Intended for
Sakhalin Energy Investment Company Limited

On behalf of
Sakhalin-2 Phase 2 Project Finance Parties

Date
March 2019

Project Number
1700001012

SAKHALIN-2 PHASE 2 LENDERS' INDEPENDENT ENVIRONMENTAL CONSULTANT MONITORING REPORT SEPTEMBER 2018

RAMBOLL

SAKHALIN-2 PHASE 2 LENDERS' INDEPENDENT ENVIRONMENTAL CONSULTANT MONITORING REPORT SEPTEMBER 2018

Project No.	**1700001012**
Issue No.	**02**
Date	**29/03/2019**
Made by	**Andrew Snow, Adam Fitchet, Aleksander Ignatyev, Helen Yip**
Checked by	**Helen Yip**
Approved by	**Jon Hancox**

Made by:

Checked/Approved by:

This report has been prepared by Ramboll Environment and Health UK Limited with all reasonable skill, care and diligence, and taking account of the Services and the Terms agreed between Ramboll Environment and Health UK Limited and the Client. This report is confidential to the Client, and Ramboll Environment and Health UK Limited accepts no responsibility whatsoever to third parties to whom this report, or any part thereof, is made known, unless formally agreed by Ramboll Environment and Health UK Limited beforehand. Any such party relies upon the report at their own risk. Ramboll Environment and Health UK Limited disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the Services.

Version Control Log

Revision	Date	Made by	Checked by	Approved by	Description
01	15/10/18	AS, AF, AI	HY	JH	Draft for SE / Lender Review
02	29/03/19	AS, AF, AI, HY	HY	JH	Issue for Lenders

Ramboll
Arkwright House
Parsonage Gardens
Manchester M3 2LF
United Kingdom
T +44 (0) 161 827 1890
www.ramboll.co.uk

CONTENTS

LIST OF ABBREVIATIONS		**I**
EXECUTIVE SUMMARY		**III**
1.	**INTRODUCTION**	**1**
2.	**OPF COMPRESSION PROJECT MONITORING**	**3**
2.1	Introduction	3
2.2	HSE Performance & Assurance	3
2.3	Social Performance	4
2.4	Biodiversity Management	13
2.5	Environmental Performance	16
2.6	Waste Management	18
3.	**TRAIN-3**	**20**
3.1	Introduction	20
3.2	Train-3 Site Walkover	20
3.3	Social Issues	21
3.4	Aniva Bay	26
3.5	Waste Management	27
4.	**OTHER LOCATIONS MONITORING**	**28**
4.1	ETNO Waste Transfer Facility	28
4.2	Right of Way	30
4.3	Zima Wastewater Treatment Plant	31
5.	**OTHER PROJECT UPDATES**	**33**
5.1	Environmental performance and permitting issues	33
5.2	HSE Performance Update	36
5.3	HSESAP Document Update	37
5.4	RoW Maintenance	37
5.5	Waste Management Strategy	38
5.6	Corporate Social Performance	39
5.7	Development of project-wide Critical Habitats Assessment (CHA) and Biodiversity Action Plan (BAP)	41
5.8	4D Seismic Survey & Western Gray Whales	41
5.9	Marine Mammals Observation Programme	43
5.10	Oil Spill Preparedness and Response	43
6.	**OPPORTUNITIES FOR IMPROVEMENT**	**45**
7.	**FINDINGS LOG**	**48**
7.1	Findings WATER.19, 20 and 21 and WASTE.24	48
8.	**FOLLOW-UP ITEMS**	**77**

