De-Kastri Oil Export Terminal. 10 Years
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Globally oriented Russian terminal celebrates its 10 year anniversary and new achievements
Over 150 years of its history the village of De-Kastri in the Khabarovsk Krai has gone from a military outpost on the Pacific Ocean to a state-of-the-art oil export terminal. This transformation only became possible in the 21st century due to the implementation of the Sakhalin-1 project, when the oil export terminal in question appeared on the coast of De-Kastri Bay (named by La Perouse in honor of the expedition organizer — the French Naval Minister). Since 1952, the bay has been named for Nikolai Chikhachev, a member of Admiral Nevelsky’s Amur expedition. The names have changed, but the wealth and importance of the area remain the same. The path of Sakhalin hydrocarbons throughout the world begins here for the benefit of the people of Russia and other countries. But the most striking transformation for the better happened specifically in the Russian Far East.
Energy for the World

In once hard-to-reach areas of the Far East, a unique international industrial cluster was created through the efforts of individuals from different parts of the world. Cooperation of the international team became the key to its success. Every worker feels proud to be part of this unique project.

Exxon Neftegas Limited (ENL), an affiliate of ExxonMobil Corporation, is the Project Operator. ENL (30% share in project) leads an international Consortium that includes the Russian State owned Rosneft, represented by its affiliates RN-Astra (8.5%) and Sakhalinmorneftegaz-Shelf (11.5%), the Japanese Consortium SODECO (30%), and the Indian National Oil Company ONGC Videsh Ltd. (20%). With all numerous contractors, the project has created jobs on various continents and in different time zones.

Sakhalin-1 is one of the largest projects in Russia with direct foreign investments, and one of the pioneers of Russia's market economy, the leader in setting the most up-to-date standards, work management procedures, and environmental protection methods, and caring after its personnel and the local communities.

Three offshore fields — Chayvo, Oodoptu, and Arkutun-Dagi — on the northeastern offshore area of Sakhalin Island in the Russian Far East are being developed as part of the Sakhalin-1 Project. Potential recoverable reserves of the Sakhalin-1 Project amount to 307 million tonnes (2.3 billion barrels) of oil and 485 billion cubic meters (17.1 trillion cubic feet) of natural gas. During the entire life of the project, lasting until 2055, the Russian budget revenues are expected to exceed $US 89 billion in the form of taxes, royalties, and the state's share of oil and gas production.

The De-Kastri Oil Export Terminal, which turns 10 years old in 2016, together with the Chayvo Onshore Processing Facility (OPF) and the giant offshore oil production platforms form an enormous single organism connected, like «blood vessels», by oil and gas flowlines. Through their well-coordinated operation, the «black gold» is brought to the surface to provide people with light, heat, and energy.
The terminal is essentially an almost completely self-sustainable city that has all the necessary facilities to support living and working: its own power plants, water supply and waste management systems, and living quarters.
De-Kastri is the Best

Today De-Kastri is one of the largest oil export ports on Russia’s Pacific coast and the most important transportation hub for the Sakhalin-1 hydrocarbons produced on the east coast of Sakhalin Island.

Oil arrives at De-Kastri via a 225 km oil pipeline that crosses Sakhalin and the Tatar Strait from east to west. The pipelines are designed to withstand earthquakes, which are not uncommon in the Far East. The leak detection system and the emergency shutdown system, including high-precision sensors and emergency shutdown valves, are spaced 30 km apart over the entire length of the pipeline.

The De-Kastri oil loading terminal is also equipped with leak detection systems and floating-roof tanks, which prevent accumulation of explosive vapors, and has an oil heating system (during transportation from Sakhalin Island, the oil temperature drops from 50 to 8–12 degrees).

The oil at the terminal is stored in two 100,000 cubic meter tanks (650 thousand barrels). The terminal’s capacity is about 12 million tonnes per year. The terminal is essentially an almost completely self-sustainable city that has all the necessary facilities to support living and working: its own power plants, water supply and waste management systems, and living quarters. The pumps installed at the terminal are designed to lift about 6 thousand tonnes of oil per hour through a subsea loading line (SSLL) into oil tankers through a single point mooring (SPM) facility.

