OSR Exercises

1. Facility-level exercises were held at the Odoptu North Well Site (Odoptu NWS) on February 12, 2016.

**Topic:** “Response to a Simulated Oil Spill in Winter Conditions on the Segment of the Odoptu NWS – Chayvo OPF Flowline in the Area of Piltun Bay”

**Manpower and resources used:**
- ENL Incident Management Team (Yuzhno-Sakhalinsk);
- ENL Emergency Support Group (Yuzhno-Sakhalinsk);
- PERT of Sakhalin Branch, Rescue and Environmental Operations Center OJSC;
- PERT of EcoShelf LLC;
- SakhInfo-Service OJSC professional firefighting team;
- On-site ENL operations personnel;
- Odoptu NWS OSR equipment.

The exercise included an assessment of Odoptu NWS emergency response personnel and equipment for oil spill response in winter, and a confirmation of their readiness for such activities. ENL personnel and contractors successfully achieved all exercise objectives:

a. Assess readiness of Odoptu NWS emergency response personnel and equipment for winter offshore oil spill response in the Piltun Bay area;

b. Improve quality of communications between Odoptu NWS emergency response teams, Emergency Command Center and Yuzhno Production Office;

c. Practice implementation of the Corporate Oil Spill Response Plan of Exxon Neftegas Limited.

The members of Odoptu NWS Emergency Command Center, Emergency Support Group and Incident Management Team at ENL Headquarter in Yuzhno-Sakhalinsk practices with communication interface, improving their skills for information exchange among the various emergency response activities. During the exercise, all OSR equipment was successfully deployed during the exercise, and a simulated crude oil spill was successfully recovered.
2. Comprehensive oil spill response exercises were held on October 13, 2016, at the De-Kastri Oil Export Terminal with the participation of observers from government agencies.

Observers:
- Khabarovsk Krai Main Department of MChS of Russia;
- Branch of the Federal State-Funded Enterprise “Administration of Marine Ports of the Sea of Okhotsk and Tatar Strait at De-Kastri Seaport”;
- Pacific Maritime Administration of RPN (Rosprirodnadzor), Khabarovsk Krai Marine Supervision Department;
- Khabarovsk Krai Ulchiskiy Municipal District Administration.

Topic: “Response to a Simulated Oil Spill in the Area of Chikhachev Bay – Rupture of the Chayvo OPF – De-Kastri Export Pipeline”

Exercise participants:
- ENL Emergency Support Group (Yuzhno-Sakhalinsk);
- ENL Incident Management Team (Yuzhno-Sakhalinsk);
- De-Kastri Oil Export Terminal Emergency Command Center;
- PERT affiliated with Environmental Safety of Siberia Science and Technology Center, LLC;
- PERT affiliated with Sakhalin Branch of Center for Emergency Rescue and Environmental Operations OJSC;
- OJSC SakhInfo-Service professional firefighting team;
- ENL Non-professional Emergency Response Team;
- Response personnel of ACCESS-ASC LLC;
- Security police affiliated with the Russian Federation Ministry of Transportation, Vladivostok Branch
- ISOS Medical Clinic personnel.

Exercise Scenario:
Crude oil leaking from the damaged pipeline is entering the ground and, subsequently, the Tatarka River. The estimated volume of spill is 9,677 MT. Work is underway to restore pipeline integrity, stop the leak and contain the spill. Spilled oil on the ground is being contained. Work is underway to build simulated earthen dikes around the oil spill area, booms are deployed, skimmer systems are assembled and installed to transfer recovered crude to the tote tanks for temporary storage.

The comprehensive exercise was performed to achieve the following objectives:

a. Practice interaction between the company’s own and third party’s manpower and resources to respond to a maximum design oil spill under the scenario from the approved Plan for Prevention of and Response to Oil and Petroleum Product Spills at Exxon Neftegas Limited Industrial Facilities (Sakhalin-1 Project);

b. Check ENL manpower and resources readiness to respond to the onshore emergencies;

c. Practice notification of and communication with RF oversight agencies and ENL;

d. Practice deployment of OSR manpower and resources, deployment of oil collection and containment equipment and actions aimed at protection of Chikhacheva Bay environmentally sensitive zones and coast line;

e. Practice involvement of additional manpower and resources to respond to any emergency.

During the exercise ENL personnel and contractors demonstrated their knowledge and ability to take action in case of an emergency involving oil spill response at the federal level. Participants demonstrated active involvement in the course of the comprehensive exercises, and all stated training objectives were achieved.
3. Comprehensive oil spill response exercises were held on October 14, 2016, at the De-Kastri Oil Export Terminal with the participation of observers from government agencies.

