

ROSETTE LOG

MISSION ID: 2003-29 STATION: SI CAST NUMBER: 1 UTC DATE (dd/mm/yyyy): 02/09/2003

| Niskin No. | Sample No. | OXY. Flask | OXY. ml/l | ROSETTE OPERATION |                    | Samples taken |  |     |    |     |  |     |  |  |  |  |  |  |
|------------|------------|------------|-----------|-------------------|--------------------|---------------|--|-----|----|-----|--|-----|--|--|--|--|--|--|
|            |            |            |           | Sample Depth      | Confirmed pressure | SAL           |  | NUT | OC | TCO |  | C13 |  |  |  |  |  |  |
| 1          | 1          | 1216       | 0.135     | 00T-5             | ✓ 167              |               |  | ✓   | ✓  | ✓   |  |     |  |  |  |  |  |  |
| 2          | 2          | 1223       | 5.627     | 0                 | ✓ 2.5              |               |  | ✓   | ✓  | ✓   |  |     |  |  |  |  |  |  |
| 3          |            |            |           |                   |                    |               |  |     |    |     |  |     |  |  |  |  |  |  |
| 4          |            |            |           |                   |                    |               |  |     |    |     |  |     |  |  |  |  |  |  |
| 5          |            |            |           |                   |                    |               |  |     |    |     |  |     |  |  |  |  |  |  |
| 6          |            |            |           |                   |                    |               |  |     |    |     |  |     |  |  |  |  |  |  |
| 7          |            |            |           |                   |                    |               |  |     |    |     |  |     |  |  |  |  |  |  |
| 8          |            |            |           |                   |                    |               |  |     |    |     |  |     |  |  |  |  |  |  |
| 9          |            |            |           |                   |                    |               |  |     |    |     |  |     |  |  |  |  |  |  |
| 10         |            |            |           |                   |                    |               |  |     |    |     |  |     |  |  |  |  |  |  |
| 11         |            |            |           |                   |                    |               |  |     |    |     |  |     |  |  |  |  |  |  |
| 12         |            |            |           |                   |                    |               |  |     |    |     |  |     |  |  |  |  |  |  |
| 13         |            |            |           |                   |                    |               |  |     |    |     |  |     |  |  |  |  |  |  |
| 14         |            |            |           |                   |                    |               |  |     |    |     |  |     |  |  |  |  |  |  |
| 15         |            |            |           |                   |                    |               |  |     |    |     |  |     |  |  |  |  |  |  |
| 16         |            |            |           |                   |                    |               |  |     |    |     |  |     |  |  |  |  |  |  |
| 17         |            |            |           |                   |                    |               |  |     |    |     |  |     |  |  |  |  |  |  |
| 18         |            |            |           |                   |                    |               |  |     |    |     |  |     |  |  |  |  |  |  |
| 19         |            |            |           |                   |                    |               |  |     |    |     |  |     |  |  |  |  |  |  |
| 20         |            |            |           |                   |                    |               |  |     |    |     |  |     |  |  |  |  |  |  |
| 21         |            |            |           |                   |                    |               |  |     |    |     |  |     |  |  |  |  |  |  |
| 22         |            |            |           |                   |                    |               |  |     |    |     |  |     |  |  |  |  |  |  |
| 23         |            |            |           |                   |                    |               |  |     |    |     |  |     |  |  |  |  |  |  |
| 24         |            |            |           |                   |                    |               |  |     |    |     |  |     |  |  |  |  |  |  |

Comments:

SHIP: / station

ENTERED BY:

CHECKED BY:

Bottom Depth: 168

Cast # down: 01  
Cast # up: 01

| Time    | LOC   | UTC |
|---------|-------|-----|
| Begin:  | 21:26 |     |
| Bottom: | 21:32 |     |
| End:    | 21:36 |     |

START POSITION (GPS)

LAT: 48 39.746

LONG: 123 30.275

BOTTOM POSITION (GPS)

LAT: 48 39.792

LONG: 123 30.361

END POSITION (GPS)

LAT: 48 39.822

LONG: 123 30.414

ROSETTE LOG

MISSION ID: 2003-29 STATION: 59 CAST NUMBER: 2 UTC DATE (dd/mm/yyyy): 02/09/2003

| Niskin No. | Sample No. | OXY. Flask | OXY. ml/l | ROSETTE OPERATION |                    | Samples taken |     |     |  |     |     |     |     |  |  |  |  |                                       |
|------------|------------|------------|-----------|-------------------|--------------------|---------------|-----|-----|--|-----|-----|-----|-----|--|--|--|--|---------------------------------------|
|            |            |            |           | Sample Depth      | Confirmed pressure | SAL           |     | NUT |  | TCO |     | C13 |     |  |  |  |  |                                       |
|            |            |            |           |                   |                    |               | OXY |     |  |     | ALK |     | CHL |  |  |  |  |                                       |
| 1          | 3          | 1224       | 3.066     | bottom            | ✓                  | 219           | ✓   |     |  |     |     |     |     |  |  |  |  |                                       |
| 2          | 4          | 1225       | 3.086     | 200               | ✓                  | 200           | ✓   |     |  |     |     |     |     |  |  |  |  |                                       |
| 3          | 5          | 1228       | 3.098     | 175               | ✓                  | 174           |     |     |  |     |     |     |     |  |  |  |  |                                       |
| 4          | 6          | 1233       | 3.105     | 150               | ✓                  | 150           |     |     |  |     |     |     |     |  |  |  |  |                                       |
| 5          | 7          | 1235       | 3.218     | 125               | ✓                  | 125           |     |     |  |     |     |     |     |  |  |  |  |                                       |
| 6          | 8          | 1237       | 3.478     | 100               | ✓                  | 101           |     |     |  |     |     |     |     |  |  |  |  |                                       |
| 7          | 9          | 1238       | 3.538     | 75                | ✓                  | 75            |     |     |  |     |     |     |     |  |  |  |  |                                       |
| 8          | 10         | 1231       | 3.695     | 50                | ✓                  | 50            |     |     |  |     |     |     |     |  |  |  |  |                                       |
| 9          | 11         | 1241       | 3.753     | 40                | ✓                  | 40            |     |     |  |     |     |     |     |  |  |  |  |                                       |
| 10         | 12         | 1247       | 3.869     | 30                | ✓                  | 30            |     |     |  |     |     |     |     |  |  |  |  |                                       |
| 11         | 13         | 1248       | 4.092     | 20                | ✓                  | 20            |     |     |  |     |     |     |     |  |  |  |  |                                       |
| 12         | 14         | 1256       | 4.202     | 10                | ✓                  | 10            |     |     |  |     |     |     |     |  |  |  |  |                                       |
| 13         | 15         | 1258       | 4.349     | 5                 | ✓                  | 5             |     |     |  |     |     |     |     |  |  |  |  |                                       |
| 14         | 16         | 1260       | 4.606     | 0                 | ✓                  | 115           |     |     |  |     |     |     |     |  |  |  |  | tripped with rosette<br>1/2 submerged |
| 15         |            |            |           |                   |                    |               |     |     |  |     |     |     |     |  |  |  |  |                                       |
| 16         |            |            |           |                   |                    |               |     |     |  |     |     |     |     |  |  |  |  |                                       |
| 17         |            |            |           |                   |                    |               |     |     |  |     |     |     |     |  |  |  |  |                                       |
| 18         |            |            |           |                   |                    |               |     |     |  |     |     |     |     |  |  |  |  |                                       |
| 19         |            |            |           |                   |                    |               |     |     |  |     |     |     |     |  |  |  |  |                                       |
| 20         |            |            |           |                   |                    |               |     |     |  |     |     |     |     |  |  |  |  |                                       |
| 21         |            |            |           |                   |                    |               |     |     |  |     |     |     |     |  |  |  |  |                                       |
| 22         |            |            |           |                   |                    |               |     |     |  |     |     |     |     |  |  |  |  |                                       |
| 23         |            |            |           |                   |                    |               |     |     |  |     |     |     |     |  |  |  |  |                                       |
| 24         |            |            |           |                   |                    |               |     |     |  |     |     |     |     |  |  |  |  |                                       |

Comments:

SHIP: VBCTOR

ENTERED BY:

CHECKED BY:

Bottom Depth: 227

Cast # down: 2

Cast # up: 2

| Time    | LOC | UTC  |
|---------|-----|------|
| Begin:  |     | 2325 |
| Bottom: |     | 2331 |
| End:    |     | 2342 |

START POSITION (GPS)

LAT: 48 37 70

LONG: 123 14 61

BOTTOM POSITION (GPS)

LAT: 48 37 67

LONG: 123 14 70

END POSITION (GPS)

LAT: 48 37 63

LONG: 123 14 82

ROSETTE LOG

MISSION ID: 2003-29 STATION: 102 CAST NUMBER: 6 UTC DATE (dd/mm/yyyy): 03/09/2003

| Niskin No. | Sample No. | OXY. Flask | OXY. ml/l | ROSETTE OPERATION |                    | Samples taken |     |     |  |     |     |     |     |  |  |  |  |  |
|------------|------------|------------|-----------|-------------------|--------------------|---------------|-----|-----|--|-----|-----|-----|-----|--|--|--|--|--|
|            |            |            |           | Sample Depth      | Confirmed pressure | SAL           |     | NUT |  | TCO |     | C13 |     |  |  |  |  |  |
|            |            |            |           |                   |                    |               | OXY |     |  |     | ALK |     | CHL |  |  |  |  |  |
| 1          | 18         | 1267       | 1.614     | 807               | ✓ 257              | ↓             |     |     |  |     |     |     |     |  |  |  |  |  |
| 2          | 19         | 1268       | 1.570     | 200               | ✓ 200              | ↓             |     |     |  |     |     |     |     |  |  |  |  |  |
| 3          | 20         | 1270       | 1.512     | 175               | ✓ 175              |               |     |     |  |     |     |     |     |  |  |  |  |  |
| 4          | 21         | 1271       | 1.605     | 150               | ✓ 150              |               |     |     |  |     |     |     |     |  |  |  |  |  |
| 5          | 22         | 1272       | 1.913     | 125               | ✓ 125              |               |     |     |  |     |     |     |     |  |  |  |  |  |
| 6          | 23         | 1276       | 2.385     | 100               | ✓ 100              |               |     |     |  |     |     |     |     |  |  |  |  |  |
| 7          | 24         | 1273       | 2.276     | 75                | ✓ 75               |               |     |     |  |     |     |     |     |  |  |  |  |  |
| 8          | 25         | 1274       | 2.601     | 50                | ✓ 50               |               |     |     |  |     |     |     |     |  |  |  |  |  |
| 9          | 26         | 1277       | 2.542     | 40                | ✓ 40               |               |     |     |  |     |     |     |     |  |  |  |  |  |
| 10         | 27         | 1278       | 3.031     | 30                | ✓ 30               |               |     |     |  |     |     |     |     |  |  |  |  |  |
| 11         | 28         | 1279       | 3.559     | 20                | ✓ 20               |               |     |     |  |     |     |     |     |  |  |  |  |  |
| 12         | 29         | 1280       | 4.335     | 10                | ✓ 10               |               |     |     |  |     |     |     |     |  |  |  |  |  |
| 13         | 30         | 1281       | 4.583     | 5                 | ✓ 5                |               |     |     |  |     |     |     |     |  |  |  |  |  |
| 14         | 31         | 1284       | 4.609     | 0                 | ✓ 3                | ↓             |     |     |  |     |     |     |     |  |  |  |  |  |
| 15         |            |            |           |                   |                    |               |     |     |  |     |     |     |     |  |  |  |  |  |
| 16         |            |            |           |                   |                    |               |     |     |  |     |     |     |     |  |  |  |  |  |
| 17         |            |            |           |                   |                    |               |     |     |  |     |     |     |     |  |  |  |  |  |
| 18         |            |            |           |                   |                    |               |     |     |  |     |     |     |     |  |  |  |  |  |
| 19         |            |            |           |                   |                    |               |     |     |  |     |     |     |     |  |  |  |  |  |
| 20         |            |            |           |                   |                    |               |     |     |  |     |     |     |     |  |  |  |  |  |
| 21         |            |            |           |                   |                    |               |     |     |  |     |     |     |     |  |  |  |  |  |
| 22         |            |            |           |                   |                    |               |     |     |  |     |     |     |     |  |  |  |  |  |
| 23         |            |            |           |                   |                    |               |     |     |  |     |     |     |     |  |  |  |  |  |
| 24         |            |            |           |                   |                    |               |     |     |  |     |     |     |     |  |  |  |  |  |