LIST OF ABBREVIATIONS

BAP	Biodiversity Action Plan
BIC	Business Integrity Committee
BLF	Beach Landing Facility
BOD	Biological Oxygen Demand
BS	Booster Station
CHA	Critical Habitats Assessment
CLO	Community Liaison Organisation
CTA	Common Terms Agreement
DECP	Drainage and Erosion Control Plan
EPC	Engineering, Procurement and Construction
ESHIA	Environmental, Social and Health Impact Assessment
FEED	Front-End Engineering and Design
GHG	Greenhouse gas
GRORO	Russian register of approved waste facilities
GTT	Gas Transfer Terminals
HSE	Health, Safety and Environment
HSESAP	Health, Safety, Environmental and Social Action Plan
HSE-SP	Health, Safety and Environment and Social Performance
HSE-SP MS	Health, Safety and Environment and Social Performance Management System
IBA	Important Bird Area
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
LTI	Lost Time Incident
LUN-A	Lunskoye-A Production Platform
MMO	Marine Mammal Observer(s)
MMP	Mitigation and Monitoring Plan
MMPP	Marine Mammal Protection Plan
MOF	Materials Offloading Facility
MPC	Maximum permissible concentrations
NEBA	Net Environmental Benefit Assessment
NOx	Oxides of nitrogen
NTF	Noise Task Force
OBN	Ocean Bottom Node
OFI	Opportunity for Improvement
OPEX	Operational expenditure
OPF	Onshore Processing Facility
OPF-C	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)
PCCI	PCCI, Incorporated, the Lenders' oil spill consultants
PCDP	Public Consultation and Disclosure Plan
PCDR	Public Consultation and Disclosure Report
PMD	Pipeline Maintenance Depot
Ramboll	Ramboll Environment and Health UK Ltd

REH	Ramboll Environment and Health UK Ltd
RF	Russian Federation
RoW	Right of Way
RPN	RosPrirodNadzor
RTN	RosTekhNadzor
Sakhalin Energy	Sakhalin Energy Investment Company Ltd
SDW	Solid Domestic Waste
SEP	Stakeholder Engagement Plan
SGC	Stroygazconsulting, subcontractor on the OPF-C Project
SIMDP	Sakhalin Indigenous Minorities Development Plan
SP	Social Performance
SPZ	Sanitary Protection Zone
STP	Sewage Treatment Plant
TRCF	Total Recordable Case Frequency
TSS	total Suspended Solids
WGW	Western Gray Whale
WGWAP	Western Gray Whale Advisory Panel
WMP	Waste Management Plan
YTD	Year-to-date

EXECUTIVE SUMMARY

Ramboll Environment and Health UK Limited (hereafter 'Ramboll') 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 undertakes:

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

An annual Project monitoring site visit was conducted from 11th to 17th September 2018 and incorporated the following:

- OPF Gas Compression (OPF-C) Project:
  - Contractor's social performance, workers' accommodation and grievance management
  - Beach landing facility, soil and peat storage, nearby coastal dunes and protected species management
  - On-site environmental performance
  - Waste management
- Proposed Train-3 Project:
  - Sites of planned infrastructure / construction within the Prigorodnoye production complex
  - Contractor camp/workers' accommodation proposals
  - Ecological visit to Aniva Bay shoreline
  - Visit to nearby Stroitel dacha
- Third party waste transfer facility
- Right of Way
- Nogliki Information Centre
- Office meetings and update presentations, including:
  - LNG Train 3 project update
  - OPF-C project update
  - Environmental performance and permitting issues
  - HSE performance update
  - HSESAP document update
  - Right of Way (RoW) maintenance
  - Waste Management Strategy
  - Social performance highlights and investment programmes
  - Stakeholder engagement activities, including considerations for Train-3
  - Development of project-wide Critical Habitats Assessment (CHA) and Biodiversity Action Plan (BAP)
  - 4D seismic survey
  - Marine mammal observation programme
  - Oil spill response (OSR)
  - Closure of open Actions

This report also presents the IEC's Findings (both new and open non-compliance items), identified Opportunities for Improvement and follow-up items. This executive summary includes key the points made by Ramboll in this report.

OPF Gas Compression (OPF-C) Project

Ramboll conducted a visit to the OPF Compression (OPF-C) Project located in the central, eastern side of Sakhalin Island. At the time of the visit, piling works were ongoing and the accommodation camp was under refurbishment. The visit involved walkover inspections within the OPF-C Project site itself, the proposed beach landing facility site, nearby monitoring locations and sites of ecological and biodiversity interest. The visit also involved discussions with the key staff from Petrofac (Sakhalin Energy's EPC contractor) as well as ecological specialists from Sakhalin Energy responsible for environmental management and biodiversity monitoring.

HSE Performance and Assurance

Petrofac operates under its own Health, Safety and Environmental Management System and Sakhalin Energy plans, supplemented where necessary by Sakhalin Energy's programmes, standards and systems. Based on on-site observations and discussions with Sakhalin Energy, Ramboll is generally comfortable with the Company's approach to contractor oversight and performance monitoring for the OPF-C Project. We will continue to monitor Project's compliance with HSESAP requirements and will review with interest the Company's February 2019 audit report on Petrofac.

Social Performance

Social performance at the OPF-C Project is ensured primarily through Petrofac's Social Performance Management Plan (currently being finalised) and its Welfare Policy and Plan, a comprehensive document developed in the spirit of the IFC/EBRD good practice guidance note "Workers' Accommodation: Processes and Standards"[1] which regulates working conditions at the OPF-C construction sites. Petrofac also applies Sakhalin Energy's grievance mechanism, and Ramboll reviewed the implementation of this and the handling of grievances received to date.

At the time of the visit, OPF-C Project personnel were provided with accommodation facilities and related welfare amenities at the following venues:

- Petrofac's construction camp: "Fly camp" (operated by Petrofac)
- MRTS construction camp (operated by an external party)
- SU-4 camp (operated by an external party)

The listed camps were visited by Ramboll. The main construction camp (located in close proximity to the Fly camp) is expected to be commissioned in full by mid-2019.

The Fly camp, accommodating 360 employees, was found by Ramboll to be managed in line with the Petrofac's Welfare Policy and Plan, providing inter alia sufficient space per person per room, adequate toilet, shower and laundry facilities and an equipped and staffed medical facility. Regular inspections of sanitary, fire safety, waste and H&S conditions are undertaken. However, review of Petrofac/Sakhalin Energy's audit reports and our inspections of both the MRTS and SU-4 camps (together accommodating c. 203 workers) revealed a number of non-compliances of camp management practices against good international standards, including an absence of firefighting equipment, inadequate security and medical provisions and insufficient lighting and personal space. In addition, Petrofac reported a lack of influence over the landlord of the SU-4 camp, specifically difficulties encountered in accessing the camp for its inspections. Ramboll has raised two Findings in these regards.

An OPF-C project-specific Stakeholder Engagement Plan (SEP) and related Public Consultation and Disclosure Plan (PCDP) have been prepared and are to be implemented by Sakhalin Energy. Ramboll recommends that awareness of the SEP and PCDP related to OPF-C construction activities should be raised among Petrofac personnel that they should also be more involved in future stakeholder engagement activities. This is considered important in light of the potential for interactions with local

[1] A public guidance note developed jointly by IFC and EBRD (August 2009), providing appropriate standards for workers' accommodation on financed projects.

stakeholders, most importantly (i) fishermen at the proposed beach landing facility and (ii) local communities in proximity to a potential location for the OPF-C incinerator near Nysh, circa 8 km from the OPF-C site (discussed later in this executive summary). The matter of incinerator construction should be consulted upon with the potentially affected community of Nysh, as local residents may express concerns to this type of development.

Biodiversity Management

Ramboll reports that the storage of peat by Sakhalin Energy has been extremely ordered and in line with RF requirements. A new settlement pond and recently permitted discharge point to the peatland habitats north of the site were observed during this visit, along with a very effective system of drainage channels taking water from the peat piles to the pond. The area upon which the peat is stored was an area of natural habitat (as defined in IFC PS6) and under that standard, the aim is for no net loss of natural habitat. As such, Ramboll suggests that there may be actions that could be completed within the peat piles that might help to soften the area and allow natural vegetation to recolonise the area.

Ramboll visited the coastline east of the OPF site where the OPF-C Project equipment is proposed to be landed by barge in June 2019. Potential impacts on native wildlife (including Steller's sea eagle and brown bear) need consideration in the development of plans to reuse the beach. Following discussions with Sakhalin Energy's ecology specialists and explanation of how the Company will liaise with Petrofac regarding equipment delivery, Ramboll is satisfied that the issue is being well managed.

The lichen translocation undertaken in 2016 was considered to be completed to a high standard and of the labelled specimens seen by Ramboll in 2018, all appeared to be healthy.

Environmental Performance

During the 2017 visit to the OPF-C site, Ramboll identified concerns with the on-site surface water management, particularly within the construction area itself as opposed to the camp area. In particular, an outflow from the north-eastern corner of the construction area had clearly allowed sediment to be deposited onto the natural peatland habitats beyond the construction area. In relation to a previously identified Opportunity for Improvement (OFI), new measures have been installed on-site to improve the situation. These were seen to be very good and an improvement.

