Intended for
Sakhalin Energy Investment Company Limited

On behalf of
Sakhalin-2 Phase 2 Project Finance Parties

Date
July 2016

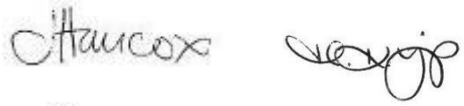
Project Number
UK22-17081

SAKHALIN-2 PHASE 2 LENDERS' INDEPENDENT ENVIRONMENTAL CONSULTANT MONITORING REPORT JUNE 2016

RAMBOLL ENVIRON

SAKHALIN-2 PHASE 2 LENDERS' INDEPENDENT ENVIRONMENTAL CONSULTANT MONITORING REPORT JUNE 2016

Project No.	**UK22-17081**
Issue No.	**05**
Date	**21/02/2017**
Made by	**Jon Hancox, Adam Fitchet, Frank Marcinkowski, Helen Yip**
Checked by	**Jon Hancox**
Approved by	**Jon Hancox**

Made by: 

Checked/Approved by: 

Version Control Log

Revision	Date	Made by	Checked by	Approved by	Description
01	21/07/2016	JH, AF, FM, HY	JH	JH	Issue to Sakhalin Energy for factual accuracy review
02	7/10/2016	DC, JH	JH	JH	Issue to Lenders
03	11/10/2016	JH	JH	JH	Final Issue to Lenders
04	18/10/2016	JH	JH	JH	Final Issue for Disclosure
05	21/02/2017	DC, JH	JH	JH	Final Issue for Disclosure (revised)

Ramboll Environ
Canada House
3 Chepstow Street
Manchester
M1 5FW
United Kingdom
T +44 161 242 7870
www.ramboll-environ.com

CONTENTS

APPENDICES

Appendix 3

Sakhalin Energy Oil Spill Exercise Report

LIST OF ABBREVIATIONS

AGR	Acid gas removal
BAP	Biodiversity action plan
BAT	Best Available Technology
BIC	Business Integrity Committee
BS-1	Booster Station 1
BS-2	Booster Station 2
BVS	Block valve station
CAP	Community Awareness Programme
CLO	Community Liaison Organisation
CO_2	Carbon dioxide
CTA	Common Terms Agreement
DECP	Drainage and Erosion Control Plan
DMU	Discrete management unit
EPC	Engineering, procurement and design
ESHIA	Environmental, Social and Health Impact Assessment
FEED	Front-End Engineering and Design
GHG	Greenhouse gas
GRI	Global Reporting Initiative
GRORO	Russian register of approved waste facilities
GWP	Global warming potential
HSE	Health, Safety and Environment
HSESAP	Health, Safety, Environmental and Social Action Plan
IEC	Independent Environmental Consultant
IFC PS	International Finance Corporation Performance Standard
IFC EHS	International Finance Corporation Environmental, Health and Safety
IP	Indigenous Peoples
KP	Kilometre Point (along public highway or pipeline Right of Way)
KPA	Korsakov Permanent Accommodation
LNG	Liquefied Natural Gas
LUN-A	Lunskoye A Production Platform
MPC	Maximum permissible concentrations
NEBA	Net Environmental Benefit Analysis
NOx	Oxides of nitrogen
NTF	Noise Task Force
OBM	Oil based mud
ODS	Ozone Depleting Substance
OET	Oil Export Terminal
OFI	Opportunity for Improvement
OPEX	Operational expenditure
OPF	Onshore Processing Facility
OPFC	OPF Compression (Project)
OSR	Oil Spill Response
OSRP	Oil Spill Response Plan
PA	Piltun Astokhskoye
PA-A	Piltun Ashtokskoye A (production platform)
PA-B	Piltun Ashtokskoye B (production platform)
PAO	Permanent Accommodation and Offices
PCCI	PCCI, Inc., lenders' oil spill consultants
PMD	Pipeline Maintenance Depot
PTS	Pipeline Transportation System
QRA	Quantitative Risk Assessment
RAM	Risk Assessment Matrix

Ramboll Environ	Ramboll Environ UK Ltd
RE	Ramboll Environ UK Ltd
RF	Russian Federation
RoW	Right of Way
RPN	RosPrirodNadzor
RSP	Road safety plan
RTN	RosTekhNadzor
RUR	Russian Rubles
Sakhalin Energy	Sakhalin Energy Investment Company Ltd
SEP	Stakeholder engagement plan
SI	Social Investment
SIMDP 3	Third Sakhalin Indigenous Minorities Development Plan
SP	Social Performance
SPZ	Sanitary Protection Zone
STP	Sewage Treatment Plant
WCCP	Well Control Contingency Plan
WGW	Western Gray Whale
WGWAP	Western Gray Whale Advisory Panel
WMP	Waste management plan
YTD	Year-to-date

EXECUTIVE SUMMARY

Ramboll Environ UK Limited (Ramboll Environ) is the Independent Environmental Consultant (IEC) acting on behalf of the Senior Lenders to the Sakhalin-2 Phase 2 project (the 'Project'). Under the Terms of Reference of our engagement, Ramboll Environ undertakes:

- Biennial 'Level 1' audits of selected Project facilities.
- Annual Project monitoring visits that cover a range of project activities, assets, programmes and plans.

An annual Project monitoring site visit was conducted from 11th to 17th June 2016 and focused on the following aspects (the full Terms of Reference and schedule are presented in Appendix 1):

- Environmental monitoring
  - Pipeline right of way (RoW)
  - Onshore Processing Facility (OPF) Compression Project
- Oil Spill Response:
  - Witness of an oil spill response exercise
  - Review of oil spill response plans and equipment
- Social performance monitoring
  - Social Performance overview
  - Stakeholder Engagement, including engagement with Japanese stakeholders and the '*Stroitel*' Dacha Cooperative
  - Community Grievance Procedure
  - Implementation of the third Sakhalin Indigenous Minorities Development Plan (SIMDP 3)
  - Social investment (SI) programme.
- Other project updates, including:
  - Waste management
  - New projects and project expansions
  - Environmental Performance
  - Sewage treatment
  - Environmental monitoring strategies
  - Western Gray Whales
  - Biodiversity Action Plan.

This report presents the findings of the site visit, and in addition provides:

- Opportunities for Improvement (Section 8). A number of opportunities for improvement (OFIs) have been identified following the site visit that do not relate to specific areas of non-compliance (and hence are not included in the Findings Log – see below), but which are made for the benefit of either Sakhalin Energy and/or lenders to either improve performance or, in some cases, avoid future areas of non-compliance.
- A summary of new Findings from the site visit (Section 9). An updated Findings Log (a live log of all Findings identified from IEC site visits and reviews of Project documentation) will be issued separately in due course.
- Follow-Up Items (Section 11), which are neither Findings nor Opportunities for Improvement, but a list of topics or issues that Ramboll Environ intends to follow up on, either as part of future audits or monitoring visits or by requesting further information from the Company (as and when available).

Overall we conclude that Sakhalin Energy continues to achieve a high-level of compliance to Lender standards and the Company's health, safety, environmental and social action plan (HSESAP) across the range of its facilities and activities. This is achieved through strong leadership within the health, safety and environment (HSE) Department supported by a dedicated team of HSE and Social Performance professionals. While a number of issues have been identified that are described in this report, these are generally opportunities for improvement and of minor significance, although a small number of Findings of greater significance were identified. Good progress was also noted on most previously identified issues.

A brief summary of project status and performance is provided below on a topic-by-topic basis. For each topic we highlight below all significant compliance issues as "***Findings***".

Pipeline Right of Way Site Visit

Overall, the condition of the RoW was found to be very good, and although some opportunities for improvement were identified at specific locations no major compliance issues (Findings) were identified.

The RoW is generally well vegetated for its length and where this is not the case, measures are in place to encourage vegetation growth or prevent the factors, such as erosion, which are preventing that regrowth. Wetland vegetation regrowth is continuing as the key plant species re-inhabit the RoW. Where additional measures have been suggested to encourage that regrowth, Sakhalin Energy have taken the necessary steps and are continuing to monitor the areas.

Many of the river systems crossed by the pipeline RoW are very dynamic and we find that Sakhalin Energy continues to proactively maintain and repair river crossings that have been damaged by these natural processes.

Management of tree growth on the RoW will continue to be a challenge for Sakhalin Energy. Although the maintain programmes now in place mean that this issue is now closed from the Findings Log, it remains an ongoing monitoring item but one that the company is entirely aware of and now has a good approach to addressing.

It was also notable that in a number of locations, actions by third parties close to the RoW or upstream of RoW river crossings have resulted in actual or potential effects on the RoW. The response to these actions from Sakhalin Energy has been appropriate and the company will need to remain vigilant to the risk posed by such actions.

OPF Compression Project Monitoring

As part of the monitoring visit, Ramboll Environ conducted a visit to the Onshore Processing Facility (OPF) located in the central, eastern side of Sakhalin Island. The visit focused on the elements associated with the OPF Compression (OPFC) Project and included a walkover inspection of the temporary accommodation area and refurbished facilities, laydown areas and the OPFC Project footprint. The visit also involved discussions with the key staff involved in the design and construction of the project as well as ecological specialists undertaking lichen studies and translocation.

Impact Assessment and Management Plans

An environmental, social and health impact assessment (ESHIA) has been developed by Sakhalin Energy and has been iteratively reviewed by Ramboll Environ. As previously reported to lenders, Ramboll Environ has recommended that the ESHIA should be considered complete, but that there remain a number of gaps and outstanding actions, particularly with the requirements of IFC PS6.

We have recommended that these be addressed as part of the work already being undertaken by the Company to develop a project-wide BAP.

In addition to a number of specific management plans, an overall HSE Management Plan for OPFC will be developed encompassing all of the key points from the various management plans. This will be ready in July 2016 and available for review.

- ***Finding***: Under the Common Terms Agreement (CTA)/HSESAP the HSE Management Plans for the OPFC Project will need to be reviewed by Ramboll Environ and formally agreed by lenders. We recommend that all these plans are provided as soon as possible (noting some were provided during the site visit), and as a minimum sufficiently prior to commencement of main construction activities to allow for review by Ramboll Environ, update as necessary by Sakhalin Energy, and approval by lenders.

Temporary Accommodation and Camp Construction

At the time of the monitoring visit, Sakhalin Energy was still in the process of refurbishing a section of the 'fly camp' – existing worker accommodation facilities in the north of the site (previously established for the OPF construction) for use by construction workers associated with the OPF Compression Project. Refurbishment undertaken to date is of a good standard.

Drainage channels around the accommodation camp area have been cleaned up and enhanced since our previous monitoring visit in October 2015, with new culverts constructed under roadways and dense tree regrowth removed to allow a clearer flow.

Soil storage and laydown area appeared clean, tidy and well segregated with no apparent sources of pollution present with potential to enter drainage systems or watercourses. The depth of peat storage areas was discussed during the monitoring visit as Sakhalin Energy would like to store it at depths of up to 4m to reduce the footprint of the storage area although this will need further review to confirm the acceptability.

Lichen Translocation

The specialists working on the lichen translocation (from a small retained woodland within OPFC area) were present at the OPF at the time of the visit and translocation works are due to commence soon and be completed by the end of July 2016. Inspection of the retained woodland revealed that there has been considerable fall of trees since the previous inspection by Ramboll Environ in 2014). This has had the effect of opening up the woodland in some areas, and almost certainly starting to change the light and humidity conditions required by the lichen. A number of the fallen trees had very significant lichen growth, including some small branches with marked protected lichens. This emphasises the merit of translocation, which should be progressed this summer before further storms this winter potentially cause further damage.

Oil Spill Response

Ramboll Environ's annual monitoring visit was this year scheduled to take place concurrently with the Company's annual major oil spill response exercise, allowing the IEC to participate in both events as part of the same visit. A representative from PCCI, Inc. (PCCI), the lenders' oil spill response consultants, held a number of meetings with Sakhalin Energy's senior oil spill response (OSR) managers do discuss:

- The status of prior, unresolved issues and comments related to Sakhalin Energy's OSR programme, including new developments and initiatives in OSR readiness;
- OSR training and exercise frequency;
- The status of Company OSR documentation, including oil spill response plans (OSRPs) and plan summaries;

- The condition and readiness of the oil spill and wildlife response equipment pre-positioned at Sakhalin Energy's Prigorodnoye facilities. [*Note this last item consisted of a visual and records review only; none of the equipment was deployed or observed in operation*.]

PCCI also evaluated Sakhalin Energy's annual major oil spill exercise, held from 15 – 16 June, as an independent observer. This was a complex exercise involving deployment of some offshore and shoreline equipment; this event was primarily intended to examine Sakhalin Energy's ability to access additional response equipment from partners, other Sakhalin oil companies, Sakhalin Government and the international oil response industry. PCCI's oil spill exercise evaluation is included as Appendix 3 to this IEC monitoring visit report.

Good progress and resolution of most open action items was observed by PCCI in relation to the Company's oil spill response readiness.

- ***Finding***: Only one major action item (OSR.05) remains open: the development of worst-case discharge oil spill scenarios for Sakhalin Energy's onshore facilities. For this one item, Sakhalin Energy has stressed that it is in complete compliance with Russian government standards and has requested clarification from PCCI as to exactly what constitutes international best practice and what is required from Lenders that will also be acceptable to Russian local and Federal environmental regulators.

Oil Spill Response Readiness

Sakhalin Energy continues to operate an equipment maintenance and repair programme that meets international best practice. OSR equipment operator knowledge and training also appears to meet international best practice standards. OSR Program Managers highlighted the Company's plans to procure four new ice class vessels for support and standby operations in and around the offshore production platforms, which will represent a significant enhancement in Sakhalin Energy's OSR capabilities for the near-shore and offshore zones.

Sakhalin Energy has made substantial progress in its planning and approval process for the use of dispersants and in-situ burning at sea. Through ongoing work with Russian regulators at both the Federal level in St. Petersburg and at the local level within the Sakhalin Oblast, and using the Net Environmental Benefit Analysis (NEBA) approach, Sakhalin Energy has developed plans and received the requisite pre-approvals for the use of dispersants in certain areas when the conditions are right.

PCCI has previously questioned Sakhalin Energy's ability to temporarily handle and store the large volumes of recovered oil and contaminated water that would result from a large spill event. Sakhalin Energy's intention to dedicate a shuttle tanker, as required, to provide the capability to temporarily store the largest volumes of recovered oil and oily liquids that could be expected during a worst case spill is considered to be a sound strategy that meets international best practice.

Oil Spill Response Exercise

Day 1 of the exercise primarily consisted of training, which was considered timely, focused and highly applicable, and provided a solid basis of knowledge for new OSR team members and an excellent refresher for established team members. Day 2 of the exercise involved a simulated scenario with a rupture of the pipeline south of the PA-B Platform. Overall, the exercise was considered well designed and well executed, and the scenario was realistic and challenging.

No findings were identified as a result of this exercise, however a number of opportunities for improvement are highlighted within this report and Appendix 3.

Non-Hazardous Waste Management

Strategy Development

Ramboll Environ has previously reported to lenders on significant issues in relation to Sakhalin Energy's management strategy for non-hazardous waste that have resulted from (i) capacity issues at the Korsakov landfill, and (ii) legal restrictions that have stopped disposal of Company waste to the Smirnykh and Nogliki landfills. In response to these issues, Sakhalin Energy has developed a revised waste management strategy. This strategy has been subject to both a number of delays and substantive changes over the previous three years, and still further changes in the overall strategy were presented during the current site visit.

The most significant change in strategy reported during this site visit relates to a change in the longer-term strategy from the previous approach of Sakhalin Energy developing its own non-hazardous waste facilities (including landfills) to re-commencing use of existing on-island landfills (subject to such facilities (re-)gaining relevant "GRORO" licences) and the use of proposed new municipal facilities. This change in strategy has been reportedly largely driven by the requirements of the new Sakhalin governor and therefore outside of Sakhalin Energy's direct control.

In addition, Ramboll Environ was verbally informed by the Company that it also intended to develop its own incineration capacity at the OPF and liquefied natural gas (LNG) sites. To aid permitting issues, the development of such incinerators would be included as part of the OPF Compression (OPFC) and Train 3 development projects respectively.

Overall, we conclude that the use of on-island waste facilities is preferable to transportation of waste to the mainland (which is currently undertaken), and the revised strategy also has the advantage of potentially incorporating some waste recycling facilities. However, the latest change to the waste management strategy means that it is no longer the Company's medium/long term strategy to bring waste disposal fully "in-house" and we make the following specific findings:

- ***Finding:*** Based on the previous experience, we note that the revised strategy of using existing and new municipal waste facilities poses a number of risks (and, indeed, Sakhalin Energy's own previous review of waste strategies in 2015 identified this as a high risk option) including uncertainty over whether:
    1. The existing landfill facilities at Nogliki and Smirnykh can be approved for inclusion in the GRORO in the timeframes anticipated (and hence can be used for waste disposal)
    2. The proposed new waste facilities in Yuzhno and Nogliki, and the expansion of the Korsakov waste facility, will be completed in the timeframes anticipated (in this regard we note that the development of the new landfill facility at Yuzhno is already delayed by several years)
    3. All municipal facilities will be constructed and operated to appropriate standards (as was not the case, for example, with the existing Smirnykh and more particularly the Nogliki landfills).

    The above risks emphasise the importance of the development of the Company's own incineration capacity as a risk-mitigation and we recommend that this be formally included in the written waste management strategy. However, we understand that the development of such facilities is very much more likely to be possible from a permitting perspective if it is included as part of the OPFC and Train 3 projects. In terms of the OPFC project, we consider that this is now an urgent issue given that early construction works have already commenced and we recommend that the Company confirms the permitting status for the OPFC project

and whether it is still possible to include permanent incineration facilities within the Russian Federation (RF) approvals for that project.

- ***Finding:*** A specific issue raised during Ramboll Environ's previous site visit was uncertainty as to whether construction related wastes (for example of the OPFC project) would be permitted for disposal at the available municipal landfills; at that time Sakhalin Energy had indicated that this may not be allowed. During the June 2016 site visit, Sakhalin Energy verbally informed Ramboll Environ that such construction wastes could be disposed of to the municipal landfills, although it was not clear how or why this position had changed and, given the commencement of OPFC construction works, we recommend that the Company provides lenders with written confirmation of this.