SHIP: Vector

ENTERED BY:

CHECKED BY:

Bottom Depth: 257

Cast # down: 6

Cast # up:

|         |       |     |
|---------|-------|-----|
| Time    | LOC   | UTC |
| Begin:  | 09:47 |     |
| Bottom: | 09:54 |     |
| End:    | 10:11 |     |

START POSITION (GPS)

LAT: 48 30 007

LONG: 124 44 156

BOTTOM POSITION (GPS)

LAT: 48 30 018

LONG: 124 44 282

END POSITION (GPS)

LAT: 48 30 234

LONG: 124 43 978

ROSETTE LOG

MISSION ID: 2103-29 STATION: 75 CAST NUMBER: 9 UTC DATE (dd/mm/yyyy): 3/9/2003

| Niskin No. | Sample No. | OXY. Flask | OXY. ml/l | ROSETTE OPERATION |                    | Samples taken |     |     |  |     |  |     |  |  |  |  |  |                          |
|------------|------------|------------|-----------|-------------------|--------------------|---------------|-----|-----|--|-----|--|-----|--|--|--|--|--|--------------------------|
|            |            |            |           | Sample Depth      | Confirmed pressure | SAL           |     | NUT |  | TCO |  | C13 |  |  |  |  |  |                          |
|            |            |            |           |                   |                    |               | OXY |     |  | ALK |  | CHL |  |  |  |  |  |                          |
| 1          | 32         | 1216       | 1.455     | Bot-5             | ✓ 206              |               |     |     |  |     |  |     |  |  |  |  |  |                          |
| 2          | 33         | 1223       | 1.413     | 200               | ✓ 200              |               |     |     |  |     |  |     |  |  |  |  |  |                          |
| 3          | 34         | 1224       | 1.452     | 175               | ✓ 175              |               |     |     |  |     |  |     |  |  |  |  |  |                          |
| 4          | 35         | 1225       | 1.351     | 150               | ✓ 150              |               |     |     |  |     |  |     |  |  |  |  |  |                          |
| 5          | 36         | 1228       | 1.590     | 125               | ✓ 125              |               |     |     |  |     |  |     |  |  |  |  |  |                          |
| 6          | 37         | 1231       | 1.918     | 100               | ✓ 100              |               |     |     |  |     |  |     |  |  |  |  |  |                          |
| 7          | 38         | 1233       | 2.716     | 75                | ✓ 75               |               |     |     |  |     |  |     |  |  |  |  |  |                          |
| 8          | 39         | 1235       | 3.642     | 50                | ✓ 50               |               |     |     |  |     |  |     |  |  |  |  |  |                          |
| 9          | 40         | 1237       | 3.653     | 40                | ✓ 40               |               |     |     |  |     |  |     |  |  |  |  |  |                          |
| 10         | 41         | 1238       | 3.712     | 30                | ✓ 30               |               |     |     |  |     |  |     |  |  |  |  |  |                          |
| 11         | 42         | 1241       | 3.899     | 20                | ✓ 20               |               |     |     |  |     |  |     |  |  |  |  |  |                          |
| 12         | 43         | 1247       | 4.182     | 10                | ✓ 10               |               |     |     |  |     |  |     |  |  |  |  |  |                          |
| 13         | 44         |            |           | 5                 | ✓ 5                |               |     |     |  |     |  |     |  |  |  |  |  |                          |
| 14         | 45         | 1256       | 4.316     | 0                 | ✓ 3                |               |     |     |  |     |  |     |  |  |  |  |  | Bottle empty on recovery |
| 15         |            |            |           |                   |                    |               |     |     |  |     |  |     |  |  |  |  |  |                          |
| 16         |            |            |           |                   |                    |               |     |     |  |     |  |     |  |  |  |  |  |                          |
| 17         |            |            |           |                   |                    |               |     |     |  |     |  |     |  |  |  |  |  |                          |
| 18         |            |            |           |                   |                    |               |     |     |  |     |  |     |  |  |  |  |  |                          |
| 19         |            |            |           |                   |                    |               |     |     |  |     |  |     |  |  |  |  |  |                          |
| 20         |            |            |           |                   |                    |               |     |     |  |     |  |     |  |  |  |  |  |                          |
| 21         |            |            |           |                   |                    |               |     |     |  |     |  |     |  |  |  |  |  |                          |
| 22         |            |            |           |                   |                    |               |     |     |  |     |  |     |  |  |  |  |  |                          |
| 23         |            |            |           |                   |                    |               |     |     |  |     |  |     |  |  |  |  |  |                          |
| 24         |            |            |           |                   |                    |               |     |     |  |     |  |     |  |  |  |  |  |                          |

Comments:

no bottle 13-

SHIP: Vector  
ENTERED BY: JP  
CHECKED BY: JP

Bottom Depth: 206

Cast # down: 9  
Cast # up: 9

| Time    | LOC | UTC |
|---------|-----|-----|
| Begin:  | 13  | 10  |
| Bottom: | 13  | 18  |
| End:    | 13  | 30  |

START POSITION (GPS)  
LAT: 48 28 23  
LONG: 124 32 90

BOTTOM POSITION (GPS)  
LAT: 48 28 32  
LONG: 124 33 02

END POSITION (GPS)  
LAT: 48 28 45  
LONG: 124 33 17

ROSETTE LOG

MISSION ID: 2003-29 STATION: 72 CAST NUMBER: 12 UTC DATE (dd/mm/yyyy): 3/9/2003

| Niskin No. | Sample No. | OXY. Flask | OXY. ml/l | ROSETTE OPERATION |                    | Samples taken |  |     |     |     |  |     |  |  |  |  |  |                                                     |
|------------|------------|------------|-----------|-------------------|--------------------|---------------|--|-----|-----|-----|--|-----|--|--|--|--|--|-----------------------------------------------------|
|            |            |            |           | Sample Depth      | Confirmed pressure | SAL           |  | NUT | DOC | TCO |  | C13 |  |  |  |  |  |                                                     |
|            |            |            |           |                   |                    | OXY           |  |     | DOC | ALK |  | CHL |  |  |  |  |  |                                                     |
| 1          | 46         | 364        | 1.463     | 107.5             | ✓ 179              | ✓             |  |     |     |     |  |     |  |  |  |  |  |                                                     |
| 2          | 47         | 535        | 1.461     | 175               | ✓ 179              |               |  |     |     |     |  |     |  |  |  |  |  |                                                     |
| 3          | 48         | 572        | 1.443     | 150               | ✓                  |               |  |     |     |     |  |     |  |  |  |  |  |                                                     |
| 4          | 49         | 657        | 1.481     | 125               | ✓                  |               |  |     |     |     |  |     |  |  |  |  |  |                                                     |
| 5          | 50         | 707        | 1.492     | 100               | ✓                  |               |  |     |     |     |  |     |  |  |  |  |  |                                                     |
| 6          | 51         | 708        | 2.901     | 75                | ✓                  |               |  |     |     |     |  |     |  |  |  |  |  | - Suspect value, freshhead distortion = 432/640 lbs |
| 7          | 52         | 709        | 2.959     | 50                | ✓                  |               |  |     |     |     |  |     |  |  |  |  |  |                                                     |
| 8          | 53         | 715        | 3.122     | 40                | ✓                  |               |  |     |     |     |  |     |  |  |  |  |  |                                                     |
| 9          | 54         | 727        | 3.326     | 30                | ✓                  |               |  |     |     |     |  |     |  |  |  |  |  |                                                     |
| 10         | 55         | 1105       | 4.013     | 20                | ✓                  |               |  |     |     |     |  |     |  |  |  |  |  |                                                     |
| 11         | 56         | 1110       | 4.093     | 10                | ✓                  |               |  |     |     |     |  |     |  |  |  |  |  |                                                     |
| 12         | 57         | 1126       | 4.079     | 5                 | ✓                  |               |  |     |     |     |  |     |  |  |  |  |  |                                                     |
| 13         | 58         | 1128       | 4.164     | 0                 | ✓                  |               |  |     |     |     |  |     |  |  |  |  |  |                                                     |
| 14         |            |            |           |                   |                    |               |  |     |     |     |  |     |  |  |  |  |  |                                                     |
| 15         |            |            |           |                   |                    |               |  |     |     |     |  |     |  |  |  |  |  |                                                     |
| 16         |            |            |           |                   |                    |               |  |     |     |     |  |     |  |  |  |  |  |                                                     |
| 17         |            |            |           |                   |                    |               |  |     |     |     |  |     |  |  |  |  |  |                                                     |
| 18         |            |            |           |                   |                    |               |  |     |     |     |  |     |  |  |  |  |  |                                                     |
| 19         |            |            |           |                   |                    |               |  |     |     |     |  |     |  |  |  |  |  |                                                     |
| 20         |            |            |           |                   |                    |               |  |     |     |     |  |     |  |  |  |  |  |                                                     |
| 21         |            |            |           |                   |                    |               |  |     |     |     |  |     |  |  |  |  |  |                                                     |
| 22         |            |            |           |                   |                    |               |  |     |     |     |  |     |  |  |  |  |  |                                                     |
| 23         |            |            |           |                   |                    |               |  |     |     |     |  |     |  |  |  |  |  |                                                     |
| 24         |            |            |           |                   |                    |               |  |     |     |     |  |     |  |  |  |  |  |                                                     |

Comments: \*duplicates at bottom

SHIP: Vector  
ENTERED BY: DM  
CHECKED BY:

Bottom Depth: 188

Cast # down:  
Cast # up:

| Time    | LOC | UTC   |
|---------|-----|-------|
| Begin:  |     | 17:32 |
| Bottom: |     | 17:37 |
| End:    |     | 17:46 |

