

Over view of Sakhalin set up and OSR Activities

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Saturday October 27, 2001 -- 3:24 am EST Sakhalin Oil to be Shipped to Japan from '05
~~///~~ TOKYO, Oct 27 2001 (Reuters) - A consortium of Japanese trading firms and U.S. oil giant ExxonMobil Corp (NYSE:[XOM](#)) are set to produce oil in Russia's Sakhalin 1 field and export most of it to Japan from December 2005, Japanese media reported on Saturday.

~~///~~ The companies have assessed that it would be possible to produce 250,000 barrels per day (bpd) in the Chayvo oil field off Sakhalin's northeastern shores and were considering exporting almost all of the oil to Japan, Kyodo news agency said.

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Sakhalin Island, Russia

" The Status of Oil Development & Spill Response "

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~~///~~ Sakhalin Island Orientation

~~///~~ Federal & Regional Response

~~///~~ Sakhalin Island Environment

~~///~~ Ecoshelf Ltd. ? Sakhalin

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Sakhalin Island -- Orientation

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~~///~~ Sakhalin is the largest island in Russia.

~~///~~ It is bounded by the Sea of Okhotsk on the east and the Tatar Straits, an arm of the Sea of Japan on the west.

~~///~~ The population of the island is about 670,000, of whom 180,000 live in the regional center, Yuzhno-Sakhalinsk.

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~~///~~ Sakhalin is situated in the Russian Far East, just north of Hokkaido, Japan. [approx. 30 miles]

~~///~~ Proven reserves of offshore oil are estimated at 1.5 billion bbl

~~Substantial gas reserves are also present~~
~~Production and transportation infrastructure is almost completely lacking~~
~~The Russian Federation lacks money and technology to develop the fields offshore Sakhalin and thus has developed Production Sharing Agreements to attract multi-national consortia~~
Sakhalin Island

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~~Offshore Oil Development Is Just Beginning~~

~~Investment is expected to reach \$20 Billion USD to 10 years~~

Sakhalin Development

~~The first onshore oil was discovered and produced on Sakhalin in 1928. This is now 65% depleted~~

~~Japanese-Russian joint venture discovered the first offshore fields in the 1970s~~

Oil Development by Companies

~~Sakhalin 1 ? Exxon Neftegas Limited~~

~~ExxonMobil ? 30%~~

~~Japan's Sakhalin Oil & Gas Development Co Ltd (SODECO) ? 30% {SODECO owned by Japanese trading houses Itochu Corp , Marubeni Corp and other firms}~~

~~Russian oil firm Rosneft and its affiliate owned the remaining 40 percent. In February 2001 India's ONGC Videsh Ltd purchased 20% from Rosneft ONGC~~

~~Sakhalin II ? Sakhalin Energy Investment Co.~~

~~Shell 55 per cent, Mitsui & Co. Ltd. (Mitsui Sakhalin Holdings B.V.) 25 per cent and Mitsubishi Corp. (Diamond Gas Sakhalin B.V.) 20 per cent~~

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Russian Federation & Regional Oil Spill Planning

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~~Russian Federation Plan~~

~~Ocean “ Basin ” Approach~~

~~Oil Spill Recovery a “ Key ” Responsibility~~

~~Plans Formed in mid -1980 ' s~~

~~\$60 M of Equipment & Vessels Purchased~~

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~~Ecosheif - Sakhalin works within the Russian National Emergency System~~

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~~Emergency Planning Based Upon “ Regional Approach ”~~

~~Each Region has an Emergency Committee~~

~~The Regional Emergency Committee has Responsibility for Oil Spill Response~~

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~~Regional Emergency System~~

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~~Federal & Regional Planning Recognizes the use of a “ Tiered “ Response Approach
Response Level Concept~~

Tier I ? Response Resources maintained by Companies on Sakhalin Island

Tier II ? Response Resources additionally from Other Sources in Russia

Tier III ? Response Resources from international sources (OSRL/EARL)

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~~Ecoshelf Ltd. ? Sakhalin is key part of the Sakhalin Regional Response~~

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Sakhalin Island Environment

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Sakhalin Island =

“ Harsh ”

Meteorological Conditions - Precipitation

~~Average Annual Precipitation: 60cm~~

~~Greatest Precipitation Occurs in October~~

~~Greatest: 6.4 cm in 12 hour period and 3 cm in 1 hour.~~

~~Fog ? 80 days per year.~~

~~Ice in winter.~~

Tides

~~Tides almost entirely diurnal (1 high tide and 1 low tide per day)~~

~~Some variation (semi-diurnal)~~

~~Normal~~ Normal Height 1-2m, occasional 3-4m

~~Influence~~ Influence on offshore currents

~~Extreme Tidal Currents~~ Extreme Tidal Currents in Coastal Bay Entrances

Water Currents

Regional

~~Offshore~~ Offshore: 0.5-1.2 knots to the south. Currents may split, meander, and may form vortexes.
With high winds in summer, current reversals are possible.

~~Coastal Bay Entrances~~ Coastal Bay Entrances: 1-4 knots tidal currents.

Water Currents - Local

~~Offshore/Molikpaq~~ Offshore/Molikpaq ?

~~Coastal~~ Coastal ? Wind/wave driven long-shore currents

~~Coastal Bay Entrance~~ Coastal Bay Entrance ? 1-4 knots, sometimes very localized and complex, mostly tidal driven.

~~Coastal Bays~~ Coastal Bays ? variable, 1-3 knots, influenced by (1) tides, (2) River Discharge, (3) Bathymetric Features and (4) Winds.

Wave Height

~~Summer Normal~~ Summer Normal: 1-3 m wave height

~~October-December~~ October-December: 2-4m wave height

~~Storm~~ Storm: 4-8 m wave height

~~Typhoon/Cyclone Sea~~ Typhoon/Cyclone Sea: 10-11m wave height

~~Exposed shoreline~~ Exposed shoreline ? surf, 2-4m

~~Coastal Bay Entrance~~ Coastal Bay Entrance - breaking wave zone, depending on weather, always present.

Sea Ice & Open Water Periods

Coastal/Nearshore Ice

~~Rivers Begin Freezing~~ Rivers Begin Freezing in October. Tym River typically +90% Ice Coverage by Late October.

~~Ice formation in Coastal Bays~~ Ice formation in Coastal Bays Starts in Late October. Typically +90% Ice Coverage by Mid-November. Entrances contain broken ice during flood tides, clears with ebb tide.

~~Late April/Early May~~ Late April/Early May ? Bays and Rivers Break-up (approximately at the same time).

Environmental Sensitivities ? Why?

~~Rich Diversity~~ Rich Diversity ? Birds, Mammals, Fish, Whales, and Breeding/Nesting Habitat

~~Concentrations~~ Concentrations ? 2 Million Seabirds Migrate through Area. Tens of Thousands to Hundreds of Thousands of Seals.

~~Sensitivity~~ Sensitivity ? Seabirds on Water, Seals on Haul outs, Pups on Ice in Winter

~~Rareness~~ Rareness ? Red Book Species (Many)

Environmental Sensitivities - Birds

~~51 Species of Seabirds~~ 51 Species of Seabirds ? 2 million migrate through area in the spring & fall. Common Murre most common.

~~40 Red Book species~~ 40 Red Book species.

~~Shoreline~~ Shoreline ? Seabirds, Waders, and Eagles.

~~Coastal Bays~~ Coastal Bays ? Seabirds, Waders, Shorebirds, and Eagles.

Environmental Sensitivities - Fish

~~del~~ Pollack, Herring, Sturgeon, Smelt, Salmon, Navaga, Flounder, Sculpin.

~~del~~ Herring Spawning in Bays. Juvenile fish of many species rear in the Bays.

~~del~~ Salmon? migrate through the Bays, Spawn in Rivers. Main concentrations in mid to late summer.

~~del~~ Commercial Fishing? Primarily Piltun, Chayvo, and Nyyski Bays,

Environmental Sensitivities - Pinnipeds

~~del~~ True Seals - Ringed, Bearded, Ribbon, and Spotted Seals

~~del~~ Eared Seals - Steller's Sea Lion and Northern Fur Seals

~~del~~ Migrate north and south direction through project area

~~del~~ Ringed Seals pup on shore-fast ice within 30 km of shoreline beginning April.

~~del~~ Haul outs on Shoreline, large concentrations of Spotted Seals at coastal bay entrances

~~del~~ Tyuleniy Island? Extremely Large Pinniped Colonies

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~~del~~ Barrier Shorelines [Beaches]

~~del~~ Extensive Salt Water Bay & Marshes

~~del~~ Narrow Bay Entrances

Shorelines

~~del~~ Outer Shoreline, Project Area? gentle sloping, high-energy sandy intertidal beaches, small amount of pebbles. Back-beach areas both low grass meadows and some steep eroded bluffs.