Exercise observers:
− Khabarovsk Krai Main Department of MChS of Russia;
− Branch of the Federal State-Funded Enterprise “Administration of Marine Ports of the Sea of Okhotsk and Tatar Strait at De-Kastri Seaport”;
− Baltic Branch of the Federal State-Funded Enterprise Morspassluzhba Rosmorrechflota (Maritime Rescue Service of the Federal Agency for Maritime and River Transport of Russia);
− Pacific Maritime Administration, Rosprirodnadzor, Marine Supervision Department for Khabarovsk Krai;
− Khabarovsk Krai Ulchisky Municipal District Administration.

Topic: Oil Spill Response in Chikhacheva Bay – Rupture of the Buried De-Kastri OET – SPM Subsea Loading line

Exercise participants:
− ENL Emergency Support Group (Yuzhno-Sakhalinsk);
− ENL Incident Management Team (Yuzhno-Sakhalinsk);
− De-Kastri Oil Export Terminal Emergency Command Center;
− PERT affiliated with Environmental Safety of Siberia Science and Technology Center, LLC;
− PERT affiliated with Sakhalin Branch of Center for Emergency Rescue and Environmental Operations OJSC;
− SakhInfo-Service OJSC professional firefighting team;
− ENL Non-professional Emergency Response Team;
− Response personnel of ACCESS-ASC LLC;
− Security police affiliated with the RF Ministry of Transportation, Vladivostok Branch
− ISOS Medical Clinic personnel;
− OSR marine vessel Polar Pevek;
− OSR marine vessel Neftegas-70;
− Tug boat Novik;

The comprehensive exercise was performed to achieve the following objectives:

a. Practice interaction of company's internal and enlisted personnel and resources to respond to maximum-volume oil spill in accordance with scenario of approved "Oil and Petroleum Product Spill Prevention and Response Plan for Sakhalin-1 Production Facilities of Exxon Neftegas Limited in the Tatar Strait and Nevelskoy Strait";

b. Practice application of approved “Oil and Petroleum Product Spill Prevention and Response Plan for Sakhalin-1 Production Facilities of Exxon Neftegas Limited in the Tatar Strait and Nevelskoy Strait;"

c. Check readiness of ENL personnel and resources to respond to oil spill emergencies;

d. Practice notification procedures & interface between RF oversight agencies and ENL;

e. Practice offshore deployment of OSR personnel and equipment, set up spill containment arrangements; ensure protection of ecologically sensitive areas and the Chikhacheva Bay coastline.

Exercise Scenario:
During offloading of Victor Konetsky tanker via SPM in the Chikhacheva Bay, an emergency situation occurs at De-Kastri OET resulting in telemetry loss between the tanker and De-Kastri OET followed by automatic activation of the SPM shutoff valve. Due to excess pressure in the pipeline caused by the offloading process being abruptly stopped, a fluid hammer effect occurs in the offshore section of De-Kastri OET – SPM subsea loading line. Crude oil begins to flow from the damaged pipeline. Terminal operator performs the emergency shutdown of the pumps transferring oil to SPM. As a result of the incident crude oil gets into the Chikhacheva Bay waters. Estimated spill volume is 150 m3. The oil slick grows, moving towards the coastline and Basaltovy and Chayachiy islands due to wind/current.
The exercises were held in three phases.

The **first phase** involved addressing the following key issues:
- Preparation of management bodies, manpower, and equipment for operations;
- Notification of personnel and emergency services at De-Kastri OET;
- Analysis of the situation, predicting and planning use of personnel and resources for responding to the simulated oil spill.

The **second phase** involved handling the following issues that arise during training:
- Reconnaissance of the affected area, collection and transmittal of data to operations management headquarters;
- Notification of Russian Federation governmental and oversight bodies;
- Management of operations to contain and respond to the simulated oil spill;
- Development of skills for working safely and for use of OSR equipment;
- Development of measures to obtain additional personnel and resources through mobilization of additional equipment and material from other Sakhalin-1 Project facilities;
- Development of skills for completion and management of a database of emergency situations documentation.

The **third phase** included handling of issues related to demobilization of equipment and personnel and assessment of exercise results.

There were no incidents involving personnel injuries or equipment damage or failure in the course of the comprehensive exercises. The comprehensive exercise was performed exactly as described in the approved plan. All stated exercise objectives were completed in the course of the training exercises.

The representatives of governmental and oversight bodies provided recommendations and confirmed that ENL personnel and resources were prepared to respond to emergencies involving oil spills from Sakhalin-1 production facilities in the Tatar Strait and Nevelsky Strait.
4. Comprehensive oil spill response exercises were held on November 9, 2016 on the Chayvo Wellsite with the participation of observers from the government agencies.

