SAKHALIN-1 PROJECT
2017 OIL SPILL RESPONSE (OSR) TRAINING AND EXERCISE RESULTS

EXXON NEFTEGAS LIMITED
2017 Oil Spill Response (OSR) Training and Exercise Results

OSR Exercise

1. June 6–7, 2017: scheduled inter-facility exercises were conducted with participation of Berkut fixed offshore platform and Chayvo OPF personnel.

**Topic:** Response to well control loss at the Berkut platform and response to a simulated oil spill in the Sea of Okhotsk.

**Manpower and resources:**
- ENL Operations Management Headquarters (Yuzhno-Sakhalinsk)
- ENL Emergency Support Group (Yuzhno-Sakhalinsk)
- Emergency Response Services of the Berkut offshore drilling platform and Chayvo OPF facilities
- ENL drilling and technical personnel at Berkut offshore drilling platform and Chayvo OPF facilities
- Oil Spill Response Ltd. company personnel
- Polaris Applied Sciences company personnel
- OSR equipment

**Exercise scenario:**
A shallow gas/oil formation was unexpectedly penetrated at 250 m MD while drilling a well at Arkutun-Dagi field from the Berkut offshore platform using water-based mud. Gas meter readings increased. The operation continued, and a full mud circulation loss was observed at the depth of 270 m MD. The drilling team went through the procedure envisaged by the drilling program for the cases of lost circulation, but the problem persisted.

Oil/gas from the said shallow formation started flowing into the wellbore, which caused the drilling mud remaining in the bore to flow to the surface. The rig’s well control diverter system was triggered, causing gas/oil and drilling mud to start flowing out of the well. A large area of oil propagation on the sea surface was identified. Oil spill trajectory simulation results suggested possible impact of oil on the Chayvo Bay.

The primary objective of the exercise was practical training of the Emergency Support Group and the Operations Management Headquarters in implementing arrangements for the phase of “proactive” response to a persisting Level 2/3 oil spill. In particular, the following tasks were set for the exercise:

- Practical training in the use of existing manpower and resources of the Operations Management Headquarters and Emergency Support Group to respond to an oil/oil product spill at the “proactive” response phase;
- Practical training of the Operations Management Headquarters in the planning procedure, as well as drafting and subsequent implementation of an Emergency Response Plan;
- Practical training of the Operations Management Headquarters in oil/product spill response measures at the tactical level;
- Practical training in cooperation between the Emergency Support Group, Operations Management Headquarters and emergency response services at Chayvo OPF and Berkut offshore platform in the implementation of the Emergency Response Plan;
- Placement of oil and product spill response equipment on the shore and in the bay to confirm equipment readiness;
- Practical training in cooperation and coordination between ENL response services and third party contractor services;
- Practical training in emergency-related documentation maintenance in the WebIAP incident management data system.
All of the goals and objectives of the exercise have been achieved. The primary focus during the response activities was on:

- safety of personnel engaged in the spill response, and safety of public;
- spill source control;
- oil spill response measures in the water area aimed at minimizing the probability of oil/products’ reaching the shoreline.

**Work of the Operations Management Headquarters**

**Deployment of response personnel and equipment on the Chayvo Bay shore**

2. **August 3, 2017: facility-level exercises were conducted at Odoptu-2 (North) Well Site**

**Topic:** Response to a simulated oil spill from a section of the Odoptu NWS – Chayvo OPF pipeline in the Piltun Bay.
**Manpower and resources:**
- ENL Operations Management Headquarters (Yuzhno-Sakhalinsk)
- ENL Emergency Support Group (Yuzhno-Sakhalinsk)
- Emergency Response Services at Odroptu and Chayvo OPF

**Exercise scenario:**
Simulated rupture (due to corrosion) of the 16” flowline from Odroptu NWS to Chayvo OPF, between control points (CP) 4 and 5, resulting in a large spill of oil (Level 2) in the Piltun Bay.
- Assessment of capability of the Emergency Management Center at Odroptu to arrange for and control implementation of response measures at the initial oil and product spill response phase;
- Practical training in the use of all oil spill response personnel and equipment available to Emergency Response Services at Odroptu and Chayvo OPF and the Operations Management Headquarters for responding to an oil/product spill at the stage of “reactive” response;
- Check of coordination between the Emergency Support Group, the Operations Management Headquarters and Emergency Response Services at Odroptu and Chayvo OPF during the first phase of response;
- Practical training in the use of the notification procedure for notifications within the company and external notifications;
- Check of Operations Management Headquarters’ oil and product spill response activity planning skills at the tactical level;
- Practical training in interaction, documenting and planning at the Operations Management Headquarters;
- Placement of oil and product spill response equipment on the shore and in the bay to confirm equipment readiness;
- Practical training in cooperation and coordination between ENL response services and third party contractor services.

Readiness of OSR equipment and emergency service personnel at the Berkut platform, Chayvo OPF and Odroptu-2 WS (North) for oil spill response operations at offshore facilities has been evaluated and confirmed during the training exercise. Oil spill containment and response equipment, as well as equipment for the protection of specially protected natural areas, was successfully deployed in Chayvo Bay and Piltun Bay water areas. Facility personnel were engaged in the development of their skills in wild animal and bird protection and rehabilitation.

The exercises also included practical drills based on the provisions of the Integrated Corporate Oil Spill Prevention and Response Plan for Exxon Neftegas Limited Sakhalin-1 Production Facilities.

**Work of the Operations Management Headquarters**
3. Pursuant to Letter of RF Ministry for Civil Defense, Emergency Management and Natural Disaster Response (MChS) No. 7-1-64 of January 13, 2017, comprehensive training exercises were conducted on October 31, 2017 at Chayvo Onshore Processing Facility with a participation of observers from government executive authorities.

The comprehensive training exercises were carried out with a view to put in effect the approved Integrated Corporate Oil Spill Prevention and Response Plan for Exxon Neftegas Limited Sakhalin-1 Production Facilities.

**Observers:**
- Sakhalin Oblast Administration of the Federal Environmental, Technological and Nuclear Oversight Service;
- Sakhalin Oblast Administration of the Federal Natural Resource Use Oversight Service;
- Administration of the Nogliki Urban District Municipality.

**Topic:** Response to the oil spill resulting from a rupture at the Chayvo OPF - De-Kastri OET flowline at control point (CP) 53, between block valve stations (BVS) 6 and 7.

**Exercise participants:**
- ENL Emergency Support Group (Yuzhno-Sakhalinsk)
- ENL Operations Management Headquarters (Yuzhno-Sakhalinsk)
- Emergency Management Center at Chayvo OPF
- Eagle LLC PERT
- Ekospas Sakhalin Center PERT
- ENL OERT
- PSC contractor personnel

The comprehensive exercises were conducted for the following purposes:

a. Practical training in cooperation between personnel and resources of the company and personnel and resources of third-party organizations in responding to the maximum design oil spill by the scenario of the approved Oil Spill Prevention and Response Plan for Exxon Neftegas Limited Sakhalin-1 Production Facilities;

b. Training in implementation of the approved Oil Spill Prevention and Response Plan for Exxon Neftegas Limited Sakhalin-1 Production Facilities;

c. ENL manpower and resources oil spill response readiness check;

d. Practical training in the procedure of notifications and information exchange between RF oversight bodies and ENL;

e. Practical training in OSR personnel and equipment deployment, arrangements for oil spill containment and protection of environmentally sensitive areas;
f. Rescue of a person injured in a vehicle crash;
g. Vehicle fire extinguishment;
h. Practical training in emergency-related documentation maintenance in the WebIAP incident management data system.

Exercise scenario:

Central control panel operator receives a signal of a sudden pressure drop at BVS 6 and 7. An emergency team arrives at the site and confirms oil spill.

An oil spill occurred resulting from damage of the Chayvo OPF - De-Kastri OET flowline at control point (CP) 53, between block valve stations (BVS) 6 and 7. The estimated oil spill upon completion of leak elimination operations is 9 677 t. The scenario development forecast suggests adverse impact of crude oil on the Evay River and its shorelines.

The exercises were held in three phases:

The first phase included the following drills:
- Preparation of management bodies, manpower, and equipment for operations;
- Notification of personnel and emergency services at Chayvo OPF;
- Analysis of the situation, predicting and planning of the use of manpower and resources for responding to the simulated oil spill.

The second phase included the following drills during training:
- Reconnaissance of the affected area, collection and delivery of data to operations management headquarters;
- Notification of RF governmental and oversight bodies;
- Management of operations to contain and respond to the simulated oil spill;
- Development of skills for the safe operation and use of OSR equipment and firefighting equipment;
- Development of skills for completion and maintenance 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 plan. All of the set objectives were achieved during training.

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 facilities. The following conclusions were made by results of the comprehensive training exercises and taking into account the recommendations received:

- RF MChS requirements stated in Letter No. 7-1-64 of January 13, 2017 – complied with;
- Training in the use of the approved Oil Spill Prevention and Response Plan for Exxon Neftegas Limited Sakhalin-1 Production Facilities - complete;
- Practical training in the procedure of real-time information exchange between emergency response team members, emergency repair team members, Chayvo OPF Operations Management Headquarters and Emergency Response and Fire Safety Commission (ERFSC) in ENL head office - complete;
- Practical training in cooperation between own and third party personnel and resources in responding to the maximum design oil spill by the scenario of the approved Oil Spill Prevention and Response Plan for Exxon Neftegas Limited Sakhalin-1 Production Facilities – complete;
Readiness and adequacy check of manpower and resources for responding to a federal level oil spill in line with the approved Oil Spill Prevention and Response Plan for Exxon Neftegas Limited Sakhalin-1 Production Facilities – confirmed;

Oil Spill Prevention and Response Plan for Exxon Neftegas Limited Sakhalin-1 Production Facilities – put in effect;

Amount of ENL manpower and equipment required for responding to emergency situations (oil spills) of federal level in line with the approved Oil Spill Prevention and Response Plan for Exxon Neftegas Limited Sakhalin-1 Production Facilities – deem adequate.

Work of the Operations Management Headquarters

Delivery of equipment and deployment of response equipment

Firefighting and injured person rescue drill
**OSR and ER training**

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

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 facilities, 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 safety rules for performing the work;
- Special tactical exercises involving equipment mobilization in the field conditions;
- Tabletop exercises, including the Yuzhno-Sakhalinsk ESG and site Emergency Management Teams (EMTs);
- 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 411 scheduled and unscheduled drills were held at Sakhalin-1 facilities in 2017:

- Berkut fixed offshore platform — 82 drills,
- Orlan fixed offshore platform — 68 drills,
- Odoptu North Wellsite — 84 drills,
- Chayvo OPF — 98 drills,
- De-Kastri Oil Export Terminal — 79 drills.

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.

In addition, ENL held general educational workshops 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.