Inspection of existing facilities

At the time of the June 2016 site visit, Sakhalin Energy's class IV-V wastes were being managed by contractors who collect waste from the Company's various facilities, which is then delivered to the contractor's central transfer facility in Yuzhno prior to transport to the mainland (via Korsakov port) for disposal to landfill. The waste transfer station was inspected during the site visit and was generally found to be well run, although a number of minor opportunities for improvement were identified.

Social Performance Monitoring

Ramboll Environ monitors Sakhalin Energy's social performance on an annual basis to verify fulfilment of the HSESAP commitments. Office discussions were held with Sakhalin Energy's Government and Shareholders, External Affairs Division and informative presentations were delivered. Overall, we conclude that the Company continues to successfully operate a number of community focused programmes, activities and engagements, demonstrating its ongoing commitment and a high level of social performance. The following updates are considered particularly noteworthy:

- Finalisation of the transition from Global Reporting Initiative (GRI) G3 to GRI G4.
- 100% of grievances resolved within the stipulated period.
- Development of the third Sakhalin Indigenous Minorities Development Plan (SIMDP 3) for 2016 – 2020
- Delivery of social performance training to:
  - Corporate, contractor and subcontractor personnel
  - Construction contractors (mainly EPCs) of the OPF Compression Project
- Recognition and awards 2015 – 2016 (not previously reported):
  - United Nations Global Compact International Yearbook:
    - Sakhalin Energy human rights approach (2015 edition)
    - Sakhalin Energy promoting language rights on indigenous Island (2016 edition)
  - All-Russian contest (2015) – winner of the Russian Union of Industrialists and Entrepreneurs' award "*The Russian Business Leaders: Dynamics and Responsibility – 2014*".

A key future issue Sakhalin Energy's social performance team is stakeholder engagement in relation to the Train 3 project. We highlight the need for consultation input to the environmental and social impact assessment (ESHIA) process and note that the Scoping Assessment Report for the train 3 ESHIA (see below) can provide a useful input to the wider ESHIA consultation process. It is encouraging to note that the Sakhalin Energy social performance team appear to be well aware of both the key likely community impacts (e.g. dredging, construction traffic, and the development of the revised sanitary protection zone (SPZ) / potential air quality impacts on the

local dacha community) and the need for consultation in the ESHIA process. Ramboll Environ will continue to monitor stakeholder engagement for the Train 3 project over the coming months.

New Projects and Expansions

Train 3

Further updates on the Train 3 Project were presented during the site visit. Of note, while uncertainties remain in the source of gas for the Train 3 project, it now appears likely that gas from both Sakhalin-1 and Sakhalin-3 may be required. In the case of Sakhalin-3, gas would be transferred from the Sakhalin-3 OPF via a new pipeline (within an existing Sakhalin-3 RoW) to the Sakhalin Energy pipeline transportation system (PTS) at a location immediately south of the Sakhalin Energy OPF. Options for the use of Sakhalin-1 gas, including precise gas treatment requirements, locations and ownership, are still being explored.

As part of the development of an ESHIA for the Train 3 project, Sakhalin Energy produced a draft Scoping Assessment Report in Q1 2016. As previously reported to lenders, this draft was reviewed by Ramboll Environ. In response to our review comments, Sakhalin Energy provided Ramboll Environ with a revised version of the Scoping Assessment Report shortly prior to the site visit. This was discussed during the initial stages of the site visit, and a revised set of review comments was provided to the Company.

- ***Finding:*** Overall, we conclude that the Company has made good progress in the development of the Scoping Assessment Report, although we note that further work is still required to both address the identified residual gaps and also to account for the recent updates/changes in the project concept identified above.

We consider that the timeline for completion of necessary environmental and social documentation (including the ESHIA, ESMPs and BAP etc.) for the Train 3 project within the overall project schedule is achievable but challenging. Critical aspects in achieving the timeline include:

- The need for the Scoping Report to feed into the Stakeholder Engagement process for the project in a timely fashion
- Final definition of the key project components/concepts as soon as possible
- Early coordination of the development of the ESHIA with the ongoing development of the Company-wide biodiversity action plan (BAP) (see below)
- Confirmation of both the gas supply concept and the identification and treatment of associated facilities.

Ramboll Environ will follow-up on the future development of the Scoping Report and other environmental and social documentation for the Train 3 project over the coming months.

Gas pipeline blowdown project

As previously reported to lenders, the gas blowdown project relates to the installation of vent stacks on the 48'' gas pipeline at each block valve station (BVS) that allow sections of the pipeline to be purged of gas in the event of emergency or intrusive repair, and has been under consideration by Sakhalin Energy in response RF requirements. During the current site visit Sakhalin Energy reported that it has now undertaken a Safety Justification review and that the first draft of this study concluded that the existing purge facilities (at the OPF/BS-1 and LNG sites) are sufficient to meet requirements and that additional vent stacks at each BVS are not required. Sakhalin Energy has stated that the next steps are for the Safety Justification to be finalised and then to seek RF regulatory ('Expertisa') agreement in Q4 2016. Ramboll Environ will follow-up with the Company on the approval from the RF Expertisa and confirmation that no additional vent stacks are not required at the BVSs. We note that detailed review of the Safety

Justification is outside of Ramboll Environ's scope and should lenders require further review of this documentation then we recommend that advice from the Lenders' technical consultant be sought.

Environmental Performance

Discharge of treated water to land

Ramboll Environ has previously reported on a permitting issue associated with regulatory changes that have resulted in Sakhalin Energy being charged fees for the discharge of treated water to land/soakaways at several of its facilities. At the time of the previous site visit in October 2015 the Company had hoped that this issue would be resolved by new legislation coming into force in January 2016. However, it now appears that the new legislation still provides no explicit allowance for discharges to land and Sakhalin Energy is therefore now in the process of developing and assessing options to remove existing discharges to land. Progress on this issue will be monitored by Ramboll Environ.

Flaring and GHG Emissions

Sakhalin Energy is committed to no continuous flaring or venting, and flaring figures presented during the site visit together with data available in the 2015 Sustainable Development Report show that:

- Total flaring volumes in 2015 (3.9bscf) were the lowest of any production year to date.
- Flaring volumes in 2016 up to the end of May 2016 show a slight increase on the equivalent period 2015, and this is partly due to a gas train trip at the OPF in early 2016.
- Utilisation of associated gas (at PA-A and PA-B) in 2015 is reported as 96.1%, within the 95% regulatory decree level.

Greenhouse gas (GHG) emissions are publicly reported in the 2015 Sustainable Development Report. The total GHG emissions reported for 2015 are marginally higher than for 2014 although this change is reportedly due to changes in the global warming potential (GWP) indices and the inclusion acid gas incineration into the calculations.

Well control

During the October 2015 site visit, Sakhalin Energy provided a presentation on updates to its well control contingency plan (WCCP) that covers well control events and their direct consequences on the LUN-A, PA-A and PA-B platforms. As part of the review the Company confirmed that the quantitative risk assessment (QRA) is being updated. While a brief verbal update was provided during the last day of the June 2016 site visit that indicated that work is ongoing, it was agreed that Sakhalin Energy would provide a written update for lenders. In the meantime, we continue to recommend that in due course:

1. The lenders' technical and/or reserves consultant reviews the QRA
2. Sakhalin Energy use the results of the QRA exercise to update the spill risk profiles in its oil spill response plans (OSRP) as appropriate.

Cuttings reinjection

Ramboll Environ has previously reported that amendments to RF waste management laws have resulted in the following fees now being charged by the authorities for the reinjection of cuttings, despite this disposal option generally being accepted as good international industry practice. Fee payments are estimated at around 8 million RUR annually. The Company's proposed long term solution to this issue is to work with the authorities to include cuttings re-injection into the RF register of best available technologies (BAT), which would then avoid the payment of fees. Progress on this issue will be monitored by Ramboll Environ.

Sewage Treatment

Offshore

Lenders have previously agreed a request from Sakhalin Energy for a derogation in relation to discharge limits from its sewage treatment plant (STP) on the PA-B and Lun-A platforms that, while meeting IFC EHS guidelines, did not meet all permit discharge limits (for phenols, ammonia and phosphates) which resulted in the payment of fees. At the time of the derogation request, Sakhalin Energy noted that it was in negotiation with the RF authorities to agree to increase discharge limits in it licences. Since that time, the Company has agreed revised permits that include increased discharge limits. Data presented during the June 2016 site visit showed that no exceedances have occurred since the new permits came into force in May 2016.

Onshore

Sakhalin Energy has previously reported (see Ramboll Environ's October 2015 site visit report) compliance issues with discharges from a number of its onshore STP, including at its staff accommodation facilities in Yuzhno-Sakhalinsk (Zima) and Korsakov (KPA), at BS-2 and pipeline maintenance depots (PMDs). At that time, the Company had developed action plans to resolve these issues, which include:

- Zima: change of discharge from a fisheries class stream to a lower class stream, the Pravy Brook (and hence with less stringent discharge criteria)
- KPA: Develop a new water application package with the aim to agree less stringent discharge limits with the authorities
- BS-2 and PMDs: Develop STP improvement programmes to return the plant to compliance.

We were informed during the June 2016 site visit that works to repair the STP at BS-2 are planned to commence in August 2016.

The proposed corrective actions for the Zima and KPA STPs are generally reasonable, although a general issue that also needs to be considered in this context is that the end-of-pipe discharge limits set in the permits are based on historical best performance for each STP. Based on this observation, together with site inspections and review of monitoring data made available during the site visit we make the following findings:

- ***Finding:*** The discharge from the KPA STP is comingled with the site storm water prior to discharge to a local river and also prior to the regulatory sampling point that is located at the discharge point into the river. This means that regulatory monitoring undertaken during periods of heavy rainfall is likely to produce low pollutant concentration levels as the STP discharge will be diluted. In this regard we note that:
  - Monitoring of STP discharges should be made prior to any comingling/dilution (we note that Sakhalin Energy does also undertake sampling at the exit of the STP but this is not used for permitting purposes)
  - If the (low) concentration levels monitored during rainfall periods are used by the regulator to set the permit discharge limits then it is unlikely that these limits cannot be achieved during dry periods (when STP discharges are not diluted with storm water).

  We recommend that these factors are considered within any proposed permit amendments.
- ***Finding:*** We make the following observations and recommendations related to the Zima STP:
  - Inspection of the available monitoring data indicates that the variability of the discharge concentrations (including exceedances of permit limits) may, at least in part, be driven by

inconsistent system performance and we recommend that this be investigated by Sakhalin Energy to confirm whether operational improvements can be made.

- The STP operator team identified a concern about the integrity of the drainage system that directs sewage water to the STP, potentially resulting in additional water ingress into the sewage drainage system. We recommend that this is further investigated by Sakhalin Energy.
- Works were underway at the time of the site visit to change the location of the discharge outfall to the Pravy Brook. Based on visual inspection it appears that the STP discharge will be comingled with stormwater drainage prior to discharge to Pravy brook. We note that this has to potential to lead to similar problems as those raised above for the KPA STP and we recommend that discussions are held with the regulator to confirm that the permit compliance monitoring point be located prior to comingling.

Environmental Monitoring Strategies

Sakhalin Energy has a range of biodiversity/ecological monitoring programmes in place. The programmes are defined for fixed periods, and then the results reviewed in order to determine the scope of the monitoring to be undertaken during the next phase of the programme. These programmes are defined within 13 so-called Monitoring Strategy reports, each of which covers a different aspect.

Draft updates of the Monitoring Strategies were provided by Sakhalin Energy in 2014 based on monitoring data up to 2013. These were iteratively reviewed by Ramboll Environ and the final Monitoring Strategies for the current period were agreed in 2015. The exception to this is the offshore monitoring strategy which has still to be formally provided to Ramboll Environ for review (this delay was previously raised in Ramboll Environ's October 2015 site visit report) and we make the following finding:

- ***Finding:*** The update of the Offshore Monitoring Strategy is now well overdue and this means that the current offshore monitoring programme (as undertaken since 2013) has not been reviewed or agreed by Ramboll Environ. This strategy document should be updated and provided to Ramboll Environ for review as soon as possible based on field data available to 2015. The importance of confirming the offshore monitoring strategy and programme is heightened by the need to confirm the approach to future monitoring of recovery of sediments following an historical mud loss incident at the Lun-A platform in March 2013 and to feed into studies and management plans associated with the offshore components of the Train 3 and OPFC projects.

Western Gray Whales

During the site visit Sakhalin Energy made a brief presentation to the lenders on gray whale mitigation and monitoring programmes. The information presented was similar to that previously presented by the Company during the October 2015 site visit, at the WGWAP and associated task force meetings held in November 2015 and WGWAP taskforce meetings in May 2016. Ramboll Environ has previously reported to lenders on the 2015 meetings and will provide an update on the May 2016 taskforce meeting once the formal reports become available.

Project-Wide Biodiversity Action Plan

Sakhalin Energy made a presentation of the Company's progress in developing a Project-wide BAP. The presentation demonstrated that the biodiversity specialists working on the Project-wide BAP have developed a good understanding of the process of identifying triggers of Critical Habitat (CH) as defined in the International Finance Corporation (IFC) Performance Standard 6 on biodiversity and the subsequent requirement for the Project to deliver net gains (beneficial

effects) for those species identified as Critical Habitat triggers. Nonetheless, the current approach as presented needs further development to allow the assessment and BAP to progress. Progress on this issue will be monitored by Ramboll Environ.

1. INTRODUCTION

Ramboll Environ UK Limited (Ramboll Environ) is the Independent Environmental Consultant (IEC) acting on behalf of the Senior Lenders to the Sakhalin-2 Phase 2 project (the 'Project'). Under the Terms of Reference of our engagement, Ramboll Environ undertakes:

- Biennial 'Level 1' audits of selected Project facilities.
- Annual Project monitoring visits that cover a range of project activities, assets, programmes and plans.

An annual Project monitoring site visit was conducted from 11th to 17th June 2016 and focused on the following aspects (the full Terms of Reference and schedule are presented in Appendix 1):

- Environmental monitoring
  - Pipeline right of way (RoW)
  - Onshore Processing Facility (OPF) Compression Project
- Oil Spill Response:
  - Witness of an oil spill response exercise
  - Review of oil spill response plans and equipment
- Social performance monitoring
  - Social Performance overview
  - Stakeholder Engagement, including engagement with Japanese stakeholders and the '*Stroitel*' Dacha Cooperative
  - Community Grievance Procedure
  - Implementation of the third Sakhalin Indigenous Minorities Development Plan (SIMDP 3)
  - Social investment (SI) programme.
- Other project updates, including:
  - Waste management
  - New projects and project expansions
  - Environmental Performance
  - Sewage treatment
  - Environmental monitoring strategies
  - Western Gray Whales
  - Biodiversity Action Plan.

This report presents the findings of the site visit, and in addition provides:

- Opportunities for Improvement (Section 8). A number of opportunities for improvement (OFIs) have been identified following the site visit that do not relate to specific areas of non-compliance (and hence are not included in the Findings Log – see below), but which are made for the benefit of either Sakhalin Energy and/or lenders to either improve performance or, in some cases, avoid future areas of non-compliance.
- A summary of new Findings from the site visit (Section 9). An updated Findings Log (a live log of all Findings identified from IEC site visits and reviews of Project documentation) will be issued separately in due course.
- Follow-Up Items (Section 11), which are neither Findings nor Opportunities for Improvement, but a list of topics or issues that Ramboll Environ intends to follow up on, either as part of future audits or monitoring visits or by requesting further information from the Company (as and when available).

2. PIPELINE RIGHT OF WAY MONITORING

The June 2016 site visit to the pipeline RoW was undertaken by a trained ecologist and concentrated on the condition of the RoW and wetland areas. RoW monitoring included visits to selected river crossings, previously disturbed wetlands, locations of previous concern and recent Category 1-3 repair works. Monitoring also included progress made in tree growth removal from the RoW.

Inspections along the RoW focused on the status of the following aspects:

- Biological reinstatement
- Wetlands
- Drainage and erosion control
- River crossings
- Geotechnical works

The full list of locations visited, together with summary descriptions of our observations from each location, is presented in Appendix 4.

Overall, the condition of the RoW was found to be very good. The RoW is generally well vegetated for its length and where this is not the case, measures are in place to encourage vegetation growth or prevent the factors, such as erosion, which are preventing that regrowth. Wetland vegetation regrowth is continuing as the key plant species re-inhabit the RoW. Where additional measures have been suggested to encourage that regrowth, Sakhalin Energy have taken the necessary steps and are continuing to monitor the areas.

Arguably the biggest challenge facing Sakhalin Energy on the RoW is maintenance of the numerous river crossings. Many of the river systems are incredibly dynamic with very large peak flows in spring from snow melt water. Sakhalin Energy has demonstrated a proven management approach to address those river crossings that have been damaged and this will need to continue throughout the life of the project.

Management of tree growth on the RoW will continue to be a challenge for Sakhalin Energy. Although this issue is now closed from the Findings Log, it remains an ongoing monitoring item but one that the Company is entirely aware of and now has a good approach to addressing.

Finally, it was notable that in a number of locations, actions by third parties close to the RoW or upstream of RoW river crossings have resulted in actual or potential effects on the RoW. The response to these actions from Sakhalin Energy has been very good and entirely sensible and the Company will need to remain vigilant to the risk posed by such actions.

Opportunity for Improvement: At the wetland near Smirnykh (KP 230-231), culverts have been installed to address a finding from the 2014 monitoring visit identifying the wetland to the east of the access road as drying out as water could not reach the area. The culverts have largely addressed the issue but some further work is required to re-install one culvert which is set at the incorrect height and to install some additional culverts to prevent pooling of water observed on the western side of the access road.

3. OPF COMPRESSION PROJECT MONITORING

3.1 Introduction

As part of the monitoring visit, Ramboll Environ conducted a visit to the Onshore Processing Facility (OPF) located in the central, eastern side of Sakhalin Island. The visit focused on the elements associated with the OPF Compression (OPFC) Project, specifically:

- Temporary worker accommodation
- On-site surface water management
- Laydown and materials storage areas
- Biodiversity management on the OPFC Project site.

The visit included a walkover inspection of the temporary accommodation area and refurbished facilities, laydown areas and the OPFC Project footprint. The visit also involved discussions with the key staff involved in the design and construction of the project as well as ecological specialists undertaking lichen studies and translocation.

3.2 Impact Assessment and Management Plans

An environmental, social and health impact assessment (ESHIA) has been developed by Sakhalin Energy and has been iteratively reviewed by Ramboll Environ. As previously reported to lenders, Ramboll Environ has recommended that the ESHIA should be considered complete, but that there remain a number of gaps and outstanding actions that would be best resolved through the development other assessments/documents. In particular, the ESHIA does not fully assess biodiversity in line with the requirements of IFC PS6 and we have recommended that Sakhalin Energy should:

1. Complete a systematic review of which vegetation types meet the IFC PS6 definition of Natural Habitat. Paragraph GN43 of the guidance notes is particularly useful here and based on the habitat descriptions in the ESHIA, we would conclude that Shrub/cotton grass/moss bog, Larch forest with shrubs and Dark coniferous larch forest with shrubs and green moss should all be treated as Natural Habitats.
2. Complete a systematic Critical Habitat Assessment. This needs to screen all of the vegetation types and individual species against all five of the main criteria for Critical Habitat (plus any relevant secondary criteria). This needs to follow the methodology as defined by IFC PS6, including the concept of discrete management units (DMUs) for criteria 1-3.
3. Identify actions required to meet no net loss of Natural Habitat and a net gain in CH. These actions should be incorporated into a BAP.

However, rather than attempting to undertake the above assessments/actions in isolation for the OPFC project, we have recommended that this assessment be undertaken as part of the work already being undertaken by the Company to develop a project-wide BAP (see also section 7.6).

In addition to the ESHIA, Ramboll Environ has previous noted that relevant management plans are required to define the environmental and social controls and standards to be applied to the OPFC project (some specific aspects to be addressed in the management plans are identified in the review matrix). In this regard, during the site visit Sakhalin Energy provided the following update on the development of the following project-specific management plans:

- Stakeholder Engagement Plan (SEP). A project-specific SEP has been developed and reviewed by Ramboll Environ and found to be in line with applicable standards. A redacted version of the SEP is publicly available.

- A Waste Management Plan (WMP) is being finalised and will be available in English. The early works WMP is complete but only available in Russian.
- Road Safety Plan (RSP) is being finalised (in English).
- Drainage and Erosion Control Plan (DECP) will be ready in over the coming months and will be implemented by the EPC contractor for the camp. Initial works have been completed within the fly camp, as observed during the site visit. The early works contractor has developed a DECP but this is only available in Russian. Ramboll Environ discussed with site personnel the need for DECP to include all OPFC project works and not just the fly camp.
- Industrial Environmental Control Programme and Sanitary Industrial Control Programme for Early Works. Both documents are currently only available in Russian as they are being discussed by Sakhalin Energy with the early works contractor (initial drafts by the early works contractor needed additional measures). Both these documents are required in order for the early works contractor to obtain the necessary permits to start work. These are proposed to be finalised by early September.

An overall HSE Management Plan for OPFC will be developed encompassing all of the key points from the various management plans. This will be ready in July 2016 and available for review.

- ***Finding***: Under the Common Terms Agreement (CTA)/HSESAP the HSE Management Plan(s) for the OPFC Project will need to be reviewed by Ramboll Environ and formally agreed by lenders. We recommend that these plans are provided as soon as possible (noting that some were provided during the site visit), and as a minimum sufficiently prior to commencement of main construction activities to allow for review by Ramboll Environ, update as necessary by Sakhalin Energy, and approval by lenders.

3.3 Temporary Accommodation and Camp Construction

3.3.1 Accommodation Refurbishment

At the time of the monitoring visit, Sakhalin Energy was still in the process of refurbishing a section of the existing worker accommodation facilities in the north of the site (previously established for the OPF construction) for use by construction workers associated with the OPF Compression Project.

The 'fly camp' is located within the south-eastern portion of the old OPF construction camp. The Company advised that the rest of the old camp will either be refurbished by the EPC construction contractor or may be demolished with a new facility built in its place.

Of the fly camp area, six accommodation buildings have been refurbished so far, and two more are nearly finished. Four accommodation buildings have not yet been refurbished and were cordoned off to prevent access. The refurbishment undertaken to date is commendable: some floors have been replaced (some have been retained), doors have been re-painted, wiring has all been replaced and new insulation installed in all walls. The buildings felt comfortable and warm.

Photo 1 Fly camp - Refurbished buildings

Photo 2 Building not being refurbished due its current condition – note red tape blocking entrance

Photo 3 Interior of refurbished accommodation building

Photo 4 Refurbished office in building

Photo 5 New heating in accommodation. Note electrical colour coding to ensure equipment is tested and up to date

A small clinic and laundry room are included on the ground floor of one accommodation building. The canteen building is complete and a new water treatment building has been constructed adjacent to the canteen.

3.3.2 Surface Water Management and Drainage

Drainage channels around the accommodation camp area have been cleaned up and enhanced since our previous monitoring visit in October 2015, with new culverts constructed under roadways and dense tree regrowth removed to allow a clearer flow. All channels appeared clear of pollutants and some contained low levels of water. All surface water flows to the north-east corner of the old OPF camp and then off-site to the north where it reportedly joins a natural stream. Only rainwater enters these drainage channels; the wastewater treatment plant in the south of site discharges to the same area but via an underground pipe to a permitted discharge point on the stream north of the camp.

As discussed above, surface water from the fly camp currently drains to the north to permitted discharge point. A discharge point is planned for the OPFC site by the early works contractor. The camp will likely require at least a settlement pond. This is currently proposed for the northeast corner of OPFC site. The soil storage area will have a drainage ditch surrounding it and is proposed to have settlement pond prior to discharge point. It is likely that more onerous measures may be required by Russian government. The early works contractor will establish the area that the EPC contractor will adopt.

Photo 6 Fly camp drainage channel with new culverts

Photo 7 Northeast corner of site where drainage channels join outflow pipe to take water off-site

Heavy vehicles are permitted to park adjacent to the canteen for a maximum of one day – any longer and vehicles are parked in the laydown area with drip trays under the engines to prevent ground contamination. Drip trays were noted beneath all equipment being used for refurbishment of buildings, including small generators as shown in Photo 8 below. Large diesel generators providing power to the canteen are self-contained, so no diesel leak could occur.

Photo 8 Generators with drip trays

Photo 9 Main camp generators, contained and with measures to prevent ground contamination

Photo 10 Equipment stored with drip trays

3.3.3 Materials and Waste Management Areas

The soil storage area to the north-west portion of the fly camp / edge of EPC camp area appeared clean, tidy and well segregated. Soils from an external quarry are to be used for the area around the fly camp. The current temporary wooden walkways are to be replaced by stone paths.

Stone for the new pathways within the fly camp is also currently stored in this area.

Photo 11 Soil storage areas

The laydown area appeared clean and tidy with no apparent sources of pollution present with potential to enter drainage systems or watercourses. Sakhalin Energy advised that the area could be extended to the south if necessary when the EPC contractor starts.

Photo 12 Laydown area. Note drip trays under parked up vehicles

Waste is currently sorted into various bins at the rear of canteen. Construction waste is bagged or palleted and removed from site weekly.

Photo 13 Waste sorting area and temporary wooden walkways

3.4 Soil Management

The same soil storage areas previously used for construction of the OPF will be used for the OPFC Project. Soil deposits remain present in the area, which are partially revegetated but are not natural habitats. The western end of the soil storage area is least vegetated and is likely to be filled first.

Photo 14 Soil storage area

A small stream flows north through the area. It is formed from the convergence of three discharges from the OPF (helipad/PAO, PAO/west camp area and east camp area). A 30m exclusion zone will be observed around the stream, and the design of the soil storage area is being worked on for this reason. The stream appeared clear and free from silt or pollution.

Photo 15 View north of stream as it flows through soil storage area

Peat will be stored further east in a lower area, closer to the level of the peatland habitats extending to the north and east from the OPF site.

Follow-up Item: The depth of peat storage areas was discussed during the monitoring visit as Sakhalin Energy would like to store it at depths of up to 4m to reduce the footprint of the storage area, although this will need further review to confirm the acceptability.

Photo 16 Proposed peat storage area

3.5 Lichen Translocation

The specialists working on the lichen translocation were present at the OPF at the time of the visit. The Lichen Translocation Plan has now been agreed and approved by the Russian Government. The Plan is only available in Russian language at present.

Ramboll Environ was advised that translocation works are to commence soon, as they are planned to be completed by the end of July 2016. Translocation is proposed to be a 10 day process with first five days used to identify receptor sites (i.e. identified at the time of works) and the last five days used to complete the actual translocations. Receptor sites are to be based on specific criteria set out in the approved translocation plans. The criteria to be used to identify receptor sites for translocation were discussed during the monitoring visit, the main ones confirmed to be humidity, type of woodland and species of tree.

Ramboll Environ met with contractors working on lichen project to discuss the approach and timing to the translocation. Three methods will be used– translocation of thallomes, bark pieces with lichen on, and whole branches with lichens.

Following this meeting, the retained woodland was visited. From the road it appeared much as in the previous visit of October 2014. However, upon entering the woodland it was clear that there has been considerable fall of trees during the two intervening winters. This has had the effect of opening up the woodland in some areas, and almost certainly starting to change the light and humidity conditions. A number of the fallen trees had very significant lichen growth. Some small branches with marked protected lichens were seen to have fallen off too.

- **Follow up Item**: It is clear that conditions in the woodland are worsening for lichens. The translocation process should be progressed this summer before further storms this winter potentially cause further damage.

Photo 17 View of woodland from road

Photo 18 Fallen trees in woodland

4. OIL SPILL RESPONSE

4.1 Introduction

Ramboll Environ's annual monitoring visit was this year scheduled to take place concurrently with the Company's annual major oil spill response exercise, allowing the IEC to participate in both events as part of the same visit.

A representative from PCCI, Inc. (PCCI), lenders' oil spill response consultants, held a number of meetings with Sakhalin Energy's senior oil spill response (OSR) managers do discuss:

- The status of prior, unresolved issues and comments related to Sakhalin Energy's OSR programme, including new developments and initiatives in OSR readiness;
- OSR training and exercise frequency;
- The status of Company OSR documentation, including oil spill response plans (OSRPs) and plan summaries;
- The condition and readiness of the oil spill and wildlife response equipment pre-positioned at Sakhalin Energy's Prigorodnoye facilities. [*Note this last item consisted of a visual and records review only; none of the equipment was deployed or observed in operation*.]

The above are considered to fall within the scope of this annual monitoring visit and are discussed in the sections below.

PCCI also evaluated Sakhalin Energy's annual major oil spill exercise, held from 15 – 16 June, as an independent observer. This was a complex exercise involving deployment of some offshore and shoreline equipment; this event was primarily intended to examine Sakhalin Energy's ability to access additional response equipment from partners, other Sakhalin oil companies, Sakhalin Government and the international oil response industry. PCCI's oil spill exercise evaluation is included as Appendix 3 to this IEC monitoring visit report.

4.2 OSR Readiness Developments

Meetings were held between PCCI and the OSR senior management team, which identified good progress and resolution of most open action items related to oil spill response readiness. The open items that were discussed and generally resolved during the meeting are presented in the following sections.

- ***Finding***: Only one major action item (OSR.05) remains open: the development of worst-case discharge oil spill scenarios for Sakhalin Energy's onshore facilities. For this one item, Sakhalin Energy has stressed that it is in complete compliance with Russian government standards and has requested clarification from PCCI as to exactly what constitutes international best practice and what is required from Lenders that will also be acceptable to Russian local and Federal environmental regulators.

4.2.1 Response Equipment Replacement and Upgrade

Although funding for additional oil spill response equipment – both newly developed hardware and replacement equipment – has not been available over the past two years due to the market downturn associated with crude oil production and sales, Sakhalin Energy continues to operate an equipment maintenance and repair programme that meets international best practice. The Company is also continuing to make best use of its original equipment and developing new systems and strategies to enhance existing equipment capabilities. OSR equipment operator knowledge and training also appears to meet international best practice standards.

PCCI has previously noted that some of Sakhalin Energy's oil spill response equipment and systems intended for the nearshore and offshore zones were undersized or underpowered for

their intended operating environment. Sakhalin Energy's Oil Spill Equipment Manager attended the International Oil Spill Conference in Savannah, Georgia two years ago and observed several state-of-the art systems considered more suitable for Sakhalin's nearshore and offshore environments. Although these more advanced pieces of equipment and systems have not yet procured, the OSR team explained how the current equipment is working well for its intended task and is being kept in a high state of readiness.

OSR Program Managers highlighted the Company's plans to procure four new ice class vessels for support and standby operations in and around the offshore production platforms. Sakhalin Energy's Specialists of ER Management Department (hereinafter – ERM Department), who also has prior marine operations experience, has been working directly with the Marine Department on the specifications for these four new vessels to ensure that they all include substantial OSR capabilities, including dispersant spraying. The addition of these four new vessels will represent a significant enhancement in Sakhalin Energy's OSR capabilities for the near-shore and offshore zones, and their procurement appears ahead of schedule.

4.2.2 Non-Mechanical Response Options

Sakhalin Energy has not only made substantial progress in its planning and approval process for the use of dispersants and in-situ burning at sea, but have actually become a leader in Russia for the development of standards and protocols for these non-mechanical response options.

Through ongoing work with Russian regulators at both the Federal level in St. Petersburg and at the local level within the Sakhalin Oblast, Sakhalin Energy has developed plans and received the requisite pre-approvals for the use of dispersants in certain areas when the conditions are right. Russia does not yet have maximum permissible concentration limits for the use of dispersants in the marine environment; its fisheries and environmental organisations are working to establish temporary limits by the end of this year and final limits by the middle of 2017. In the meantime, Sakhalin Energy has used the Net Environmental Benefit Analysis (NEBA) approach required by the Russian dispersant standards to identify those areas and conditions were dispersant use is a viable option. The Company has also received government sign-off on this approach and their designated use areas and conditions. Sakhalin Energy intends to procure volumes of the dispersant Corexit 9527 in 2017 and 2018 to be able to meet their internal stock requirement of 200 m^3.

At sea in-situ burning standards and regulations are not as far along in Russia as the dispersant standards. The under-development in-situ burning standards will also require a NEBA-based approach for permitting and use. Sakhalin Energy's OSR contractor is developing a similar approach and standard to that used for dispersants to seek government approval, or pre-approval, for in-situ burning offshore. Currently, there is no allowance in Russia for in-situ burning of on-shore oil spills as a response option. PCCI noted that although it is outside of Sakhalin Energy's control, the inability to use in-situ burning on land or in wetlands when conditions are amenable could limit Sakhalin Energy's ability to respond to certain spills that might occur on land.

4.2.3 Training and Exercise Frequency

Sakhalin Energy has provided solid oil spill fundamentals and incident command system training to over 75 members of their oil spill response team. This training has been provided by a variety of in-house, partner, government and consultant instructors who were recognised experts in the topics they presented.

PCCI discussed the concerns they had previously expressed with Sakhalin Energy's oil spill training frequency as described in its Oil Spill Training Manual. PCCI had recently pointed out

discrepancies in OSR training frequency between what was specified in the Manual on Maintaining the ER Management Bodies and what was required in Appendix 15 of the OSR Emergency Response standard (Appendix 15: *Spill Preparedness and Response* is part of the HSESAP).

- **Follow-up item**: Sakhalin Energy's ERM department committed to correcting the Manual on Maintaining the ER Management Bodies to align with Appendix 15 requirements for OSR training frequency.

4.2.4 Temporary Storage of Recovered Oil

PCCI has previously questioned Sakhalin Energy's ability to temporarily handle and store the large volumes of recovered oil and contaminated water that would result from a large spill event. Sakhalin Energy has reviewed its latest plans and strategies to provide additional storage for recovered oil and liquid wastes. The commitment by the Company to dedicate a shuttle tanker, as required, for temporary storage provides Sakhalin Energy with the capability to temporarily store the largest volumes of recovered oil and oily liquids that could be expected during a worst case spill into the nearshore or offshore environment. This is a sound strategy and meets international best practice.

4.3 Oil Spill Response Plan Updates

Sakhalin Energy provided a detailed report on the status of each of the recently revised six OSRPs. For five of these six plans, the Company has incorporated nearly all of PCCI's comments. Two of PCCI's comments on the onshore plans will require further analysis and review before any changes are made to these plans: PCCI commented that these two plans should address spill migration beyond secondary containment and also that the worst case discharge volumes should be larger, equal to the largest single tank within secondary containment.

- **Follow-up item**: It was agreed that PCCI would provide further guidance on what would be required by lenders in these spill scenarios, to include clarification on best practices for determining worst case spill volumes (in particular, PCCI will consider Russian, international (IPIECA, ITOPF and IMO) and Shell Oil standards and practices).

The status of the three offshore plans is that they are currently under State Environmental Expert Review (SEER) by a new commission that was established in Russia after the Deepwater Horizon event to review such offshore plans of all Russian Oil Gas Companies. Completed reviews from this new commission are anticipated in 3 – 4 months.

- **Follow-up item**: Sakhalin Energy noted that they have not received a detailed review of the revised OPF Onshore Plan from PCCI. PCCI has taken this as an action on their part.

In lieu of developing new OSRP Summaries for public dissemination, Sakhalin Energy explained that it intends to provide the entire OSRPs via its public website. The only changes to these shared OSRPs will be the deletion of personal and Company private information.

4.4 Prigorodnoye Oil Spill Response

A visit was made to the demonstration area for OSR equipment and oiled wildlife response equipment within the LNG site, and not to the main PMD warehouse/equipment storage areas at the port.

The oil spill response equipment in Prigorodnoye has clearly been well maintained. Maintenance records for a variety of different booming, skimming and support systems were reviewed and found to be up-to-date. A visual inspection of the equipment verified that the equipment appears undamaged, operable and ready for deployment.

The wildlife response equipment was also expertly organised and appeared to be thoroughly inventoried and well maintained. Due to the remoteness of Sakhalin Island from any Tier 2/Tier 3 types of wildlife response equipment, the strategy to manage this highly specialised area with contract personnel and equipment that are strategically located on Sakhalin Island is sound and indicative of best practice.

5. NON-HAZARDOUS WASTE MANAGEMENT

5.1 Strategy Development

Sakhalin Energy has historically used three landfill facilities in the northern (Nogliki), central (Smirnykh) and southern (Korsakov) portions of the island for the disposal of its non-hazardous wastes. Each of these facilities was originally developed/upgraded with support from the Company to ensure that they were designed to appropriate standards. Ramboll Environ has previously reported to lenders on significant issues in relation Sakhalin Energy's management strategy for non-hazardous waste that have resulted from (i) capacity issues at the Korsakov landfill, and (ii) legal restrictions that have stopped disposal of Company waste to the Smirnykh and Nogliki landfills (the landfills have yet to be approved for inclusion in the RF 'GRORO' register of approved waste facilities).

In response to these issues, Sakhalin Energy has developed a revised waste management strategy. This strategy has been subject to both a number of delays and substantive changes over the previous three years, and still further changes in the overall strategy were presented during the site visit.

At the time of the previous site visit in October 2015, the non-hazardous waste strategy comprised:

- **Short/medium term**: Class IV-V (non-hazardous) waste were to be transported to landfill facilities on the mainland
- **Long term**: Sakhalin Energy was to develop its own waste facilities at the OPF and LNG sites and that these would be developed as part of the OPF Compression Project and Train 3 Project respectively.

While noting that the short/medium-term option was a relatively high OPEX solution and not ideal in terms the distances over which waste was transported, Ramboll Environ found that this was nonetheless reasonable given the ongoing issues with existing on-island landfill facilities. We also considered that the longer term option of Sakhalin Energy developing its own waste facilities would bring the issue of waste management fully under its own control, which is particularly attractive given the persistent and prolonged issues that the Company has faced in the use of third party operated facilities over the past 3 to 4 years. We did, however, also note the urgency of developing these facilities, especially at the OPF, to meet the demands of the OPFC and Train 3 construction projects.

At the time of the June 2016 site visit, the use of existing on-island facilities had ceased and all class IV-V waste was being collected centrally in Yuzhno (at a contractor-operated facility – see below for further commentary) prior to transfer to the mainland via Korsakov port. However, we were informed by Sakhalin Energy that, following discussions with the new governor of Sakhalin, the medium to long term strategy has changed (yet) again, and specifically the governor has determined that Sakhalin Energy should use on-island municipal landfill/recycling facilities rather than developing in its own facilities. This will comprise both re-commencing use of existing on-island landfills (subject to such facilities (re-)gaining relevant licences) and the use of proposed new municipal facilities.

Sakhalin Energy's revised strategy in the northern, central and southern regions was provided in power point presentations during the site visit and this is summarised below:

Table 1 Summary of Revised Non-Hazardous Waste Management Strategy (classes IV-V)

Northern region	
First half 2016	Transport of waste to landfills on the mainland (Primorye district)
First half 2016	Inclusion of existing municipal landfill in Nogliki into the GRORO register
From second half 2016 to 2017	Disposal of waste at existing municipal landfill in Nogliki (assuming successfully included into GRORO)
2018 onwards	Start-up of new municipal waste facility in Nogliki (including landfill and recycling plant). Disposal of Sakhalin Energy waste to new waste facility
Central region	
2016 – first half 2017	Transport of waste to landfills on the mainland (Primorye district)
First half 2017	Inclusion of existing municipal landfill in Smirnykh into the GRORO register
Second half 2017 onwards	Disposal of waste at existing municipal landfill in Smirnykh (assuming successfully included into GRORO)
Southern region	
2016	Transport of waste to landfills on the mainland (Primorye district)
2017	Start-up of new municipal waste facility in Yuzhno
2017 - onwards	Disposal of waste at new landfill in Yuzhno and existing (expanded) landfill in Korsakov

In addition, Ramboll Environ was verbally informed by the Company that it also intended to develop its own incineration capacity at the OPF and LNG sites. To aid permitting issues, the development of such incinerators would be included as part of the OPFC and Train 3 development projects respectively.

Overall, we conclude that the use of on-island waste facilities is preferable to transport to the mainland. In addition, the revised strategies includes further advantages in relation to the inclusion of potential waste recycling at Nogliki and the potential for the oily waste facility at Smirnykh (which was constructed several years ago with Sakhalin Energy support to act as a temporary storage area for oily contaminated soils in the event of a major oil spill) finally receiving approval for use. However, the latest change to the waste management strategy means that it is no longer the Company's medium/long term strategy to bring waste disposal fully "in-house".

- ***Finding***: Based on the previous experience, we note that the revised strategy of using existing and new municipal waste facilities poses a number of risks (and, indeed, Sakhalin Energy's own previous review of waste strategies in 2015 identified this as a high risk option) including uncertainty over whether:
  1. The existing landfill facilities at Nogliki and Smirnykh can be approved for inclusion in the GRORO in the timeframes anticipated (and hence can be used for waste disposal)
  2. The proposed new waste facilities in Yuzhno and Nogliki, and the expansion of the Korsakov waste facility, will be completed in the timeframes anticipated (in this regard we note that the development of the new landfill facility at Yuzhno is already delayed by several years)

3. All municipal facilities will be constructed and operated to appropriate standards (as was not the case, for example, with the existing Smirnykh and more particularly the Nogliki landfills).

The significance of the above risks would be mitigated by the development of the Company's own incineration capacity as this would have the potential to significantly reduce the residual volumes of Class IV-V wastes to be disposed of at the municipal facilities.

This emphasises the importance of the development of the Company's own incineration capacity as a risk-mitigation and we recommend that this be formally included in the written waste management strategy. However, we understand that the development of such facilities is very much more likely to be possible from a permitting perspective if it is included as part of the OPFC and Train 3 projects. In terms of the OPFC project we consider that this is now an urgent issue given that early construction works have already commenced and we recommend that the Company confirms the status of the permitting status for the OPFC project and whether it is still possible to include permanent incineration facilities within the RF approvals for that project.

- ***Finding*:** A specific issue raised during Ramboll Environ's previous site visit was uncertainty as to whether construction related wastes (for example of the OPFC project) would be permitted for disposal at the available municipal landfills; at that time Sakhalin Energy had indicated that this may not be allowed. During the June 2016 site visit, Sakhalin Energy verbally informed Ramboll Environ that such construction wastes could be disposed of to the municipal landfills, although it was not clear how or why this position had changed and, given the commencement of OPFC construction works, we recommend that the Company provides lenders with written confirmation of this.

5.2 Current Facilities

At the time of the June 2016 site visit Sakhalin Energy's class IV-V wastes were being managed by contractors who collect waste from the Company's various facilities, which is then delivered to the contractor's central transfer facility in Yuzhno prior to transport to the mainland (via Korsakov port) for disposal to landfill. The waste transfer station was inspected during the site visit and was generally found to be well run, and in particular:

- Appropriate health and safety precautions appeared to be in place (including mandatory safety induction prior to entry to the facility, use of PPE by employees and visitors etc.)
- Waste segregation is undertaken (cardboard, plastic and wood)
- Class IV-V wastes are stored / segregated in an appropriate designed and well maintained building (see Photo 19)
- A waste delivery witnessed during the site visit (bringing waste from the Zima accommodation facility) showed the transportation of wastes to be appropriate with a fully enclosed delivery vehicle
- Wastes of other classification (mercury lamps, batteries etc.) were stored separately in ISO containers.

Opportunity for Improvement: Some minor areas for improvement were identified in relation to the following:

- ISO containers used for the storage of oily contaminated materials had rudimentary ventilation which could be improved to better reduce build-up of hydrocarbon vapours.
- Some outdoor storage of drums containing oily rags/materials was identified with rudimentary weather covering that was insufficient to prevent drip trays filling with rainwater

(see Photo 20). Improved cover (for example by storing in ISO containers) should be considered.

While recognising that the facility is owned and operated by a third party contractor, we encourage Sakhalin Energy to work with the contractor to bring about these improvements.

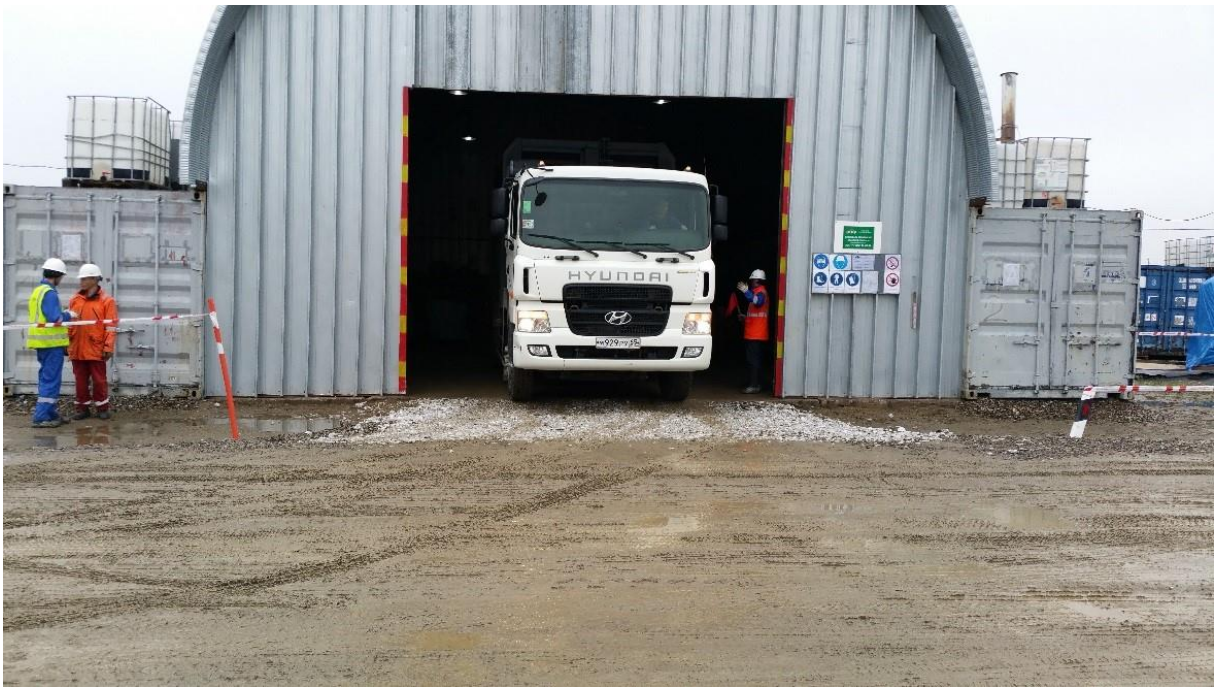


Photo 19 Delivery of class IV-V wastes to dedicated storage/segregation building

Photo 20 Outdoor storage of drums

Segregation of class IV-V waste is undertaken manually and without the aid of any machinery or equipment and is therefore rather inefficient. However, we note that new equipment purchase is

unlikely to be practical in context/timeframe of the revised waste strategy, which foresees cessation of Sakhalin Energy's use of the facility by mid-2017 (see above). We therefore make no formal recommendation in this regard.

6. SOCIAL PERFORMANCE MONITORING

6.1 Introduction

Ramboll Environ monitors Sakhalin Energy's social performance on an annual basis to verify fulfilment of the HSESAP commitments. A dedicated review of social performance programmes was not included in the June 2016 site monitoring visit, although office discussions were held with Sakhalin Energy's Government and Shareholders, External Affairs Division.

Sakhalin Energy's Government and Shareholders, External Affairs Division made a number of presentations during the monitoring visit, highlighting key initiatives and programmes undertaken during the reporting period. These are highlighted in the following subsections and covered:

- Social Performance progress overview
- Stakeholder Engagement, including engagement with Japanese stakeholders and the *Stroitel* Dacha Cooperative
- Community Grievance Procedure
- Indigenous Peoples, including implementation of the SIMDP 3 (2016-2020)
- Social investments (SI).

Detailed descriptions of the social performance mechanisms and procedures established by Sakhalin Energy to date have been provided in previous IEC site visit reports over the 2009-2015 period. All of these reports are publicly available on Sakhalin Energy's website[1]. Updates on each of the aforementioned aspects are provided in the following subsections.

Overall, we again conclude that the Company continues to successfully operate a number of community focussed programmes, activities and engagements, demonstrating its ongoing commitment and a high level of social performance.

6.2 Social Performance Overview

Sakhalin Energy discussed a number of recent noteworthy highlights in its social performance overview presentation, including:

- Finalisation of the transition from Global Reporting Initiative (GRI) G3 to GRI G4.
- 100% of grievances resolved within the stipulated period.
- Delivery of social performance training to:
  - Corporate, contractor and subcontractor personnel
  - Construction contractors (main EPCs) of the OPF Compression Project
- Recognition and awards 2015 – 2016 (not previously reported):
  - United Nations Global Compact International Yearbook:
    - Sakhalin Energy human rights approach (2015 edition)
    - Sakhalin Energy promoting language rights on indigenous Island (2016 edition)
  - All-Russian contest (2015) – winner of the Russian Union of Industrialists and Entrepreneurs' award "*The Russian Business Leaders: Dynamics and Responsibility – 2014*".

[1] http://www.sakhalinenergy.ru/en/library/folder.wbp?id=09946bc1-9839-4dd2-aa3d-1e89b64d377f [In English]
http://www.sakhalinenergy.ru/ru/library/folder.wbp?id=827a621e-77cf-43b3-87e6-73c601c1df54 [In Russian]

The Company's Info Centres continue to be well used, attracting 2,919 visitors in 2015. Sakhalin Energy has demonstrated the nature of enquiries in its diagram below:

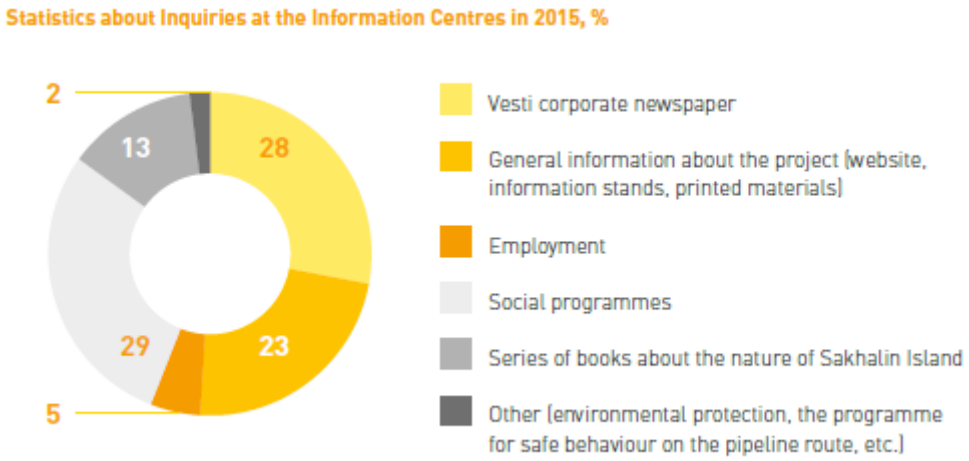


Figure 1 Proportion of Enquiries at Company Info Centres, 2015 (*figure from Sakhalin Energy presentation*)

Staff undergo regular training (both face to face and workshops) in a number of relevant topics, including Sakhalin-2 Project overview, community grievance procedure, the Company's social programmes, biodiversity and environmental monitoring, and new projects.

6.3 Stakeholder Engagement

Public meetings continue to be organised by Sakhalin Energy and held in communities near the Project's main operating assets. The Company aims to provide feedback and regular Project updates to local communities, and deliver other important messages such as pipeline safety. In 2016, meetings were held in 12 communities, attracting a total of 67 participants, which is consistent with previous years. Meetings are announced through newspapers, Sakhalin Energy's public website and posters. The Company reports a 95.5% level of participants' satisfaction with the meetings.

As previously reported, the Community Awareness Programme (CAP) is ongoing, which is primarily intended to promote public awareness of safety requirements in relation to the pipeline RoW and safety zones. Sakhalin Energy aims to ensure that communities and stakeholders are aware of Project activities via quarterly announcements in major Sakhalin newspapers and information provided during its public meetings.

6.3.1 Engagement with Japanese Stakeholders

Sakhalin Energy continues to actively engage with Project stakeholders in Japan. Engagement has previously included provision of information about the Project with a focus on marine safety operations, environment and OSR, and participation in the Oil Spill workshop, which is Company sponsored

A number of events were undertaken in 2015, as reported in Ramboll Environ's October 2015 monitoring report. The following events have taken place in 2016:

- 21st February – 31st Mombetsu Oil in Ice Symposium
- 22nd February – Oil spill workshop in Mombetsu under the International Symposium

- 23rd February – meeting with Hokkaido Government and Hokkaido Fisheries Environmental Centre
- 21st April – Sakhalin Energy hosts visits by the Hokkaido Government and Hokkaido Fisheries Environmental Centre.

A meeting with the Japan Coast Guard branch in Wakkanai is planned for 25th August 2016.

6.3.2 Engagement with Stroitel Co-operative

Sakhalin Energy has continued to engage with the *Stroitel* Dacha co-operative that is located in the vicinity of the Prigorodnoye Production Complex. Sakhalin Energy reports that it again issued special invitations to the dacha co-operative to participate in the Company's dialogue with external stakeholders under the preparation of the Sustainable Development Report. Most recent dialogues were held in November 2015 and February 2016. It is positive to note that dacha owners participated in the dialogue held in November.

The annual air quality and noise monitoring campaign in the vicinity of the dacha community commenced in May 2016. As in previous years, results of the monitoring are regularly reported to the chairman of the dacha community. As a rule, the dacha owners are invited to participate in all these monitoring sessions. The Company reports that there have been no registered exceedances of the maximum permissible concentration of pollutants.

Ad-hoc telephone engagement with the community continues.

A key future issue for engagement with the dacha community relates to the Train 3 Project. In this regard we note during routine meetings in February and April 2016 dacha owners raised queries regarding compensation, size of the sanitary protection zone (SPZ) and perspectives of the LNG train 3 construction. This emphasises the need for timely community engagement as part of the development of the Train 3 project and this is further discussed in section 6.7.

6.4 Community Grievance Procedure

Sakhalin Energy continues to operate its well-established Community Grievance Procedure that allows the receipt, investigation, tracking, assigning of actions, and addressing of complaints from the external public, including communities and contractor personnel (see previous IEC monitoring visit reports for further details).