**Exercise observers:**

- Ministry for Natural Resources and Environment Protection in Sakhalin Oblast
- Pacific Maritime Agency of Rosprirodnadzor;
- Rostekhnadzor Directorate for Sakhalin Oblast.

**Topic:** “Oil Spill Response in the Area of Chayvo North Wells”

**Exercise participants:**

- RN-Shelf-Far East Emergency Notification / Response and Fire Safety Commission (Yuzhno-Sakhalinsk);
- ENL Emergency Support Group (Yuzhno-Sakhalinsk);
- ENL Incident Management Team (Yuzhno-Sakhalinsk);
- Chayvo OPF Emergency Command Center;
- PERT affiliated with Sakhalin Branch of Center for Emergency Rescue and Environmental Operations OJSC;
- SakhInfo-Service OJSC professional firefighting team;
- ENL Non-professional Emergency Response Team;
- Response personnel of ECC-VECO;
- Response personnel of OJSC Ecoshelf;
- Kolchuga security agency;
- ISOS medical clinic personnel;

**Exercise Scenario:**

Chayvo Wellsite (WS) supports drilling and production for development of northwestern part of the main oil-producing zone of the Chayvo Field. The Chayvo WS is located on a sand spit between the Chayvo Bay and the Sea of Okhotsk, approximately 8 km from the Chayvo Onshore Hydrocarbon Processing Facility. The Chayvo WS covers the area of about 98 hectares (9.8 x 105 m2 or 1400 m x 700 m). The cluster well pad (fenced area) is approximately 26 hectares (2.6 x 105 m2 or 650 m x 400 m). The Chayvo WS production facilities include wellhead equipment, well flowlines and manifolds, production header, test header, and blow-down header.

The comprehensive exercise was held under challenging weather conditions: Precipitation in the form of snow, a cutting 16 – 18 m/s wind from the north with gusts to 20 m/s, temperature minus 15\degree C. No incidents related to personnel injury or equipment failure/damage were permitted to occur during the comprehensive exercises. The comprehensive training exercises were performed in accordance with an improved concept and plan. Participants demonstrated active involvement in the course of the comprehensive exercises, and all stated training objectives were achieved.

The comprehensive exercise was performed to achieve the following objectives:

- Comply with the requirements of MChS of Russia listed in Letter No. 7-1-3897 of December 25, 2015;
- Verify preparedness of manpower and equipment of JSC RN-Shelf-Far East (RNSFE) and Exxon Neftegas Limited to respond to a regional emergency situation (oil) (ES\{O\});
- Practice measures listed in the approved Oil and Petroleum Products Spill Prevention and Response Plan for the Wells in the Northern End of the Chayvo Field and interaction skills between RNSFE and ENL for the purpose of responding to ES\{O\};
- Practice interaction between the companies’ own and third party manpower and equipment to respond to a maximum design oil spill per the scenario of the approved Oil and Petroleum Products Spill Prevention and Response Plan for the Wells in the Northern End of the Chayvo Field;
- Practice notification of and communication with RF regulatory authorities;
- Practice equipment deployment for oil spill response.
5. Comprehensive oil spill response exercises were held on November 10, 2016 on the Chayvo OPF and Orlan Platform with the participation of observers from the government agencies.

**Exercise observers:**
- Ministry for Natural Resources and Environment Protection in Sakhalin Oblast
- Sakhalin Oblast Administration of Rostekhnadzor;
- Sakhalin Oblast Marine Oversight Department, Rosprirodnadzor Pacific Maritime Agency;
- Sakhalin, Kuriles, Kamchatka Seaport Administration Federal State-Funded Agency;

**Topic:** “Oil spill response in the waters of the Sea of Okhotsk in the event of loss of containment of a well on the Orlan fixed offshore platform”

**Exercise participants:**
- ENL Emergency Support Group (Yuzhno-Sakhalinsk);
- ENL Incident Management Team (Yuzhno-Sakhalinsk);
- PERT affiliated with Sakhalin Branch of Center for Emergency Rescue and Environmental Operations OJSC;
- SakhInfo-Service OJSC professional firefighting team;
- ENL Non-professional Emergency Response Team;
- Orlan Fixed Offshore Platform Emergency Command Center;
- Chayvo OPF Emergency Command Center;
- Response personnel of ECC-VECO;
- Response personnel of OJSC Ecoshelf;
- ISOS facility medical clinic;
- Marine OSR Vessel Beringov Proliv;
- Marine OSR Vessel SCF Sakhalin;
- Marine OSR Vessel Alexei Chirikov;

The exercise was performed to achieve the following objectives:
- Practice interfacing between the companies’ own manpower and equipment and third party manpower and equipment to respond to a maximum design oil spill as presented in the scenario of the approved Plan to Prevent and Respond to a Spill of Oil and Petroleum Products from Exxon Neftegas Limited’s Sakhalin-1 Facilities in the Sea of Okhotsk
- Practice application of the approved Plan to Prevent and Respond to a Spill of Oil and Petroleum Products from Exxon Neftegas Limited’s Sakhalin-1 Facilities in the Sea of Okhotsk
- Verify readiness of ENL’s manpower and equipment to respond to an emergency (involving oil)
- Practice notification of RF regulatory authorities and communication between ENL and RF regulatory authorities
- Practice equipment deployment for oil spill response in the north-eastern part of the Sea of Okhotsk.