~~del~~ Outer Shoreline, South of Project? also has boulder/cobble and rock outcrops.

~~del~~ Coastal Lagoons? mostly low energy sand and marsh.

~~del~~ Small peat shoreline areas observed.

Barrier Beaches

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~~del~~ Shoreline Ranking? Sandy Beaches are a low priority which are fairly easily cleaned -- NOAA system

~~del~~ Response plan is to protect the sensitive Bays at their entrances

Coastal Bays?

MOST SENSITIVE ZONES

~~del~~ Remote, most difficult to get to. Road access extremely limited and primitive. No support.

~~del~~ Very Shallow

~~del~~ Narrow, highly dynamic entrances. 1-4 knot tidal currents, breaking waves at entrances.

~~del~~ Entrances have high concentration of fish, seals and birds.

~~del~~ Interior areas have expansive sea grass beds.

- ☞ Interior has expansive marshy, low energy shorelines.
- ☞ Bird and fish habitat, commercial fishing, fishing camps.
- ☞ World-class northern estuary systems.

Coastal Bays

- ☞ Piltun Bay? Slightly north of Molikpaq Latitude. Remote, difficult access. Impact would depend on current direction. Current mostly to south. When current is to north, impact could be within 20 hours.
- ☞ Chayvo Bay? Slightly South of Molikpaq Latitude? Most likely to be impacted. Potential impact within 24-36 hours.
- ☞ Nyyski Bay (2 Entrances, plus storm overflows). Potential impact within 36-48 hours.
- ☞ Nabil Bay? One entrance, fair access. Personnel transfer vessel dock. Potential impact within 48-72 hours.
- ☞ Lunskyi Bay? One entrance, narrow. Potential impact within 72-96 hours.

内 湾

- ☞ ピルトン湾 - モリクパックの少し北に位置する。遠隔地のためアクセスが困難。海流の方向により影響が異なる。海流はほとんどの場合、南向き。北向きの場合20時間以内に影響を受ける可能性がある。
- ☞ チャイウォ湾 - モリクパックの少し南に位置する - 最も影響を受けやすい地域。24～36時間以内に影響を受ける可能性がある。
- ☞ ニースキー湾（湾口2カ所、嵐により氾濫の恐れあり）36～48時間以内に影響を受ける可能性がある。
- ☞ ナビル湾 - 湾口1カ所、アクセス条件は良好。要員輸送船用の埠頭がある。48～72時間以内に影響を受ける可能性がある。
- ☞ ルンスキー湾 - 湾口1カ所、狭い。72～96時間以内に影響を受ける可能性がある。

Sensitive Bay Environments

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☞ 1st Ecoshelf Contracts Written in 1997

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☞ Ecoshelf Capable of Immediate Tier 1 & Rapid Tier 2 Response

☞ Off-Shore - Open Ocean

☞ Near-Shore & Shoreline

☞ On-Shore

OSRV

Offshore Spill Response Vessel (OSRV)

☞ Neftegas Class Vessel ? 80m long x 16.3m breadth

Norwegian Oil Trawl System

OSRV J Configuration with Sweep

RoSweep & Desmi 250

Desmi, Sweep Boom & Arm

OSRV Single/Double Sweep Configurations

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SEIC and ENL Equipment

Mechanical Response

~~2~~ “ Kvichak ” Aluminum Work Vessels ? 8.5m, Radar, Twin 150 HP Outboard Engine, Comms

SEIC and ENL Equipment

Mechanical Response

~~Over~~ 3600 meters of Bay Protection Containment Boom

~~Anchor~~ Systems, Line, Buoys, Shackles

~~6~~ Small Bay Skimmers

~~2~~ Small Oleophilic Skimmers

~~Over~~ 2500 meters of Oleophilic Boom

~~Over~~ 34 Portable Storage Tanks (7.5m³), Pumps, Hoses

~~Maintenance~~ and Repair Tools, Spare Parts, Safety Gear, Lubs, etc.

~~Trucks~~, Trailers, Lift Harnesses, Fuel Tanks

~~Communications~~ ? Fixed Base Station, Vessels, Portable, and Repeaters

Coastal Bay Protection Systems

~~Original~~ Coastal Bay Resources for Protection of 1 Bay Entrance.

~~Expansion~~ for 1.5 Entrances with Purchase of Additional Boom. Possibly 2 entrances with favorable weather and logistics conditions. Determined based on duration time for oil to impact bays and time duration for transportation of Tier II/III Equipment.

~~Full~~ Protection is Not Feasible? Tidal currents and Width of Entrances prevent full boom protection of the Coastal Bays

Coastal Bay Protection

~~OSR~~ Bay Protection Equipment owned by both SEIC/ENL - Sharing Agreement

~~Stored~~ and Maintained at SEIC Nogliki Base

~~Inventory~~ in OSR Plan and Updated Annually

~~Strategies~~ developed and refined since 1997

~~Training~~ and Deployment Exercises Every Year

~~Continual~~ Logistics and Operational Review and Improvement

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~~Small~~ Growth of Organization

~~Small~~ organization in 1997

~~Several~~ hundred personnel during the active season in 2001

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Ecoshef Tier 1 Support Provides

~~Home~~ Office - Yuzhno-Sakhalinsk

~~Support~~ Base - Korsakov

~~Support~~ Base & Office - Nogliki

~~Support~~ Base - Vladivostok

~~Support~~ Base ? Nahodka

~~Support~~ Base ? Dekastri

Equipment Staging

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Nearshore / Onshore Equipment

Kvichaks

Kvichak Deploying Boom

Rope Mops & Spate Pumps

Lowe Skiffs Deploy Boom

Airboats

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~~Tier~~ 2 Support Provides Access to Ecoshef-Sakhalin Founders

~~Sakhalin~~ Basin Salvage Authority - SakhBASU

~~World~~ Environmental Service Technologies - WEST LLC.

~~State~~ Marine Pollution Control, Salvage & Rescue Admin. - SMPCSRA - Moscow

~~Far~~ East Salvage Authority - DVBASU

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~~Extensive~~ Open Ocean Equipment

~~Transrec~~ 250 ' s - 250 Tons/hour each

~~Desmi~~ 250 ' s - 80 Tons/hour each

~~Walosep~~ 2 ' s - 60 Tons/hour each

~~Value in excess of \$2 million USD~~

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~~Access to Additional Equipment~~

~~Extensive Open Ocean Equipment~~

~~Kofi Trawl PL-1000~~

~~Ocean Boom - 800 meters~~

~~Framo Lightering System~~

~~Value in excess of \$1 million USD~~

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~~Sakhalin Basin Salvage Authority - SakhBASU~~

~~Provides Additional Expert Personnel~~

~~Access to Additional Equipment~~

~~Access to Additional Vessels~~

~~Facilities - Korsakov & Nogliki~~

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~~World Environmental Service Technologies - WEST LLC.~~

~~International Experience~~

~~Arctic / sub-Arctic spill experience~~

~~Large Spill Experience - Open Ocean & Land~~

~~Extensive Co-op Experience~~

~~Access to World Resources~~

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~~Far East Salvage Authority - DV BASU~~

~~Provides Additional Expert Personnel~~

~~Access to Additional Equipment~~

~~Access to Additional Vessels~~

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~~Ecoshelf Tier 3 Capable~~

~~Russian Federation Equipment~~

~~Komi Response Equipment~~

~~Other Russian Federation Equipment~~

~~OSRL / EARL~~

~~Japan~~

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~~2~~ State Marine Pollution Control, Salvage & Rescue Administration - SMPSRA

~~4~~ Provides Russian Federation Support

~~1~~ Access to State Personnel

~~1~~ Access to State Equipment

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~~1~~ Reserve Equipment

~~1~~ Off-Shore - Open Ocean

~~2~~ Specialized OSRV ' s - Neftegas Class

~~1~~ Kalar & Irbis

~~4~~ Salvage Tugs

~~0~~ Other Specialized vessels

~~1~~ Mizar - Fast Boom Layer

~~3~~ SPA-004 - Landing & Shimming Barge

~~1~~ Trias - Seismic & Skimming Vessel

OSR Equipment

Non-Mechanical

Nogliki Dispersant & Spray Arm

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~~1~~ On-Shore - Nogliki

~~4~~ man " key person " core group

~~7~~ man response team

~~1~~ Ecoshelf/SakhBASU Support Base - Nogliki

~~1~~ River Tug

~~1~~ Dispersant Systems

~~1~~ Motorized Land Equipment

Field Personnel ? Nogliki & OSRV

Crew Meeting

Management Personnel