START POSITION (GPS)  
LAT: 48 18.50  
LONG: 124 4.1

BOTTOM POSITION (GPS)  
LAT: 48 18.97  
LONG: 124 4.12

END POSITION (GPS)  
LAT: 48 18.41  
LONG: 124 4.07

ROSETTE LOG

MISSION ID: 2603-29 STATION: ADCP CAST NUMBER: 18 UTC DATE (dd/mm/yyyy): 4/9/03

| Niskin No. | Sample No. | OXY. Flask | OXY. ml/l | ROSETTE OPERATION |                    | Samples taken |  |     |  |     |  |     |  |  |  |  |  |  |
|------------|------------|------------|-----------|-------------------|--------------------|---------------|--|-----|--|-----|--|-----|--|--|--|--|--|--|
|            |            |            |           | Sample Depth      | Confirmed pressure | SAL           |  | NUT |  | TCO |  | C13 |  |  |  |  |  |  |
| 1          | 71         | 1322       | 2.107     | 807.5             | ✓                  | 111           |  |     |  |     |  |     |  |  |  |  |  |  |
| 2          | 72         | 1323       | 2.113     | 100               | ✓                  |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 3          | 73         | 1324       | 2.380     | 75                | ✓                  |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 4          | 74         | 1325       | 2.792     | 50                | ✓                  |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 5          | 75         | 1326       | 3.065     | 40                | ✓                  |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 6          | 76         | 1327       | 3.498     | 30                | ✓                  |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 7          | 77         | 1328       | 3.981     | 20                | ✓                  |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 8          | 78         | 1329       | 4.379     | 10                | ✓                  |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 9          | 79         | 1331       | 4.486     | 5                 | ✓                  |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 10         | 80         | 1332       | 4.502     | 0                 | ✓                  | 3.22          |  |     |  |     |  |     |  |  |  |  |  |  |
| 11         |            |            |           |                   |                    |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 12         |            |            |           |                   |                    |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 13         |            |            |           |                   |                    |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 14         |            |            |           |                   |                    |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 15         |            |            |           |                   |                    |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 16         |            |            |           |                   |                    |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 17         |            |            |           |                   |                    |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 18         |            |            |           |                   |                    |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 19         |            |            |           |                   |                    |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 20         |            |            |           |                   |                    |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 21         |            |            |           |                   |                    |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 22         |            |            |           |                   |                    |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 23         |            |            |           |                   |                    |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 24         |            |            |           |                   |                    |               |  |     |  |     |  |     |  |  |  |  |  |  |

ROSETTE LOG

MISSION ID: 2003-29 STATION: 65 CAST NUMBER: 23 UTC DATE (dd/mm/yyyy): 4/9/2003

| Niskin No. | Sample No. | OXY. Flask | OXY. ml/l | ROSETTE OPERATION |                    | Samples taken |  |     |     |     |  |     |  |  |  |  |
|------------|------------|------------|-----------|-------------------|--------------------|---------------|--|-----|-----|-----|--|-----|--|--|--|--|
|            |            |            |           | Sample Depth      | Confirmed pressure | SAL           |  | NUT | DO  | TCO |  | C13 |  |  |  |  |
|            |            |            |           |                   |                    | OXY           |  |     | TOT | ALK |  | CHL |  |  |  |  |
| 1          | 81         | 1333       | 2.194     | BOT-5             | ✓ 122              | X             |  |     | X   |     |  |     |  |  |  |  |
| 2          | 82         | 1347       | 2.274     | 100               | ✓                  |               |  |     |     |     |  |     |  |  |  |  |
| 3          | 83         | 1345       | 2.881     | 75                | ✓                  |               |  |     | X   |     |  |     |  |  |  |  |
| 4          | 84         | 1346       | 3.193     | 50                | ✓                  |               |  |     |     |     |  |     |  |  |  |  |
| 5          | 85         | 1342       | 3.474     | 40                | ✓                  |               |  |     |     |     |  |     |  |  |  |  |
| 6          | 86         | 1341       | 3.537     | 30                | ✓                  |               |  |     |     |     |  |     |  |  |  |  |
| 7          | 87         | 1338       | 3.716     | 20                | ✓                  |               |  |     | X   |     |  |     |  |  |  |  |
| 8          | 88         | 1348       | 4.138     | 10                | ✓                  |               |  |     |     |     |  |     |  |  |  |  |
| 9          | 89         | 1337       | 4.470     | 5                 | ✓                  |               |  |     |     |     |  |     |  |  |  |  |
| 10         | 90         | 1335       | 4.717     | 2                 | ✓                  |               |  |     | X   |     |  |     |  |  |  |  |
| 11         |            |            |           |                   |                    |               |  |     |     |     |  |     |  |  |  |  |
| 12         |            |            |           |                   |                    |               |  |     |     |     |  |     |  |  |  |  |
| 13         |            |            |           |                   |                    |               |  |     |     |     |  |     |  |  |  |  |
| 14         |            |            |           |                   |                    |               |  |     |     |     |  |     |  |  |  |  |
| 15         |            |            |           |                   |                    |               |  |     |     |     |  |     |  |  |  |  |
| 16         |            |            |           |                   |                    |               |  |     |     |     |  |     |  |  |  |  |
| 17         |            |            |           |                   |                    |               |  |     |     |     |  |     |  |  |  |  |
| 18         |            |            |           |                   |                    |               |  |     |     |     |  |     |  |  |  |  |
| 19         |            |            |           |                   |                    |               |  |     |     |     |  |     |  |  |  |  |
| 20         |            |            |           |                   |                    |               |  |     |     |     |  |     |  |  |  |  |
| 21         |            |            |           |                   |                    |               |  |     |     |     |  |     |  |  |  |  |
| 22         |            |            |           |                   |                    |               |  |     |     |     |  |     |  |  |  |  |
| 23         |            |            |           |                   |                    |               |  |     |     |     |  |     |  |  |  |  |
| 24         |            |            |           |                   |                    |               |  |     |     |     |  |     |  |  |  |  |

Comments:

SHIP: VECTOR  
ENTERED BY:  
CHECKED BY:

Bottom Depth: 128

Cast # down:  
Cast # up:

| Time    | LOC | UTC  |
|---------|-----|------|
| Begin:  |     | 6:14 |
| Bottom: |     | 6:18 |
| End:    |     |      |

START POSITION (GPS)  
LAT: 48 15.79  
LONG: 123 9.81

BOTTOM POSITION (GPS)  
LAT: 48 15.73  
LONG: 123 9.83

END POSITION (GPS)  
LAT: 48  
LONG: 123



ROSETTE LOG

MISSION ID: 2003-29 STATION: 69 CAST NUMBER: 15 UTC DATE (dd/mm/yyyy): 03/09/2003

| Niskin No. | Sample No. | OXY. Flask | OXY. ml/l | ROSETTE OPERATION |                    | Samples taken |  |     |  |     |  |     |  |  |  |  |  |  |
|------------|------------|------------|-----------|-------------------|--------------------|---------------|--|-----|--|-----|--|-----|--|--|--|--|--|--|
|            |            |            |           | Sample Depth      | Confirmed pressure | SAL           |  | NUT |  | TCO |  | C13 |  |  |  |  |  |  |
| 1          | 59         | 1130       | 1.542     | bot-5             | ✓ 173              | 1             |  |     |  |     |  |     |  |  |  |  |  |  |
| 2          | 60         | 1134       | 1.640     | 150               | ✓ 150              | 1             |  |     |  |     |  |     |  |  |  |  |  |  |
| 3          | 61         | 1135       | 1.550     | 125               | ✓ 127              |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 4          | 62         | 1136       | 1.589     | 100               | ✓ 100              |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 5          | 63         | 1137       | 2.394     | 75                | ✓ 75               |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 6          | 64         | 1138       | 2.383     | 50                | ✓ 50               |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 7          | 65         | 1142       | 2.608     | 40                | ✓ 40               |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 8          | 66         | 1146       | 2.993     | 30                | ✓ 30               |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 9          | 67         | 1153       | 3.305     | 20                | ✓ 20               |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 10         | 68         | 1158       | 3.548     | 10                | ✓ 10               |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 11         | 69         | 1175       | 3.778     | 5                 | ✓ 5                |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 12         | 70         | 1176       | 4.482     | 0                 | 3                  |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 13         |            |            |           |                   |                    |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 14         |            |            |           |                   |                    |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 15         |            |            |           |                   |                    |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 16         |            |            |           |                   |                    |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 17         |            |            |           |                   |                    |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 18         |            |            |           |                   |                    |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 19         |            |            |           |                   |                    |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 20         |            |            |           |                   |                    |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 21         |            |            |           |                   |                    |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 22         |            |            |           |                   |                    |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 23         |            |            |           |                   |                    |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 24         |            |            |           |                   |                    |               |  |     |  |     |  |     |  |  |  |  |  |  |

Comments:

SHIP: VECTOR  
ENTERED BY: EF  
CHECKED BY:

Bottom Depth:

Cast # down: 15  
Cast # up:

| Time    | LOC   | UTC |
|---------|-------|-----|
| Begin:  | 21:27 |     |
| Bottom: | 21:32 |     |
| End:    | 21:47 |     |

START POSITION (GPS)  
LAT: 48 15.652  
LONG: 123 43 243

BOTTOM POSITION (GPS)  
LAT: 48 15.763  
LONG: 123 43.285

END POSITION (GPS)  
LAT: 48 16.033  
LONG: 123 43.444



ROSETTE LOG

MISSION ID: 2003-29 STATION: 62 CAST NUMBER: 22 UTC DATE (dd/mm/yyyy): 4/9/2003

| Niskin No. | Sample No. *   | OXY. Flask | OXY. ml/l | ROSETTE OPERATION |                    | Samples taken |     |     |    |              |  |     |  |  |  |  |  |                   |
|------------|----------------|------------|-----------|-------------------|--------------------|---------------|-----|-----|----|--------------|--|-----|--|--|--|--|--|-------------------|
|            |                |            |           | Sample Depth      | Confirmed pressure | SAL           |     | NUT | DO | TCO          |  | C13 |  |  |  |  |  |                   |
|            |                |            |           |                   |                    |               | OXY |     |    | ALK          |  | CHL |  |  |  |  |  |                   |
| 1          | 91             | 1216       | 2.283     | BOT-5             | ✓ 147              | X             |     |     |    | X            |  |     |  |  |  |  |  |                   |
| 2          | 92             | 1223       | 2.456     | 125               | ✓                  | X             |     |     |    |              |  |     |  |  |  |  |  |                   |
| 3          | 93             | 1224       | 2.684     | 100               | ✓                  |               |     |     |    |              |  |     |  |  |  |  |  |                   |
| 4          | 94             | 1225       | 2.840     | 75                | ✓                  |               |     |     |    | X            |  |     |  |  |  |  |  |                   |
| 5          | 95             | 1228       | 3.475     | 50                | ✓                  |               |     |     |    |              |  |     |  |  |  |  |  |                   |
| 6          | 96             | 1231       | 3.634     | 40                | ✓                  |               |     |     |    |              |  |     |  |  |  |  |  |                   |
| 7          | 97             | 1233       | 3.753     | 30                | ✓                  |               |     |     |    |              |  |     |  |  |  |  |  | Cap off flask     |
| 8          | 98             | 1235       | 3.866     | 20                | ✓                  |               |     |     |    | X            |  |     |  |  |  |  |  |                   |
| 9          | 99             | 1237       | 4.021     | 10                | ✓                  |               |     |     |    |              |  |     |  |  |  |  |  |                   |
| 10         | 100            | 1238       | 4.119     | 5                 | ✓                  |               |     |     |    |              |  |     |  |  |  |  |  |                   |
| 11         | <del>101</del> |            |           | <del>2</del>      | <del>✓</del>       |               |     |     |    | <del>X</del> |  |     |  |  |  |  |  | no surface sample |
| 12         |                |            |           |                   |                    |               |     |     |    |              |  |     |  |  |  |  |  |                   |
| 13         |                |            |           |                   |                    |               |     |     |    |              |  |     |  |  |  |  |  |                   |
| 14         |                |            |           |                   |                    |               |     |     |    |              |  |     |  |  |  |  |  |                   |
| 15         |                |            |           |                   |                    |               |     |     |    |              |  |     |  |  |  |  |  |                   |
| 16         |                |            |           |                   |                    |               |     |     |    |              |  |     |  |  |  |  |  |                   |
| 17         |                |            |           |                   |                    |               |     |     |    |              |  |     |  |  |  |  |  |                   |
| 18         |                |            |           |                   |                    |               |     |     |    |              |  |     |  |  |  |  |  |                   |
| 19         |                |            |           |                   |                    |               |     |     |    |              |  |     |  |  |  |  |  |                   |
| 20         |                |            |           |                   |                    |               |     |     |    |              |  |     |  |  |  |  |  |                   |
| 21         |                |            |           |                   |                    |               |     |     |    |              |  |     |  |  |  |  |  |                   |
| 22         |                |            |           |                   |                    |               |     |     |    |              |  |     |  |  |  |  |  |                   |
| 23         |                |            |           |                   |                    |               |     |     |    |              |  |     |  |  |  |  |  |                   |
| 24         |                |            |           |                   |                    |               |     |     |    |              |  |     |  |  |  |  |  |                   |

Comments: \* P.S. Sample # not consecutive \*

SHIP: VECTOR  
ENTERED BY: DM  
CHECKED BY:

Bottom Depth: 150

Cast # down: 22  
Cast # up: 22

| Time    | LOC | UTC  |
|---------|-----|------|
| Begin:  |     | 5:00 |
| Bottom: |     | 5:05 |
| End:    |     | 5:14 |

START POSITION (GPS)  
LAT: 48 22.84  
LONG: 123 2.56

BOTTOM POSITION (GPS)  
LAT: 48 22.85  
LONG: 123 2.46

END POSITION (GPS)  
LAT: 48 22.85  
LONG: 123 2.27

ROSETTE LOG

MISSION ID: 2003-29 STATION: 56 CAST NUMBER: 30 UTC DATE (dd/mm/yyyy): 4/9/2003

| Niskin No. | Sample No. | OXY. Flask | OXY. ml/l | ROSETTE OPERATION |                    | Samples taken |     |     |     |     |     |     |     |  |  |                                                                              |
|------------|------------|------------|-----------|-------------------|--------------------|---------------|-----|-----|-----|-----|-----|-----|-----|--|--|------------------------------------------------------------------------------|
|            |            |            |           | Sample Depth      | Confirmed pressure | SAL           |     | NUT | DVC | TCO |     | C13 |     |  |  |                                                                              |
|            |            |            |           |                   |                    |               | OXY |     | TOC |     | ALK |     | CHL |  |  |                                                                              |
| 1          | 102        | 1340       | 3.263     | BOT-5             | ✓                  | 213           | 1   | 1   | 1   | X   |     |     |     |  |  |                                                                              |
| 2          | 103        | 1334       | 3.315     | 200               | ✓                  |               |     | 1   |     |     |     |     |     |  |  |                                                                              |
| 3          | 104        | 1344       | 3.304     | 175               | ✓                  |               |     |     |     |     |     |     |     |  |  |                                                                              |
| 4          | 105        | 1336       | 3.437     | 150               | ✓                  |               |     |     | X   |     |     |     |     |  |  |                                                                              |
| 5          | 106        | 1350       | 3.451     | 125               | ✓                  |               |     |     |     |     |     |     |     |  |  |                                                                              |
| 6          | 107        | 1351       | 3.493     | 100               | ✓                  |               |     |     |     |     |     |     |     |  |  |                                                                              |
| 7          | 108        | 1352       | 3.777     | 75                | ✓                  |               |     |     | X   |     |     |     |     |  |  |                                                                              |
| 8          | 109        | 1353       | 3.810     | 50                | ✓                  |               |     |     |     |     |     |     |     |  |  |                                                                              |
| 9          | 110        | 1354       | 3.958     | 40                | ✓                  |               |     |     |     |     |     |     |     |  |  |                                                                              |
| 10         | 111        | 364        | 4.020     | 30                | ✓                  |               |     |     |     |     |     |     |     |  |  |                                                                              |
| 11         | 112        | 535        | 4.171     | 20                | ✓                  |               |     |     | X   |     |     |     |     |  |  |                                                                              |
| 12         | 113        | 708        | 4.221     | 10                | ✓                  |               |     |     |     |     |     |     |     |  |  |                                                                              |
| 13         | 114        | 572        | 4.357     | 5                 | ✓                  |               |     |     |     |     |     |     |     |  |  |                                                                              |
| 14         | 115        | 657        | 3.002     | 2                 | ✓                  |               |     |     | X   |     |     |     |     |  |  | some precipitate still in flask after adding acid & no yellow line on graph! |
| 15         |            |            |           |                   |                    |               |     |     |     |     |     |     |     |  |  |                                                                              |
| 16         |            |            |           |                   |                    |               |     |     |     |     |     |     |     |  |  |                                                                              |
| 17         |            |            |           |                   |                    |               |     |     |     |     |     |     |     |  |  |                                                                              |
| 18         |            |            |           |                   |                    |               |     |     |     |     |     |     |     |  |  |                                                                              |
| 19         |            |            |           |                   |                    |               |     |     |     |     |     |     |     |  |  |                                                                              |
| 20         |            |            |           |                   |                    |               |     |     |     |     |     |     |     |  |  |                                                                              |
| 21         |            |            |           |                   |                    |               |     |     |     |     |     |     |     |  |  |                                                                              |
| 22         |            |            |           |                   |                    |               |     |     |     |     |     |     |     |  |  |                                                                              |
| 23         |            |            |           |                   |                    |               |     |     |     |     |     |     |     |  |  |                                                                              |
| 24         |            |            |           |                   |                    |               |     |     |     |     |     |     |     |  |  |                                                                              |

ROSETTE LOG

MISSION ID: 2003 - 29 STATION: 46 CAST NUMBER: 39 UTC DATE (dd/mm/yyyy): 04/09/2003

| Niskin No. | Sample No. | OXY. Flask | OXY. ml/l | ROSETTE OPERATION |                    | Samples taken |  |     |  |     |  |     |  |  |  |  |  |  |
|------------|------------|------------|-----------|-------------------|--------------------|---------------|--|-----|--|-----|--|-----|--|--|--|--|--|--|
|            |            |            |           | Sample Depth      | Confirmed pressure | SAL           |  | NUT |  | TCO |  | C13 |  |  |  |  |  |  |
|            |            |            |           |                   |                    | OXY           |  |     |  | ALK |  | CHL |  |  |  |  |  |  |
| 1          | 116        | 1340       | 3.431     | Bot-5             | ✓ 173              | 1             |  |     |  |     |  |     |  |  |  |  |  |  |
| 2          | 117        | 1334       | 3.315     | 150               | ✓ 150              |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 3          | 118        | 1344       | 3.295     | 125               | ✓ 125              |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 4          | 119        | 1336       | 3.333     | 100               | ✓ 100              |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 5          | 120        | 1350       | 3.694     | 75                | ✓ 75               |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 6          | 121        | 1351       | 3.932     | 50                | ✓ 50               |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 7          | 122        | 1352       | 4.097     | 40                | ✓ 40               |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 8          | 123        | 1353       | 4.157     | 30                | ✓ 30               |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 9          | 124        | 1354       | 4.632     | 20                | ✓ 20               |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 10         | 125        | 364        | 5.498     | 10                | ✓ 10               |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 11         | 126        | 535        | 6.035     | 5                 | ✓ 5                |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 12         | 127        | 708        | 6.518     | 0                 | ✓ 3                |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 13         |            |            |           |                   |                    |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 14         |            |            |           |                   |                    |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 15         |            |            |           |                   |                    |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 16         |            |            |           |                   |                    |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 17         |            |            |           |                   |                    |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 18         |            |            |           |                   |                    |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 19         |            |            |           |                   |                    |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 20         |            |            |           |                   |                    |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 21         |            |            |           |                   |                    |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 22         |            |            |           |                   |                    |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 23         |            |            |           |                   |                    |               |  |     |  |     |  |     |  |  |  |  |  |  |
| 24         |            |            |           |                   |                    |               |  |     |  |     |  |     |  |  |  |  |  |  |

Comments:

SHIP: VBC70R

ENTERED BY:

CHECKED BY:

Bottom Depth: 183

Cast # down: 39

Cast # up:

| Time    | LOC | UTC   |
|---------|-----|-------|
| Begin:  |     | 22:24 |
| Bottom: |     | 22:28 |
| End:    |     | 22:43 |

START POSITION (GPS)

LAT: 48 51.37

LONG: 123 10.81

BOTTOM POSITION (GPS)

LAT: 48 51.34

LONG: 123 10.84

END POSITION (GPS)

LAT: 48 51.13

LONG: 123 10.95

ROSETTE LOG

MISSION ID: 2003-29 STATION: 42 CAST NUMBER: 41 UTC DATE (dd/mm/yyyy): 5/9/03

| Niskin No. | Sample No. | OXY. Flask | OXY. ml/l | ROSETTE OPERATION |                    | Samples taken |     |     |  |     |  |     |  |  |  |  |  |  |
|------------|------------|------------|-----------|-------------------|--------------------|---------------|-----|-----|--|-----|--|-----|--|--|--|--|--|--|
|            |            |            |           | Sample Depth      | Confirmed pressure | SAL           |     | NUT |  | TCO |  | C13 |  |  |  |  |  |  |
|            |            |            |           |                   |                    |               | OXY |     |  | ALK |  | CHL |  |  |  |  |  |  |
| 1          | 128        | 572        | 2.934     | Bot-5             | ✓ 317              | 1             |     |     |  |     |  |     |  |  |  |  |  |  |
| 2          | 129        | 657        | 2.890     | 300               | ✓ 300              |               |     |     |  |     |  |     |  |  |  |  |  |  |
| 3          | 130        | 1135       | 2.870     | 250               | ✓ 250              |               |     |     |  |     |  |     |  |  |  |  |  |  |
| 4          | 131        | 1136       | 2.971     | 200               | ✓ 200              |               |     |     |  |     |  |     |  |  |  |  |  |  |
| 5          | 132        | 1137       | 3.139     | 175               | ✓ 175              |               |     |     |  |     |  |     |  |  |  |  |  |  |
| 6          | 133        | 1130       | 3.187     | 150               | ✓ 150              |               |     |     |  |     |  |     |  |  |  |  |  |  |
| 7          | 134        | 1158       | 3.259     | 125               | ✓ 125              |               |     |     |  |     |  |     |  |  |  |  |  |  |
| 8          | 135        | 1176       | 3.279     | 100               | ✓ 100              |               |     |     |  |     |  |     |  |  |  |  |  |  |
| 9          | 136        | 1138       | 3.543     | 75                | ✓ 75               |               |     |     |  |     |  |     |  |  |  |  |  |  |
| 10         | 137        | 1142       | 3.761     | 50                | ✓ 50               |               |     |     |  |     |  |     |  |  |  |  |  |  |
| 11         | 138        | 1175       | 3.751     | 40                | ✓ 40               |               |     |     |  |     |  |     |  |  |  |  |  |  |
| 12         | 139        | 1153       | 3.826     | 30                | ✓ 30               |               |     |     |  |     |  |     |  |  |  |  |  |  |
| 13         | 140        | 1176       | 4.631     | 20                | ✓ 20               |               |     |     |  |     |  |     |  |  |  |  |  |  |
| 14         | 141        | 1188       | 5.663     | 10                | ✓ 20               |               |     |     |  |     |  |     |  |  |  |  |  |  |
| 15         | 142        | 1192       | 6.347     | 0                 | ✓ 2.67             |               |     |     |  |     |  |     |  |  |  |  |  |  |
| 16         |            |            |           |                   |                    |               |     |     |  |     |  |     |  |  |  |  |  |  |
| 17         |            |            |           |                   |                    |               |     |     |  |     |  |     |  |  |  |  |  |  |
| 18         |            |            |           |                   |                    |               |     |     |  |     |  |     |  |  |  |  |  |  |
| 19         |            |            |           |                   |                    |               |     |     |  |     |  |     |  |  |  |  |  |  |
| 20         |            |            |           |                   |                    |               |     |     |  |     |  |     |  |  |  |  |  |  |
| 21         |            |            |           |                   |                    |               |     |     |  |     |  |     |  |  |  |  |  |  |
| 22         |            |            |           |                   |                    |               |     |     |  |     |  |     |  |  |  |  |  |  |
| 23         |            |            |           |                   |                    |               |     |     |  |     |  |     |  |  |  |  |  |  |
| 24         |            |            |           |                   |                    |               |     |     |  |     |  |     |  |  |  |  |  |  |

SHIP: Vector  
ENTERED BY: [Signature]  
CHECKED BY: [Signature]

Bottom Depth: 318

Cast # down: 41  
Cast # up: 41

| Time    | LOC | UTC |
|---------|-----|-----|
| Begin:  | 103 |     |
| Bottom: | 110 |     |
| End:    | 124 |     |

START POSITION (GPS)  
LAT: 49 1 76  
LONG: 123 26 19

BOTTOM POSITION (GPS)  
LAT: 49 1 74  
LONG: 123 26 19

END POSITION (GPS)  
LAT: 49 1 70  
LONG: 123 26 32

Comments: \* no sample at 5M

ROSETTE LOG

MISSION ID: 2003-29 STATION: 39 CAST NUMBER: 45 UTC DATE (dd/mm/yyyy): 5/9/2003

| Niskin No. | Sample No. | OXY. Flask | OXY. ml/l | ROSETTE OPERATION |                    | Samples taken |     |     |     |     |     |     |     |  |  |  |  |                                |
|------------|------------|------------|-----------|-------------------|--------------------|---------------|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|--------------------------------|
|            |            |            |           | Sample Depth      | Confirmed pressure | SAL           |     | NUT | DOC | TCO |     | C13 |     |  |  |  |  |                                |
|            |            |            |           |                   |                    |               | OXY |     | TOC |     | ALK |     | CHL |  |  |  |  |                                |
| 1          | 143        | 1216       | 2.859     | 1305              | ✓                  | 373           |     |     | X   |     |     |     |     |  |  |  |  | Wrong flask & sample # in file |
| 2          | 144        | 1223       | 2.899     | 350               | ✓                  |               |     |     |     |     |     |     |     |  |  |  |  | "                              |
| 3          | 145        | 1224       | 2.901     | 300               | ✓                  |               |     |     |     |     |     |     |     |  |  |  |  |                                |
| 4          | 146        | 1225       | 2.963     | 250               | ✓                  |               |     |     |     |     |     |     |     |  |  |  |  |                                |
| 5          | 147        | 1228       | 3.019     | 200               | ✓                  |               |     |     |     |     |     |     |     |  |  |  |  |                                |
| 6          | 148        | 1231       | 3.131     | 175               | ✓                  |               |     |     |     |     |     |     |     |  |  |  |  |                                |
| 7          | 149        | 1233       | 3.105     | 150               | ✓                  |               |     |     | X   |     |     |     |     |  |  |  |  |                                |
| 8          | 150        | 1235       | 3.244     | 125               | ✓                  |               |     |     |     |     |     |     |     |  |  |  |  |                                |
| 9          | 151        | 1237       | 3.347     | 100               | ✓                  |               |     |     |     |     |     |     |     |  |  |  |  |                                |
| 10         | 152        | 1238       | 3.512     | 75                | ✓                  |               |     |     | X   |     |     |     |     |  |  |  |  |                                |
| 11         | 153        | 1241       | 3.641     | 50                | ✓                  |               |     |     |     |     |     |     |     |  |  |  |  |                                |
| 12         | 154        | 1247       | 3.704     | 40                | ✓                  |               |     |     |     |     |     |     |     |  |  |  |  |                                |
| 13         | 155        | 1248       | 3.755     | 30                | ✓                  |               |     |     |     |     |     |     |     |  |  |  |  |                                |
| 14         | 156        | 1256       | 3.836     | 20                | ✓                  |               |     |     | X   |     |     |     |     |  |  |  |  |                                |
| 15         | 157        | 1258       | 5.582     | 10                | ✓                  |               |     |     |     |     |     |     |     |  |  |  |  |                                |
| 16         | 158        | 1260       | 6.607     | 5                 | ✓                  |               |     |     |     |     |     |     |     |  |  |  |  |                                |
| 17         | 159        | 1267       | 6.734     | 2                 | ✓                  |               |     |     | X   |     |     |     |     |  |  |  |  |                                |
| 18         |            |            |           |                   |                    |               |     |     |     |     |     |     |     |  |  |  |  |                                |
| 19         |            |            |           |                   |                    |               |     |     |     |     |     |     |     |  |  |  |  |                                |
| 20         |            |            |           |                   |                    |               |     |     |     |     |     |     |     |  |  |  |  |                                |
| 21         |            |            |           |                   |                    |               |     |     |     |     |     |     |     |  |  |  |  |                                |
| 22         |            |            |           |                   |                    |               |     |     |     |     |     |     |     |  |  |  |  |                                |
| 23         |            |            |           |                   |                    |               |     |     |     |     |     |     |     |  |  |  |  |                                |
| 24         |            |            |           |                   |                    |               |     |     |     |     |     |     |     |  |  |  |  |                                |

Comments:

SHIP: Vector

ENTERED BY:

CHECKED BY:

Bottom Depth:

Cast # down:

Cast # up:

TimeLOCUTC

Begin:5:13

Bottom:5:21

End:5:40

START POSITION (GPS)

LAT:499.74

LONG:12332.84

BOTTOM POSITION (GPS)

LAT:499.74

LONG:12332.65

END POSITION (GPS)

LAT:499.85

LONG:12332.51

ROSETTE LOG

MISSION ID: 2003-29 STATION: 27 CAST NUMBER: 48 UTC DATE (dd/mm/yyyy): 5/9/2003

| Niskin No. | Sample No. | OXY. Flask | OXY. ml/l | ROSETTE OPERATION |                    | Samples taken |     |     |     |     |     |     |     |  |  |  |  |                           |
|------------|------------|------------|-----------|-------------------|--------------------|---------------|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|---------------------------|
|            |            |            |           | Sample Depth      | Confirmed pressure | SAL           |     | NUT | DOC | TCO |     | C13 |     |  |  |  |  |                           |
|            |            |            |           |                   |                    |               | OXY |     | TOL |     | ALK |     | CHL |  |  |  |  |                           |
| 1          | 160        | 1268       | 2.909     | bot-5             | ✓ 340              | X             |     |     | X   |     |     |     |     |  |  |  |  | no salinity samples taken |
| 2          | 161        | 1270       | 2.807     | 300               | ✓ 300              | X             |     |     |     |     |     |     |     |  |  |  |  |                           |
| 3          | 162        | 1271       | 2.651     | 250               | ✓ 250              |               |     |     |     |     |     |     |     |  |  |  |  |                           |
| 4          | 163        | 1272       | 3.122     | 200               | ✓ 200              |               |     |     |     |     |     |     |     |  |  |  |  |                           |
| 5          | 164        | 1276       | 3.096     | 175               | ✓ 175              |               |     |     |     |     |     |     |     |  |  |  |  |                           |
| 6          | 165        | 1273       | 3.191     | 150               | ✓ 150              |               |     |     | X   |     |     |     |     |  |  |  |  |                           |
| 7          | 166        | 1274       | 3.614     | 125               | ✓ 125              |               |     |     |     |     |     |     |     |  |  |  |  |                           |
| 8          | 167        | 1274       | 3.341     | 100               | ✓ 100              |               |     |     |     |     |     |     |     |  |  |  |  |                           |
| 9          | 168        | 1278       | 3.881     | 75                | ✓ 75               |               |     |     | X   |     |     |     |     |  |  |  |  |                           |
| 10         | 169        | 1279       | 3.700     | 50                | ✓ 50               |               |     |     |     |     |     |     |     |  |  |  |  |                           |
| 11         | 170        | 1280       | 3.692     | 40                | ✓ 40               |               |     |     |     |     |     |     |     |  |  |  |  |                           |
| 12         | 171        | 1281       | 3.749     | 30                | ✓ 30               |               |     |     |     |     |     |     |     |  |  |  |  |                           |
| 13         | 172        | 1284       | 3.730     | 20                | ✓ 20               |               |     |     | X   |     |     |     |     |  |  |  |  |                           |
| 14         | 173        | 1340       | 4.370     | 10                | ✓ 10               |               |     |     |     |     |     |     |     |  |  |  |  |                           |
| 15         | 174        | 1334       | 5.636     | 5                 | ✓ 5                |               |     |     |     |     |     |     |     |  |  |  |  |                           |
| 16         | 175        | 1344       | 6.484     | 2                 | ✓ 3                |               |     |     | X   |     |     |     |     |  |  |  |  |                           |
| 17         |            |            |           |                   |                    |               |     |     |     |     |     |     |     |  |  |  |  |                           |
| 18         |            |            |           |                   |                    |               |     |     |     |     |     |     |     |  |  |  |  |                           |
| 19         |            |            |           |                   |                    |               |     |     |     |     |     |     |     |  |  |  |  |                           |
| 20         |            |            |           |                   |                    |               |     |     |     |     |     |     |     |  |  |  |  |                           |
| 21         |            |            |           |                   |                    |               |     |     |     |     |     |     |     |  |  |  |  |                           |
| 22         |            |            |           |                   |                    |               |     |     |     |     |     |     |     |  |  |  |  |                           |
| 23         |            |            |           |                   |                    |               |     |     |     |     |     |     |     |  |  |  |  |                           |
| 24         |            |            |           |                   |                    |               |     |     |     |     |     |     |     |  |  |  |  |                           |

Comments:

SHIP: VECTOR  
ENTERED BY:  
CHECKED BY:

Bottom Depth: 352

Cast # down: 48  
Cast # up:

|         |     |       |
|---------|-----|-------|
| Time    | LOC | UTC   |
| Begin:  |     | 08:34 |
| Bottom: |     | 08:41 |
| End:    |     | 08:57 |

START POSITION (GPS)  
LAT: 49 19 128  
LONG: 123 48 049

BOTTOM POSITION (GPS)  
LAT: 49 19 194  
LONG: 123 48 084

END POSITION (GPS)  
LAT: 49 19 292  
LONG: 123 48 106

ROSETTE LOG

MISSION ID: 2003-29 STATION: 02 CAST NUMBER: 52 UTC DATE (dd/mm/yyyy): 5/9/03

| Niskin No. | Sample No. | OXY. Flask | OXY. ml/l | ROSETTE OPERATION |                    | Samples taken |     |     |  |     |     |     |     |  |  |  |  |  |
|------------|------------|------------|-----------|-------------------|--------------------|---------------|-----|-----|--|-----|-----|-----|-----|--|--|--|--|--|
|            |            |            |           | Sample Depth      | Confirmed pressure | SAL           |     | NUT |  | TCO |     | C13 |     |  |  |  |  |  |
|            |            |            |           |                   |                    |               | OXY |     |  |     | ALK |     | CHL |  |  |  |  |  |
| 1          | 176        | 1336       | 2.645     | But-5             | ✓                  | 270           | X   |     |  |     |     |     |     |  |  |  |  |  |
| 2          | 177        | 1350       | 2.685     | 250               | ✓                  | 250           | X   |     |  |     |     |     |     |  |  |  |  |  |
| 3          | 178        | 1351       | 2.970     | 200               | ✓                  | 200           |     |     |  |     |     |     |     |  |  |  |  |  |
| 4          | 179        | 1352       | 3.147     | 175               | ✓                  | 175           |     |     |  |     |     |     |     |  |  |  |  |  |
| 5          | 180        | 1353       | 3.207     | 150               | ✓                  | 150           |     |     |  |     |     |     |     |  |  |  |  |  |
| 6          | 181        | 1354       | 3.350     | 125               | ✓                  | 125           |     |     |  |     |     |     |     |  |  |  |  |  |
| 7          | 182        | 364        | 3.365     | 100               | ✓                  | 100           |     |     |  |     |     |     |     |  |  |  |  |  |
| 8          | 183        | 535        | 3.515     | 75                | ✓                  | 75            |     |     |  |     |     |     |     |  |  |  |  |  |
| 9          | 184        | 708        | 3.709     | 50                | ✓                  | 50            |     |     |  |     |     |     |     |  |  |  |  |  |
| 10         | 185        | 1322       | 3.649     | 40                | ✓                  | 40            |     |     |  |     |     |     |     |  |  |  |  |  |
| 11         | 186        | 1323       | 3.692     | 30                | ✓                  | 30            |     |     |  |     |     |     |     |  |  |  |  |  |
| 12         | 187        | 1324       | 3.756     | 20                | ✓                  | 20            |     |     |  |     |     |     |     |  |  |  |  |  |
| 13         | 188        | 1325       | 4.088     | 10                | ✓                  | 10            |     |     |  |     |     |     |     |  |  |  |  |  |
| 14         | 189        | 1326       | 4.781     | 5                 | ✓                  | 5             |     |     |  |     |     |     |     |  |  |  |  |  |
| 15         | 190        | 1327       | 6.301     | 0                 | ✓                  | 3             |     |     |  |     |     |     |     |  |  |  |  |  |
| 16         |            |            |           |                   |                    |               |     |     |  |     |     |     |     |  |  |  |  |  |
| 17         |            |            |           |                   |                    |               |     |     |  |     |     |     |     |  |  |  |  |  |
| 18         |            |            |           |                   |                    |               |     |     |  |     |     |     |     |  |  |  |  |  |
| 19         |            |            |           |                   |                    |               |     |     |  |     |     |     |     |  |  |  |  |  |
| 20         |            |            |           |                   |                    |               |     |     |  |     |     |     |     |  |  |  |  |  |
| 21         |            |            |           |                   |                    |               |     |     |  |     |     |     |     |  |  |  |  |  |
| 22         |            |            |           |                   |                    |               |     |     |  |     |     |     |     |  |  |  |  |  |
| 23         |            |            |           |                   |                    |               |     |     |  |     |     |     |     |  |  |  |  |  |
| 24         |            |            |           |                   |                    |               |     |     |  |     |     |     |     |  |  |  |  |  |

Comments:

SHIP: Vector  
ENTERED BY: AB  
CHECKED BY:

Bottom Depth: 270

Cast # down: 52  
Cast # up: 52

| Time    | LOC | UTC |
|---------|-----|-----|
| Begin:  | 12  | 39  |
| Bottom: | 12  | 45  |
| End:    | 12  | 55  |

START POSITION (GPS)  
LAT: 49 24 15  
LONG: 124 9 36

BOTTOM POSITION (GPS)  
LAT: 49 24 22  
LONG: 124 9 45

END POSITION (GPS)  
LAT: 49 24 26  
LONG: 124 9 53



ROSETTE LOG

MISSION ID: 2003-29 STATION: 3 CAST NUMBER: 55 UTC DATE (dd/mm/yyyy): 5/9/2003

| Niskin No. | Sample No. | OXY. Flask | OXY. ml/l | ROSETTE OPERATION |                    | Samples taken |  |     |     |     |     |     |     |  |  |  |  |                                                        |
|------------|------------|------------|-----------|-------------------|--------------------|---------------|--|-----|-----|-----|-----|-----|-----|--|--|--|--|--------------------------------------------------------|
|            |            |            |           | Sample Depth      | Confirmed pressure | SAL           |  | NUT | DOO | TCO |     | CI3 |     |  |  |  |  |                                                        |
|            |            |            |           |                   |                    | OXY           |  |     | TOC |     | ALK |     | CHL |  |  |  |  |                                                        |
| 1          | 191        | 1295       | 2.65      | 201-5             | ✓ 316              | X             |  |     | X   |     |     |     |     |  |  |  |  |                                                        |
| 2          | 192        | 1297       | 2.635     | 200               | ✓                  | X             |  |     |     |     |     |     |     |  |  |  |  |                                                        |
| 3          | 193        | 1298       | 2.496     | 250               | ✓                  |               |  |     |     |     |     |     |     |  |  |  |  |                                                        |
| 4          | 194        | 1299       | 2.962     | 260               | ✓                  |               |  |     |     |     |     |     |     |  |  |  |  |                                                        |
| 5          | 195        | 1300       | 3.041     | 175               | ✓                  |               |  |     |     |     |     |     |     |  |  |  |  |                                                        |
| 6          | 196        | 1301       | 4.258     | 150               | ✓                  |               |  |     | X   |     |     |     |     |  |  |  |  | *duplicates*<br>forgot to add stirrer at the beginning |
| 7          | 197        | 1303       | 3.893     | 125               | ✓                  |               |  |     |     |     |     |     |     |  |  |  |  |                                                        |
| 8          | 198        | 1304       | 3.487     | 100               | ✓                  |               |  |     |     |     |     |     |     |  |  |  |  |                                                        |
| 9          | 199        | 1305       | 4.266     | 75                | ✓                  |               |  |     | X   |     |     |     |     |  |  |  |  |                                                        |
| 10         | 200        | 1306       | 3.579     | 50                | ✓                  |               |  |     |     |     |     |     |     |  |  |  |  |                                                        |
| 11         | 201        | 1307       | 3.563     | 40                | ✓                  |               |  |     |     |     |     |     |     |  |  |  |  |                                                        |
| 12         | 202        | 1309       | 3.728     | 30                | ✓                  |               |  |     |     |     |     |     |     |  |  |  |  |                                                        |
| 13         | 203        | 1310       | 3.847     | 20                | ✓                  |               |  |     | X   |     |     |     |     |  |  |  |  |                                                        |
| 14         | 204        | 1311       | 4.720     | 10                | ✓                  |               |  |     |     |     |     |     |     |  |  |  |  |                                                        |
| 15         | 205        | 1313       | 6.139     | 5                 | ✓                  |               |  |     |     |     |     |     |     |  |  |  |  |                                                        |
| 16         | 206        | 1314       | 6.279     | 2                 | ✓                  |               |  |     | X   |     |     |     |     |  |  |  |  |                                                        |
| 17         |            |            |           |                   |                    |               |  |     |     |     |     |     |     |  |  |  |  |                                                        |
| 18         | 2196       | 1302       | 3.285     | 150               |                    |               |  |     |     |     |     |     |     |  |  |  |  |                                                        |
| 19         |            |            |           |                   |                    |               |  |     |     |     |     |     |     |  |  |  |  |                                                        |
| 20         |            |            |           |                   |                    |               |  |     |     |     |     |     |     |  |  |  |  |                                                        |
| 21         |            |            |           |                   |                    |               |  |     |     |     |     |     |     |  |  |  |  |                                                        |
| 22         |            |            |           |                   |                    |               |  |     |     |     |     |     |     |  |  |  |  |                                                        |
| 23         |            |            |           |                   |                    |               |  |     |     |     |     |     |     |  |  |  |  |                                                        |
| 24         |            |            |           |                   |                    |               |  |     |     |     |     |     |     |  |  |  |  |                                                        |

SHIP: Vector  
ENTERED BY: DM  
CHECKED BY: EF

Bottom Depth: 322

Cast # down:  
Cast # up:

| Time    | LOC | UTC   |
|---------|-----|-------|
| Begin:  |     | 15:09 |
| Bottom: |     | 15:19 |
| End:    |     | 15:30 |

START POSITION (GPS)  
LAT: 49 26.63  
LONG: 124 20.23

BOTTOM POSITION (GPS)  
LAT: 49 26.64  
LONG: 124 20.41

END POSITION (GPS)  
LAT: 49 26.72  
LONG: 124 20.61

Comments:

# ROSETTE LOG

MISSION ID: 2403-29

STATION: 6

CAST NUMBER: 57

UTC DATE (dd/mm/yyyy): 5/9/2003

| Niskin No. | Sample No. | OXY. Flask | OXY. ml/l | ROSETTE OPERATION |                    | Samples taken |   |     |     |    |     |  |     |  |     |  |     |  |
|------------|------------|------------|-----------|-------------------|--------------------|---------------|---|-----|-----|----|-----|--|-----|--|-----|--|-----|--|
|            |            |            |           | Sample Depth      | Confirmed pressure | SAL           |   | OXY | NUT | DO | TCO |  | C13 |  | ALK |  | CHL |  |
| 1          | 207        | 1315       | 2.745     | 807               | ✓                  | 189           | X |     |     |    | X   |  |     |  |     |  |     |  |
| 2          | 208        | 1328       | 3.029     | 175               | ✓                  |               |   |     |     |    |     |  |     |  |     |  |     |  |
| 3          | 209        | 1317       | 3.373     | 150               | ✓                  |               |   |     |     |    | X   |  |     |  |     |  |     |  |
| 4          | 210        | 1318       | 3.460     | 125               | ✓                  |               |   |     |     |    |     |  |     |  |     |  |     |  |
| 5          | 211        | 1319       | 3.351     | 100               | ✓                  |               |   |     |     |    |     |  |     |  |     |  |     |  |
| 6          | 212        | 1320       | 3.462     | 75                | ✓                  |               |   |     |     |    | X   |  |     |  |     |  |     |  |
| 7          | 213        | 1321       | 3.712     | 50                | ✓                  |               |   |     |     |    |     |  |     |  |     |  |     |  |
| 8          | 214        | 1287       | 3.670     | 40                | ✓                  |               |   |     |     |    |     |  |     |  |     |  |     |  |
| 9          | 215        | 1288       | 3.743     | 30                | ✓                  |               |   |     |     |    |     |  |     |  |     |  |     |  |
| 10         | 216        | 1290       | 3.838     | 20                | ✓                  |               |   |     |     |    | X   |  |     |  |     |  |     |  |
| 11         | 217        | 1291       | 6.150     | 10                | ✓                  |               |   |     |     |    |     |  |     |  |     |  |     |  |
| 12         | 218        | 1293       | 6.026     | 5                 | ✓                  |               |   |     |     |    |     |  |     |  |     |  |     |  |
| 13         | 219        | 1294       | 6.645     | 2                 | ✓                  |               |   |     |     |    | X   |  |     |  |     |  |     |  |
| 14         |            |            |           |                   |                    |               |   |     |     |    |     |  |     |  |     |  |     |  |
| 15         |            |            |           |                   |                    |               |   |     |     |    |     |  |     |  |     |  |     |  |
| 16         |            |            |           |                   |                    |               |   |     |     |    |     |  |     |  |     |  |     |  |
| 17         |            |            |           |                   |                    |               |   |     |     |    |     |  |     |  |     |  |     |  |
| 18         |            |            |           |                   |                    |               |   |     |     |    |     |  |     |  |     |  |     |  |
| 19         |            |            |           |                   |                    |               |   |     |     |    |     |  |     |  |     |  |     |  |
| 20         |            |            |           |                   |                    |               |   |     |     |    |     |  |     |  |     |  |     |  |
| 21         |            |            |           |                   |                    |               |   |     |     |    |     |  |     |  |     |  |     |  |
| 22         |            |            |           |                   |                    |               |   |     |     |    |     |  |     |  |     |  |     |  |
| 23         |            |            |           |                   |                    |               |   |     |     |    |     |  |     |  |     |  |     |  |
| 24         |            |            |           |                   |                    |               |   |     |     |    |     |  |     |  |     |  |     |  |

SHIP: VECTOR

ENTERED BY:

CHECKED BY: EF

Bottom Depth: 194

Cast # down:

Cast # up:

| Time    | LOC | UTC          |
|---------|-----|--------------|
| Begin:  |     | <u>17:02</u> |
| Bottom: |     | <u>17:06</u> |
| End:    |     | <u>17:15</u> |

| START POSITION (GPS) |            |              |
|----------------------|------------|--------------|
| LAT:                 | <u>49</u>  | <u>30.56</u> |
| LONG:                | <u>124</u> | <u>27.72</u> |

| BOTTOM POSITION (GPS) |            |              |
|-----------------------|------------|--------------|
| LAT:                  | <u>49</u>  | <u>30.56</u> |
| LONG:                 | <u>124</u> | <u>27.63</u> |

| END POSITION (GPS) |            |              |
|--------------------|------------|--------------|
| LAT:               | <u>49</u>  | <u>30.58</u> |
| LONG:              | <u>124</u> | <u>27.48</u> |

Comments:

ROSETTE LOG

MISSION ID: 2003-29 STATION: 9 CAST NUMBER: 59 UTC DATE (dd/mm/yyyy): 5/9/2003

| Niskin No. | Sample No. | OXY. Flask | OXY. ml/l | ROSETTE OPERATION |                    | Samples taken |  |     |     |     |  |     |  |  |  |  |  |                               |
|------------|------------|------------|-----------|-------------------|--------------------|---------------|--|-----|-----|-----|--|-----|--|--|--|--|--|-------------------------------|
|            |            |            |           | Sample Depth      | Confirmed pressure | SAL           |  | NUT | DO  | TCO |  | C13 |  |  |  |  |  |                               |
|            |            |            |           |                   |                    | OXY           |  |     | TOC | ALK |  | CHL |  |  |  |  |  |                               |
| 1          | 220        | 1329       | 2.742     | BOT               | ✓ 163.5            | X             |  |     | X   |     |  |     |  |  |  |  |  | *duplicates                   |
| 2          | 221        | 1331       | 3.471     | 150               | ✓ 149              | X             |  |     | X   |     |  |     |  |  |  |  |  | on nut                        |
| 3          | 222        | 1332       | 3.677     | 100               | ✓ 99               |               |  |     |     |     |  |     |  |  |  |  |  |                               |
| 4          | 223        | 1333       | 3.614     | 75                | ✓ 74               |               |  |     | X   |     |  |     |  |  |  |  |  |                               |
| 5          | 224        | 1347       | 6.582     | 50                | ✓ 50               |               |  |     |     |     |  |     |  |  |  |  |  | Large bubble before titration |
| 6          | 225        | 1345       | 3.883     | 40                | ✓ 40               |               |  |     |     |     |  |     |  |  |  |  |  | in bottle                     |
| 7          | 226        | 1346       | 3.938     | 30                | ✓ 29               |               |  |     |     |     |  |     |  |  |  |  |  |                               |
| 8          | 227        | 1342       | 4.342     | 20                | ✓ 19               |               |  |     | X   |     |  |     |  |  |  |  |  |                               |
| 9          | 228        | 1341       | 4.988     | 10                | ✓ 10               |               |  |     |     |     |  |     |  |  |  |  |  |                               |
| 10         | 229        | 1338       | 6.417     | 5                 | ✓ 5                |               |  |     |     |     |  |     |  |  |  |  |  |                               |
| 11         | 230        | 1348       | 8.493     | 2                 | ✓ 2                |               |  |     | X   |     |  |     |  |  |  |  |  |                               |
| 12         |            |            |           |                   |                    |               |  |     |     |     |  |     |  |  |  |  |  |                               |
| 13         |            |            |           |                   |                    |               |  |     |     |     |  |     |  |  |  |  |  |                               |
| 14         |            |            |           |                   |                    |               |  |     |     |     |  |     |  |  |  |  |  |                               |
| 15         |            |            |           |                   |                    |               |  |     |     |     |  |     |  |  |  |  |  |                               |
| 16         |            |            |           |                   |                    |               |  |     |     |     |  |     |  |  |  |  |  |                               |
| 17         |            |            |           |                   |                    |               |  |     |     |     |  |     |  |  |  |  |  |                               |
| 18         |            |            |           |                   |                    |               |  |     |     |     |  |     |  |  |  |  |  |                               |
| 19         |            |            |           |                   |                    |               |  |     |     |     |  |     |  |  |  |  |  |                               |
| 20         |            |            |           |                   |                    |               |  |     |     |     |  |     |  |  |  |  |  |                               |
| 21         |            |            |           |                   |                    |               |  |     |     |     |  |     |  |  |  |  |  |                               |
| 22         |            |            |           |                   |                    |               |  |     |     |     |  |     |  |  |  |  |  |                               |
| 23         |            |            |           |                   |                    |               |  |     |     |     |  |     |  |  |  |  |  |                               |
| 24         |            |            |           |                   |                    |               |  |     |     |     |  |     |  |  |  |  |  |                               |

Comments:

SHIP: VECTOR  
ENTERED BY: Jeff Lewis  
CHECKED BY:

Bottom Depth: 167

Cast # down: 59  
Cast # up: 59

| Time    | LOC | UTC   |
|---------|-----|-------|
| Begin:  |     | 19:04 |
| Bottom: |     | 19:09 |
| End:    |     | 19:19 |

START POSITION (GPS)  
LAT: 49 35.42  
LONG: 124 38.23

BOTTOM POSITION (GPS)  
LAT: 49 35.42  
LONG: 124 38.17

END POSITION (GPS)  
LAT: 49 35.42  
LONG: 124 37.97

ROSETTE LOG

MISSION ID: 2003-29 STATION: 12 CAST NUMBER: 61 UTC DATE (dd/mm/yyyy): 5/9/2003

| Niskin No. | Sample No. | OXY. Flask | OXY. ml/l | ROSETTE OPERATION |                    | Samples taken |  |     |     |     |     |     |     |  |  |                                     |
|------------|------------|------------|-----------|-------------------|--------------------|---------------|--|-----|-----|-----|-----|-----|-----|--|--|-------------------------------------|
|            |            |            |           | Sample Depth      | Confirmed pressure | SAL           |  | NUT | DOC | TCO |     | C13 |     |  |  |                                     |
|            |            |            |           |                   |                    | OXY           |  |     | TOC |     | ALK |     | CHL |  |  |                                     |
| 1          | 231        | 1337       | 3-384     | BOT-5             | ✓ 354              | X             |  |     | X   |     |     |     |     |  |  |                                     |
| 2          | 232        | 1335       | 3-173     | 300               | ✓ 300              | X             |  |     |     |     |     |     |     |  |  |                                     |
| 3          | 233        | 1110       | 3-323     | 250               | ✓ 249              |               |  |     |     |     |     |     |     |  |  |                                     |
| 4          | 234        | 727        | 4-203     | 200               | ✓ 200              |               |  |     |     |     |     |     |     |  |  |                                     |
| 5          | 235        | 1105       | 3-767     | 175               | ✓ 175              |               |  |     |     |     |     |     |     |  |  |                                     |
| 6          | 236        | 709        | 4-023     | 150               | ✓ 150              |               |  |     | X   |     |     |     |     |  |  |                                     |
| 7          | 237        | 1126       | 3-549     | 100               | ✓ 100              |               |  |     |     |     |     |     |     |  |  |                                     |
| 8          | 238        | 707        | 3-834     | 75                | ✓ 75               |               |  |     | X   |     |     |     |     |  |  |                                     |
| 9          | 239        | 715        | 3-792     | 50                | ✓ 49               |               |  |     |     |     |     |     |     |  |  |                                     |
| 10         | 240        | 1134       | 4-285     | 40                | ✓ 40               |               |  |     |     |     |     |     |     |  |  |                                     |
| 11         | 241        | 1128       | 4-253     | 30                | ✓ 30               |               |  |     |     |     |     |     |     |  |  |                                     |
| 12         | 242        | 1216       | 4-229     | 20                | ✓ 20               |               |  |     | X   |     |     |     |     |  |  |                                     |
| 13         | 243        | 1223       | 4-865     | 10                | ✓ 10               |               |  |     |     |     |     |     |     |  |  | -bubbles in bottle before titration |
| 14         | 244        | 1224       | 5-955     | 5                 | ✓ 5                |               |  |     |     |     |     |     |     |  |  | -bubbles on bottle half, titration  |
| 15         | 245        | 1225       | 6-861     | 0                 | ✓ 2                |               |  |     | X   |     |     |     |     |  |  | -bubbles in bottle before titration |
| 16         |            |            |           |                   |                    |               |  |     |     |     |     |     |     |  |  |                                     |
| 17         |            |            |           |                   |                    |               |  |     |     |     |     |     |     |  |  |                                     |
| 18         |            |            |           |                   |                    |               |  |     |     |     |     |     |     |  |  |                                     |
| 19         |            |            |           |                   |                    |               |  |     |     |     |     |     |     |  |  |                                     |
| 20         |            |            |           |                   |                    |               |  |     |     |     |     |     |     |  |  |                                     |
| 21         |            |            |           |                   |                    |               |  |     |     |     |     |     |     |  |  |                                     |
| 22         |            |            |           |                   |                    |               |  |     |     |     |     |     |     |  |  |                                     |
| 23         |            |            |           |                   |                    |               |  |     |     |     |     |     |     |  |  |                                     |
| 24         |            |            |           |                   |                    |               |  |     |     |     |     |     |     |  |  |                                     |

SHIP: Vector  
ENTERED BY: Jeff Lewis  
CHECKED BY:

Bottom Depth: 357

Cast # down: 61  
Cast # up: 61

| Time    | LOC | UTC   |
|---------|-----|-------|
| Begin:  |     | 21:00 |
| Bottom: |     | 21:08 |
| End:    |     | 21:24 |

START POSITION (GPS)  
LAT: 49 43.61  
LONG: 124 40.56

BOTTOM POSITION (GPS)  
LAT: 49 43.61  
LONG: 124 40.56

END POSITION (GPS)  
LAT: 49 43.58  
LONG: 124 40.32

ROSETTE LOG

MISSION ID: 2003-29 STATION: 14 CAST NUMBER: 65 UTC DATE (dd/mm/yyyy): 6/9/2003

| Niskin No. | Sample No. | OXY. Flask | OXY. ml/l | ROSETTE OPERATION |                    | Samples taken |     |     |     |     |     |     |     |  |  |  |
|------------|------------|------------|-----------|-------------------|--------------------|---------------|-----|-----|-----|-----|-----|-----|-----|--|--|--|
|            |            |            |           | Sample Depth      | Confirmed pressure | SAL           | OXY | NUT | DOC | TCO | ALK | C13 | CHL |  |  |  |
| 1          | 246        | 1324       | 3-054     | bottom            | ✓ 309              | X             |     |     | X   |     |     |     |     |  |  |  |
| 2          | 247        | 1325       | 3-071     | 300               | ✓                  | X             |     |     |     |     |     |     |     |  |  |  |
| 3          | 248        | 1326       | 3-102     | 250               | ✓                  |               |     |     |     |     |     |     |     |  |  |  |
| 4          | 249        | 1327       | 3-255     | 200               | ✓                  |               |     |     |     |     |     |     |     |  |  |  |
| 5          | 250        | 1228       | 3-326     | 175               | ✓                  |               |     |     |     |     |     |     |     |  |  |  |
| 6          | 251        | 1231       | 3-374     | 150               | ✓                  |               |     |     | X   |     |     |     |     |  |  |  |
| 7          | 252        | 1233       | 3-416     | 125               | ✓                  |               |     |     |     |     |     |     |     |  |  |  |
| 8          | 253        | 1235       | 3-477     | 100               | ✓                  |               |     |     |     |     |     |     |     |  |  |  |
| 9          | 254        | 1237       | 3-523     | 75                | ✓                  |               |     |     | X   |     |     |     |     |  |  |  |
| 10         | 255        | 1238       | 3-937     | 50                | ✓                  |               |     |     |     |     |     |     |     |  |  |  |
| 11         | 256        | 1241       | 3-934     | 40                | ✓                  |               |     |     |     |     |     |     |     |  |  |  |
| 12         | 257        | 1247       | 3-878     | 30                | ✓                  |               |     |     |     |     |     |     |     |  |  |  |
| 13         | 258        | 1248       | 3-988     | 20                | ✓                  |               |     |     | X   |     |     |     |     |  |  |  |
| 14         | 259        | 1256       | 4-892     | 10                | ✓                  |               |     |     |     |     |     |     |     |  |  |  |
| 15         | 260        | 1258       | 6-124     | 5                 | ✓                  |               |     |     |     |     |     |     |     |  |  |  |
| 16         | 261        | 1260       | 6-607     | surface           | ✓                  |               |     |     | X   |     |     |     |     |  |  |  |
| 17         |            |            |           |                   |                    |               |     |     |     |     |     |     |     |  |  |  |
| 18         |            |            |           |                   |                    |               |     |     |     |     |     |     |     |  |  |  |
| 19         |            |            |           |                   |                    |               |     |     |     |     |     |     |     |  |  |  |
| 20         |            |            |           |                   |                    |               |     |     |     |     |     |     |     |  |  |  |
| 21         |            |            |           |                   |                    |               |     |     |     |     |     |     |     |  |  |  |
| 22         |            |            |           |                   |                    |               |     |     |     |     |     |     |     |  |  |  |
| 23         |            |            |           |                   |                    |               |     |     |     |     |     |     |     |  |  |  |
| 24         |            |            |           |                   |                    |               |     |     |     |     |     |     |     |  |  |  |

Comments:

SHIP: Vector  
ENTERED BY: YJP  
CHECKED BY:

Bottom Depth: 318

Cast # down: 65  
Cast # up:

| Time    | LOC | UTC   |
|---------|-----|-------|
| Begin:  |     | 00:32 |
| Bottom: |     | 00:40 |
| End:    |     | 00:52 |

START POSITION (GPS)  
LAT: 49 52.96  
LONG: 124 59.48

BOTTOM POSITION (GPS)  
LAT: 49 52.94  
LONG: 124 59.34

END POSITION (GPS)  
LAT: 49 53.02  
LONG: 124 59.12

ROSETTE LOG

MISSION ID: 2003-29 STATION: 16 CAST NUMBER: 69 UTC DATE (dd/mm/yyyy): 6/9/2003

| Niskin No. | Sample No. | OXY. Flask | OXY. ml/l | ROSETTE OPERATION |                    | Samples taken |     |  |     |     |     |     |     |     |  |  |  |  |
|------------|------------|------------|-----------|-------------------|--------------------|---------------|-----|--|-----|-----|-----|-----|-----|-----|--|--|--|--|
|            |            |            |           | Sample Depth      | Confirmed pressure | SAL           |     |  | NUT | DOC | TCO |     | C13 |     |  |  |  |  |
|            |            |            |           |                   |                    |               | OXY |  |     | TOC |     | ALK |     | CHL |  |  |  |  |
| 1          | 262        | 1287       | 3-028     | bot-5             | ✓ 148              | x             |     |  |     | ✓   |     |     |     |     |  |  |  |  |
| 2          | 263        | 1288       | 3-204     | 125               | ✓                  | x             |     |  |     |     |     |     |     |     |  |  |  |  |
| 3          | 264        | 1290       | 3-307     | 100               | ✓                  |               |     |  |     |     |     |     |     |     |  |  |  |  |
| 4          | 265        | 1291       | 3-466     | 75                | ✓                  |               |     |  |     | x   |     |     |     |     |  |  |  |  |
| 5          | 266        | 1293       | 3-759     | 50                | ✓                  |               |     |  |     |     |     |     |     |     |  |  |  |  |
| 6          | 267        | 1294       | 3-821     | 40                | ✓                  |               |     |  |     |     |     |     |     |     |  |  |  |  |
| 7          | 268        | 1295       | 3-699     | 30                | ✓                  |               |     |  |     |     |     |     |     |     |  |  |  |  |
| 8          | 269        | 1297       | 4-363     | 20                | ✓                  |               |     |  |     | x   |     |     |     |     |  |  |  |  |
| 9          | 270        | 1298       | 4-593     | 10                | ✓                  |               |     |  |     |     |     |     |     |     |  |  |  |  |
| 10         | 271        | 1299       | 4-791     | 5                 | ✓                  |               |     |  |     |     |     |     |     |     |  |  |  |  |
| 11         | 272        | 1300       | 4-944     | 0                 | ✓                  |               |     |  |     | x   |     |     |     |     |  |  |  |  |
| 12         |            |            |           |                   |                    |               |     |  |     |     |     |     |     |     |  |  |  |  |
| 13         |            |            |           |                   |                    |               |     |  |     |     |     |     |     |     |  |  |  |  |
| 14         |            |            |           |                   |                    |               |     |  |     |     |     |     |     |     |  |  |  |  |
| 15         |            |            |           |                   |                    |               |     |  |     |     |     |     |     |     |  |  |  |  |
| 16         |            |            |           |                   |                    |               |     |  |     |     |     |     |     |     |  |  |  |  |
| 17         |            |            |           |                   |                    |               |     |  |     |     |     |     |     |     |  |  |  |  |
| 18         |            |            |           |                   |                    |               |     |  |     |     |     |     |     |     |  |  |  |  |
| 19         |            |            |           |                   |                    |               |     |  |     |     |     |     |     |     |  |  |  |  |
| 20         |            |            |           |                   |                    |               |     |  |     |     |     |     |     |     |  |  |  |  |
| 21         |            |            |           |                   |                    |               |     |  |     |     |     |     |     |     |  |  |  |  |
| 22         |            |            |           |                   |                    |               |     |  |     |     |     |     |     |     |  |  |  |  |
| 23         |            |            |           |                   |                    |               |     |  |     |     |     |     |     |     |  |  |  |  |
| 24         |            |            |           |                   |                    |               |     |  |     |     |     |     |     |     |  |  |  |  |

Comments:

SHIP: vectoria  
ENTERED BY:  
CHECKED BY:

Bottom Depth: 155

Cast # down:  
Cast # up:

| Time    | LOC | UTC  |
|---------|-----|------|
| Begin:  |     | 3:27 |
| Bottom: |     | 3:30 |
| End:    |     |      |

START POSITION (GPS)  
LAT: 49 57.71  
LONG: 125 8.68

BOTTOM POSITION (GPS)  
LAT: 49 57.70  
LONG: 125 8.68

END POSITION (GPS)  
LAT:  
LONG: