Purpose

This summary document “Summary of Oil Spill Prevention and Response Plan for the Piltun-Astokhskoye Field” is provided for public information, in accordance with the requirements of the Sakhalin Energy’s Health, Safety, Environment and Social Action Plan (HSESAP).

The purpose of the Oil Spill Prevention and Response Plan for the Piltun-Astokhskoye Field is to arrange and prepare the effective Emergency Response that mitigates the potential consequences of an Incident to people (local community and Company personnel), environment, Company assets and reputation, and enables normal operations to be resumed efficiently.

Please refer to the document “Summary of the Corporate ER Standard in relation to oil spill preparedness and response” for an overview of this topic and links to Summary OSR (Oil Spill Response) plans of other Sakhalin Energy facilities.
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1. Scope of the Plan and Description of the Facility.

The production facilities of the Piltun-Astokhskoye Field (PA) of Sakhalin Energy comprise two offshore production platforms (platform (Molikpaq) PA-A and platform PA-B) and the system of offshore and onshore pipelines for transportation of oil (Figure 1).

The fixed (bottom founded) ice-resistant offshore platform (Molikpaq) PA-A is installed at a distance of about 15 km from the shoreline at a depth of about 32 m at the point with geographic coordinates 52°42’58” North and 143°33’36” East.

The platform PA-B with ice-resistant gravity-base substructure is installed at a distance of about 16.5 km from the shoreline at a depth of about 48 m, at the point with geographic coordinates 52°55’59” N and 143°29’54” E.

Offshore pipelines from the first and the second platform, 355 mm in diameter, are designed for transport of oil products onshore and further to the Onshore Processing Facility (OPF).

Around both platforms, a 500-m prohibited zone is established. Offshore pipelines are protected with a 250-m exclusion zone on both sides of the pipeline route.

The main operations performed with crude oil and oil products at the facilities are as follows:

1. Drilling operations;
2. Hydrocarbon production;
3. Oil transportation;
4. Storage of diesel fuel on platforms PA-A and PA-B; and
5. Delivery of diesel fuel and oils to the platforms onboard supply vessels.

Drilling operations aimed at increasing oil production are performed periodically during the entire service life of the offshore platforms.

Drilling operations include use of oil-containing drilling fluids. Oil base of drilling mud, whose properties are close to those of diesel fuel, is pumped from supply vessels to the offshore platforms.

Diesel fuel utilized on the platforms for provision of production operations is stored in 12 tanks located inside box structures of the platforms.

Diesel fuel is delivered in transport tanks that reloaded onto the platforms from supply vessels. Lubricating oil is delivered to the PA-A and PA-B platforms in shipping containers (drums).

Transit of crude from platforms PA-A and PA-B onshore is carried out via offshore pipelines. The capacity of each pipeline is up to 14,310 m$^3$ of oil per day or 596 m$^3$/hr.

Physicochemical properties of oil products produced and utilized on the facilities under consideration are listed in Table 1.
Figure 1. The Piltun-Astokhskoye Field. Platforms PA-A and PA-B
Table 1. Physicochemical properties of oil products

<table>
<thead>
<tr>
<th>Type of oil product</th>
<th>Specific gravity (SG)</th>
<th>Pour point, °C</th>
<th>Flash point, °C</th>
<th>Boiling point, °C</th>
<th>Dynamic viscosity, cSt(1)</th>
<th>Asphaltenes, %</th>
<th>Paraffin wax, %</th>
<th>Group of oils(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vityaz crude</td>
<td>0.852</td>
<td>&lt; -45</td>
<td>-</td>
<td>60</td>
<td>4.2</td>
<td>3.9</td>
<td>0.6</td>
<td>III</td>
</tr>
<tr>
<td>Diesel fuel of grade L-0.5-62</td>
<td>0.843</td>
<td>-14</td>
<td>66</td>
<td>-</td>
<td>5.063</td>
<td>negligibly small 10 mg/100m³</td>
<td>low</td>
<td>II</td>
</tr>
<tr>
<td>Lubricating oil Shell Rimula</td>
<td>0.882</td>
<td>-35</td>
<td>14</td>
<td>-</td>
<td>198</td>
<td>low</td>
<td>-</td>
<td>III</td>
</tr>
<tr>
<td>Lubricating oil Shell Gadinia</td>
<td>0.891</td>
<td>-21</td>
<td>14.1</td>
<td>-</td>
<td>265</td>
<td>low</td>
<td>-</td>
<td>III</td>
</tr>
<tr>
<td>Oil base of drilling mud</td>
<td>0.843</td>
<td>-14</td>
<td>-</td>
<td>-</td>
<td>5.06</td>
<td>low</td>
<td>low</td>
<td>II</td>
</tr>
</tbody>
</table>

(1) Centistoke – unit of measure of kinematic viscosity; and
(2) Group of oils in accordance with the ITOPF/IMO/USCG classification.

A more detailed description of characteristics of the oil products used is contained in the Company’s Reference Document entitled Nature and Behavior of Oils and Oil Products Produced and Utilized on the SEIC’s Facilities (document no. 0000-S-90-04-T-8365-00-R). These data were used for simulation and calculation of potential damage caused by oil product spill in the work area of oil product transfer and shipping.

2. Emergency Prevention

Sakhalin Energy uses a systematic approach to risk evaluation and implementation of control measures aimed at prevention of accidents and emergencies. The measures applied at the facilities under consideration, which are aimed at reduction of risks of spills and/or spill volumes down to the practically achievable low level, do include actions that make it possible to reduce the probability of occurrence of spills or minimize their volume.

Monitoring of pipelines is performed with the use of ATMOS PIPE software for detection of leaks in a pipeline, which is interfaced with the SCADA system that utilizes, for leak detection, methods of detecting flow instabilities, pressure changes, and statistic methods. The ATMOS PIPE software makes it possible to detect leaks with volume less than 1% of pipeline transmission capacity.

The means for liquid hydrocarbon leak control installed on the platform include:

- blowout preventers;
- sub-sea shut-off valves;
- emergency shutdown valves;
- emergency shutdown systems;
- drainage systems;
- drip pans;
- modular (collapsible) walls; and
- regulations for performance of operations.

During performance of operations for loading fuel, lube oils, drilling mud onto vessels in immediate vicinity of the offshore platforms a special vessel (multi-functional support vessel) is on duty at a safe distance, which is ready for immediate deployment of trawl-type onboard oil-gathering systems.

In case of a spill, measures are taken that are aimed at prevention of expansion of an oil-containing liquid by means of stoppage of its discharge and isolation of the spill source. Such measures include:
• control and prompt containment of minor spills on platforms, which is provided by the drainage system of the platform;
• in case of minor spills on a deck, sorbents are used; and
• in case of significant spills – an emergency shutdown procedure is applied in accordance with the procedure stipulated by emergency response procedures and regulations.

