line - 957-966, 974-1007, 1065-1113, 1421-1496, 1972 - 1973 |
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| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|-------------|---------------|-------------|------|--|
| 03:26 | 18224 | 911 | 50 | SOL MGL1905P1076 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 03:39-03:42 | | 957-966 | 50 | Missed shots 957-966 while troubleshooting streamer 4 LAUXM |
| 03:44 | 18276 | 973 | 50 | EOT #50 |
| 03:44-03:55 | | 974-1007 | | Missed shots 974-1007 while troubleshooting streamer 4 LAUXM |
| 03:55 | 18277 | 1008 | 51 | BOT #51 |
| 04:11 | 18333 | 1064 | 51 | half traces from streamer 4 missing - last SP before interruption troubleshooting streamer 4 |
| 04:11-04:26 | | 1065-1113 | 51 | Missed shots 1065-1113 |
| 04:26 | 18334 | 1114 | 51 | first SP after resuming acquisition |
| 05:55 | 18640 | 1420 | 51 | EOT #51 |
| 05:55-06:21 | | 1421-1496 | | missed shots 1421-1496 while replacing streamer 4 LAUXM |
| 06:21 | 18641 | 1497 | 52 | BOT # 52 |
| 08:22 | 19077 | 1933 | 53 | BOT # 53 |
| 08:31 | 19111 - 19115 | 1967 - 1971 | 53 | Streamer #4 front end problems |
| 08:33 | | | | Missed shot points 1972 - 1973 |
| 09:21 | 19290 | 2148 | 53 | EOL MGL1905P1076 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
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Observers Log

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|-------------|------------|
| | SOL | EOL |
| Tape # | 54 | 56 |
| SP # | 2136 | 921 |

| | |
|------------------|----------------------|
| Line | MGL1905P11180 |
| Sequence | 019 |
| Direction | 335.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 2136 | 921 |
| Date MM/DD/YY | 07/21/2019 | 07/21/2019 |
| Time UTC | 11:18 | 17:06 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | 12.4 Wkts | 14 Skts |
| Sea State (m) | 0.5m | 0.5m |
| Water Depth (m) | 2400m | 2822.1m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|---|
| 11:18 | 19292 | 2136 | 54 | SOL MGL1905P1180 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 13:22 | 19728 | 1700 | 55 | BOT # 55 |
| 15:41 | 20164 | 1264 | 56 | BOT # 56 |
| 17:06 | 20507 | 921 | 56 | EOL MGL1905P1180 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
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| Observers Log |
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|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

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|---------------|------------|-------------|
| | SOL | EOL |
| Tape # | 57 | 59 |
| SP # | 909 | 2148 |

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| Line | MGL1905P1084 |
| Sequence | 020 |
| Direction | 155.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 909 | 2148 |
| Date MM/DD/YY | 07/21/2019 | 07/22/2019 |
| Time UTC | 19:01 | 00:43 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | S 15 kts | W 12 kts |
| Sea State (m) | 0.5m | 1 m |
| Water Depth (m) | 2700m | 2290 m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|---|
| 19:01 | 20508 | 909 | 57 | SOL MGL1905P1084 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 21:03 | 20944 | 1345 | 58 | BOT # 58 |
| 23:06 | 21380 | 1781 | 59 | BOT # 59 |
| 00:43 | 21747 | 2148 | 59 | EOL MGL1905P1084 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
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| Observers Log |
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|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

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|---------------|-------------|------------|
| | SOL | EOL |
| Tape # | 60 | 62 |
| SP # | 2224 | 921 |

| | |
|-----------|--------------|
| Line | MGL1905I1180 |
| Sequence | 021 |
| Direction | 335.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 2224 | 921 |
| Date MM/DD/YY | 07/22/2019 | 07/22/2019 |
| Time UTC | 02:40 | 08:49 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | W 9 kts | 20.5 Wkts |
| Sea State (m) | 1 m | 1m |
| Water Depth (m) | 2410 m | 2823.8m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|---------------------------------------|-----------------------------------|
| <i>SOL/EOL - Start/End of Line</i> | <i>LGSP - Last Good SP</i> |
| <i>FGSP - First Good SP</i> | <i>LCSP - Last Chargeable SP</i> |
| <i>FCSP - First Chargeable SP</i> | <i>LFSP - Last Full Fold SP</i> |
| <i>FOLSP - First Overlap SP</i> | <i>Fa - Feather Angle</i> |
| <i>BOI/EOT - Begin/End of Tape</i> | <i>SI - Seismic Interference</i> |
| <i>NDR - No Data Recorded</i> | <i>ITB - Imitation Time Break</i> |
| <i>NDR - No Data Recorded</i> | <i>ITB - Internal Time Break</i> |
| <i>N.T.B.P. - Not To Be Processed</i> | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|---|
| 02:40 | 21748 | 2224 | 60 | SOL MGL1905I1180 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 04:46 | 22184 | 1788 | 61 | BOT # 61 |
| 06:45 | 22620 | 1352 | 62 | BOT # 62 |
| 08:49 | 23051 | 921 | 62 | EOL MGL1905I1180 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
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Observers Log

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|------------|-------------|
| | SOL | EOL |
| Tape # | 63 | 65 |
| SP # | 939 | 2148 |

| | |
|------------------|---------------------|
| Line | MGL1905P1092 |
| Sequence | 022 |
| Direction | 155.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 939 | 2148 |
| Date MM/DD/YY | 07/22/2019 | 07/22/2019 |
| Time UTC | 10:44 | 15:59 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | 19.9 Wkts | 13.5 Wkts |
| Sea State (m) | 1m | 1m |
| Water Depth (m) | 2714.7m | 2270.7m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|---|
| 10:44 | 23052 | 939 | 63 | SOL MGL1905P1092 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 12:41 | 23488 | 1375 | 64 | BOT # 64 |
| 14:33 | 23924 | 1811 | 65 | BOT # 65 |
| 15:59 | 24261 | 2148 | 65 | EOL MGL1905P1092 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
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| Observers Log |
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| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|-------------|------------|
| | SOL | EOL |
| Tape # | 66 | 68 |
| SP # | 2153 | 921 |

| | |
|------------------|---------------------|
| Line | MGL1905P1188 |
| Sequence | 023 |
| Direction | 335.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 2153 | 921 |
| Date MM/DD/YY | 07/22/2019 | 07/23/2019 |
| Time UTC | 18:19 | 00:13 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | W 11.5kts | W 8.6 kts |
| Sea State (m) | 1m | 1m |
| Water Depth (m) | 2327.6m | 2822 m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------------|-----------|------|---|
| 18:19 | 24262 | 2153 | 66 | SOL MGL1905P1188 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 20:23 | 24698 | 1717 | 67 | BOT # 67 |
| 21:30 | 24944-24955 | 1471-1460 | 67 | New failure of streamer 4 LAUXM - incomplete or missing data from streamer 4 |
| 2134 | | 1459 | 67 | Missed shot while restarting acquisition after restarting streamer 4 |
| 22:26 | 25134 | 1280 | 68 | BOT # 68 |
| 00:13 | 25493 | 921 | 68 | EOL MGL1905P1188 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
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|----------------------|
| Observers Log |
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| | |
|-------------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|------------|-------------|
| | SOL | EOL |
| Tape # | 69 | 71 |
| SP # | 996 | 2148 |

| | |
|------------------|---------------------|
| Line | MGL1905I1092 |
| Sequence | 024 |
| Direction | 155.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 996 | 2148 |
| Date MM/DD/YY | 07/23/2019 | 07/23/2019 |
| Time UTC | 02:32 | 07:57 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | SW 8 kts | SW 11 kts |
| Sea State (m) | 1 m | 1m |
| Water Depth (m) | 2636m | 2300m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| FILE | SP | Tape | Description |
|-------------|-----------|------|--|
| 25494 | 996 | 69 | SOL MGL1905I1092 - Sce 1: S1-2G5 spare,Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 25494-25502 | 996-1004 | 69 | 36 traces missing from streamer 4 |
| 25503-25519 | 1005-1021 | 69 | Streamer 4 deactivated (468 blank traces) |
| | 1022 | 69 | SP 1022 missed while restarting acquisition |
| 25520-25536 | 1023-1039 | 69 | 36 traces missing from streamer 4 |
| 25537-25548 | 1040-1051 | 69 | 236 traces missing from streamer 4 |
| 25549-25561 | 1052-1064 | 69 | Streamer 4 deactivated (468 blank traces) |
| | 1065 | 69 | SP 1065 missed while restarting acquisition |
| 25562-25588 | 1066-1092 | 69 | 36 traces missing from streamer 4 |
| 25589-25929 | 1040-1051 | 69 | 236 traces missing from streamer 4 |
| 25930 | 1434 | 70 | BOT # 70 |
| 25930-26058 | 1434-1562 | 70 | 236 traces missing from streamer 4 |
| 26059-26083 | 1563-1587 | 70 | Streamer 4 deactivated (468 blank traces) |
| | 1588 | 70 | SP 1588 missed while restarting acquisition |
| 26084-26104 | 1589-1609 | 70 | 36 traces missing from streamer 4 |
| 26105-26365 | 1610-1870 | 70 | 236 traces missing from streamer 4 |
| 26366 | 1871 | 71 | BOT # 71 |
| 26366-26643 | 1871-2148 | 71 | 236 traces missing from streamer 4 |
| 26643 | 2148 | 71 | EOL MGL1905I1092 - Sce 1: S1-2G5 spare,Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| | | | |

Observers Log

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|-------------|-------------|
| | SOL | EOL |
| Tape # | 72 | 74 |
| SP # | 1363 | 2147 |

| | |
|------------------|---------------------|
| Line | MGL1905P1100 |
| Sequence | 025 |
| Direction | 155.7 |

| Streamer Parameters | | | | |
|-------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, µB | | | | |
| EOL Cable Noise, µB | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 1363 | 2147 |
| Date MM/DD/YY | 07/25/2019 | 07/25/2019 |
| Time UTC | 12:31 | 16:03 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | 15.1 SWkts | 11.5 SWkts |
| Sea State (m) | 1.5m | 1.5m |
| Water Depth (m) | 1474.6m | 2322.4m |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |

| General / Line Comments |
|---|
| Missed shot points during line due to Digishot lock ups |
| EOL Incomplete due to late start of line. (Delayed ramp up due to visibility) |
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| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|-------------|------|---|
| 12:31 | 26644 | 1363 | 72 | SOL MGL1905P1100 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 14:27 | | 1796-1798 | | Digishot CIU rebooted and missed shots |
| 14:28 | 27080 | 1801 | 73 | BOT # 73 |
| 14:59 | | 1914 - 1918 | 73 | Digishot CIU rebooted and missed shots |
| 15:10 | | 1952 -1956 | 73 | Digishot CIU rebooted and missed shots |
| 16:03 | 27418 | 2147 | 74 | EOL MGL1905P1100 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
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| Observers Log |
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| | |
|-------------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|-------------|------------|
| | SOL | EOL |
| Tape # | 74 | 76 |
| SP # | 2138 | 921 |

| | |
|-----------|--------------|
| Line | MGL1905P1196 |
| Sequence | 026 |
| Direction | 335.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 2138 | 921 |
| Date MM/DD/YY | 07/25/2019 | 07/25/2019 |
| Time UTC | 18:12 | 23:39 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | 10 SWkts | SW 7 kts |
| Sea State (m) | 1.5m | 1.5 m |
| Water Depth (m) | 2316.9m | 2830m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|---|
| 18:12 | 27419 | 2138 | 74 | SOL MGL1905P1196 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 20:11 | 27855 | 1702 | 75 | BOT # 75 |
| 22:04 | 28291 | 1266 | 76 | BOT # 76 |
| 23:39 | 28636 | 921 | 76 | EOL MGL1905P1196 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
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| Observers Log |
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| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|------------|-------------|
| | SOL | EOL |
| Tape # | 77 | 79 |
| SP # | 866 | 2148 |

| | |
|-----------|--------------|
| Line | MGL1905P1108 |
| Sequence | 027 |
| Direction | 155.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|-------------|------------|
| SP | 866 | 2148 |
| Date MM/DD/YY | 07/26/2019 | 07/26/2019 |
| Time UTC | 01:27 | 06:52 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | SW 10.4 kts | SW 16 kts |
| Sea State (m) | 1.5 m | 1.5 m |
| Water Depth (m) | 2326.4 m | 2300 m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|-------------|-------------|-----------|------|--|
| 01:27 | 28637 | 866 | 77 | SOL MGL1905P1108 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 03:19 | 29073 | 1302 | 78 | BOT # 78 |
| 04:50-04:52 | | 1665-1671 | | Shots 1665-1671 missed while digishot's CIU rebooted itself |
| 04:52 | 29436 | | 78 | file created when DSCU rebooted itself - no spectra header, no sources |
| 05:11 | 29509 | 1744 | 79 | BOT # 79 |
| 05:13-05:22 | 29517-29539 | 1752-1787 | 79 | digishot failure - missed shots or no source while troubleshooting Volume = 0: FFID:29518,29519,29521,29523,29525-27,29529,29531,29533-34; SP: 1753,1557,1759,1761,1763,1764,1767,1769,1771,1773,1777 Missed SP: 1754,1755,1756,1765,1766,1774,1775,1776,1779,1780,1785,1786,1787 |
| 05:34-05:41 | 29586-29601 | 1834-1860 | | More digishot failure/troubleshooting - more shots missed and/or without source No source: FFID 29586,29587,29589,29591,29593,29595,29597,29599,29601; SP 1834,1843,1845,1847,1849,1851,1853,1855,1859 Missed SP: 1835,1836,1837,1838,1839,1840,1841,1842,1856,1857,1860 |
| 06:52 | 29889 | 2148 | 79 | EOL MGL1905P1108 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| | | | | |

Observers Log

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | |
|------------------|---------------------|
| Line | MGL1905P1204 |
| Sequence | 028 |
| Direction | 335.7 |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP- First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|---|
| 09:13 | 29890 | 2117 | 80 | SOL MGL1905P1204 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 11:14 | 30326 | 1681 | 81 | BOT # 81 |
| 13:18 | 30762 | 1245 | 82 | BOT # 82 |
| 14:48 | 31086 | 921 | 82 | EOL MGL1905P1204 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
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Observers Log

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|-------------|-------------|
| | SOL | EOL |
| Tape # | 83 | 85 |
| SP # | 1030 | 2131 |

| | |
|------------------|---------------------|
| Line | MGL1905I1076 |
| Sequence | 029 |
| Direction | 155.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|-------------|------------|
| SP | 1030 | 2131 |
| Date MM/DD/YY | 07/26/2019 | 07/26/2019 |
| Time UTC | 17:11 | 21:54 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | SW 20.9 kts | W 13 kts |
| Sea State (m) | 1.5m | 1.5m |
| Water Depth (m) | 2349.6m | 2067m |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |

| General / Line Comments |
|--|
| Delayed line due to fog not allowing us to ramp up |
| Infill Line |
| Missed SP 1416,1417,1420 and no source for SP 1415,1419 (FFID 31472,31474) because of digishot failure |
| Missed SP 1497-1499 and no spectra header for FFID 31551 |
| Missed SP 1528,1529 and no spectra header for FFID 31580 |
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| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|-------------|-------------|-----------|------|--|
| 17:11 | 31087 | 1030 | 83 | SOL MGL1905I1076 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 18:55-18:57 | 31472-31474 | 1415-1420 | 83 | digishot failure, missed SP 1416,1417,1420 and no source for SP 1415,1419 (FFID 31472,31474) |
| 19:09 | 31523 | 1469 | 84 | BOT # 84 |
| 19:16-19:17 | 31551 | 1497-1499 | 84 | digishot failure, missed SP 1497-1499 and no spectra header for FFID 31551 |
| 19:24 | 31580 | 1528-1529 | 84 | digishot failure: missed SP 1528,1529 and no spectra header for FFID 31580 |
| 20:58 | 31959 | 1908 | 85 | BOT # 85 |
| 21:54 | 32182 | 2131 | 85 | EOL MGL1905I1076 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
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|----------------------|
| Observers Log |
|----------------------|

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|-------------|------------|
| | SOL | EOL |
| Tape # | 86 | 88 |
| SP # | 2170 | 921 |

| | |
|------------------|---------------------|
| Line | MGL1905I1124 |
| Sequence | 030 |
| Direction | 335.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 2170 | 921 |
| Date MM/DD/YY | 07/27/2019 | 07/27/2019 |
| Time UTC | 00:06 | 05:57 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | W 10 kts | NW 15 kts |
| Sea State (m) | 1.5 m | 1.5 m |
| Water Depth (m) | 2460 m | 2700m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|--|
| 00:06 | 32183 | 2170 | 86 | SOL MGL1905I1124 - Sce 1: S1-2G5 spare,Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 02:06 | 32619 | 1734 | 87 | BOT # 87 |
| 04:13 | 33055 | 1298 | 88 | BOT # 88 |
| 05:57 | 33432 | 921 | 88 | EOL MGL1905I1124 - Sce 1: S1-2G5 spare,Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Observers Log

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|------------|-------------|
| | SOL | EOL |
| Tape # | 89 | 91 |
| SP # | 914 | 2148 |

| | |
|------------------|---------------------|
| Line | MGL1905I1060 |
| Sequence | 031 |
| Direction | 155.7 |

| Streamer Parameters | | | | |
|-------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, µB | | | | |
| EOL Cable Noise, µB | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 914 | 2148 |
| Date MM/DD/YY | 07/27/2019 | 07/27/2019 |
| Time UTC | 08:10 | 13:49 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | 14.4 NWkts | 11 NWkts |
| Sea State (m) | 1m | 1m |
| Water Depth (m) | 2726.3m | 2117.6m |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |

| General / Line Comments |
|---------------------------------------|
| Infill Line (1060 & 1012) |
| Line 1160 Prime shot points 914-1170 |
| Line 1102 Prime shot points 1304-2148 |
| EOL Complete |

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|--|
| 08:10 | 33433 | 914 | 89 | SOL MGL1905I1060 - Sce 1: S1-2G5 spare,Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 10:09 | 33869 | 1350 | 90 | BOT # 90 |
| 12:10 | 34305 | 1786 | 91 | BOT # 91 |
| 13:49 | 34667 | 2148 | 91 | EOL MGL1905I1060 - Sce 1: S1-2G5 spare,Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| | | | | |

Observers Log

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | |
|------------------|---------------------|
| Line | MGL1905P1212 |
| Sequence | 032 |
| Direction | 335.7 |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP- First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|-------------|-------------|-----------|------|---|
| 15:48 | 34668 | 2117 | 92 | SOL MGL1905P1212 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 17:39 | 35074-35075 | 1711-1710 | 92 | blank files because of acquisition failure |
| 17:39 | 35075 | 1710 | 92 | EOT #92 |
| 17:39-17:42 | | 1709-1700 | | Missed Shot points 1709 - 1700 while restarting acquisition |
| 17:42 | 35076 | 1699 | 93 | BOT # 93 |
| 19:37 | 35512 | 1263 | 94 | BOT # 94 |
| 21:08 | 35854 | 921 | 94 | EOL MGL1905P1212 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| | | | | |

| |
|----------------------|
| Observers Log |
|----------------------|

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|------------|-------------|
| | SOL | EOL |
| Tape # | 95 | 97 |
| SP # | 914 | 2148 |

| | |
|------------------|---------------------|
| Line | MGL1905I1100 |
| Sequence | 033 |
| Direction | 155.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 914 | 2148 |
| Date MM/DD/YY | 07/27/2019 | 07/28/2019 |
| Time UTC | 22:56 | 04:17 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | NW 10kts | N 10kts |
| Sea State (m) | 1m | 1m |
| Water Depth (m) | 2720m | 2400m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|--|
| 22:56 | 35855 | 914 | 95 | SOL MGL1905I1100 - Sce 1: S1-2G5 spare,Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 00:48 | 36291 | 1350 | 96 | BOT # 96 |
| 02:41 | 36727 | 1786 | 97 | BOT # 97 |
| 04:17 | 37089 | 2148 | 97 | EOL MGL1905I1100 - Sce 1: S1-2G5 spare,Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| | | | | |

| |
|----------------------|
| Observers Log |
|----------------------|

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|-------------|------------|
| | SOL | EOL |
| Tape # | 98 | 100 |
| SP # | 2141 | 921 |

| | |
|-----------|--------------|
| Line | MGL1905P1220 |
| Sequence | 034 |
| Direction | 335.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 2141 | 921 |
| Date MM/DD/YY | 07/28/2019 | 07/28/2019 |
| Time UTC | 06:02 | 11:21 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | N 11kts | 13.3 Nkts |
| Sea State (m) | 1 m | 1m |
| Water Depth (m) | 2270m | 2654.7m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|---|
| 06:02 | 37090 | 2141 | 98 | SOL MGL1905P1220 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 07:58 | 37526 | 1705 | 99 | BOT # 99 |
| 09:49 | 37962 | 1269 | 100 | BOT # 100 |
| 11:21 | 38310 | 921 | 100 | EOL MGL1905P1220 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| | | | | |

Observers Log

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|------------|-------------|
| | SOL | EOL |
| Tape # | 101 | 103 |
| SP # | 977 | 2148 |

| | |
|------------------|---------------------|
| Line | MGL1905P1348 |
| Sequence | 035 |
| Direction | 155.7 |

| Streamer Parameters | | | | |
|-------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, µB | | | | |
| EOL Cable Noise, µB | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 977 | 2148 |
| Date MM/DD/YY | 07/28/2019 | 07/28/2019 |
| Time UTC | 13:17 | 18:09 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | 12.9 Nkts | 16.6 Nkts |
| Sea State (m) | 1m | 1m |
| Water Depth (m) | 2016.1m | 2566.2m |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |

| General / Line Comments |
|-----------------------------------|
| 1st line of the 2nd race track !! |
| EOL Complete |
| |
| |
| |
| |
| |
| |
| |

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|---|
| 13:17 | 38311 | 977 | 101 | SOL MGL1905P1348 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 15:05 | 38747 | 1413 | 102 | BOT # 102 |
| 16:54 | 39183 | 1849 | 103 | BOT # 103 |
| 18:09 | 39482 | 2148 | 103 | EOL MGL1905P1348 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| | | | | |

| |
|---------------|
| Observers Log |
|---------------|

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|-------------|------------|
| | SOL | EOL |
| Tape # | 104 | 106 |
| SP # | 2169 | 921 |

| | |
|------------------|---------------------|
| Line | MGL1905P1228 |
| Sequence | 036 |
| Direction | 335.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 2169 | 921 |
| Date MM/DD/YY | 07/28/2019 | 07/29/2019 |
| Time UTC | 20:10 | 01:27 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | N 12.6 kts | N 15 kts |
| Sea State (m) | 1 m | 1 m |
| Water Depth (m) | 2383 m | 2655 m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|---|
| 20:10 | 39483 | 2169 | 104 | SOL MGL1905P1228 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 22:00 | 39919 | 1733 | 105 | BOT # 105 |
| 23:50 | 40355 | 1297 | 106 | BOT # 106 |
| 01:27 | 40731 | 921 | 106 | EOL MGL1905P1228 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| | | | | |

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|----------------------|
| Observers Log |
|----------------------|

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|------------|-------------|
| | SOL | EOL |
| Tape # | 107 | 109 |
| SP # | 865 | 2148 |

| | |
|------------------|---------------------|
| Line | MGL1905P1356 |
| Sequence | 037 |
| Direction | 155.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 865 | 2148 |
| Date MM/DD/YY | 07/29/2019 | 07/29/2019 |
| Time UTC | 02:55 | 08:14 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | N 16 kts | 14.2 Nkts |
| Sea State (m) | 1 m | 1m |
| Water Depth (m) | 2425 m | 2562.5m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|---|
| 02:55 | 40732 | 865 | 107 | SOL MGL1905P1356 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 04:43 | 41168 | 1301 | 108 | BOT # 108 |
| 06:29 | 41604 | 1737 | 109 | BOT # 109 |
| 08:14 | 42015 | 2148 | 109 | EOL MGL1905P1356 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| | | | | |

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|---------------|
| Observers Log |
|---------------|

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|-------------|------------|
| | SOL | EOL |
| Tape # | 110 | 112 |
| SP # | 2150 | 921 |

| | |
|------------------|---------------------|
| Line | MGL1905P1236 |
| Sequence | 038 |
| Direction | 335.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 2150 | 921 |
| Date MM/DD/YY | 07/29/2019 | 07/29/2019 |
| Time UTC | 10:14 | 15:35 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | 12.4 Nkts | 12.3 Nkts |
| Sea State (m) | 1m | 0.5m |
| Water Depth (m) | 2358.8m | 2636.6m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|---|
| 10:14 | 42016 | 2150 | 110 | SOL MGL1905P1236 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 12:08 | 42452 | 1714 | 111 | BOT # 111 |
| 14:01 | 42888 | 1278 | 112 | BOT # 112 |
| 15:35 | 43245 | 921 | 112 | EOL MGL1905P1236 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| | | | | |

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|----------------------|
| Observers Log |
|----------------------|

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|------------|-------------|
| | SOL | EOL |
| Tape # | 113 | 115 |
| SP # | 964 | 2148 |

| | |
|------------------|---------------------|
| Line | MGL1905P1364 |
| Sequence | 039 |
| Direction | 155.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|-------------|------------|
| SP | 964 | 2148 |
| Date MM/DD/YY | 07/29/2019 | 07/29/2019 |
| Time UTC | 17:35 | 22:26 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | 12.2 NWWkts | W 11.5kts |
| Sea State (m) | 0.5m | 0.5 m |
| Water Depth (m) | 2032.7m | 2570 m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|---|
| 17:35 | 43246 | 964 | 113 | SOL MGL1905P1364 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 19:24 | 43682 | 1400 | 114 | BOT # 114 |
| 21:09 | 44118 | 1836 | 115 | BOT # 115 |
| 22:26 | 44430 | 2148 | 115 | EOL MGL1905P1364 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| | | | | |

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|---------------|
| Observers Log |
|---------------|

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|-------------|------------|
| | SOL | EOL |
| Tape # | 116 | 118 |
| SP # | 2170 | 921 |

| | |
|-----------|--------------|
| Line | MGL1905P1244 |
| Sequence | 040 |
| Direction | 335.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 2170 | 921 |
| Date MM/DD/YY | 07/30/2019 | 07/30/2019 |
| Time UTC | 00:23 | 05:47 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | NW 10kts | SW 16 kts |
| Sea State (m) | 0.5 m | 1m |
| Water Depth (m) | 2380 m | 2730 m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|---------------------------------------|-----------------------------------|
| <i>SOL/EOL - Start/End of Line</i> | <i>LGSP - Last Good SP</i> |
| <i>FGSP - First Good SP</i> | <i>LCSP - Last Chargeable SP</i> |
| <i>FCSP - First Chargeable SP</i> | <i>LFSP - Last Full Fold SP</i> |
| <i>FOLSP - First Overlap SP</i> | <i>Fa - Feather Angle</i> |
| <i>BOI/EOT - Begin/End of Tape</i> | <i>SI - Seismic Interference</i> |
| <i>NDR - No Data Recorded</i> | <i>ITB - Imitation Time Break</i> |
| <i>NDR - No Data Recorded</i> | <i>ITB - Internal Time Break</i> |
| <i>N.T.B.P. - Not To Be Processed</i> | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|---|
| 00:23 | 44431 | 2170 | 116 | SOL MGL1905P1244 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 02:14 | 44867 | 1734 | 117 | BOT # 117 |
| 04:07 | 45303 | 1298 | 118 | BOT # 118 |
| 05:47 | 45680 | 921 | 118 | EOL MGL1905P1244 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| | | | | |

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|----------------------|
| Observers Log |
|----------------------|

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|------------|-------------|
| | SOL | EOL |
| Tape # | 119 | 121 |
| SP # | 958 | 2148 |

| | |
|-----------|--------------|
| Line | MGL1905P1372 |
| Sequence | 041 |
| Direction | 155.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 958 | 2148 |
| Date MM/DD/YY | 07/30/2019 | 07/30/2019 |
| Time UTC | 07:56 | 13:04 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | 25.6 SWkts | 21.0 SWkts |
| Sea State (m) | 1.5m | 1.5m |
| Water Depth (m) | 2067.3m | 2555.6m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|---|
| 07:56 | 45681 | 958 | 119 | SOL MGL1905P1372 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 09:51 | 46117 | 1394 | 120 | BOT # 120 |
| 11:42 | 46553 | 1830 | 121 | BOT # 121 |
| 13:04 | 46871 | 2148 | 121 | EOL MGL1905P1372 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| | | | | |

Observers Log

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|-------------|------------|
| | SOL | EOL |
| Tape # | 122 | 124 |
| SP # | 2183 | 921 |

| | |
|------------------|---------------------|
| Line | MGL1905P1252 |
| Sequence | 042 |
| Direction | 335.7 |

| Streamer Parameters | | | | |
|-------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, µB | | | | |
| EOL Cable Noise, µB | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 2183 | 921 |
| Date MM/DD/YY | 07/30/2019 | 07/30/2019 |
| Time UTC | 15:03 | 20:56 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | W 13.3 kts | NW 10kts |
| Sea State (m) | 1.5m | 1.5 m |
| Water Depth (m) | 2405.3m | 2570m |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |

| General / Line Comments |
|---|
| |
| |
| |
| Missed shot points during shutdown/ramp-up: 1788-1752,1743,1705,1704,1680 |
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| |

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP- First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|---------------|-------|-----------|------|---|
| 15:03 | 46872 | 2183 | 122 | SOL MGL1905P1252 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 16:55 | 47266 | 1789 | 122 | Last Full Volume Shot - Shut down for Whale in the exclusion zone |
| 16:56 - 17:06 | | 1788-1752 | 122 | Guns Silent - Missed SP 1788-1752 |
| 17:06 | 47267 | 1751 | 122 | Begin Ramp up |
| 17:08 | | 1743 | 122 | Missed SP 1743 |
| 17:14 | 47296 | | 122 | No spectra header - FFID 47296 |
| 17:17 | 47308 | 1708 | 123 | BOT # 123 |
| 17:18 | 47311 | | 123 | No spectra header - FFID 47311 |
| 17:18 | | 1705-1704 | 123 | Missed SP 1705-1704 |
| 17:25 | | 1680 | 123 | Missed SP 1680 |
| 17:26 | 47339 | 1675 | 123 | Ramp up complete - Full volume - Shooting in External mode |
| 19:20 | 47744 | 1270 | 124 | BOT # 124 |
| 20:56 | 48093 | 921 | 124 | EOL MGL1905P1252 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| | | | | |

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|----------------------|
| Observers Log |
|----------------------|

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|------------|-------------|
| | SOL | EOL |
| Tape # | 125 | 127 |
| SP # | 888 | 2148 |

| | |
|------------------|---------------------|
| Line | MGL1905P1380 |
| Sequence | 043 |
| Direction | 155.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 888 | 2148 |
| Date MM/DD/YY | 07/30/2019 | 07/31/2019 |
| Time UTC | 22:33 | 04:13 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | NW 12kts | N 12kts |
| Sea State (m) | 1.5 m | 1.5 m |
| Water Depth (m) | 2275 m | 2570 m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|---|
| 22:33 | 48094 | 888 | 125 | SOL MGL1905P1380 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 00:34 | 48530 | 1324 | 126 | BOT # 126 |
| 02:30 | 48966 | 1760 | 127 | BOT # 127 |
| 04:13 | 49354 | 2148 | 127 | EOL MGL1905P1380 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| | | | | |

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|---------------|
| Observers Log |
|---------------|

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|-------------|------------|
| | SOL | EOL |
| Tape # | 128 | 130 |
| SP # | 2111 | 921 |

| | |
|------------------|---------------------|
| Line | MGL1905P1260 |
| Sequence | 044 |
| Direction | 335.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 2111 | 921 |
| Date MM/DD/YY | 07/31/2019 | 07/31/2019 |
| Time UTC | 07:22 | 13:06 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | 9 Nkts | 4.7 Nkts |
| Sea State (m) | 1.5m | 1m |
| Water Depth (m) | 2193.1m | 2490.8m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|---|
| 07:22 | 49355 | 2111 | 128 | SOL MGL1905P1260 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 09:32 | 49791 | 1675 | 129 | BOT # 129 |
| 11:38 | 50227 | 1239 | 130 | BOT # 130 |
| 13:06 | 50545 | 921 | 130 | EOL MGL1905P1260 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| | | | | |

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|----------------------|
| Observers Log |
|----------------------|

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|------------|-------------|
| | SOL | EOL |
| Tape # | 131 | 133 |
| SP # | 958 | 2148 |

| | |
|------------------|---------------------|
| Line | MGL1905P1388 |
| Sequence | 045 |
| Direction | 155.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 958 | 2148 |
| Date MM/DD/YY | 07/31/2019 | 07/31/2019 |
| Time UTC | 15:04 | 20:06 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | SW 4.4 kts | S 6 kts |
| Sea State (m) | 0.5m | 0.5 m |
| Water Depth (m) | 2062.9m | 2550 m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|---|
| 15:04 | 50546 | 958 | 131 | SOL MGL1905P1388 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 16:55 | 50982 | 1394 | 132 | BOT # 132 |
| 18:48 | 51418 | 1830 | 133 | BOT # 133 |
| 20:06 | 51736 | 2148 | 133 | EOL MGL1905P1388 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| | | | | |

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|----------------------|
| Observers Log |
|----------------------|

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|-------------|------------|
| | SOL | EOL |
| Tape # | 134 | 136 |
| SP # | 2155 | 921 |

| | |
|-----------|--------------|
| Line | MGL1905P1268 |
| Sequence | 046 |
| Direction | 335.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 2155 | 921 |
| Date MM/DD/YY | 07/31/2019 | 08/01/2019 |
| Time UTC | 22:05 | 03:35 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | S 4 kts | SE 17 kts |
| Sea State (m) | 0.5 m | 0.5 m |
| Water Depth (m) | 2370 m | 2450 m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|---|
| 22:05 | 51737 | 2155 | 134 | SOL MGL1905P1268 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 00:07 | 52173 | 1719 | 135 | BOT # 135 |
| 02:02 | 52609 | 1283 | 136 | BOT # 136 |
| 03:35 | 52971 | 921 | 136 | EOL MGL1905P1268 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| | | | | |

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|----------------------|
| Observers Log |
|----------------------|