**Exercise Scenario:**

A 9 point earthquake in the Sea of Okhotsk 50 km from the north-eastern coast of Sakhalin has caused displacement of soil near Chayvo Spit. This displacement has caused an off-nominal situation on the Orlan offshore platform. Damage to well equipment has resulted in the release of a multi-phase mixture (oil, gas, and water) from a well with a daily production rate of 860.6 m3. Early attempts to automatically shut down the well fail as a result of damage to the communications cable from the Orlan platform control room. As a consequence, before the well was completely shut down, about 2582 m3 (2117 tonnes) of oil spilled into the Sea of Okhotsk. The spilled oil spread to form an oil slick near the Orlan platform, drifting towards Chayvo Bay along the shore of Sakhalin Island.
The exercises were held in three phases.  
**The first phase** involved addressing the following key issues:
- Preparation of management bodies, manpower, and equipment for operations;
- Notification of personnel and emergency services at Orlan Fixed Offshore Platform;
- Analysis of the situation, predicting and planning use of personnel and resources for responding to the simulated oil spill.

**The second phase** involved handling the following issues that arise during training:
- Issuance of orders for vessel captains;
- Reconnaissance of the affected area, collection and transmittal of data to operations management headquarters;
- Notification of Russian Federation governmental and oversight bodies;
- Management of operations to contain and respond to the simulated oil spill;
- Development of activities for analysis of environmental situation and decision-making regarding use of dispersants;
- Development of measures to obtain additional personnel and resources through mobilization of additional equipment and material from other Sakhalin-1 Project facilities;
- Development of skills for completion and management of a database of emergency situations documentation.

**The third phase** included handling of issues related to demobilization of equipment and personnel and assessment of exercise results.

There were no incidents involving personnel injuries or equipment damage or failure in the course of the comprehensive exercises. The exercises were performed in strict compliance with the approved concept and plan.  
The representatives of governmental and oversight bodies provided recommendations and confirmed that ENL personnel and resources were prepared to respond to emergencies involving oil spills from Sakhalin-1 Project production facilities in the Sea of Okhotsk.
OSR and ER training

Training is a key factor in response preparation and has a direct impact on the safety and efficiency of all operations.

The ENL Training and Exercise Program ensures that all designated response personnel are able to respond to a spill in a quick and competent manner. The training and exercise program includes the following basic sections:

- Review of OSR regulations and training on the characteristics of the facility, including the OSR plan;
- Training in oil spill response methods and the use of equipment, including drills and exercises (according to a regular schedule) and training in occupational safety and the safety rules for performing the work;
- Special tactical exercises involving mobilizing equipment under field conditions;
- Comprehensive exercises, including the Yuzhno-Sakhalinsk ESG and site Emergency Command Center members (ECC);
- Warning and notification exercises;
- Comprehensive exercises.

In order to maintain high readiness for OSR and emergency response, regular classes on specific topics, training sessions, and training classes were regularly held at all Sakhalin-1 facilities and attended by ENL and ENL subcontractor personnel. The following drills were conducted: OSR, fire safety, first aid, facility personnel assembly and evacuation procedures, etc. Over 450 scheduled and unscheduled drills were held at Sakhalin-1 facilities in 2016:

- Berkut fixed offshore platform—2 times a week,
- Orlan fixed offshore platform—2 times a week,
- Odoptu North Wellsite—1–2 times a week,
- Chayvo Onshore Processing Facility—2–3 times a week,
- De-Kastri Oil Export Terminal—1–2 times a week

In order to develop a safety culture and promote professional response to emergencies, ENL regularly held training courses at the Sakhalin Engineering Training Center, a nongovernmental professional education institution. The training included courses in OSR, fire safety, first aid, helicopter crash survival, etc. Personnel from the ENL Safety Department and Emergency Response Department attended international courses on fire safety. The company holds regular training drills at all Sakhalin-1 Project facilities in accordance with a predetermined annual schedule.

ENL also held general educational seminars for the scientific community on various aspects related to the use of modern oil spill response technologies under the specific conditions applicable to Sakhalin-1 production facilities.