The detailed description of emergency procedures for the Piltun-Astokhskoye Field is contained in Emergency Response Plans (Docs. No. 2000-S-00-N-P-3299-00 and No. 3000-S-90-04-P-7002-00) for the production facilities

3. Prediction of Volumes and Areas of Oil and Oil Product Spills

Possible sources of spills on the facilities under consideration include:

• process equipment on production platforms (PA-A and PA-B);
• oil wells;
• offshore pipelines connecting the platforms with the shore;
• standby vessels, supply vessels; and
• storage tanks for diesel fuel, oil base for drilling mud, and fuel-and-lube materials on the production platforms.

Evaluation of maximum volumes of feasible spills (worst-case scenario) on the facilities under consideration was made with consideration of preventive measures within the framework of quantitative risk assessment and in accordance with regulatory requirements of the RF legislation.

Based on the results of the work performed, situations were identified (Table 2) that may result in worst-case scenarios of an Emergency (Oil) escalation in the impact area of the facilities under consideration. These scenarios served as a basis for determining the quantity and quality of resources for Emergency (Oil) response.

In accordance with the obtained forecasting results, the plan category was determined as Federal (in accordance with Regulation of the Government of the Russian Federation No. 613 of 21 August 2000, spills with volumes above 5,000 tons of oil or oil products on offshore facilities shall be classified as Federal Tier Level Emergencies).

Table 2. Scenarios of maximum possible oil spills in the area of Piltun-Astokhskoye Field and the adjacent offshore pipeline

<table>
<thead>
<tr>
<th>Cause of spill</th>
<th>Approximate maximum possible volume, m³</th>
<th>Description of scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crude oil spill on the PA-A Platform.</td>
<td>1,750</td>
<td>Crude oil spill on the production platform PA-A in the volume of 1,750 m³ (1,500 tons). The probability of impact of oil/oil product spill upon the shoreline is minimal and is assumed to be zero in this scenario.</td>
</tr>
<tr>
<td>Instantaneous release of crude oil from an offshore platform.</td>
<td>1,750</td>
<td>Instantaneous release of 1,750 m³ (1,500 tons) of crude on the PA-B platform within 4 hours. By simulation results, an oil slick may reach the shoreline area in the Chaivo Bay not earlier than 10-12 hours after the discharge, with a wind speeds not less than 12 knots. It should be noted that under such conditions, approximately 40% of the spilled oil will be evaporated or be subjected to weathering.</td>
</tr>
</tbody>
</table>
Summary of Oil and Oil Product Spill Response Plan for the Piltun-Astokhskoye Field

4. Response Strategy and Protection Priorities

In accordance with requirements, the primary objective in oil spill control is "containment of spills at the accident site and wherever possible urgent collection of oil" with the purpose of minimizing the harmful impact of oil on human health, working conditions of people, and state of environment. In this connection, Sakhalin Energy is maintaining equipment, management system, procedures and preparedness of personnel at a level that will make it possible to effectively respond to oil spills at any location and at any time.

In oil spill response (OSR), the following priorities are emphasized:

- People: providing for safety of employees, accident response personnel, and population;
- Environment: protection of ecologically vulnerable zones and species of wildlife (marine mammals, birds, mollusks, and protected waterside environmental associations);
- Assets: protection of property and socioeconomic resources (e.g. fisheries) and Sakhalin Energy’s facilities; and
- Reputation: protection of Sakhalin Energy’s reputation through:
  - prompt response with engagement of all necessary resources and trained personnel;
  - regular checks of response organization and procedures, emergency communication and alarm systems;
  - provision of information to people (company personnel, nearest relations, representatives of state administration bodies, general public and mass media);
  - wish to help and bona fide behavior;
  - rehabilitation of the environment to the level that existed before the spill;
  - fair treatment of complaints and compensations; and
  - incorporating lessons learned.

The strategy and sequence of response actions:

In the emergency (oil) in an offshore zone, the following sequence of actions is envisaged:

1. Containment and collection of spilled hydrocarbons in immediate vicinity of the spill source with the purpose of preventing oil expansion
2. Protection of areas of special significance, including bay mouths and river mouths
3. In case of pollution – clean-up of shoreline
4. Restoration and rehabilitation of contaminated areas

Analysis of resources and manpower that are necessary for taking effective measures for oil and oil product spill response for various scenarios of emergency development was made on the basis of preferable response strategies.

Actions stipulated by the OSR Plan make it possible to minimize adverse impacts on the environment through prioritizing operations for containment and gathering of hydrocarbons at the spill source.
4.1. Priorities in the Field of Environmental Protection

The priority directions of environmental protection are:

- national parks and wildlife preserves;
- onshore and offshore habitats of rare and protected species of mammals (in particular gray whales) and birds introduced in the Red Book of the and Red Books of the Russian Federation and Sakhalin Oblast;
- spawning streams of salmon fishes;
- natural sanctuaries; and
- perspective wetlands of international value (the "shadow list" of the Ramsar Convention).

Particular priorities of emergency response actions are established on the basis of the following criteria:

- actions should provide maximum net environmental benefit;
- the strategies selected should be directed toward maximum possible clean-up from spilled oil with minimum possible environmental damage;
- the measures taken should be aimed, first of all, at those territories and resources that are characteristic of least self-regeneration capability;
- in the course of emergency operations, materials and personnel should be utilized in a most efficient manner; and
- amount of wastes generated in the course of emergency response operations should be minimized.

4.2. Objects Exposed to Pollution – Objects of Priority Environmental Protection

On the northeastern coast of the Sakhalin Island, areas of special protection are distinguished for protection of faunal assemblages and habitats of rare and endangered species of birds. They include such natural sanctuaries as Liarvo Isle (the northern part of the Nyisky Gulf), Chayachy Island (Seagull Island) (the Nabil Gulf), Wrangel Islands (the Piltun Bay) where the most numerous in Sakhalin colonies of Kamchatka and river terns are located, and the Lynskoy Bay – one of nesting sites of numerous Steller’s sea eagles. Massive nesting grounds of seabirds (colonies) are recorded on the Terpeniya Cape and on the Tyuleni Island.

The population of birds in the east of the Sakhalin Island varies considerably depending on the season. Number of species increases considerably in the periods of spring (May – June) and autumn (September – October) migrations. In bays/lagoons and on the seaboard, birds are encountered in large numbers, including swans and sea ducks. Along the shoreline, Aleutian terns are also encountered, which belong to rare and endangered species in the IUCN classification. In Sakhalin, maximum quantities of marine and semi-aquatic birds are encountered in the migration periods mainly through species for which the Sakhalin Island is not a nesting ground.

According to the information available, some species of cetaceous are encountered in near-coastal waters of the Northeastern Sakhalin. They include gray whale of the Okhotsk-Korean (western) population (Eschrichtius robustus), southern Japanese whale (Eubalaena glacialis), minke whale (Balaenoptera acutorostrata), killer whale (Orcinus orca), herring hog (Phocoena phocoena), and common dolphin (Delphinus delphis). Most of them enter the Sea of Okhotsk in the summer season. White whales (Delphinapterus leucas) are encountered most often in the period of spring migration. Two of the species encountered over there – gray whale and Japanese whale – are introduced in the list of International Union for Conservation of Nature as threatened species and in the Red Book of the Russian Federation as nearly extinct species.

In the area of the Piltun-Astokhskoye Field, four species of seals and two species of eared seals (sea lions) are encountered. In the winter and spring seasons, the vast majority of them concentrate within a wide strip along the eastern shore of the island. Practically all of the pinnipeds migrate southward or northward depending on the season. Some species keep close to the edge of ice floes, others prefer open water and have to migrate southwards following the drift of ice floes.

Near-coastal vegetation of the east coast of the Sakhalin Island covers stretched barrier coasts (bay-bars) separating the gulf from the Sea of Okhotsk. Dune vegetation of coastal bars is characterized by
poor species composition. In the vegetal cover, grassland communities prevail – sedge grass family, dune grass family, dune grass and crowberry family, miscellaneous-grass and sedgy communities. Tree vegetation is presented with dwarf Siberian pine (Pinus pumila), which grows in individual shrubs on sand dunes or forms continuous shrubbery on elevated coastal areas. Encountered are also Maximovicz’s alder (Alnus maximoviczii) and Middendorff’s dwarf birch (Betula middendorffii). No plants of rare species introduced in the Red Book are encountered in the narrow near-coastal strip of the territory under consideration.

Onshore fauna of the Sakhalin Island is poor in species as compared to the adjacent Far Eastern continental region. The narrow near-shore strip of the island in the area of possible impact of oil spills is also depleted in representatives of onshore fauna, though in the period of salmon spawning appearance is possible, especially in bay mouths and river mouths, of individual bears, foxes, rodents, etc. Habitation density and numerosity of local micro-populations of economically valuable game mammals (sable, otter, squirrel, and brown bear) are also rather low and noticeably lower than in other areas of the Sakhalin Island.

With the purpose of protecting the environment from consequences of oil spills at the stage of drawing-up OSR plans, the Company prioritizes actions for protection of vulnerable territories and wildlife representatives in case of an oil spill.

4.3. Objects Exposed to Pollution – Economic, Cultural, and Historical Resources

The northeastern coast of the Sakhalin Island within the span from the Cape Urkt to the Cape Terpeniya belongs to scarcely populated areas. The main town-forming industry of this region is oil production. The largest towns and settlements are confined to main motor-roads and the railway line and are situated over a distance from the seashore. One of the large inhabited localities in this region is the urban-type community of Nogliki – the administrative center of the district of the same name – with population of 13 thousand people. It is situated at the mouth of the Tym River that falls flowing into the Nyisky Bay at a small distance from the settlement. In Nogniki, the rotational village of companies Sakhalin Energy and ENL for 450 people is located in which all necessary living conditions are created for accommodation of personnel.

The settlement of oilmen Katangli is situated 16 km south of the settlement of Nogliki. Not far from the settlement, at the shore of the Nabil Bay, a port station of Kaigan is situated where an old quay for calls of small-size vessels exists.

Among modern industrial enterprises, on the seaboard from the Odoptu Bay to the southern extremity of the Nabil Bay, several oil-extracting enterprises operate that are owned by OAO NK Rosneft-Sakhalinmorneftegaz, which develop oil and gas fields. The largest industrial enterprises in the settlement of Nogliki are business units of NK Rosneft-Sakhalinmorneftegaz: Oil-and-Gas Production Department (NGDÜ) Katangliftegaz and Nogliki Drilling Office.

In the Nogliki and Okha districts, coastal fishing is also wide-spread. As a rule, fishing is carried out by tribal enterprises of indigenous peoples of the North Sakhalin, and by private fishing enterprises and cooperatives. The largest fishing cooperative is the Vostok Cooperative located on the bank of the Tym River in the settlement of Nogliki.

The socioeconomic characteristic of the potentially exposed area is presented in the Table 3.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infrastructure</td>
<td>Insufficiently developed on the Sakhalin Island as the whole. This situation is especially unfavorable in its northern areas, including the Piltun-Astokhskoye Field where very few normal roads are available. The only noteworthy infrastructure facility is coastal facilities of the company ENL with their transport infrastructure.</td>
</tr>
<tr>
<td>Population</td>
<td>Extremely low population density. The nearest place of permanent dwelling of people is the settlement of Katangli situated about 34 km north off the Onshore</td>
</tr>
</tbody>
</table>
Summary of Oil and Oil Product Spill Response Plan for the Piltun-Astokhskoye Field

<table>
<thead>
<tr>
<th>Fishing</th>
<th>Fishing trade in the area of the Piltun-Astokhskoye Field is insignificant, it is carried out from small vessels and is mainly limited by near-coastal waters.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sea hunting</td>
<td>Commercial seal hunting in the area of the Piltunskoye and Lunskoye fields is limited by the near-coastal zone where people hunt seals in winter months in ice-holes. No evidence whatsoever of carrying-out whaling in the area under consideration.</td>
</tr>
<tr>
<td>Tourism</td>
<td>None is available presently.</td>
</tr>
<tr>
<td>Harbors</td>
<td>In the vicinity of the field, a small port – Kaigan (also known under the name of Nabil) is situated. The port is used mainly by small fishing vessels and shallow-draft rotational launches of Sakhalin Energy. The port is situated at a distance of about 105 km from the southern boundary of the Piltun-Astokhskoye Field.</td>
</tr>
</tbody>
</table>

Short-term impact of oil spills on commercial fishery may manifest itself in closing of individual oil-polluted areas for fishing and in oil pollution of fishing vessels and tackle. The latter may be excluded by means of declaring a temporary prohibited area.

In the high seas where oil slicks are relatively rapidly dissipated or eliminated, such limitations are of especially temporary, short-term character.

A certain damage to traditional fishery that is mainly limited by coastal lagoons may be inflicted in case of pollution of the shoreline and ingress of oil in the offshore area of lagoons. Commercial fishing may be suspended for some period of time. The duration of adverse impact will depend upon timeframe and effectiveness of response actions, as well as on presence of residual oil pollution.

5. Preparedness to Respond

5.1. The System of Operating Management of Oil Spill Response in the Company

To comply with the Russian legislation and applying to the Best International Practice, the Company established and maintains the following Emergency Response Management Bodies:

The Sakhalin Energy’s response management system is based on an Incident Command System (ICS) organization and is compatible with the structure of emergency rescue services and teams of the National Russian Federation Unified Emergency Prevention, Preparedness and Response System (RSChS). The scheme of the structure is shown in Fig. 3.

- **Coordination Body.** Company’s Committee on Prevention and Response to Emergencies and Fire Safety (Company’s KChS & OPB);
- **Standing Management bodies.** Emergency Response Management Team (ERMT) with support of departments and divisions of Sakhalin Energy, which may be mobilised in an emergency and also those dedicated to emergency management, HSE, Security departments, Logistic section, External Affairs and the Finance department and other if required.
- **Day-to-day Management Bodies:**
  1. **Duty Dispatcher Service (DDS 2500)** of the Company (Emergency Call Centre) in Yuzhno-Sakhalinsk.
  2. **Emergency Coordination Team (ECT).** The ECT provides support to asset emergency Site Control Team to small spill on the territory of facilities. In case of larger spills, especially spills spreading outside the boundaries of the site, SRC assumes control over all accident response works.
  3. **Crisis Management Team (CMT).** The Crisis Management Team (CMT) controls those aspects of any incident that threaten the business (commercial) activity or reputation of the Company. In case of an emergency, CMT interacts with outside organisations,
shareholders and lenders, the public and non-governmental organisations, relatives of injured Sakhalin Energy and contractors’ employees, or injured representatives of customers.

4. For the Piltun-Astokhskoye Field this is the PA-A Operations Control Room.

The diagram of interrelations between the Sakhalin Energy Emergency Response Commission (KChS) and individual components of the system for organization of emergency response is shown in Figure 2.

Figure 2. Organization of emergency response management bodies in Sakhalin Energy

- **Site Control Team (SCT)**

The manager of emergency operations (Site Controller) on a facility is Offshore Installation Manager (OIM) of PA-A (Molikpaq). In case of small-size spills in the area of the platform PA-B, this function may be delegated to OIM of PA-B.

In case of a spill, the SC shall have the right to make a decision on mobilization of Site Control Team of facilities of the Piltun-Astokhskoye Field which will coordinate emergency operations on the PA Field.

The SC on a facility is responsible for general management of first-priority response actions and work of the Site Control Team on facilities of the Piltun-Astokhskoye Field. Functions of SC on a facility include:

- collect factual information on the emergency event;
- evaluate accident severity;
- observe over movements and behavior of spill slick;
- make decisions with regard to riskiness of continuing production operations;
- make a decision on evacuation of the accident-affected area;
- submit a request for additional medical, fire support, for an additional OSR vessel, and for other kinds of emergency support;
- control and coordinate operations of vessels that are within the Piltun-Astokhskoye offshore area; and
- report to Emergency Coordinator (EC) on character of accident and measures taken.

The SCT of the field is responsible for taking first-priority measures for responding to any oil spill or other emergency situation.

- **Advanced Operations Centre**

Additional centres may be established in remote locations or in the field. These may be required for on site management, the deployment of equipment or personnel (Staging Areas) or for the provision of services (e.g. Decontamination Centres, canteens etc.).
Advanced Operations Centres may be established to coordinate:

- Shoreline response;
- Wildlife response;
- Aerial response; and
- Onshore waste management.

Each AOC and personnel will be coordinated by a nominated Onshore On Scene Commander (OSC).

### 5.2. Response Resources

In accordance with Russian Federation Government Regulation of 21.08.2000 No. 613, revised on 15 April 2002, No. 240, and Ordinance of the Sakhalin Oblast Administration of 10.11.2005 No. 203-pa, the goal of planning of actions for oil and oil product spill response shall be determination of the necessary composition of forces and special technical devices for **containment of spills in an offshore area within 4 hours** after spill detection or obtaining information on a spill, and for organization of subsequent operations response to such spills.

First-priority response actions on facilities are based on the strategy of spill containment and gathering of spilled oil, which suggests:

- deployment of OSR forces and facilities;
- spill containment (booms);
- collection of oil (skimmers); and
- temporary and long-term storage of collected wastes.

For evaluation of sufficiency of SEIC forces and facilities, calculations of two indicators were performed:

- **Maximum throughput of equipment**, which takes into consideration the total capacity of OSR equipment of Sakhalin Energy on Sakhalin Island; and
- **Maximum response potential**, which takes into account the possibility to deploy OSR equipment, contain (localize) a spill, and collect spilled oil at a particular facility.

OSR actions envisaged by Sakhalin Energy include prompt response actions at the place of spill, actions of onshore-based forces and facilities, and response with participation of additional vessels from the Lunskoye Field.

Oil spill response under ice conditions with ice consolidation factor above 70 % does not require compulsory utilization of special means for spill containment, since this role may be played by ice.

### 5.2.1. Response Resources – Personnel

On assets of Sakhalin Energy, nonprofessional emergency response teams (NERT) are available in instant readiness, which are prepared for performance of first-priority measures for prevention of emergency situations and accident containment on the spot.

Qualified personnel for oil spill response, in accordance with the contracts, are provided by professional, certified in accordance with the established procedure, OSR contractors onshore and offshore – Professional Emergency Response Team (PERT). In addition engaged may be personnel of the pipeline maintenance depots (PMD) and of assets of the Company that have undergone the appropriate training in OSR.

The OSR contractor, for implementation of response actions offshore, may provide additional human resources and vessels with crews.
There are is a subdivision of the PERT of the Contractor, it is based in Nogliki. The Northern Mobile Team is the onshore subdivision for implementation of response actions at the shoreline and protection of bays.

All organizations and their personnel involved in emergency rescue operations have undergone certification in accordance with Russian Government Regulation of 22 November 1997 No. 1497 “On Certification of Emergency Rescue Teams and Rescue Workers”. Emergency rescue teams (oil) have the appropriate material and technical basis for conducting training and drills that are necessary for provision of preparedness of personnel of emergency rescue teams (oil) for emergency response.

5.2.2. Response Resources – Vessels and Equipment

Response offshore

On the Piltun-Astokhskoye Field, a multi-function support vessel is on twenty-four hour alert, which is complete with equipment or responding in case of emergency events (oil) and manned with qualified personnel trained for performance of emergency rescue operations during emergencies (oil). In case of a spill, supply vessels working in the area of the platforms will come to the aid to the said vessel(s), which may be used for deployment of equipment, both independently and in a couple with multi-function support vessel(s).

The list of equipment onboard multi-function support vessels comprises oceanic and arctic containment and oil-collecting systems. There are two different booming systems, i.e. 600 m of Heavy-Duty oil Boom and 75 m of Light Oil Boom. There are four skimmers, i.e. two weir skimmers and two oleophilic brush skimmers.

Response onshore

Onshore, equipment is placed at PMDs and/or production facilities of the Company. Servicing and repairs of equipment for oil spill response are provided by Sakhalin Energy’s OSR contractor. It also draws up annual inventory of this equipment.

The location of depots with OSR equipment available at them relative to the Company’s facilities is shown in Figure 3, their full list is given below.

- Nogliki PMD (response equipment for onshore and in bays);
- Lunskoye PMD at the OPF site (response equipment for onshore and rivers);
- Yasnoye PMD (onshore);
- Gastello PMD at the Booster Station-2 site (onshore);
- Sovetskoje PMD (onshore);
- Prigorodnoye (onshore and marine); and
- Kholmsk Support Base (marine).

For transportation of equipment into bays that are to be protected in case of oil spill, helicopters are available at the disposal of Sakhalin Energy. Flight time from the settlement of Nogliki to the Piltun-Astokhskoye Field is about 45 minutes.

At each PMD, fast deployment packages (FDP) are available. Fast deployment packages consist of light equipment accommodated in 5-ton containers that may be transported by helicopter on a suspended-type lifting gear, by Ural trucks (with trailer), cargo trailers, or by other means of container transport.

In addition, at PMD there are available OSR mobile packages on the base of Ural trucks (OSR MP) and fast response trailers.

This equipment is intended for fastest delivery to an oil spill spot for the purpose of providing first-priority actions for oil slick containment. Storage of OSR equipment and tools in the form of fast deployment packages assures prompt mobilization in case of emergency (oil) with a minimum time of loading onto a transport means and delivery.
Deployment of equipment with utilization of motor transport will need about 3 hours (delivery from the settlement of Nogliki to the Chaivo Bay) of 4 hours (delivery from the settlement of Nogliki to the Lunskoy Bay), plus 1 hour for loading operations.

To check acceptability of the above-said periods of time of delivery from the viewpoint of installing booms within time periods sufficient for protection of bays, simulation of motion path of an oil slick was performed, and emergency drills and exercises of personnel with utilization of the available equipment were conducted.
Figure 3. Location of OSR equipment storage points
5.3. Preparedness and Assurance.

Assurance of preparedness of OSR forces and facilities is envisaged in three modes:

1. in the mode of everyday activities:
   a. training of emergency rescue detachments PMD (training requirements, levels and time schedules);
   b. assurance of regular refinement and update of the OSR plan; and
   c. maintaining service capability and technical maintenance of OSR equipment.

2. in the mode of increased readiness: the appropriate procedure and assignment of responsibilities are presented in the emergency response plan for the facilities of the Lunskoye Field.

3. in the emergency mode: the appropriate procedures and assignment of responsibilities are presented in the OSR plan for Piltun-Astokhskoye field.

Within the framework of maintaining service capability, the following is performed at the facilities:

- examination of process units (equipment elements) on which spills of maximum volume may take place, or those characterized by maximum probabilities of spills;
- timely and regular serviceability check of equipment and tools utilized for accidental spill containment and elimination, where necessary – performance of repair and overhaul thereof;
- evaluation of the available composition of forces and facilities and addition where necessary; and
- conducting drills and comprehensive emergency training exercises for containment and elimination of hydrocarbon oil product spills.

Drills and exercises are based upon simulation of emergency situations and may be conducted with participation of a single, several or all crews and sectors of Emergency Coordination Team (ECT) or Crisis Management Team (CMT).

Specialized tactical exercises, with duration of up to 8 hours, with participation of Sakhalin Energy ECT, CMT, and facility-based emergency response teams are conducted every three years, and with participation of instant readiness detachments (specialized OSR contractors of Sakhalin Energy) – once a year.

Emergency response exercises are conducted annually. Exercises under winter conditions with deployment of equipment afield are conducted not less frequently than every two years.

5.4. National and International Resources

Equipment belonging to governmental authorities and organisations can be used in case of an oil spill at Prigorodnoye offshore facilities via district or oblast KChS and OPB.

If necessary, in case of an oil spill of local or territorial tier, the respective KChS can engage emergency rescue services and fire brigades based on Oblast territory, as well as staff from public health departments and internal affairs departments of municipalities.

The procedure of access to such equipment, as well as the list of equipment placed in Sakhalin are controlled by SakhBASU and the Head Department of MChS of Russia for Sakhalin region.

Personnel and equipment of Russian MChS and civil defence forces based in the Far East, DVBASU, and other regional resources can be engaged in response operations in case of spills of the regional tier.

In case of federal tier spills, resources of Russian MChS, State Marine Emergency Rescue Service of the RF Ministry of Transport (Gosmorspassluzhba), Centre for Emergency, Rescue and Ecological Operations (CREO or Ekospas) situated in Moscow with branches in the Far East, including Sakhalin can be involved, as well as international resources.

5.4.1 Forces and Facilities of Oil Companies
On the basis of bilateral agreement on mutual assistance with ENL, Sakhalin Energy has access to equipment and services of this company in the field of oil spill response. This equipment is located in Nogliki and at ENL OPF (Chayvo field).

Memorandum of Understanding between Sakhalin Energy, Elvary Naftegaz, NK Rosneft-SMNG, and Petrosakh was signed in January 2005. This document is aimed at strengthening the capabilities of all parties in the OSR field by agreement to provide to each other mutual assistance including personnel and equipment in the event of a spill.

Tier 3 response will most likely require coordination of both Russian and international manpower and resources.

The following international resources of Oil Spill Response Limited (OSRL) may be engaged through STASCO and Shell Response Ltd. companies, which are located:

- At the base in Southampton, UK, and
- In Singapore.

In case when the oil slick formed as a result of the spill reaches the territorial waters of Japan, and in case of such a threat, Sakhalin Energy in accordance with the Memorandum of Understanding between Sakhalin Energy and the Japan Marine Disaster Prevention Centre (MDPC) can engage the resources belonging to this Centre.

External resources will be engaged through governmental authorities (MChS Main Department) based on federal-level plans.

6. Process of Notifying of an Oil Spill

All employees of Sakhalin Energy and its contractors must promptly notify their immediate direct Superior at the Facility of all detected oil and oil product spills, and take safety measures for spill response. "Superior-at-Facility" is a responsible person based on the facility who is authorized in accordance with the OSR Plan or other emergency response plan to take first-priority measures for responding to an oil spill or another emergency event.

Table 3. Superiors at the Facilities of the Piltun-Astokhskoye Field

<table>
<thead>
<tr>
<th>Facility/Area</th>
<th>Superior-at-Facility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Platform PA-A and pipelines</td>
<td>Offshore Installation Manager (OIM) of PA-A</td>
</tr>
<tr>
<td>Platform PA-B</td>
<td>OIM of PA-B</td>
</tr>
<tr>
<td>Vessels</td>
<td>Vessel Master</td>
</tr>
</tbody>
</table>

The Superior-at-Facility should provide for safety of personnel and integrity of equipment in close vicinity of the accident site and then notify of the accident the corresponding Offshore Installation Manager (OIM). OIM shall notify of all spills the Site Controller at the facility (OIM of PA-A). Notification may be made on radio.

Offshore Installation Manager (OIM) is responsible for timely taking of appropriate immediate actions at place. He is also liable for collecting information on dimensions of an oil slick, probable amount of spilled oil, state of the sea, wind speed and direction, and other information necessary for commencing and planning of emergency operations.

OIM of PA-A (as Site Controller at Asset) shall be responsible for presenting necessary notifications of spills that happened on facilities of the Piltun-Astokhskoye Field. He should immediately inform the Emergency Response Coordinator on duty by telephone with subsequent presenting a written report in the form OSR-01. After clearing-up additional details on the spill and determining its causes, refined information shall be submitted to Emergency Coordinator on duty in the Yuzhno-Sakhalinsk office of Sakhalin Energy.
The Emergency Coordinator on duty is responsible for notifying Sakhalin Energy Crisis Manager, governmental authorities and provides for mobilization of Emergency Coordination Team. He is also responsible for notifying shareholders and lenders in case of spills requiring Tier 1 and Tier 2 response. The Sakhalin Energy Crisis Manager is responsible for notifying shareholders and lenders in case of spills requiring Tier 3 response.

During and after any emergency event (oil), visual monitoring of water surface should be carried out, as well as pressure monitoring in pipelines. In case a spill is detected, emergency situation procedures are put into effect. Offshore Installation Manager is responsible for timely taking of appropriate immediate measures on the spot. He is also responsible for collecting information on dimensions of the oil slick, probable amount of spilled condensate or oil, state of the sea, wind speed and direction, and other information that is necessary for commencing and planning of emergency operations.

In case of a spill, Emergency Response Coordinator may involve Emergency Coordination Team.

After consultations with the Offshore Installation Manager and leading members of the Emergency Coordination Team, Emergency Response Coordinator shall determine whether or not it will be possible to effectively eliminate the spill by forces of Sakhalin Energy (i.e. Tier 1 response is needed) or additional resources will be required (i.e. Tier 2 or Tier 3 response is needed).

7. Sequence of OSR Operations

Any person who detected a spill of condensate, oil or a slick of unknown hydrocarbon must, provided that it is safe:

- stop the leak of hydrocarbon from the source;
- eliminate possible ignition sources or other unsafe conditions;
• in case oil or oil products are spilled onto deck, take measures to prevent their ingress into the sea (provided that such actions will not result in appearance of a hazardous situation); and
• inform the immediate line manager of operations manager at the facility on the observed spill or presence of an oil film. Line manager should immediately report about the emergency situation to the operations manager at the facility.

Captains of vessels must report to the onshore Rescue Coordination Subcenter of State Marine Rescue Service of Russia (Yuzhno-Sakhalinsk) about all spills from vessels of oil and other toxic and dangerous substances in accordance with Vessel Plans for Oil Spill and other Emergency Response.

Where necessary, OIM shall put out an order to captain of an OSR vessel to set about to deployment of the vessel for oil containment and collection, except for cases where a decision is made that:

• The OSR vessel is necessary for purposes of sea rescue, fire fighting or other purposes;
• Safety of the OSR vessel and her crew is subjected to a considerable risk due to unfavorable weather conditions or state of the sea, or if installation of equipment would result in inadmissible risk for the OSR vessel’s crew. This decision may also be made by captain of the OSR vessel;
• Volume and type of oil product, as well as the predicted motion path of the oil slick demonstrate that this spill will not bear significant risk for the environment. Such evaluation is confirmed by the SC, which should consult with the Emergency Coordinator;
• Use of equipment will not be effective due to very rough sea, ice conditions, or other conditions; and
• Fog or lighting conditions may reduce visibility to a level that is unsafe for conducting emergency operations.

For emergency (oil) response onshore, equipment and personnel are mobilized from the Sakhalin Energy facilities and PMDs of that are closest to the emergency shoreline area.

In case of Tier 1 spills that may result in shoreline contamination, an instruction is given to the Sakhalin Energy’s OSR contractor to initiate OSR procedures for the shoreline. In case of long-lasting or large-scale spills, a Onshore On Scene Commander is assigned to manage such operations.

Functions of shore operations comprise all onshore field work, including shoreline protection, evaluation of the degree of oil contamination of the coast, and clean-up of the shoreline. These functions also comprise waste handling at work site and temporary waste storage sites.

Structure of the Shoreline Protection Team is flexible and takes into account peculiarities of a particular emergency event.

In case of presence of a considerable slick of freshly spilled oil or condensate, SC on the Facility (OIM or vessel master) shall notify all vessels that are close to it and may make a decision to sound the general alarm signal. The detailed description of alarm signals and signaling procedures are contained in the Emergency Response Plan for The Piltun-Astokhskoye Field or in vessel's plans.

7.1. Organization of Containment Oil and Oil Product Spills under Offshore Conditions

When selecting equipment it is necessary that a balance be achieved for its utilization for:

• air support of operations (detection of slick location);
• containment (booms);
• collection of oil (skimmers);
• organization of temporary storage sites for wastes;
• removal of wastes to shore; and
• receiving of wastes onshore.

Air support of operations is necessary for effective determination of oil slick location and further tracking of its movement. Aviation support is requested by SC at the facility (OIM) through Operations Leader of the Emergency Coordination Team (ECT).
An OSR vessel / multi-function support vessel, with support of a small service vessel, shall deploy booms in order to contain crude or condensate spilled on the sea surface provided that performance of this operation is safe.

In cases where volumes of the spill exceed facilities for oil containment, collection or storage available with the vessel, SC requests assistance of an OSR vessel or a multi-function support vessel from the Lunskoye Field located at a distance of 137 km (6.5 hours).

On board an OSR vessel / multi-function support vessel, a storage tank is available with volume of about 700 m$^3$. In case of a big-size oil spill, the OSR vessel (storage tank with 800 m$^3$ volume plus onboard oil-water separator with 40 m$^3$/hr throughput) and the multi-function support vessel (storage tank with volume of about 700 m$^3$) from the Lunskoye Field is engaged.

Reloading of collected oil from OSR vessels to the offshore storage vessel is performed as follows:

- with the use of internal pumps of storage tanks on board OSR vessels; and
- with the use of transfer pumps on board OSR vessels.

An OSR vessel / multi-function support vessel may be used for transportation of wastes to the ports of Korsakov or Kholmsk. However this option of vessel utilization is undesirable because in this case a period of time is reduced that could be used for oil containment and collection. In case of long-lasting response operations, Offshore Installation Manager (SC on the Facility) shall forward a request for provision of a transport vessel and a storage vessel.

8. Health and Safety Requirements in the Course of Oil and Oil Product Spill Response Operations

Special attention is paid to providing for safety of personnel and population in case of appearance of an ES(O). Personnel that do not take part in oil spill response, which occurred in the Emergency (Oil) zone, should be promptly removed (evacuated) to safe locations.

Emergency operations for oil spill response should be performed in accordance with health, safety and emergency response procedures adopted in Sakhalin Energy. However, under conditions of emergency situation, lots of additional hazards appear, such as toxic vapors of spilled oil products, slippery surfaces contaminated with oil, factors of tiredness, etc. In this connection, personnel of emergency rescue detachments should follow additional safety rules that are characteristic of conditions of a particular emergency event.

Participants of emergency operations may encounter various natural hazards, including:

- presence of ice cover;
- unfavorable weather conditions (storm wind, heavy rain or snow, low temperatures);
- peculiarities of terrain; and
- hazards in the process of interaction with wildlife representatives.

Employees are not permitted to emergency operations for OSR without necessary training in safety issues and introductory briefing on safety matters specific for the particular site where they are to work. For some OSR facilities, employees should have valid safety certificates and undergo specialized training in those matters.

Crude oil of the Piltun-Astokhskoye Field belongs to light oil fractions and in this connection volatile gaseous fumes may be present above the surface of freshly spilled crude. That is why, prior to collection of contained oil, a check for presence of such vapors in the surrounding atmosphere should be performed.

8.1. Prohibited Zones on an Offshore Area
At a distance of 1 km (approximately half a nautical mile) from the source of a significant or long-lasting spill of crude oil or condensate, it is recommended to establish a prohibited zone. Dimensions of this zone may vary depending on results of performed evaluation of safety issues.

If a risk of presence of gas or explosive vapors exists, SC on the facility should determine which zones are hazardous and where appropriate signs are to be installed. Access of vessels, helicopters or people into prohibited zones may be restrained.

