

FACTS

NEWSLETTER ABOUT THE NATURAL GAS PIPELINE THROUGH THE BALTIC SEA ISSUE 14 / AUGUST 2010



Each year divers volunteer for the HUMA project and learn to handle research equipment, and how to conduct an excavation.



Marie Jonsson, diving archaeologist for HUMA shows some objects found in 2010. They are kept in water until they can be sent for conservation.

A Blast from the Past: Marine Archaeology Day in Sweden Starts with a Cannon Salute

Marine archaeologists shed new light on Gotland's underwater cultural heritage

Marine Archaeology Day on the Swedish Island of Gotland started with a bang on July 28 when a salute was fired from a replica of a 16th century cannon. The original cannon, which is currently being conserved, was recovered in 2007 in the waters near the event site at Krusmyntagården by divers working for the Heritage Underwater Maritime Archaeology project, or HUMA. The project focuses on exploring the remains of the Danish-Lübeckian fleet which foundered in a storm on July 28, 1566 off the coast of Gotland. Fourteen ships sank and thousands of men drowned. "Today is the day we honor

those who died when the entire fleet sank. We also show visitors what marine archaeology is, by showing our equipment and our findings. We also shoot the cannon, which is fun," says Göran Ankarliija, marine archaeologist and HUMA project director.

Making History Fun

During Marine Archaeology Day hundreds of visitors had the chance to test the high-tech research equipment used by HUMA's archaeologists and its volunteer divers. The visitors were also able to see some recent discoveries. "The objects are from the 15th and 16th centuries. We know very little about that time and studying

our findings helps us to learn more about the people who were on these ships," explains Ankarliija. The HUMA team, with the help of volunteer divers, is currently investigating an area that is 900-metres long and 150-metres wide off Krusmyntagården. Most of the objects they find will remain on the seabed after they are catalogued due to the high costs and time involved with conservation. The cannon recovered in 2007, for example, will not be on exhibit at the Gotland Museum until 2013, explains Ankarliija. "Investigations and conservation are expensive, and to go further we need financial support. We have that with Nord Stream."



Göran Ankarliija, marine archaeologist & HUMA project director

HUMA

Heritage Underwater Maritime Archaeology (HUMA) investigates the wrecks and artefacts sunk around the Island of Gotland, Sweden. The project, initiated in 2007, is sponsored by Nord Stream. For more information about HUMA visit: www.humagotland.se

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In addition to FACTS, Nord Stream also offers e-FACTS, its electronic newsletter. e-FACTS provides additional updates on the Nord Stream project and related topics. e-FACTS is available online and via email in English only.

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The Castoro Dieci, a flat-bottomed laybarge with low draught began working in the shallow waters of Germany's Greifswalder Bodden at the end of June. It is laying the shortest segment (28 kilometres) of each of the parallel pipelines.

Summer Strides: Both Pipelines Pulled Ashore in Germany and Russia in July and August

The construction of the Nord Stream Pipeline continued on schedule over the summer months

The first pipe string of the Nord Stream Pipeline was pulled onto European mainland at Lubmin, Germany on July 3, and the second string reached shore on July 16.

"This construction phase was important and exciting for Nord Stream, and not just from a technical point of view. It also has symbolic significance, as the Nord Stream Pipeline has now reached the European mainland in Lubmin," explains Dr. Georg Nowack, Nord Stream project manager for Germany. "Lubmin is also the point where WINGAS is planning and already building the natural gas

transfer station and the OPAL and NEL onshore pipelines." Since June 28, the Castoro Dieci has been anchored about 1 kilometre from the landing point, where it has been welding 12-metre-long pipes together to form the pipeline strings.

German Landfall

The two pipe strings that were pulled ashore at the beginning and in mid-July each were about 1,000 metres long weighing 2,000 tonnes. They were individually pulled ashore with the aid of a 100-tonne heavy-duty draw winch mounted on land. The pipeline strings, supported by large rollers, were pulled into their final position



The pipelines have been pulled on shore in Lubmin, Germany. The first on July 3, and the second on July 17.

around 250 metres beyond the shoreline. Once the first string was in place, the Castoro Dieci began pipelaying in a northerly direction, slowly moving away from the landfall.

When the first pipeline reached around 5-kilometres in length, it was left on the seabed for later recovery. The Castoro Dieci laybarge then returned to the starting point, where it again anchored and began producing the second string, which was pulled ashore in mid July. The first 28-kilometre pipeline segment in German waters was completed in mid-August, then construction continued on the second string.

The first of the two pipelines built in Russian waters surfaced from the sea onto the Russian landfall at Portovaya Bay on July 28. The pipeline string was pulled ashore from the pipelay vessel Castoro Sei, moored approximately 1.3 kilometres away from the shoreline. The second string was pulled ashore on August 4. In the meantime, construction of the 1.5 kilometre onshore part of the pipeline and landfall facilities is progressing.

As on the Castoro Dieci, the 12-metre long pipes were welded together aboard the Castoro Sei into double joints to form a pipeline string which was then pulled ashore with an onshore



The first string of the pipeline was pulled onto Russian landfall on July 28, the second on August 4. The Castoro Sei is about 1,300 metres from the shoreline.



The pipelines were pulled ashore with the aid of a heavy-duty draw winch mounted on land. The winch weighs 100 tonnes.



The tip of the pipeline is fitted with a pull head, to which a pull-in wire is attached. A buoy affixed to the pull head keeps it afloat as it is pulled ashore.

anchored winch, with a 121-millimetre diameter wide pull-in wire. The pipeline strings are laid in a trench, which will be backfilled up to the initial seabed level in the coming weeks. This will protect the pipelines from any external impacts, including ice, currents and waves.

Russian Landfall

Portovaya Bay near Vyborg is the starting point of the Nord Stream Pipeline through the Baltic Sea. At this point Nord Stream will be connected to the gas transportation system of Russia via the Gryazovets-Vyborg onshore pipeline. Gas will be fed into Nord Stream by the Portovaya compressor

station located about 3 kilometres from the shore. Both the Gryazovets-Vyborg pipeline and Portovaya compressor station are being built and will be operated by Gazprom.

Nord Stream's offshore pipe laying was started by the Castoro Sei in April 2010. Before arriving in Portovaya Bay in July, the vessel had laid around 230 kilometres of the pipeline in Swedish and Finnish waters. After the shore pull and the laying of the two 7.5 kilometre pipeline segments in Russian waters she resumed pipe laying in Finnish waters in mid-August. Pipe laying in Russian waters will be continued by the Solitaire.

Solitaire to Begin Work in September

The Allseas' Solitaire at 300-metres long is the world's largest pipelay vessel. It will be working in the Gulf of Finland starting in September. Allseas has been subcontracted by Saipem for the Nord Stream Project. The Solitaire arrived at the Port of Rotterdam in early August for refurbishment and it departed for the Baltic Sea mid month.

The vessel has a fully dynamic positioning system which enables precise manoeuvring without the use of anchors, ensuring added safety in the congested Gulf of Finland. The system is also advantageous for this area due to the number of mines that were deployed there during the First and Second World Wars. The Solitaire is scheduled to lay a 342.5-kilometre long segment of each of the two pipelines, and it will begin working in September through January 2011. It is scheduled to lay the second pipeline from May to September 2011.

IN BRIEF



LOGISTICS OF THE PIPELINE

A pipeline is a major infrastructure project, and many materials are needed at the right place at the right time to ensure its smooth and timely construction. The backbone of the Nord Stream project is a thoroughly planned, environmentally-friendly logistics concept. It was first developed in 2006, four years prior to the start of the construction of the first of the two pipelines in April 2010.

This seemingly early start was necessary not only to assess logistics locations along the Baltic Sea coast for technical feasibility, but also to develop infrastructure, and choose suppliers for raw materials as well as contractors for handling the transport and manufacturing of pipes. Over 200,000 pipes are necessary to build the twin pipelines.

Nord Stream has recently published a pamphlet explaining its logistics concept. The pamphlet can be downloaded or ordered from the Nord Stream website. It is currently available in English and German. Finnish, Swedish and Russian versions will be available by October. For more publications, please visit: www.nord-stream.com

FAST FACTS

1 World's largest lay-barge underway. The Allsea's Solitaire will work in the Gulf of Finland starting in September.

2 Two Saipem vessels are working. The C6 finished work at the Russian landfall and is moving toward Finland. The C10 is in German waters.

3 Three vessels will build the pipelines. They will work at different segments of the Nord Stream Pipeline route.

100,000 Pipes Ready for the Pipeline

Half of the pipes for the Nord Stream project are concrete coated

One hundred thousand of the pipes needed for the Nord Stream Pipeline were concrete coated as of the end of July. About 202,000 concrete coated steel pipes will be needed for the two 1,224-kilometre natural gas pipelines through the Baltic Sea. Prior to receiving concrete coating, the steel pipes for the Nord Stream Pipeline have an average weight of 11 tonnes. The con-

crete coating brings the total weight of each pipe up to about 24 tonnes, thereby guaranteeing the stability of the pipes when laid on the seabed.

The pipes are being concrete coated by Nord Stream's coating and logistics partner EUPEC which has weight coating plants in Mukran, Germany, and in Kotka, Finland. At the end of July, approximately 62,000 pipe seg-

ments had been concrete coated in Mukran and 38,000 in Kotka. During the whole project, the Mukran plant will produce about 126,000 weight coated pipes (60 percent), and the Kotka plant approximately 76,000 (40 percent) of the pipes needed for the two strings of the pipeline. EUPEC's coating plants have been coating pipes in Mukran since spring 2009 and in Kotka since summer 2009.

2010 Tour Winds Down in September

The Baltic Youth Philharmonic will end its 2010 tour in Germany

Poland, Denmark, Estonia, Latvia, Russia and Germany: the Baltic Youth Philharmonic has performed seven concerts in these countries from June through August this year. It's most recent engagement was on August 10 at the Young Euro Classic Festival at the Berlin Konzerthaus. The orchestra also performed for the first time this year in Russia, and a highlight was an open air concert in St. Petersburg's Mikhailovsky Garden on July 9. In 2010, 100 music



Kristjan Järvi, Music Director of the orchestra, at an open air concert.

academy students performed in the orchestra, led by Founding Conductor and Music Director Kristjan Järvi. The orchestra was co-founded by Nord Stream

and the Usedom Music Festival. The final concert this year will take place on September 25. The Baltic Youth Philharmonic will then open the Usedom Music Festival in Peenemünde, Germany, with guest conductor Neeme Järvi and violin soloist Baiba Skride. Neeme Järvi, Kristjan's father, has conducted many of the world's most prominent orchestras, including the Berlin Philharmonic, Philharmonia, Czech Philharmonic, Zürich Tonhalle and the BBC Symphony Orchestras, to name a few.

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