Longitudinal Profiles: Horizontal Scale 1:500 Vertical Scale 1:100

Longitudinal Profiles:
- Pre-survey profile
- Post-survey profile
- Design tolerances
- Berm design profile
- Design seabed profile (Company provided data)

Cross section Profiles:
- ---

KP 163.590  KP 163.590  KP 163.570  KP 163.560  KP 163.560  KP 163.540  KP 163.530  KP 163.520  KP 163.510

-56m  -58m  -60m  -62m  -64m  -66m

WK003

163.515
Longitudinal Profiles: Horizontal Scale 1:500 Vertical Scale 1:100

WK005

Longitudinal Profiles
- Pre-survey profile
- Post-survey profile
- Design tolerances
- Berm design profile
- Design seabed profile (Company provided data)

Cross section Profiles
APPENDIX 5

Nord Stream Gas Pipeline construction and operation in the Finnish EEZ. Environmental monitoring Q2/2010

MONITORING AND SURVEY EQUIPMENT

Water quality monitoring during long term monitoring, rock placement and pipelay /20/ /24/

Vessel operated automatic sensing and fixed sensing:

- Self-logging YSI-6600 and YSI-600 series Deep Water sonde

Acoustic Doppler Current Profiler (ADCP):

- Workhorse Sentinel ADCPs that are equipped with pressure and temperature sensors

Acoustic releasers:

- Sonardyne acoustic releasers with a distance transponder

Water sampling:

- Limnos water sampler

Sediment sampling:

- GEMAX and Limnos samplers

Benthos sampling:

- Van Veen sampler

Rock placement monitoring (rock placement with Dynamically Positionned Fall Pipe Vessels' (Seahorse) (surveys pre-, during-, and after rock placement) /19/:

Vessel equipped with:

<table>
<thead>
<tr>
<th>Device brand</th>
<th>Function of the device</th>
</tr>
</thead>
<tbody>
<tr>
<td>C&amp;C Technologies, C-NAV 2050R Positioning Syst.)</td>
<td>DGPS (2x) (Differential Global</td>
</tr>
<tr>
<td>C&amp;C Technologies, Proprietary satellite corrections</td>
<td>Diff. Corrections (2x)</td>
</tr>
<tr>
<td>Hemisphere GPS, IALA beacon receivers</td>
<td>MBX-4 (2x)</td>
</tr>
<tr>
<td>Sercel, NR203 Positioning Syst.)</td>
<td>DGPS (2x) (Differential Global</td>
</tr>
<tr>
<td>Nesa, Skyfix Immarsat / Spotbeam</td>
<td>Diff. Corrections Receiver</td>
</tr>
<tr>
<td>Veripos, Veripos-HF</td>
<td>Diff. Corrections (2x)</td>
</tr>
<tr>
<td>Litton Marine, SR-180 MK</td>
<td>Gyro Compass (2x)</td>
</tr>
<tr>
<td>Sperry, TG5000</td>
<td>Gyro Compass (2x)</td>
</tr>
<tr>
<td>Seatex, SeaPath 200 Sensor (2x)</td>
<td>Heading, Attitude and Positioning</td>
</tr>
<tr>
<td>Seatex, MRU5</td>
<td>Motion sensor (2x)</td>
</tr>
<tr>
<td>Simrad Kongsperg, Hipap 500</td>
<td>USBL (Ultra Short baseline)</td>
</tr>
<tr>
<td>Seabird, SBE19 Depth</td>
<td>CTD (Conductivity, Temperature, Depth)</td>
</tr>
<tr>
<td>AVC, EPC600</td>
<td>video overlay</td>
</tr>
<tr>
<td>Sony, VHS</td>
<td>geo recorders (2x)</td>
</tr>
<tr>
<td>VisualSoft, VisualDVR</td>
<td>Hard disk recorder (2x)</td>
</tr>
</tbody>
</table>

(FP)ROV sensors:

<table>
<thead>
<tr>
<th>Device brand</th>
<th>Function of the device</th>
</tr>
</thead>
</table>
Nord Stream Gas Pipeline construction and operation in the Finnish EEZ. Environmental monitoring Q2/2010

MONITORING AND SURVEY EQUIPMENT

- Seabat, 8125
- Tritech, Seaking DHSP profiler
- Tritech, SD701 & PA200/PA500
- Tritech, Seaking SHS imaging sonar
- IXcea, PHINS
- IXcea, Photonic Octans (V3)
- RDI, Workhorse 1200
- Osprey, 1x Sit 1x Colour
- ROS, Navigator II Titanium
- Simrad Kongsberg, MPT339
- Seabird, SBE37

Survey computers:

- IBM, Qinsy
- IBM, Terramodel

Function of the device

- Multibeam Echosounder (2x)
- Mechanical profilers
- Bathy/Alti (2x)
- Obstacle Avoidance Sonar
- Gyro Compass & Motion sensor
- Spare Gyro Compass & Motion sensor
- Cameras (2x)
- Digital Camera
- USBL responder (2x and 1 spare)
- CTD (Conductivity, Temperature, Depth)

Pipe lay monitoring, Pre-lay /21/: 

Innovator 40 ROV

Sensors:

- Gyro, pitch and roll sensor (GPR)
- Doppler Velocity Log (DVL)
- Centre pan and tilt video cameras
- Bathymeter and altimeter
- High Precision Depth Sensor
- Obstacle Avoidance Sonar (OAS)
- Dual Head Multibeam Echo Sonar (DHMBES)
- ROV sonar, colour and SIT cameras
- Vessel DGPS, gyro, motion reference and HiPAP

Cable crossing monitoring /9/-/14/: 

Innovator 21 or 23 ROV

Pipetracker TSS 440 cable tracker

ROV and USBL transponders, ROV gyro

Cameras for general video inspection (GVI)

Wreck inspections /26/-/29/: 

Vessel equipped with:

Device brand

- Applanix Pos MV 320 with CNAV correction
- Furgo StarPack with IALA and SBAS Positioning
- SeaPath 200 APS
- USBL-KONGSBERG HiPAP 500

Function of the device

- Primary positioning system
- Back-up Positioning
- Gyro
- USBL (Ultra Short baseline)
MONITORING AND SURVEY EQUIPMENT

Mohican ROV equipped with:

<table>
<thead>
<tr>
<th>Device brand</th>
<th>Function of the device</th>
</tr>
</thead>
<tbody>
<tr>
<td>MiniPos II</td>
<td>Heading</td>
</tr>
<tr>
<td>Simrad MST 319</td>
<td>Gyro</td>
</tr>
<tr>
<td>Tritech PA 500</td>
<td>Transponder</td>
</tr>
<tr>
<td>ValeportMini Svs</td>
<td>Altimeter</td>
</tr>
<tr>
<td>Valeport Mini Svs</td>
<td>Depth Sensor</td>
</tr>
<tr>
<td>Tritech seaking</td>
<td>Velocity Profilers</td>
</tr>
<tr>
<td>Reson 7125 single head, 512 beams, 400khz</td>
<td>Forward looking sonar</td>
</tr>
</tbody>
</table>
APPENDIX 6

Nord Stream Gas Pipeline construction and operation in the Finnish EEZ. Environmental monitoring Q2/2010

TRANSBOUNDARY MONITORING - FINLAND - ESTONIA

Transboundary impacts from Nord Stream rock placement activities in the Finnish EEZ to Estonia have been monitored at two stations (SED4/BENT4 EST and SED5/BENT5 EST) during Q2/2010 according to the Transboundary Monitoring Programme /5/. The monitoring stations and the sampling dates are presented below. Monitoring has included sediment and benthos sampling.

The results will be reported in the quarterly environmental monitoring report of Q3/2010.

Figure 1  Transboundary monitoring stations – Finland - Estonia
APPENDIX 6

Nord Stream Gas Pipeline construction and operation in the Finnish EEZ.
Environmental monitoring Q2/2010

TRANSBOUNDARY MONITORING - FINLAND - ESTONIA

**Table 1** Locations of transboundary monitoring stations  Finland - Estonia

<table>
<thead>
<tr>
<th>Sampling phase</th>
<th>Station</th>
<th>Coordinates</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre sampling</td>
<td>SED4/BENT4 EST P1</td>
<td>59°40.38 N, 24°9.38 E</td>
<td>12.5.2010</td>
</tr>
<tr>
<td></td>
<td>SED4/BENT4 EST P2</td>
<td>59°40.50 N, 24°10.26 E</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SED4/BENT4 EST P3</td>
<td>59°39.94 N, 24°10.04 E</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SED5/ BENT5 EST P1</td>
<td>59°51.45 N, 25°46.50</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SED5/ BENT5 EST P2</td>
<td>59°51.45 N, 25°45.13 E</td>
<td>20.5.2010</td>
</tr>
<tr>
<td></td>
<td>SED5/ BENT5 EST P3</td>
<td>59°51.88 N, 25°45.70 E</td>
<td></td>
</tr>
<tr>
<td>Post sampling</td>
<td>SED4/ BENT4 EST P1</td>
<td>59°40.38 N, 24°9.38 E</td>
<td>12.-13.7.2010</td>
</tr>
<tr>
<td></td>
<td>SED4/BENT4 EST P2</td>
<td>59°40.50 N, 24°10.26 E</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SED4/BENT4 EST P3</td>
<td>59°39.94 N, 24°10.04 E</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SED5/ BENT5 EST P1</td>
<td>59°51.45 N, 25°46.50</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SED5/ BENT5 EST P2</td>
<td>59°51.45 N, 25°45.13 E</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SED5/ BENT5 EST P3</td>
<td>59°51.88 N, 25°45.70 E</td>
<td></td>
</tr>
</tbody>
</table>