All Bottom depths "under the keel" Add 5m



| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 25 | Surveyor | SU-89-1 (ICE) | | | | Spahnberg Mooring recovery |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date JD = 260 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 64 | 54.75 | N | 166 | 06.85 | W | 17 | SEP | 89 | | | 9.9 | 9.6 | 995.3 | | | | 00 | | | 25 | SPAHN89 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | Before CTD on Deck | ~~AFTER CTD at Surface~~ |
|---|---|---|
| Press. | 33928.8 | 33928.7 |
| Temp. | ~~7736.0~~ | 7736.0 |
| Cond. | ~~4790 → 4792~~ | 4790 → 4792 |
| Other | | |

**Times** JD/Time
Data on ____
at Surface ____
Start Down ____
at Bottom ____
Start Up ____
at Surface 260/1555
Data off ____

**Data Location**
Tape/Diskette I.D. ____
File Name/Header SPAHN89.DAT

Remarks Spahnberg Mooring Recovery
Consecutive Casts 1 → 24 ⇒ TSUNAMI PROJECT

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot. Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 13 | | 25 | 1551 | 1552 | | | | | 24.21 | 9.6767 | 23.9627 | 31.1019 | | | 31.108 | 41 | | 1 |
| 2 | | | | | | | | | | | | | | | | | | | 2 |
| 3 | 16 | | 2 | 1553 | 1554 | | | | | 2.29 | 9.7062 | 23.9465 | 31.0877 | | | 31.091 | 46 | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials FG
✓ ____

30 33955



| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 26 | Surveyor | SU-89-2 (ICE) | | | | Anad89 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date JD 263 Day | Mo. | Yr. | Time GMT Hr. | Time GMT Min. | Dry Bulb | Wet Bulb | Bar. mb 1003.3 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 26 | 64 | 02.88 | N | 172 | 13.25 | W | 29 | 9 | 89 | 22 | 02 | 6.1 | 4.8 | 33 | | | 050 | 30 | | | 55 | ANAD89 |

anad89

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | | 8 |
| Temp. | | 6.9 |
| Cond. | | S 32.07 |
| Other | | |

**Times** JD/Time
Data on 2159
at Surface 2159
Start Down 2200
at Bottom 2202
Start Up 2205
at Surface 2212
Data off 2212

1003.3 **Data Location** clear Vis = 10+
Tape/Diskette I.D. ____
File Name/Header ____

Remarks Anadyr CM recovery. Bottles 1 & 2 (deeper casts) did not trip

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | bot | ~~49.18~~ | 2203 | 49.18 | | | | 49.18 | 0.164 | | 32.646 | | | | | | 1 |
| 2 | | | 40 | ~~40.51~~ | 2206 | 40.51 | | | | 40.51 | 0.154 | | 32.643 | | | | | | 2 |
| 3 | | | 25 | ~~25~~ | 2209 | 25.44 | | | | 25.44 | 0.237 | | 32.629 | | | 32.640 | 66 | N61 | 3 |
| 4 | | | 12 | | 2210 | 11.85 | | | | 11.85 | 6.950 | | 32.060 | | | 32.082 | 102 | N62 | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

N-61
N62

Initials LAb
posn ✓ ✓

Turn on tape deck when



| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 27 | Surveyor | SU-89-2 (ICE) | | | | QE6 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date Day | Date Mo. | Date Yr. | Time GMT Hr. | Time GMT Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 27 | 63 | 47.28 | | 171 | 49.30 | | 26 | 09 | 89 | 02 | 19 | 4.9 | 3.9 | | 3 | 10+ | 030 | 24 | | | 25 | QE6 |

CTD
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.931 696 | |
| Temp. | 6968.828 | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 264/0217 |
| at Surface | 264/0217 |
| Start Down | " 0217 |
| at Bottom | " 0219 |
| Start Up | " 0220 |
| at Surface | " 0224 |
| Data off | " |

1003.1 **Data Location** Clear

Tape/Diskette I.D. ____ File Name/Header QE6.

Remarks Inshore station, Bradyr transect 2 bottles

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values ~~Cond.~~ Sal | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 1 ✓ | | 0220 | 23.94 | 3.89 | 32.08 | | | | | | | | 32.092 | 41 | NO1 | 1 |
| 2 | | | 1 | | 0222 | 10.35 | 3.90 | 32.08 | — | | | | | | | 32.083 | 46 | NO2 ~~22~~ | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials CAO ✓

T of S

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 28 | Surveyor | SU-89-2 (ICE) | | | waves 3-4 ft swell 6-8 clear | ~~28~~ QE5 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date Day | Date Mo. | Date Yr. (JD = 269) | Time GMT Hr. | Time GMT Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 28 | 63 | 51.77 | | 171 | 52.99 | | 21 | Sep | 89 | 03 | 28 | 5.6 | 5.0 | 1003.1 | | 10+ | 053 | 20 | | | 33 | QE5 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.542 | |
| Temp. | 6909.384 | |
| Cond. | | |
| Other | | |

**Times**

| | JD/Time |
|---|---|
| Data on | 269 0326 |
| at Surface | 0326 |
| Start Down | 0326 |
| at Bottom | 0328 |
| Start Up | 0329 |
| at Surface | 0331 |
| Data off | |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| | QE5 |

Remarks Averaged 8 pts ?? Wasn't told to. Go back to older version

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 0329 | 30.35 | 1.85 | 32.66 | | | | | | | | 32.665 | 58 | N3 | 1 |
| 2 | | | | | 0330 | 45.53 | 4.74 | 32.09 ~~25.09~~ | | | | | | | | 32.137 | 81 | N4 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials AO ✓

26,808

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 29 | Surveyor | SU-89-2 (ICE) | | | Waves 3-4 swell 6-8 ft Partly Cloudy | QE4 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date Day | Date Mo. | Date Yr. (JD = 264) | Time GMT Hr. | Time GMT Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 29 | 63 | 54.79 | | 172 00.69 | | 21 | Sep | 89 | 04 | 32 | 7.2 | 6.1 | 1003.1 | | 10 | 045 | 24 | | | | 46 | QE4 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.~~833~~ 635 to | |
| Temp. | 6972.1300 | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 264 / 0427 |
| at Surface | 0427 |
| Start Down | 0428 |
| at Bottom | 0431 |
| Start Up | 0432 |
| at Surface | 0434 |
| Data off | 0434 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| | QE4 |

Remarks
top bottle did not trip ← Bottom bottle not tripped.

19 mm
20

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 0432 | 41.94 | 1.70 | 32.83 | | | | | | | | *32.258 | 79 | N5 | 1 |
| 2 | | | | | 0433 | 15.12 | 6.10 | 32.25 | | | | | | | | | | | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials UAO
✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 30 | Surveyor | SU-89-2 (ICE) | | | Clear Waves 3-4 Swell 7-9ft | QE3 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude E or W | Date JD = 263 Day | Mo. | Yr. | Time GMT Hr. | Time GMT Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30 | 63 | 59.45 | | 172 | 08.32 | 21 | Sep | 89 | 05 | 45 | 61 | 50 | 1003.3 | | 10 | 048 | 28 | | | | 50 | QE3 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.729 | |
| Temp. | 6984.8157 | |
| Cond. | | |
| Other | | |

**Times**

| | JD/Time |
|---|---|
| Data on | 263 0544 |
| at Surface | 0544 |
| Start Down | 0544 |
| at Bottom | 0545 40 |
| Start Up | 0546 |
| at Surface | 0548 |
| Data off | 0548 |

**Data Location**
Tape/Diskette I.D. ____
File Name/Header QE3

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values ~~Cond.~~ S | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 0546 | 50.00 | 1.41 | 32.91 | | | | | | | | 32.917 | 51 | N-06 | 1 |
| 2 | | | | | 0547 | 14.01 | 6.78 | 32.13 | | | | | | | | 32.145 | 101 | N-07 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

160 K

156936

Initials LAD ✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 31 | Surveyor | SU-89-1 (ICE) | | | Clear Wave 4-5, swell 7-9 | |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 269 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb 10033 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 31 | 64 | 00.37 | | 172 | 16.90 | 26 | Sep | 89 | 06 | 37 | 5.6 | 4.8 | | | | 040 | 28 | | | | 53 | QE2A |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.696 | |
| Temp. | 6957.560 | |
| Cond. | | |
| Other | | |

**Times**

| | JD/Time |
|---|---|
| Data on | 269 0636 |
| at Surface | 0636 |
| Start Down | 0636 |
| at Bottom | 0637 |
| Start Up | 0638 |
| at Surface | 0640 |
| Data off | 0640 |

**Data Location**

Tape/Diskette I.D. ____
File Name/Header QE2A

Remarks Reading not updating on cast QE2 – shut everything down, brought it back up + restarted cast

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot. Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 638 | 50.60 | 0.580 | 32.792 | | | | | | | | 32.799 | 75 | N08 | 1 |
| 2 | | | | | 0639 | 11.89 | 7.165 | 32.022 | | | | | | | | 32.040 | 100 | N09 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials LAO

160952

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| | Surveyor | SU-89-1 (ICE) | | | Clear waves 4-5 swell 7-9 ft | QE1 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 269 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb 1003.3 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 32 | 64 03 | 54 N | 172 | 25 42 | W 21 | 5e | 89 | 07 | 37 | — | — | | | 10 | 040 | 2P | | | 51 | QE1 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928, 729 | |
| Temp. | 68 35.443 | |
| Cond. | | |
| Other | | |

**Times**

| | JD/Time |
|---|---|
| Data on | 269 0736 |
| at Surface | 0736 |
| Start Down | 0736 |
| at Bottom | 0737 |
| Start Up | 0739 |
| at Surface | 0740 |
| Data off | 0740 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| | QE1 |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 737 | 49.53 | 1.053 | 32.905 | | | | | | | | 32.909 | 78 | N10 | 1 |
| 2 | | | | | 739 | 11.07 | 7.128 | 32.058 | | | | | | | | 32.072 | 87 | N11 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

162408

Initials LAD

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| | Surveyor | SU-89-2 (ICE) | | | CLDY | BERSMOR.DAT |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date JD = 265 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 33 | 65 | 42.90 | N | 168 17.02 | W | 22 | SEP | 89 | 17 | 59 | 04.4 | 03.0 | 1002.0 | | 10 | 045 | 28 | | | | 44 | BERSMOR |

| CTD | |
|---|---|
| Type & SN | |
| Press. SN | |
| Temp. SN | |
| Cond. SN | |

| Monitor Checks | on Deck | at Surface |
|---|---|---|
| Press. | 33928.931 | |
| Temp. | 6859.00 | |
| Cond. | | |
| Other | | |

| Times | JD/Time |
|---|---|
| Data on | |
| at Surface | 1758 |
| Start Down | 1759 |
| at Bottom | 1800 |
| Start Up | 1801 |
| at Surface | 1803 |
| Data off | |

| Data Location | |
|---|---|
| Tape/Diskette I.D. | File Name/Header |
| | |
| | |
| | |

Remarks: Bering East '88 Mooring site

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot. Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | 10 | 18:01 | | | | | 37.90 | 7.5395 | 22.6206 | 28.9905 | | | 29.023 | 66 | N-12 | 1 |
| 2 | | | | | 18:02 | | | | | 16.41 | 8.5174 | 21.8990 | 28.2390 | | | 28.246 | 102 | N-13 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials: WJB

✓

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 34 | Surveyor | SU-89-2 (ICE) | | | CLDY. | QD1 Bering Strait |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date JD = 265 Day | Mo. | Yr. | Time GMT Hr. | Time GMT Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 34 | 65 | 40 | N | 168 | 10 | W | 22 | SEP | 89 | 19 | 31 | 04 | 03 | 1001.4 | | | 055 | 27 | | | | 21 | QD1 |

CTD
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.570 | |
| Temp. | 6745.00 | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 1930 |
| Start Down | 1930 |
| at Bottom | 1931 |
| Start Up | 1932 |
| at Surface | 1935 |
| Data off | 1935 |

**Data Location**

~~Tape~~/Diskette I.D. Bering Strait

File Name/Header QD1.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. (Nutrient) | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 1933 | | | | | 18.23 | 8.2205 | 21.8657 | 28.1440 | | | 28.157 | 41 | N-14 | 1 |
| 2 | | | | | 1934 | | | | | 9.43 | 8.1902 | 21.6614 | 27.8780 | | | 27.756 | 46 | N-15 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WJB

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 35 | Surveyor | SU-89-2 (ICE) | | | WX1 CLOUDY | QD2 Bering Strait |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date Day | Date Mo. | Date Yr. | Time GMT Hr. | Time GMT Min. | Dry Bulb | Wet Bulb | Bar. mb 1002.2 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 35 | 65 | 41.20 | N | 168 | 19.91 | W | 22 | SEP | 89 | 20 | 29 | 08.4 | 04.3 | | | | 055 | 22 | | | | 45 | QD2 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.813 | |
| Temp. | 6903.3 | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on 2027
at Surface 2026
Start Down 2027
at Bottom 2029
Start Up 2030
at Surface 2032
Data off ____

**Data Location**
Tape/Diskette I.D. Bering Strait
File Name/Header QD2.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 2030 | | | | | 41.76 | 8.6417 | 23.4541 | 30.2486 | | | 30.231 | 58 | N-16 | 1 |
| 2 | | | | | 2031 | | | | | 10.35 | 8.5833 | 21.0588 | 27.1765 | | | 27.283 | 81 | N-17 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WJB
✓ ____

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 36 | Surveyor | SU-89-2 (ICE) | | | CLOUDY | QD3 Bering Strait |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 36 | 65 | 42.10 | N | 168 | 30 W | 22 | SEP | 89 | 21 | 37 | 05.0 | 03.8 | 1002.1 | | | 050 | 22 | | | | 53 | QD3 |

JD = 265

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.460 | |
| Temp. | 6888.5 | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on ____
at Surface 2134
Start Down 2134
at Bottom 2137
Start Up 2138
at Surface 2141
Data off ____

**Data Location**
~~Tape~~/Diskette I.D. Bering Strait
File Name/Header QD3.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 2138 | | | | | 46.20 | 7.7969 | 24.2145 | 31.0653 | | | 31.069 | 79 | N-18 | 1 |
| 2 | | | | | 2140 | | | | | 9.73 | 8.5760 | 21.4479 | 27.6729 | | | 27.680 | 101 | N-19 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WJB
✓ ____

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 37 | Surveyor | SU-89-2 (ICE) | | | Cloudy waves 2-3 ft swell 2-5 | QD4 Bering Strait |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 265 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 37 | 65 | 43.04 | N | 168 | W | 22 | 09 | 89 | 22 | 34 | 5.1 | 4.4 | 1002.2 | | 10 | 026 | 22 | | | | 47 | QD4 |

CTD
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.578 (6916) | |
| Temp. | 6917.741 | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 265/2231 47 |
| at Surface | 2231 |
| Start Down | 2231 |
| at Bottom | 2234 |
| Start Up | 2235 |
| at Surface | 2237 |
| Data off | 2237 |

**Data Location** 47-49

~~Tape~~/Diskette I.D. Bering Strait

File Name/Header QD4.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 2234 | | | | | 44.07 | 6.659 | | 31.584 | | | 31.580 | 51 | N20 | 1 |
| 2 | | | | | 2236 | | | | | 4.07 | 8.279 | | 28.370 | | | 28.351 | 100 | N21 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials LAG
✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| | Surveyor | SU-89-1 (ICE) | | | Overcast waves 2-3 swell 3-5 | QD5 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | Min. | E or W | Date JD = 265 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 38 | 65 | 43.60 | | 168 | 40.30 | | 22 | Sep | 89 | 23 | 29 | 5.0 | 4.0 | 1002.2 | | 10 | 020 | 28 | | | | 49 | QD5 |

CTD
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33978.578 | |
| Temp. | 6911.712 | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 265 / 2327 |
| at Surface | 2327 |
| Start Down | 2327 |
| at Bottom | 2329 |
| Start Up | 2330 |
| at Surface | 2333 |
| Data off | 2333 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| Bering Strait CTDs | QD5 |

Remarks 4 bottles - Bongo tow will be done here

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot.Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 2329 | | | | | 46.40 | 4.114 | | 32.250 | | | 32.180 | 75 | N22 | 1 |
| 2 | | | | | 2330 | | | | | 35.34 | 5.263 | | 31.906 | | | 31.911 | 78 | N23 | 2 |
| 3 | | | | | 2331 | | | | | 22.42 | 6.075 | | 31.780 | | | 31.793 | 87 | N24 | 3 |
| 4 | | | | | 2332 | | | | | 8.24 | 7.855 | | 30.239 | | | 30.166 | 95 | N25 | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

216238

Initials VAO
✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 39 | Surveyor | SU-89-1 (ICE) | | | Overcast Waves 2-3 Swell 2-5 | |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 266 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb 1002.2 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 39 | 65 | 45.30 | N | 168 | 52.40 | W | 23 | 09 | 89 | 00 | 14 | 5.0 | 4.0 | | | 10 | 020 | 28 | | | 42 | QD6 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.578 | |
| Temp. | 6876.949 | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 266/0013 |
| at Surface | 0013 |
| Start Down | 0013 |
| at Bottom | 0014 |
| Start Up | 14 |
| at Surface | 0017 |
| Data off | 0017 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| Bering Strait | QD6 |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 0015 | | | | | 36.61 | 4.004 | | 32.315 | | | 32.363 | 39 | N26 | 1 |
| 2 | | | | | 0016 | | | | | 8.07 | 6.194 | | 31.654 | | | 31.678 | 69 | N27 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

144 360

Initials Sato ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 40 | Surveyor | SU-89-2 (ICE) | | | partly cloudy - vis. 10nm + 1-3' sea 3-5' swell | HOPE CANYON MOORING SITE |

| Consec. Cast # | Latitude Deg. | Min | N or S | Longitude Deg. | Min | E or W | Date JD = 266 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 40 | 68 | 00.87 | N | 168 | 59.46 | W | 23 | SEP | 89 | 1810 | | 0037 | 0255 | 1004.3 | | | 050 | 12 | | | | 0054 | HOPE_MOR |

HOPE_MOR

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.846 | |
| Temp. | 6738.789 | |
| Cond. | | |
| Other | | |

**Times**

| | JD/Time |
|---|---|
| Data on | 1809 |
| at Surface | 1809 |
| Start Down | 1809 |
| at Bottom | 1810 |
| Start Up | 1811 |
| at Surface | 1815 |
| Data off | 1815 |

**Data Location**

~~Tape~~/Diskette I.D. Hope Canyon etc.

File Name/Header HOPE_MOR.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. (Nutrient) | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 1810 | | | | | 52.23 | 2.0463 | 26.3553 | 32.9863 | | | 32.994 | 41 | N-28 | 1 |
| 2 | | | | | 1812 | | | | | 35.25 | 2.0926 | 26.3142 | 32.9394 | | | 32.995 | 46 | N-29 | 2 |
| 3 | | | | | 1813 | | | | | 21.68 | 2.0556 | 26.3516 | 32.9828 | | | 32.990 | 66 | N-30 | 3 |
| 4 | | | | | 1814 | | | | | 10.09 | 5.0796 | 24.1453 | 30.5555 | | | 30.509 | 102 | N-31 | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WJB ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 41 | Surveyor | SU-89-2 (ICE) | | | CLOUDY, 3 ft sea 8 ft swell | QA1A Cape Lisburne closest to Beach |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date JD = 267 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb 1003.2 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 41 | 68 | 52.55 | N | 166 | 18.24 | W | 24 | SEP | 89 | 03 | 00 | 03.2 | 02.0 | | | 050 | 20 | | | | 19 | QA1A |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.472 | |
| Temp. | 7067.-- | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on ____
at Surface 0258
Start Down 0259
at Bottom 0300
Start Up 0300
at Surface 0302
Data off ____

**Data Location**
Tape/Diskette I.D.: Hope Canyon / Cape Lisburne
File Name/Header: QA1A.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot.Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. (Nutrient) | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 0300 | | | | | 19.58 | 5.4842 | 24.6756 | 31.2816 | | | 31.267 | 58 | N-32 | 1 |
| 2 | | | | | 0301 | | | | | 9.42 | 5.7061 | 24.3552 | 30.9082 | | | 30.937 | 81 | N-33 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WJB
✓ JB

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 42 | Surveyor | SU-89-2 (ICE) | | | wave 3-4, swell 7-9 PC | QA1B |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD =267 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 42 | 68 | 54.54 | N | 166 39.24 | W | 24 | 10 | 89 | 04 | 07 | 03.00 | 02.4 | 1003.1 | | 10 | 045 | 25 | | | | 40 | QA1B |

CTD
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.460 | |
| Temp. | 6612.349 | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 267/ |
| at Surface | 0405 |
| Start Down | 0405 |
| at Bottom | 407 |
| Start Up | 0408 |
| at Surface | 409 |
| Data off | 409 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| | QA1B.DAT |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 0407 | | | | | 40.05 | 5.717 | - | 31.682 | | | 31.690 | 79 ~~58~~ | N34 | 1 |
| 2 | | | | | 0408 | | | | | 10.00 | 5.761 | | 31.148 | | | 31.174 | 101 ~~81~~ | N35 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

146 520

Initials VD
✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 43 | Surveyor | SU-89-2 (ICE) | | | CLOUDY VIS .10NM 3' sea 7' swell | QA2 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 267 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 43 | 68 | 54.42 | N | 167 | 47 W | 24 | SEP | 89 | 05 | 28 | 03.4 | 02.9 | 1003.1 | | | 040 | 20 | | | | 40 | QA2 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.343 | |
| Temp. | 6576.11 | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 0527 |
| Start Down | 0528 |
| at Bottom | 0530 |
| Start Up | 0530 |
| at Surface | 0531 |
| Data off | 0531 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| Cape Lisburne | QA2.DAT |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 0529 | | | | | 41.27 | 4.7062 | 25.4205 | 32.1149 | | | 32.068 | 51 | N-36 | 1 |
| 2 | | | | | 0531 | | | | | 10.95 | 5.7084 | 24.6110 | 31.2323 | | | 31.242 | 100 | N-37 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WMB

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 44 | Surveyor | SU-89-2 (ICE) | | | CLOUDY 3' Sea 7' Swell | QA3 Cape Lisburne |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 267 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb 1003.2 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 44 | 68 | 54.36 | N | 167 | 35.52 | 24 | SEP | 89 | 07 | 02 | 03.1 | 02.5 | | | | 040 | 23 | | | | 43 | QA3 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on 0700
at Surface 0700
Start Down 0700
at Bottom 0702
Start Up 0702
at Surface 0704
Data off ____

**Data Location**
Tape/Diskette I.D.: Cape Lisburne
File Name/Header: QA3.DAT

Remarks

SST 5.4

| Pos. | Bot | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 0702 | | | | | 41.38 | 3.4663 | 25.8675 | 32.5236 | | | 32.526 | 75 | N-38 | 1 |
| 2 | | | | | 0704 | | | | | 15.23 | 5.4476 | 24.6426 | 31.2347 | | | 31.252 | 78 | N-39 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WJB
✓ WJB

8:92



| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 45 | Surveyor | SU-89-2 (ICE) | | | | QA4 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 267 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 45 | 68 | 54.00 | | 168 | 04.00 | 24 | SEP | 89 | 08 | 27 | | | | | | | | | | 46 | QA4 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.578 | |
| Temp. | (7930.152) | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on 267/0825
at Surface 0825
Start Down 0825
at Bottom 0827
Start Up 0827
at Surface 0829
Data off ____

**Data Location**
Tape/Diskette I.D.: Cape Lisburne
File Name/Header: QA4

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot. Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 0826 | | | | | 45.15 | 3.497 | | 32.517 | | | 32.499 | 87 | N40 | 1 |
| 2 | | | | | 0828 | | | | | 11.55 | 5.243 | | 31.274 | | | 31.354 | 95 | N41 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

152,352

Initials LAO

150



| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 46 | Surveyor | SU-89-1 (ICE) | | | PCL wave 2-4 swell 6-8 | QA5 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 267 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb 1003.0 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 46 | 68 | 54.24 | | 168 | 31.67 | 24 | SEP | 89 | 09 | 54 | 3.5 | 2.0 | | | | 035 | 26 | | | | 48 | QA5 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.468 | |
| Temp. | 7133.501 | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 267/0952 |
| at Surface | 0952 |
| Start Down | 0952 |
| at Bottom | 0954 |
| Start Up | 0954 |
| at Surface | 0956 |
| Data off | 0956 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| Cape Lisburne | QA5 |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 0954 | | | | | 48.15 | 4.15 | | 32.24 | | | 32.247 | 69 | N42 | 1 |
| 2 | | | | | 0955 | | | | | 11.76 | 4.96 | | 31.52 | | | 31.561 | 39 | N43 | 2 |
| 3 | | | | | 0956 | | | | | 4.75 | 4.93 | | 31.55 | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

152 352

Initials UPO

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 47 | Surveyor | SU-89-1 (ICE) | | | pcl | QA6 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 267 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb 1003.2 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 47 | 68 | 53.90 | | 168 | 59.40 | 24 | SEP | 89 | 11 | 19 | 30 | 25 | | | 104 | 037 | 23 | | | | 48 | QA6 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.460 | |
| Temp. | 6653.2037 | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 267/1118 |
| at Surface | 1118 |
| Start Down | 1118 |
| at Bottom | 1119 |
| Start Up | 1120 |
| at Surface | 1123 |
| Data off | 1124 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| Cape Liz-2 | QA6.DAT |

Remarks Cape Liz-7 had only 203 K 6ft - this was 212 K+

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 1119 | | | | | 48.20 | 4.144 | | 32.193 | | | 32.199 | 25 | N-44 | 1 |
| 2 | | | | | 1120 | | | | | 34.71 | 4.213 | | 32.133 | | | 32.139 | 44 | N-45 | 2 |
| 3 | | | | | 1122 | | | | | 20.06 | 4.292 | | 32.069 | | | 32.067 | 73 | N-46 | 3 |
| 4 | | | | | 1123 | | | | | 9.47 | 4.386 | | 31.967 (.979) | | | 31.977 | 83 | N47 | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

problem 212,160

Initials LAD ✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 48 | Surveyor | SU-89-2 (ICE) | | | VIS. 10 NM CLOUDY 3' sea 8' swell | Cape Lisburne Mooring Site |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date JD = Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 48 | 69 | 30 | 07 | N 169 | 00 | 34 | W | 24 | SEP | 89 | 20 | 05 | 019 | 012 | | | 055 | 26 | | | 48 | CLIS_MOR |

1002.5

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.578 | |
| Temp. | 6719.416 | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 2003 |
| Start Down | 2003 |
| at Bottom | 2005 |
| Start Up | 2005 |
| at Surface | 2009 |
| Data off | |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| Cape Lis. #5 | CLIS_MOR.DAT |

Remarks

Notrient

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 2005 | | | | | 46.24 | 4.9257 | 25.4833 | 32.2237 | | | 32.220 | 41 | N-48 | 1 |
| 2 | | | | | 2006 | | | | | 40.88 | 4.9827 | 25.4707 | 32.2156 | | | 32.219 | 46 | N-49 | 2 |
| 3 | | did not trip | | | 2008 | | | | | 29.02 | #3 DID NOT TRIP | | | | | | | N-50 | 3 |
| 4 | | | | | 2009 | | | | | 14.77 | 5.7759 | 23.5455 | 29.8931 | | | 29.898 | 102 | N-51 | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WJB ✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 49 | Surveyor | SU-89-1 (ICE) | | | Vis. 10nm Overcast 3'sea 7'swell OSST | HANNA TROUGH MOORING SITE |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 268 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb 1003.2 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 49 | 70 | 30.5 | N | 167 27.7 | W | 25 | SEP | 89 | 14 | 14 | 00.3 | 00.0 | | | | 040 | 19 | | | | 45 | HANN_MOR |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.472 | |
| Temp. | 6362.732 | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on ____
at Surface ____
Start Down 1411
at Bottom 1414
Start Up 1414
at Surface 1420
Data off ____

**Data Location**
~~Tape/~~Diskette I.D. Cape Lisburne #4
File Name/Header HANN_MOR.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 1414 | | | | | 45.35 | 1.4918 | 26.1285 | 32.6544 | | | 32.655 | 41 | N-52 | 1 |
| 2 | | | | | 1415 | | | | | 30.81 | 4.5359 | 25.1326 | 31.7296 | | | 31.774 | 46 | N-53 | 2 |
| 3 | | | | | 1417 | | | | | 21.62 | 4.2982 | 24.9228 | 31.4353 | | | 31.467 | 66 | N-54 | 3 |
| 4 | | | | | 1418 | | | | | 10.24 | 4.0157 | 24.7524 | 31.1865 | | | 31.186 | 102 | N-55 | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

4.0

Initials WJB
✓ WJB

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 50 | Surveyor | SU-89-1 (ICE) | | | 3' sea, 6' swell CLOUDY, Light snow | ICY CAPE MOORING '88 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date JD = 269 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 50 | 70 | 18.79 | N | 164 51.63 | W | 26 | SEP | 89 | 00 | 31 | 00.0 | -01 | 1003.1 | | | 060 | 18 | | | | 40 | ICY_MOR.DAT |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on ____
at Surface 0028
Start Down 0028
at Bottom 0030
Start Up 0031
at Surface 0036
Data off ____

**Data Location**
~~Tape~~/Diskette I.D. #5
File Name/Header ICY_MOR.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot.Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 0030 | | | | | 40.58 | -1.2713 | 26.1282 | 32.4910 | | | 32.500 | 58 | N-50 | 1 |
| 2 | | | | | 0031 | | | | | 26.04 | -1.2670 | 26.1266 | 32.4893 | | | 32.491 | 79 | N-56 | 2 |
| 3 | | | | | 0033 | | | | | 16.31 | -1.2466 | 26.1184 | 32.4799 | | | 32.486 | 81 | N-57 | 3 |
| 4 | | | | | 0034 | | | | | 9.83 | 0.0129 | 25.5459 | 31.8285 | | | 31.860 | 101 | N-58 | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WJB
✓

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 51 | Surveyor | SU-89-1 (ICE) | | | CLOUDY 1' sea 2' swell VIS. 7NM | QR1 at beach No. 8 Warm Wright |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date JD = 269 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb 1004.5 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 51 | 70 | 51.23 | N | 159 | W | 26 | SEP | 89 | 12 | 36 | -1.000 | 0.000 | | | | 040 | 14 | | | 19 | QR1 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.460 | |
| Temp. | 6585.650 | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on ____
at Surface 1235
Start Down 1235
at Bottom 1236
Start Up 1236
at Surface 1238
Data off ____

**Data Location**
Tape/Diskette I.D. ____
File Name/Header QR1.DAT

Remarks

-0.8

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot. Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 1236 | | | | | 19.16 | -1.1176 | 26.7059 | 33.2092 | | | 33.181 | 51 | N-59 | 1 |
| 2 | | | | | 1237 | | | | | 9.96 | -1.1125 | 26.7026 | 33.2053 | | | 33.205 | 10D | N-60 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WJB
✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 52 | Surveyor | SU-89-1 (ICE) | | | Snow, cloudy calm sea, 2' swell | QR2 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 269 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb 1005.1 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 52 | 71 | 00.06 | N | 159 | 42.43 | W | 26 | SEP | 89 | 14 | 04 | -02.0 | 00.0 | | | 050 | 12 | | | | 65 | QR2 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.305 | |
| Temp. | 6400.-- | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on ____
at Surface 1400
Start Down 1400
at Bottom 1405
Start Up 1406
at Surface 1410
Data off ____

**Data Location**
~~Tape~~/Diskette I.D. #6
File Name/Header QR2.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 1405 | | | | | 65.03 | | | | | | 32.860 | 75 | N-63 | 1 |
| 2 | | | | | 1410 | | | | | 14.67 | | | | | | 32.585 | 78 | N-64 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WJB

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 53 | Surveyor | SU-89-2 (ICE) | | | snowing | QR3 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | Min. | E or W | Date JD = 269 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 53 | 71 | 9 | N | 159 | 56 | W | 26 | SEP | 89 | 15 | 57 | 000 | 000 | 05 | | 5 | | | | | 69 | QR3 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 1550 |
| Start Down | 1551 |
| at Bottom | 1556 |
| Start Up | 1557 |
| at Surface | 1603 |
| Data off | |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #6 | QR3.DAT |

Remarks

CTD 0.2°

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 69 | | 1556 | | | | | 68.99 | -1.2544 | 26.0709 | 32.4211 | | | 32.428 | 87 | N-65 | 1 |
| 2 | | | 16 | | 1558 | | | | | 15.89 | -0.3044 | 25.5151 | 31.778 | | | 31.778 | 95 | N-66 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WJB
✓

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 54 | Surveyor | SU-89-1 (ICE) | | | | QR4 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date JD = 269 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 54 | 71 | 18.07 | N | 160 11.68 | W | 26 | 09 | 89 | 17 | 23 | 05 | 02 | 06 | | | 081 | 17 | | | | 48 | QR4 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.6 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on ____
at Surface 269/
Start Down ____
at Bottom 17:23
Start Up 17:24
at Surface 17:28
Data off ____

**Data Location**
Tape/Diskette I.D. ____ File Name/Header ____

Remarks bongo after this CTD

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot.Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | 49 | 1723 | | | | | 48.99 | -1.6552 | 26.1884 | 32.5532 | | | 32.563 | 39 | N-67 | 1 |
| 2 | | | | 6 | 1726 | | | | | 5.74 | 3.4864 | 23.8266 | 29.962 | | | 29.972 | 69 | N-68 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ____
✓ ✓

Pg. ____ of ____

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 55 | Surveyor | SU-89-1 (ICE) | | | | QR5 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date Day | Date Mo. | Date Yr. | JD = 269 | Time GMT Hr. | Time GMT Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 55 | | | N | | W | 26 | 09 | 89 | | 19 | 13 | | | | | | | | | | 45 | QR5 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.4 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 1910 |
| Start Down | 1911 |
| at Bottom | 1913 |
| Start Up | 1914 |
| at Surface | |
| Data off | |

**Data Location**
Tape/Diskette I.D. ____
File Name/Header QR5.DAT

Remarks Not Used

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | | | | | | | | | | 1 |
| 2 | | | | | | | | | | | | | | | | | | | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ____
✓ ____

Pg. ____ of ____

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 56 | Surveyor | SU-89-1 (ICE) | | | | QR5A |

| Consec. Cast # | Latitude Deg. | Min | N or S | Longitude Deg. | E or W | Date Day | Mo. | Yr. (JD = 269) | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 56 | 71 | 27 | 25 | N | 160 | 27 | 58 | W | 26 | 09 | 89 | 19 | 36 | 15 | | 02 | 5 | 12 | | | 47 | QR5A |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 339 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on ____
at Surface 1931
Start Down 1932
at Bottom 1934
Start Up 1935
at Surface 1938
Data off ____

**Data Location**
Tape/Diskette I.D. #6
File Name/Header QR5A.DAT

Remarks re-do cast / 55 out

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot. Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 47 | 1934 | 1934 | | | | | 47.26 | -1.6375 | 26.1724 | 32.5339 | | | 32.544 | 25 | N-69 | 1 |
| 2 | | | 8 | 1936 | 1936 | | | | | 8.47 | 3.3447 | 23.9099 | 30.0523 | | | 30.071 | 44 | N-70 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ____

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 57 | Surveyor | SU-89-1 (ICE) | | | w s 41-(1-3) 0cast | QR6 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date Day | Mo. | Yr. (JD = 269) | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 57 | 71 | 37.08 | | 160 | 42.84 | 26 | Sep | 89 | 20 | 54 | -01 | -05 | 1009.2 | | 10+ | 055 | 10 | | | | 47 | QR6 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.460 | |
| Temp. | 6203.227 | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 269 2053 |
| at Surface | 2053 |
| Start Down | 2053 |
| at Bottom | 2054 |
| Start Up | 2055 |
| at Surface | 2056 |
| Data off | 2056 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #7 | QR6 |
| QR6- | |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 2054 | | | | | 46.43 | -1.429 | | 32.432 | | | 32.430 | 51 | Q-651 | 1 |
| 2 | | | | | 2055 | | | | | 9.65 | 2.136 | | 29.482 | | | 29.489 | 100 | Q-652 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials VAG

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 58 | Surveyor | SU-89-1 (ICE) | | | PC <1, 1-3> | QR7A |

| Consec. Cast # | Latitude Deg. Min. N or S | Longitude Deg. E or W | Date JD = 269 Day Mo. Yr. | Time GMT Hr. Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 58 | 71 45.18 | 160 59.00 | 26 Sep 89 | 22 12 | -01 | -05 | 1009.5 | | 10+ | 060 | 12 | | | | 40 | QR7A |

| CTD | |
|---|---|
| Type & SN | |
| Press. SN | |
| Temp. SN | |
| Cond. SN | |

| Monitor Checks | on Deck | at Surface |
|---|---|---|
| Press. | 33928.384 | |
| Temp. | 6427.394 | |
| Cond. | | |
| Other | | |

| Times | JD/Time |
|---|---|
| Data on | 269/2211 |
| at Surface | 2211 |
| Start Down | 2211 |
| at Bottom | 2212 |
| Start Up | 2213 |
| at Surface | 2214 |
| Data off | |

| Data Location | |
|---|---|
| Tape/Diskette I.D. | File Name/Header |
| #7 | QR7A |

Remarks Pushed Reset while Seasave already on - program did its averaging routine - restarted as QR7A

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 2212 | | | | | 39.88 | -1.002 | | 32.347 | | | 32.352 | 101 | Q654 | 1 |
| 2 | | | | | 2213 | | | | | 10.04 | 1.349 | | 27.926 | | | 27.933 | 81 | Q653 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

150,432

Initials LPO ✓

4 bottles



| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 59 | Surveyor | SU-89-1 (ICE) | | | <1, 1-3, PC Cloudy | |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 269 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 59 | 71 | 54.18 | | 161 | 14.72 | 26 | 09 | 89 | 23 | 50 | -0.06 | -0.04 | 1009.6 | | 10+ | 055 | 11 | | | | 36 | QR8 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.365 | |
| Temp. | 6333.217 | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 269 / 2348 |
| at Surface | 2348 |
| Start Down | 2348 |
| at Bottom | 2350 |
| Start Up | 2350 |
| at Surface | 2355 |
| Data off | 2355 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #7 | QR8 |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 2350 | | | | | 35.50 | -0.744 | | 32.352 | | | 32.355 | 41 | N-655 | 1 |
| 2 | | | | | 2351 | | | | | 27.22 | -0.747 | | 32.351 | | | 32.349 | 46 | N-656 | 2 |
| 3 | | | | | 2353 | | | | | 16.07 | 3.760 | | 30.948 | | | 30.587 | 58 | N-657 | 3 |
| 4 | | | | | 2354 | | | | | 9.16 | 0.978 | | 28.330 | | | 28.556 | 85 | N-658 | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

263.222 0.86

Initials UO
✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 60 | Surveyor | SU-89-1 (ICE) | | | U/S 10 NM Partly Cloudy 1' sea 1' swell | |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 270 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 60 | 72 | 02 | N | 16 | W | 27 | SEP | 89 | 01 | 32 | 00 | 00 | 1010.3 | | | 070 | 14 | | | 27 | QR9A |

work do 9B 9C etc. until reach ice edge

| CTD | |
|---|---|
| Type & SN | |
| Press. SN | |
| Temp. SN | |
| Cond. SN | |

| Monitor Checks | on Deck | at Surface |
|---|---|---|
| Press. | | |
| Temp. | | |
| Cond. | | |
| Other | | |

| Times | JD/Time |
|---|---|
| Data on | 270/ |
| at Surface | |
| Start Down | |
| at Bottom | |
| Start Up | |
| at Surface | |
| Data off | |

| Data Location | |
|---|---|
| ~~Tape~~/Diskette I.D. | File Name/Header |
| #7 | QR9A.DAT |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. (Nutrient) | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 0131 | | | | | 27.10 | -0.8061 | | 32.3339 | | | 32.316 | 53 | Q-659 | 1 |
| 2 | | | | | 0133 | | | | | 9.69 | 0.4376 | | 28.1787 | Bottom of Niskin Bottle | | | | stuck open | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WPB

✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 61 | Surveyor | SU-89-1 (ICE) | | | 10+ <1' sea 1' swell partly cloudy | |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date JD = 272 Day | Mo. | Yr. | Time GMT Hr. | Time GMT Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 61 | 72 | 12 | 10 | N 161 | 44.50 | W | 27 | SEP | 89 | 02 | 51 | 00.0 | 00.0 | 1010.8 | | | 090 | 10 | | | 32 | QR9B |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.460 | |
| Temp. | 6167.507 | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on ____
at Surface 0250
Start Down 0250
at Bottom 0251
Start Up 0252
at Surface 0255
Data off ____

**Data Location**
Tape/Diskette I.D. #7
File Name/Header QR9B.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 0251 | | | | | 32.36 | -0.8791 | | 32.3636 | | | 32.369 | 42 | Q660 | 1 |
| 2 | | | | | 0253 | | | | | 10.05 | 0.3775 | | 28.2673 | | | 28.247 | 56 | Q661 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials NMB
✓ ____

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 62 | Surveyor | SU-89-1 (ICE) | | | | QR9C |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date JD = 270 Day | Mo. | Yr. | Time GMT Hr. | Time GMT Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 62 | 72 | 21 | 01 | N | 161 58 | 01 | W | 27 | SEP | 89 | 04 | 05 | -03 | -18 | 11 | | | 095 | 08 | | | | 35 | QR9C |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.37 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 270/04:03 |
| Start Down | 04:04 |
| at Bottom | 04:05 |
| Start Up | 04:06 |
| at Surface | 04:07 |
| Data off | |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| | QR9C.DAT |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | 35 | 04:04 | | | | | 34.95 | 0.0045 | 25.9745 | 32.3592 | | | 32.362 | 37 | | 1 |
| 2 | | | | 8 | 0406 | | | | | 7.55 | -1.3388 | 22.3960 | 27.8865 | | | 27.881 | 79 | | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ____

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 63 | Surveyor | SU-89-1 (ICE) | | | | QR9D |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date JD = 270 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 63 | 72 | 25 | N | 162 | W | 27 | SEP | 89 | 04 | 54 | -24 | -34 | 11 | | | 095 | 10 | | | | 40 | QR9D |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 339283 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 270/04:52 |
| Start Down | 04:53 |
| at Bottom | 04:54 |
| Start Up | 04:55 |
| at Surface | 04:59 |
| Data off | |

**Data Location**

Tape/Diskette I.D. ____

File Name/Header QR9D.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot. Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | 40 | 04:54 | | | | | 40.07 | 0.0760 | 26.0364 | 32.4400 | | | 32.444 | 18 | Q-664 | 1 |
| 2 | | | | 26 | 04:55 | | | | | 25.92 | -0.0391 | 25.9269 | 32.2903 | | | 32.255 | 62 | Q665 | 2 |
| 3 | | | | 19 | 04:56 | | | | | 18.75 | 2.3623 | 25.0724 | 31.4125 | | | 31.763 | 16 | Q666 | 3 |
| 4 | | | | 9 | 04:57 | | | | | 8.50 | -1.4364 | 22.4895 | 28.0006 | | | 28.099 | 43 | Q667 | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ____ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 64 | Surveyor | SU-89-1 (ICE) | | | | QR9E |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 270 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 64 | 72 | 06.46 | N | 162 | 03.50 | W | 27 | SEP | 89 | 07 | 27 | -12.1 | -15.1 | | | 118 | 10 | | | 22 | QR9E |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.4 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 270/0725 |
| Start Down | 0726 |
| at Bottom | 0727 |
| Start Up | 0728 |
| at Surface | 0730 |
| Data off | |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| | QR9E.DAT |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 22 | | 0727 | | | | | 21.97 | 0.0743 | 25.8043 | 32.1522 | | | 31.698 | 22 | Q-668 | 1 |
| 2 | | | 13 | | 0728 | | | | | 13.19 | 0.1625 | 22.1621 | 27.6380 | | | 27.689 | 54 | Q-669 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials Clark

1.02

Pg. 65 of ____

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 65 | Surveyor | SU-89-2 (ICE) | | | <1, 1-2 cldy | QR9F |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 270 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb 1010.6 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 65 | 71 | 45.08 | | 162000 | | 27 | SEP | 89 | 11 | 26 | 0 | 2 | — | | 10+ | 105 | 10 | | | 39 | QR9F |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.695 | |
| Temp. | 6538.227 in bucket | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on 270/1124
at Surface 1124
Start Down 1125
at Bottom 1126
Start Up 1126
at Surface 1128
Data off ____

**Data Location**
Tape/Diskette I.D.: #8 1st file
File Name/Header: QR9F.dat

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot. Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 1125 | | | | | 34.87 | -0.597 | | 32.392 | | | 32.397 | 71 | Q670 | 1 |
| 2 | | | | | 1127 | | | | | 6.32 | 1.204 | | 28.075 | | | 27.969 | 97 | Q671 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

150,480

Initials ____

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 66 | Surveyor | SU-89-1 (ICE) | | | cloudy vis. 10nm <1'/1' swell | QR10 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date Day | Date Mo. | Date Yr. (JD = 270) | Time GMT Hr. | Time GMT Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 66 | 71 | 29.90 | N | 161 | 59.90 | W | 27 | SEP | 89 | 13 | 18 | 01.0 | 00.5 | 1009.5 | | | 170? | 16 | | | | 43 | QR10 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.458 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times**

| | JD/Time |
|---|---|
| Data on | 1316 |
| at Surface | 1316 |
| Start Down | 1316 |
| at Bottom | 1317 |
| Start Up | 1318 |
| at Surface | 1321 |
| Data off | 1321 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #8 | QR10.DAT |

Remarks: Nutrient

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 1318 | | | | | 43.31 | -1.5065 | | 32.5187 | | | 32.531 | 07 | Q672 | 1 |
| 2 | | | | | 1321 | | | | | 9.68 | 2.0733 | | 29.6160 | | | 29.597 | 15 | Q673 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ____
✓ ____

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 67 | Surveyor | SU-89-1 (ICE) | | | 4' sea 1' swell | QR11 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date JD = 270 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 67 | 71 | 20.0 | N | 162 | 00.0 | W | 27 | SEP | 89 | 14 | 38 | 01.0 | 00.5 | 1009.4 | | | 17 | | | | 40 | QR11 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.620 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 1436 |
| at Surface | 1436 |
| Start Down | 1436 |
| at Bottom | 1438 |
| Start Up | 1439 |
| at Surface | 1441 |
| Data off | 1441 |

**Data Location**

| ~~Tape/~~Diskette I.D. | File Name/Header |
|---|---|
| #8 | QR11.DAT |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 1438 | | | | | 40.73 | -1.5381 | | 32.5152 | | | 32.526 | 45 | Q674 | 1 |
| 2 | | | | | 1439 | | | | | 12.43 | 2.5145 | | 29.8726 | | | 29.900 | 83 | Q675 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WMB
✓

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 68 | Surveyor | SU-89-1 (ICE) | | | | |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date JD = 270 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 68 | 71 | 98 | N | 161 | 59 | 95 | W | 27 | SEP | 89 | 15 | 57 | 10 | | | 188 | 14 | | | | 42 | QR12 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.4 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 1554 |
| Start Down | 1555 |
| at Bottom | 1557 |
| Start Up | 1558 |
| at Surface | 1600 |
| Data off | |

**Data Location**

| ~~Tape~~/Diskette I.D. | File Name/Header |
|---|---|
| #8 | QR12.DAT |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 42 | | 1557 | | | | | 42.31 | -1.3949 | 26.0737 | 32.4197 | | | 32.569 | 31 | Q676 | 1 |
| 2 | | | 6 | | 1559 | | | | | 6.66 | 2.1476 | 24.2370 | 30.3486 | | | 30.054 | 95 | Q677 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials CHD
✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 69 | Surveyor | SU-89-1 (ICE) | | | | QR13 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date Day | Date Mo. | Date Yr. (JD = 270) | Time GMT Hr. | Time GMT Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 69 | 70 | 59.9 | N | 161 | W | 27 | SEP | 89 | 17 | 18 | 15 | 11 | 09 | | | 195 | 14 | | | 42 | QR13 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.5 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 270/1716 |
| Start Down | 1716 |
| at Bottom | 1718 |
| Start Up | 1719 |
| at Surface | 1721 |
| Data off | |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| | QR13.DAT |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 42 | | 1718 | | | | | 42.48 | -1.1747 | 26.1227 | 32.4877 | | | 32.498 | 24 | Q678 | 1 |
| 2 | | | 6 | | 1720 | | | | | 6.00 | -1.0650 | 26.1012 | 32.4652 | | | 32.475 | 50 | Q679 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ____
✓ ____

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 70 | Surveyor | SU-89-1 (ICE) | | | | QR14 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 70 | 70 | 50 | N | 161 | W | 27 | SEP | 89 | 18 | 44 | 00 | 00 | 09 | | | 180 | 14 | | | 40 | QR14 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.5 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 270/1841 |
| Start Down | 1842 |
| at Bottom | 1844 |
| Start Up | 1845 |
| at Surface | 1847 |
| Data off | |

**Data Location**
Tape/Diskette I.D. ____
File Name/Header QR14.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot. Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 41 | | 1844 | | | | | 41.28 | -1.4767 | 26.3365 | 32.7408 | | | 32.750 | 70 | 9680 | 1 |
| 2 | | | 8 | | 1845 | | | | | 7.47 | -1.3328 | 26.1804 | 32.5533 | | | 32.541 | 109 | 9681 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ____ ✓ ✓

-1.3



| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 71 | Surveyor | SU-89-1 (ICE) | | | 0 cast 1, 0 swell | QR15 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 270 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 71 | 70 | 39.99 | N | 161 | 59.71 | 27 | SEP | 89 | 20 | 03 | 04 | 00 | 1009.0 | | 10+ | 180 | 17 | | | 38 | QR15 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.578 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 270/2001 |
| at Surface | 2001 |
| Start Down | 2001 |
| at Bottom | 2003 |
| Start Up | 2003 |
| at Surface | 2005 |
| Data off | 2005 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| | QR15.DAT |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 2002 | | | | | 38.49 | -1.435 | | 32.648 | | | 32.658 | 21 | Q-682 | 1 |
| 2 | | | | | 2004 | | | | | 7.84 | -1.429 | | 32.636 | | | 32.647 | 67 | Q-683 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

138 912

Initials ____
✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 72 | Surveyor | SU-89-1 (ICE) | | | | QR16/QQ1 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 270 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb 1009.2 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 72 | 70 | 31.03 | N | 161 57.09 | | 27 | SEP | 89 | 21 | 29 | 1.2 | 0.6 | | | 10+ | 180 | 16 | | | | 16 | QR16Q1 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.611 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on 270 / 2129
at Surface 2129
Start Down 2129
at Bottom 2129
Start Up 2130
at Surface 2131
Data off ____

**Data Location**
Tape/Diskette I.D. ____
File Name/Header QR16Q1

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 2129 | | | | | 15.54 | -0.178 | | 32.450 | | | 32.464 | 34 | Q-684 | 1 |
| 2 | | | | | 2130 | | | | | 6.01 | -0.175 | | 32.449 | | | 32.466 | 80 | Q-685 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

95,832

Initials LAD ✓ ✓

134,360 -1.1



| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| QQ2 | Surveyor | SU-89-1 (ICE) | | | 0' cast WC/50, | QQ2 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date JD = 270 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb 1009.3 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 73 | 70 | 40.5 | | 162 | 14.8 | | 27 | SEP | 89 | 23 | 03 | 19 | 13 | | | 10 | 165 | 14 | | | 38 | QQ2 |

CTD
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.696 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 270 2301 |
| at Surface | 2301 |
| Start Down | 2302 |
| at Bottom | 2303 |
| Start Up | 2303 |
| at Surface | 2305 |
| Data off | 2305 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #8 | QQ2 |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 2302 | | | | | 38.42 | -1.228 | | 32.602 | | | 32.614 | 88 | Q-686 | 1 |
| 2 | | | | | 2304 | | | | | 5.48 | -1.121 | | 32.521 | | | 32.535 | 91 | Q-687 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

131,040

Initials LAB

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 74 | Surveyor | SU-89-1 (ICE) | | | Cloudy 1 sea 2' swell | QQ3 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date Day | Mo. | Yr. | JD = 271 | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 74 | 70 | 50.09 | N | 162 | 29.92 | 28 | SEP | 89 | | 00 | 23 | 01.5 | 01.0 | 1008.2 | | | 210 | 16 | | | | 41 | QQ3 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.420 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on 0021
at Surface 0021
Start Down 0021
at Bottom 0023
Start Up 0024
at Surface 0034
Data off 0034

**Data Location**
~~Tape~~/Diskette I.D. ____
File Name/Header QQ3.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 0023 | | | | | 38.04 | -1.0597 | | 32.4831 | | | 32.491 | 41 | 0-688 | 1 |
| 2 | | | | | 0025 | | | | | 30.31 | -0.9878 | | 32.4762 | | | 32.488 | 46 | 0-689 | 2 |
| 3 | | | | | 0031 | | | | | 20.09 | -1.0015 | | 32.4789 | | | 32.495 | 58 | 0-690 | 3 |
| 4 | | | | | 0032 | | | | | 9.66 | -0.9998 | | 32.4784 | | | 32.488 | 85 | 0-691 | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WHB
✓ ✓

ICE-CTD-9

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 75 | Surveyor | SU-89-2 (ICE) | | | 1'sea, 3'swell overcast | QQ4 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 75 | 70 | 59.90 | N | 162 | 44.70 | W | 28 | SEP | 89 | 02 | 25 | 02.0 | 01.7 | 1007.7 | | | 170 | 20 | | | | 42 | QQ4 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.696 | |
| Temp. | 6640 – | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 0223 |
| Start Down | 0223 |
| at Bottom | 0225 |
| Start Up | 0226 |
| at Surface | |
| Data off | |

**Data Location**

| ~~Tape~~/Diskette I.D. | File Name/Header |
|---|---|
| #9 | QQ4.DAT |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 0225 | | | | | 42.25 | -1.1062 | | 32.4322 | | | 32.444 | 66 | Q692 | 1 |
| 2 | | | | | 0227 | | | | | 13.19 | -0.3181 | | 32.2326 | | | 32.241 | 102 | Q693 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WJB
✓

| Consec. Cast # | Vessel Surveyor | Proj. & Leg SU-89-2 (ICE) | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation QQ5 |
|---|---|---|---|---|---|---|

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | Min. | E or W | Date JD = 271 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 76 | 71 | 9 | ~~8.5~~ N | 162 | 59 ~~37~~ | W | 28 | SEP | 89 | 03 | 59 | 25 | 23 | 06 | | | 195 | 22 | | | 42 | QQ5 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.675 | |
| Temp. | 6931.180 | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on ____
at Surface 271/
Start Down 0357
at Bottom 0359
Start Up 0400
at Surface 0401
Data off ____

**Data Location**
~~Tape~~/Diskette I.D. #9
File Name/Header QQ5.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot.Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 41 | | 0359 | | | | | 41.44 | -1.4878 | 26.1539 | 32.5156 | | | 32.361 | 35 | Q694 | 1 |
| 2 | | | 12 | | 0400 | | | | | 12.48 | 0.7935 | 25.4520 | 31.7597 | | | 31.770 | 105 | Q695 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials CHD

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 77 | Surveyor | SU-89-1 (ICE) | | | | QQ6 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | Min. | E or W | Date JD = 271 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 77 | 71 | 19 | N | 163 | 47.6 | W | 28 | SEP | 89 | 05 | 49 | 27 | 25 | 06 | | | 195 | 24 | | | | 42 | QQ6 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 3392836 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 271 / 0547 |
| Start Down | 0548 |
| at Bottom | 0549 |
| Start Up | 0550 |
| at Surface | 0552 |
| Data off | |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| | QQ6.DAT |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot. Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 42 | | 0549 | | | | | 42.17 | -1.5711 | 26.1562 | 32.5159 | | | 32.528 | 03 | Q696 | 1 |
| 2 | | | 8 | | 0551 | | | | | 8.36 | 1.7426 | 23.1888 | 29.0066 | | | 28.998 | 93 | Q697 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials CAD
✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 78 | Surveyor | SU-89-1 (ICE) | | | | QQ7 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date Day | Date Mo. | Date Yr. (JD = 271) | Time GMT Hr. | Time GMT Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 78 | 71 | 29.66 | N | 163 | 30.25 | W | 28 | SEP | 89 | 07 | 23 | 32 | 30 | 06 (5.9) | | | 193 | 20 | | | | 39 | QQ7 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 3392858 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on ____
at Surface 271/0721
Start Down 0722
at Bottom 0723
Start Up 0724
at Surface 0725
Data off ____

**Data Location**
Tape/Diskette I.D. ____
File Name/Header QQ7.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 40 | | 0723 | | | | | 39.94 | -1.4393 | 26.1165 | 32.4710 | | | 32.484 | 52 | Q 698 | 1 |
| 2 | | | 8 | | 0724 | | | | | 8.24 | 1.2194 | 22.1807 | 27.7140 | | | 27.714 | 89 | Q-699 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials CHD
✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 79 | Surveyor | SU-89-1 (ICE) | | | Rain W1 S 3-5 | QQ8 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date JD = 271 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 79 | 71 | 40.02 | | 163 | 45.14 | 28 | SEP | 89 | 09 | 00 | 3.0 | 2.6 | 1005.3 | | 6 | 200 | 23 | | | | 36 | QQ8 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.696 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on 271 / 0858
at Surface 0858
Start Down 0858
at Bottom 0900
Start Up 0900
at Surface 09
Data off ____

**Data Location**
Tape/Diskette I.D. #9
File Name/Header QQ8.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot.Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 0900 | | | | | 36.26 | -0.706 | | 32.261 | | | 32.264 | 101 | Q-700 | 1 |
| 2 | | | | | 0901 | | | | | 9.44 | 1.280 | | 27.801 | | | 27.367 | 113 | Q-701 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

120600

Initials LAO

0,70



| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 80 | Surveyor | SU-89-1 (ICE) | | | Rain w 1-2 5 3-5 | DQ9 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date JD = 271 Day | Mo. | Yr. | Time GMT Hr. | Time GMT Min. | Dry Bulb | Wet Bulb | Bar. mb 1004.1 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80 | 71 | 50.11 | | 164 00.27 | | | 28 | SEP | 89 | 10 | 49 | 2.4 | 2.1 | | ✓ | | 180 | 24 | | | 37 | DQ9 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.578 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 271 / 1047 |
| at Surface | 1047 |
| Start Down | 1048 |
| at Bottom | 1049 |
| Start Up | 1049 |
| at Surface | 1051 |
| Data off | 1051 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #9 | DQ9 |

Remarks took upper sample in warm water - salinity will be off, since it's in a high gradient region

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 1049 | | | | | 38.00 | -0.386 | | 32.354 | | | 32.359 | 51 | Q-672 | 1 |
| 2 | | | | | 1050 | | | | | 17.24 | 3.816 | | 30.716 | | | 30.636 | 100 | Q-703 | 2 |
| 3 | | | | | | | | | | | | | ~~Large~~ gradient | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

137,016

Initials LAD

✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 81 | Surveyor | SU-89-1 (ICE) | | | Vis. 5nm Light rain, overcast 1' sea 5' swell | QQ10 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date JD = 271 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 81 | 72 | 00.21 | N | 164 14.34 | W | 28 | SEP | 89 | 12 | 36 | 02.0 | 02.0 | 1003.2 | | | 180 | 22 | | | 37 | QQ10 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.311 | |
| Temp. | 6738.8 | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 1234 |
| at Surface | 1234 |
| Start Down | 1234 |
| at Bottom | 1236 |
| Start Up | 1237 |
| at Surface | 1240 |
| Data off | 1240 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #9 | QQ10.DAT |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot. Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 1236 | | | | | 38.06 | -0.0875 | | 32.3228 | | | 32.330 | 78 | Q704 | 1 |
| 2 | | | | | 1238 | | | | | 9.19 | -0.0657 | | 26.0604 | | | 26.033 | 81 | Q705 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials NJB
✓

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 82 | Surveyor | SU-89-1 (ICE) | | | Rain 2' sea, 5' swell vis. 5nm | QQ11 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date Day | Date Mo. | Date Yr. | JD = 271 | Time GMT Hr. | Time GMT Min. | Dry Bulb | Wet Bulb | Bar. mb 1002.0 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 82 | 72 | 09 | N | 164 | 29 | W | 28 | SEP | 89 | | 14 | 03 | 02 | 01 | 8 | | | 180 | 27 | | | 37 | QQ11 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.251 | |
| Temp. | 6750, | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on ____
at Surface ____
Start Down ____
at Bottom ____
Start Up ____
at Surface ____
Data off ____

**Data Location**
~~Tape~~/Diskette I.D. #10
File Name/Header QQ11.DAT

Remarks * Poor sample, probably both samples taken out of bottom bottle.

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 1403 | | | | | 37.21 | -0.2004 | | 32.3194 | | | 32.327 | 87 | Q706 | 1 |
| 2 | | | | | 1405 | | | | | 9.61 | 0.1123 | | 27.1742 | | | 32.327* | 95 | Q707 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ____

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 83 | Surveyor | SU-89-2 (ICE) | | | CLOUDY, VIS 5NM | QQ12 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date Day | Mo. | Yr. | JD = 271 | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb 1000.8 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 83 | 72 | 19.9 | N | 164 43.6 | W | 28 | SEP | 89 | | 15 | 41 | 02.0 | 01.6 | | | | 18 | 023 | | | 43 | QQ12 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.460 | |
| Temp. | 6418.0 | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on 1539
at Surface 1539
Start Down 1539
at Bottom 1541
Start Up 1542
at Surface 1545
Data off ____

**Data Location**
~~Tape~~/Diskette I.D. #10
File Name/Header QQ12.DAT

Remarks 4 BOTTLES

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 1541 | | | | | 43.53 | 0.9615 | | 32.6168 | | | 32.623 | 39 | Q708 | 1 |
| 2 | | | | | 1542 | | | | | 32.63 | 0.6772 | | 32.5263 | | | 32.503 | 69 | Q709 | 2 |
| 3 | | | | | 1543 | | | | | 23.69 | 3.7363 | | 31.4288 | | | 32.483 | 73 | Q710 | 3 |
| 4 | | | | | 1544 | | | | | 9.69 | 0.1221 | | 28.5095 | | 31.483? | 28.499 | 97 | Q711 | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WMS
✓ ✓

Check posn



| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 84 | Surveyor | SU-89-1 (ICE) | | | | QQ 13A |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date Day | Mo. | Yr. | JD = 271 | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 84 | 72 | 29.87 | N | 168 | 54.5 | W | 28 | 5 | 89 | | 17 | 35 | 20 | 18 | 00.0 | | | 178 | 27 | | | | 47 | QQ13A |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.48 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 1732 |
| Start Down | 1733 |
| at Bottom | 1735 |
| Start Up | 1736 |
| at Surface | 1738 |
| Data off | |

**Data Location**

Tape/Diskette I.D. ____

File Name/Header QQ13A.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 47 | | 1735 | | | | | 46.44 | 1.0854 | 26.1795 | 32.6856 | | | 32.697 | 25 | Q712 | 1 |
| 2 | | | 9 | | 1738 | | | | | 9.52 | 2.4424 | 25.0226 | 31.3577 | | | 31.351 | 53 | Q713 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ____

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 85 | Surveyor | SU-89-1 (ICE) | | | | QQ13B.DAT |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date Day | Date Mo. | Date Yr. | JD = 271 | Time GMT Hr. | Time GMT Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 85 | 72 | 39.82 | N | 165 | 15.3 | W | 28 | SEP | 89 | | 19 | 10 | 30 | 25 | 985 | 3/5 | 8 | 175 | 29 | | | | 55 | QQ13B |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.4 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 1905 |
| Start Down | 1906 |
| at Bottom | 1910 |
| Start Up | 1911 |
| at Surface | 1913 |
| Data off | |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| | QQ13B.DAT |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 54 | | 1910 | | | | | 53.55 | 0.9724 | 26.2145 | 32.7306 | | | 32.730 | 42 | Q714 | 1 |
| 2 | | | 10 | | 1912 | | | | | 9.86 | 1.7513 | 24.7646 | 30.9748 | | | 30.973 | 56 | Q716 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ____ ✓ ✓

2.92°

Pg. 86 of ____

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 86 | Surveyor | SU-89-1 (ICE) | | | 0'cast 3-8 | QQ13C |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date Day | Mo. (JD = 271) | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 86 | 72 | 50.01 | | 165 | 29.87 | 28 | SEP | 89 | 20 | 45 | 3.1 | 2.8 | 997.5 | | 5 | 195 | 32 | | | | 56 | QQ13C |

CTD
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.460 to .493 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 271 / 2043 |
| at Surface | 2043 |
| Start Down | 2043 |
| at Bottom | 2045 |
| Start Up | 2045 |
| at Surface | 2047 |
| Data off | 2047 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| | QQ13C |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 2045 | | | | | 54.10 | 1.236 | | 32.761 | | | 32.768 | 37 | Q-717 | 1 |
| 2 | | | | | 2047 | | | | | 10.95 | 2.903 | | 31.720 | | | 31.729 | 79 | Q-718 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

139,104 143K

Initials LAO
✓ ✓

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| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 87 | Surveyor | SU-89-1 (ICE) | | | 0cast W3-5 S10-12 | |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date JD = 271 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb 956.4 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 87 | 72 | 59.38 | | 165 | 46.47 | 28 | SEP | 89 | 22 | 21 | 4.0 | 3.5 | | | 57 | 125 | 30 | | | | 56 | QQ13D |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.375-578 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 271 / 2219 |
| at Surface | 2219 |
| Start Down | 2219 |
| at Bottom | 2221 |
| Start Up | 2221 |
| at Surface | 2223 |
| Data off | 2223 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #10 | QQ13D |

Remarks

138768

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 2221 | | | | | 55.01 | 1.237 | | 32.760 | | | 32.768 | 18 | Q-718A | 1 |
| 2 | | | | | 2222 | | | | | 22.19 | 2.530 | | 31.330 | | | 31.242 | 62 | Q-719 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials IAO

-0.96



| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 88 | Surveyor | SU-89-1 (ICE) | | | 0 Cast 3-4/10-12 | QQ13E |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 271 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 88 | 73 | 08.92 | | 165 | 50.60 | 28 | SEP | 89 | 23 | 41 | 2.2 | 1.9 | 995.6 | | 4-5 | 170 | 30 | | | | 60 | QQ13E |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.257-375 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 271/2339 |
| at Surface | 2339 |
| Start Down | 2340 |
| at Bottom | 2341 |
| Start Up | 2341 |
| at Surface | 2345 |
| Data off | 2345 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| | QQ13E |

Remarks At ice edge

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 2341 | | | | | 60.05 | 0.071 | | 32.662 | | | 32.669 | 16 | Q-720 | 1 |
| 2 | | | | | 2342 | | | | | 48.63 | 0.142 | | 32.663 | | | | | Dirt Trip | 2 |
| 3 | | | | | 2343 | | | | | 29.24 | 0.046 | | 32.386 | | | 32.526 | 54 | 1162 | 3 |
| 4 | | | | | 2345 | | | | | 9.23 | -0.977 | | 28.612 | | | 28.606 | 71 | 1165 | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

155 136 Rift

Initials ✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 89 | Surveyor | SU-89-1 (ICE) | | | | QQ14 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date Day | Mo. | Yr. | JD = 272 | Time GMT Hr. | Time GMT Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 89 | 71 | 59.13 | N | 164 | 58.68 | W | 29 | SEP | 89 | | 18 | 10 | 2.6 | 2.4 | 888.8 | 7/8 | 8 | 162 | 28 | | | | 36 | QQ14 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.22 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on ____
at Surface 272/1807
Start Down 1808
at Bottom 1810
Start Up ____
at Surface ____
Data off ____

**Data Location**
Tape/Diskette I.D. ____
File Name/Header QQ14.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 33 | | 1810 | | | | | 33.36 | 0.4505 | 25.9326 | 32.3334 | | | 32.330 | 15 | 1163 | 1 |
| 2 | | | 27 | | 1811 | | | | | 26.69 | 1.8344 | 25.5853 | 32.0060 | | | 31.631 | 22 | 1164 | 2 |
| 3 | | | 22 | | 1813 | | | | | 22.37 | 4.6631 | 24.9259 | 31.4856 | | | 31.813 | 43 | 1166 | 3 |
| 4 | | | 9 | | 1814 | | | | | 8.52 | 1.0331 | 22.4200 | 28.0013 | | | 28.013 | 44 | 1167 | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ✓ ✓

1,13

Pg. 9Ø of ____

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 9Ø | Surveyor | SU-89-1 (ICE) | | | Rain W 3-5, 5 6-8 | |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 272 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb 988.1 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9Ø | 71 | 49.85 | | 164 59.43 | | 29 | SEP | 89 | 20 | 08 | 23 | 20 | | | 75 | 165 | 26 | | | 37 | Q215 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.1 (225, 253) | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 272/2005 |
| at Surface | 2006 |
| Start Down | 2006 |
| at Bottom | 2008 |
| Start Up | 2008 |
| at Surface | 2010 |
| Data off | 2010 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #11 | Q215 |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 2008 | | | | | 36.13 | 0.281 | | 32.371 | | | 32.377 | 7 | 1161 | 1 |
| 2 | | | | | 2009 | | | | | 8.97 | 1.009 | | 27.667 | | | 27.661 | 45 | 1168 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

152,160

Initials LAO

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| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 91 | Surveyor | SU-89-1 (ICE) | | | 0 Cast W 3-4 S 7-9 | |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 272 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb 987.4 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 91 | 71 | 40.00 | | 164 59.70 | | 29 | SEP | 89 | 21 | 40 | 24 | 22 | | | 52 | 165 | 29 | | | | 38 | QQ16 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928, 225, 343, 257 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 272/2138 |
| at Surface | 2138 |
| Start Down | 2138 |
| at Bottom | 2140 |
| Start Up | 2140 |
| at Surface | 2143 |
| Data off | |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #11 | |

Remarks 4 bottles

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 2140 | | | | | 38.91 | 0.253 | | 32.361 | | | 32.370 | 52 | 1171 | 1 |
| 2 | | | | | 2141 | | | | | 30.08 | 0.325 | | 32.343 | | | 32.351 | 75 | 1169 | 2 |
| 3 | | | | | 2142 | | | | | 15.25 | 1.804 | | 31.057 | | | 30.739 | 83 | 1172 | 3 |
| 4 | | | | | 2143 | | | | | 10.37 | 0.675 | | 26.716 | No help | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials LAD
✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| | Surveyor | SU-89-1 (ICE) | | | Rain | QQ17 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date JD = 272 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 92 | 71 | 29 | 60 | 164 | 59 | 81 | 29 | SEP | 89 | 23 | 18 | 30 | 28 | 989.8 | | 4-5 | 200 | 28 | | | 39 | QQ17 |

**CTD**
Type & SN
Press. SN
Temp. SN
Cond. SN

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.225 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 272/2317 |
| at Surface | 2317 |
| Start Down | 2317 |
| at Bottom | 2318 |
| Start Up | 2319 |
| at Surface | 2320 |
| Data off | 2320 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #11 | QQ17 |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot. Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 2318 | | | | | 37.32 | 1.878 | | 32.372 | | | 32.375 | 89 | 1170 | 1 |
| 2 | | | | | 2320 | | | | | 10.25 | 2.299 | | 28.978 | | | 26.579 | 93 | 1173 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials LAO

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 93 | Surveyor | SU-89-1 (ICE) | | | VIS 2-3nm overcast/fog | QQ18 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date JD = 273 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 93 | 71 | 20.00 | N | 165 | 00.00 | W | 30 | SEP | 89 | 00 | 49 | 03.6 | 03.4 | | | 20 | 02.4 | | | | 37 | QQ18 |

19 98

| CTD | | Monitor Checks | on Deck | at Surface | Times | JD/Time | Data Location | |
|---|---|---|---|---|---|---|---|---|
| Type & SN | | Press. | 33928.375 | | Data on | 0046 | Tape/Diskette I.D. | File Name/Header |
| Press. SN | | Temp. | 6745.— | | at Surface | 0046 | #11 | QQ18.DAT |
| Temp. SN | | Cond. | | | Start Down | 0046 | | |
| Cond. SN | | Other | | | at Bottom | 0048 | | |
| | | | | | Start Up | 0048 | | |
| | | | | | at Surface | 0051 | | |
| | | | | | Data off | 0051 | | |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot.Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 0048 | | | | | 34.60 | 0.6954 | | 32.4286 | | | 32.389 | 003 | 1174 | 1 |
| 2 | | | | | 0050 | | | | | 9.49 | 1.4404 | | 27.7374 | | | 27.719 | 105 | 1175 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WJB ✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 94 | Surveyor | SU-89-1 (ICE) | | | cloudy vis. 5nm 3' sea - 8' swell | QQ19 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date JD = 273 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 94 | 71 | 09.86 | N | 165 00.79 | W | 30 | SEP | 89 | 02 | 55 | 03.7 | 03.5 | 993.0 | | | 200 | 32 | | | 42 | QQ19 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.375 | |
| Temp. | 6978.— | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on 0253
at Surface 0253
Start Down 0253
at Bottom 0255
Start Up 0256
at Surface 0258
Data off ____

**Data Location**
~~Tape~~/Diskette I.D. #11
File Name/Header QQ19.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot. Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 0255 | | | | | 42.01 | 2.2283 | | 32.3724 | | | 32.377 | 35 | 1176 | 1 |
| 2 | | | | | 0257 | | | | | 11.27 | 2.4857 | | 29.3330 | | | 29.327 | 88 | 1177 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ____
✓ ____

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 95 | Surveyor | SU-89-1 (ICE) | | | | QQ20/QP3 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date Day | Mo. | Yr. (JD = 273) | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 95 | 70 | 59 | ~~82~~ 74 N | 164 | ~~82~~ 58.57 W | | 30 | 5 | 1989 | 05 | 02 | 3.0 | 2.8 | 96 | 5/9 | 9 | 230 | 24 | | | | 33 | QQ20 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.39 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 0500 |
| Start Down | 0501 |
| at Bottom | 0502 |
| Start Up | 0503 |
| at Surface | 0506 |
| Data off | |

**Data Location**

~~Tape~~/Diskette I.D. #12

File Name/Header QQ20=QP3.DAT

Remarks (4 bottles)

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot. Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 33 | | 0502 | | | | | 33.54 | 0.7878 | 26.0130 | 32.4567 | | | 32.365 | 007 | 1178 | 1 |
| 2 | | | 24 | | 0504 | | | | | 23.00 | 1.4610 | 25.7077 | 32.1276 | | | 31.662 | 22 | 1179 | 2 |
| 3 | | | 18 | | 0505 | | | | | 17.75 | 3.1981 | 24.4614 | 30.7294 | | 30% | 31.768 | 43 | 1180 | 3 |
| 4 | | | 9 | | 0506 | | | | | 8.53 | 2.7271 | 23.8540 | 29.9211 | | | 29.985 | 44 | 1181 | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials CHD
✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 96 | Surveyor | SU-89-1 (ICE) | | | | |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date Day | Mo. | Yr. | JD = 273 | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 96 | 71 | 8 ~~66~~ 09.08 | N | 165 ~~21~~ 22.3 | W | 30 | SEP | 89 | | 07 | 04 | 32 | 30 | 983 | 4/9 | 9 | 215 | 18 | | | | 40 | QP4 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.54 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 0701 |
| Start Down | 0702 |
| at Bottom | 0704 |
| Start Up | 0705 |
| at Surface | 0708 |
| Data off | |

**Data Location**

| ~~Tape~~/Diskette I.D. | File Name/Header |
|---|---|
| #12 | QP4.DAT |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot. Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 41 | 41 | 0704 | | | | | 40.74 | 2.5366 | 25.8142 | 32.3572 | | | 32.364 | 15 | 1182 | 1 |
| 2 | | | 5 | | 0707 | | | | | 5.64 | 2.4337 | 23.2575 | 29.1476 | | | 29.148 | 71 | 1183 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials CHD
✓ ✓

3.3



| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 97 | Surveyor | SU-89-2 (ICE) | | | 0 Cast W2-4 S8-10 | QP5 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date Day | Mo. | Yr. | JD = 273 | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 97 | 71 | 7.60 | | 165 | 40.28 | 30 | SEP | 89 | | 08 | 32 | 3.5 | 3.1 | 999.5 | | 9/10 | 235 | 08 | | | 38 | QP5 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.460-611 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 273/0831 |
| at Surface | 0831 |
| Start Down | 0831 |
| at Bottom | 0832:30 |
| Start Up | 0833 |
| at Surface | 0835 |
| Data off | 0835 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #12 | QP5 |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 0832 | | | | | 38.31 | 2.299 | | 32.349 | | | 32.351 | 16 | 1184 | 1 |
| 2 | | | | | 0834 | | | | | 10.26 | 3.369 | | 30.568 | | | 30.568 | 54 | 1185 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

123,552

Initials LAD ✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 98 | Surveyor | SU-89-1 (ICE) | | | 0 cast W 2-3 & 7-10 | QP6 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 273 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 98 | 71 | 26.53 | | 166 | 00.06 | 30 | SEP | 89 | 10 | 11 | 3.3 | 3.0 | 999.8 | | 10 | 237 | 08 | | | 40 | QP6 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.578 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 273/1009 |
| at Surface | 1009 |
| Start Down | 1009 |
| at Bottom | 1011 |
| Start Up | 1011 |
| at Surface | 1013 |
| Data off | 1013 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| | QP6 |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 1011 | | | | | 41.10 | 2.789 | | 32.380 | | | | ~~18~~ | 1186 | 1 |
| 2 | | | | | 1012 | | | | | 9.53 | 3.046 | | 30.247 | | No temp | 30.247 | 18 | | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

120960

Initials UO

2.4



| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 99 | Surveyor | SU-89-1 (ICE) | | | 0 Cast <1, 3-5 | QP7 |

| Consec. Cast # | Latitude Deg. Min. | N or S | Longitude Deg. | E or W | Date JD = 273 Day Mo. Yr. | Time GMT Hr. Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 99 | 71 36 02 | | 166 19 43 | | 30 SEP 89 | 11 39 | 3.3 | 3.1 | 998.8 | | 10+ | 160 | 16 | | | 41 | QP7 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.578 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 273/1137 |
| at Surface | 1138 |
| Start Down | 1138 |
| at Bottom | 1139+ |
| Start Up | 1140 |
| at Surface | |
| Data off | |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #12 | QP7 |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 1140 | | | | | 39.23 | 3.268 | | 32.356 | | | 32.364 | 37 | 1187 | 1 |
| 2 | | | | | 1141 | | | | | 9.73 | 3.339 | | 30.667 | | | 30.667 | 62 | 1188 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials UAO

✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 100 | Surveyor | SU-89-1 (ICE) | | | overcast vis 10+ 1' sea 4' swell | QP8 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 273 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100 | 71 | 45.2 | N | 166 39.9 | W | 30 | SEP | 89 | 12 | 59 | 03.0 | 03.0 | 1000.0 | | | 120 | 08 | | | | 42 | QP8 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.460 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 273/1257 |
| at Surface | 1257 |
| Start Down | 1257 |
| at Bottom | 1259 |
| Start Up | 1259 |
| at Surface | 1302 |
| Data off | 1302 |

**Data Location**

| ~~Tape~~/Diskette I.D. | File Name/Header |
|---|---|
| #12 | QP8.DAT |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 1259 | | | | | 41.97 | 2.1037 | | 32.4599 | | | 32.463 | 56 | 1189 | 1 |
| 2 | | | | | 1301 | | | | | 10.39 | 2.7453 | | 30.1262 | | | 30.131 | 79 | 1190 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WMB
✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 101 | Surveyor | SU-89-2 (ICE) | | | 1' sea 4' swell cloudy vis. 10+ | QP9 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date JD = 273 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 101 | 71 | 54.3 | N | 166 | 58.9 | 30 | SEP | 89 | 14 | 15 | 04.0 | 04.0 | 1000.0 | | | 130 | 10 | | | | 44 | QP9 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.560 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 1413 |
| at Surface | 1413 |
| Start Down | 1413 |
| at Bottom | 1415 |
| Start Up | 1416 |
| at Surface | 1418 |
| Data off | 1410 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #12 | QP9.DAT |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot. Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 43 | | 1415 | | | | | 43.72 | 1.6282 | | 32.4596 | | | 32.482 | 42 | 1191 | 1 |
| 2 | | | 13 | | 1417 | | | | | 12.94 | 3.0857 | | 30.7569 | | | 30.756 | 53 | 1192 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

SST ° 28 C

Initials ____
✓ ____

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 102 | Surveyor | SU-89-2 (ICE) | | | VS 10 knot 1' sea 4' swell cloudy | QP10 102 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 273 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 102 | 72 | 03.17 | N | 167 | 18.89 | W | 30 | SEP | 89 | 1536 | 04.0 | 04.0 | 1000.6 | | | 145 | 12 | | | 45 | QP10 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.836 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on 1534
at Surface 1534
Start Down 1534
at Bottom 1536
Start Up 1536
at Surface 1539
Data off 1539

**Data Location**
Tape/Diskette I.D. #12
File Name/Header QP10.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 44 | 15 | 1536 | | | | | 44.19 | 0.3177 | | 32.4759 | | | 32.478 | 80 | 1193 | 1 |
| 2 | | | 14 | | 1538 | | | | | 13.97 | 3.5248 | | 31.7223 | | | 31.708 | 91 | 1194 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WJB ✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 103 | Surveyor | SU-89-1 (ICE) | | | | QP11 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date Day | Date Mo. | Date Yr. | JD = 273 | Time GMT Hr. | Time GMT Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 103 | 72 | 13.58 | N | 167 | 41 | W | 30 | SEP | 89 | | 17 | 04 | 4.2 | 4.1 | 999.1 | 1/3 | 6 | 157 | 10 | | | 47 | QP11 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.58 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 1702 |
| Start Down | 1703 |
| at Bottom | 1704 |
| Start Up | 1705 |
| at Surface | |
| Data off | |

**Data Location**

| ~~Tape~~/Diskette I.D. | File Name/Header |
|---|---|
| #13 | QP11.DAT |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 47 | | 1704 | | | | | 47.14 | 16257 | 26.1250 | 32.6613 | | | 32.667 | 34 | 1195 | 1 |
| 2 | | | 10 | | 1706 | | | | | 9.46 | 3.5703 | 25.4705 | 32.0372 | | | 32.044 | 97 | 1196 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials CHD
✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 104 | Surveyor | SU-89-1 (ICE) | | | | QP12 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | Min. | E or W | Date Day | Mo. | Yr. | JD = | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 104 | 72 | 24.0 | N | 167 | 58.8 | W | 30 | SEP | 89 | 273 | 18 | 35 | 4.5 | 4.3 | 986 | 1/3 | 5 | 153 | 16 | | | 48 | QP12 |

| CTD | |
|---|---|
| Type & SN | |
| Press. SN | |
| Temp. SN | |
| Cond. SN | |

| Monitor Checks | on Deck | at Surface |
|---|---|---|
| Press. | 33928.59 | |
| Temp. | | |
| Cond. | | |
| Other | | |

| Times | JD/Time |
|---|---|
| Data on | |
| at Surface | 1832 |
| Start Down | 1833 |
| at Bottom | 1835 |
| Start Up | 1836 |
| at Surface | 1841 |
| Data off | |

| Data Location | |
|---|---|
| ~~Tape~~/Diskette I.D. | File Name/Header |
| #13 | QP12.DAT |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 47 | | 1835 | | | | | 47.42 | 1.7562 | 26.2122 | 32.7814 | | | 32.781 | 21 | 1197 | 1 |
| 2 | | | 42 | | 1836 | | | | | 42.42 | 0.3751 | 26.1104 | 32.5499 | | | 32.452 | 50 | 1198 | 2 |
| 3 | | | 30 | | 1838 | | | | | 29.74 | 3.3643 | 25.7163 | 32.3222 | | | 32.499 | 70 | 1199 | 3 |
| 4 | | | 8 | | 1840 | | | | | 7.84 | 3.3934 | 25.6839 | 32.2850 | | | 32.304 | 109 | 1200 | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials CHD

✓ ✓

2.2 142K Pg. 105 of ____

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 105 | Surveyor | SU-89-1 (ICE) | | | 0 Cast W<1 S 2-3 | QP 13 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date Day | Date Mo. | Date Yr. | JD = | Time GMT Hr. | Time GMT Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 105 | 72 | 29.85 | N | 168 | 19.74 | W | 30 | SEP | 89 | 273 | 20 | 30 | 4.4 | 4.2 | 998.4 | | 4-6 | 175 | 16 | | | | 50 | QP13 |

| CTD | |
|---|---|
| Type & SN | |
| Press. SN | |
| Temp. SN | |
| Cond. SN | |

| Monitor Checks | on Deck | at Surface |
|---|---|---|
| Press. | 33928, 460-578 | |
| Temp. | | |
| Cond. | | |
| Other | | |

| Times | JD/Time |
|---|---|
| Data on | 273/2028 |
| at Surface | 2028 |
| Start Down | 2028 |
| at Bottom | 2030 |
| Start Up | 2030 |
| at Surface | 2032 |
| Data off | 2032 |

| Data Location | |
|---|---|
| ~~Tape~~/Diskette I.D. | File Name/Header |
| # 13 | QP13.DAT |

Remarks 2nd bottle in warm intermed. water

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 2030 | | | | | 49.15 | 1.618 | | 32.912 | | | 32.926 | 24 | 1121 | 1 |
| 2 | | | | | 2031 | | | | | 21.12 | 3.323 | | 32.357 | | | 32.373 | 31 | 1122 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials LAO

✓

1.8



| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 106 | Surveyor | SU-89-1 (ICE) | | | o Cast w/ 152-3 | 106 |

| Consec. Cast # | Latitude Deg. Min. | N or S | Longitude Deg. | E or W | Date JD = 273 Day Mo. Yr. | Time GMT Hr. Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 106 | 72.39 | N | 168.39 | | 30 SEP 89 | 2154 | 36 | 34 | 997.0 | | 9-7 | 180 | 20 | | | | 53 | QP14A |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.578-611 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 273 / 2152 |
| at Surface | 2152 |
| Start Down | 2152 |
| at Bottom | 2154 |
| Start Up | 2154 |
| at Surface | 2156 |
| Data off | 2156 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| 13 | QP14A |

Remarks top bottle in intermed. warm water

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 2154 | | | | | 52.54 | 0.373 | | 32.8995 | | | 32.913 | 66 | 1123 | 1 |
| 2 | | | | | 2155 | | | | | 29.75 | 3.378 | | 31.901 | | 31 | 32.917 | 113 | 112 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials VAO

✓ ✓

135,912

-0.4



| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 107 | Surveyor | SU-89-1 (ICE) | | | 0 Cast W 21 S 2 | QP14B |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date Day | Date Mo. | Date Yr. | JD = | Time GMT Hr. | Time GMT Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 107 | 72 | 50.00 | | 168 | 57.70 | 30 | SEP | 89 | 273 | 23 | 28 | 3.4 | 2.2 | 998.0 | | 5 | 191 | 18 | | | | 80 | QP14B |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.578 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time 273

| | |
|---|---|
| Data on | 273 / 2325 |
| at Surface | 2325 |
| Start Down | 2325 |
| at Bottom | 2328 |
| Start Up | 2328 |
| at Surface | 2330 |
| Data off | 2330 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #13 | QP14B |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 2327 | | | | | 78.93 | 1.187 | | 32.929 | | | 32.943 | 100 | 1125 | 1 |
| 2 | | | | | 2330 | | | | | 35.40 | 3.468 | | 32.282 | | | 32.283 | 101 | 1126 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials LAD

✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 108 | Surveyor | SU-89-1 (ICE) | | | Vis < 1NM Sea < 1 Swell 1' | QP14C |

| Consec. Cast # | Latitude Deg. Min. N or S | Longitude Deg. E or W | Date JD = 274 Day Mo. Yr. | Time GMT Hr. Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 108 | 72.99 N | 168.96 W | 01 OCT 89 | 01 03 | 01.5 | 01.4 | 998.6 | | | 210 | 12 | | | | 67 | QP14C |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.400 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on 0100
at Surface 0100
Start Down 0100
at Bottom 0103
Start Up 0103
at Surface 0107
Data off ____

**Data Location**
~~Tape~~/Diskette I.D. #13
File Name/Header QP14C.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 67m | | 0103 | | | | | 67.39 | 0.3608 | | 32.8261 | | | 32.841 | 51 | 1127 | 1 |
| 2 | | | 32m | | 0105 | | | | | 31.84 | 2.7903 | | 32.2102 | | | 32.175 | 78 | 1128 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WB
✓

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 109 | Surveyor | SU-89-1 (ICE) | | | heavy fog 1' sea 2' swell vis 1/4 nm | QP14D |

| Consec. Cast # | Latitude Deg. Min. N or S | Longitude Deg. E or W | Date JD = 274 Day Mo. Yr. | Time GMT Hr. Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 109 | 73 09.6 - N | 168 57.1 - W | 01 OCT 89 | 0239 | 008 | 006 | 993.0 | | | 210 | 10 | | | 76 | QP14D |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.119 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times**

| | JD/Time |
|---|---|
| Data on | 0237 |
| at Surface | 0237 |
| Start Down | 0237 |
| at Bottom | 0240 |
| Start Up | 0241 |
| at Surface | 0245 |
| Data off | 0245 |

**Data Location**
Tape/Diskette I.D. #14
File Name/Header QP14D.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 76 | 0239 | 0239 | | | | | 76.43 | 0.4964 | | 32.8375 | | | 32.850 | 81 | 1129 | 1 |
| 2 | | | 9 | 0245 | 0245 | | | | | 9.01 | -0.8262 | | 28.1500 | | | 28.119 | 87 | 1130 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WJB
✓

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 110 | Surveyor | SU-89-1 (ICE) | | | | QP14E |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | Min. | E or W | Date Day | Mo. | Yr. | JD = | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 110 | 73 | 19.33 | N | 168 | 57.97 | W | 01 | OCT | 89 | 274 | 04 | 19 | 08 | 03 | 995.9 | 1 | 1 | 230 | 08 | | | | 93 | QP14E |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.36 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 0415 |
| Start Down | 0416 |
| at Bottom | 0419 |
| Start Up | 0420 |
| at Surface | |
| Data off | |

**Data Location**

~~Tape~~/Diskette I.D. #14

File Name/Header QP14E.DAT

Remarks ** 4 - BOTTLES **

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 93 | | 0419 | | | | | 92.86 | -1.6044 | 26.2476 | 32.6275 | | | 32.639 | 39 | 1131 | 1 |
| 2 | | | 66 | | 0421 | | | | | 65.86 | -1.3544 | 26.1698 | 32.5395 | | | 32.532 | 69 | 1132 | 2 |
| 3 | | | 40 | | 0423 | | | | | 40.20 | -1.6160 | 25.7843 | 32.0568 | | | 32.550 | 73 | 1133 | 3 |
| 4 | | | 9 | | 0425 | | | | | 9.24 | -1.4337 | 22.5070 | 28.0222 | | | 28.102 | 95 | 1134 | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WB CAD

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 111 | Surveyor | SU-89-1 (ICE) | | | | QP14F |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date Day | Date Mo. | Date Yr. | JD = | Time GMT Hr. | Time GMT Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 111 | 73 | 24.39 | N | 168 | 54.93 | W | 01 | OCT | 89 | 274 | 05 | 37 | -03 | -06 | 99.3 | 0/2 | <1 | 230 | 06 | | | | 104 | QP14F |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.34 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 0530 |
| Start Down | 0531 |
| at Bottom | 0536 |
| Start Up | 0537 |
| at Surface | 0552 |
| Data off | |

**Data Location**

| ~~Tape~~/Diskette I.D. | File Name/Header |
|---|---|
| #14 | QP14F.DAT |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 104 | | 0536 | | | | | 104.43 | -1.5441 | 26.5493 | 33.0008 | | | 32.884 | 25 | 1135 | 1 |
| 2 | | | 97 | | 0539 | | | | | 96.59 | -1.2235 | 26.3214 | 32.7307 | | | 32.722 | 42 | 1136 | 2 |
| 3 | | | 51 | | 0549 | | | | | 50.02 | -1.6301 | 25.8202 | 32.1006 | | | 32.750 | 53 | 1137 | 3 |
| 4 | | | 9 | | 0551 | | | | | 10.07 | -1.5102 | 22.6446 | 28.1908 | | | 28.201 | 67 | 1138 | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ____
✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 112 | Surveyor | SU-89-1 (ICE) | | | | QP14G |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | Min. | E or W | Date Day | Mo. | Yr. | JD = | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 112 | 73 | 37 | N | 168 | 34 | W | 01 | 04 | 89 | 274 | 06 | 28 | -03 | -06 | 997 | 9 | <1 | 230 | 08 | | | | 111 | QP14G |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 3398.14 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 0622 |
| Start Down | 0623 |
| at Bottom | 0628 |
| Start Up | 0629 |
| at Surface | 0638 |
| Data off | |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #15 | QP14G.DAT |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 102 | | 0628 | | | | | 101.39 | -1.6203 | 23.4197 | 29.4197 | | | 32.843 | 18 | 1139 | 1 |
| 2 | | | 85 | | 0630 | | | | | 84.02 | -1.7813 | 21.5069 | 26.7874 | | | 32.595 | 37 | 1140 | 2 |
| 3 | | | 51 | | 0633 | | | | | 50.10 | -1.6694 | 21.4381 | 26.7028 | | | 32.660 | 56 | 1141 | 3 |
| 4 | | | 9 | | 0636 | | | | | 8.89 | -1.5953 | 21.5588 | 26.8518 | | | 28.173 | 62 | 1142 | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ____

0010



| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 113 | Surveyor | SU-89-1 (ICE) | | | VIS 8NM 3 2' sea 4' swell cloudy | QP15 |

| Consec. Cast # | Latitude Deg. Min. | N or S | Longitude Deg. | E or W | Date JD = 274 Day Mo. Yr. | Time GMT Hr. Min. | Dry Bulb | Wet Bulb | Bar. mb 1002.0 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 113 | 72 20.0 | N | 168.58 77 | W | 01 OCT 89 | 1245 | 0.0 | -0.8 | | | | 325 | 12 | | | 60 | QP15 |

| CTD | |
|---|---|
| Type & SN | |
| Press. SN | |
| Temp. SN | |
| Cond. SN | |

| Monitor Checks | on Deck | at Surface |
|---|---|---|
| Press. | 33928.483 | |
| Temp. | | |
| Cond. | | |
| Other | | |

| Times | JD/Time |
|---|---|
| Data on | 1243 |
| at Surface | 1243 |
| Start Down | 1243 |
| at Bottom | 1245 |
| Start Up | 1246 |
| at Surface | 1250 |
| Data off | 1250 |

| Data Location | |
|---|---|
| ~~Tape~~/Diskette I.D. | File Name/Header |
| # 15 | QP15.DAT |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 60 | | 1245 | | | | | 59.89 | 1.6059 | | 32.9322 | | | 32.942 | 16 | 1143 | 1 |
| 2 | | | 25 | | 1248 | | | | | 25.43 | 3.3788 | | 32.1295 | | | 32.127 | 44 | 1144 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WMP

✓

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 114 | Surveyor | SU-89-1 (ICE) | | | 2' Sea 4' swell vis. 10 NM cloudy | QP16 |

| Consec. Cast # | Latitude Deg. | Min | N or S | Longitude Deg. | Min | E or W | Date Day | Mo. | Yr. (JD = 274) | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 114 | 72 | 09 | N | 168 | 59 | W | 01 | OCT | 89 | 14 | 00 | 00.0 | -05 | 1002.1 | | | 340 | 12 | | | 51 | QP16 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.351 | |
| Temp. | 6292.00 | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 1358 |
| at Surface | 1358 |
| Start Down | 1358 |
| at Bottom | 1400 |
| Start Up | 1404 |
| at Surface | 1404 |
| Data off | 1404 |

**Data Location**

| ~~Tape~~/Diskette I.D. | File Name/Header |
|---|---|
| #15 | QP16.DAT |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 51 | | 1400 | | | | | 51.56 | 1.8649 | | 32.8908 | | | 32.886 | 54 | 1145 | 1 |
| 2 | | | 18 | | 1403 | | | | | 18.49 | 3.1640 | | 31.8077 | | | 31.805 | 71 | 1146 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WMB
✓ ____

SST 3.3°C



| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 15 | Surveyor | SU-89-1 (ICE) | | | Drizzle, cloudy 2' sea - 4' swell VIS 3NM | QP17 |

| Consec. Cast # | Latitude Deg. | Min | N or S | Longitude Deg. | Min | E or W | Date JD = 274 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb 1002.2 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 115 | 71 | 59.98 | N | 168 | 58.74 | W | 01 | 01 | 89 | 15 | 15 | 00.1 | -03 | | | | 350 | 12 | | | | 48 | QP17 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.424 | |
| Temp. | 6573.4 | |
| Cond. | | |
| Other | | |

**Times**

| | JD/Time |
|---|---|
| Data on | 1513 |
| at Surface | 1513 |
| Start Down | 1513 |
| at Bottom | 1515 |
| Start Up | 1516 |
| at Surface | 1517 |
| Data off | 1518 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #15 | QP17.DAT |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 48 | | 1515 | | | | | 48.35 | 2.1462 | | 32.8357 | | | 32.847 | 15 | 1147 | 1 |
| 2 | | | 16 | | 1517 | | | | | 16.19 | 3.4553 | | 32.0929 | | | 32.077 | 79 | 1148 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WMB

✓

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 116 | Surveyor | SU-89-1 (ICE) | | | | QJ19 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | Min. | E or W | Date JD = 274 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 116 | 71 | 53.84 | N | 168 | 56.74 | W | 01 | OCT | 89 | 16 | 11 | Φ1 | ΦΦ | Φ27 | 2/3 | 10 | 34Φ | 16 | | | 47 | QJ19 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 339 28.46 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 16Φ7 |
| Start Down | 16Φ8 |
| at Bottom | 1611 |
| Start Up | 1612 |
| at Surface | |
| Data off | |

**Data Location**

~~Tape~~/Diskette I.D. ____

File Name/Header QJ19.DAT

Remarks 2 bottles

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 47 | | 1611 | | | | | 47.27 | Φ.1979 | 26.Φ617 | 32.4786 | | | 32.482 | 22 | 1149 | 1 |
| 2 | | | 1Φ | | 1613 | | | | | 11.64 | 3.7ΦΦ5 | 25.339Φ | 31.887Φ | | | 31.972 | 43 | 1150 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials CHD

✓ ____

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 117 | Surveyor | SU-89-1 (ICE) | | | | QJ18 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | Min. | E or W | Date Day | Mo. | Yr. | JD = 274 | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 117 | 71 | ~~45.92~~ 46.06 | N | 168 | ~~39.89~~ 40.70 | W | 01 | 06 | 89 | | 17 | 28 | 00 | -08 | 02 | 1/2 | 7 | 350 | 12 | | | | 45 | QJ18 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.50 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 1716 |
| Start Down | 1717 |
| at Bottom | 1728 |
| Start Up | 1729 |
| at Surface | 1732 |
| Data off | |

**Data Location**

| ~~Tape~~/Diskette I.D. | File Name/Header |
|---|---|
| #16 | QJ18.DAT |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 46 | | 1728 | | | | | 45.53 | 0.8383 | 26.0328 | 32.4848 | | | 32.475 | 007 | 1151 | 1 |
| 2 | | | 10 | | 1732 | | | | | 10.18 | 3.5952 | 25.6599 | 32.2780 | | | 32.291 | 45 | 1152 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ____
✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 118 | Surveyor | SU-89-1 (ICE) | | | | QJ17 |

| Consec. Cast # | Latitude Deg. | Latitude Min | N or S | Longitude Deg. | Longitude Min | E or W | Date Day | Mo. | Yr. | JD = 274 | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 118 | 71 | 38 | N | 165 | 23 | W | 01 | OCT | 89 | | 18 | 50 | 03 | 00 | 24 | 2/3 | 8 | 347 | 15 | | | 45 | QJ17 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.51 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 1847 |
| Start Down | 1848 |
| at Bottom | 1850 |
| Start Up | 1851 |
| at Surface | 1855 |
| Data off | |

**Data Location**

| ~~Tape~~/Diskette I.D. | File Name/Header |
|---|---|
| # 16 | QJ17.DAT |

Remarks: 4 bottles

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 46 | | 1850 | | | | | 45.68 | 1.9893 | 26.0064 | 32.5454 | | | 32.586 | 24 | 1153 | 1 |
| 2 | | | 30 | | 1851 | | | | | 30.30 | 3.7800 | 25.6981 | 32.3479 | | | 32.366 | 31 | 1154 | 2 |
| 3 | | | 20 | | 1853 | | | | | 19.81 | 3.7278 | 25.6905 | 32.3319 | | | 32.343 | 94 | 1155 | 3 |
| 4 | | | 10 | | 1854 | | | | | 9.38 | 3.7244 | 25.6896 | 32.3304 | | | 32.366 | 83 | 1156 | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials CAD

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 119 | Surveyor | SU-89-1 (ICE) | | | W1-2 SW 2-3 | QJ16 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date Day | Mo. | Yr. | JD = 274 | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 119 | 71 | 30.09 | N | 168 | 05.55 | W | 01 | OCT | 89 | 20 | 24 | 04 | 02 | 1002.5 | | 8-10 | 350 | 12 | | | 44 | QJ16 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.460-611 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 274/2023 |
| at Surface | 2023 |
| Start Down | 2023 |
| at Bottom | 2024+ |
| Start Up | 2025 |
| at Surface | 2026 |
| Data off | 2026 |

**Data Location**

| ~~Tape~~/Diskette I.D. | File Name/Header |
|---|---|
| #16 | QJ16.DAT |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 2024 | | | | | 44.22 | 2.664 | | 32.572 | | | 32.581 | 70 | 1157 | 1 |
| 2 | | | | | 2026 | | | | | 9.62 | 4.000 | | 31.710 | | | 31.722 | 109 | 1158 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials LAO
✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 120 | Surveyor | SU-89-1 (ICE) | | | Wave 1-2 Sw 2-3 | QJ 15 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 274 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 120 | 71 | 21 | 73 | 167 48 | 62 | 01 | Oct | 89 | 21 | 44 | 09 | 05 | 1007.8 | | 8-10 | 350 | 18 | | | 44 | QJ15 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928, 493-611 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 274 / 2142 |
| at Surface | 2142 |
| Start Down | 2142 |
| at Bottom | 2144 |
| Start Up | 2144 |
| at Surface | 2145 |
| Data off | 2145 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #16 | QJ15 |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 2144 | | | | | 44.20 | 2.616 | | 32.514 | | | 32.526 | 21 | 1159 | 1 |
| 2 | | | | | 2145 | | | | | 10.40 | 3.872 | | 31.915 | | | 31.929 | 50 | 1160 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials LPO
✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 124 | Surveyor | SU-89-1 (ICE) | | | DCast W 1-2 & 2-2 | 120 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 274 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 124 | 71 | 14.23 | | 167 31.91 | | 01 | OCT | 89 | 23 | 03 | 1.0 | 0.5 | 1002.5 | | 8 | 350 | 16 | | | | 43 | QJ14 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.572 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 274/2301 |
| at Surface | 2301 |
| Start Down | 2302 |
| at Bottom | 2303 |
| Start Up | 2304 |
| at Surface | 2305 |
| Data off | |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| | QJ14 |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 2303 | | | | | 43.64 | 3.281 | | 32.471 | | | 32.479 | 34 | 1221 | 1 |
| 2 | | | | | 2304 | | | | | 9.91 | 4.113 | | 31.592 | | | 31.603 | 97 | 1222 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials IAD

✓ ✓

SST = 4.5°C



| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 122 | Surveyor | SU-89-1 (ICE) | | | 2' Sea 2' Swell Snow 6nm vis. | QJ13 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date JD = 275 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb 1003.0 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 122 | 71 | 05.8 | N | 167 | 14.8 | 02 | OCT | 89 | 00 | 24 | 01.5 | 00.6 | | | | 300 | 14 | | | 42 | QJ13 |

CTD
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.493 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

Data on ____
at Surface ____
Start Down ____
at Bottom 0024
Start Up 0024
at Surface ____
Data off ____

**Data Location**

Tape/Diskette I.D. #16

File Name/Header QJ13.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot. Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 42 | | 0024 | | | | | 42.06 | 3.6596 | | 32.3782 | | | 32.386 | 80 | 1223 | 1 |
| 2 | | | 13 | | 0026 | | | | | 13.00 | 4.4669 | | 31.5886 | | | 31.602 | 91 | 1224 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WMD

✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 123 | Surveyor | SU-89-1 (ICE) | | | vis. 6nm 2'sea 3'swell overcast | QJ12 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | Min. | E or W | Date JD = 275 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb 1003.0 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 123 | 70 | 58.3 | N | 166 | 59.4 | W | 20 | OCT | 89 | 01 | 45 | 01.5 | 01.0 | | | | 000 | 14 | | | | 42 | QJ12 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.630 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times**

| | JD/Time |
|---|---|
| Data on | 0143 |
| at Surface | 0143 |
| Start Down | 0143 |
| at Bottom | 0145 |
| Start Up | 0145 |
| at Surface | 0143 |
| Data off | 0143 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #18 | QJ12.DAT |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 42 | | 0145 | | | | | 42.20 | 2.4251 | | 32.3119 | | | 32.320 | 35 | 1225 | 1 |
| 2 | | | 9 | | 0143 | | | | | 8.74 | 4.4487 | | 31.0173 | | | 31.020 | 88 | 1226 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials NMP
✓ VP

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 124 | Surveyor | SU-89-1 (ICE) | | | cloudy 2' sea 3' swell vis 10nm | QJ11 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | Min. | E or W | Date JD = 275 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 124 | 70 | 50.2 | N | 166 | 42.4 | W | 20 | OCT | 89 | 03 | 08 | 02.0 | 01.2 | 1003.2 | | | 300 | 13 | | | | 40 | QJ11 |

CTD
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.61 | |
| Temp. | | |
| Cond. | | |
| Other | | |

| Times | JD/Time |
|---|---|
| Data on | 0304 |
| at Surface | 0304 |
| Start Down | 0304 |
| at Bottom | 0308 |
| Start Up | 0309 |
| at Surface | 0312 |
| Data off | 0312 ✓ |

**Data Location**

~~Tape~~/Diskette I.D. #16

File Name/Header QJ11.DAT

Remarks (4 Bottles)

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot.Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 40 | 0 | 0308 | | | | | 39.99 | 2.1068 | | 32.2128 | | | 32.225 | 03 | 1227 | 1 |
| 2 | | | 31 | | 0309 | | | | | 31.31 | 2.1421 | | 32.1904 | | | 32.204 | 89 | 1228 | 2 |
| 3 | | | 20 | | 0310 | | | | | 19.68 | 4.3090 | | 30.8310 | | | 31.365 | 93 | 1229 | 3 |
| 4 | | | 10 | | 0311 | | | | | 9.75 | 4.3036 | | 30.8355 | | | 30.846 | 105 | 1230 | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WJB
✓ ____

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 125 | Surveyor | SU-89-1 (ICE) | | | | QJ10 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date Day | Mo. | Yr. | JD = 275 | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 125 | 70 | 42 | 23 | N | 166 | 24 | 41 | W | 02 | 02 | 89 | 04 | 57 | 15 | 12 | 03.5 | 3/3 | 5 | 015 | 18 | | | 38 | QJ10 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.58 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on ____
at Surface 0455
Start Down 0456
at Bottom 0457
Start Up 0458
at Surface 0501
Data off ____

**Data Location**
Tape/Diskette I.D. #17
File Name/Header QJ10.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot. Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 38 | | 0457 | | | | | 38.39 | 1.2888 | 25.8335 | 32.2705 | | | 32.272 | 54 | 1231 | 1 |
| 2 | | | 8 | | 0500 | | | | | 8.72 | 3.1785 | 24.4468 | 30.7091 | | | 30.724 | 71 | 1232 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 126 | Surveyor | SU-89-1 (ICE) | | | | QJ9 |

| Consec. Cast # | Latitude Deg. | Min | N or S | Longitude Deg. | Min | E or W | Date Day | Mo. | Yr. | JD = | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 126 | 70 | 33.83 | N | 166 | 09.13 | W | 20 | OCT | 89 | 275 | 06 | 19 | 20 | 18 | 03 | 3/3 | 7 | 350 | 08 | | | 40 | QJ9 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press | 33928.65 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on ____
at Surface 0616
Start Down 0617
at Bottom 0619
Start Up 0620
at Surface 0624
Data off ____

**Data Location**
~~Tape~~/Diskette I.D. #17
File Name/Header QJ9.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 40 | | 0619 | | | | | 40.22 | 0.3675 | 25.9297 | 32.3253 | | | 32.325 | 16 | 1233 | 1 |
| 2 | | | 9 | | 0622 | | | | | 9.30 | 4.4844 | 24.2611 | 30.6247 | | | 30.635 | 44 | 1234 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ____
✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 127 | Surveyor | SU-89-1 (ICE) | | | Cast W 1-2, S2-3 | QJ 8 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date Day | Date Mo. | Date Yr. | JD = 275 | Time GMT Hr. | Time GMT Min. | Dry Bulb | Wet Bulb | Bar. mb 1003.8 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 127 | 70 | 26.50 | N | 165 51.61 | W | 4 | OCT | 89 | | 07 | 43 | 1.6 | 1.4 | | | 5-7 | 010 | 014 | | | | 41 | QJ8 |

| CTD | |
|---|---|
| Type & SN | |
| Press. SN | |
| Temp. SN | |
| Cond. SN | |

| Monitor Checks | on Deck | at Surface |
|---|---|---|
| Press. | 33928.460-611 | |
| Temp. | | |
| Cond. | | |
| Other | | |

| Times | JD/Time |
|---|---|
| Data on | 275/0742 |
| at Surface | 0742 |
| Start Down | 0742 |
| at Bottom | 0743+ |
| Start Up | 0744 |
| at Surface | 0745 |
| Data off | 0746 |

| Data Location | |
|---|---|
| ~~Tape~~/Diskette I.D. | File Name/Header |
| #17 | QJ8.DAT |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 0743 | | | | | 41.28 | 2.723 | | 32.250 | | | 32.253 | 56 | 1235 | 1 |
| 2 | | | | | 0745 | | | | | 9.98 | 4.495 | | 30.473 | | | 30.491 | 62 | 1236 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials LAO ✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 128 | Surveyor | SU-89-2 (ICE) | | | 0 Cast W21 52-3 | QJ7 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date JD = 275 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb 1004.0 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 128 | 70 | 17.92 | | 165 36.46 | | | 02 | Oct | 89 | 09 | 05 | 23 | 20 | | | +10 | 010 | 13 | | | | 40 | QJ7 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.493-6.916 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 275/0903 |
| at Surface | 0903 |
| Start Down | 0904 |
| at Bottom | 0905 |
| Start Up | 0906 |
| at Surface | 0908 |
| Data off | 0908 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #17 | QJ7 |

Remarks temp top bottle 2x + trying new sref. bottle

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 0905 | | | | | 40.71 | 4.610 | | 31.797 | | | 31.797 | 52 | 1237 | 1 |
| 2 | | | | 2X | 0907 | | | | | 9.54 | 4.808 | | 30.380 | | | | NO SAMPLES | | 2 |
| 3 | | | | | 0907 | | | | | 9.54 | 4.813 | | 30.380 | | | 30.391 | 75 | 1238 | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials LAO
✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 129 | Surveyor | SU-89-2 (ICE) | | | W<1 52-3 | QJ6 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date JD = 275 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 129 | 70 | 10.01 | | 165 19.74 | | 02 | Oct | 89 | 10 | 16 | 2.4 | 2.0 | 1004.0 | | 10+ | 011 | 15 | | | | 38 | QJ6 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.578-611 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on 275/1015
at Surface 1014
Start Down 1015
at Bottom 1016
Start Up 1016+
at Surface 1018
Data off 1018

**Data Location**
Tape/Diskette I.D. #17
File Name/Header QJ6

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot. Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 1016 | | | | | 38.96 | 4.828 | | 31.683 | | | 31.678 | 41 | 1239 | 1 |
| 2 | | | | | 1017 | | | | | 9.68 | 5.255 | | 31.194 | | | 31.201 | 46 | 1240 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials VAO
✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 130 | Surveyor | SU-89-1 (ICE) | | | 0 Cast <1, 2-3 | QJ5 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date JD = 275 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 130 | 70 | 01.80 | | 165 | 03.40 | 02 | Oct | 89 | 11 | 33 | 24 | 20 | 1005.0 | | 10 | 010 | 08 | | | | 36 | QJ5 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.460-578 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on 275/1132
at Surface 1132
Start Down 1132
at Bottom 1133
Start Up 1134
at Surface ____
Data off ____

**Data Location**
~~Tape~~/Diskette I.D. ____
File Name/Header QJ5

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot.Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 1133 | | | | | 37.12 | 4.838 | | 31.952 | | | 31.957 | 58 | 1241 | 1 |
| 2 | | | | | 1134 | | | | | 9.14 | 4.699 | | 30.620 | | | 30.585 | 85 | 1242 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials LAO
✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 131 | Surveyor | SU-89-1 (ICE) | | | overcast vis 10 nm | QJ4 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date JD = 275 Day | Mo. | Yr. | Time GMT Hr. | Time GMT Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 131 | 69 | 54.3 | N | 165 | 47.9 | W | 02 | OCT | 89 | 12 | 49 | 02.20 | 02.0 | 1005.5 | | | 350 | 08 | | | 32 | QJ4 |

**CTD**

Type & SN ____

Press. SN ____

Temp. SN ____

Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.729 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 1248 |
| at Surface | 1248 |
| Start Down | 1248 |
| at Bottom | 1249 |
| Start Up | 1249 |
| at Surface | 1250 |
| Data off | 1250 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #17 | QJ4.DAT |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 33 | | 1249 | | | | | 32.89 | 5.0022 | | 31.1010 | | | 31.046 | 18 | 1243 | 1 |
| 2 | | | 9 | | 1250 | | | | | 8.91 | 5.0389 | | 30.4730 | | | 30.484 | 37 | 1244 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WJB

✓ ____

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 132 | Surveyor | SU-89-1 (ICE) | | | overcast vis 10nm 1' sea 2' swell | QJ3 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date JD = 275 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 132 | 69 | 46.3 | N | 165 | W | 02 | OCT | 89 | 14 | 10 | 02.5 | 02.0 | 1005.5 | | | 350 | 08 | | | | 26 | QJ3 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.605 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on 1410
at Surface 1410
Start Down 1410
at Bottom 1411
Start Up 1411
at Surface 1412
Data off 1412

**Data Location**
Tape/Diskette I.D. #17
File Name/Header QJ3.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot. Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 27 | | 1411 | | | | | 26.76 | 4.2752 | | 31.3994 | | | 31.354 | 53 | 1245 | 1 |
| 2 | | | 10 | | 1412 | | | | | 10.39 | 10.39 | | 30.2833 | | | 30.250 | 67 | 1246 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WJB
✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 133 | Surveyor | SU-89-1 (ICE) | | | cloudy vis. 10nm | QJ2 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date JD = 275 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb 1005.5 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 133 | 69 | 38.8 | N | 164 | 40 | 02 | OCT | 89 | 15 | 28 | 02.7 | 02.5 | | | | 350 | 08 | | | | 20 | QJ2 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.733 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times**

| | JD/Time |
|---|---|
| Data on | 1527 |
| at Surface | 1527 |
| Start Down | 1527 |
| at Bottom | 1528 |
| Start Up | 1528 |
| at Surface | 1529 |
| Data off | 1529 |

**Data Location**

~~Tape/~~Diskette I.D. #17

File Name/Header QJ2.DAT

Remarks SST 4.8 °C

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot. Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 20 | | 1528 | | | | | 20.71 | 4.1434 | | 31.6558 | | | 31.629 | 25 | 1247 | 1 |
| 2 | | | 10 | | 1529 | | | | | 9.65 | 4.8082 | | 30.3726 | | | 30.383 | 42 | 1248 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ____

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 134 | Surveyor | SU-89-1 (ICE) | | | | QJ1 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | Min. | E or W | Date Day | Mo. | Yr. (JD = 275) | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 134 | 69 | 24 | N | 163 | 41 | W | 20 | OCT | 89 | 16 | 55 | 27 | 25 | 057 | 1 | 3 | 10 | 05 | | | | 18 | QJ1 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.53 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 1653 |
| Start Down | 1654 |
| at Bottom | 1655 |
| Start Up | 1656 |
| at Surface | 1658 |
| Data off | |

**Data Location**

| ~~Tape~~/Diskette I.D. | File Name/Header |
|---|---|
| #17 | QJ1.DAT |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 18 | | 1655 | | | | | 18.05 | 3.6790 | 25.4352 | 32.0054 | | | 32.016 | 39 | 1249 | 1 |
| 2 | | | 10 | | 1657 | | | | | 10.61 | 3.9701 | 25.1357 | 31.6632 | | | 31.654 | 69 | 1250 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ____
✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 135 | Surveyor | SU-89-1 (ICE) | | | vis 10+ P/cloudy 1' sea 3' swell | QL1 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | Min. | E or W | Date JD = 275 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 135 | 68 | 52 ~~5~~ 48 | N | 166 | 18 ~~5~~ 52 | W | 02 | Oct | 89 | 23 | 55 | 05.2 | 04.6 | 1005.3 | | | 160 | 15 | | | | 20 | QL1 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928, 813-931 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on 275 / 2355
at Surface ____
Start Down ____
at Bottom 2355
Start Up ____
at Surface ____
Data off ____

**Data Location**
~~Tape~~/Diskette I.D. #18
File Name/Header QL1.DAT

Remarks Cape Lisburne

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 20 | | 2355 | | | | | 20.76 | 5.7364 | | 30.2243 | | | 30.213 | 46 | 1251 | 1 |
| 2 | | | 9 | | 2356 | | | | | 9.19 | 6.0904 | | 29.8331 | | | 29.840 | 52 | 1252 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WJB ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 136 | Surveyor | SU-89-1 (ICE) | | | | QL2 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date Day | Date Mo. | Date Yr. | Time GMT Hr. | Time GMT Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 136 | 69 | 03 | S | 166 | 37 | W | 03 | OCT | 89 | 01 | 33 | 05.3 | 04.5 | 1005.2 | | | 170 | 20 | | | | 33 | QL2 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.748 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on ____
at Surface 0133
Start Down 0133
at Bottom 0134
Start Up 0134
at Surface ____
Data off ____

**Data Location**
Tape/Diskette I.D. #18
File Name/Header QL2.DAT

Remarks SST 6.5°C

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 33 | | 0134 | | | | | 33.40 | 6.2903 | # | 31.1374 | | | 31.145 | 41 | 1253 | 1 |
| 2 | | | 11 | | 0135 | | | | | 11.23 | 6.5393 | | 29.4972 | | | 29.506 | 102 | 1254 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WHB

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 137 | Surveyor | SU-89-1 (ICE) | | | 1' sea 3' swell, cloudy, Rain squalls | QL3 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date JD = 276 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 137 | 69 | 12 | N | 166 | 54.4 | W | 03 | OCT | 89 | 02 | 55 | 05.0 | 04.3 | 1003.9 | | 10 | 160 | 20 | | | | 37 | QL3 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.763 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 0254 |
| Start Down | 0254 |
| at Bottom | 0256 |
| Start Up | 0256 |
| at Surface | 0259 |
| Data off | 0259 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #18 | QL3.DAT |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 37 | | 0256 | | | | | 37.49 | 5.7821 | | 31.2303 | | | 31.233 | 66 | 1255 | 1 |
| 2 | | | 10 | | 0258 | | | | | 9.51 | 6.1706 | | 29.7647 | | | 29.774 | 113 | 1256 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WJB ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 138 | Surveyor | SU-89-1 (ICE) | | | | QL 4 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date JD = 276 Day | Mo. | Yr. | Time GMT Hr. | Time GMT Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 138 | 69 | 21.11 | N | 167 | 04.74 | W | 03 | OCT | 89 | 04 | 12 | 5.54 | 4.8 | 04 | 1/3 | 10 | 163 | 10 | | | | 43 | QL4 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.75 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on ____
at Surface 276/0408
Start Down 0409
at Bottom 0412
Start Up 0413
at Surface 0418
Data off ____

**Data Location**
Tape/Diskette I.D. #18
File Name/Header QL4.DAT

Remarks (4 Bottles) + Bongo

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 43 | | 0412 | | | | | 42.85 | 5.9923 | 24.8799 | 31.6040 | | | 31.615 | 51 | 1257 | 1 |
| 2 | | | 28 | | 0415 | | | | | 28.81 | 6.0393 | 24.7658 | 31.4774 | | | 31.465 | 78 | 1258 | 2 |
| 3 | | | 18 | | 0416 | | | | | 17.36 | 5.8995 | 24.6457 | 31.3043 | | | 31.444 | 100 | 1259 | 3 |
| 4 | | | 8 | | 0417 | | | | | 7.48 | 5.9744 | 24.2436 | 30.8062 | | | 30.913 | 101 | 1260 | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials CHD
✓ ____

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 139 | Surveyor | SU-89-1 (ICE) | | | | QL5 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | Min. | E or W | Date JD = 276 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 139 | 69 | 28.79 | N | 167 | 27.45 | W | 03 | 06 | 89 | 06 | 01 | 5.6 | 5.0 | 0045 | 3/4 | 10 | 170 | 19 | | | | 44 | QL5 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.73 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on ____
at Surface 0558
Start Down 0559
at Bottom 0601
Start Up 0602
at Surface ____
Data off ____

**Data Location**
~~Tape~~/Diskette I.D. # 18
File Name/Header QL5.DAT
Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 44 | | 0601 | | | | | 43.91 | 4.4429 | 25.4404 | 32.1054 | | | 32.096 | 81 | 1421 | 1 |
| 2 | | | 10 | | 0604 | | | | | 9.89 | 5.5352 | 23.9702 | 30.3966 | | | 30.402 | 87 | 1422 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ____
✓ ____

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 140 | Surveyor | SU-89-1 (ICE) | | | ⊙ cast<br>wave 1-2 S 3-4 | QL6 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date Day | Date Mo. | Date Yr. (JD = 276) | Time GMT Hr. | Time GMT Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 140 | 69 | 37 | 74 | 167 | 41.29 | 03 | OCT | 89 | 07 | 27 | 5.9 | 5.2 | 1004.3 | | 8/10 | 167 | 17 | | | | 43 | QL6 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on ____
at Surface ____
Start Down ____
at Bottom 0727
Start Up ____
at Surface ____
Data off ____

**Data Location**
~~Tape~~/Diskette I.D. # 18
File Name/Header QL6.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 43 | | 0727 | | | | | 43.58 | 4.2019 | 2.54898 | 32.1370 | | | 32.236 | 73 | 1423 | 1 |
| 2 | | | 9 | | 0730 | | | | | 8.82 | 4.6760 | 23.7284 | 29.9769 | | | 29.989 | 95 | 1424 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials CHD
✓ ✓?

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 141 | Surveyor | SU-89-1 (ICE) | | | W1-2 S3-4 | 140 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date JD = 276 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 141 | 69 | 46.28 | | 167 | 57.30 | | 03 | Oct | 89 | 08 | 50 | 5.5 | 4.7 | 1004.8 | | 10 | 170 | 13 | | | | 45 | QL7 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.696-843 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on 276/0848
at Surface 0848
Start Down 0848
at Bottom 0850
Start Up 0850
at Surface 0852
Data off ____

**Data Location**
Tape/Diskette I.D.: #18
File Name/Header: QL7.det

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 0850 | | | | | 45.24 | 2.891 | | 32562 | | | 32.576 | 39 | 1425 | 1 |
| 2 | | | | | 0851 | | | | | 9.93 | 4.593 | | 30.521 | | | 30.539 | 69 | 1426 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials LAO
✓ ✓

QP31 4 bottles 163.3K 5.1



| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 142 | Surveyor | SU-89-1 (ICE) | | | 0 Cast W 1-2 & 3-4 | QL8 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 276 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb 1005.0 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 142 | 69 | 53.97 | | 168 | 13.42 | 03 | Oct | 89 | 10 | 17 | 5.6 | 5.0 | | | 10+ | 170 | 10 | | | | 43 | QL8 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928, 696-813 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 276/1015 |
| at Surface | 1015 |
| Start Down | 1015 |
| at Bottom | 1017 |
| Start Up | 1017 |
| at Surface | 1018 |
| Data off | 1018 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #18 | QL8 |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot.Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 1017 | | | | | 39.61 | 4.205 | | 32.252 | | | 32.291 | 25 | 1427 | 1 |
| 2 | | | | | 1018 | | | | | 9.60 | 5.152 | | 30.200 | | | 30.215 | 42 | 1428 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials UWD

✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 143 | Surveyor | SU-89-1 (ICE) | | | WL1 SW 3 | QL9 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 276 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 143 | 70 | 02.17 | | 168 | 29.98 | 03 | OCT | 89 | 11 | 35 | 5.5 | 5.0 | 1005.8 | | 10 | | | | | | 40 | QL9 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.696-813 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 276/1134 |
| at Surface | 1134 |
| Start Down | 1134 |
| at Bottom | 1135+ |
| Start Up | 1136 |
| at Surface | 1138 |
| Data off | 1138 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| # 19 | QL9 |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 1136 | 32.7 | | | | 32.75 | 4.607 | | 31.347 | | | 31.364 | 53 | 1429 | 1 |
| 2 | | | | | 1137 | | | | | 10.01 | 5.098 | | 30.580 | | | 30.595 | 67 | 1430 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials LAO
✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 144 | Surveyor | SU-89-1 (ICE) | | | VIS. 10, cloudy <1' sea 3' swell | QL 10 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date JD = 274 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 144 | 70 | 09.97 | N | 168 | 45.69 | W | 03 | OCT | 89 | 12 | 55 | 05.5 | 05.0 | 1005.2 | | | 165 | 17 | | | | 36 | QL10 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.693 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 1254 |
| at Surface | 1254 |
| Start Down | 1254 |
| at Bottom | 1255 |
| Start Up | 1256 |
| at Surface | 1257 |
| Data off | 1257 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #19 | QL10.DAT |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 36 | | 1255 | | | | | 36.49 | 4.7704 | | 30.9656 | | | 30.973 | 18 | 1431 | 1 |
| 2 | | | 10 | | 1256 | | | | | 9.97 | 4.8575 | | 30.7652 | | | 30.776 | 37 | 1432 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WJB
✓ ____

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 145 | Surveyor | SU-89-1 (ICE) | | | <1' sea, 3' swell vis 5 NM drizzle | QP28 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date JD = 276 Day | Mo. | Yr. | Time GMT Hr. | Time GMT Min. | Dry Bulb | Wet Bulb | Bar. mb 1005.5 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 145 | 70 | 10.06 | N | 168 | 57.6 | W | 03 | OCT | 89 | 13 | 55 | 05.0 | 04.8 | | | | 155 | 10 | | | | 33 | QP28 |

CTD
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.729 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on ____
at Surface ____
Start Down ____
at Bottom 1355
Start Up 1356
at Surface ____
Data off ____

**Data Location**
~~Tape~~/Diskette I.D. #19
File Name/Header QP28.DAT
Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 33 | | 1355 | | | | | 33.78 | | | 30.7982 | | | 30.810 | 58 | 1433 | 1 |
| 2 | | * | 10 | | 1357 | | | | * | 13.85 | 4.9700 | | 30.6541 | | | 30.721 | 85 | 1434 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | * Water sample taken at 9.7 meters, but pressure reading | | | | | | | | | | | | | 4 |
| 5 | | | | | | jumped up to 13.85 when bottle was triggered, so log | | | | | | | | | | | | | 5 |
| 6 | | | | | | file recorded it as 13.85. Pressure reading dropped | | | | | | | | | | | | | 6 |
| 7 | | | | | | to ~9.7 m. after bottle was tripped. WJB | | | | | | | | | | | | | 7 |
| 8 | | | | | | that area was well mixed so it may not be a problem | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WJB

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 146 | Surveyor | SU-89-1 (ICE) | | | <1' seq 3' swell | QP29 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date JD = 276 Day | Mo. | Yr. | Time GMT Hr. | Time GMT Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 146 | 69 | 59.97 | N | 168 | 57.85 | W | 03 | OCT | 89 | 15 | 14 | 05.0 | 04.6 | 1005.5 | | | 155 | 12 | | | | 33 | QP29 |

| CTD | Monitor Checks | | Times | JD/Time | Data Location | |
|---|---|---|---|---|---|---|
| Type & SN | on Deck | at Surface | Data on | 1512 | ~~Tape~~/Diskette I.D. | File Name/Header |
| Press. SN | Press. 33928.729 | | at Surface | 1512 | #19 | QP29.DAT |
| Temp. SN | Temp. | | Start Down | 1512 | | |
| Cond. SN | Cond. | | at Bottom | 1514 | | |
| | Other | | Start Up | 1514 | | |
| | | | at Surface | 1516 | Remarks SST 5.3°C | |
| | | | Data off | 1516 | | |

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 33 | | 1514 | | | | | 33.11 | 4.3877 | | 31.5429 | | | 31.497 | 16 | 1435 | 1 |
| 2 | | | 10 | | 1515 | | | | | 10.24 | 5.3013 | | 30.2955 | | | 30.309 | 44 | 1436 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WJB

✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 147 | Surveyor | SU-89-1 (ICE) | | | | QP3Φ |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date JD = 276 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 147 | 69 | 5Φ | Φ5 | N 168 | 57 ~~58~~ | W Φ3 | OCT | 89 | 16 | 38 | 48 | 43 | Φ53 | Φ/3 | 1Φ | 137 | 1Φ | | | | 41 | QP3Φ |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33728.7 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 276/1635 |
| Start Down | 1636 |
| at Bottom | 1638 |
| Start Up | 1639 |
| at Surface | 1641 |
| Data off | |

**Data Location**

| ~~Tape~~/Diskette I.D. | File Name/Header |
|---|---|
| #19 | QP3Φ.DAT |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 41 | | 1638 | | | | | 41.21 | 4.3625 | 25.5893 | 32.2827 | | | 32.293 | 54 | 1437 | 1 |
| 2 | | | 1Φ | | 1640 | | | | | 9.54 | 5.1795 | 23.918Φ | 3Φ.2817 | | | 30.295 | 71 | 1438 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials CHD
✓ ____

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 148 | Surveyor | SU-89-1 (ICE) | | | | QP31 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date Day | Date Mo. | Date Yr. (JD = 276) | Time GMT Hr. | Time GMT Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 148 | 69 | 40 | ~~71~~ N | 168 | 57 ~~41~~ 13 | W | 03 | OCT | 89 | 18 | 08 | 50 | 44 | 06 | 1/3 | 10 | 090 | 10 | | | | 50 | QP31 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.75 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 1803 |
| Start Down | 1804 |
| at Bottom | 1808 |
| Start Up | 1809 |
| at Surface | 1813 |
| Data off | |

**Data Location**

| ~~Tape~~/Diskette I.D. | File Name/Header |
|---|---|
| # 19 | QP31.DAT |

Remarks: 4 bottles

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 50 | | 1808 | | | | | 50.61 | 3.2624 | 25.9332 | 32.5828 | | | 32.560 | 15 | 1439 | 1 |
| 2 | | | 48 | | 1809 | | | | | 47.32 | 4.2496 | 25.5193 | 32.1801 | | 2 samples same bottle? | 32.134 | 22 | 1440 | 2 |
| 3 | | | 35 | | 1810 | | | | | 35.40 | 4.9671 | 25.0519 | 31.6849 | | | 32.135 | 43 | 1441 | 3 |
| 4 | | | 10 | | 1812 | | | | | 9.66 | 5.2227 | 23.9256 | 30.2986 | | | 30.313 | 96 | 1442 | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ____
✓ ____

5.0



| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 149 | Surveyor | SU-89-1 (ICE) | | | PC W <1 Swell 3-4 | QP32 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date JD = 276 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb 1005.9 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 149 | 69 | 30.29 | N | 168 58.43 | W | 03 | OCT | 89 | 20 | 04 | 5.0 | 4.5 | | | 10 | 080 | 13 | | | | 49 | QP32 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.696-8416 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 276/2003 |
| at Surface | 2002 |
| Start Down | 2003 |
| at Bottom | 2004 |
| Start Up | 2004 |
| at Surface | 2006 |
| Data off | 2006 |

**Data Location**

~~Tape~~/Diskette I.D. #19

File Name/Header QP32.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 2004 | | | | | 49.22 | 2.659 | | 32.821 | | | 32.825 | 7 | 1443 | 1 |
| 2 | | | | | 2006 | | | | | 9.72 | 5.097 | | 30.640 | | | 30.658 | 45 | 1444 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials UO

✓

4.6

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 150 | Surveyor | SU-89-1 (ICE) | | | PC W 1-2 SW 4-6 | QP33 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude E or W | Date JD = 276 Day | Mo. | Yr. | Time GMT Hr. | Time GMT Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 150 | 69 | 19 | 95 | 168 | 56 49 | 03 | Oct | 89 | 21 | 25 | 5.1 | 4.3 | 1006.0 | | 10 | 075 | 12 | | | | 49 | QP33 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928. 813-931 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 276/ 2124 |
| at Surface | 2124 |
| Start Down | 2124 |
| at Bottom | 2125+ |
| Start Up | 2126 |
| at Surface | 2128 |
| Data off | 2128 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #19 | QP33.dat |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 2125 | | | | | 49.21 | 2.311 | | 32.743 | | | 32.761 | 24 | 1445 | 1 |
| 2 | | | | | 2127 | | | | | 9.93 | 4.569 | | 30.269 | | | 30.293 | 31 | 1446 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials LAG

✓ ✓

48

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 151 | Surveyor | SU-89-1 (ICE) | | | PC W 1-2 SW 4-6 | QP34 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date JD = 276 Day | Mo. | Yr. | Time GMT Hr. | Time GMT Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 151 | 69 | 10.34 | | 168 | 57.40 | | 03 | Oct | 89 | 22 | 50 | 5.1 | 4.6 | 1005.9 | | 10 | 060 | 15 | | | | 47 | QP34 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.696-846 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 276/2248 |
| at Surface | 2248 |
| Start Down | 2248 |
| at Bottom | 2250 |
| Start Up | 2250 |
| at Surface | 2252 |
| Data off | 2252 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| | QP34 |

Not

Remarks [illegible]

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 2250 | | | | | 49.47 | 2.077 | | 32.831 | | | 32.849 | 83 | 1447 | 1 |
| 2 | | | | | 2251 | | | | | 9.52 | 4.809 | | 30.256 | | | 30.290 | 94 | 1448 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials LAO
✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 152 | Surveyor | SU-89-1 (ICE) | | | 1' sea 6' swell cloudy vis 10nm | QP35 |

| Consec. Cast # | Latitude Deg. Min. | N or S | Longitude Deg. | E or W | Date JD = 277 Day Mo. Yr. | Time GMT Hr. Min. | Dry Bulb | Wet Bulb | Bar. mb 1005.1 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 152 | 69004 | N | 168589 | W | 04 Oct 89 | 0012 | 0556 | 0416 | | | | 040 | 14 | | | | 50 | QP35 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.605 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times**

| | JD/Time |
|---|---|
| Data on | 277/0010 |
| at Surface | 0010 |
| Start Down | 0010 |
| at Bottom | 0012 |
| Start Up | 0012 |
| at Surface | 0014 |
| Data off | 0014 |

**Data Location**

| ~~Tape~~/Diskette I.D. | File Name/Header |
|---|---|
| #20 | QP35.DAT |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 50 | | 0012 | | | | | 49.62 | 2.1906 | | 32.8418 | | | 32.859 | 70 | 1449 | 1 |
| 2 | | | 10 | | 0014 | | | | | 10.39 | 4.5006 | | 30.9397 | | | 30.965 | 109 | 1450 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WJB

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 153 | Surveyor | SU-89-1 (ICE) | | | partly cloudy 1' sea 4' swell | QAA6 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude | E or W | Date JD = 277 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 153 | 68 | 54.3 | N | 169 | 00.4 | W | 04 | OCT | 89 | 01 | 19 | 05.1 | 04.5 | 1004.9 | | 10 | 065 | 16 | | | | 50 | QAA6 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.546 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on ____
at Surface ____
Start Down ____
at Bottom 0119
Start Up ____
at Surface ____
Data off ____

**Data Location**
~~Tape~~/Diskette I.D. #20
File Name/Header QAA6.DAT

Remarks 4-Bottles

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 50 | 50 | 0119 | | | | | 49.52 | 2.3795 | | 32.8520 | | | 32.868 | 21 | 1451 | 1 |
| 2 | | | 30 | | 0120 | | | | | 30.24 | 2.4794 | | 32.8398 | | | 32.859 | 34 | 1452 | 2 |
| 3 | | | 16 | | 0121 | | | | | 15.75 | 3.7492 | | 32.0223 | | | 32.057 | 50 | 1453 | 3 |
| 4 | | | 7 | | 0122 | | | | | 7.28 | 4.5451 | | 31.3680 | | | 31.390 | 97 | 1454 | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WJB

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 154 | Surveyor | SU-89-1 (ICE) | | | 1' sea 5' swell Partly Cloudy | QAA5 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude | E or W | Date JD = 277 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 154 | 68 | 54.3 | N | 168 | 29.0 | W | 04 | OCT | 89 | 03 | 10 | 04.5 | 03.9 | 1003.5 | | 10 | 060 | 22 | | | | 49 | QAA5 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.696 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times**

| | JD/Time |
|---|---|
| Data on | 0307 |
| at Surface | 0307 |
| Start Down | 0307 |
| at Bottom | 0309 |
| Start Up | 0310 |
| at Surface | 0312 |
| Data off | |

**Data Location**

~~Tape~~/Diskette I.D. #20

File Name/Header QAA5.DAT

Remarks SST 4.7°C

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 50 | | 0309 | | | | | 50.20 | 4.0376 | | 32.0763 | | | 32.090 | 80 | 1455 | 1 |
| 2 | | | 16 | | 0312 | | | | | 15.92 | 4.4387 | | 31.9586 | | | 31.970 | 91 | 1456 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WJB ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 155 | Surveyor | SU-89-1 (ICE) | | | | QAA4 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date Day | Mo. | Yr. | JD = 277 | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 155 | 68 | 54.31 | N | 168 | 22.45 | W | 04 | OCT | 89 | | 04 | 33 | 4.9 | 4.1 | 03 | 7/4 | 10 | 050 | 10 | | | 47 | |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.62 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 0430 |
| Start Down | 0431 |
| at Bottom | 0433 |
| Start Up | 0434 |
| at Surface | 0436 |
| Data off | |

**Data Location**

| ~~Tape~~/Diskette I.D. | File Name/Header |
|---|---|
| #20 | QAA4.DAT |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 47 | | 0433 | 47.44 | 3.6992 | | | 47.44 | 3.6992 | 25.6232 | 32.2438 | | | 32.239 | 35 | 1457 | 1 |
| 2 | | | 12 | | 0435 | | | | | 11.91 | 5.6578 | 24.9113 | 31.6048 | | | 31.620 | 88 | 1458 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials Clark

✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 156 | Surveyor | SU-89-1 (ICE) | | | | QAA3 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | Min. | E or W | Date JD = 277 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 156 | 68 | 54 | N | 167 | 34 | W | 04 | OCT | 89 | 06 | 00 | 4.6 | 4.0 | 025 | 3/4 | 10 | 050 | 23 | | | 44 | QAA3 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 3392.862 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 0557 |
| Start Down | 0558 |
| at Bottom | 0600 |
| Start Up | 0601 |
| at Surface | 0603 |
| Data off | |

**Data Location**

~~Tape~~/Diskette I.D. #20

File Name/Header QAA3.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 44 | | 0600 | | | | | 44.04 | 5.0533 | 25.1295 | 31.7945 | | | 31.803 | 003 | 1259 | 1 |
| 2 | | | 7 | | 0602 | | | | | 6.43 | 6.3117 | 24.6297 | 31.3470 | | | 31.369 | 89 | 1460 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ____
✓ ____

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 157 | Surveyor | SU-89-1 (ICE) | | | | QAA2 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | Min. | E or W | Date Day | Mo. | Yr. | JD = 277 | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 157 | 68 | 54.28 | N | 167 | 05.85 | W | 04 | OCT | 89 | | 07 | 25 | 5.0 | 4.1 | 04 | 3/4 | 10 | 057 | 24 | | | | 41 | QAA2 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.70 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 0723 |
| Start Down | 0724 |
| at Bottom | 0725 |
| Start Up | 0726 |
| at Surface | 0728 |
| Data off | |

**Data Location**

~~Tape~~/Diskette I.D. #20

File Name/Header QAA2.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 41 | | 0725 | | | | | 41.15 | 5.9204 | 24.8719 | 31.5936 | | | 31.605 | 73 | 1381 | 1 |
| 2 | | | 8 | | 0727 | | | | | 8.09 | 6.4996 | 23.2778 | 29.6605 | | | 29.664 | 105 | 1382 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ____
✓ ____

6.4

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 158 | Surveyor | SU-89-1 (ICE) | | | PC Wave 2-3 SW 4-6 | QAA1B |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude E or W | Date JD = 277 Day | Mo. | Yr. | Time GMT Hr. | Time GMT Min. | Dry Bulb | Wet Bulb | Bar. mb 1002.0 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 158 | 68 | 54.04 | | 166 38.67 | | 04 | Oct | 89 | 08 | 41 | 5.2 | 4.5 | | | 10+ | 050 | 23 | | | | 41 | QAA1B |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928, 578-729 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 277/ 0840 |
| at Surface | 0840 |
| Start Down | 0840 |
| at Bottom | 0841 |
| Start Up | 0842 |
| at Surface | 0843 |
| Data off | 0843 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| | QAA1B |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 0841 | | | | | 41.18 | 5.974 | | 30.162 | | | 30.169 | 56 | 1383 | 1 |
| 2 | | | | | 0842 | | | | | 10.01 | 6.458 | | 29.444 | | | 29.455 | 62 | 1384 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials UAO

✓ ____

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 159 | Surveyor | SU-89-1 (ICE) | | | PC W 2-3 SW 2-4 | QAAIA |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date JD = 277 Day | Mo. | Yr. | Time GMT Hr. | Time GMT Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 159 | 68 | 53.66 | | 166 | 18.29 | | 04 | Oct | 89 | 11 | 02 | 4.8 | 4.2 | 1001.7 | | 10+ | 065 | L8 | | | | 20 | QAAIA |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.578-729 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on 277 / 1100
at Surface 1101
Start Down 1101
at Bottom 1102
Start Up 1102
at Surface 1103
Data off 1104

**Data Location**
Tape/Diskette I.D. ____
File Name/Header QAAIA

Remarks bottom sample may be in S grad., J came up ~ 4m from bottom but not quite far enough

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 1102 | | | | | 16.27 | 6.282 | | 29.734 | | | 29.724 | 46 | 1385 | 1 |
| 2 | | | | | 1103 | | | | | 5.86 | 6.273 | | 29.664 | | | 29.675 | 75 | 1386 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials LAO
✓ ____

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 160 | Surveyor | SU-89-1 (ICE) | | | | QB7 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | Min. | E or W | Date JD = 277 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 160 | 67 | 59 | 27 N | 169 | 27 W | | 04 | OCT | 89 | 17 | 35 | 55 | 55 | 998 | 2/3 | 10 | 030 | 18 | | | | 53 | QB7 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.64 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 1732 |
| Start Down | 1733 |
| at Bottom | 1735 |
| Start Up | 1736 |
| at Surface | 1741 |
| Data off | |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #21 | QB7.DAT |

Remarks: 4 bottles

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 53 | | 1735 | | | | | 53.15 | 2.1294 | 26.3339 | 32.9674 | | | 32.980 | 41 | 1387 | 1 |
| 2 | | | 23 | | 1738 | | | | | 22.96 | 2.3151 | 26.0753 | 32.6621 | | | 32.600 | 66 | 1388 | 2 |
| 3 | | | 17 | | 1740 | | | | | 16.40 | 2.5112 | 25.8108 | 32.3566 | | | 32.595 | 102 | 1389 | 3 |
| 4 | | | 6 | | 1741 | | | | | 5.87 | 2.7665 | 24.5362 | 30.7797 | | | 30.770 | 113 | 1390 | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ____ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 161 | Surveyor | SU-89-1 (ICE) | | | | QB6 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | Min. | E or W | Date JD = 277 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 161 | 68 | 4.17 | N | 168 39.51 | | W | 04 | OCT | 89 | 19 | 22 | 4.5 | 4.0 | 997.3 | 3/5 | 10 | 030 | 17 | | | | 56 | QB6 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.58 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 1917 |
| Start Down | 1918 |
| at Bottom | 1922 |
| Start Up | 1923 |
| at Surface | 1926 |
| Data off | |

**Data Location**

~~Tape~~/Diskette I.D. #21

File Name/Header QB6.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 56 | | 1922 | | | | | 56.23 | 2.2480 | 26.2047 | 32.8173 | | | 32.831 | 51 | 1391 | 1 |
| 2 | | | 7 | | 1925 | | | | | 6.39 | 3.3006 | 23.6451 | 29.7153 | | | 29.714 | 78 | 1392 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ____
✓ ____

(Qd5) out



| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 162 | Surveyor | SU-89-1 (ICE) | | | p. sunny W 256 | QB5 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 277 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 162 | 68 | 07 | 10 | 168 | 17 87 | 04 | Oct | 89 | 20 | 39 | 4.7 | 4.4 | 999.0 | | 10+ | 035 | 18 | | | | 54 | QB5 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.578-611 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 277/2038 |
| at Surface | 2038 |
| Start Down | 2038 |
| at Bottom | 2039 |
| Start Up | 2040 |
| at Surface | 2042 |
| Data off | 2042 |

**Data Location**

| ~~Tape~~/Diskette I.D. | File Name/Header |
|---|---|
| #21 | QB5.DAT |

Remarks Odd sal decrease < upper 10m
Check upcast

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 2039 | | | | | 54.40 | 3.179 | | 32.584 | | | 32.599 | 100 | 1393 | 1 |
| 2 | | | | | 2041 | | | | | 13.36 | 4.455 | | 31.388 | | | 31.355 | 101 | 1394 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials LAO
✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 163 | Surveyor | SU-89-1 (ICE) | | | PC W 1-2 SW 3-5 | 163 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 277 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 163 | 68 | 10 | 12 | 167 | 56 63 | 04 | Oct | 89 | 21 | 49 | 4.7 | 4.4 | 998.2 | | 10+ | 030 | 14 | | | | 49 | QB4 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.578-696 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 277 / 2148 |
| at Surface | 2148 |
| Start Down | 2148 |
| at Bottom | 2149 |
| Start Up | 2150 |
| at Surface | 2151 |
| Data off | 2151 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #21 | QB4.dat |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 2149 | | | | | 49.08 | 4.173 | | 32.156 | | | 32.170 | 81 | 1395 | 1 |
| 2 | | | | | 2151 | | | | | 11.44 | 30.464 | | 30.464 | | | 30.453 | 87 | 1396 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials UAD
✓ ✓

6.5

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 164 | Surveyor | SU-89-1 (ICE) | | | PC W1-2 SW3-5 weather at 2000 | QB3 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 277 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 164 | 68 | 13.00 | | 167 36.90 | | 04 | Oct | 89 | 23 | 03 | 4.7 | 4.4 | 998.2 | | 10+ | 030 | 14 | | | | 46 | QB3 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.578-813 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 277 / 2300 |
| at Surface | 2301 |
| Start Down | 2301 |
| at Bottom | 2303 |
| Start Up | 2303 |
| at Surface | 2305 |
| Data off | 2305 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #21 | QB3.dat |

Remarks: Came out of water after 10m dip - use upcast for surf. values - (1-2 m)

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 2303 | | | | | 46.49 | 4.9314 | | 31.8312 | | | 31.832 | 73 | 1397 | 1 |
| 2 | | | | | 2304 | | | | | 9.16 | 6.463 | | 30.11967 | | | 30.228 | 95 | 1398 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials LAO

✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 165 | Surveyor | SU-89-1 (ICE) | | | partly cloudy 1' sea 3' swell | QB2 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 278 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 165 | 68 | 17.24 | N | 167 14.80 | W | 05 | OCT | 89 | 00 | 17 | 06.1 | 05.2 | 998.4 | | 10+ | 040 | 10 | | | | 42 | QB2 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.590 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 0016 |
| at Surface | 0016 |
| Start Down | 0016 |
| at Bottom | 0017 |
| Start Up | |
| at Surface | |
| Data off | |

**Data Location**

| Diskette I.D. | File Name/Header |
|---|---|
| #21 | QB2.DAT |

Remarks: 4 bottles

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 43 | | 0017 | | | | | 42.52 | 6.5330 | | 31.2744 | | | 31.289 | 39 | 1399 | 1 |
| 2 | | | 27 | | 0019 | | | | | 26.86 | 6.7548 | | 31.1394 | | | 31.144 | 42 | 1400 | 2 |
| 3 | | | 19 | | 0020 | Mark #4 | | | | 19.46 | 6.6863 | | 30.5291 | DID NOT GET SAMPLE | | | | | 3 |
| 4 | | | 8 | | 0021 | Mark #5 | | | | 8.56 | 6.4356 | | 30.2007 | | | 30.229 | 69 | 1401 | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | Disregard Mark #3 | | | | | | | Bottle did not trip | | | | | | 6 |
| 7 | | | | | | error due to Rosette tripping | | | | | | | | any way | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ____
✓ ____

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 166 | Surveyor | SU-89-1 (ICE) | | | 1' sea 2' swell | QB1 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date JD = 278 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 166 | 68 | 19.84 | N | 166 51.56 | W | 05 | 07 | 89 | 02 | 37 | 06.0 | 05.1 | 998.0 | | 10+ | 000 | 10 | | | | 23 | QB1 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.460 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 0235 |
| at Surface | 0235 |
| Start Down | 0235 |
| at Bottom | 0237 |
| Start Up | 0237 |
| at Surface | 0239 |
| Data off | 0239 |

**Data Location**

~~Tape~~/Diskette I.D. #21

File Name/Header QB1.DAT (POINT HOPE)

Remarks Change Lat/Lon 69→68 68°19.82 166°51.09

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot. Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 23 | | 0237 | | | | | 23.34 | 6.6447 | | 29.3000 | | | 29.295 | 25 | 1402 | 1 |
| 2 | | | 8 | | 0238 | | | | | 7.44 | 5.4044 | | ~~5.4044~~ | | | 27.032 | 52 | 1403 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WJB
✓ ✓

5.8



| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 167 | Surveyor | SU-89-1 (ICE) | | | <1' sea 1' swell | QC13 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date JD = 278 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 167 | 67 | 15.0 | N | 164 01.0 | W | 05 | Oct | 89 | 11 | 47 | 05.4 | 04.8 | 996.6 | | 10 | 088 | 14 | | | | 14 | QC13 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.460-578 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 278/1146 |
| at Surface | 1146 |
| Start Down | 1146 |
| at Bottom | 1147 |
| Start Up | 1147 |
| at Surface | 1149 |
| Data off | 1149 |

**Data Location**

| ~~Tape~~/Diskette I.D. | File Name/Header |
|---|---|
| #22 | QC13.DAT |

Remarks Not good sal. sample; gradient everywhere

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 14 | | 1147 | | | | | 14.06 | 6.2130 | | 22.4318 | | | 28.114 | 24 | 1404 | 1 |
| 2 | | | 5 | | 1148 | | | | | 8.83 | 6.2110 | | 21.4252 | | | 27.011 | 31 | 1408 106 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials Sab/WJB

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 168 | Surveyor | SU-89-1 (ICE) | | | <1' sea 1' swell cloudy drizzle | QC12 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date JD = 278 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 168 | 67 | 14.22 | N | 164 25.80 | W | 05 | OCT | 89 | 1259 | | 05.7 | 05.3 | 997.0 | | | 070 | 08 | | | | 20 | QC12 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.531 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times**

| | JD/Time |
|---|---|
| Data on | 1259 |
| at Surface | 1259 |
| Start Down | 1259 |
| at Bottom | 1259 |
| Start Up | 1300 |
| at Surface | 1300 |
| Data off | 1300 |

**Data Location**

| ~~Tape~~/Diskette I.D. | File Name/Header |
|---|---|
| #22 | QC12.DAT |

Remarks SST = 6.6°C

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 20 | | 1259 | | | | | 20.44 | 6.6258 | | 28.9501 | | | 28.948 | 007 | 1406 | 1 |
| 2 | | | 10 | | 1300 | | | | | 9.76 | 6.6317 | | 28.9108 | | | 28.924 | 45 | 1407 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WJB

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 169 | Surveyor | SU-89-1 (ICE) | | | VIS 10 NM overcast <1' sea 1' swell | QC11 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 278 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 169 | 67 | 15.24 | N | 164 50.56 | W | 05 | OCT | 89 | 14 | 08 | 06.0 | 05.5 | 997.0 | | 10 | 07 | 11 | | | | 28 | QC11 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.493 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on 278/1407
at Surface 1407
Start Down 1407
at Bottom 1408
Start Up ____
at Surface ____
Data off ____

**Data Location**
Tape/Diskette I.D. #22
File Name/Header QC11.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 29 | 29 | 1408 | | | | | 28.60 | 7.1280 | | 31.1095 | | | 31.057 | 43 | 1408 | 1 |
| 2 | | | 10 | | 1409 | | | | | 10.18 | 6.7220 | | 28.8848 | | | 28.897 | 96 | 1409 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials wjB ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 170 | Surveyor | SU-89-1 (ICE) | | | <1' sea 1' swell overcast + drizzle | QC10 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 278 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 170 | 67 | 15.21 | | 165 15.63 | W | 05 | OCT | 89 | 15 | 19 | 059 | 054 | 997.0 | | 10 | 065 | 07 | | | | 28 | QC10 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.578 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 278/1518 |
| at Surface | 1518 |
| Start Down | 1518 |
| at Bottom | 1519 |
| Start Up | 1519 |
| at Surface | 1521 |
| Data off | 1521 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #22 | QC10.DAT |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 29 | | 1519 | | | | | 28.65 | 6.7899 | | 30.4832 | | | 30.393 | 15 | 1410 | 1 |
| 2 | | | 10 | | 1520 | | | | | 10.38 | 6.9167 | | 29.4817 | | | 29.490 | 22 | 1411 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WAB
✓ ____

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 171 | Surveyor | SU-89-1 (ICE) | | | | QC9 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | Min. | E or W | Date JD = 278 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 171 | 67 | 15 | 38 N | 165 | 39 | 86 W | 05 | OCT | 89 | 16 | 32 | 6 | 0 | 5 | 3 | 9 | 6 | 9 | 10 | 057 | 07 | | 30 | QC9 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.546 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 1629 |
| Start Down | 1630 |
| at Bottom | 1632 |
| Start Up | 1633 |
| at Surface | 1636 |
| Data off | |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #22 | QC9.DAT |

Remarks 46 bottle *Salinity Bottles possibly reversed.

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 31 | | 1622 | | | | | 30.73 | 6.7636 | 23.8889 | 30.4776 | | | 30.487 | 16 | 1412 | 1 |
| 2 | | | 27 | | 1623 | | | | | 27.43 | 6.8240 | 23.8392 | 30.4241 | | | *30.278 | 44 | 1413 | 2 |
| 3 | | | 20 | | 1634 | | | | | 19.89 | 7.0775 | 23.0752 | 29.4938 | | | *30.400 | 54 | 1414 | 3 |
| 4 | | | 7 | | 1635 | | | | | 6.61 | 6.9309 | 22.8328 | 29.1623 | | | 29.213 | 71 | 1415 | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ____
✓ ____

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 172 | Surveyor | SU-89-1 (ICE) | | | | |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | Min. | E or W | Date Day | Mo. | Yr. (JD = 278) | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 172 | 67 | 15 | ~~28~~ 43 N | 164 | ~~15~~ 18 | N | 05 | OCT | 89 | 18 | 01 | 5.4 | 5.5 | 966 | 9 | 10 | 353 | 08 | | | | 33 | QC8 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.56 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 1759 |
| Start Down | 1800 |
| at Bottom | 1801 |
| Start Up | 1802 |
| at Surface | 1805 |
| Data off | |

**Data Location**

| ~~Tape~~/Diskette I.D. | File Name/Header |
|---|---|
| #22 | QC8 |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp.° | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 33 | | 1801 | | | | | 33.30 | 6.9256 | 23.7698 | 30.3521 | | | 30.341 | 15 | 1416 | 1 |
| 2 | | | 5 | | 1804 | | | | | 4.95 | 6.7883 | 23.4159 | 29.8809 | | | 29.848 | 22 | 1417 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ____
✓ ____

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 173 | Surveyor | SU-89-1 (ICE) | | | | |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date JD = Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 173 | 67 | 15 ~~16~~ | N | 166 ~~29~~ 30.06 | W | 05 | 07 | 89 | 19 | 15 | 5.9 | 5.2 | 970 | 0 | 10 | 015 | 05 | | | | 38 | QC7 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.61 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 277/1912 |
| Start Down | 1913 |
| at Bottom | 1915 |
| Start Up | 1916 |
| at Surface | 1919 |
| Data off | |

**Data Location**

~~Tape~~/Diskette I.D. #22

File Name/Header QC7.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot.Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 39 | | 1915 | | | | | 38.50 | 6.1089 | 24.8806 | 31.6333 | | | 31.640 | 43 | 1418 | 1 |
| 2 | | | 10 | | 1918 | | | | | 9.58 | 6.8504 | 23.8857 | 30.4877 | | | 30.431 | 96 | 1419 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials CHD

✓ ____

6.4

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 174 | Surveyor | SU-89-1 (ICE) | | | 0cast WL1 SW0 | |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date JD = 278 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb 997.5 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 174 | 67 | 15.5 | - | 166 | 55.31 | 05 | Oct | 89 | 20 | 32 | 5.8 | 5.4 | | | 10 | 000 | 08 | | | | 39 | QC6 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.460-611 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on 278/2031
at Surface 2031
Start Down 2031
at Bottom 2032
Start Up 2033
at Surface 2034
Data off 2034

**Data Location**
Tape/Diskette I.D. 22
File Name/Header QC6.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot. Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 2032 | | | | | 39.62 | 5.787 | | 31.558 | | | 31.565 | 7 | 1420 | 1 |
| 2 | | | | | 2033 | | | | | 14.44 | 6387 | | 31.450 | | | 31.457 | 45 | 909 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials UAO
✓ ✓

3.8 196,608 left



| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 175 | Surveyor | SU-89-1 (ICE) | | | OCast W21 SW0 | QC5 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 278 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 175 | 67 | 15.22 | | 167 27.23 | | 05 | Oct | 89 | 21 | 43 | 5.8 | 5.4 | 998.1 | | 10 | 000 | 06 | | | | 39 | QC5 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928, 578-611 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 278/ 2142 |
| at Surface | 2142 |
| Start Down | 2142 |
| at Bottom | 2143 |
| Start Up | 2144 |
| at Surface | 2145 |
| Data off | 2145 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #22 | QC5 |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 2143 | | | | | 38.33 | 3.634 | | 32.391 | | | 32.405 | 24 | 911 | 1 |
| 2 | | | | | 2144 | | | | | 9.23 | 3.829 | | 32.211 | | | 32.220 | 31 | 913 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials VAO

✓ ✓

86,528 on 22 3.6



| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 176 | Surveyor | SU-89-1 (ICE) | | | 0 cast W<1 SW 0 | QC4 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 278 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 176 | 67 | 14.98 | | 167 | 45.45 | 05 | Oct | 89 | 22 | 54 | 4.4 | 4.0 | 998.3 | | 10+ | 320 | 06 | | | | 38 | QC4 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.460-578 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 278/2253 |
| at Surface | 2253 |
| Start Down | 2253 |
| at Bottom | 2254 |
| Start Up | 2255 |
| at Surface | 2256 |
| Data off | 2256 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #-23 | QC4 |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 2254 | | | | | 38.59 | 3.436 | | 32.482 | | | 32.496 | 83 | 915 | 1 |
| 2 | | | | | 2255 | | | | | 9.52 | 3.547 | | 32.064 | | | 32.079 | 94 | 917 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials LAD

✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 177 | Surveyor | SU-89-1 (ICE) | | | <1' sea 3' swell cloudy drizzle | QC3 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 279 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 177 | 67 | 14.9 | N | 168 10.6 | W | 06 | Oct | 89 | 00 | 08 | 04.0 | 03.7 | 998.8 | | 10 | 340 | 10 | | | | 38 | QC3 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.502 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times**

| | JD/Time |
|---|---|
| Data on | 0006 |
| at Surface | 0006 |
| Start Down | 0006 |
| at Bottom | 0008 |
| Start Up | 0008 |
| at Surface | 0012 |
| Data off | 0012 |

**Data Location**

| ~~Tape~~/Diskette I.D. | File Name/Header |
|---|---|
| #23 | QC3.DAT |

Remarks SST 5.4°C

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 39 | | 0008 | | | | | 39.67 | 4.0276 | | 32.3502 | | | 32.360 | 70 | 919 | 1 |
| 2 | | | 15 | | 0011 | | | | | 15.04 | 5.0258 | | 32.1026 | | | 32.114 | 109 | 1261 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WJB
✓ ____

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 178 | Surveyor | SU-89-1 (ICE) | | | 1' sea 3' swell drizzle 10 n.mils | QC2 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date JD = 279 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 178 | 67 | 15.08 | N | 168 | 35.44 | W | 06 | 07 | 89 | 01 | 19 | 037 | 034 | 998.8 | | 10 nm | 345 | 12 | | | 42 | QC2 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.395 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on 0117
at Surface 0117
Start Down 0117
at Bottom 0118
Start Up 0119
at Surface
Data off

**Data Location**
~~Tape~~/Diskette I.D. #2
File Name/Header QC2.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot. Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 43 | | 0119 | | | | | 43.23 | 3.4691 | | 32.4968 | | | 32.510 | 21 | 1263 | 1 |
| 2 | | | 10 | | 0122 | | | | | 9.89 | 4.1879 | | 32.1875 | | | 32.194 | 34 | 1267 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials wp
✓ ____

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 179 | Surveyor | SU-89-1 (ICE) | | | | |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 279 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 179 | 67 | 14.9 | - | 169 00.2 | - | 06 | OCT | 89 | 02 | 30 | | | | | | | | | | 46 | QCI B and) |

| CTD | Monitor Checks | | Times | JD/Time | Data Location | |
|---|---|---|---|---|---|---|
| Type & SN ____ | on Deck | at Surface | Data on ____ | | ~~Tape~~/Diskette I.D. | File Name/Header |
| Press. SN ____ | Press. 33928.399 | ____ | at Surface ____ | | #23 | QCI.DAT |
| Temp. SN ____ | Temp. ____ | ____ | Start Down ____ | | | |
| Cond. SN ____ | Cond. ____ | ____ | at Bottom 0230 | | | |
| | Other ____ | ____ | Start Up ____ | | Remarks 4 Bottles | |
| | | | at Surface ____ | | | |
| | | | Data off ____ | | | |

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 46 | | 0230 | | | | | 45.77 | 3.0217 | | 32.6414 | | | | 50 | 1269 | 1 |
| 2 | | | | | 0232 | | | | | 35.96 | 3.0217 | | 32.6405 | | | | | | 2 |
| 3 | | | 20 | | 0234 | | | | | 3.0316 | 3.0316 | | 32.6360 | | | | | | 3 |
| 4 | | | 9 | | 0235 | | | | | 9.17 | 3.0349 | | 32.6368 | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | thrown out ?? | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ____

✓ ____

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 180 | Surveyor | SU-89-1 (ICE) | | | | |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date Day | JD = Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 180 | 67 | 15.08 | N | 168 59.86 | W | 06 | OCT | 89 | 05 | 18 | | | | | | | | | | 46 | QC1 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.4 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on ____
at Surface 0515
Start Down 0516
at Bottom 0518
Start Up 0519
at Surface 0524
Data off ____

**Data Location**
Tape/Diskette I.D. #23
File Name/Header QC1

Remarks 46 bottle

Repeat of cast 179 - STD were straight lines, clock mied switching pumps, redid cast

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot. Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 47 | | 0518 | | | | | 46.60 | 3.0196 | 29.7628 | 32.6402 | 4 | | 32.657 | 50 | 1269 | 1 |
| 2 | | | 35 | | 0519 | | | | | 36.80 | 3.0188 | 29.7580 | 32.6425 | 4 | | 32.658 | 80 | 1271 | 2 |
| 3 | | | 20 | | 0521 | | | | | 20.10 | 3.0215 | 29.7517 | 32.6409 | 4 | | 32.658 | 91 | 1273 | 3 |
| 4 | | | 10 | | 0523 | | | | | | | | | | | 32.659 | 97 | 1274 | 4 |
| 5 | | | | | | | Where is MRK file for this? | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | data taken from BINAVG file | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ____
✓ ____

6.8

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 181 | Surveyor | SU-89-1 (ICE) | | | ⊙Cast W1-2SW 2-3 | QCD7 |

| Consec. Cast # | Latitude Deg. Min. | N or S | Longitude Deg. | E or W | Date JD = 279 Day Mo. Yr. | Time GMT Hr. Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 181 | 66 33.86 | | 169 00.26 | | 06 Oct 89 | 09 37 | 3.8 | 3.3 | 999.1 | | 10+ | 355 | 10 | | | | 46 | QCD7 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.498-527 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 279/0935 |
| at Surface | 0935 |
| Start Down | 0935 |
| at Bottom | 0937 |
| Start Up | 0937 |
| at Surface | 0940 |
| Data off | 0940 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #23 | QCD7 |

Remarks Many error lights when still on deck - ignore 'Bad mark - pushed or space

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 0937 | | | | | 46.32 | 3.641 | | 32.587 | | 3.95 | 32.603 | 3 | 1275 | 1 |
| 2 | | | | | 0938 | | | | | 40.05 | 3.647 | | 32.582 | | #3 Reused | 32.588 | 35 | 1277 | 2 |
| 3 | | | | | 0939 | | | | | 21.08 | 5.326 | | 31.985 | | | 32.029 | 88 | 1278 | 3 |
| 4 | | | | | 0940 | | | | | 9.50 | 6.766 | | 31.359 | | 5.86 | 31.443 | 89 | 1279 | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials LAO

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| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 182 | Surveyor | SU-89-1 (ICE) | | | 0 Cast W<1 SW2-3 | QCD6 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 279 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 182 | 66 | 30.98 | | 168 | 38.29 | 06 | Oct | 89 | 11 | 00 | 4.0 | 3.8 | 998.6 | | 10+ | 000 | 12 | | | | 49 | QCD6 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.472-502 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 279/1058 |
| at Surface | 1058 |
| Start Down | 1058 |
| at Bottom | 1100 |
| Start Up | 1100 |
| at Surface | 1102 |
| Data off | 1102 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| H23 | QCD6 |

Remarks fewer error lights until in water, when there we a lot in upper 2m, none below that.

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 1059 | | | | | 49.71 | 5.573 | | 31.866 | | | 31.878 | 93 | 1280 93 | 1 |
| 2 | | | | | 1101 | | | | | 9.40 | 6.956 | | 31.191 | | | 31.210 | 105 | 1281 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials LAO

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 183 | Surveyor | SU-89-1 (ICE) | | | Pt. Cldy vis 10nm 1' sea 3' swell | QCD5 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date JD = 279 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 183 | 66 | 29.04 | N | 68 | 15.08 | W | 06 | OCT | 89 | 12 | 22.03 | 3.03 | 998.0 | | 10 | 010 | 11 | | | | 35 | QCD5 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928, 531 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on 1221
at Surface 1221
Start Down 1221
at Bottom 1222
Start Up 1223
at Surface 1223
Data off 1223

**Data Location**
~~Tape~~/Diskette I.D. #23
File Name/~~Header~~ QCD5.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot. Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 35 | | 1222 | | | | | 35.56 | 6.7312 | | 31.3770 | | | 31.392 | 58 | 1282 | 1 |
| 2 | | | 9 | | 1223 | | | | | 9.09 | 7.4122 | | 30.8184 | | | 30.836 | 85 | 1283 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WJB
✓ ____

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 184 | Surveyor | SU-89-1 (ICE) | | | <1' sea 3' swell Drizzle overcast | QCD4 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 279 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 184 | 66 | 25.09 | N | 167 | 52.52 | W | 06 | OCT | 89 | 1352 | 04.2 | 03.9 | 992.1 | | 10 | 000 | 10 | | | | 18 | QCD4 |

| CTD | | Monitor Checks | on Deck | at Surface | Times | JD/Time | Data Location | |
|---|---|---|---|---|---|---|---|---|
| Type & SN | | Press. | 33928.611 | | Data on | | ~~Tape~~/Diskette I.D. | File Name/Header |
| Press. SN | | Temp. | | | at Surface | | #24 | QCD4.DAT |
| Temp. SN | | Cond. | | | Start Down | | | |
| Cond. SN | | Other | | | at Bottom | 1352 | | |
| | | | | | Start Up | 1352 | | |
| | | | | | at Surface | | Remarks | 4 Bottles |
| | | | | | Data off | | | |

321

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 19 | | 1352 | | | | | 18.80 | 7.5507 | | 30.2980 | | | 30.316 | 18 | 1284 | 1 |
| 2 | | | 16 | | 1353 | | | | | 15.71 | 7.6027 | | 30.2982 | | | 30.314 | 37 | 1285 | 2 |
| 3 | | | 11 | | 1353 | | | | | 11.43 | 7.2194 | | 30.0446 | | | 30.314 | 53 | 1286 | 3 |
| 4 | | | 7 | | 1354 | | | | | 6.93 | 7.2087 | | 29.9940 | | | 30.050 | 67 | 1287 | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WJS

✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 185 | Surveyor | SU-89-1 (ICE) | | | overcast drizzle 1' sea 3' swell | |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date JD = 279 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 185 | 66 | 20.90 | N | 167 | 29.99 | W | 06 | OCT | 89 | 15 | 47 | 04.0 | 03.3 | 996.5 | | 10 | 005 | 12 | | | 20 | QCD3 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.375 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times**

| | JD/Time |
|---|---|
| Data on | 1547 |
| at Surface | 1547 |
| Start Down | 1547 |
| at Bottom | 1547 |
| Start Up | 1548 |
| at Surface | 1549 |
| Data off | 1549 |

**Data Location**

| ~~Tape/~~Diskette I.D. | File Name/Header |
|---|---|
| #24 | QCD3.DAT |

Remarks SST 6.90°C

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot.Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 21 | | 1547 | | | | | 21.27 | 6.9002 | | 30.8900 | | | 30.889 | 46 | 1288 | 1 |
| 2 | | | 9 | | 1548 | | | | | 8.47 | 6.9478 | | 30.3300 | | | 30.342 | 75 | 1289 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WJB
✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 186 | Surveyor | SU-89-1 (ICE) | | | | |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date JD = 279 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 186 | 64 | 18 | N | 167 (26) | W | 06 | OCT | 89 | 17 | 11 | 42 | 40 | 953 | 3/4 | 7 | 355 | 14 | | | 24 | QCD2 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.44 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 1709 |
| Start Down | 1710 |
| at Bottom | 1711 |
| Start Up | 1712 |
| at Surface | 1714 |
| Data off | |

**Data Location**

~~Tape~~/Diskette I.D. #24

File Name/Header QCD2.DAT

Remarks 2 bottle

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot.Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 25 | | 1711 | | | | | 24.35 | 5.9696 | 24.7875 | 31.4943 | | | 31.490 | 41 | 1294 | 1 |
| 2 | | | 7 | | 1713 | | | | | 7.15 | 6.7580 | 23.6929 | 30.2280 | | | 30.271 | 66 | 1296 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ____ ✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 187 | Surveyor | SU-89-1 (ICE) | | | | |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | Min. | E or W | Date Day | Mo. | Yr. (JD = 279) | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 187 | 66 | 16.44 | N | 166 | 54.03 | W | 06 | OCT | 89 | 18 | 19 | 4.5 | 4.2 | 94½ | 2/4 | 10 | 355 | 14 | | | 14 | QCD1 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.44 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 279/ |
| at Surface | 1817 |
| Start Down | 1818 |
| at Bottom | 1819 |
| Start Up | 1820 |
| at Surface | 1821 |
| Data off | |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| | QCD1 |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot. Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 13 | | 1819 | | | | | 12.45 | 7.0628 | 23.9558 | 30.6112 | | | 30.620 | 102 | 1298 | 1 |
| 2 | | | 5 | | 1821 | | | | | 4.88 | 6.8765 | 23.8247 | 30.4493 | | | 30.424 | 113 | 1341 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ____
✓ ✓

423K left



| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 188 | Surveyor | SU-89-1 (ICE) | | | Rain cloudy 1' sea 4' swell | QDD1 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date Day | Date Mo. | Date Yr. | Time GMT Hr. | Time GMT Min. | Dry Bulb | Wet Bulb | Bar. mb | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 188 | 65 | 39.6 | N | 168 | 09.5 | 07 | OCT | 89 | 00 | 25 | 05.0 | 04.5 | 992.2 | 5 | 005 | 20 | | | 18 | QDD1 |

JD = 280

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.428 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 0024 |
| at Surface | 0024 |
| Start Down | 0024 |
| at Bottom | 0025 |
| Start Up | 0026 |
| at Surface | 0027 |
| Data off | 0027 |

**Data Location**

| ~~Tape~~/Diskette I.D. | File Name/Header |
|---|---|
| #24 | QDD1.DAT |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 18 | | 0025 | | | | | 18.32 | 7.2379 | | 27.9908 | | | 28.004 | 51 | 1342 | 1 |
| 2 | | | 7 | | 0026 | | | | | 6.93 | 7.1416 | | 27.5576 | | | 27.676 | 78 | 1349 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ____
✓ ____

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 189 | Surveyor | SU-89-1 (ICE) | | | Rain, cloudy, 2'-4' swell Sea | QDD2 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date JD = 280 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 189 | 65 | 41.12 | N | 168 | W | 07 | OCT | 89 | 01 | 14 | 05.0 | 04.6 | 991.0 | | 5 | 015 | 20 | | | | 46 | QDD2 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.296 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on 011
at Surface 011
Start Down 011
at Bottom 0114
Start Up 0115
at Surface 0118
Data off 0118

**Data Location**
Tape/Diskette I.D. #24
File Name/Header QDD2.DAT

Remarks 3 Bottles 1253
winch wire problems on way up

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot. Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 46 | | 0114 | | | | | 46.16 | 7.7491 | | 28.9838 | | | 28.978 | 87 | 1490 | 1 |
| 2 | | | 23 | | 0117 | | | | | 23.54 | 7.9864 | | 28.8772 | | | 28.854 | 100 | 1500 | 2 |
| 3 | | | 10 | | 0118 | | | | | 9.73 | 7.9525 | | 28.4639 | | | 28.711 | 101 | 1593 | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WJB
✓

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 190 | Surveyor | SU-89-1 (ICE) | | | 2' Sea 4' Swell overcast | QDD3 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date JD = 280 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 190 | 65 | 42.2 | N | 168 | W | 07 | SEP | 89 | 02 | 00 | 05.1 | 04.8 | 991.1 | | 5 | 010 | 19 | | | | 49 | QDD3 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.460 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on 0158
at Surface 0158
Start Down 0158
at Bottom 0200
Start Up 0200
at Surface ____
Data off ____

**Data Location**
~~Tape~~/Diskette I.D. #25
File Name/Header QDD3

Remarks 2 Bottles

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot.Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 50 | | 0200 | | | | | 50.09 | 7.7753 | | 29.4568 | | | 29.466 | 81 | 1594 | 1 |
| 2 | | | 9 | | 0203 | | | | | 8.97 | 7.8651 | | 28.5144 | | | 28.518 | 95 | 1657 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WJB
✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 191 | Surveyor | SU-89-1 (ICE) | | | 2' Sea 4' Swell 10NM VIS | QDD4 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date JD = 280 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 191 | 65 | 42.9 | N | 168 37.8 | W | 07 | OCT | 89 | 02 | 43 | 05.1 | 04.8 | 990.9 | | 10 | 010 | 020 | | | 48 | QDD4 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.343 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times**

| | JD/Time |
|---|---|
| Data on | 0241 |
| at Surface | 0241 |
| Start Down | 0241 |
| at Bottom | 0243 |
| Start Up | 0243 |
| at Surface | |
| Data off | |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #25 | QDD4.DAT |

Remarks 3 Bottles SST 8.0°C

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot.Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 48 | | 0243 | | | | | 48.07 | 7.4576 | | 30.9769 | | | 30.799 | 42 | 1658 | 1 |
| 2 | | | 25 | | 0245 | | | | | 25.44 | 8.4362 | | 29.5654 | | | 29.580 | 69 | 1720 | 2 |
| 3 | | | 10 | | 0246 | | | | | 9.79 | 7.9786 | | 28.9139 | | | 28.949 | 73 | 1826 | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials WJB ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 192 | Surveyor | SU-89-1 (ICE) | | | 2' sea, 4' swell cloudy | QDD5 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | Min. | E or W | Date Day | Mo. | Yr. | JD = 280 | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 192 | 65 | 44.0 | N | 168 | 45.4 | W | 07 | OCT | 89 | | 03 | 25 | 04.9 | 04.2 | 990.9 | | 10+ | 355 | 20 | | | | 49 | QDD5 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.517 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on 0323
at Surface 0323
Start Down 0323
at Bottom 0325
Start Up 0325
at Surface 0331
Data off 0331

**Data Location**
~~Tape~~/Diskette I.D. #25
File Name/Header QDD5.DAT

Remarks 4-BOTTLES SST 8.0°C

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 49 | | 0325 | | | | | 49.63 | 5.8302 | | 31.7821 | | | 31.754 | 24 | 1838 | 1 |
| 2 | | | 30 | | 0328 | | | | | 30.25 | 8.2020 | | 30.0307 | | | 29.973 | 25 | — | 2 |
| 3 | | | 24 | | 0329 | | | | | 24.33 | 8.4039 | | 29.7424 | | | 30.091 | 39 | — | 3 |
| 4 | | | 10 | | 0331 | | | | | 9.77 | 8.0265 | | 28.8463 | | | 28.961 | 52 | 1841 | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ____

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 193 | Surveyor | SU-89-1 (ICE) | | | | QDD6 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | Min. | E or W | Date JD = 280 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 193 | 65 | 45 | N | 168 | 52 | W | 07 | OCT | 89 | 04 | 44 | 39 | 39 | 9 | 4/6 | 10 | 000 | 22 | | | | 42 | QDD6 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.25 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on ____
at Surface 280/0439
Start Down 0440
at Bottom 0443
Start Up 0444
at Surface 0449
Data off ____

**Data Location**
Tape/Diskette I.D. #25
File Name/Header QDD6.DAT

Remarks 3 Bottles

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot. Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 43 | | 0443 | | | | | 42.04 | 5.1488 | 25.3635 | 30.1034 | | | 32.117 | 13 | 1844 | 1 |
| 2 | | | 23 | | 0445 | | | | | 22.46 | 7.0806 | 24.4855 | 31.2875 | | | 31.293 | 53 | 1847 | 2 |
| 3 | | | 8 | | 0447 | | | | | 7.65 | 7.9273 | 22.3629 | 28.7281 | | | 31.333 | 67 | 1850 | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ____
✓ ____

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 194 | Surveyor | SU-89-1 (ICE) | | | | |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | Min. | E or W | Date Day | Mo. | Yr. | JD = 280 | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 194 | 64 | 28.3 | N | 172 | 29.4 | W | 07 | OCT | 89 | | 1556 | | 3.1 | 2.6 | 949 | 1/3 | 10 | 014 | 16 | | | | 50 | QEE1 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.27 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 1552 |
| Start Down | 1553 |
| at Bottom | 1556 |
| Start Up | 1557 |
| at Surface | 1601 |
| Data off | |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| | QEE1.DAT |

Remarks: 4 bottles 3 nuts.

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 50 | | 1556 | | | | | 50.164 | 2.4174 | 26.2726 | 32.9188 | | | 32.934 | 54 | 1853 | 1 |
| 2 | | | 36 | | 1558 | | | | | 36.66 | 2.4058 | 26.2717 | 32.9166 | | ? | 32.929 | 58 | 1856 | 2 |
| 3 | | | 25 | | 1559 | | | | | 24.38 | 5.3141 | 25.4042 | 32.1783 | | | 32.933 | 71 | — | 3 |
| 4 | | | 7 | | 1600 | | | | | 7.23 | 5.3190 | 25.4069 | 32.1826 | | | 32.200 | 85 | 1859 | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ____

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 195 | Surveyor | SU-89-1 (ICE) | | | | QEE2 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date Day | Date Mo. | Date Yr. | JD = 280 | Time GMT Hr. | Time GMT Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 195 | 64 | 04 | N | 172 | 58.3 | W | 07 | OCT | 89 | | 17 | 18 | 23 | 15 | 957 | 2/3 | 10 | 330 | 08 | | | | 52 | QEE2 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.35 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 280/1715 |
| Start Down | 1716 |
| at Bottom | 1718 |
| Start Up | 1719 |
| at Surface | 1722 |
| Data off | |

**Data Location**

| ~~Tape~~/Diskette I.D. | File Name/Header |
|---|---|
| #26 | QEE2.DAT |

Remarks: 2 bottles

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 52 | | 1718 | | | | | 51.38 | 2.3754 | 26.2593 | 32.8979 | | | 32.914 | 16 | 1862 | 1 |
| 2 | | | 10 | | 1721 | | | | | 9.25 | 5.3257 | 25.4110 | 32.1887 | | | 32.207 | 44 | 1865 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ____
✓ ____

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 196 | Surveyor | SU-89-1 (ICE) | | | | QEE3 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | Min. | E or W | Date Day | Mo. | Yr. | JD = 280 | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 196 | 63 | 57 | N | 122 | 9 | W | 07 | OCT | 89 | | 18 | 18 | 23 | 17 | 959 | 3 | 10 | 000 | 13 | | | | 52 | QEE3 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.34 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 1815 |
| Start Down | 1816 |
| at Bottom | 1818 |
| Start Up | |
| at Surface | |
| Data off | |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #26 | QEE3.DAT |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 52 | | 1818 | | | | | 52.19 | 26.2003 | 26.2152 | 32.8674 | | | 32.879 | 15 | 1868 | 1 |
| 2 | | | 26 | | 1820 | | | | | 26.07 | 55774 | 25.3184 | 32.1080 | | | 32.132 | 22 | 1871 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ____
✓ ____

5.4

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 197 | Surveyor | SU-89-1 (ICE) | | | W 1-2 SW 2-4 | QEE4 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude E or W | Date JD = 280 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 197 | 63 | 54.22 | N | 172 | W | 07 | 07 | 89 | 19 | 11 | 19 | 11 | 996.9 | | 10+ | 357 | 16 | | | | 48 | QEE4 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.285-375 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 280/1909 |
| at Surface | 1909 |
| Start Down | 1909 |
| at Bottom | 1911 |
| Start Up | 1912 |
| at Surface | 1913 |
| Data off | 1913 |

**Data Location**

Tape/Diskette I.D. #26

File Name/Header QEE4.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 1911 | | | | | 47.83 | 3.283 | | 32.624 | | | 32.635 | 43 | 1874 | 1 |
| 2 | | | | | 1913 | | | | | 15.82 | 5.358 | | 32.115 | | | 32.136 | 96 | 1877 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials ____

✓ ____

5.00 795K bft



| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 198 | Surveyor | SU-89-1 (ICE) | | | P Cloudy W1-2 SW2-4 | |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date JD = 280 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 198 | 63 | 51.04 | | 171 | 54.87 | 07 | Oct | 89 | 20 | 04 | 2.5 | 2.0 | 996.0 | | 10+ | 340 | 12 | | | | 33 | QEE5 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.343-493 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 280/2003 |
| at Surface | 2003 |
| Start Down | 2003 |
| at Bottom | 2004 |
| Start Up | 2005 |
| at Surface | 2006 |
| Data off | 2006 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #26 | QEE5.dat |

Remarks Slight gradient entire depth — no really good place for 3 Ds calib

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 2004 | | | | | 33.98 | 4.862 | | 32.153 | | | 32.165 | 7 | 1880 | 1 |
| 2 | | | | | 2005 | | | | | 14.45 | 5.037 | | 32.081 | | | 32.114 | 45 | 1883 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials LAO

✓ ____

697K 6ft

Pg 199 of ____

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 199 | Surveyor | SU-89-1 (ICE) | | | PSunny WL-3 SW 3-5 4.9 | |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date JD = 280 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 199 | 63 | 47.70 | | 171 | 48.70 | | 07 | Oct | 89 | 21 | 29 | 3.5 | 2.8 | 998.1 | | 10+ | 015 | 14 | | | | 19 | QEE6 |

**CTD**

Type & SN ____

Press. SN ____

Temp. SN ____

Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.439-472 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 280/2128 |
| at Surface | 2128 |
| Start Down | 2128 |
| at Bottom | 2129 |
| Start Up | 2130 |
| at Surface | 2131 |
| Data off | 2131 |

**Data Location**

Tape/Diskette I.D. ____

File Name/Header QEE6

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 2129 | | | | | 18.70 | 4.803 | | 31.894 | | | 31.979 | 31 | 1886 | 1 |
| 2 | | | | | | | | | | | | | | | | | | | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials UAO

✓ ____

| Consec. Cast # | Vessel Surveyor | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 200 | | SU-89-1 (ICE) | | | | QG-1 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | Min. | E or W | Date Day | Mo. | Yr. | JD = | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 200 | 63 | 19.71 | N | 168 | 41.72 | W | 08 | 06 | 89 | 281 | 05 | 48 | 29 | 21 | 010 | 2/4 | 10 | 355 | 10 | | | 200 | QG-1 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.60 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 0546 |
| Start Down | 0547 |
| at Bottom | 0548 |
| Start Up | 0549 |
| at Surface | 0551 |
| Data off | |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| | QG-1 |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot. Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 20 | | 0548 | | | | | 19.98 | 5.0840 | 25.1436 | 31.8169 | | | 31.841 | 83 | 1889 | 1 |
| 2 | | | 10 | | 0549 | | | | | 9.55 | 5.0663 | 25.1521 | 31.8252 | | | 31.843 | 94 | — | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials CHD
✓ ____

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 201 | Surveyor | SU-89-1 (ICE) | | | | |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | Min. | E or W | Date Day | Mo. | Yr. (JD = 281) | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 201 | 63 | 22.11 | N | 168 | 47.95 | W | 08 | OCT | 89 | 07 | 16 | 28 | 20 | 04 | 7/4 | 6 | 359 | 12 | | | | 28 | QG2 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.50 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 281 / 0712 |
| Start Down | 0713 |
| at Bottom | 0716 |
| Start Up | 0717 |
| at Surface | 0720 |
| Data off | |

**Data Location**

~~Tape~~/Diskette I.D. # 26

File Name/Header QG2.DAT

Remarks 4 bottle, nuts at 1, 2, 4

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 29 | | 0716 | | | | | 28.68 | 3.7363 | 25.3831 | 31.9465 | | | 31.961 | 21 | 1892 | 1 | 1 |
| 2 | | | 19 | | 0717 | | | | | 19.19 | 3.7428 | 25.3779 | 31.9407 | | | 31.958 | 34 | 1895 | 2 | 2 |
| 3 | | | 11 | | 0718 | | | | | 11.27 | 3.8558 | 25.3450 | 31.9128 | | | 31.959 | 70 | — | 3 | |
| 4 | | | 5 | | 0719 | | | | | 5.24 | 4.9072 | 24.8003 | 31.3596 | | | 31.693 | 109 | 1898 | 4 | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 | |
| 6 | | | | | | | | | | | | | | | | | | | 6 | |
| 7 | | | | | | | | | | | | | | | | | | | 7 | |
| 8 | | | | | | | | | | | | | | | | | | | 8 | |
| 9 | | | | | | | | | | | | | | | | | | | 9 | |
| 10 | | | | | | | | | | | | | | | | | | | 10 | |
| 11 | | | | | | | | | | | | | | | | | | | 11 | |
| 12 | | | | | | | | | | | | | | | | | | | 12 | |

Initials ____
✓ ____

3.1



| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 202 | Surveyor | SU-89-1 (ICE) | | | PC 1-2/3-4 | QG3 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 281 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 202 | 63 | 23.27 | N | 167 55.32 | W | 08 | Oct | 89 | 08 | 53 | 28 | 20 | 1002.2 | | 10 | 000 | 11 | | | 28 | QG3 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.375-578 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 281/0852 |
| at Surface | 0852 |
| Start Down | 0852 |
| at Bottom | 0853 |
| Start Up | 0853 |
| at Surface | 0855 |
| Data off | 0855 |

**Data Location**

~~Tape~~/Diskette I.D. #26

File Name/Header QG3.DAT

Remarks top may be in ~ seed

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 0853 | | | | | 28.33 | 3.078 | | 31.982 | | | 31.998 | 50 | 1901 | 1 |
| 2 | | | | | 0854 | | | | | 16.06 | 3.078 | | 31.982 | | | 31.998 | 80 | – | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials RO ✓ ✓

176K left 7.2



| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 203 | Surveyor | SU-89-1 (ICE) | | | PC W 2-3 SW 4-6 | Q64 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 281 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb 1009.4 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 203 | 63 | 24 | 02 | 167 | 31 | 94 | 08 | Oct | 89 | 10 | 16 | 3.8 | 2.1 | | 10+ | 340 | 18 | | | | 27 | Q64 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.493-696 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 281/1015 |
| at Surface | 1015 |
| Start Down | 1015 |
| at Bottom | 1016 |
| Start Up | 1016 |
| at Surface | 1018 |
| Data off | 1018 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #26 | Q64.dat |

Remarks rolling - got air bubbles in hose at surface / use upcast for surface values

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 1016 | | | | | 27.48 | 6.125 | | 31.530 | | | 31.542 | 37 | 1904 | 1 |
| 2 | | | | | 1017 | | | | | 10.65 | 7.226 | | 31.346 | | | 31.422 | 91 | — | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials LAO
✓ ✓

~~65 k left~~ new disk



| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 204 | Surveyor | SU-89-1 (ICE) | | | 2'sea - 6'swell clear sky VIS10+ | QG5 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 281 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 204 | 63 | 24.89 | N | 167 | 09.92 | 08 | Oct | 89 | 11 | 45 | 04.0 | 02.5 | 1004.0 | | 10 | 345 | 22 | | | 22 | QG5 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.578-696 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on 281 / 1144
at Surface 1144
Start Down 1144
at Bottom 1145
Start Up
at Surface
Data off

**Data Location**
Tape/Diskette I.D.: #27
File Name/Header: QG5

Remarks: spike down to 28 m. caused by bottle tripping

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 22 | | 1145 | | | | | 22.32 | 7.1904 | | 31.4263 | | | 31.441 | 003 | 1907 | 1 |
| 2 | | | 12 | | 1146 | | | | | 11.96 | 7.1919 | | 31.4245 | | | 31.441 | 97 | 1910 | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Initials LAO / WJB
✓ ✓

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 205 | Surveyor | SU-89-1 (ICE) | | | 2' sea 6' swell VIS. 10 | QG6 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date JD = 281 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb 1004.9 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 205 | 63 | 25.93 | N | 166 | 46.93 | W | 08 | OCT | 89 | 1310 | 04.1 | 03.0 | | | 10 | 320 | 30 | | | | 23 | QG6 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.542 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 1310 |
| at Surface | 1310 |
| Start Down | 1310 |
| at Bottom | 1310 |
| Start Up | 1311 |
| at Surface | 1312 |
| Data off | 1312 |

**Data Location**

| ~~Tape~~/Diskette I.D. | File Name/Header |
|---|---|
| #27 | QG6.DAT |

Remarks SST 7.8°C

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot.Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 24 | | 1310 | | | | | 24.23 | 7.8248 | | 31.3335 | | | 31.349 | 35 | 1913 | 1 |
| 2 | | | 10 | | 1312 | | | | | 9.84 | 7.8120 | | 31.3367 | | | 31.350 | 88 | | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

Suggest you use upcast for plot as spike from 0-6m was artificial

Initials WJB
✓ ____

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 206 | Surveyor | SU-89-1 (ICE) | | | 3's ea 6' swell Partly Cloudy | QG7 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 281 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb 1005.2 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 206 | 63 | 26.94 | N | 164 24.45 | W | 08 | OCT | 89 | 14 | 28 | 04.0 | 02.9 | | | 10 | 295 | 19 | | | | 21 | QG7 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.733 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on ____
at Surface ____
Start Down ____
at Bottom 1428
Start Up 1428
at Surface ____
Data off ____

**Data Location**
~~Tape~~/Diskette I.D. #27
File Name/Header QG7.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 21 | | 1428 | | | | | 21.44 | 8.3843 | | 31.0572 | | | 31.070 | 89 | 1916 | 1 | -.013 |
| 2 | | | 10 | | 1429 | | | | | 9.67 | 8.4091 | | 31.0442 | | | 31.063 | 105 | — | 2 | -.019 |
| 3 | | | | | | | | | | | | | | | | | | | 3 | |
| 4 | | | | | | | | | | | | | | | | | | | 4 | |
| 5 | | | | | | | | | | | | | | | | | | | 5 | |
| 6 | | | | | | | | | | | | | | | | | | | 6 | |
| 7 | | | | | | | | | | | | | | | | | | | 7 | |
| 8 | | | | | | | | | | | | | | | | | | | 8 | |
| 9 | | | | | | | | | | | | | | | | | | | 9 | |
| 10 | | | | | | | | | | | | | | | | | | | 10 | |
| 11 | | | | | | | | | | | | | | | | | | | 11 | |
| 12 | | | | | | | | | | | | | | | | | | | 12 | |

Initials WMB
✓ ____

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 207 | Surveyor | SU-89-1 (ICE) | | | | QG8 |

| Consec. Cast # | Latitude Deg. | Latitude Min. (27.95) | N or S | Longitude Deg. (79) | Longitude E or W | Date JD = 281 Day | Mo. | Yr. | Time GMT Hr. | Time GMT Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 207 | 63 | 28 | 03 | 146 01 | W | 08 | OCT | 89 | 15 | 51 | 34 | 26 | 03 | 4 | 10 | 343 | 17 | | | | 21 | QG8 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.6 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 1549 |
| Start Down | 1550 |
| at Bottom | 1551 |
| Start Up | 1552 |
| at Surface | 1553 |
| Data off | |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #27 | QG8.DAT |

Remarks 2 Bottles, 2 nutrient samples

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 22 | | 1551 | | | | | 21.99 | 8.7969 | 23.8867 | 30.8316 | | | 30.852 | 62 | 1919 | 1 | -.021 |
| 2 | | | 9 | | 1552 | | | | | 8.79 | 8.5807 | 23.2616 | 29.9912 | | | 30.004 | 92 | 1922 | 2 | -.013 |
| 3 | | | | | | | | | | | | | | | | | | | 3 | |
| 4 | | | | | | | | | | | | | | | | | | | 4 | |
| 5 | | | | | | | | | | | | | | | | | | | 5 | |
| 6 | | | | | | | | | | | | | | | | | | | 6 | |
| 7 | | | | | | | | | | | | | | | | | | | 7 | |
| 8 | | | | | | | | | | | | | | | | | | | 8 | |
| 9 | | | | | | | | | | | | | | | | | | | 9 | |
| 10 | | | | | | | | | | | | | | | | | | | 10 | |
| 11 | | | | | | | | | | | | | | | | | | | 11 | |
| 12 | | | | | | | | | | | | | | | | | | | 12 | |

Initials ____
✓ ____

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 208 | Surveyor | SU-89-1 (ICE) | | | | QG9 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date Day | Date Mo. | Date Yr. | JD = | Time GMT Hr. | Time GMT Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 208 | 63 | 29.97 | N | 165 | 39.58 | W | 08 | OCT | 89 | 281 | 17 | 15 | 3.4 | 2.6 | 06 | 3/3 | 10 | 343 | 17 | | | | 18 | QG9 |

| CTD | |
|---|---|
| Type & SN | |
| Press. SN | |
| Temp. SN | |
| Cond. SN | |

| Monitor Checks | on Deck | at Surface |
|---|---|---|
| Press. | 33928.6 | |
| Temp. | | |
| Cond. | | |
| Other | | |

| Times | JD/Time |
|---|---|
| Data on | |
| at Surface | 1713 |
| Start Down | 1714 |
| at Bottom | 1715 |
| Start Up | 1717 |
| at Surface | 1719 |
| Data off | |

| Data Location | |
|---|---|
| ~~Tape~~/Diskette I.D. | File Name/Header |
| # 27 | QG9.DAT |

Remarks: 2 bottle, 1 net

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 19 | | 1715 | | | | | 19.53 | 8.7185 | 22.9809 | 29.6586 | | | 29.673 | 46 | 1925 | 1 | +.014 |
| 2 | | | 9 | | 1716 | | | | | 8.92 | 8.7176 | 22.9811 | 29.6588 | | | 29.675 | 75 | — | 2 | -.016 |
| 3 | | | | | | | | | | | | | | | | | | | 3 | |
| 4 | | | | | | | | | | | | | | | | | | | 4 | |
| 5 | | | | | | | | | | | | | | | | | | | 5 | |
| 6 | | | | | | | | | | | | | | | | | | | 6 | |
| 7 | | | | | | | | | | | | | | | | | | | 7 | |
| 8 | | | | | | | | | | | | | | | | | | | 8 | |
| 9 | | | | | | | | | | | | | | | | | | | 9 | |
| 10 | | | | | | | | | | | | | | | | | | | 10 | |
| 11 | | | | | | | | | | | | | | | | | | | 11 | |
| 12 | | | | | | | | | | | | | | | | | | | 12 | |

Initials ____

✓ ____

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 209 | Surveyor | SU-89-1 (ICE) | | | | |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date Day | Mo. | Yr. | JD = 281 | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 209 | 63 | 31 29 | N | 165 | W | 17 | 06 | 89 | | 18 | 42 | 4.1 | 2.5 | 07 | 3/5 | 10 | 339 | 18 | | | | 1220 | QG10 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.73 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | |
| at Surface | 1840 |
| Start Down | 1841 |
| at Bottom | 1842 |
| Start Up | 1843 |
| at Surface | |
| Data off | |

**Data Location**

| ~~Tape~~/Diskette I.D. | File Name/Header |
|---|---|
| #27 | QG10.DAT |

Remarks: 2 bot, 1 nut

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 12 | | 1842 | | | | | 12.81 | 8.8103 | 22.6678 | 29.2755 | | | 29.280 | 41 | 1928 | 1 | -.004 |
| 2 | | | 4 | | 1843 | | | | | 5.28 | 7.9776 | 24.9424 | 26.8727 | | | 26.879 | 66 | — | 2 | -.006 |
| 3 | | | | | | | | | | | | | | | | | | | 3 | |
| 4 | | | | | | | | | | | | | | | | | | | 4 | |
| 5 | | | | | | | | | | | | | | | | | | | 5 | |
| 6 | | | | | | | | | | | | | | | | | | | 6 | |
| 7 | | | | | | | | | | | | | | | | | | | 7 | |
| 8 | | | | | | | | | | | | | | | | | | | 8 | |
| 9 | | | | | | | | | | | | | | | | | | | 9 | |
| 10 | | | | | | | | | | | | | | | | | | | 10 | |
| 11 | | | | | | | | | | | | | | | | | | | 11 | |
| 12 | | | | | | | | | | | | | | | | | | | 12 | |

Initials CHD
✓ ____

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 210 | Surveyor | SU-89-1 (ICE) | | | 2' Sea 4' swell partly cloudy | QH1 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date Day | Mo. | Yr. | JD = 282 | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb 1012.3 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 210 | 63 | 12.96 | N | 165 11.85 | W | 09 | OCT | 89 | | 00 | 51 | 04.6 | 03.0 | | | 10 | 000 | 10 | | | | 08 | QH1 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33929.356 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on 0050
at Surface 0050
Start Down 0050
at Bottom 0050
Start Up 0051
at Surface 0051
Data off 0051

**Data Location**
~~Tape~~/Diskette I.D. #27
File Name/Header QH1.DAT

Remarks SST 7.6° C

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 9 | | 0050 | | | | | 9.41 | 8.8446 | | 27.1796 | | | 26.835 | 25 | 1929 | 1 | .345 |
| 2 | | | 5 | | 0051 | | | | | 4.86 | 7.6566 | | 23.7873 | | | 23.783 | 39 | — | 2 | .004 |
| 3 | | | | | | | | | | | | | | | | | | | 3 | |
| 4 | | | | | | | | | | | | | | | | | | | 4 | |
| 5 | | | | | | | | | | | | | | | | | | | 5 | |
| 6 | | | | | | | | | | | | | | | | | | | 6 | |
| 7 | | | | | | | | | | | | | | | | | | | 7 | |
| 8 | | | | | | | | | | | | | | | | | | | 8 | |
| 9 | | | | | | | | | | | | | | | | | | | 9 | |
| 10 | | | | | | | | | | | | | | | | | | | 10 | |
| 11 | | | | | | | | | | | | | | | | | | | 11 | |
| 12 | | | | | | | | | | | | | | | | | | | 12 | |

Initials ____

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 211 | Surveyor | SU-89-1 (ICE) | | | 1' Sea 3' swell | QH2 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date Day | Date Mo. | Date Yr. | JD = 282 | Time GMT Hr. | Time GMT Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 211 | 63 | 22.32 | N | 165 | 12.78 | W | 09 | 07 | 89 | | 02 | 16 | 04.2 | 02.3 | 1012.2 | | | 000 | 13 | | | | 08 | QH2 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33929.032 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time

| | |
|---|---|
| Data on | 0216 |
| at Surface | 0216 |
| Start Down | 0216 |
| at Bottom | 0216 |
| Start Up | 0217 |
| at Surface | 0217 |
| Data off | 0217 |

**Data Location**

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #27 | QH2.DAT |

Remarks SST 8.4°C

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 9 | | 0216 | | | | | 9.04 | 8.9089 | | 28.3191 | | | 28.352 | 24 | — | 1 | -.033 |
| 2 | | | 5 | | 0217 | | | | | 5.04 | 8.4187 | | 27.2306 | | | 27.048 | 73 | — | 2 | .183 |
| 3 | | | | | | | | | | | | | | | | | | | 3 | |
| 4 | | | | | | | | | | | | | | | | | | | 4 | |
| 5 | | | | | | | | | | | | | | | | | | | 5 | |
| 6 | | | | | | | | | | | | | | | | | | | 6 | |
| 7 | | | | | | | | | | | | | | | | | | | 7 | |
| 8 | | | | | | | | | | | | | | | | | | | 8 | |
| 9 | | | | | | | | | | | | | | | | | | | 9 | |
| 10 | | | | | | | | | | | | | | | | | | | 10 | |
| 11 | | | | | | | | | | | | | | | | | | | 11 | |
| 12 | | | | | | | | | | | | | | | | | | | 12 | |

Initials ____
✓ ____

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 212 | Surveyor | SU-89-1 (ICE) | | | 1' sea 3' swell partly cloudy | QH3 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date Day | Mo. | Yr. | JD = 282 | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb 1017.8 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 212 | 63 | 29.92 | N | 165 12.63 | W | 09 | OCT | 89 | | 03 | 39 | 04.0 | 01.2 | | | 1 | 00 | 05 | 10 | | | 10 | QH3 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.729 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times**

| | JD/Time |
|---|---|
| Data on | 0339 |
| at Surface | 0339 |
| Start Down | 0339 |
| at Bottom | 0339 |
| Start Up | 0340 |
| at Surface | 0341 |
| Data off | 0341 |

**Data Location**
Tape/Diskette I.D.: #27
File Name/Header: QH3

Remarks: 1 NUTRIENT

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 11 | | 0339 | | | | | 11.38 | 8.7484 | | 29.3185 | | | 29.315 | 42 | 1949 | 1 | .003 |
| 2 | | | 6 | | 0341 | | | | | 6.26 | 8.6486 | | 29.1204 | | | 28.918 | 69 | — | 2 | .202 |
| 3 | | | | | | | | | | | | | | | | | | | 3 | |
| 4 | | | | | | | | | | | | | | | | | | | 4 | |
| 5 | | | | | | | | | | | | | | | | | | | 5 | |
| 6 | | | | | | | | | | | | | | | | | | | 6 | |
| 7 | | | | | | | | | | | | | | | | | | | 7 | |
| 8 | | | | | | | | | | | | | | | | | | | 8 | |
| 9 | | | | | | | | | | | | | | | | | | | 9 | |
| 10 | | | | | | | | | | | | | | | | | | | 10 | |
| 11 | | | | | | | | | | | | | | | | | | | 11 | |
| 12 | | | | | | | | | | | | | | | | | | | 12 | |

Initials: WJB

| Consec. Cast # 213 | Vessel Surveyor | Proj. & Leg SU-89-1 (ICE) | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|

| Consec. Cast # | Latitude Deg. | Min. 13 | N or S | Longitude Deg. 59 | E or W | Date JD = 282 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 213 | 63 38 | 02 | N | 165 14 77 | W | 09 | 0C | 89 | 04 | 45 | 3.4 | 1.8 | 1030 | 1/3 | 10 | 004 | 10 | | | | 1480 | |

| CTD | |
|---|---|
| Type & SN | |
| Press. SN | |
| Temp. SN | |
| Cond. SN | |

| Monitor Checks | on Deck | at Surface |
|---|---|---|
| Press. | 3928.70 | |
| Temp. | | |
| Cond. | | |
| Other | | |

| Times | JD/Time |
|---|---|
| Data on | |
| at Surface | 0443 |
| Start Down | 0444 |
| at Bottom | 0445 |
| Start Up | 0446 |
| at Surface | 0447 |
| Data off | |

| Data Location | |
|---|---|
| Tape/Diskette I.D. | File Name/Header |
| | |
| | |
| | |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot. Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 15 | | 0445 | | | | | 14.70 | 8.8921 | 23.0202 | 29.7415 | | | 29.757 | 102 | — | 1 | -.0155 |
| 2 | | | 5 | | 0446 | | | | | 5.07 | 8.0289 | 21.2505 | 27.3258 | | | 27.067 | 113 | — | 2 | .259 |
| 3 | | | | | | | | | | | | | | | | | | | 3 | |
| 4 | | | | | | | | | | | | | | | | | | | 4 | |
| 5 | | | | | | | | | | | | | | | | | | | 5 | |
| 6 | | | | | | | | | | | | | | | | | | | 6 | |
| 7 | | | | | | | | | | | | | | | | | | | 7 | |
| 8 | | | | | | | | | | | | | | | | | | | 8 | |
| 9 | | | | | | | | | | | | | | | | | | | 9 | |
| 10 | | | | | | | | | | | | | | | | | | | 10 | |
| 11 | | | | | | | | | | | | | | | | | | | 11 | |
| 12 | | | | | | | | | | | | | | | | | | | 12 | |

Initials ____

✓ ____

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 214 | Surveyor | SU-89-1 (ICE) | | | | |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude Min. | E or W | Date Day | Date Mo. | Date Yr. | JD = | Time GMT Hr. | Time GMT Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 214 | 63 | 45.87 | N | 165 | 15.94 | W | 09 | OCT | 89 | 282 | 05 | 45 | 3.8 | 1.5 | 1.34 | 1/2 | 10 | 020 | 10 | | | | 1408 | 45 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.65 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on ____
at Surface 0543
Start Down 0544
at Bottom 0545
Start Up 0546
at Surface 0547
Data off ____

**Data Location**
~~Tape~~/Diskette I.D. #27
File Name/Header Q145.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot.Data Therm-P | Sample Bot.Data Avg Tw | Sample Bot.Data Sal. | Sal. Bot. # | Other Samp. | Pos. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 14 | | 0545 | | | | | 14.55 | 8.9762 | 22.5021 | 29.0946 | | | 29.114 | 51 | 1958 | 1 | -.019 |
| 2 | | | 4 | | 0546 | | | | | 4.62 | 8.1040 | 20.7651 | 26.7186 | | | 26.723 | 78 | / | 2 | -.004 |
| 3 | | | | | | | | | | | | | | | | | | | 3 | |
| 4 | | | | | | | | | | | | | | | | | | | 4 | |
| 5 | | | | | | | | | | | | | | | | | | | 5 | |
| 6 | | | | | | | | | | | | | | | | | | | 6 | |
| 7 | | | | | | | | | | | | | | | | | | | 7 | |
| 8 | | | | | | | | | | | | | | | | | | | 8 | |
| 9 | | | | | | | | | | | | | | | | | | | 9 | |
| 10 | | | | | | | | | | | | | | | | | | | 10 | |
| 11 | | | | | | | | | | | | | | | | | | | 11 | |
| 12 | | | | | | | | | | | | | | | | | | | 12 | |

Initials ____
✓ ____

| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 215 | Surveyor | SU-89-1 (ICE) | | | | Q176 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date Day | Mo. | Yr. | JD = 282 | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 215 | 63 | 53.98 | N | 165 | 16.84 | W | 09 | 07 | 89 | 06 | 54 | 35 | 13 | 13.5 | 2 | 10 | 050 | 04 | | | | 14 | Q176 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 3392.8.70 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on ____
at Surface 0652
Start Down 0653
at Bottom 0654
Start Up 0655
at Surface 0656
Data off ____

**Data Location**
Tape/Diskette I.D. #27
File Name/Header Q176.DAT

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot. Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 15 | | 0654 | | | | | 14.68 | 8.8726 | 22.6837 | 29.3074 | | | 29.318 | 87 | — | 1 | -.011 |
| 2 | | | 6 | | 0655 | | | | | 6.00 | 8.7484 | 22.3847 | 28.9621 | | ? | 27.323 | 100 | — | 2 | 1.579 |
| 3 | | | | | | | | | | | | | | | | | | | 3 | |
| 4 | | | | | | | | | | | | | | | | | | | 4 | |
| 5 | | | | | | | | | | | | | | | | | | | 5 | |
| 6 | | | | | | | | | | | | | | | | | | | 6 | |
| 7 | | | | | | | | | | | | | | | | | | | 7 | |
| 8 | | | | | | | | | | | | | | | | | | | 8 | |
| 9 | | | | | | | | | | | | | | | | | | | 9 | |
| 10 | | | | | | | | | | | | | | | | | | | 10 | |
| 11 | | | | | | | | | | | | | | | | | | | 11 | |
| 12 | | | | | | | | | | | | | | | | | | | 12 | |

Initials CHD

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 216 | Surveyor | SU-89-1 (ICE) | | | W1-2 SW1-2 | QH7 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date Day | Mo. | Yr. | JD = 282 | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 216 | 64 | 02.6 | | 165 18.2 | | 19 | OCT | 89 | | 07 | 53 | 3.1 | 1.0 | 1013.1 | | 10+ | 010 | 006 | | | | 14 | QH7 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928, 641-729 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on 282 / 0752
at Surface 0752
Start Down 0752
at Bottom 0753
Start Up 0753
at Surface 0754
Data off 0754

**Data Location**
~~Tape~~/Diskette I.D. # 27
File Name/Header QH7.DAT

Remarks 8.4°

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 0753 | | | | | 14.30 | 8.402 | | 29.234 | | | 29.245 | 81 | 1964 | 1 | |
| 2 | | | | | 0754 | | | | | 8.42 | 8.394 | | 29.234 | | | 29.246 | 101 | — | 2 | -.012 |
| 3 | | | | | | | | | | | | | | | | | | | 3 | |
| 4 | | | | | | | | | | | | | | | | | | | 4 | |
| 5 | | | | | | | | | | | | | | | | | | | 5 | |
| 6 | | | | | | | | | | | | | | | | | | | 6 | |
| 7 | | | | | | | | | | | | | | | | | | | 7 | |
| 8 | | | | | | | | | | | | | | | | | | | 8 | |
| 9 | | | | | | | | | | | | | | | | | | | 9 | |
| 10 | | | | | | | | | | | | | | | | | | | 10 | |
| 11 | | | | | | | | | | | | | | | | | | | 11 | |
| 12 | | | | | | | | | | | | | | | | | | | 12 | |

Initials LAO ✓

7.6

115K left



| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 217 | Surveyor | SU-89-1 (ICE) | | | PC W41, SW0 | QH8 |

| Consec. Cast # | Latitude Deg. | Min. | N or S | Longitude Deg. | E or W | Date JD = 282 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 217 | 64 | 10 | 10 | 165 | 182 | 09 | Oct | 89 | 09 | 11 | 30 | 08 | 1013.0 | | 10+ | 070 | 04 | | | | 14 | QH8 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928, 611-813 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on 282/ 0910
at Surface 0910
Start Down 0910
at Bottom 0911
Start Up 0911
at Surface 0912
Data off 0912

**Data Location**
Tape/Diskette I.D. #27
File Name/Header QH8

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Temp. | Cond. | Other | Conv. Mon. Values-CTD Press. | Temp. | Cond. | Sal. | Sample Bot.Data Therm-P | Avg Tw | Sal. | Sal. Bot. # | Other Samp. | Pos. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 0910 (56) | | | | | 13.99 | 8.519 | | 29.080 | | | 29.013 | 52 | – | 1 |
| 2 | | | | | 0911 | | | | | 5.17 | 7.584 | | ↓029? 28.109 | | | 28.933 | 95 | – | 2 |
| 3 | | | | | | | | | | | | | | | | | | | 3 |
| 4 | | | | | | | | | | | | | | | | | | | 4 |
| 5 | | | | | | | | | | | | | | | | | | | 5 |
| 6 | | | | | | | | | | | | | | | | | | | 6 |
| 7 | | | | | | | | | | | | | | | | | | | 7 |
| 8 | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | 9 |
| 10 | | | | | | | | | | | | | | | | | | | 10 |
| 11 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | | 12 |

.067

check: not use

Initials LAO ✓

7.1



| Consec. Cast # | Vessel | Proj. & Leg | Event # | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 218 | Surveyor | SU-89-1 (ICE) | | | PC Wave 41 Sus 0 | Q1+9 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | E or W | Date JD = 282 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb 1012.5 | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 218 | 64 | 18.09 | | 165 20.03 | | 09 | Oct | 89 | 10 | 39 | 3.1 | 1.0 | | | 10+ | 070 | 04 | | | | 17 | Q1+9 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928, 578-689 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on 282/1038
at Surface 1038
Start Down 1038
at Bottom 1039
Start Up 1039
at Surface 1040
Data off 1040

**Data Location**
Tape/Diskette I.D. #28
File Name/Header Q1+9

Remarks top Salinity in gradient

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 1039 | | | | | 18.09 | 8.118 | | 27.007 | | | 26.998 | 18 | 1967 | 1 | .009 |
| 2 | | | | | 1040 | | | | | 5.59 | 7.334 | | 25.760 | | | 25.569 | 53 | – | 2 | .191 |
| 3 | | | | | | | | | | | | | | | | | | | 3 | |
| 4 | | | | | | | | | | | | | | | | | | | 4 | |
| 5 | | | | | | | | | | | | | | | | | | | 5 | |
| 6 | | | | | | | | | | | | | | | | | | | 6 | |
| 7 | | | | | | | | | | | | | | | | | | | 7 | |
| 8 | | | | | | | | | | | | | | | | | | | 8 | |
| 9 | | | | | | | | | | | | | | | | | | | 9 | |
| 10 | | | | | | | | | | | | | | | | | | | 10 | |
| 11 | | | | | | | | | | | | | | | | | | | 11 | |
| 12 | | | | | | | | | | | | | | | | | | | 12 | |

Initials LAO

| Consec. Cast # | Vessel | Proj. & Leg | Event# | Vessel Sta. I.D. | Instructions | Sta. Designation |
|---|---|---|---|---|---|---|
| 219 | Surveyor | SU-89-1 (ICE) | | | <1' sea 0' swell Partly Cloudy | QH10 |

| Consec. Cast # | Latitude Deg. | Latitude Min. | N or S | Longitude Deg. | Longitude | E or W | Date JD = 282 Day | Mo. | Yr. | Time GMT Hr. | Min. | Dry Bulb | Wet Bulb | Bar. mb | S.S. | Vis. | Wind Dir. | Wind Sp. | Cloud | Type | Weath. | Bottom Depth, m | Sta. Name or I.D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 219 | 64 | 26.0 | N | 165 | 21.0 | W | 09 | Oct | 89 | 12 | 01 | 00.4 | -0.6 | 1011.1 | | | 080 | 12 | | | | 18 | QH10 |

**CTD**
Type & SN ____
Press. SN ____
Temp. SN ____
Cond. SN ____

**Monitor Checks**

| | on Deck | at Surface |
|---|---|---|
| Press. | 33928.472 | |
| Temp. | | |
| Cond. | | |
| Other | | |

**Times** JD/Time
Data on 282/
at Surface ____
Start Down ____
at Bottom ____
Start Up ____
at Surface ____
Data off ____

**Data Location** +5=23

| Tape/Diskette I.D. | File Name/Header |
|---|---|
| #28 | QH10 |

Remarks

| Pos. | Bot. | T Rack | Trip Depth | Time @ Depth | Time @ Trip | Monitor Values Press. | Monitor Values Temp. | Monitor Values Cond. | Monitor Values Other | Conv. Mon. Values-CTD Press. | Conv. Mon. Values-CTD Temp. | Conv. Mon. Values-CTD Cond. | Conv. Mon. Values-CTD Sal. | Sample Bot. Data Therm-P | Sample Bot. Data Avg Tw | Sample Bot. Data Sal. | Sal. Bot. # | Other Samp. | Pos. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 18 | | 1201 | | | | | 18.15 | 8.0572 | | 26.7096 | | | 26.718 | 54 | 1970 | 1 | -.008 |
| 2 | | | 7 | | 1203 | | | | | 6.75 | 6.8248 | | 25.2164 | | | 25.216 | 67 | — | 2 | .000 |
| 3 | | | | | | | | | | | | | | | | | | | 3 | |
| 4 | | | | | | | | | | | | | | | | | | | 4 | |
| 5 | | | | | | | | | | | | | | | | | | | 5 | |
| 6 | | | | | | | | | | | | | | | | | | | 6 | |
| 7 | | | | | | | | | | | | | | | | | | | 7 | |
| 8 | | | | | | | | | | | | | | | | | | | 8 | |
| 9 | | | | | | | | | | | | | | | | | | | 9 | |
| 10 | | | | | | | | | | | | | | | | | | | 10 | |
| 11 | | | | | | | | | | | | | | | | | | | 11 | |
| 12 | | | | | | | | | | | | | | | | | | | 12 | |

Initials LAD/WJB