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|------------|-------------|
| | SOL | EOL |
| Tape # | 137 | 139 |
| SP # | 924 | 2148 |

| | |
|------------------|---------------------|
| Line | MGL1905P1396 |
| Sequence | 047 |
| Direction | 155.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 468 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|-------------|
| SP | 924 | 2148 |
| Date MM/DD/YY | 08/01/2019 | 08/01/2019 |
| Time UTC | 05:24 | 11:13 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | SE 20 kts | 21.3 SW kts |
| Sea State (m) | 1 m | 1.5 m |
| Water Depth (m) | 2145 m | 2543.9 m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------------|-----------|------|---|
| 05:24 | 52972 | 924 | 137 | SOL MGL1905P1396 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 07:27 | 53408 | 1360 | 138 | BOT # 138 |
| 07:29:08 | 53412 | 1364 | | Streamer 4 partially lost power, 232 dead channels |
| 07:29:25 | 53413-53443 | 1365-1395 | | Streamer 4 powered off to attempt reset, 468 dead channels |
| 07:38:38 | n/a | 1396 | | Missed shot while stopping/starting acquisition |
| 07:38:57 | 53444 | 1397 | | Streamer 4 partially recorading - 232 dead channels |
| 09:37 | 53844 | 1797 | 139 | BOT # 139 |
| 11:13 | 54195 | 2148 | 139 | EOL MGL1905P1396 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |

| |
|----------------------|
| Observers Log |
|----------------------|

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|-------------|------------|
| | SOL | EOL |
| Tape # | 140 | 142 |
| SP # | 2112 | 921 |

| | |
|------------------|---------------------|
| Line | MGL1905P1276 |
| Sequence | 048 |
| Direction | 335.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 0 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|-------------|------------|
| SP | 2112 | 921 |
| Date MM/DD/YY | 08/01/2019 | 08/01/2019 |
| Time UTC | 13:18 | 18:56 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | SW 15.8 kts | SW 9.1 kts |
| Sea State (m) | 2 m | 1.5 m |
| Water Depth (m) | 2184.2 m | 2470 m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|---|
| 13:18 | 54196 | 2112 | 140 | SOL MGL1905P1276 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 15:25 | 54632 | 1676 | 141 | BOT # 141 |
| 17:29 | 55068 | 1240 | 142 | BOT # 142 |
| 18:56 | 55387 | 921 | 142 | EOL MGL1905P1276 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| | | | | |
| | | | | |

| |
|----------------------|
| Observers Log |
|----------------------|

| | |
|-------------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|-------------|------------|
| | SOL | EOL |
| Tape # | 143 | 144 |
| SP # | 1729 | 921 |

| | |
|-----------|--------------|
| Line | MGL1905P1284 |
| Sequence | 049 |
| Direction | 335.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 0 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|-------------|------------|
| SP | 1729 | 921 |
| Date MM/DD/YY | 08/02/2019 | 08/02/2019 |
| Time UTC | 10:47 | 14:24 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | 13.4 NW kts | 12.4 N kts |
| Sea State (m) | 1 m | 1 m |
| Water Depth (m) | 1716.9 m | 2321.0 m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP- First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|---|
| 10:47 | 55388 | 1729 | 143 | SOL MGL1905P1284 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 12:48 | 55824 | 1293 | 144 | BOT # 144 |
| 14:24 | 56196 | 921 | 144 | EOL MGL1905P1284 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| | | | | |
| | | | | |

| |
|---------------|
| Observers Log |
|---------------|

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|------------|-------------|
| | SOL | EOL |
| Tape # | 145 | 147 |
| SP # | 955 | 2148 |

| | |
|-----------|--------------|
| Line | MGL1905P1404 |
| Sequence | 050 |
| Direction | 155.7 |

| Streamer Parameters | | | | |
|--------------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 0 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μB | | | | |
| EOL Cable Noise, μB | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 955 | 2148 |
| Date MM/DD/YY | 08/02/2019 | 08/02/2019 |
| Time UTC | 16:16 | 21:19 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | N 11.7 kts | N 10 kts |
| Sea State (m) | 1 m | 0.5 m |
| Water Depth (m) | 2034.2 m | 2500 m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|---|
| 16:16 | 56197 | 955 | 145 | SOL MGL1905P1404 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 18:07 | 56633 | 1391 | 146 | BOT # 146 |
| 19:57 | 57069 | 1827 | 147 | BOT # 147 |
| 21:19 | 57390 | 2148 | 147 | EOL MGL1905P1404 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| | | | | |
| | | | | |

Observers Log

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|-------------|------------|
| | SOL | EOL |
| Tape # | 148 | 150 |
| SP # | 2196 | 921 |

| | |
|------------------|---------------------|
| Line | MGL1905P1292 |
| Sequence | 051 |
| Direction | 335.7 |

| Streamer Parameters | | | | |
|-------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 0 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, µB | | | | |
| EOL Cable Noise, µB | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 2196 | 921 |
| Date MM/DD/YY | 08/02/2019 | 08/03/2019 |
| Time UTC | 23:19 | 05:08 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | N 10 kts | NE 10 kts |
| Sea State (m) | 1 m | 1 m |
| Water Depth (m) | 2350 m | 2360 m |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |

| General / Line Comments |
|---|
| Shooting with Streamers 1 - 3 only. |
| Missed SP 1607-1378 during shutdown for protected species |
| Ramp-up: SP 1377-1301 |
| Missed SP1361, 1360, 1324,1307 during ramp up |
| |
| |
| |
| |
| |
| |

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP- First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|-------------|-------|-----------|------|---|
| 23:19 | 57391 | 2196 | 148 | SOL MGL1905P1292 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 01:19 | 57827 | 1760 | 149 | BOT # 149 |
| 02:01 | 57979 | 1608 | 149 | Last good SP before shutdown |
| 02:01-03:05 | | 1607-1378 | 149 | Shutdown for whale and calf - missed SP 1607-1378 |
| 03:05 | 57980 | 1377 | 149 | start of ramp up (vol = 0) |
| 03:09 | 57996 | | 149 | No spectra header |
| 03:10 | | 1361-1360 | 149 | Missed SP 1361-1360 |
| 03:20 | | 1324 | 149 | Missed SP 1324 |
| 03:24 | | 1307 | 149 | Missed SP 1307 |
| 03:26 | | 1302 | 149 | First good SP 1302 |
| 04:21 | 58263 | 1091 | 150 | BOT # 150 |
| 05:08 | 58433 | 921 | 150 | EOL MGL1905P1292 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| | | | | |
| | | | | |

| |
|---------------|
| Observers Log |
|---------------|

| | |
|-------------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|------------|-------------|
| | SOL | EOL |
| Tape # | 151 | 153 |
| SP # | 956 | 2148 |

| | |
|------------------|---------------------|
| Line | MGL1905P1412 |
| Sequence | 052 |
| Direction | 155.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 0 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 956 | 2148 |
| Date MM/DD/YY | 08/03/2019 | 08/03/2019 |
| Time UTC | 07:19 | 12:24 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | 15 NE kts | 14.5 N kts |
| Sea State (m) | 1 m | 1 m |
| Water Depth (m) | 2035.2 m | 2583.6 m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|---|
| 07:19 | 58434 | 956 | 151 | SOL MGL1905P1412 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 09:10 | 58870 | 1392 | 152 | BOT # 152 |
| 11:02 | 59306 | 1828 | 153 | BOT # 153 |
| 12:24 | 59626 | 2148 | 153 | EOL MGL1905P1412 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| | | | | |
| | | | | |

Observers Log

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|-------------|-------------|
| | SOL | EOL |
| Tape # | 154 | 156 |
| SP # | 2206 | 1001 |

| | |
|------------------|---------------------|
| Line | MGL1905I1292 |
| Sequence | 053 |
| Direction | 335.7 |

| Streamer Parameters | | | | |
|-------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 0 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, µB | | | | |
| EOL Cable Noise, µB | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 2206 | 1001 |
| Date MM/DD/YY | 08/03/2019 | 08/03/2019 |
| Time UTC | 14:31 | 20:05 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | N 14.8 kts | N 17 kts |
| Sea State (m) | 1 m | 1 m |
| Water Depth (m) | 2289.9 m | 2480 m |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |

| General / Line Comments |
|--|
| Infill Line |
| Shooting with Streamers 1 - 3 only. |
| |
| Spectra preplotted shot numbering was incorrect on this line. |
| Spectra began numbering at 2148 instead of 2068, shifted by 80shots. |
| SP2206 corresponds to preplotted 2126 |
| SP1001 corresponds to preplotted 921 |
| |
| |
| |
| |

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP- First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|--|
| 14:31 | 59627 | 2206 | 154 | SOL MGL1905I1292 - Sce 1: S1-2G5 spare,Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 16:33 | 60063 | 1770 | 155 | BOT # 155 |
| 18:32 | 60499 | 1334 | 156 | BOT # 156 |
| 20:05 | 60832 | 1001 | 156 | EOL MGL1905I1292 - Sce 1: S1-2G5 spare,Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| | | | | |
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|---------------|
| Observers Log |
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| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|------------|-------------|
| | SOL | EOL |
| Tape # | 157 | 159 |
| SP # | 971 | 2148 |

| | |
|------------------|---------------------|
| Line | MGL1905I1412 |
| Sequence | 054 |
| Direction | 155.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 0 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 971 | 2148 |
| Date MM/DD/YY | 08/03/2019 | 08/04/2019 |
| Time UTC | 22:00 | 02:51 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | N 13 kts | N 18 kts |
| Sea State (m) | 1 m | 1 m |
| Water Depth (m) | 1985 m | 2590 m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|---|
| 22:00 | 60833 | 971 | 157 | SOL MGL1905I1412 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| 23:46 | 61269 | 1407 | 158 | BOT # 158 |
| 23:59 | 61322 | 1460 | 158 | Midnight |
| 01:35 | 61705 | 1843 | 159 | BOT # 159 |
| 02:51 | 62010 | 2148 | 159 | EOL MGL1905I1412 - Sce 1: S1-2G5 spare, Vol: 3300 in3; Sce 2: S3-4G5 spare, Vol: 3300 in3 |
| | | | | |
| | | | | |

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|----------------------|
| Observers Log |
|----------------------|

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|-------------|------------|
| | SOL | EOL |
| Tape # | 160 | 162 |
| SP # | 2157 | 921 |

| | |
|------------------|---------------------|
| Line | MGL1905P1300 |
| Sequence | 055 |
| Direction | 335.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 0 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 2157 | 921 |
| Date MM/DD/YY | 08/04/2019 | 08/04/2019 |
| Time UTC | 04:41 | 10:12 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | N 18 kts | 17.5 N kts |
| Sea State (m) | 1.5 m | 1.5 m |
| Water Depth (m) | 2450 m | 2511.5 m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|--|
| 04:41 | 62011 | 2157 | 160 | SOL MGL1905P1300 - Sce 1: S1-2G5 spare, 3300 in3, 18 guns ; Sce 2: S3-4G5 spare, 3300 in3, 18 guns. |
| 05:15 | 62148 | 2020 | 160 | After multiple errors, S4G4 replaced by S4G5 - no change in volume or number of sources |
| 06:31 | 62447 | 1721 | 161 | BOT # 161 |
| 08:28 | 62883 | 1285 | 162 | BOT # 162 |
| 10:12 | 63247 | 921 | 162 | EOL MGL1905I1300 - Sce 1: S1-2G5 spare, 3300 in3, 18 guns; Sce 2: S3G5,S4G4 spare, 3300 in3, 18 guns |
| | | | | |
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|----------------------|
| Observers Log |
|----------------------|

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|------------|-------------|
| | SOL | EOL |
| Tape # | 163 | 165 |
| SP # | 972 | 2148 |

| | |
|------------------|---------------------|
| Line | MGL1905P1420 |
| Sequence | 056 |
| Direction | 155.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 0 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 972 | 2148 |
| Date MM/DD/YY | 08/04/2019 | 08/04/2019 |
| Time UTC | 12:07 | 16:58 |
| Volume (cu in.) | 3300/3300 | 3120/3300 |
| Wind (kts) | 19.3 N kts | 15.7 N kts |
| Sea State (m) | 1.5 m | 1.5 m |
| Water Depth (m) | 1940.9 m | 2574.3 m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|---|
| 12:07 | 63248 | 972 | 163 | SOL MGL1905P1420 - Sce 1: S1-2G5 spare, 3300 in3, 18 guns ; Sce 2: S3G5,S4G4 spare, 3300 in3, 18 guns. |
| 12:21 | 63305 | 1029 | 163 | S1G1 failed, Sce 1: 17 guns, 2940 in3 |
| 12:22 | 63307 | 1031 | 163 | S1G1 failed, Sce 1: 17 guns, 2940 in3 |
| 12:22 | 63309 | 1033 | 163 | S1G1 failed, Sce 1: 17 guns, 2940 in3 |
| 12:23 | 63311 | 1035 | 163 | S1G1 failed, Sce 1: 17 guns, 2940 in3 |
| 12:23 | 63313 | 1037 | 163 | S1G1 failed, Sce 1: 17 guns, 2940 in3 |
| 12:24 | 63315 | 1039 | 163 | S1G1 failed, Sce 1: 17 guns, 2940 in3 |
| 12:24 | 63317 | 1041 | 163 | S1G1 failed, Sce 1: 17 guns, 2940 in3 |
| 12:25 | 63319 | 1043 | 163 | Disabled S1G1, Sce 1: 17 guns, 2940 in3 |
| 12:25 | 63321 | 1045 | 163 | Enabled S1G5 (180in3) Sce 1: 18 guns, 3120 in3 |
| 13:55 | 63684 | 1408 | 164 | BOT # 164 |
| 15:42 | 64120 | 1844 | 165 | BOT # 165 |
| 16:58 | 64424 | 2148 | 165 | EOL MGL1905P1420 - Sce 1: S1G1,S2G5 spare, 3120 in3, 18 guns; Sce 2: S3G5,S4G4 spare, 3300 in3, 18 guns |

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| Observers Log |
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| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|-------------|------------|
| | SOL | EOL |
| Tape # | 166 | 168 |
| SP # | 2098 | 921 |

| | |
|-----------|--------------|
| Line | MGL1905P1308 |
| Sequence | 057 |
| Direction | 335.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 0 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 2098 | 921 |
| Date MM/DD/YY | 08/04/2019 | 08/05/2019 |
| Time UTC | 19:06 | 00:15 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | N 16 kts | N 16 kts |
| Sea State (m) | 1 m | 1.5 m |
| Water Depth (m) | 2150 m | 2520 m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|---------------------------------------|-----------------------------------|
| <i>SOL/EOL - Start/End of Line</i> | <i>LGSP - Last Good SP</i> |
| <i>FGSP - First Good SP</i> | <i>LCSP - Last Chargeable SP</i> |
| <i>FCSP - First Chargeable SP</i> | <i>LFSP - Last Full Fold SP</i> |
| <i>FOLSP - First Overlap SP</i> | <i>Fa - Feather Angle</i> |
| <i>BOI/EOT - Begin/End of Tape</i> | <i>SI - Seismic Interference</i> |
| <i>NDR - No Data Recorded</i> | <i>ITB - Imitation Time Break</i> |
| <i>NDR - No Data Recorded</i> | <i>ITB - Internal Time Break</i> |
| <i>N.T.B.P. - Not To Be Processed</i> | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|--|
| 19:06 | 64425 | 2098 | 166 | SOL MGL1905P1308 - Sce 1: S1-2G5 spare, 3300 in3, 18 guns ; Sce 2: S3G5,S4G4 spare, 3300 in3, 18 guns. |
| 20:51 | 64861 | 1662 | 167 | BOT # 167 |
| 22:47 | 65297 | 1226 | 168 | BOT # 168 |
| 00:15 | 65602 | 921 | 168 | EOL MGL1905P1308 - Sce 1: S1-2G5 spare, 3300 in3, 18 guns; Sce 2: S3G5,S4G4 spare, 3300 in3, 18 guns |
| | | | | |
| | | | | |

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|----------------------|
| Observers Log |
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| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|------------|-------------|
| | SOL | EOL |
| Tape # | 169 | 171 |
| SP # | 960 | 2148 |

| | |
|------------------|---------------------|
| Line | MGL1905P1428 |
| Sequence | 058 |
| Direction | 155.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 0 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|-------------|
| SP | 960 | 2148 |
| Date MM/DD/YY | 08/05/2019 | 08/05/2019 |
| Time UTC | 02:07 | 07:02 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | NW 18 kts | NW 14.6 kts |
| Sea State (m) | 1.5 m | 1.5 m |
| Water Depth (m) | 1950 m | 2542.3 m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|--|
| 02:07 | 65603 | 960 | 169 | SOL MGL1905P1428 - Sce 1: S1-2G5 spare, 3300 in3, 18 guns ; Sce 2: S3G5,S4G4 spare, 3300 in3, 18 guns. |
| 03:55 | 66039 | 1396 | 170 | BOT # 170 |
| 05:42 | 66475 | 1832 | 171 | BOT # 171 |
| 07:02 | 66791 | 2148 | 171 | EOL MGL1905P1428 - Sce 1: S1-2G5 spare, 3300 in3, 18 guns; Sce 2: S3G5,S4G4 spare, 3300 in3, 18 guns |
| | | | | |
| | | | | |

Observers Log

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|-------------|------------|
| | SOL | EOL |
| Tape # | 172 | 174 |
| SP # | 2122 | 921 |

| | |
|------------------|---------------------|
| Line | MGL1905P1316 |
| Sequence | 059 |
| Direction | 335.7 |

| Streamer Parameters | | | | |
|-------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 0 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, µB | | | | |
| EOL Cable Noise, µB | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|-------------|-------------|
| SP | 2122 | 921 |
| Date MM/DD/YY | 08/05/2019 | 08/05/2019 |
| Time UTC | 09:05 | 14:14 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | 14.4 Nw kts | 19.7 NW kts |
| Sea State (m) | 1.5 m | 1.5 m |
| Water Depth (m) | 2375.2 m | 2515.7 m |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |

| General / Line Comments |
|-------------------------------------|
| Shooting with Streamers 1 - 3 only. |
| EOL Complete |
| |
| |
| |
| |
| |
| |
| |

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|--|
| 09:05 | 66792 | 2122 | 172 | SOL MGL1905P1316 - Sce 1: S1-2G5 spare, 3300 in3, 18 guns ; Sce 2: S3G5,S4G4 spare, 3300 in3, 18 guns. |
| 10:53 | 67228 | 1686 | 173 | BOT # 173 |
| 12:46 | 67664 | 1250 | 174 | BOT # 174 |
| 14:14 | 67993 | 921 | 174 | EOL MGL1905P1316 - Sce 1: S1-2G5 spare, 3300 in3, 18 guns; Sce 2: S3G5,S4G4 spare, 3300 in3, 18 guns |
| | | | | |
| | | | | |

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|---------------|
| Observers Log |
|---------------|

| | |
|-------------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|------------|-------------|
| | SOL | EOL |
| Tape # | 175 | 177 |
| SP # | 972 | 2148 |

| | |
|------------------|---------------------|
| Line | MGL1905P1436 |
| Sequence | 060 |
| Direction | 155.7 |

| Streamer Parameters | | | | |
|--------------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 0 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μB | | | | |
| EOL Cable Noise, μB | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 972 | 2148 |
| Date MM/DD/YY | 08/05/2019 | 08/05/2019 |
| Time UTC | 16:08 | 21:01 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | NW 10 kts | NW 9 kts |
| Sea State (m) | 1.5 m | 1.5 m |
| Water Depth (m) | 1903.0 m | 2490 m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|--|
| 16:08 | 67994 | 972 | 175 | SOL MGL1905P1436 - Sce 1: S1-2G5 spare, 3300 in3, 18 guns ; Sce 2: S3G5,S4G4 spare, 3300 in3, 18 guns. |
| 17:56 | 68430 | 1408 | 176 | BOT # 176 |
| 19:31 | 67115 | 1799 | 176 | Air leak detected from gun string 1 - no obvious influence on signal or data - String to be recovered at end of line |
| 19:42 | 68866 | 1844 | 177 | BOT # 177 |
| 21:01 | 69170 | 2148 | 177 | EOL MGL1905P1436 - Sce 1: S1-2G5 spare, 3300 in3, 18 guns; Sce 2: S3G5,S4G4 spare, 3300 in3, 18 guns |
| | | | | |
| | | | | |

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|----------------------|
| Observers Log |
|----------------------|

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition Leader | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation Leader | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|-------------|------------|
| | SOL | EOL |
| Tape # | 178 | 180 |
| SP # | 2147 | 921 |

| | |
|------------------|---------------------|
| Line | MGL1905R1284 |
| Sequence | 061 |
| Direction | 335.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 0 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 2147 | 921 |
| Date MM/DD/YY | 08/05/2019 | 08/06/2019 |
| Time UTC | 22:54 | 04:14 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | NW 10 kts | N 8 kts |
| Sea State (m) | 1.5 m | 1.5 m |
| Water Depth (m) | 2350 m | 2670 m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP- First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|--|
| 22:54 | 69171 | | 178 | File created at the start of the line without SP or spectra header |
| 22:54 | 69172 | 2147 | 178 | SOL MGL1905R1284 - Sce 1: S1-2G5 spare, 3300 in3, 18 guns ; Sce 2: S3G5,S4G4 spare, 3300 in3, 18 guns. |
| 23:59 | 69426 | 1893 | 178 | Midnight |
| 00:48 | 69607 | 1712 | 179 | BOT # 179 |
| 02:44 | 70043 | 1276 | 180 | BOT # 180 |
| 04:14 | 70398 | 921 | 180 | EOL MGL1905R1284 - Sce 1: S1-2G5 spare, 3300 in3, 18 guns; Sce 2: S3G5,S4G4 spare, 3300 in3, 18 guns |
| | | | | |
| | | | | |

| |
|----------------------|
| Observers Log |
|----------------------|

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|------------|-------------|
| | SOL | EOL |
| Tape # | 181 | 183 |
| SP # | 946 | 2148 |

| | |
|------------------|---------------------|
| Line | MGL1905I1348 |
| Sequence | 062 |
| Direction | 155.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 0 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 946 | 2148 |
| Date MM/DD/YY | 08/06/2019 | 08/06/2019 |
| Time UTC | 06:05 | 11:14 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | NW 15 kts | 8.8 NW kts |
| Sea State (m) | 1.5 m | 1 m |
| Water Depth (m) | 2101.1 m | 2565.5 m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP- First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | FFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|--|
| 06:05 | 70399 | 946 | 181 | SOL MGL1905I1348 - Sce 1: S1-2G5 spare, 3300 in3, 18 guns ; Sce 2: S3G5,S4G4 spare, 3300 in3, 18 guns. |
| 07:59 | 70835 | 1382 | 182 | BOT # 182 |
| 09:49 | 71271 | 1818 | 183 | BOT # 183 |
| 11:14 | 71601 | 2148 | 183 | EOL MGL1905I1348 - Sce 1: S1-2G5 spare, 3300 in3, 18 guns; Sce 2: S3G5,S4G4 spare, 3300 in3, 18 guns |
| | | | | |
| | | | | |

Observers Log

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|-------------|------------|
| | SOL | EOL |
| Tape # | 184 | 186 |
| SP # | 2135 | 921 |

| | |
|------------------|---------------------|
| Line | MGL1905I1252 |
| Sequence | 063 |
| Direction | 335.7 |

| Streamer Parameters | | | | |
|-------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 0 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, µB | | | | |
| EOL Cable Noise, µB | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|-------------|
| SP | 2135 | 921 |
| Date MM/DD/YY | 08/06/2019 | 08/06/2019 |
| Time UTC | 13:10 | 18:36 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | 13.8 N kts | 11.6 NW kts |
| Sea State (m) | 1 m | 0.5 m |
| Water Depth (m) | 2337.8 m | 2803.2 m |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |

| General / Line Comments |
|--|
| Infill line |
| Shooting with Streamers 1 - 3 only. |
| 17:43 Shot point 1123 we started moving to port to open up for the next line change. |
| |
| |
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| |

