



# Oil Spill Response

October 2006

## OSR Plan Components

- Analysis and characterisation of oil
- Equipment specification research and analysis
- Oil in Ice studies and review
- Field survey of island road & bridge infrastructure
- Field survey of shoreline & river accessibility and physical characterisation
- Analysis of spill scenarios
- Trajectory Modelling development
- Development of asset specific Oil Spill Response Plans
- Development of OSR GIS-based information for response and planning
- Development of Response Guidelines and Handbooks



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## Summary of Operation Phase OSRPs

OPS OSRP	Drafting Complete	Expertisa		Local		Regional		Federal	
		Submission	Positive Conclusion	Submission	Approved	Submission	Approved	Submission	Approved
Lun A	100%	6-Jun-06	17-Jul-06	15-Sep-06	As of 26 Oct. Three of 6 agencies have commented.	Immediately following local approvals		Immediately following regional approvals	
Piltun-Astokh	100%	29-Sep-06		30-Nov-06		Immediately following local approvals		Immediately following regional approvals	
Prigorodnoye Port (Aniva Bay Offshore)	100%	16-Oct-06		30-Nov-06		Immediately following local approvals		Immediately following regional approvals	
Prigorodnoye (onshore)	60%			1-Feb-07					
OPF	100%				Apr-06		May-06		
Onshore Pipelines	65%	30-Nov-06		15-Jan-07		Immediately following local approvals		Immediately following regional approvals	
BS2	BS2 covered by onshore pipelines.								



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## General Approach

- Strategies and methods in OSRPs are based on existing and proven techniques.
- Strategies and equipment selected represent world's best practice and best available technology.
- SEIC OSR continues to assess new technology with a view to acquiring this and incorporating it into OSRPs.
- This an ongoing process and an ongoing commitment.



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## Ice-Breaking Standby Vessels



Pacific Endeavour



Smit Vessel



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## Oil Spill Response Equipment

Current equipment stock includes:

- Nogliki Phase 1 Equipment stock
- 6 OSR Kamaz/Urals Mobile Response Units
- 10 OSR Rapid Response Trailers
- 2 Port Packs



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## Equipment in Mobile Response Units and Rapid Response Trailers Value Approx.: USD 1 M

- Booms : 720metres
- Sorbent pads, mats, booms and loose sorbent
- Skimmers – 6 each
- Shovels and rakes
- Temporary storage
- PPE and other
- Inflatable boats



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## Equipment in Port Packs Value Approx.: USD 0.8 M

- Brush skimmer - 100 cu m/hr
- Rope mope skimmer - 30 cu m/hr
- Weir skimmer - 100 cu m/hr
- Sorbent booms
- Sorbent pads and loose sorbent
- PPE
- Summer and winter coveralls
- Temporary storage
- Fence Boom – 400 m x 2
- Ocean Boom – 300 m x 2
- Power packs



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## Oil Spill Response Equipment

- Total future equipment purchase will be approx. USD10 Million
- Much of this is now ordered and in manufacture



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## Equipment in Vessel-based kits Value Approx.: USD 0.8 M

- Single side sweep system 50 m boom – 1 each
- Single side sweep system 25 m boom – 1 each
- Ocean boom system 1500mm x 200 m x 2each
- Set of absorbent booms – 1 each
- Ocean brush skimmer 40 m<sup>3</sup>/hour
- Weir skimmer 100 m<sup>3</sup>/hour
- Arctic brush skimmer 100 m<sup>3</sup>/hour
- Lightweight weir skimmer – 1 each
- Submersible pumps – 2 each
- Deck spill kits
- Pressure washer – 1 each



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## Equipment for delivery in Q2 2007

- Booms (ocean and river class) – over 10 000 m
- Sorbent booms – over 10 500 m
- Snare booms – over 8300 metres
- Skimmers – over 30
- Temporary storage – over 700 cubic metres
- Wildlife response – Hazing, Capture, and Stabilisation Kits
- PPE
- Aluminum boats
- Power packs
- Pumps
- Etc.



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## OSR in Broken Ice: Containment & Recovery 1

Methods are essentially the same as with open sea (non ice season ) response except that the use of booms is restricted (dependent on ice coverage).

- At higher ice covers, ice contains the oil allowing skimmers (rope mop systems, weir skimmers and disc systems) to recover the oil.
- These will be obtained and deployed on board the standby vessels. Final decision on manufacturer and design will depend on current assessments.



Foxtail  
(Rope Mop System)



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## OSR in Broken Ice : Containment & Recovery 2



Disc Skimmer



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## OSR in Broken Ice : Containment & Recovery 3



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Brush Skimmer

## OSR Oil in Broken Ice : In Situ Burning

- In situ burning is also an effective method.
- SEIC crude (Vityaz) is light, volatile with low asphaltenes. It will burn and is unlikely to result in a significant residue.
- Analysis is currently underway to determine the safe window for burning and the nature and fates of residues (NEBA/ EIA).



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## OSR Resource Maps



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## OSR Training

- Training conducted to date includes:
  - Inland spills
  - Senior Management
  - OSR Clearance
  - Shoreline Response
  - Shoreline Assessment
  - Wildlife Response
  - Equipment Operators

OSR Training guidelines for Operations is in final edit and review.



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## Key OSR Documents - 2006

- Background Paper: Review of Russian OSR Equipment Manufacturers Standards of Design, Construction and Fitness for SEIC Operations - 0000-S-90-04-T-8169-00
- Background Paper: Volume IV Mapping of Ice Conditions During Winter Based On Satellite Information and Ice Pilot Reports For Sakhalin II Project - 0000-S-90-04-T-8167-00
- In-Ice Algae Study Programme Phase I & 2 Reports - 0000-S-90-04-P-7079-00-E & 0000-S-90-04-P-7079-01
- Sakhalin Island Coastal Resource Maps (Versions: Spring, Summer, Autumn, Winter) 0000-S-90-04-T-8075-01-D, 0000-S-90-04-T-8075-02-D, 0000-S-90-04-T-8075-03-D, 0000-S-90-04-T-8075-04-D
- SEIC Pipeline Resource Maps (Versions: Spring, Summer, Autumn, Winter) - 0000-S-90-04-T-8168-01-D, 0000-S-90-04-T-8168-02-D, 0000-S-90-04-T-8168-03-D, 0000-S-90-04-T-8168-04-D
- Operations Oil Spill Response Plans:
  - Corporate - 0000-S-90-04-P-0076-00
  - Lunskoye A - 4000-S-90-04-P-0001-00
  - Piltun - 3000-S-90-04-P-0001-00
  - Prigorodnoye Port - 5510-S-90-04-P-0001-00
  - Onshore Pipeline – 5600-S-90-04-P-0001-00
  - Onshore Prigorodnoye Asset – 5500-S-90-04-P-0001-00



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## Exercises - 2006

### External

- Ministry of Transport Exercise – Aniva Bay, 11 May
- Ministry of Emergency Situations Exercise – Korsakov, 22-23 August

### Internal

- Tabletop Exercise – Emergency Coordination Team, Crisis Management Team, Remote Site Command Team (SEIC and Contractor) – 31 August & 1 September
- Annual OSR Deployment Exercise – Nogliki, 9-13 September



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## Spill Statistics - 2006

- Construction onshore – 297.35 liters
- Operations Offshore (Molikpaq) – 0.057 liters



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## Ongoing Work 1

SEIC is a willing participant in these efforts and also has its own research programme. This includes:

- Laboratory study of the behaviour, weathering and fate of SEIC crude oils under varying energies and sea temperatures.
- Laboratory study of effectiveness of burning of SEIC crude and chemical constituency of residues from various burn efficiencies.
- Laboratory investigation of dispersant efficiencies in ice conditions and open sea at various temperatures.
- Development of Safety Procedures for Working in Ice: Health & Safety Operational Handbook, which will include ice issues.
- Ongoing review and assessment of equipment and surveillance technology.
- Ongoing surveys of shorelines, pipeline routes and rivers to obtain environmental and OSR data.



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## Ongoing Work 2

Joint studies include:

- Further studies of the effectiveness of dispersants in waters with broken ice.
- Study into the use of herding agents.
- Laboratory study of the effectiveness of time and low temperatures on the effectiveness of dispersants.
- SINTEF Phase I – A pre-project review of literature on the behaviour of oil in ice environments and the effectiveness of treatment and recovery methods.
- SINTEF Phase II – This project will be a comprehensive program that studies the treatment and recovery methods that are prioritized from Phase I for different types of oil and ice conditions.
- Controlled spill in Svaldvard, Norway during April 2006 to verify successful lab testing of Ground Penetrating Radar for detection and monitoring of a spill in ice.



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## Ongoing Work 3

- SEIC is an active participant in the development of regional OSR capabilities and has indeed taken the lead in a number of initiatives:
- SEIC brokered a Memorandum of Understanding between oil companies on Sakhalin (both Foreign and Russian) to cooperate in OSR planning and mutual assistance during emergencies. This was the first agreement of its type in the RF.
- SEIC was the first Company to sign the Sakhalin Oblast Governor's MoU to assist in the development of a Tier 2 Oil Spill Response organization on Sakhalin Island.
- SEIC participates in the Sakhalin Oblast Governor's Working Group responsible for the development of the Tier 2 OSR Centres and has authored and provided key documents to the Group.



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