8.2. Emergency Alert and Warning Signals for Population

In the course of Tier 2 and Tier 3 response, health and safety risks for population may appear. Health and Safety Coordinator must immediately inform Sakhalin Energy Emergency Coordination Team and appropriate governmental authorities on possible adverse impact upon the population. First of all, the necessity to inform the population will depend on presence of gas leaks or explosive fumes.

9. Measures for Wildlife Protection

9.1. Measures for Protection of Birds

To protect wildlife, in particular birds, which may be exposed to oil as the result of oil spill, Sakhalin Energy uses special equipment (hazing devices, devices to collect and treat oil-contaminated birds) which is stored at the Prigorodnoye Asset, Gastello Pipeline Maintenance Depot (PMD), and Lunskoye PMD.

In case of threat to birds, there will be organised groups to haze (scare) birds away and collect oil-contaminated and dead birds. Collection of oil contaminated dead birds will be done in the shortest possible time to avoid the secondary contamination of varmints when eating oil contaminated bodies. Ship horns will be used to frighten away birds at sea.

The specialists of Sakhalin Energy and respective contractors regularly complete training courses under a wildlife protection programme. In addition, the Company provides training for the employees of other interested organisations in the Sakhalin Oblast on rehabilitation of wild animals which suffered from oil spills.

In 2005, Sakhalin Energy organized training of employees of the Company and of other interested organizations in issues of rehabilitation of wild animals suffered from oil spills. Specialists of Sakhalin Energy and contractors takes courses in the program of wildlife response, i.e. such trainings conducted in 2008, 2010, and 2011. It is planning in 2012 to hold the trainings at Lunskoye, Gastello and in Yuzhno part of Island. Also it is planning in 2012 to conduct exercise in Prigorodnoye with stabilization and rehabilitation sites deployment.

9.2. Measures for Protection of Whales

If it turns to be that whales may get into a zone of spill, the following principles should be adhered to:

- Marine mammal observers will be admitted on board vessels taking part in response actions;
- Captains of vessels must immediately inform observers of any appearance of whales;
- Captains should steer their vessels at a speed not exceeding the limits established for whale summering areas;
- Observers assigned to perform aerial surveillance should conduct special observations over whales and report appearance of whales;
- In order to prevent ingress of oil into offshore areas where whales are observed, booms are deployed; and
- Special attention should be paid to deployment of booms for prevention of oil ingress into summering zones of gray whales.

The Company has entered into engagement to conduct monitoring of impact on whales during performance of oil spill response actions, and to organize monitoring of possible adverse impact on
whales as a result of oil spills. The program of monitoring after a spill will be performed by independent scientific specialists in accordance with the Plan of Sakhalin Energy’s actions for monitoring the situation after elimination of a spill.

9.3. Shoreline protection

Measures aimed at protection of the shoreline include deployment of booms from the shore and construction of berms. These measures are taken by specially trained teams working both from the shore and from small vessels. If necessary, support of various kinds can be provided to these teams at their work sites, including consultants in environmental protection issues and in wastes handling.

9.4. Methods of response to oil spills in water and wetland areas

Considering the exceptional vulnerability and ecological sensitivity of water and wetland ecosystems, the most sparing methods of response should be used, i.e. those at which intervention is reduced to the minimum. Light-weight booms intended for gathering of the oil film from the open water surface can be placed using flat-bottom boats or aeroboats. Sorbing skimmers can be used, as the speed of deployment and, hence, the load on the skimmers is low. For gathering the spilled oil many types of skimmers can be used, however preference should be given to the Rope-Mop rope skimmers which are the most effective in the presence of greasy waste. These oil gathering systems are suitable for deployment on bogs with dense vegetation and peatbogs. During the winter period the oil accumulated under ice can be collected from artificial drilled holes using oleophilic skimmers.

9.5. Monitoring

The monitoring conducted during the OSR emergency operations shall include:

- Air reconnaissance, mainly for detection and control of oil movement in sea waters, and also to define the stability of oil and ice conditions reconnaissance;
- Reconnaissance of the coastal line to define the distribution and stability of oil pollution or efficiency of cleaning methods;
- Monitoring of oil aeration to establish the degree of oil decomposition to predict the stability of oil or behavior of oil residues (for handling oil containing waste); and
- Monitoring of Cetacea behavior (including the grey whale of the western population) and impact of oil and vessels engaged in its cleaning thereon.

The results of monitoring at the stage of spills elimination directly affect the priorities, strategies and methods used in the course of elimination actions. In particular:

- Cleanup operations concentrate on areas with the greatest amount of the spilled oil which allows collecting the maximum amount thereof;
- Protection and cleaning strategies are directed at the most sensitive areas or resources;
- The cleaning strategies seem to be the most effective, which allows to collect the maximum quantity of the oil spilled and to minimize the damage to the environment; and
- Measures are taken to protect the most sensitive areas or kinds of animals (for example, sealing grounds or mass birds nesting areas) both from the spills and from the possible negative consequences of emergency operations.
The type of monitoring and area of coverage during oil spills elimination is defined by the coordinator of emergency works together with the heads of the Sector of planning and Production sector, representative on labor safety, and also government authorities.

9.6. Waste minimization

Measures on waste minimization include:

- Reuse of materials, for example, sorbing agents;
- Measures to prevent oil egress to waste heaps;
- Use of cleaning methods minimizing the amount of resulting waste; and
- Waste treatment at the place of its generation, for example, burning or biological processing.

The combined mix of hydrocarbons (gas-condensate-oil) which will be extracted at the Piltun-Astokhskoye field mostly consists of volatile fractions, that is why the volumes of waste which can be generated in the course of OSR will be insignificant. This will mainly be sand polluted by oil. Most of the condensate will evaporate or will be washed away by surf, or will be removed by means of special methods, such as processing and ground washing.

Gathering of oil from the water surface in the coastal zone and on water areas of the bays will be carried out by skimmers. The oil so gathered will be pumped over to quick-deployed portable tanks installed ashore near to the oil gathering places.

The absorbing materials polluted by oil (booms, napkins, rolled fabric, spread sorbents) will be gathered in plastic geo-bags or placed on isolating cloth. Reusable sorbents will be wrung out to remove the absorbed oil and used again. Disposable absorbing materials will be removed to temporary storage sites.

Any waste generated will be collected and removed from the place of operation to specially allotted sites for storage and subsequent recycling or reuse. In so doing the wastes will be separated according to their kind and structure (oil-containing wastes to be separated from non-polluted ones, and liquid from solid ones).

After all response operations are completed all sites of temporary storage of wastes should be cleaned and restored. The waste control coordinator shall be responsible for the performance of these works according to the requirements of the authorized state structures.

10. Compliance with Russian Legislation and Best International Practice

The Plan for Oil and Oil Product Spill Response for Offshore Facilities of Piltun-Astokhskoye License Area has been developed in accordance with requirements of the Russian legislation with regard to emergency Response, including oil spills. The contents of the Plan takes into consideration a wide range of regulatory requirements and recommendations with respect to contents and structure of oil spill response plans.