As early as the 3rd century BC, Archimedes, the mathematician and engineer, said «Give me a lever and I can move the world.» The scholar believed that the lever was the good that resides in the heart of every human being… One of the new Russian growth points in the promising Asia-Pacific region is the De-Kastri Oil Export Terminal, which today is celebrating its 10 year anniversary, recognizing new achievements in various aspects of business.
THE SPM CONCEPT IS BASED ON SYSTEMS TESTED BY EXXONMOBIL IN THE NORTH SEA AND ADAPTED TO THE HARSH CONDITIONS OF THE RUSSIAN FAR EAST
Sokol — the World’s Largest Single Point Mooring Facility

Tankers are loaded through the world’s largest single point mooring facility (SPM), called «Sokol», which weighs 3775 tonnes. Rising 61 meters above sea level, the structure is located in Chikhachev Bay, 6 km offshore near the Klykov peninsula. The SPM concept is based on systems tested by ExxonMobil in the North Sea and adapted to the harsh conditions of the Russian Far East.

This SPM, unlike other similar systems, is entirely remotely-controlled and is equipped with state-of-the-art navigation systems, including radar systems that are able to detect the approach of even small vessels. A local equipment room is installed at the SPM to ensure communication with the De-Kastri onshore base using a high speed digital subscriber line. Given harsh winters walkways and stairways are heat-traced.

The SPM was designed and built in accordance with the most stringent standards and is capable of loading tankers under the most difficult ice conditions. The SPM is sitting on a special ice cone structure: drift ice rides up the cone, breaks apart, and drifts further. Worsening weather or ice conditions may warrant disconnection of a tanker and emergency shutdown of loading operations. Tanker loading is performed through filling holes located not in the bottom part of the vessel, as usual, but in a special sealed structure located on the ship’s bow. This design eliminates the possibility of an accidental oil spill during tanker loading operations.

ENL — first in Russia to perform year-round crude shipment under ice conditions

Tankers carrying Sokol oil leave the De-Kastri terminal every 2–3 days. A highly-specialized fleet of Aframax ice-class tankers is used to ensure safe year-round oil export. The tankers used in the Sakhalin-1 Project have a double hull, can carry up to 100 thousand tonnes (720 thousand barrels) of oil, are about 250 meters long, 42 meters wide, and over 54 meters tall from keel to mast head, which is comparable to the height of a 17–18 story building.

Ice breakers and ice-class tugs escort the tankers to ensure safe navigation through 60 cm ice cover. The first tanker to carry Sakhalin-1 oil from De-Kastri was the Viktor Titov which departed on October 16, 2006.

Exxon Neftegas Limited was the first company operating in Russia to successfully implement regular safe year-round oil transportation under the harsh sub-Arctic conditions. Until then, oil was only transported across Sakhalin waters during the summer season. Year-round transportation would have been impossible without the research expedition that the Consortium put together in the winter of 2002 together with the Arctic and Antarctic Research Institute of St. Petersburg to thoroughly study the effect of ice on the tanker’s hull and to make sure that the selected routes and technologies are safe.

The start-up of the De-Kastri Oil Export Terminal is important for all of Russia. That was the opinion offered by the petroleum industry leaders in October of 2006 in Khabarovsk during the official ceremony to celebrate the first export of Sakhalin-1 oil. From 2006–2016, over 900 tankers have been offloaded, (with 90 million tons of oil), without a single oil spill. It came as no surprise, therefore, that the De-Kastri terminal on three different occasions (2009, 2012, and 2015) came out victorious in the International Congress «Oil Terminal» in St. Petersburg as the «Best Medium-Size Oil Terminal». For this achievement, the terminal and its team had to compete against their counterparts in Russia, the CIS, and the Baltic states. The petroleum industry’s leading experts passed judgment on the contenders for this prestigious award granted for the best performance economic, environmental, and social avenues.
De-Kastri Terminal Timeline

2002 — tanker ice trials from the De-Kastri terminal.

December 2003 — Exxon Neftegas Limited, Project Operator, announced the signing of construction contracts.

Summer 2004 — site preparation work commenced for terminal construction.

Summer 2005 — construction and installation of key components of the De-Kastri terminal.

2006 — Sakhalin-1 oil export system put on stream.

2009 — De-Kastri terminal was awarded «Terminal of the Year» at the VI International Congress «Oil Terminal – 2009» in St. Petersburg for having the best results in economic, environmental, and social avenues.

Summer 2004 — site preparation work commenced for terminal construction.

Fall 2006 — offloading and export of first crude cargo from the terminal.

April 2012 — Terminal’s 5th anniversary. By this time, 47 million tonnes (356 million barrels) of Sakhalin-1 oil had been loaded onto 500 tankers, without an incident and in compliance with all safety codes, which put De-Kastri among the largest ports in the Russian Far East.

Fall 2009 — was again awarded «Best Oil Terminal» at the VII International Congress «Oil Terminal – 2012» in St. Petersburg.

2010 — for the third time, the terminal became the winner as «Best Medium-Size Terminal» at the International Congress «Oil Terminal – 2015» in St. Petersburg.

2015 — De-Kastri Terminal’s 10th anniversary.

— First of all, I would like to say that I am very proud of this opportunity to work with a wonderful talented team of ENL at De-Kastri Terminal. The Company has set priorities in safety, operations, integrity, public care and protection of environment. The team tackles these tasks by ensuring readiness of the Terminal equipment, meeting all lifting schedule, flawless execution of loading, support of communities through cooperation and allocation of funds, taking care of the environment, keeping our facilities clean and ensuring no spills of oil. Those who come to visit our Terminal acknowledge the desire of our team to be top-notch. We’ve celebrated ten years of operations, and with years to come our Company will continue developing and improving every aspect of our business in De-Kastri.

Rick Storey, De-Kastri Terminal Field Superintendent.
The Russian Far East — evolving together with De-Kastri, and Sakhalin-1

Sakhalin-1 — a Project with a Human Soul

In his trip to Sakhalin Russian writer Chekhov made a stop at De-Kastri. His book Sakhalin Island mentions a village made up of a «handful of log cabins and a church» and a large fish that the writer caught. The Sakhalin-1 Project along with its Terminal transformed De-Kastri and opened up new possibilities for its community.

The Sakhalin-1 Project provides numerous benefits to the people of the Russian Far East. They include a stable supply of natural gas to the region’s commercial and residential areas, new jobs, tax revenue, development of small and medium-sized businesses, infrastructure improvements, extensive charitable programs, and support for the indigenous minorities of the North.

A good case in point is the village of De-Kastri and the entire Ulchi District of the Khabarovsk Krai, which were helped by the Sakhalin-1 Project to reach a higher standard of living. The terminal employs about 400 individuals, most of whom are residents of the Khabarovsk Krai and Sakhalin Island. ENL volunteers, together with the local residents, launch various charitable, arts-and-crafts, and environmental initiatives, which promote mutual understanding, friendship, and cooperation.

ENL personnel are always prepared to extend a helping hand at a time of hardship. Orphanages, schools, hospitals, art, and athletic groups and public organizations in the Russian Far East are well aware of this, as the Sakhalin-1 Consortium has been providing financial and material support. Over 10 years of operations more than 300 charitable projects have been implemented, worth a total of $US 2 mln.

In 2005 Exxon Neftegas Limited signed an agreement with Khabarovsk Krai Government to allocate $US 22 million for social and economic development of the Ulchi District. These funds allowed to resolve many acute problems the local people had been fighting with for many years.

ENL to give light to De-Kastri

A new 6 MW power plant was built with the help of business and state partnership; as a result there are no blackouts in the village any longer. Though the Consortium did a serious work to ensure power security to the village, a new generator was granted to De-Kastri Hospital — now its patients are under double protection. In addition, the Hospital was repaired and upgraded. ENL helped to purchase various medical equipment — diagnostics, resuscitation, X-ray, dental, and lab equipment, reanemobile for the ambulance service and other equipment that have saved many lives and helped many people. Every year the company sponsors purchase of new equipment.

Sakhalin-1 Operator also supports construction of a new paved road between De-Kastri and Bogorodskoye (the center of Ulchi District). The remaining works will cover 30 out 130 km.