6.4.1 Awareness Campaigns

Sakhalin Energy reports that its regular Community Grievance Procedure awareness campaign was again held in 2015, providing refresher training and inductions for Company staff and training for Sakhalin-2 Project contractors and subcontractors on HSESAP social commitments. Additionally, details of the Community Grievance Procedure have been published in Sakhalin district newspapers, along with the distribution of leaflets, posters and pocket calendars displaying the contact details of members of the community liaison organisation (CLO) and Information Centres.

Information about the Grievance Procedure is also presented during the regular public meetings.

6.4.2 Grievance Statistics

Sakhalin Energy provided a breakdown of grievances lodged during 2015 and 2016 year-to-date (YTD) (January – May), as shown in Table 2 below.

Table 2 Community Grievance Statistics: 2015 and 2016 YTD

Category	Number of lodged grievances	
	2015	2016 (Jan-May)
Community Impact	6	2
Information Disclosure	5	
SIMDP	14	2
Labour Issues	3	
Labour Safety	2	
Code of Conduct	2	1
Contract management	2	
Total	**34**	**5**

The Company reports that 34 grievances were lodged in 2015 (compared with 16 in 2014), all of which were rated blue as per the HSESAP Risk Assessment Matrix (RAM). The Company reports that 31 of these grievances were finalised in 2015, in addition to three grievances received late in 2014. 23 of the grievances raised in 2015 were resolved with a signed statement of satisfaction. The other eight grievances raised in 2015 were resolved by Business Integrity Committee (BIC) decision as follows:

- Two instances, both of which related to distribution of funding under the SIMDP, where the complainant did not agree with the SIMDP 2 regulatory bodies decision
- Six instances where no feedback was received

Sakhalin Energy reports that all grievances were finalised within the period stipulated by Community Grievance Procedure (45 working days). Of the remaining three 2015 grievances, all were finalised in 2016 within the period stipulated by the Grievance Procedure (one with a signed satisfaction letter, two by BIC decision). Grievances related to the SIMDP were reviewed by SIMDP external expert.

Just five grievances have so far been lodged in 2016. Sakhalin Energy has finalised two of these with signed statements of satisfaction within 45 working days. There are currently no overdue grievances.

6.5 Indigenous Peoples

6.5.1 Notable Events and Awards

During the monitoring visit, Sakhalin Energy reported on a number of notable events, recognitions and awards relating to its work with Indigenous Peoples (IP), including for 2015-2016:

- Coordination and participation in a series of events dedicated to the 80th Anniversary of Vladimir Sangi, Nivkh writer and founder of Nivkh alphabet.
- Winner of the Best Corporate Calendar award: Sakhalin Energy's "*12 Months on the Island of Sunrise*"
- Participation in the XI International Exhibition Fair: "*Treasures of the North 2016*" in Moscow, where the Company was awarded with two diplomas for the preservation and maintenance of cultural heritage of indigenous peoples of Sakhalin and contribution to the preservation of culture and languages of indigenous peoples.

Details of previous years' awards and events are presented in the relevant IEC monitoring visit reports.

6.5.2 SIMDP 3 (2016 – 2020)

The third Sakhalin Indigenous Minorities Development Plan (SIMDP 3) for 2016 – 2020 was developed by a Working Group in 2015 in accordance with Free Prior and Informed Consent (FPIC) following consultations in all areas of traditional indigenous residence and economic activities. The process included:

- Two rounds of public meetings and individual consultations
- Questionnaire survey on SIMDP 3 development
- Public opinion survey as part of the final evaluation of the SIMDP 2
- Circulation of the draft SIMDP 3 for public review and comments
- Conference "On the Prospects of Further Cooperation in the Framework of SIMDP 3", on the basis of which the SIMDP 3 was signed.

During 2016 (Jan-May), the SIMDP 3 co-ordinating bodies have been formed and the first meetings have been held. SIMDP 3 programme documents have been finalised and grant contents have been launched. The first round of consultations under the SIMDP 3 was held between 21st March and 1st April, comprising 16 meetings in 12 IP communities, reaching 257 participants. Training has also been provided for the SIMDP 3 co-ordinating bodies.

6.6 Social Investment

Sakhalin Energy has been implementing its SI Programme in line with the Company's Sustainable Development Policy for a number of years, and Ramboll Environ continues to consider the SI Programme as a constructive model of community investment with a strong partnership foundation and a robust sustainability agenda. Partnerships developed by Sakhalin Energy have focussed on healthcare, education, safety, biodiversity and environmental protection, arts & culture and Sakhalin indigenous minorities.

During the monitoring visit, Sakhalin Energy presented updates on a number of long-standing social investment initiatives, all of which have been described in detail in previous monitoring reports, including:

- Children Safety "*What to do in Emergency Situations*", an educational programme implemented in partnership with Sakhalin EMERCOM and Ministry of Education since 2005.
- Sakhalin Road Safety Council, an initiative aimed at reducing the number of road accidents and road accident victims, formed in 2005.
- Charity Initiatives and Volunteering Development Support Programme "*Hurry up for Good Deeds*", through which over 80 projects have been implemented since 2003.
- "*Fund of Social Initiatives 'Energy'*", through which 479 community projects have been supported in 63 settlements since 2003.
- Korsakov Sustainable Development Partnership Council, which has supported around 200 projects (large-scale projects and small projects as part of Korsakov Initiatives programme) on competitive basis since 2004.

6.7 Train 3 Stakeholder Engagement

A key future issue Sakhalin Energy's social performance team is stakeholder engagement in relation to the Train 3 project. Based on previous experience during the original project construction, issues of specific community concern are likely to include:

- Potential re-sizing of the SPZ and how this may affect, or be perceived by, the local dacha community. Air quality is a primary driver for the size of the SPZ and to fully meeting international standards in this regard we recommend that, in additional to regulatory development of the SPZ, a detailed air quality modelling assessment (using internationally recognised tools such as ADMS or AERMOD etc.) be used for both the ESHIA and as part of the consultation with the dacha community.
- Dredging activities and the potential for impacts on fishing and fisheries (in addition to dredging for Train 3, stakeholder engagement will also be required ahead of planned maintenance dredging for the existing facilities).
- Road traffic during construction and its potential impact (e.g. through nuisance, road damage, road safety, traffic delays/detours etc.) on local communities.

Follow-up Item: In conclusion we highlight the need for consultation input to the ESHIA process and note that the Scoping Report (see section 7.1.2) can provide a useful input to the wider ESHIA consultation process. It is encouraging to note that the Sakhalin Energy social performance team appear to be well aware of both the key likely community impacts (as summarised above) and the need for consultation in the ESHIA process. Ramboll Environ will continue to monitor stakeholder engagement for the Train 3 project over the coming months.

7. OTHER PROJECT UPDATES

7.1 New Projects and Expansions

7.1.1 Introduction

The following new projects and expansions are currently in development and/or under consideration:

- OPF Compression project
- Train 3 project
- Gas pipeline blowdown project

Commentary of the OPF Compression project is provided in Section 3, which includes a summary of the findings of a site visit to review early works that have commenced in relation to this project. Commentary on the Train 3 project and the gas pipeline blowdown project are presented in the following sub-sections.

7.1.2 Train 3 Project

The outline components of the Train 3 Project have been previously presented to lenders and comprise:

- Two new booster stations on the pipeline transportation system (PTS)
- Expansion of the existing Booster Station 2 (BS-2)
- New LNG train and LNG storage facilities
- New LNG export jetty
- Addition power generation at the LNG facility.

Further updates the Train 3 Project were presented during the site visit. Of note, while uncertainties remain in the source of gas for the Train 3 project, although it is likely that gas from both Sakhalin-1 and Sakhalin-3 may be required. In the case of Sakhalin-3, gas would be transferred from the Sakhalin-3 OPF via a new pipeline (within an existing Sakhalin-3 RoW) to the Sakhalin Energy PTS at a location immediately south of the Sakhalin Energy OPF. Options for the use of Sakhalin-1 gas, including precise gas treatment requirements, locations and ownership, are still being explored.

As part of the development of an ESHIA for the Train 3 project, Sakhalin Energy produced a draft scoping assessment report in Q1 2016. As previously reported to lenders, this draft was reviewed by Ramboll Environ. In response to our review comments, Sakhalin Energy provided Ramboll Environ with a revised version of the Scoping Assessment shortly prior to the site visit. This was discussed during the initial stages of the site visit, and a revised set of review comments was provided to the Company.

- ***Finding*:** Overall, we conclude that the Company has made good progress in the development of the Train 3 Scoping Assessment Report. However, further work is still required to address identified residual gaps and also to account for recent updates/changes in the project concept. The changes in the project concept materially affect the scope of the ESHIA and hence the Scoping Report will need to be updated to reflect these changes.

We consider that the timeline for completion of necessary environmental and social documentation (including the ESHIA, ESMPs and BAP etc.) for the Train 3 project within the overall project schedule is achievable but challenging. Critical aspects in achieving the timeline include:

- The need for the Scoping Report to feed into the Stakeholder Engagement process for the project in a timely fashion
- Final definition of the key project components/concepts as soon as possible
- Early coordination of the development of the ESHIA with the ongoing development of the Company-wide BAP (see section 7.6)
- Confirmation of both the gas supply concept and the identification and treatment of associated facilities.

Follow-up Item: Ramboll Environ will follow-up on the future development of the Scoping Report and other E&S documentation for the Train 3 project over the coming months.

During the previous site visit, Sakhalin Energy indicated the additional potential for condensate from Sakhalin-3 to be transported from the Sakhalin Energy OPF to the OET via the PTS. This option would enable batch export of condensate (as opposed to mixed oil/condensate export as currently occurs); this would require the construction of additional condensate storage facilities at the OPF and OET. No further updates on this potential were provided during the June 2016 monitoring visit.

Follow-up Item: Ramboll Environ will seek further updates on the potential for transport of Sakhalin-3 condensate to the OET via the PTS.

7.1.3 Gas Pipeline Blowdown Project

The gas blow down project relates to the installation of facilities to the 48'' gas pipeline that allow sections of the pipeline to be purged of gas in the event of emergency or intrusive repair and has been under consideration by Sakhalin Energy in response RF requirements. At the time of the previous site visit (in October 2015), it was envisaged that a vent stack would need to be installed at each BVS on the gas pipeline. During the current site visit, Sakhalin Energy reported that it has subsequently undertaken a Safety Justification review and that the first draft of this study has concluded that the existing purge facilities (at the OPF/BS1 and LNG sites) are sufficient to meet requirements and that additional vent stacks at each BVS are not required. Sakhalin Energy has stated that the next steps are for the Safety Justification to be finalised and then to seek RF regulatory ('Expertisa') agreement in Q4 2016.

Follow-up Item: Ramboll Environ will follow-up with the Company on the approval of the RF Expertisa conclusion and confirmation that no additional vent stacks are required at the BVSs. We note that detailed review of the Safety Justification is outside of Ramboll Environ's scope and should lenders require further review of this documentation then we recommend that advice from the Lenders' technical consultant be sought.

7.2 Environmental Performance

7.2.1 Discharge of treated water to land

A general permitting issue relating to discharge of treated water to land/soakaways has previously been reported. A number of water discharges (e.g. treated surface water runoff) to ground were originally permitted by the applicable Russian authority, RosTekhNadzor (RTN). As previously reported, responsibility for environmental permitting has reportedly now moved from RTN to RosPrirodNadzor (RPN). However, RPN does not have a regulatory procedure in place to issue permits for these discharges. At the time of the previous site visit in October 2015, the Company had hoped that this issue would be resolved by new legislation coming into force in January 2016. However, it now appears that the new legislation still provides no explicit allowance for discharges to land (although at the same time it does not explicitly prohibit such

discharges). Sakhalin Energy is therefore now in the process of developing and assessing options to remove existing discharges to land. It is also noteworthy that the Company is implementing discharge to stream for the new STP included in OPFC project to avoid this permit issue.

Follow-up Item: Sakhalin Energy to provide an update on the options and assessment process (noting the target completion date of end Q2 2016).

7.2.2 Flaring and GHG Emissions

Sakhalin Energy is committed to no continuous flaring or venting (HSESAP Air Emissions Standards Comparison, 0000-S-90-04-O-0257-00-E). Flaring figures presented during the site visit together with data available in the 2015 Sustainable Development Report show that:

- Total flaring volumes in 2015 (3.9bscf) were the lowest of any production year to date, reflecting high production reliability achieved during the year despite a planned maintenance shutdown of Train 2 in July 2015 (that necessitated flaring).
- Flaring volumes in 2016 up to the end of May 2016 show a slight increase on the equivalent period 2015, and this is partly due to a gas train trip at the OPF in early 2016.
- Utilisation of associated gas (at PA-A and PA-B) in 2015 is reported as 96.1%, within the 95% regulatory decree level.

GHG emissions are publicly reported in the 2015 Sustainable Development Report. The total GHG emissions reported for 2015 are marginally higher than for 2014 (3.705 mln t $CO_{2\text{-equiv}}$ in 2015 *c.f.* 3.524 in 2014). This change is reportedly due to changes in the global warming potential (GWP) indices and the inclusion acid gas incineration into the calculations.

7.2.3 Well Control

Follow-up Item: During the October 2015 site visit, Sakhalin Energy provided a presentation on updates to its well control contingency plan (WCCP) that covers well control events and their direct consequences on the LUN-A, PA-A and PA-B platforms. As part of the review the Company confirmed that the quantitative risk assessment (QRA) is being updated. While a brief verbal update was provided during the last day of the June 2016 site visit that indicated that work is ongoing, it was agreed that Sakhalin Energy would provide a written update for lenders. In the meantime, we continue to recommend that in due course:

1. The lenders' technical and/or reserves consultant reviews the QRA
2. Sakhalin Energy use the results of the QRA exercise to update the spill risk profiles in its OSRP as appropriate.

7.2.4 Cuttings reinjection

Ramboll Environ has previously reported (October 2015 Site Visit report) that amendments to RF waste management laws have resulted in fees now being charged by the authorities for the reinjection of cuttings, despite this disposal option generally being accepted as good international industry practice. Fee payments are estimated at around 8 million RUR annually. The Company's proposed long term solution to this issue is to work with the authorities to include cuttings re-injection into the RF register of best available technologies (BAT), which would then avoid the payment of fees.

Follow-up Item: Sakhalin Energy should keep lenders updated on progress towards inclusion of cuttings re-injection into the RF BAT register (noting that the current schedule for completing this is end of 2017).

7.3 Sewage Treatment

7.3.1 Offshore Sewage Treatment

Lenders have previously agreed to a request from Sakhalin Energy for a derogation in relation to discharge limits from its STP on the PA-B and Lun-A platforms that, while meeting IFC EHS guidelines, did not meet all permit discharge limits (for phenols, ammonia and phosphates) which resulted in the payment of fees. At the time of the derogation request, Sakhalin Energy noted that it was in negotiation with the RF authorities to agree to increase the discharge limits in its licences. Since that time, the Company has agreed revised permits that include increased discharge limits. Data presented during the June 2016 site visit showed that no exceedances have occurred since the new permits came into force in May 2016.

7.3.2 Onshore Sewage Treatment

Sakhalin Energy has previously reported (see Ramboll Environ's October 2015 monitoring visit report) compliance issues with discharges from a number of its onshore STP, including at its staff accommodation facilities in Yuzhno-Sakhalinsk (Zima) and Korsakov (KPA), at BS-2 and PMDs. At that time, the Company had developed action plans to resolve these issues, which include:

- Zima: change of discharge from a fisheries class stream to a lower class stream (and hence with less stringent discharge criteria)
- KPA: Develop a new water application package with the aim to agree less stringent discharge limits with the authorities
- BS-2 and PMDs: Develop STP improvement programmes to return the plant to compliance.

We were informed during the June 2016 monitoring visit that works to repair the STP at BS-2 are planned to commence in August 2016.

A general issue identified by Sakhalin Energy is that the end-of-pipe discharge limits set in the permits are in many cases more stringent than the maximum permissible concentrations (MPCs) allowable at the edge of the mixing zone within the receiving waterbody. This means that the discharge limits set in the permit are rather conservative. This appears to result from the fact that the permits are reviewed and updated based on historical best performance for each STP. The ramifications of this is discussed below for the KPA and Zima STP respectively.

As indicated above, Sakhalin energy's proposed solution to the permit exceedances at the KPA STP is to request less stringent discharge limits that more reflect the MPCs. This is a generally reasonable approach, although at the time of the site visit this was still in progress. However, discrepancies were identified in the monitoring approach during the site visit as described below.

- ***Finding*:** During a site inspection of the KPA STP it became apparent that the discharge from the STP is comingled with the site storm water prior to discharge to the Korsakovka river and also prior to the regulatory sampling point that is located at the discharge point into the river. This means that regulatory monitoring undertaken during periods of heavy rainfall is likely to produce low pollutant concentration levels as the STP discharge will be diluted. In this regard we note that:
  - Monitoring of STP discharges should be made prior to any comingling/dilution (we note that Sakhalin Energy does also undertake sampling at the exit of the STP but this is not used for permitting purposes)
  - If the (low) concentration levels monitored during rainfall periods are used by the regulator to set the permit discharge limits then it is unlikely that these limits can be achieved during dry periods (when the STP discharges are not diluted with storm water).

We recommend that these factors are considered within any proposed permit amendments.

In the case of the Zima STP, Sakhalin Energy aims to both change the discharge location to a lower classification stream (the Pravy Brook that runs close to the perimeter of the Zima site) and to pursue revised (less stringent) permit discharge limits with the regulator.

- ***Finding*:** Following review of monitoring data made available during the site visit (graphs showing pollutant concentrations before and after treatment at the STP were provided) and a visit to the Zima STP plant and discharge area, we make the following observations and recommendations:
  - Inspection of the available monitoring data does not appear to show a strong correlation between the pollutant input and output concentrations for several parameters. This indicates the variability of the discharge concentrations (including exceedances of permit limits) may, at least in part, be driven by inconsistent system performance and we recommend that this be investigated by Sakhalin Energy to confirm whether operational improvements can be made.
  - The STP operator team identified a concern about the integrity of the drainage system that directs sewage water to the STP potentially resulting in additional water ingress into the sewage drainage system. We recommend that this is further investigated by Sakhalin Energy (e.g. by use of tracers or CCTV).
  - Works were underway at the time of the site visit to change the location of the discharge outfall to the Pravy brook. Based on visual inspection it appears that the STP discharge will be comingled with stormwater drainage prior to discharge to Pravy brook. We note that this has to potential to lead similar problems to those raised above for the KPA STP and we recommend that discussions are held with the regulator to confirm that the permit compliance monitoring point be located prior to comingling.

Opportunity for Improvement: During the inspection of the work to redirect the Zima STP discharge outfall to the Pravy brook, Ramboll Environ noted a lack of sediment control that resulted in sediment laden water entering the brook. Noting that works were almost complete, the recommendation to install sediment control (silt fencing) was raised by Ramboll Environ with Sakhalin Energy staff while on site.

Photo 21 Construction works to redirect the Zima STP discharge to the Pravy brook leading to sediment runoff.

7.4 Monitoring Strategies

Sakhalin Energy has a range of biodiversity/ecological monitoring programmes in place. The programmes are defined for fixed periods, and then the results reviewed in order to determine the scope of the monitoring to be undertaken during the next phase of the programme. These programmes are defined within so-called Monitoring Strategy reports, each of which covers a different aspect as follows:

- Terrestrial programmes
  - Soils
  - Flora and vegetation
  - Wetlands
  - Groundwater
  - River hydrology
  - River benthos
  - Taimen
  - Steller's Sea Eagle / White Tailed Sea Eagle
  - Birds (other RDB species)
  - Mammals
- Offshore programmes
  - Offshore (sediments, benthos, plankton and water quality)
  - Ballast water
  - Gray whales (reviewed annually by the Western Gray Whale Advisory Panel (WGWAP))

Draft updates of the Monitoring Strategies were provided by Sakhalin in 2014 based on monitoring data up to 2013. These were iteratively reviewed by Ramboll Environ and the final Monitoring Strategies for the current period were agreed in 2015.

The exception to this is the offshore monitoring strategy which has still to be formally provided to Ramboll Environ for review. The update of this strategy document is now well overdue and this means that the current offshore monitoring programme (as undertaken since 2013) has not been reviewed or agreed by Ramboll Environ. The delay in the development of the Offshore Monitoring Strategy was identified during the previous site visit report.

- ***Finding*:** The Offshore Monitoring Strategy should be updated and provided to Ramboll Environ for review as soon as possible based on field data available to 2015. In making this recommendation we note that it is unlikely that this review process can be made in time to influence much of the 2016 offshore survey field work. The importance of confirming the offshore monitoring strategy and programme is heightened by the need to confirm the approach to future monitoring of recovery of sediments following an historical mud loss incident at the Lun-A platform in March 2013 and to feed into studies and management plans associated with the offshore components of the Train 3 and OPFC projects.

7.5 Western Gray Whales

During the site visit Sakhalin Energy made a brief presentation to the lenders on gray whale mitigation and monitoring programmes. The information presented was similar to that previously presented by the Company during the October 2015 site visit, at the WGWAP and associated task force meetings held in November 2015 and WGWAP taskforce meetings in May 2016. Ramboll Environ has previously reported to lenders on the 2015 meetings and will provide an update on the May 2016 taskforce meeting once the formal reports become available.

7.6 Project-Wide Biodiversity Action Plan

Sakhalin Energy made a presentation of the Company's progress in developing a Project-wide BAP. This was an advancement on a similar presentation made during the WGWAP taskforce meeting in May 2016. The presentation demonstrated that the biodiversity specialists working on the Project-wide BAP have developed a good understanding of the process of identifying triggers of Critical Habitat as defined in IFC PS6 on biodiversity and the subsequent requirement for the project to deliver net gains (beneficial effects) for those species identified as Critical Habitat triggers.

Follow up Item: Sakhalin Energy need to continue the development of the Project-wide BAP and particularly the definition of Discrete Management Units (DMUs) for each species being considered in the Critical Habitat Assessment. The current approach as presented needs further development to allow the assessment and BAP to progress.

8. OPPORTUNITIES FOR IMPROVEMENT

A number of opportunities for improvement (OFI) have been identified following the site visit. It is emphasised that **these do not relate to specific areas of non-compliance** and are therefore not classified as Findings (see Section 9), but are suggested for the benefit of either Sakhalin Energy and/or Lenders to either improve performance or, in some cases, avoid future instances of non-compliance.

These opportunities for improvement are summarised below, together with Sakhalin Energy's response for which they are identified as the action party.

Opportunities for Improvement				
ID	**Topic**	**Opportunity for Improvement**	**Action Party**	**Sakhalin Energy Response**
1	Wetlands	At the wetland near Smirnykh (KP 230-231) culverts have been installed to address a finding from the 2014 monitoring visit that the wetland to the east of the access road was drying out as water could reach the area. The culverts have largely addressed the issue but some further work is required to re-install one culvert which is set at the incorrect height and to install some additional culverts to prevent pooling of water observed on the western side of the access road.	SE	
2	Waste transfer station	Some minor areas for improvement were identified in relation to the following: • ISO containers used for the storage of oily contaminated materials had rudimentary ventilation which could be improved to better reduce build-up of hydrocarbon vapours. • Some outdoor storage of drums containing oily rags/materials was identified with rudimentary weather covering that was insufficient to prevent drip trays filling with rainwater. Improved cover (for example by storing in ISO containers) should be considered. While recognising that the facility is owned and operated by a third party contractor, we encourage Sakhalin Energy to work with the contractor to bring about these improvements.	SE	
3	Erosion control during STP	During the inspection of the work to redirect the Zima STP discharge	SE	

Opportunities for Improvement				
	upgrade works at Zima	outfall to the Pravy brook, Ramboll Environ noted a lack of sediment control that resulted in sediment laden water entering the brook. Noting that works were almost complete, the recommendation to install sediment control (silt fencing) was raised with Sakhalin Energy staff by Ramboll Environ while on site.		
4	OSR Training and Exercises	Restructure future training to provide pre-reads for attendees. Also distinguish between new employee training and refresher training and consider designing training so that refresher training is only a subset of overall new employee training (vs. having all participants take all of the training).	SE	
5	OSR Training and Exercises	Design pre-printed status boards that clearly show what information is required. Training should include a lesson on who fills out what information on these status boards.	SE	
6	OSR Training and Exercises	Future training needs to now focus on better role definition, including • the specific roles and responsibilities of each position • the information each position is required to produce, and who it should go to • where each position goes for assistance or to provide the data that is required by each position.	SE	
7	OSR Training and Exercises	Design scenarios and conduct oil spill response exercises for non-standard events and specific times of year, such as the spring break-up period.	SE	
8	OSR Training and Exercises	Improvement of the Emergency Command Centre, with a larger room and better audio/visual capabilities.	SE	

9. FINDINGS

The new findings identified during the site visit are summarised below. During and after the site visit Sakhalin Energy also provided update information of a number of historical Finding Actions, which are detailed in a Findings Log (included as section 10 below).

Findings		
ID	**Topic**	**Findings**
1	OPFC Project management plans	Under the CTA/HSESAP the HSE Management Plan(s) for the OPFC Project will need to be reviewed by Ramboll Environ and formally agreed by lenders. We recommend that these plans are provided as soon as possible and as a minimum sufficiently prior to commencement of main construction activities to allow for review by Ramboll Environ, update as necessary by Sakhalin Energy, and approval by lenders.
2	Non-hazardous waste management strategy	Based on the previous experience, we note that the revised strategy of using existing and new municipal waste facilities poses a number of risks (and, indeed, Sakhalin Energy's own previous review of waste strategies in 2015 identified this as a high risk option) including uncertainty over whether: 1. The existing landfill facilities at Nogliki and Smirnykh can be approved for inclusion in the GRORO in the timeframes anticipated (and hence can be used for waste disposal) 2. The proposed new waste facilities in Yuzhno and Nogliki, and the expansion of the Korsakov waste facility, will be completed in the timeframes anticipated (in this regard we note that the development of the new landfill facility at Yuzhno is already delayed by several years) 3. All municipal facilities will be constructed and operated to appropriate standards (as was not the case, for example, with the existing Smirnykh and more particularly the Nogliki landfills). The significance of the above risks would be mitigated by the development of the Company's own incineration capacity as this would have the potential to significantly reduce the residual volumes of Class IV-V wastes to be disposed of at the municipal facilities. This emphasises the importance of the development of the Company's own incineration capacity as a risk mitigation and we recommend that this be formally included in the written waste management strategy. However, we understand that the development of such facilities is very much more likely to be possible from a permitting perspective if it is included as part of the OPFC and Train 3 projects. In terms of the OPFC project, we consider that this is now an urgent issue given that early construction works have already commenced and we recommend that the Company confirms the status of the permitting status for the OPFC project and whether it is still possible to include permanent incineration facilities within the RF approvals for that project.
3	Construction waste	A specific issue raised during Ramboll Environ's previous site visit was uncertainty as to whether construction related wastes (for example of

Findings		
		the OPFC project) would be permitted for disposal at the available municipal landfills; at that time Sakhalin Energy had indicated that this may not be allowed. During the June 2016 site visit, Sakhalin Energy verbally informed Ramboll Environ that such construction wastes could be disposed of to the municipal landfills, although it was not clear how or why this position had changed and, given the commencement of OPFC construction works, we recommend that the Company provides lenders with written confirmation of this.
4	Train 3 Scoping Assessment	Overall, we conclude that the Company has made good progress in the development of the Train 3 Scoping Report. However, we have noted some residual gaps in the Scoping Report, the most significant of which relate to consideration of associated facilities, particularly in relation to the upstream gas supply facilities. The changes in the project concept materially affect the scope of the ESHIA and hence the Scoping report will need to be updated to reflect these changes.
5	KPA STP	During a site inspection of the KPA STP it became apparent that the discharge from the STP is comingled with the site storm water prior to discharge to the Korsakovka river and also prior to the regulatory sampling point that is located at the discharge point into the river. This means that regulatory monitoring undertaken during periods of heavy rainfall is likely to produce low pollutant concentration levels as the STP discharge will be diluted. In this regard we note that: • Monitoring of STP discharges should be made prior to any comingling/dilution (we note that Sakhalin Energy does also undertake sampling at the exit of the STP but this is not used for permitting purposes) • If the (low) concentration levels monitored during rainfall periods are used by the regulator to set the permit discharge limits then it is unlikely that these limits cannot be achieved during dry periods (when the STP discharges are not diluted with storm water) We recommend that these factors are considered within any proposed permit amendments.
6	Zima STP	Following review of monitoring data made available during the site visit (graphs showing pollutant concentrations before and after treatment at the STP were provided) and a visit to the Zima STP plant and discharge area, we make the following observations and recommendations: • Inspection of the available monitoring data does not appear to show a strong correlation between the pollutant input and output concentrations for several parameters. This indicates the variability of the discharge concentrations (including exceedances of permit limits) may, at least in part, be driven by inconsistent system performance and we recommend that this be investigated by Sakhalin Energy to confirm whether operational improvements can be made.

Findings		
		• The STP operator team identified a concern about the integrity of the drainage system that directs sewage water to the STP potentially resulting in additional water ingress into the sewage drainage system. We recommend that this is further investigated by Sakhalin Energy (e.g. by use of tracers or CCTV). • Works were underway at the time of the site visit to change the location of the discharge outfall to the Pravy brook. Based on visual inspection it appears that the STP discharge will be comingled with stormwater drainage prior to discharge to Pravy brook. We note that this has to potential to lead similar problems to those raised above for the KPA STP and we recommend that discussions are held with the regulator to confirm that the permit compliance monitoring point be located prior to comingling.

10. FINDINGS LOG

The IEC has previously documented all observations, issues and recommendations arising from its environmental monitoring visits and audits in the associated reports. The resolution and/or close-out of these issues is tracked by Ramboll Environ and Sakhalin Energy through the Findings Log, which includes:

a) All Issues[2] not closed out at the date of the previous report plus new Findings identified during that visit;

b) All actions from the Rivers, Erosion and Wetlands Remedial Action Plan (RemAP) 2007 for completeness;

c) HSE issues raised in regular reports to lenders since the date of the last IEC visit (i.e. from October 2015 to date) and still having open actions;

d) Actions arising from HSESAP revision process.

Only new, open and recently closed items are presented in the Findings Log.

Findings are listed in the **Findings** column, and have been categorised and given a reference number (AIR.01, AIR.02 etc.). Items have also been ranked according to Sakhalin Energy's Methodology[3], and where applicable, a reference to the relevant HSESAP, RemAP or other stakeholder commitment has been provided.

The **Action Progress Review** column shows recent progress made towards resolving or closing the outstanding items, and any RemAP status updates.

[2] Note that issues/incidents shall be reported to the Lenders and tracked via regular reports in accordance with the Loan Agreement, and are not separately included in this Findings Log. If a new RemAP is subsequently agreed in relation to any issue/incident, then this will be included in the Findings Log because it includes formally agreed actions. Where a RemAP is not required, the issue/incident should carry over to the next report until its status is shown as closed. Lenders can request additional information on any issue/ incident at any time (as per Loan Agreement).

[3] Assessed as per Risk Assessment Matrix

Findings Log – July 2016								
Ref[4]	**Rank[5]**	**Status**	**Date**	**Topic**	**HSESAP Ref**	**Finding**	**Action Progress Review**	**Action #**
Air Emissions and Energy Management								
AIR.13	Low Amber	**Open**	Dec-15	Emissions to Atmosphere	Air & Energy Emissions Standards Comparison IFC EHS Guidelines/ PS3	Sakhalin Energy has notified the IEC that compliance with IFC NOx emission requirements by the OPF power station gas turbines is not practicable at some OPF operation modes on the basis of balance between environmental impact, power system dynamic stability and production safety. The Company has provided a summary of the issue and risk analysis, which concludes while that while optimum NOx performance (within IFC limits) is possible by operating fewer turbines with high loading, this introduces potential major impacts including process safety risks, increased flaring and loss of production in the event of a trip. Note that exceedances of IFC NOx emissions requirements at the OPF have previously been identified (AIR.11).	**18.12.15**: Ramboll Environ has reviewed the initial summary note and requests further information regarding (i) the proportion of time the turbines are currently operating in each configuration/operational mode, (ii) the percentage of time they are out of compliance with IFC NOx emissions limits, and (iii) what (if any) effect the OPF Compression Project is likely to have on the future OPF turbine power generation requirements. **16.05.16**: Firing mode, run times and power output data provided for review in tabular and graphical format.	863290

[4] This Findings Log includes all Findings that were open at the date of the previous report (October 2013 in this case), plus newly identified findings.

[5] **Ref**: Finding number. **Rank:** RAM: Red / High Amber / Low Amber / Blue. **Status:** New (Finding raised during this visit), Open (Finding from a previous visit or review), Closed (recently closed, since previous IEC report) **Date:** date of report or review in which the Finding was initially raised. **HSESAP Ref.:** Reference to relevant HSESAP document and requirement number, or stakeholder commitment. **Action Progress Review:** new information confirmed at this visit. **Action#:** Fountain database action reference number(s).

Findings Log – July 2016								
Water Use								
WATER.03	Low Amber	**Open**	Apr-10	Water – effluent quality – phenol (OPF)	0000-S-90-04-O-0255-00-E App 1	The six most recent monthly compliance checks on process water discharges show significant exceedances of phenol over permitted levels. Part of the problem is that process water is filtered through a single filter rather than the three filter system originally in the plant design. The current system filters total suspended solids but still requires the addition of freshwater to avoid exceeding the hydrocarbon ppm discharge limits. This water is obtained from local surface water sources that are generally from peaty, iron-rich sources which frequently contain naturally occurring phenolic compounds.	**Action**: Install a permanent treatment system able to control suspended solids, hydrocarbons and phenol while not requiring additional dilution to achieve discharge consents. If the phenol source cannot be eliminated Sakhalin Energy needs to consider putting an activated carbon filter in-line to deal with this problem. **Action**: Status of existing issues and concentrations, and any future issues to be reported via monthly/ quarterly reporting as per WATER.02. **07.06.11**: Treatment system to control suspended solids and hydrocarbons: Project is currently being developed, and FEED is in progress to define technical and economic parameters. Investment decision will be considered later this year. If investment decision is taken, then implementation would take approximately two years. **Action**: Sakhalin Energy to advise on progress towards installing the permanent treatment system. **02.09.12**: OPF still using temporary disposable TSS filter system, but acknowledges this is OPEX intensive. Also looking to further understand the well capacity to determine whether discharge licences remain appropriate. **Oct 13**: The current timeline for an upgraded system to be ready to operate is January 2018. In the interim, the Company is assessing whether it would be appropriate to request that the discharge limits for TSS and dispersed hydrocarbon set in the licence for the disposal well be increased. **June 16**: No further update.	467657 - CLOSED 28/6/11 618507 - CLOSED 15/11/12 **NOTE**: WATER.03 will not be closed until permanent treatment system is in place.
WATER.08	Low Amber	**Open**	Sep-12	Water use permit	Permit compliance	An issue has been identified with the validity of valid environmental permits has been identified, which relates to water discharges	**Action**: Resolution of this issue is required. **27.02.13**: Sakhalin Energy has duly developed application packs and submitted these to RPN, however the applications have now been rejected due to the above	Not advised

Findings Log – July 2016								
						to land. A number of water discharges (e.g. treated surface water runoff) to ground were originally permitted by the applicable Russian authority, RTN. Responsibility for environmental permitting has now moved from RTN to RPN. However, RPN does not yet have a regulatory procedure in place to issue permits for these discharges. Sakhalin Energy's original RTN permits for discharge of water to land have now expired and applications to obtain new permits from RPN cannot be legally approved due to the current absence of an applicable regulatory procedure for these discharges. In the interim, Sakhalin Energy is continuing to operate in line with the previous (expired) permits issued by RTN, including reporting of monitoring results versus limits and payment of normal fees.	mentioned gap in the existing regulations. In these circumstances a particular decision can only be reached in the court. Meanwhile, the Company cannot dispute the rejection by RPN to issue the discharge permits to the Company as there are no legal grounds to acknowledge such rejection as unlawful. Thus the dialogue with RPN is ongoing on possible ways to legitimately regulate the matter. In the interim, Sakhalin Energy is continuing to operate under the previous permits issued by RTN, including reporting of monitoring results versus limits and payment of normal fees. This is a state-wide issue and does not affect Sakhalin Energy specifically but all industrial enterprises in the Russian Federation. **27.02.13**: Sakhalin Energy proposes to track the progress through half-year reports leaving the Finding open. It is beyond Sakhalin Energy control and no specific action can be developed. **11.04.13**: ENVIRON agrees with this approach. Finding remains open. **Oct 15**: New environmental legislation is coming into force from January 2016, which the Company has interpreted as not expressly prohibiting discharge to land. The Company will apply for new permits for the continued discharge of treated water to land under the new legislation, although is also considering alternative wastewater disposal options such as discharge to waterbodies in case permits are not granted. **June 16**: The new legislation reportedly still provides no explicit allowance for discharges to land. Sakhalin Energy is therefore in the process of developing and assessing options to remove existing discharges to land. Progress on this issue will be monitored by Ramboll Environ.	

Findings Log – July 2016								
WATER.12	Low Amber	**Closed**	Oct-13	Effluent quality LUN-A and PA-B		Exceedances against HSESAP standards are identified in a number of parameters, although most markedly in relation to phenol concentrations from STP discharges from the PA-B and LUN-A. As previously reported (see WATER.04), Sakhalin Energy has assessed replacement of the STP at the PA-B and LUN-A platforms and determined that the cost of replacement is uneconomic. Based on the age of the STP installed on PA-B and LUN-A, it seems surprising that the performance of these STP falls so significantly below modern discharge standards.	ENVIRON recommends that Sakhalin Energy reviews the vendor data for the STP packages and compares this with actual performance and, if there is a significant difference, then Sakhalin Energy should seek input from the vendor in investigating the reasons for the unexpected level of performance. **Action**: Contact with Vendor to investigate the reasons of exceedance and ways forward. **Oct 14:** STP now meet MARPOL standards for BOD (data provided to support this). However, phenols and ammonia remain above permit requirements. IEC recommends that Sakhalin Energy provides a formal written justification for why replacement of systems is not justified on a cost-benefit basis for agreement by lenders. **25.02.15**: Action #757350 to discuss exceedances with Vendor completed and can be closed. **Action**: To provide for agreement by lenders a formal written justification for why replacement of systems is not justified on a cost-benefit basis (#848242) **06.07.15**: "*STP Review for LUN-A/PA-B Platforms*" justification note provided to IEC for review. **09.07.15**: RE reviewed the justification and considers the proposed approach to be reasonable. Agreement of the Lenders was obtained since meeting RF discharge limits is a requirement of lender standards and hence until increased limits are agreed this essentially constitutes a derogation. **17.09.15**: New permits applied for, although now expected end-2015. In view of this, the Company proposes to: • Close current action #848242;	757350 - CLOSED 25/02/15 848242 - CLOSED 29/09/15 887599 – CLOSED 04/03/16

Findings Log – July 2016								
							• Create a new action "Sakhalin Energy to obtain new permits for platforms effluent discharge" with due date Feb 16; • If authorities do not approve new limits, apply to Lenders for the derogation. Agreed by RE with lender support on 29.09.15. **Action**: Sakhalin Energy to obtain new permits for platforms effluent discharge (#887599). **05.02.16**: Permits obtained but included phosphates rather than phosphor phosphates; new permits applied for with correct parameter. Action closed on this basis.	
WATER.15	Low Amber	**Open**	Oct-14	Sewage treatment	GIIP	At the time of the site visit, unit one of the permanent STP units was under maintenance. During the maintenance period untreated sewage was being diverted to one of the older BR-200 treatment units via an aboveground temporary divert hose. This arrangement is not ideal as it leads to increased risk of leak to the environment.	Sakhalin Energy has already developed plans for a permanent underground pipe network to enable transfer of incoming sewage between the different units during maintenance periods. **Action**: Remove the temporary above ground hose. **26.01.15**: Sakhalin Energy advises that this has been completed. Project to install permanent pipe is still at approval stage. **25.02.15**: Action closed, however Finding remains open until a more robust connection between the two treatment plants is in place. **Oct 15**: During the October 2015 audit, the temporary divert hose was still in-situ, and was observed to be exhibiting signs of wear and tear. The temporary hose crosses a number of storm water drainage ditches. The Company reports that as part of the Capital Expansion Projects planned for 2016, an upgrade of the Effluent Treatment Plant and Dehydration Unit is scheduled. **Action**: Sakhalin Energy to provide update on planned works and timescales as appropriate. **14.01.16**: Sakhalin Energy advises that the hose is only in place during summer and only used during STP shut	846171 - CLOSED 25/2/15

Findings Log – July 2016								
							down or minor maintenance activities. It is reportedly visually inspected for damage before use and replaced if defects are found, and removed during the winter period. This finding will remain open until completion of the permanent underground pipework between the treatment units, due for implementation in 2018.	
WATER.16	Low Amber	**Open**	Oct-14 - LNG	Water treatment at LNG	Water Use Standard Comparison Specification 0000-S-90-04-O-0255-00-E App 4	Some discrepancies were identified in the parameters being monitored in the discharge from the water treatment plant at the LNG site against the monitoring requirements laid out in the HSESAP. Sakhalin Energy recognises these discrepancies and proposes to apply to the authorities to include all HSESAP parameters within its water use permits to ensure compliance with lender standards and consistency across the Company's monitoring programme. Any specific parameters/issues will be discussed with ENVIRON on a case by case basis. Sakhalin Energy also proposes to review and update the HSESAP Water Use Standard Comparison Specification in May 2015.	**Action**: 1) Revise the Company's monitoring programme for the unification of monitoring requirements (#846244). 2) Review and update the HSESAP Water Use Standards Comparison Specification. (#846246). **21.06.16**: Part 2 above (#846246): SE advises that the Water Use Standards Comparison specification has been updated in compliance with IFC EHS Guidelines: Environmental Wastewater and Ambient Water Quality. Revised specification (Appendix 4) provided for review and we confirm that this effectively addresses this action which may be closed. (We note that more generally the HSESAP Water Use Standard is being merged with the Soil and Groundwater Standard, and this is currently under iterative review between RE and Sakhalin Energy, although this does not preclude closure of this finding now.)	846244 CLOSED 846246 CLOSED
WATER.17	Low Amber	**Closed**	Oct 15 (LUN-A audit)	Potable water quality	Occupational Health & Hygiene Standard Overview	Potable water quality test results reported in August 2015 indicated a non-compliance in relation to chloroform in the hot water supply. An internal investigation concluded that the non-	As a precaution, the Platform's fresh water treatment system was subjected to a non-routine inspection. **Action**: Replace all sampling containers and prevent recurrence. Confirm compliance of chloroform in hot water system by provision of monitoring results.	913138 - CLOSED 20/5/16

Findings Log – July 2016								
					Doc. 0000-S-90-04-O-0270-00-E App 1, Rev 06	compliance was most likely caused by the use of incorrect sampling containers and that new specifically-designed glass containers were to be used to resample in mid-October. The issue was not limited to the LUN-A asset alone.	**26.04.16**: Company reports that only dedicated sample bottles are used now. Resampling was conducted in November 2015 and the results provided for review**.** **20.05.16**: This matter has been resolved – recent chloroform concentrations were less than 0.015 mg/l, with the MPC being no more than 0.06 mg/l. Finding closed.	
WATER.18	Low Amber	**Closed**	Oct 15 (LUN-A audit)	Cooling water discharge to sea	Water Use Standard Overview Doc. 0000-S-90-04-O-0255-00-E App 1, Rev 05	As of August 2015, the LUN-A Platform's YTD cooling water discharge limit was reportedly exceeded by 60%. An application package to obtain a new water discharge permit (within increased limits) has been developed and submitted to the authorities for approval. Sakhalin Energy expects to have the new permit in place by the end of 2015.	**Action**: Sakhalin Energy to provide update on permit status. **26.04.16**: The permits were obtained in December 2015, evidence provided. **22.07.16**: Following review of the revised permits, Ramboll Environ is satisfied that they include both MPCs and cooling water discharge limits (volumes). Finding closed.	887599 - CLOSED 22/7/16
WATER.19	Low Amber	**Open**	Oct 15	Onshore STP performance	Water Use Standard Overview Doc. 0000-S-90-04-O-0255-00-E App 1, Rev 05	Sakhalin Energy has reported compliance issues with discharges from a number of its onshore STP, including at its staff accommodation facilities in Yuzhno-Sakhalinsk (Zima) and Korsakov (KPA), at BS-2 and PMDs. The Company has developed action plans to resolve these issues, which include: Zima: change of discharge from a fisheries class stream to a lower	**Action**: To undertake the action plans as developed to bring all STP discharges back into compliance. **14.01.16**: The authorities have reportedly advised since the site visit that the stream identified for future Zima STP discharge – the Pravy Stream – is also of fisheries class. Sakhalin Energy is therefore continuing to discharge to the original stream until its discussions with the authorities regarding the Pravy Stream's classification are resolved. If the classification is amended, the Company aims to change the discharge point and obtain new permits by the end of 2016. **Action #913149**: For LNG (KPA): Make a final decision on developing a new water application package with the	913148 (Zima) 913149 (KPA) - CLOSED 28/7/16 913150 (BS-2, PMDs)

Findings Log – July 2016								
						class stream (and hence with less stringent discharge criteria) KPA: Develop a new water application package with the aim to agree less stringent discharge limits with the authorities BS-2 and PMDs: Develop STP improvement programmes to return plant to compliance.	aim to agree less stringent discharge limits with the authorities. **28.06.16**: SE will develop a new water application package with the aim to agree less stringent discharge limits. The discharge limits are under discussion with MNR (Ministry of Natural Resources). Action #913149 closed. **29.07.16**: (Action #TBC): SE to obtain new water application package KPA STP from MNR and notify RE accordingly. **Action #913148**: Zima: change of discharge from a fisheries class stream to a lower class stream (and hence with less stringent discharge criteria) – due 31.08.2016 **Action# 913150**: BS-2: Replace STP; PMD's: Develop STP improvement.	
WATER.20	Low Amber	**New**	Jun-16	Wastewater Mgmt	GIIP	During a site inspection of the KPA STP it became apparent that the discharge from the STP is comingled with the site storm water prior to discharge to the Korsakovka river and also prior to the regulatory sampling point that is located at the discharge point into the river. This means that regulatory monitoring undertaken during periods of heavy rainfall is likely to produce low pollutant concentration levels as the STP discharge will be diluted. In this regard we note that: • Monitoring of STP discharges should be made prior to any comingling/dilution (we note that		

Findings Log – July 2016								
						Sakhalin Energy does also undertake sampling at the exit of the STP but this is not used for permitting purposes) • If the (low) concentration levels monitored during rainfall periods are used by the regulator to set the permit discharge limits then it is unlikely that these limits can be achieved during dry periods (when the STP discharges are not diluted with storm water). We recommend that these factors are considered within any proposed permit amendments.		
WATER.21	Low Amber	**New**	Jun-16	Wastewater Mgmt	GIIP	Following review of monitoring data made available during the site visit (graphs showing pollutant concentrations before and after treatment at the STP were provided) and a visit to the Zima STP plant and discharge area, we make the following observations and recommendations: • Inspection of the available monitoring data does not appear to show a strong correlation between the pollutant input and output concentrations for several parameters. This indicates the variability of the discharge concentrations (including		

Findings Log – July 2016								
						exceedances of permit limits) may, at least in part, be driven by inconsistent system performance and we recommend that this be investigated by Sakhalin Energy to confirm whether operational improvements can be made. • The STP operator team identified a concern about the integrity of the drainage system that directs sewage water to the STP potentially resulting in additional water ingress into the sewage drainage system. We recommend that this is further investigated by Sakhalin Energy (e.g. by use of tracers or CCTV). • Works were underway at the time of the site visit to change the location of the discharge outfall to the Pravy brook. Based on visual inspection it appears that the STP discharge will be comingled with stormwater drainage prior to discharge to Pravy brook. We note that this has to potential to lead similar problems to those raised above for the KPA STP and we recommend that discussions are held with the regulator to confirm that the permit compliance		

Findings Log – July 2016								
						monitoring point be located prior to comingling.		
Waste Management								

WASTE.21	High Amber	**Open**	Oct-14	Waste Mgmt	HSESAP Waste management Standard	Medium term actions as revised waste strategy in light of loss of access to Nogliki and Smirnykh landfills from Nov 2014 and limited capacity at Korsakov (combined with additional wastes to be generated by future projects such as the OPF Compression project):
						• Undertake a detailed waste generation assessment for the OPF Compression project to:
						  • Understand the volume and types of waste to feed into waste strategy
						  • Consider waste minimisation opportunities as a priority
						• Start geotechnical studies into OPF site to assess its suitability for the construction of waste facilities and the associated design implications
							Waste Generation Assessment: Information is included in ESHIA and is available for internal calculation of waste volumes and types together with waste minimization opportunities. Updates if any will be provided within the review of the updated ESHIA for OPF Compression Project. *[Geotechnical Studies: Sakhalin Energy has informed ENVIRON (after the October 2014 site visit) that it has reviewed available data and not identified major geotechnical issues at the site but that detailed surveys will be undertaken as part of the facility design. ENVIRON will review this data when available. This action is ON HOLD: SE project team and approach has not yet been identified; information on the action cannot be compiled currently.]*
							Oct15: Updated OPF Compression Project ESHIA provided to Ramboll Environ for review on 28.10.15. Ramboll Environ has provided its review comments to Sakhalin Energy and awaits its response.
							18.01.16: SE advises that the ESHIA was updated with the latest waste volume estimates and SE's new waste management strategy, which calls for disposal of waste class IV – V at the mainland landfills.
							21.01.15: Ramboll Environ considers that the ESHIA does not address in sufficient detail the important issue of waste minimisation or give specific details on which landfills will be used (and confirming that construction wastes will be permitted at these landfills – a specific concern raised by Sakhalin energy during the last site visit). This information should be included in the Company and EPCC waste management plans for the
								846201

Findings Log – July 2016								
							OPFC Project. Action kept open until waste management plans are developed. **June 16**: We understand that WMP is available in Russia, but that the English version is yet to be produced. RE will review the English version of the document when available.	
WASTE.22	High Amber	**Closed**	Oct-15	Waste management	HSESAP Waste management Standard	The development of a waste management strategy in the north of the island is now a critical and urgent issue to be addressed by the Company in order to ensure that OPFC project construction wastes are to be appropriately managed.	**Action**: Develop and share with Environ Waste Management Strategy with regard to OPFC construction waste. **09.06.16**: Waste Management Strategy provided to Ramboll Environ. **29.07.16**: Overall, we conclude that the use of on-island waste facilities is preferable to transport to the mainland. In addition, the revised strategies include further advantages in relation to the inclusion of potential waste recycling at Nogliki and the potential for the oily waste facility at Smirnykh (which was constructed several years ago with Sakhalin Energy's support, to act as a temporary storage area for oil-contaminated soils in the event of a major oil spill) finally receiving approval for use. However, the latest change to the waste management strategy means that it is no longer the Company's medium/long term strategy to bring waste disposal fully "in-house". This leads to new Finding WASTE.24 that effectively supersedes Finding WASTE.22 (which can now be considered closed).	913144 – CLOSED (Superseded) 29/07/16
WASTE.23	High Amber	**Closed**	Oct-15	Waste management	HSESAP Waste management Standard	The suggested location for the waste management facility at the OPF is in an area that has been identified in the OPFC project draft ESHIA as the site of a red data book (RDB) lichen species, and also one of the areas	**Action #913146**: Access the potential locations for OPF waste management facility considering environmental impacts (e.g. lichen offset requirements of OPFC). **30.05.16**: Survey of vegetation and protected species at the planned SDW landfill territory has been conducted. **24.06.16**: Report is considered scientifically sound and robust. Key conclusion is that part of the woodland on	913146 - CLOSED 27/7/06

Findings Log – July 2016								
						identified as a possible relocation/offset site for lichen habitat loss anticipated for the OPFC project. This both emphases the need for greater communication between different development projects' teams within the Company and also the need for further options appraisal for the development of the waste management facility.	site is good quality dark coniferous forest which supports many lichen species, including one of the three species present on the OPFC site. However we note that: 1) The Action was to assess the potential locations (plural) for the OPF waste management facility, whereas the provided report focuses on a single broad area. 2) The overall Finding now needs to be re-considered in the context of the revised Company waste management strategy, and specifically confirmation that waste management facilities at the OPF will be limited to (at most) incineration rather than landfill as was the case at the time the Finding was first generated. **27.07.16**: This issue has been effectively closed by the fact that the waste management strategy has been updated to remove the development of a landfill waste management facility at the OPF as part of the OPFC Project. We note that the new waste management strategy does include incineration at the OPF, and this option allows for greater flexibility in location than landfill cells and would also have a different footprint and impacts. Action #913146 and Finding WASTE.23 can be closed. Please see Finding WASTE.24 for actions relating to the new incineration facilities.	
WASTE.24	High Amber	**New**	Jun-16	Non-hazardous Waste Mgmt Strategy	HSESAP Waste management Standard	The revised strategy of using existing and new municipal waste facilities poses a number of risks including uncertainty over whether: 1. The existing landfill facilities at Nogliki and Smirnykh can be approved for inclusion in the GRORO in the timeframes anticipated 2. The proposed new waste		

Findings Log – July 2016								
						facilities in Yuzhno and Nogliki, and the expansion of the Korsakov waste facility, will be completed in the timeframes anticipated 3. All municipal facilities will be constructed and operated to appropriate standards The significance of the above risks would be mitigated by the development of the Company's own incineration capacity. We recommend that this be formally included in the written waste management strategy. The development of such facilities is very much more likely to be possible from a permitting perspective if it is included as part of the OPFC and Train 3 projects. This is therefore now an urgent issue for the OPFC project and we recommend that the Company confirms the status of the permitting status for the OPFC project and whether it is still possible to include permanent incineration facilities within the RF approvals for that project.		
WASTE.25	High Amber	**New**	Jun-16	Construction Waste - OPF Compression Project	HSESAP Waste management Standard	A specific issue raised during Ramboll Environ's previous site visit was uncertainty as to whether construction related wastes (for example of the OPFC		

Findings Log – July 2016								
						project) would be permitted for disposal at the available municipal landfills; at that time Sakhalin Energy had indicated that this may not be allowed. During the June 2016 site visit, Sakhalin Energy verbally informed Ramboll Environ that such construction wastes could be disposed of to the municipal landfills, although it was not clear how or why this position had changed and, given the commencement of OPFC Project construction works, we recommend that the Company provides lenders with written confirmation of this.		
Soil and Groundwater								
S&GW.11	Low Amber	**Open**	Oct-15 (OPF)	Surface water Management	Water Use Standard – 0000-S-90-04-O-0255-00-E App 7	Rivulets of silt-laden water were observed to be flowing across the fly camp area (OPF Compression temp accommodation) and into surrounding drainage ditches. These drainage ditches were not properly constructed and the check-dams in place were not frequent enough, nor properly formed. Furthermore, there was no settlement pond in place, nor any de-watering procedures or other measures in place to reduce the silt load into the ditches. Silt-laden water was observed to be	**Action**: Develop ASAP Drainage & Erosion Control Plan covering the entire camp area describing such arrangements as surfacing of the camp area (i.e. expanding the area covered by hardcore), use of silt fencing, protection of drainage ditch side-walls, and installation of at least one settlement pond, etc. **June 16**: Ramboll Environ notes during its June 2016 monitoring visit that drainage channels around the accommodation camp area have been cleaned up and enhanced since the previous monitoring visit (Oct 2015), with new culverts constructed under roadways and dense tree regrowth removed to allow a clearer flow. All channels appeared clear of pollutants and some contained	

Findings Log – July 2016								
						exiting the OPF site to the north and entering what appeared to be a natural stream.	low levels of water. Surface water from the fly camp currently drains to the north to permitted discharge point. A discharge point is planned for the OPFC site by the early works contractor. The camp will likely require at least a settlement pond, which is currently proposed for the northeast corner of OPFC site. A drainage ditch will surround the soil storage area and a settlement pond is proposed prior to the discharge point. It is likely that further measures will be required by RF authorities. Such measures should be included in the Drainage and Erosion Control Plan (DECP) that we understand is being developed for the OPFC Project.	
Land Management								
LAND.16	Low Amber	**Open**	Oct-11	Land mgmt – reinstatement of sandy and steep slopes	0000-S-90-04-O-0254-00-E App 6	Progress on re-vegetation of sandy and certain steep slopes remains slow and continued efforts on reinstatement are required. A number of recommendations to how biological reinstatement can be improved have been identified by the IEC in the October 2011 Site Visit report and these should be actioned by Sakhalin Energy.	**Action**: Incorporate IEC recommendations on biological reinstatement improvements into RoW plans. Action: Develop an Action Plan for sandy and steep slope revegetation. **Sept 12**: Action 612568 for 2012 closed. New action(s) to be opened for 2013 season. **Oct 13**: General improvements in re-vegetation were identified but continued further efforts are still required. **Oct 14**: General improvements in re-vegetation were identified but continued further efforts are still required. **Oct 15**: Erosional channels and poor/partial vegetation cover were observed during the monitoring visit; additional re-vegetation efforts and maintenance of drainage and erosional control are still considered required. **June 16**: Sandy slopes visited in June 2016 (KP127-128) indicated significantly improved vegetation cover, although bare areas were still evident.	612568 - CLOSED Sept 12

Findings Log – July 2016								
LAND.19	Low Amber	**Open**	Oct-13	Wetlands	RemAP	The limited visual observations of wetland areas made during the October 2013 site visit identified differing levels of recovery between different wetland areas, and this is consistent with both the findings of the September 2012 site visit and also Sakhalin Energy's own ongoing wetland monitoring programme. In cases where weaker recovery was identified, this is likely to be attributed, at least in part, to the residual presence of imported materials (e.g. soils and stone imported during construction) and depressions left on the RoW following construction that have resulted in water ponding/ waterlogging. ENVIRON recognises that measures to remove the remaining imported materials and infill depressions would require the use of heavy equipment, which in turn may result in damage to recovering areas as they access the wetland. Nonetheless, if continued poor rates of recovery are identified by Sakhalin Energy's future wetland monitoring programme, then we recommend that such measures may need to be considered.	**Action**: We recommend that Sakhalin Energy conducts detailed assessments of all poorly regenerated wetland areas to identify all factors impeding re-vegetation. In the case of sites where importation of materials and/or depressions are identified as key drivers for poor re-vegetation, ENVIRON recognises that measures to remove any remaining imported materials and to infill depressions would require the use of heavy equipment, which in turn may result in damage to recovering areas as they access the wetland. Nonetheless, if continued poor rates of recovery are identified by future monitoring at such specific sites, then it is recommended such measures may need to be considered in these areas. **SE Action**: Include the problem areas in the Wetland monitoring programme for 2014 and assess the results including the factors influencing recovery rate of the areas. **Oct 14:** Significant improvements in viewed areas during site visit. Of the site viewed, the exception to this is the wetland between KP 230-231, which is not recovering well and is showing signs of dewatering. **SE Actions**: • Develop and approve Action Plan to remediate the issue (#846203). • Execute the project of installation of the drainage system under the temporary access road (#846204). • Install additional transect closer to KP231 to look at the effects of the mitigation (#846207). • Continue monitoring of wetland condition at transect #22 for comparison of 2 transects' wetland condition (#846209). **24.03.15**: "WETLAND AREA AT PIPELINE CROSSING AT KP 230 – KP 231" Report provided for review (#846204).	757372 – CLOSED 9/4/15 846204 - CLOSED for report 2/4/15 CLOSED for culverts 20/10/15

Findings Log – July 2016								
							ENVIRON agrees that report identifies the issue and sets out the actions the Company plans to take. **30.03.15**: "Wetland Monitoring – Assessment of Condition" Report provided for review (#757372). Report found acceptable, action closed. **10.08.15**: Update to report provided: new chapter and link to map with proposed culverts. RE finds this acceptable. **01.10.15**: #846204: The Project of installation has been executed according to "Wetland area at pipeline crossing at KP 230 – KP 231" report and photos provided. Ramboll Environ satisfied with the installation of new culverts. **June 16**: The newly installed culverts at KP230-231 were observed during the June 2016 site visit and found to be working well in transferring water to the east side of the access road. However, there is now considerable pooling of water on the west side of the road and to alleviate this more culverts should be installed and the northernmost of the three recently installed needs to be replaced at a greater depth to collect more water. We suggest three more culverts evenly spaced between that culvert being replaced and the KP 230 marker post	
Biodiversity								
Oil Spill Response								
OSR.27	Low Amber	**Open**	Oct-11	Non-Mechanical Response Options and Capability	0000-S-90-04-O-0014-00-E Appendix 15	Non-Mechanical Response Options and Capability – Just prior to PCCI's visit, Sakhalin Energy had met with and briefed the Russian Federation officials in an attempt to move forward the planning for non-mechanical response options for oil spills.	[Summarised for brevity – further detail in previous monitoring visit reports] **Action:** Report progress in **half-yearly** (or earlier if relevant) to Lenders regarding non-mechanical OSR options (dispersants, in-situ burning). Communications with authorities, status of planning/pre-approval, and	594741 - CLOSED 7/8/12 Expect six-monthly updates in

Findings Log – July 2016								
						With the assistance of a visiting Spill Response Specialist/ Environmental Scientist from Shell Global Solutions (US) Inc, Dr Victoria Broje, Sakhalin Energy highlighted the effectiveness of in-situ burning and dispersants as response techniques to the Deepwater Horizon oil spill in the U.S. Gulf of Mexico last summer. Significant progress was made in convincing the Russian Federation that in-situ burning and dispersants should be considered as response options. Much work remains to be done in getting pre-approvals for the rapid use of these response techniques during a spill, and then in establishing the capability for deploying these response techniques during an actual incident. This is a high priority issue. As further discussed in the Offshore Exercise Evaluation, Sakhalin Energy's offshore mechanical containment and recovery capabilities are very limited, and non-mechanical response techniques such as dispersants and in-situ burning may be the only response options available to them during most wave and weather conditions.	establishment of company capabilities for use of these options. **17.07.13**: During the July 2013 Tier 3 OSR exercise, SE tested its ability to prepare the necessary background information and forward an application to RF Authorities for the use of dispersants on an offshore spill. Approval was quickly obtained and the use of dispersants was successfully simulated via the identification of capable aircraft and vessels, and the validation that these resources, together with the necessary dispersants, could be obtained. The IEC considers this a noteworthy development in bringing RF Authority partners closer to allowing non-mechanical response options for large offshore spill events. **Nov 14**: Q3 2014 HSESAP report advises that the use of dispersants has been pre-approved by authorities. In-situ burning is under discussion. **Feb 15**: Dispersants application in Russia only applies to limited obsolescence Corexit 9527 stock. Company is planning to work on an approval of modern dispersant Corexit 9500 in Russia, and plans to purchase additional modern stockpile. Company is working on purchasing of Helicopter dispersants application systems. **June 16**: During the 2016 monitoring visit, Sakhalin Energy reported that Russia does not yet have maximum permissible concentration limits for the use of dispersants in the marine environment; its fisheries and environmental organisations are working to establish temporary limits by the end of 2016 and final limits by the middle of 2017. In the meantime, Sakhalin Energy has used the Net Environmental Benefit Analysis (NEBA) approach required by the Russian dispersant standards to identify those areas and conditions were dispersant use is a viable option. The Company has also received	half-yearly HSESAP reports

Findings Log – July 2016								
							government sign-off on this approach and their designated use areas and conditions. Sakhalin Energy intends to procure volumes of the dispersant Corexit 9527 in 2017 and 2018 to be able to meet their internal stock requirement of 200 m^3. We recommend that Sakhalin Energy confirms the latest situation with RF approval of different dispersants and confirms that its approach is both in line with RF and GIIP requirements. At-sea in-situ burning standards and regulations are under development, and will also require a NEBA-based approach for permitting and use. Sakhalin Energy's OSR contractor is developing a similar approach and standard to that used for dispersants to seek government approval, or pre-approval, for in-situ burning offshore. Currently, there is no allowance in Russia for in-situ burning of on-shore oil spills as a response option.	
OSR.39	High Amber	**New**	Jun 16	OSRP	GIIP	Worst Case Spill Scenarios	Ramboll Environ/PCCI have previously raised the issue of worst case spill scenarios not being included in the OSRPs (see Action OSR.05). At that time it was agreed that such worst case scenarios could not be added into the OSRP as they had been already approved by the authorities, but that this deficiency against Good International Industry Practice (GIIP) would be overcome by the Company including worst case scenarios within its oil spill exercise schedules. On this basis finding OSR.05 was closed. However, review of oil spill exercises suggests that worst case scenarios have yet to be exercised. We recommend that such scenarios be included in the exercise schedule. We further recommend that worst case scenarios be included in the ongoing updates/re-approvals of the OSRP. We also recommend that the results of the QRA update being undertaken as part of the Well Control Contingency Plan (WCCP) be used as input to the update	

Findings Log – July 2016								
							OSRPs (see also follow-up Item 6 in Ramboll Environ's June 2016 Site Visit report).	
Health & Safety								
H&S.16	High Amber	**Open**	Oct 14 (LNG site visit)	Health & Safety (NORM)	GIIP	Sakhalin Energy to revise its NORM procedures. The revised procedures will be reviewed during the next site visit.	**Action**: Sakhalin Energy should confirm the following in relation to the recorded LSA on the PIG in 2010: a. The actual levels of LSA recorded by the PIG contractor on the equipment; b. How sludge/debris generated at the LNG during the 2010 PIG activity was handled and disposed of; c. Whether any investigation or actions into the reported LSA levels were undertaken at that time (i.e. in 2010). In addition Sakhalin Energy should confirm: a. Its NORM monitoring procedures for PIG equipment, including PIG activities on both the gas and oil pipelines; b. Whether it has PIG treatment facilities at the OPF. **02.03.15**: Sakhalin Energy advises that it conducts annual monitoring for ionizing radiation on all equipment deemed to be at risk of exposure (e.g. Well Work-over equipment and at Separation equipment at Platforms and OPF). Results of such monitoring have reportedly never revealed any exceedances of RF or International limits (OGP) and in fact are far below limits. The Company has decided to formalize various control measures by updating its procedure on management of NORM. **June 16**: No update provided during monitoring visit discussions.	846195
Social								
General								
GEN.11	High Amber	**New**	Jun 16	OPFC Project		Under the CTA/HSESAP the HSE Management Plan(s) for the OPFC		

Findings Log – July 2016								
				management plans		Project will need to be reviewed by Ramboll Environ and formally agreed by lenders. We recommend that these plans are provided as soon as possible and as a minimum sufficiently prior to commencement of main construction activities to allow for review by Ramboll Environ, update as necessary by Sakhalin Energy, and approval by lenders.		
GEN.12	Low Amber	**New**	Jun-16	Train-3 Scoping Assessment		Overall, we conclude that the Company has made good progress in the development of the Train 3 Scoping Report. However, we have noted some residual gaps in the Scoping Report, the most significant of which relate to consideration of associated facilities, particularly in relation to the upstream gas supply facilities. In addition, the important project updates described above have not been included in the latest version of the Scoping Review. These changes in the project concept materially affect the scope of the ESIA and hence the Scoping report will need to be updated to reflect these changes.		

11. FOLLOW-UP ITEMS

This section summarises the follow-up items identified throughout this report, which are neither Findings nor Opportunities for Improvement, but a list of topics or issues that Ramboll Environ (RE) intends to follow up on, either as part of future audits or monitoring visits or by requesting further information from the Company (as and when available).

Follow-Up Items			
ID	**Topic**	**Description**	**Mechanism**
1	Train 3 ESHIA and Stakeholder Engagement	We highlight the need for consultation input to the Train 3 ESHIA process and note that the Train 3 Scoping Report can provide a useful input to the wider ESHIA consultation process. It is encouraging to note that the Sakhalin Energy social performance team appear to be well aware of both the key likely community impacts (as summarised above) and the need for consultation in the ESHIA process. Ramboll Environ will continue to monitor stakeholder engagement for the Train 3 project over the coming months.	SE to provide updates and RE to review. Future site visits may be required.
2	Train 3 Scoping Report and ESHIA	Ramboll Environ will follow-up on the future development of the Scoping Report and other E&S documentation for the Train 3 project over the coming months.	SE to provide updates and RE to review. Future site visits may be required.
3	Potential for additional Sakhalin-3 condensate transport	During the previous site visit, Sakhalin Energy indicated the additional potential for condensate from Sakhalin-3 to be transported from the Sakhalin Energy OPF to the OET via the PTS. This option would enable batch export of condensate (as opposed to mixed oil/condensate export as currently occurs); this would require the construction of additional condensate storage facilities at the OPF and OET. No further updates on this potential were provided during the June 2016 Site Visit. Ramboll Environ will seek further updates on the potential for transport of Sakhalin-3 condensate to the OET via the PTS.	SE top provide an update
4	Gas pipeline blowdown project	Ramboll Environ will follow-up with the Company on the approval of the RF Expertisa of the Safety Justification for the gas pipeline blowdown project and confirmation that no additional vent stacks are required at the BVSs. We note that detailed review of the Safety Justification is outside of Ramboll Environ's scope and should lenders require further review of this documentation then we recommend that advice from the Lenders' technical consultant be sought.	SE to provide updates and RE to review. Lenders to seek advice from technical consultant if required.
5	Discharges to land	Sakhalin Energy is now in the process of developing and assessing options to remove existing discharges to land. Sakhalin Energy should provide an update on the options and	SE to provide updates and RE to review.

Follow-Up Items			
		assessment process (noting the target completion date of end Q2 2016).	
6	Well control	During the October 2015 site visit, Sakhalin Energy provided a presentation on updates to its well control contingency plan (WCCP) that covers well control events and their direct consequences on the LUN-A, PA-A and PA-B platforms. As part of the review the Company confirmed that the quantitative risk assessment (QRA) is being updated. While a brief verbal update was provided during the last day of the June 2016 site visit that indicated that work is ongoing, it was agreed that Sakhalin Energy would provide a written update for lenders. In the meantime, we continue to recommend that in due course: 1. The lenders' technical and/or reserves consultant reviews the QRA 2. Sakhalin Energy use the results of the QRA exercise to update the spill risk profiles in its oil spill response plans (OSRP) as appropriate.	SE to provide update information on assessment for review by Ramboll Environ and the Lenders' technical/reserves consultant.
7	Cuttings re-injection	Sakhalin Energy should keep lenders updated on progress towards inclusion of cuttings re-injection into the RF BAT register (noting that the current schedule for completing this is end of 2017).	SE to provide updates and RE to review.
8	Lichen translocation	It is clear that conditions in the woodland are worsening for lichens. The translocation process should be progressed this summer before further storms this winter potentially cause further damage.	SE to provide updates and RE to review.
9	OSR Training	Sakhalin Energy's ERM Department committed to correcting the Manual on Maintaining the ER Management Bodies to align with Appendix 15 requirements for OSR training frequency.	SE to provide updated documents and PCCI to review.
10	OSR Best Practice	It was agreed that PCCI would provide further guidance on what would be required by lenders in these spill scenarios, to include clarification on best practices for determining worst case spill volumes (in particular, PCCI will consider Russian, international (IPIECA, ITOPF and IMO) and Shell Oil standards and practices).	PCCI to provide references to Best Practice guidance for the Company's consideration.
11	OSRP	Sakhalin Energy noted that they have not received a detailed review of the revised OPF Onshore Plan from PCCI.	PCCI to provide to SE
12	Soil storage at OPF	The depth of peat storage areas was discussed during the monitoring visit as Sakhalin Energy would like to store it at depths of up to 4m to reduce the footprint of the storage area, although this will need further review to confirm the acceptability.	SE to provide further justification to RE for review/agreement.

Follow-Up Items			
13	Onboarding	Following the October 2015 site visit we recommended that further review of the CAP for HSE critical positions, including review of implementation and records, is undertaken by Ramboll Environ during the next site visit to the LNG. A detailed visit to the LNG site was undertaken in the June site visit and hence follow-up item is rolled over into the next site visit.	RE to review at the next monitoring visit

APPENDIX 1
1.TERMS OF REFERENCE

APPENDIX 2
2.ROW REPORT

APPENDIX 3
3.SAKHALIN ENERGY OIL SPILL EXERCISE REPORT