The main normative acts in this field are:

- RF Government Regulation "On High Priority Measures for Accidental Oil Spill Response" of 20.08.2000 No. 613;
- Order of Ministry of Natural Resources of Russia "On Approval of Instructions on Determining the Lower Level of Oil or Oil Product Spill for Classifying an Accidental Spill as Emergency" of 3.03.2003 No. 156;
Summary of Oil and Oil Product Spill Response Plan for the Piltun-Astokhskoye Field

2011

- Ordinance of Sakhalin Oblast Administration “On Approval of Requirements for Development of Oil Spill Response Plans in the Territory of Sakhalin Oblast” of 10.11.2005 No. 203-pa;
- Directive of Sakhalin Oblast KChS and Fire Safety Department “On the Procedure of Agreeing and Approval of Oil Spill Response Plans in the Territory of Sakhalin Oblast” of 15.11.2005 No. 73; and
- Russian Federation Government Regulations Nos. 613 and 240, Order of MChS of Russia No. 621, and Ordinance of Sakhalin Oblast Administration No. 203-pa (as revised by Ordinance of Sakhalin Oblast Administration of 16 February 2007 No. 31-pa) establish a number of requirements for such plans.

In accordance with RF Government Regulation of 30.12.03 No. 794, for coordination and organization of measures taken in case of emergencies, including accidental oil spills, industrial enterprises having potentially hazardous facilities should create appropriate bodies for emergency management, and have available own resources for oil spill response.

When developing the Sakhalin Energy’s OSR Plan, taken into account were corresponding recommendations of lender and shareholders, Corporate standards of Shell Corporation, and requirements of international agreements and conventions ratified by the Russian Federation. These obligations are summarized in the Company document 0000-S-90-04-O-0014-16.

The main documents are International Conventions ratified by the Russian Federation:


2. 1992 International Convention on Civil Liability for Oil Pollution Damage i.e. the Civil Liability Convention (1992 CLC)


5. 1973/78 International Convention for the Prevention of Pollution by Ships (MARPOL 73/78)


Shell documents:

1. Guidelines for Shell Companies and Business Units on Preparedness, Response and Compensation for Oil and Chemical Spills (as of June 2003)


The OSR Plan of the Piltun-Astokhskoye Field has obtained all necessary agreements and approvals at the local and federal level in accordance with the below-listed:
• Approved by Russian Federation Ministry of Civil Defense, Emergencies and Natural Disaster Response on 08 June 2007.
• Approved by Russian Federation Ministry of Transport on 20 June 2007.

and enacted by the Company’s internal order.
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>ATMOS PIPE</td>
<td>Pipeline leak detection software</td>
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<tr>
<td>BASU</td>
<td>Basin Emergency Management Department</td>
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<td>BS2</td>
<td>Booster Station 2</td>
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<tr>
<td>CLC</td>
<td>Civil Liability Convention</td>
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<td>CM</td>
<td>Crisis Manager</td>
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<td>CMC</td>
<td>Crisis Management Centre</td>
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<td>CMT</td>
<td>Crisis Management Team</td>
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<td>cSt</td>
<td>Centistokes (viscosity)</td>
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<td>EA</td>
<td>External Affairs</td>
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<tr>
<td>EC</td>
<td>Emergency Coordinator</td>
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<td>ECC</td>
<td>Emergency Coordination Centre</td>
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<td>ECT</td>
<td>Emergency Coordination Team</td>
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<td>Ministry of Civil Defense, Emergency Situations and Liquidation of Consequences of Natural Disasters of Russia (MChS)</td>
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<td>ENL</td>
<td>Exxon Neftegas Ltd</td>
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<td>ESD</td>
<td>Emergency Shut Down</td>
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<td>ESDV</td>
<td>Emergency Shutdown (System) Valve</td>
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<td>Geographic Information System</td>
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<td>Human Resources</td>
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<td>Health, Safety and Environment</td>
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<td>Incident Action Plan</td>
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<td>IBSV</td>
<td>Ice Breaker Supply Vessel</td>
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<td>Incident Command System</td>
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<td>International Maritime Organization</td>
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<td>IPIECA</td>
<td>International Petroleum Industry Environmental Conservation Association</td>
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<td>ITOPF</td>
<td>International Tanker Owners Pollution Federation</td>
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<td>IUCN</td>
<td>International Union for the Conservation of Nature</td>
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<td>KChS</td>
<td>Committee on Prevention and Response to Emergencies and Fire Safety</td>
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<td>LEL</td>
<td>Lower Explosive Limit</td>
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<td>LNG</td>
<td>Liquefied Natural Gas</td>
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<td>LUN-A</td>
<td>Lunskoye-A Platform</td>
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<td>LUN-B</td>
<td>Lunskoye-B Platform (proposed future development)</td>
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<tr>
<td>m3</td>
<td>Cubic meters</td>
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<td>Ministry of Civil Defense, Emergency Situations and Liquidation of Consequences of Natural Disasters of Russia (EMERCOM)</td>
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<td>(Japanese) Maritime Disaster Prevention Centre</td>
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<td>Material Safety Data Sheets</td>
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<td>Multipurpose Support Vessel</td>
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<td>NEBA</td>
<td>Net Environmental Benefit Analysis</td>
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<td>Non-professional Emergency Response Team</td>
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<td>Non Government Organizations</td>
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<td>OET</td>
<td>Oil Export Terminal</td>
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<td>Oil (Onshore) Production Facility</td>
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<td>OSR</td>
<td>Oil Spill Response</td>
</tr>
<tr>
<td>OSRL</td>
<td>Oil Spill Response Limited (Southampton, UK)</td>
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<td>OSRP</td>
<td>Oil Spill Response Plan</td>
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<td>OSRV</td>
<td>Oil Spill Response Vessel</td>
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<td>OWR</td>
<td>Oiled Wildlife Response</td>
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<tr>
<td>PA</td>
<td>Piltun Astokh</td>
</tr>
<tr>
<td>PA-A</td>
<td>Piltun-Astokh Platform A (Molikpaq)</td>
</tr>
<tr>
<td>PA-B</td>
<td>Piltun-Astokh Platform B</td>
</tr>
<tr>
<td>PERT</td>
<td>Professional Emergency Response Team</td>
</tr>
<tr>
<td>PFD</td>
<td>Personal Floatation Device</td>
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<tr>
<td>PPE</td>
<td>Personal Protection Equipment</td>
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<td>PTS</td>
<td>Pipeline Transport System (onshore)</td>
</tr>
<tr>
<td>QRA</td>
<td>Quantitative Risk Assessment</td>
</tr>
<tr>
<td>RDP</td>
<td>Rapid Deployment Pack</td>
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</table>
Summary of Oil and Oil Product Spill Response Plan
for the Piltun-Astokhskoye Field

2011

RF       Russian Federation
RF RDB   Russian Federation Red Book of Endangered Species
Rostechnadzor    Federal Agency on Environmental, Technological and Nuclear Supervision
RSChS  Russian Unified Emergency Prevention, Preparedness and Response System
SC       Site Controller
SCT      Site Control Team
SMNG     SakhMorNefteGaz
SOLAS    International Convention for the Safety of Life at Sea, 1974
SOPEP   Shipboard Oil Pollution and Emergency Plan
STASCO  Shell Transport And Shipping Company
USCG    United States Coast Guard