We’ve listed only key avenues of the Sakhalin-1 investments in the Khabarovsk Krai. It is especially important for the Ulchi District as it is sustained through the governmental subsidies. It would be hard to reach great success in social and economic improvements in the regions without ENL’s help in such short timeframe. Indeed, it directly improves the wellbeing of the public.
ENL to Encourage Education, Creativity and Sports

Every year ENL allocates $US 5-6 million for charitable contributions. Within this scope the school of De-Kastri received a video projector and electronic boards. Company’s staff run the classes and arrange for tours at the Terminal. One of the teens said after a tour of the Terminal, «Now I know why I need to study.»

Such tours of the Sakhalin-1 facilities are also arranged for the indigenous minorities of the North who are very much supported by ENL staff. A regional Advisory Board of Indigenous People is called upon twice a year to collect and review grant applications, and makes decisions on distribution of charitable contributions.

With the help of these contributions master classes of national crafts and applied arts are being held. Representatives of various nationalities manifest great interest in these classes. The De-Kastri Museum was furnished with a new ethnographic exhibit. Adults and young artists from the best Ulchi ensembles — Dric (Little Bullfinch), Giva (Dawn) and Khosta (Little Star) — receive new costumes and shoe ware for their performances, instruments and other equipment.

It is not the Star Factory but Stars over the Strait

Almost twenty times De-Kastri has seen Stars over the Strait festival representing young talents from the entire Ulchi District. Since the start of operation in this region the Company has been helping young artists to develop their talents. The Grand Prix winners have participated in regional competitions in Moscow, Sochi and Vladivostok and became winners. Katy Kharaishvili is one of them — she won in a number of national contests and now studies at the Conservatory of Turin, an affiliate of the Milan Opera.

Foundation of this success lies in hard work and active stance of the hosts and the ENL sponsors without which even a wizzkid would be challenged to reach the top of mastership. That is why the Company helped to purchase new wind instruments for the Bogorodskoye Musical School — the instruments they’ve been striving to get for many years. As a result, this year the young musicians from De-Kastri will go to Moscow for a festival of wind instruments.
Volunteers — Masters of Good Deeds

The team of the oil export Terminal not only does good things for the benefit of local community, but also tries to engage the public of De-Kastri in the initiatives they would benefit from. In this way, the gym of De-Kastri school that had not seen any renovations for almost twenty years was whitewashed and painted, the canteen was refurbished — now it can be easily converted into a meeting hall — an unseen change of school, and all was done free of charge.

Farther Frost and Santa Clause work hard with ENL

ENL Team takes a special care about the Bogorodskoye orphanage. ENL volunteers come to visit it during the holidays: March 8th, February 23rd, Children Protection Day and New Year. These kids do not have enough attention and personal care that is why they are so anxious to see their guests who have become good friends for them. The visitors bring gifts, arrange for Saturday works, master classes in handiwork and make-up, sports competitions, cook various goodies together and enjoy this food at a tea-party. Volunteers also demonstrate that every person has future prospects — you can do it, if you strive for it, work for it and be successful if you do remember that only the person who gives away the good, hope and love to others can become really happy. Indeed, volunteers from ENL are such people infecting others with a positive charge.

Flourishing Town

Where the damp was, a children playground was build, trees were planted along several walkways — new the Rec Center (wild ash and apple trees), in the part — birches; the beach and the road to the village was cleaned up from trash. Now they plant bushes that will make this little village a flourishing oasis near a cozy but cold bay of Chikhachev. One can say that Sakhalin-1 change things to better wherever it operates.

— For me it’s a great honor and a high level of responsibility to work at the De-Kastri oil export Terminal, because it is the final point that brings in together the results of collaborative efforts from all company’s functions. Every member of our small, but close knit friendly team realizes it and does his best to maintain high standards of safety and operations efficiency.

I can proudly say that over the 10 years of operations we have not had a case where we failed to deliver on our commitments. My heartily thanks goes to all who had worked and has been working at the Terminal for all your excellent and relentless contribution.

Anatoli Velitchko,
De-Kastri Terminal
Senior Field Superintendent: