### DESIGN SOLUTINS FOR PORTS OF THE FUTURE

### SCIENTIFIC AND PROJECT ENGINEERING COMPANY MorTransNIIProekt





#### Litvinenko Gennady Ivanovich

Litvinenko

Alexander Gennadievich

Director, Project Development

General Director of NPK MorTransNIIProekt Co., Doctor of Engineering, Professor, Honored Worker of Merchant Marine

### ADDRESS BY **GENERAL** DIRECTOR

MorTransNiiProekt is the successor of best traditions and experience of the State Research and Project Design Institute of Merchant Marine «SOYUZMORNIIPROEKT» of the Ministry of Merchant Marine of the USSR for which our leading specialists worked 2-3 dozen years to have accumulated unique industry experience in science and design

Today, our team is a mix of weathered professionals and young talents. Our core staff are the 1999 to 2014 graduates from the Moscow State Civil Engineering University and Moscow State Academy of Water Transport

MorTransNiiProekt takes pride in having unique competencies and expertise that enable the company to engage in design and scientific activity, implement complex technical solutions under various natural and climatic conditions in Russia and elsewhere.

### Our motto: to achieve the highest structural and functional perfection of every design decision

Our experience combined with innovative technologies ensures high economic efficiency of our design solutions, safety and quality of buildings and structures that we design. We see our mission in expanding the range of our products, permanent quality improvement to make a sizable contribution in the growth of Russia's economic might

## CONSTRUCTING SEAPORTS? THEN YOU NEED A RELIABLE **PARTNER!**

We will help you with your projects whatever the size and scope!

## WE HAVE CAPABILITIES TO OFFER:

#### R&D

- Strategic plans for development of port infrastructure facilities;
- Methods to determine elements of the hydrodynamic regime in port water areas;
- Loads and impacts on marine structures;
- Scientific support of project specific technical conditions.

### **Engineering survey**

- Engineering and hydro-meteorological survey;
- Ecological survey.

### Numerical modeling

- Elements of hydrodynamic, hydcrochemical, lithodynamic and thermal regimes;
- Protection of port water areas against rough seas, delays due to weather and sea conditions;
- Vessels maneuvering within the port water area;
- · Spreading of pollutants in the air and port water area.

### Laboratory simulation

• Wave loads and impacts on mariner structures.

### Front-end engineering design (FEED)

- Preparing Notices (Declarations) of Intent;
- Pre-investment feasibility studies;
- Business planning;
- Design finance;
- Tender documentation.

### Project development

- Design documentation;
- Urban development documentation;
- · Project specific technical conditions;
- DD documentation.

### Support of projects

- Arrangement of public hearings and discussions;
- Approval of project specific technical conditions;
- Projects justification before state expert examination bodies
- Preparing a package of documents to obtain permits for creation of artificial land plots;
- Preparing a package of documents to obtain permits for design and construction;
- Preparation and presentation of proposals for amending compulsory port regulations.

### Construction

- Field supervision;
- · Developing marine structures datasheets;
- Developing checkpoints datasheets







50		
staff	mem	ber



### 69 projects developed, of which: 38 developed by the Company in the capacity of General Designer 31 as a Subcontractor







27 **R&D** contracts







COMPANY. FACTS AND FIGURES

### 'S

## GEOGRAPHIC FOOTPRINT



Port of Arkhangelsk



Liinahamari Terminal; Teriberk terminal

3 The Baltic Sea:

Port of Kaliningrad; Port of Ust-Luga; Port of Vysotsk

#### 4 The Mediterranean Sea

The Akkuyu NPP (Turkey)

#### **5** The Black Sea:

Port of Novorossiysk; Port of Sochi; Port of Taman; Port of Kavkaz; Port of Tuapse; Port of Gelendzhik.

#### 6 The Azov Sea

Port of Taganrog; Port of Yeisk; Port of Primorsk-Akhtarsk; Port of Temryuk.

18

TURKEY

17

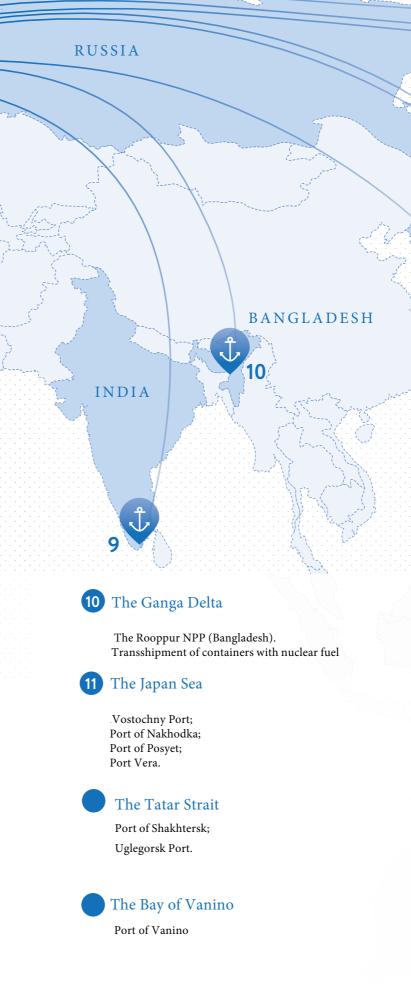
The Caspian Sea Port of Makhachkala

#### 8 The Volga Delta

Port of Astrakhan; Port of Olya.

9 The Gulf of Mannar

The protective ructures of the water intake of the Kudankulam NPP (Republic of India)



### 14 The Bering Sea

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12

15

Beringovsky Port; Arinay Lagoon Terminal

**15** The Gulf of Anadyr

Port of Anadyr;

### 16 The Chukchi Sea

Port of Pevek; Hydraulic engineering structures for the floating nuclear heat and power plant (Pevek).



17 The Kara Sea

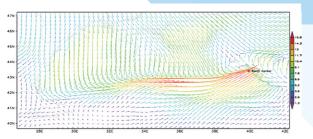
Port Dixon; Port of Sabetta.

The Pechora Sea

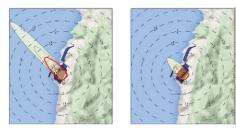
Port of Varandei

DEPARTMENT, numerical modeling and field simulation of the hydrophysical processes

#### Numerical modeling::

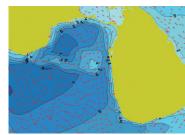


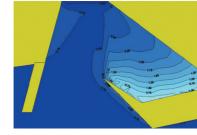
TA typical wind field over the Black Sea area



Efficiency of the coal yard windbreaks

#### Numerical modeling of the wind-driven waves - the Russian atmospheric wave model

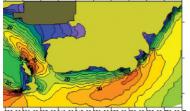




Wave heights within a tropical cyclone

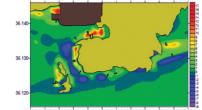
Wave heights in the port water area

## Numerical modeling of the current speeds and lithodynamic characteristics



\$25 33.\$30 33.\$35 33.\$40 33.\$45 33.\$50 33.\$55 33.\$60 33.\$65 33.\$70 33

Flow field



Distribution of the seabed deformations



### Kabatchenko Ilya Mikhailovich

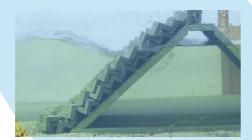
Head of department. Dr. Sci. in Geography, Professor

#### **Physical simulation**

Physical simulation of wave loads on hydraulic engineering structures (wave records UltraLab «ULSHF54/58»; speed sensing device Vectrino):



Piled structures



Bank protection by hexabits

### ACTIVITIES

### DEPARTMENT, engineering surveys

Engineering geodetic, engineering geological and engineering ecological surveys.

Field supervision and works progress monitoring; Advisory and consulting, internal due diligence of the survey.

### Engineering and hydro-meteorological surveys: a full range of field works

#### **Basic instrumentation:**



Key meteorological characteristics: Selfcontained regulator VANTAGE Pro2



Level fluctuations: Levelogger



Bottom sampling: Bottom sampler



#### Kochev David Zakharovich Ph.D, Geology and Minerology



Wave heights and period Hydrological recorder GMU-2



Sea water sampling: Patalas grab sampler

# DEPARTMENT, process engineering

#### **Projects development:**

Passenger and cargo and passenger terminals; Multipurpose (cross functional) terminals for handling general (container terminals including), dry bulk and timber cargoes.

Specialized terminals:

Dry bulk cargoes (coal, ore, fertilizers, raw sugar, grain, mineral building cargoes, etc.); Liquid bulk cargoes (oil and oil products; liquid bulk chemicals; liquefied gases, food liquid cargoes);

Cargoes carried by Ro-Ro vessels and sea ferries; perishables; Heavy and oversized cargoes;

Cargoes carried by cargo lighters; Hazardous cargoes.



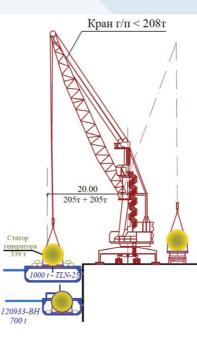
Port of Vanino (Cape Burny). Coal loading on 160,000 dwt vessels, process diagram



Astrakhan. LUKOIL-Nizhnevolskneft assembly platform. Float-over of the floating rig superstructure



Shishkin Vladimir Vasilievich Head of department



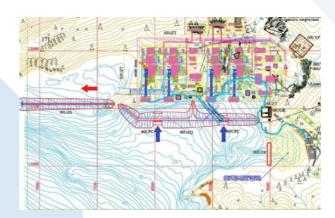
The Rooppur NPP (Bangladesh). Transshipment of containers with nuclear fuel

### ACTIVITIES

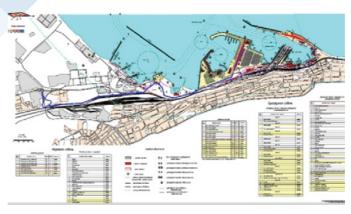
### DEPARTMENT, general layouts

#### Development of general layouts: Passenger and cargo and passenger terminals;

Multipurpose (cross functional) terminals for handling general (container terminals including), dry bulk and timber cargoes; Specialized terminals; NPP water intakes. Area planning and demarcation.



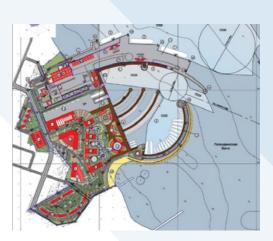
The Akkuyu NPP (Turkey). Hydraulic structures layout



Sea Port of Makhachkala. General development plan



Musikhina Elena Alexandrovna Head of department



Sea Port of Gelendzhik. Onshore and offshore infrastructure facilities



Sea Port of Vera General development plan

### DEPARTMENT, hydraulic structures

#### **Design of hydraulic structures:**

Design of hydraulic structures of the sea shelve; Design of marine and inland waterway structures; Design of hydraulic structures for the water supply systems of the thermal and nuclear power plants.



Litvinenko Ivan Gennadievich Head of department

### **ACTIVITIES**

### DEPARTMENT, onshore buildings and structures

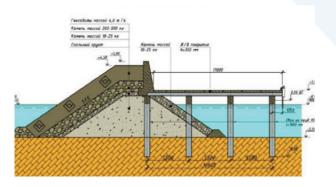
Development and justification of the spatial and architectural solutions to onshore port infrastructure facilities; Development of technical requirements and resources estimates for the Section "Architectural Solutions".

### DEPARTMENT, utility mains

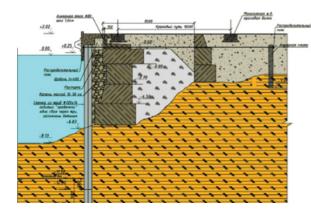
Development of technical requirements and resources estimates for the subsections: "Power Supply System"; "Water Supply System";Development of technical requirements and resources estimates for the subsections: "Power Supply System"; "Water Supply System"; "Sewerage System"; "Heating, Ventilation and Air Conditioning, Heating Networks"; "Communication Networks"; "Gas Supply System".

### DEPARTMENT, construction planning

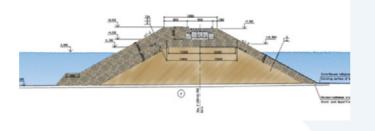
Development of work schedules, techniques and deadlines; Justification of cost estimates for temporary buildings and structures; Work planning.



#### South and North quays at the Sea Port of Gelendzhik



The berth reconstruction at the Port of Kholmsk



The protective structures of the water intake of the Kudankulam NPP (Republic of India)



Okusok Sergei Alexandrovich Head of department



Gromykin Alexander Petrovich Head of department

Loginov Andrei Yurievich Head of department

### DEPARTMENT, economics and pricing

Pricing of design and construction of capital construction facilities;

Review of cost estimates of the subcontractors;

Preparing construction cost estimates for state expert examination and progress control;

Preparing section "Investment Efficiency".

### DEPARTMENT, internal expert review

Review of compliance with technical regulatory documents, effective requirements and standards;

Checking completeness of documentation deliverables (detailed design, design plans and specifications);

Control over the correctness and quality of validation, storage and accounting for documents and any changes thereof .



Dudnikova Elena Mikhailovna Head of department



Averkov Valery Alexandrovich Head of department



Litvinenko Oksana Yurievna Head of department

### ACTIVITIES

### Bureau of Chief Project Engineers



Gavlin Gennady Borisovich ChPrEng





ChPrEng



Novikova Vera Nikolaevna

ChPrEng



Zadorozhny Oleg Grigorievich

ChPrEng

#### DEPARTMENT, legal

Preparing draft contracts, legal due diligence; Preparing tender documents;

Preparing claims and complaints and sending responses to incoming claims and complaints or counterclaims to courts of arbitration;

Representing the company at court of arbitration or other similar state organizations for protecting the company's interests.



Matveev Oleg Arkadievich

ChPrEng



Danilov Dmitry Victorovich

Assistant to ChPrEng



Loginova Elena Vladimirovna

Assistant to ChPrEng



Shishkin Dmitry Vladimirovich

Assistant to ChPrEng

## OUR CREDENTIALS

Cargo terminal at the Rooppur Nuclear Power Plant (Republic of Bangladesh)



Hydraulic engineering structures for the floating nuclear heat and power plant (Pevek)



Berth #1 of the Chaika (Seagull) Marine Terminal (the Sea Port of Dickson)



Berth #2 of the Sea Terminal of the Port of Vysotsk, Cape Putevoy



Berth #1 of the Sea Terminal of the Port of Vysotsk, Cape Putevoy



Breakwaters of the seawater intake system for cooling the first and the second generating units of the NPP Kudenkulam (Republic of India)



Marine transshipment complex cooperated by LLC OKS-MOL at the Port of Temryuk



Mounting pad of marine structures at the North Caspian oil fields operated by



Breakwater in the area of cargo terminals of the Sea Port of Sochi in the Mzymta estuary (a Winter Olympics 2014 project)



ГИП – Литвиненко А.Г

### Berth #3 of the Sea Terminal of the Port of Vysotsk, Cape Putevoy



Marine passenger terminal Khosta (a Winter Olympics 2014 project)



Marine passenger terminal Dagomys (a Winter Olympics 2014 project)



Sea Port Novorossiisk. Reconstruction of berths #25 and #25A, quay #4.



### Marine passenger terminal Kurgorodek (a Winter Olympics 2014 project)



### Marine passenger terminal Loo (a Winter Olympics 2014 project)



### Marine passenger terminal Matsesta (a Winter Olympics 2014 project)



### OUR CREDENTIALS

### OUR ACHIEVEMENTS

By decision of the Marine and River Transport Agency MTNIIP Co. was named "LEADER OF INDUSTRY" based on the 2017 results

Marine passenger terminal Adler (a Winter Olympics 2014 project)



Marine passenger terminal Lazarevskoye (a Winter Olympics 2014 project)



Technological platforms for construction of supports for bridge crossing to Russky Island over the Eastern Bosphorus Strait in Vladivostok (an APEC 2012 Summit project)







Viktor Olersky, Deputy Minister of Transport of Russia, is presenting the "LEADER OF INDUSTRY" pennant to Gennady Litvinenko March 27, 2018



Certificate and pennant " LEADER OF INDUSTRY"









# WE ARE DESIGNING PORTS OF THE XXI CENTUARY mtniip.com

Scientific and Project Engineering Company MorTransNIIProekt





mtniip.com

Bld. 2, 9B, Dmitrovskoye Shosse, Moscow, 127434 Tel.: +7 (499) 976-02-92; +7 (903) 613-80-99 Email: mtniip@mtniip.com