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|--|
| 13:10 | 71602 | 2135 | 184 | SOL MGL1905I1252 - Sce 1: S1-2G5 spare, 3300 in3, 18 guns ; Sce 2: S3G5,S4G4 spare, 3300 in3, 18 guns. |
| 15:12 | 72038 | 1699 | 185 | BOT # 185 |
| 17:08 | 72474 | 1263 | 186 | BOT # 186 |
| 18:36 | 72816 | 921 | 186 | EOL MGL1905I1252 - Sce 1: S1-2G5 spare, 3300 in3, 18 guns; Sce 2: S3G5,S4G4 spare, 3300 in3, 18 guns |
| | | | | |
| | | | | |

| |
|---------------|
| Observers Log |
|---------------|

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|------------|-------------|
| | SOL | EOL |
| Tape # | 187 | 189 |
| SP # | 944 | 2148 |

| | |
|-----------|--------------|
| Line | MGL1905A1348 |
| Sequence | 064 |
| Direction | 155.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 0 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 944 | 2148 |
| Date MM/DD/YY | 08/06/2019 | 08/07/2019 |
| Time UTC | 20:38 | 01:41 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | NW 10 kts | NW 13 kts |
| Sea State (m) | 1.5 m | 0.5 m |
| Water Depth (m) | 2160 m | 2560 m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|--|
| 20:38 | 72817 | 944 | 187 | SOL MGL1905A1348 - Sce 1: S1-2G5 spare, 3300 in3, 18 guns ; Sce 2: S3G5,S4G4 spare, 3300 in3, 18 guns. |
| 22:30 | 73253 | 1380 | 188 | BOT # 188 |
| 00:00 | 73609 | 1736 | 188 | Midnight |
| 00:20 | 73689 | 1816 | 189 | BOT # 189 |
| 01:41 | 74021 | 2148 | 189 | EOL MGL1905A1348 - Sce 1: S1-2G5 spare, 3300 in3, 18 guns; Sce 2: S3G5,S4G4 spare, 3300 in3, 18 guns |
| | | | | |
| | | | | |

Observers Log

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|-------------|-------------|
| | SOL | EOL |
| Tape # | 190 | 191 |
| SP # | 2173 | 1678 |

| | |
|------------------|---------------------|
| Line | MGL1905P1324 |
| Sequence | 065 |
| Direction | 335.7 |

| Streamer Parameters | | | | |
|-------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 0 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, µB | | | | |
| EOL Cable Noise, µB | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 2173 | 1678 |
| Date MM/DD/YY | 08/07/2019 | 08/07/2019 |
| Time UTC | 04:43 | 06:57 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | N 5 kts | W 7 kts |
| Sea State (m) | 0.5 m | 0.5 m |
| Water Depth (m) | 2530 m | 1700 m |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |

| General / Line Comments |
|---|
| Shooting with Streamers 1 - 3 only. |
| Line interrupted after SP 1678 after loss of streamer 4 |
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| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|--|
| 04:43 | 74022 | 2173 | 190 | SOL MGL1905P1324 - Sce 1: S1-2G5 spare, 3300 in3, 18 guns ; Sce 2: S3G5,S4G4 spare, 3300 in3, 18 guns. |
| 06:42 | 74458 | 1737 | 191 | BOT # 191 |
| 06:57 | 74517 | 1678 | 191 | EOL MGL1905P1324 - Sce 1: S1-2G5 spare, 3300 in3, 18 guns; Sce 2: S3G5,S4G4 spare, 3300 in3, 18 guns |
| | | | | |
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|----------------------|
| Observers Log |
|----------------------|

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|-------------|-------------|
| | SOL | EOL |
| Tape # | 192 | 194 |
| SP # | 1115 | 2148 |

| | |
|------------------|---------------------|
| Line | MGL1905B1348 |
| Sequence | 066 |
| Direction | 155.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 0 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|-----------|
| SP | 1115 | 2148 |
| Date MM/DD/YY | 08/07/19 | 08/07/19 |
| Time UTC | 18:20 | |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | 5.3 NW kts | |
| Sea State (m) | 0.5 m | |
| Water Depth (m) | 1743.5 m | |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|--|
| 18:20 | 74518 | 1115 | 192 | SOL MGL1905B1348 - Sce 1: S1-2G5 spare, 3300 in3, 18 guns ; Sce 2: S3G5,S4G4 spare, 3300 in3, 18 guns. |
| | 74954 | 1551 | 193 | BOT # 193 |
| | 75390 | 1987 | 194 | BOT # 194 |
| | | 2148 | 194 | EOL MGL1905B1348 - Sce 1: S1-2G5 spare, 3300 in3, 18 guns; Sce 2: S3G5,S4G4 spare, 3300 in3, 18 guns |
| | | | | |
| | | | | |

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|----------------------|
| Observers Log |
|----------------------|

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|-------------|------------|
| | SOL | EOL |
| Tape # | 195 | 197 |
| SP # | 2182 | 921 |

| | |
|-----------|--------------|
| Line | MGL1905R1324 |
| Sequence | 067 |
| Direction | 335.7 |

| Streamer Parameters | | | | |
|--------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 0 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|-----------|------------|
| SP | 2182 | 921 |
| Date MM/DD/YY | 08/08/19 | 08/08/19 |
| Time UTC | 03:09 | 08:36 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | W 3 kts | SW 4.8 kts |
| Sea State (m) | 0.5 m | 0.5 m |
| Water Depth (m) | 2510 m | 2451 m |
| | | |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP- First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|--|
| 03:09 | 75430 | 2182 | 195 | SOL MGL1905R1324 - Sce 1: S1-2G5 spare, 3300 in3, 18 guns ; Sce 2: S3G5,S4G4 spare, 3300 in3, 18 guns. |
| 05:04 | 75866 | 1746 | 196 | BOT # 196 |
| 06:54 | 76302 | 1310 | 197 | BOT # 197 |
| 08:36 | 76691 | 921 | 197 | EOL MGL1905R1324 - Sce 1: S1-2G5 spare, 3300 in3, 18 guns; Sce 2: S3G5,S4G4 spare, 3300 in3, 18 guns |
| | | | | |

Observers Log

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|------------|-------------|
| | SOL | EOL |
| Tape # | 198 | 200 |
| SP # | 971 | 2148 |

| | |
|------------------|---------------------|
| Line | MGL1905C1438 |
| Sequence | 068 |
| Direction | 155.7 |

| Streamer Parameters | | | | |
|-------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 |
| Length (m) | 5850 | 5850 | 5850 | 5850 |
| Auxiliaries | n/a | n/a | n/a | n/a |
| Shotpoint Interval: (m) | 37.5 | 37.5 | 37.5 | 37.5 |
| Offset CS - CNG (m) | 172 | 172 | 172 | 172 |
| Group Interval: (m) | 12.5 | 12.5 | 12.5 | 12.5 |
| Number of channels | 468 | 468 | 468 | 0 |
| Streamer Depth (m) | 16.0 | 16.0 | 16.0 | 16.0 |
| SOL Cable Noise, µB | | | | |
| EOL Cable Noise, µB | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 3300 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | yes |
| Depth | 12 m |
| Sub-array Separation | 8 m |
| COS to COS | 75 m |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | -160ms |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|------------|
| SP | 971 | 2148 |
| Date MM/DD/YY | 08/08/19 | 08/08/19 |
| Time UTC | 11:04 | 16:01 |
| Volume (cu in.) | 3300/3300 | 3300/3300 |
| Wind (kts) | SW 7.6 kts | SW 7.6 kts |
| Sea State (m) | 0.5 m | 0.5 m |
| Water Depth (m) | 2085.8 m | 2573.8 m |

| Cable | Dead Channels |
|-------|---------------------------|
| 1 | 9,45,189,261 |
| 2 | 1,13,21,45,93,109,117,118 |
| 3 | 1,81,279 |
| 4 | 447,465 |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |

| General / Line Comments |
|-------------------------------------|
| Shooting with Streamers 1 - 3 only. |
| EOL Complete - Last 3D line |
| |
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| |

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|--|
| 11:04 | 76692 | 971 | 198 | SOL MGL1905C1348 - Sce 1: S1-2G5 spare, 3300 in3, 18 guns ; Sce 2: S3G5,S4G4 spare, 3300 in3, 18 guns. |
| 12:54 | 77128 | 1407 | 199 | BOT # 199 |
| 14:44 | 77564 | 1843 | 200 | BOT # 200 |
| 16:01 | 77869 | 2148 | 200 | EOL MGL1905C1348 - Sce 1: S1-2G5 spare, 3300 in3, 18 guns; Sce 2: S3G5,S4G4 spare, 3300 in3, 18 guns |
| | | | | |

Observers Log

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|------------|------------|
| | SOL | EOL |
| Tape # | 201 | 201 |
| SP # | 681 | 827 |

| | |
|------------------|---------------------|
| Line | MGL1905P2007 |
| Sequence | 069 |
| Direction | 335.7 |

| Streamer Parameters | | | | |
|--------------------------|-------|---|---|---|
| | 1 | 2 | 3 | 4 |
| Length (m) | 11700 | | | |
| Auxiliaries | n/a | | | |
| Shotpoint Interval: (m) | 37.5 | | | |
| Offset CS - CNG (m) | 172 | | | |
| Group Interval: (m) | 12.5 | | | |
| Number of channels | 936 | | | |
| Streamer Depth (m) | 16.0 | | | |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 6600 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | no |
| Depth | 12 m |
| Sub-array Separation | 6 m |
| COS to COS | single source |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 14s |
| Total recording delay | 0 |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|----------|------------|
| SP | 681 | 827 |
| Date MM/DD/YY | 08/09/19 | 08/09/19 |
| Time UTC | 08:27 | 09:07 |
| Volume (cu in.) | 6600in3 | 6600in3 |
| Wind (kts) | SE 8 kts | SE 6.6 kts |
| Sea State (m) | 0.5 m | 0.5 m |
| Water Depth (m) | 2406.1 m | 2094.1 m |

| Cable | Dead Channels |
|-------|--------------------------------------|
| 1 | |
| 2 | 1,13,21,45,93,109,117, 469, 549, 747 |
| 3 | |
| 4 | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |

| General / Line Comments |
|---|
| First 2D line |
| EOL early to change record length to 12 sec |
| |
| |
| |
| |
| |
| |
| |

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|-----|------|--|
| 08:27 | 77870 | 681 | 201 | SOL MGL1905P2007 - Sce : S1-4G5 spare, 6600 in3, 36 Guns |
| 08:28 | | 687 | 201 | Missed SP 687 due to vessel speed / record length |
| 08:30 | | 692 | 201 | Missed SP 692 due to vessel speed / record length |
| 08:31 | | 697 | 201 | Missed SP 697 due to vessel speed / record length |
| 08:32 | | 703 | 201 | Missed SP 703 due to vessel speed / record length |
| 08:35 | | 711 | 201 | Missed SP 711 due to vessel speed / record length |
| 08:37 | | 718 | 201 | Missed SP 718 due to vessel speed / record length |
| 08:39 | | 727 | 201 | Missed SP 727 due to vessel speed / record length |
| 08:41 | | 734 | 201 | Missed SP 734 due to vessel speed / record length |
| 08:43 | | 743 | 201 | Missed SP 7243 due to vessel speed / record length |
| 08:46 | | 752 | 201 | Missed SP 752 due to vessel speed / record length |
| 08:49 | | 764 | 201 | Missed SP 764 due to vessel speed / record length |
| 08:52 | | 774 | 201 | Missed SP 774 due to vessel speed / record length |
| 08:55 | | 783 | 201 | Missed SP 783 due to vessel speed / record length |
| 08:57 | | 792 | 201 | Missed SP 792 due to vessel speed / record length |
| 09:00 | | 801 | 201 | Missed SP 801 due to vessel speed / record length |
| 09:02 | | 809 | 201 | Missed SP 809 due to vessel speed / record length |
| 09:04 | | 818 | 201 | Missed SP 818 due to vessel speed / record length |
| 09:06 | | 826 | 201 | Missed SP 826 due to vessel speed / record length |
| 09:07 | 77998 | 827 | 201 | EOL MGL1905P2007 - Sce : S1-4G5 spare, 6600 in3, 36 Guns |
| | | | | |

Observers Log

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|------------|-------------|
| | SOL | EOL |
| Tape # | 202 | 203 |
| SP # | 842 | 2124 |

| | |
|------------------|---------------------|
| Line | MGL1905B2007 |
| Sequence | 070 |
| Direction | 335.7 |

| Streamer Parameters | | | | |
|-------------------------|-------|---|---|---|
| | 1 | 2 | 3 | 4 |
| Length (m) | 11700 | | | |
| Auxiliaries | n/a | | | |
| Shotpoint Interval: (m) | 37.5 | | | |
| Offset CS - CNG (m) | 172 | | | |
| Group Interval: (m) | 12.5 | | | |
| Number of channels | 936 | | | |
| Streamer Depth (m) | 16.0 | | | |
| SOL Cable Noise, µB | | | | |
| EOL Cable Noise, µB | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 6600 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | no |
| Depth | 12 m |
| Sub-array Separation | 6 m |
| COS to COS | single source |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | 0 |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|-----------|------------|
| SP | 842 | 2124 |
| Date MM/DD/YY | 08/09/19 | 08/09/19 |
| Time UTC | 09:11 | 15:01 |
| Volume (cu in.) | 6600in3 | 6600in3 |
| Wind (kts) | SE6.6 kts | SE 2.4 kts |
| Sea State (m) | 0.5 m | 0.5 m |
| Water Depth (m) | 2094.6 m | 2775.6 m |

| Cable | Dead Channels |
|-------|-------------------------------------|
| 1 | |
| 2 | 1,13,21,45,93,109,117,469, 549, 747 |
| 3 | |
| 4 | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |

| General / Line Comments |
|--|
| First 2D line - after change to 12 sec record length |
| EOL Complete |
| |
| |
| |
| |
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| |
| |
| |

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP- First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|--|
| 09:11 | 77999 | 842 | 202 | SOL MGL1905B2007 - Sce : S1-4G5 spare, 6600 in3, 36 Guns |
| 09:28 | | 907 | 202 | Missed SP 907 due to vessel speed / record length |
| 09:38 | | 944 | 202 | Missed SP 944 due to vessel speed / record length |
| 09:44 | | 969 | 202 | Missed SP 969 due to vessel speed / record length |
| 10:14 | | 1078 | 202 | Missed SP 1078 due to vessel speed / record length |
| 13:10 | 78871 | 1718 | 203 | BOT # 203 |
| 15:01 | 79277 | 2124 | 203 | EOL MGL1905B2007 - Sce : S1-4G5 spare, 6600 in3, 36 Guns |
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|---------------|
| Observers Log |
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| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|------------|-------------|
| | SOL | EOL |
| Tape # | 204 | 205 |
| SP # | 826 | 2034 |

| | |
|------------------|---------------------|
| Line | MGL1905P2008 |
| Sequence | 071 |
| Direction | 150.6 |

| Streamer Parameters | | | | |
|--------------------------|-------|---|---|---|
| | 1 | 2 | 3 | 4 |
| Length (m) | 11700 | | | |
| Auxiliaries | n/a | | | |
| Shotpoint Interval: (m) | 37.5 | | | |
| Offset CS - CNG (m) | 172 | | | |
| Group Interval: (m) | 12.5 | | | |
| Number of channels | 936 | | | |
| Streamer Depth (m) | 16.0 | | | |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 6600 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | no |
| Depth | 12 m |
| Sub-array Separation | 6 m |
| COS to COS | single source |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | 0 |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|-----------|----------|
| SP | 826 | 2034 |
| Date MM/DD/YY | 08/09/19 | 08/09/19 |
| Time UTC | 16:44 | 22:16 |
| Volume (cu in.) | 6600in3 | 6600in3 |
| Wind (kts) | S 5.6 kts | S 6 kts |
| Sea State (m) | 0.5 m | 0.5 m |
| Water Depth (m) | 2230.6 m | 2580 m |
| | | |

| Cable | Dead Channels |
|-------|-------------------------------------|
| 1 | |
| 2 | 1,13,21,45,93,109,117,469, 549, 747 |
| 3 | |
| 4 | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|--|
| 16:44 | 79278 | 826 | 204 | SOL MGL1905P2008 - Sce : S1-4G5 spare, 6600 in3, 36 Guns |
| 16:53 | | 860 | 204 | Missed SP 860 due to vessel speed/record length |
| 19:13 | | 1369 | 204 | Missed SP 1369 due to vessel speed/record length |
| 20:44 | 80150 | 1700 | 205 | BOT # 205 |
| 22:16 | 80484 | 2034 | 205 | EOL MGL1905P2008 - Sce : S1-4G5 spare, 6600 in3, 36 Guns |
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|---------------|
| Observers Log |
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| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|------------|-------------|
| | SOL | EOL |
| Tape # | 206 | 207 |
| SP # | 939 | 1911 |

| | |
|------------------|---------------------|
| Line | MGL1905P2009 |
| Sequence | 072 |
| Direction | 295.7 |

| Streamer Parameters | | | | |
|--------------------------|-------|---|---|---|
| | 1 | 2 | 3 | 4 |
| Length (m) | 11700 | | | |
| Auxiliaries | n/a | | | |
| Shotpoint Interval: (m) | 37.5 | | | |
| Offset CS - CNG (m) | 172 | | | |
| Group Interval: (m) | 12.5 | | | |
| Number of channels | 936 | | | |
| Streamer Depth (m) | 16.0 | | | |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 6600 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | no |
| Depth | 12 m |
| Sub-array Separation | 6 m |
| COS to COS | single source |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | 0 |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|-----------|----------|
| SP | 939 | 1911 |
| Date MM/DD/YY | 08/10/19 | 08/10/19 |
| Time UTC | 01:43 | 06:09 |
| Volume (cu in.) | 6600in3 | 6600in3 |
| Wind (kts) | S 4.5 kts | SW 8 kts |
| Sea State (m) | 0.5 m | 0.5 m |
| Water Depth (m) | 2630 m | 1850 m |
| | | |

| Cable | Dead Channels |
|-------|-------------------------------------|
| 1 | |
| 2 | 1,13,21,45,93,109,117,469, 549, 747 |
| 3 | |
| 4 | |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|--|
| 01:43 | 80485 | 939 | 206 | SOL MGL1905P2009 - Sce : S1-4G5 spare, 6600 in3, 36 Guns |
| 05:42 | 81357 | 1811 | 207 | BOT # 207 |
| 06:09 | 81457 | 1911 | 207 | EOL MGL1905P2009 - Sce : S1-4G5 spare, 6600 in3, 36 Guns |
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Observers Log

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|------------|-------------|
| | SOL | EOL |
| Tape # | 208 | 209 |
| SP # | 881 | 1907 |

| | |
|------------------|---------------------|
| Line | MGL1905P2006 |
| Sequence | 073 |
| Direction | 65.7 |

| Streamer Parameters | | | | |
|-------------------------|-------|---|---|---|
| | 1 | 2 | 3 | 4 |
| Length (m) | 11700 | | | |
| Auxiliaries | n/a | | | |
| Shotpoint Interval: (m) | 37.5 | | | |
| Offset CS - CNG (m) | 172 | | | |
| Group Interval: (m) | 12.5 | | | |
| Number of channels | 936 | | | |
| Streamer Depth (m) | 16.0 | | | |
| SOL Cable Noise, µB | | | | |
| EOL Cable Noise, µB | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 6600 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | no |
| Depth | 12 m |
| Sub-array Separation | 6 m |
| COS to COS | single source |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | 0 |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|----------|------------|
| SP | 881 | 1907 |
| Date MM/DD/YY | 08/10/19 | 08/10/19 |
| Time UTC | 09:19 | 13:59 |
| Volume (cu in.) | 6600in3 | 6600in3 |
| Wind (kts) | S 4 kts | SW 6.3 kts |
| Sea State (m) | 0.5 m | 0.5 m |
| Water Depth (m) | 1968 m | 2275.3 m |

| Cable | Dead Channels |
|-------|-------------------------------------|
| 1 | |
| 2 | 1,13,21,45,93,109,117,469, 549, 747 |
| 3 | |
| 4 | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |

| General / Line Comments |
|---|
| SP 904,1543,1574,1614,1671,1705 missed due to speed |
| |
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| |

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP- First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|--|
| 09:19 | 81458 | 881 | 208 | SOL MGL1905P2006 - Sce : S1-4G5 spare, 6600 in3, 36 Guns |
| 09:25 | | 904 | 208 | Missed SP due to vessel speed |
| 12:19 | | 1543 | 208 | Missed SP due to vessel speed |
| 12:27 | | 1574 | 208 | Missed SP due to vessel speed |
| 12:38 | | 1614 | 208 | Missed SP due to vessel speed |
| 12:54 | | 1671 | 208 | Missed SP due to vessel speed |
| 13:03 | | 1705 | 208 | Missed SP due to vessel speed |
| 13:17 | 82330 | 1759 | 209 | BOT # 209 |
| 13:59 | 82478 | 1907 | 209 | EOL MGL1905P2006 - Sce : S1-4G5 spare, 6600 in3, 36 Guns |
| | | | | |
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|---------------|
| Observers Log |
|---------------|

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|------------|-------------|
| | SOL | EOL |
| Tape # | 210 | 210 |
| SP # | 902 | 1747 |

| | |
|------------------|---------------------|
| Line | MGL1905P2004 |
| Sequence | 074 |
| Direction | 245.7 |

| Streamer Parameters | | | | |
|--------------------------|-------|---|---|---|
| | 1 | 2 | 3 | 4 |
| Length (m) | 11700 | | | |
| Auxiliaries | n/a | | | |
| Shotpoint Interval: (m) | 37.5 | | | |
| Offset CS - CNG (m) | 172 | | | |
| Group Interval: (m) | 12.5 | | | |
| Number of channels | 936 | | | |
| Streamer Depth (m) | 16.0 | | | |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 6600 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | no |
| Depth | 12 m |
| Sub-array Separation | 6 m |
| COS to COS | single source |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | 0 |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|------------------------|------------|----------|
| SP | 902 | 1747 |
| Date MM/DD/YY | 08/10/19 | 08/10/19 |
| Time UTC | 15:59 | 19:49 |
| Volume (cu in.) | 6600in3 | 6600in3 |
| Wind (kts) | SW 5.2 kts | SW 7 kts |
| Sea State (m) | 0.5 m | 0.5 m |
| Water Depth (m) | 2193.5 m | 1950 m |
| | | |

| Cable | Dead Channels |
|-------|-------------------------------------|
| 1 | |
| 2 | 1,13,21,45,93,109,117,469, 549, 747 |
| 3 | |
| 4 | |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|---------------------------------------|-----------------------------------|
| <i>SOL/EOL - Start/End of Line</i> | <i>LGSP - Last Good SP</i> |
| <i>FGSP - First Good SP</i> | <i>LCSP - Last Chargeable SP</i> |
| <i>FCSP - First Chargeable SP</i> | <i>LFSP - Last Full Fold SP</i> |
| <i>FOLSP - First Overlap SP</i> | <i>Fa - Feather Angle</i> |
| <i>BOI/EOT - Begin/End of Tape</i> | <i>SI - Seismic Interference</i> |
| <i>NDR - No Data Recorded</i> | <i>ITB - Imitation Time Break</i> |
| <i>NDR - No Data Recorded</i> | <i>ITB - Internal Time Break</i> |
| <i>N.T.B.P. - Not To Be Processed</i> | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|---|
| 15:59 | 82479 | 902 | 210 | SOL MGL1905P2004 - Sce : S1-4G5 spare, 6600 in3, 36 Guns |
| 19:49 | 83324 | 1747 | 210 | EOL MGL1905P2004 - Sce : S1-4G5 spare, 6600 in3, 36 Guns |
| | | | | line interrupted before end of runout after shut-down for protected species |
| | | | | |
| | | | | |
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|----------------------|
| Observers Log |
|----------------------|

| | |
|-------------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|------------|-------------|
| | SOL | EOL |
| Tape # | 211 | 211 |
| SP # | 936 | 1777 |

| | |
|------------------|---------------------|
| Line | MGL1905P2005 |
| Sequence | 075 |
| Direction | 65.7 |

| Streamer Parameters | | | | |
|--------------------------|-------|---|---|---|
| | 1 | 2 | 3 | 4 |
| Length (m) | 11700 | | | |
| Auxiliaries | n/a | | | |
| Shotpoint Interval: (m) | 37.5 | | | |
| Offset CS - CNG (m) | 172 | | | |
| Group Interval: (m) | 12.5 | | | |
| Number of channels | 936 | | | |
| Streamer Depth (m) | 16.0 | | | |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 6600 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | no |
| Depth | 12 m |
| Sub-array Separation | 6 m |
| COS to COS | single source |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | 0 |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|----------|----------|
| SP | 936 | 1777 |
| Date MM/DD/YY | 08/10/19 | 08/11/19 |
| Time UTC | 23:04 | 02:51 |
| Volume (cu in.) | 6600in3 | 6600in3 |
| Wind (kts) | SW 8 kts | SW 7 kts |
| Sea State (m) | 0.5 m | 0.5 m |
| Water Depth (m) | 1750 m | 2200 m |
| | | |

| Cable | Dead Channels |
|-------|-------------------------------------|
| 1 | |
| 2 | 1,13,21,45,93,109,117,469, 549, 747 |
| 3 | |
| 4 | |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|--|
| 23:04 | 83325 | 936 | 211 | SOL MGL1905P2005 - Sce : S1-4G5 spare, 6600 in3, 36 Guns |
| 01:48 | | 1537 | 211 | missed SP 1537 due to speed |
| 02:15 | | 1637 | 211 | missed SP 1637 due to speed |
| 02:37 | | 1720 | 211 | missed SP 1720 due to speed |
| 02:51 | | 1769 | 211 | missed SP 1769 due to speed |
| 02:53 | 84162 | 1777 | 211 | EOL MGL1905P2005 - Sce : S1-4G5 spare, 6600 in3, 36 Guns |
| | | | | |
| | | | | |

| |
|---------------|
| Observers Log |
|---------------|

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|------------|-------------|
| | SOL | EOL |
| Tape # | 212 | 213 |
| SP # | 933 | 1831 |

| | |
|------------------|---------------------|
| Line | MGL1905P2003 |
| Sequence | 076 |
| Direction | 245.7 |

| Streamer Parameters | | | | |
|--------------------------|-------|---|---|---|
| | 1 | 2 | 3 | 4 |
| Length (m) | 11700 | | | |
| Auxiliaries | n/a | | | |
| Shotpoint Interval: (m) | 37.5 | | | |
| Offset CS - CNG (m) | 172 | | | |
| Group Interval: (m) | 12.5 | | | |
| Number of channels | 936 | | | |
| Streamer Depth (m) | 16.0 | | | |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 6600 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | no |
| Depth | 12 m |
| Sub-array Separation | 6 m |
| COS to COS | single source |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | 0 |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|----------|------------|
| SP | 933 | 1831 |
| Date MM/DD/YY | 08/11/19 | 08/11/19 |
| Time UTC | 05:46 | 09:52 |
| Volume (cu in.) | 6600in3 | 6600in3 |
| Wind (kts) | SW 8 kts | SW 4.9 kts |
| Sea State (m) | 0.5 m | 0.5 m |
| Water Depth (m) | 2125 m | 2021.4 m |
| | | |

| Cable | Dead Channels |
|-------|-------------------------------------|
| 1 | |
| 2 | 1,13,21,45,93,109,117,469, 549, 747 |
| 3 | |
| 4 | |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|--|
| 05:46 | 84163 | 933 | 212 | SOL MGL1905P2003 - Sce : S1-4G5 spare, 6600 in3, 36 Guns |
| 09:06 | | 1658 | | Missed SP due to vessel speed/record length |
| 09:16 | | 1695 | | Missed SP due to vessel speed/record length |
| 09:26 | | 1733 | | Missed SP due to vessel speed/record length |
| 09:32 | | 1757 | | Missed SP due to vessel speed/record length |
| 09:45 | | 1806 | | Missed SP due to vessel speed/record length |
| 09:46 | 85035 | 1810 | | BOT #213 |
| 09:50 | | 1823 | | Missed SP due to vessel speed/record length |
| 09:52 | 85055 | 1831 | 213 | EOL MGL1905P2003 - Sce : S1-4G5 spare, 6600 in3, 36 Guns |
| | | | | |
| | | | | |

| |
|----------------------|
| Observers Log |
|----------------------|

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|------------|-------------|
| | SOL | EOL |
| Tape # | 214 | 215 |
| SP # | 871 | 1748 |

| | |
|------------------|---------------------|
| Line | MGL1905P2002 |
| Sequence | 077 |
| Direction | 65.7 |

| Streamer Parameters | | | | |
|--------------------------|-------|---|---|---|
| | 1 | 2 | 3 | 4 |
| Length (m) | 11700 | | | |
| Auxiliaries | n/a | | | |
| Shotpoint Interval: (m) | 37.5 | | | |
| Offset CS - CNG (m) | 172 | | | |
| Group Interval: (m) | 12.5 | | | |
| Number of channels | 936 | | | |
| Streamer Depth (m) | 16.0 | | | |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 6600 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | no |
| Depth | 12 m |
| Sub-array Separation | 6 m |
| COS to COS | single source |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | 0 |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|-----------|-----------|
| SP | 871 | 1748 |
| Date MM/DD/YY | 08/11/19 | 08/11/19 |
| Time UTC | 12:19 | 16:17 |
| Volume (cu in.) | 6600in3 | 6600in3 |
| Wind (kts) | S 3.4 kts | S 8.9 kts |
| Sea State (m) | 0.5 m | 0.5 m |
| Water Depth (m) | 2097.9 m | 2256.5 m |
| | | |

| Cable | Dead Channels |
|-------|-------------------------------------|
| 1 | |
| 2 | 1,13,21,45,93,109,117,469, 549, 747 |
| 3 | |
| 4 | |
| | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|--|
| 12:19 | 85056 | 871 | 214 | SOL MGL1905P2002 - Sce : S1-4G5 spare, 6600 in3, 36 Guns |
| 12:35 | 931 | | 214 | Missed SP due to speed/record length |
| 12:41 | 952 | | 214 | Missed SP due to speed/record length |
| 12:46 | 972 | | 214 | Missed SP due to speed/record length |
| 16:17 | 85928 | 1743 | 215 | BOT #215 |
| 16:17 | 85930 | 1748 | 215 | EOL MGL1905P2002 - Sce : S1-4G5 spare, 6600 in3, 36 Guns |
| | | | | |

| |
|----------------------|
| Observers Log |
|----------------------|

| | |
|------------|----------------------|
| Vessel | Marcus G. Langseth |
| Client | NSF - Arnulf |
| Area | Axial Seamount 2D/3D |
| Job Number | MGL1905 |

| | | |
|-----------------------|---------------------------|-----------------------------|
| Chief Science Officer | Todd Jensvold | |
| Science Officer | David Martinson | |
| Acquisition | Shaun Shaver 00:00-12:00 | Gilles Guerin 12:00-24:00 |
| Navigation | Alan Thompson 00:00-12:00 | David Martinson 12:00-24:00 |

| | | |
|---------------|------------|-------------|
| | SOL | EOL |
| Tape # | 216 | 216 |
| SP # | 953 | 1588 |

| | |
|------------------|---------------------|
| Line | MGL1905P2001 |
| Sequence | 078 |
| Direction | 245.7 |

| Streamer Parameters | | | | |
|--------------------------|-------|---|---|---|
| | 1 | 2 | 3 | 4 |
| Length (m) | 11700 | | | |
| Auxiliaries | n/a | | | |
| Shotpoint Interval: (m) | 37.5 | | | |
| Offset CS - CNG (m) | 172 | | | |
| Group Interval: (m) | 12.5 | | | |
| Number of channels | 936 | | | |
| Streamer Depth (m) | 16.0 | | | |
| SOL Cable Noise, μ B | | | | |
| EOL Cable Noise, μ B | | | | |

| Source Parameters | |
|----------------------|--------------------|
| Total Volume | 6600 in3 |
| Work Pressure | 1950psi +/- 100psi |
| Dual Source | no |
| Depth | 12 m |
| Sub-array Separation | 6 m |
| COS to COS | single source |
| | |

| Recording Parameters | |
|-----------------------|--------------------------|
| Record Length | 12s |
| Total recording delay | 0 |
| Sample Rate | 2ms |
| Polarity | SEGD standard |
| Low-Cut | 3Hz digital, 4.7Hz total |
| Hi-Cut | 200Hz, 370dB/octave |
| File Format | SEGD |

| Description | SOL/FGSP | EOL/LGSP |
|-----------------|------------|----------|
| SP | 953 | 1588 |
| Date MM/DD/YY | 08/11/19 | 08/11/19 |
| Time UTC | 19:24 | 22:14 |
| Volume (cu in.) | 6600in3 | 6600in3 |
| Wind (kts) | W 11.5 kts | SW 6 kts |
| Sea State (m) | 0.5 m | 0.5 m |
| Water Depth (m) | 2380 m | 1785 m |
| | | |

| Cable | Dead Channels |
|-------|-------------------------------------|
| 1 | |
| 2 | 1,13,21,45,93,109,117,469, 549, 747 |
| 3 | |
| 4 | |
| | |

| Auxiliaries | |
|-----------------------|-------|
| Aux. 1-8 | Empty |
| Aux. 13-16 | Empty |
| | |
| | |
| Aux 9 Gun hydrophone | Empty |
| Aux 10 Gun hydrophone | Empty |
| Aux 11 Gun hydrophone | Empty |
| Aux 12 Gun hydrophone | Empty |
| | |

[illegible]

| Abbreviations | |
|--------------------------------|----------------------------|
| SOL/EOL - Start/End of Line | LGSP - Last Good SP |
| FGSP - First Good SP | LCSP - Last Chargeable SP |
| FCSP - First Chargeable SP | LFFSP - Last Full Fold SP |
| FOLSP - First Overlap SP | Fa - Feather Angle |
| BOT/EOT - Begin/End of Tape | SI - Seismic Interference |
| NDR - No Data Recorded | ITB - Imitation Time Break |
| NDR - No Data Recorded | ITB - Internal Time Break |
| N.T.B.P. - Not To Be Processed | |

| Time UTC | FILE | SP | Tape | Description |
|----------|-------|------|------|--|
| 19:24 | 85931 | 953 | 216 | SOL MGL1905P2001 - Sce : S1-4G5 spare, 6600 in3, 36 Guns |
| 21:39 | | 1456 | 216 | Missed SP 1456 because of speed |
| 21:49 | | 1496 | 216 | Missed SP 1496 because of speed |
| 22:14 | 86564 | 1588 | 216 | EOL MGL1905P2001 - Sce : S1-4G5 spare, 6600 in3, 36 Guns |
| | | | | |