Activity on the construction site was limited at the time of the visit and as such limited amounts of equipment or materials were seen on the site. Secondary containment for all liquid storage was provided, and chemicals and other camp materials were stored within appropriate, sealed containers.

Waste Management

The Company reported that a Waste Management Plan has been implemented for the OPF-C Project. All waste from the OPF-C construction site is currently being removed to the camp area each day, and the storage of waste was found to be extremely well organised with well-managed segregation of materials.

Sakhalin Energy remains committed to installing a waste incinerator for Hazard Class IV & V wastes as part of the OPF-C Project, and stated clearly that it was its intention to retain the incinerator beyond the completion of OPF-C project construction for disposal of operations waste from the OPF and OPF-C. As mentioned earlier, the location of the incinerator is still under assessment. Three options are being considered: on-site at the OPF on industrial land; on-site at the OPF on forest land; and close to Nysh village (near the railway station). Each location has its own set of permitting and/or ES risks, which are currently being assessed by a working group. Ramboll noted the slower than anticipated progress on the OPF-C incinerator sub-project since the last monitoring visit, and given the previous permitting issues experienced by Nogliki landfill, and landfill capacity on the island overall, Ramboll encourages the Company to implement its plans to install the OPF-C incinerator as soon as possible.

Train-3

Sakhalin Energy provided an overview of the LNG Train-3 Project scope and progress. It was stated that Front-End Engineering Design (FEED) work was complete and the permitting process was at an advanced stage, including State Environmental Expert Review (SEER). Development of the ESHIA for the Project was ongoing, however, a strategic decision by shareholders is awaited as to the upstream source of gas and associated infrastructure. Sakhalin Energy currently plans to deliver the Train 3 LNG Project, under a Production Sharing Agreement, by 2023 to 2024. The peak construction period would be expected in 2021 to 2022.

Ramboll conducted a brief walkover of the locations within the existing Prigorodnoye facility boundary identified to be developed for the Train-3 Project. These included the areas earmarked for the Train-3 production facility itself, the additional bulk storage tank and the additional LNG loading jetty (the latter being observed from distance). From the walkover, it is understood that although still vegetated, the onshore locations are essentially ready for the commencement of construction with only minor cable relocation works to be conducted in the main Train-3 production area.

Train-3 construction will require accommodation facilities to be expanded at Prigorodnoye to accommodate larger numbers of construction workforce. To achieve this accommodation capacity, the Yunona camp located in proximity to the LNG Plant site will be reconstructed and expanded to accommodate 4200 persons.

Stroitel Dachas Community

Sakhalin Energy reported that no additional land allocation is expected for Train-3 construction activities that would affect the Stroitel dachas community; nor is it expected that the Sanitary Protection Zone (SPZ) will be expanded towards the Stroitel co-operative (located 1200 m west of the Prigorodnoye site boundary). Despite this, the rumour of the upcoming Train-3 construction has raised concerns among the Stroitel dachas community members.

Ramboll concludes that the Company undertakes regular and sufficient engagement with dachas community members, including a designated person in charge of communication with Stroitel community members, communication via the Community Liaison Officer in Korsakov, public meetings and focus meetings (the latter as requested by Stroitel community members).

The major topic of concern raised by the dachas community members still relates to additional compensation (additional to that offered in 2006-2008) due to Train-3 activities. The Company's position on this claim is as follows: the community members opted their form of compensation in 2006-2008 and shall not be compensated repeatedly. However it is understood that the Train-3 construction activities will require additional community engagement practices with Stroitel, and Ramboll views the operation of Information Centres and the CLO office in Korsakov as critical. We recommend that the Company revisits the stakeholder engagement methods on a regular basis to ensure that they are sufficiently tailored to the needs and abilities of Stroitel dachas community.

Aniva Bay

Ramboll undertook a visit to the key ornithological locations close to the LNG. Salmon Bay, which lies almost 20 km west of the LNG and not in a direct line of flight as it is north of Korsakov, provides the best coastal habitats for birds within the immediate area of the LNG. The Mereya wetland (less than 1 km west of the LNG) in contrast was found to be entirely devoid of any birdlife. It was explained to Ramboll that the citation for the Aniva Bay Important Bird Area (IBA) contains many errors with regards to the species listed as present or the seasons during which it states that they would be present. Ramboll therefore suggests that Sakhalin Energy uses the ornithologist's data to ensure that the assessment provided in the Train-3 ESHIA is appropriate and proportionate, considering only those species which are known to, or realistically could use the areas around the LNG.

ETNO Waste transfer facility

Ramboll conducted a visit to the ETNO waste transfer facility located in an industrial zone in the north of Yuzhno-Sakhalinsk. The facility reportedly collects and handles a variety of Hazard Class I to V wastes from Sakhalin Energy assets across the south of the island. The ETNO personnel interviewed exhibited a good level awareness in terms of legal requirements, Sakhalin Energy waste management requirements and good practice. Ramboll observed a good standard of housekeeping across the transfer facility as well as pollution prevention measures, fire-fighting equipment and spill response equipment.

Wastewater Treatment

Ramboll conducted a brief visit to Sakhalin Energy's Zima 1 & 2 accommodation facility in the south of Yuzhno-Sakhalinsk in light of ongoing discharge permit exceedances to better understand how the facility is operated, how Sakhalin Energy is optimising the treatment process, and to observe the discharge into the Pravy stream, which is categorised under RF law as a fisheries class watercourse. Key components of the STP are over 20 years old and achieving the strict discharge limits required by the permits is a challenge. Permit exceedances are reported to the authorities and the Company pays a higher rate of pollution payments, as according to RF law.

It remains Sakhalin Energy's long-term plan to re-direct treated water from the plant to the municipal sewerage system, thus eliminating the discharge to the Pravy Stream, however this project has been delayed with a new target date set for late-2019. It was also reported that on the basis that it expected the municipal connection project to go ahead in 2018, the Company did not renew its waste discharge permit and let it expire.

Sakhalin Energy and its contractors continue to maintain and optimise the existing STP, monitor the discharge, and achieve compliance as far as possible. Ramboll has superseded existing Findings with three targeted ones in relation to the above.

Occasional exceedances of discharge permits are also noted at Korsakov Permanent Accommodation (KPA), Booster Station 2 (BS-2) and the OPF, and Ramboll has raised a Finding (for KPA) and identified follow-up items (for BS-2 and OPF) as appropriate.

Other Project Updates

Sakhalin Energy provided update presentations on a number of other topics as listed earlier in this executive summary. Ramboll had no concerns regarding the information presented although draws attention to the following key updates:

Waste Management Strategy

Ramboll has previously reported to Lenders on significant issues in relation to Sakhalin Energy's waste management strategy for non-hazardous wastes, relating to capacity issues at existing landfills, legal restrictions which unexpectedly stopped use of certain landfills and hindered development of others. During this monitoring visit the Company provided a further update, which included an overall downward trend of waste volumes going to landfill over the period 2015-2017, 70% capacity remaining at Nogliki landfill, ongoing unavailability of Smirnykh landfill; and development of the new landfills in Tymovsk (expected Q4 2018 – Q1 2019) and Yuzhno-Sakhalinsk (almost complete). Hazard Class 1 to 3 (hazardous) wastes continue to be disposed of on the mainland.

The Company confirmed that is does not plan to construct any new landfill facilities or co-fund municipal landfill developments. Ramboll will continue to follow-up on the status of the development of the above new landfill facilities.

Additionally, Sakhalin Energy reported a new challenge – a legislative change due to come in in January 2019 will mean that a 'Regional Operator' model is to be introduced across Russia, meaning that Sakhalin Energy is likely to lose control over solid domestic waste handling standards and disposal

routes. There is also potential for Sakhalin Energy wastes to be sent for disposal to landfills not complying with Project standards. Sakhalin Energy also predicts lower overall standards of service due to lower tariffs being proposed (set by the authorities). On conclusion of discussions with the Sakhalin Oblast and new Regional Operator, Ramboll recommends that Sakhalin Energy updates its Waste Management Strategy to clearly describe how it intends to manage the forthcoming legislative change.

Biodiversity Action Plan

Sakhalin Energy is in the final stages of producing a Critical Habitat Assessment (CHA) for the project as required under IFC PS6. Ramboll met with the Sakhalin Energy specialist working on the assessment and discussed our most recent comments in detail. The CHA is now with Sakhalin Energy to complete.

4D Seismic Survey

Sakhalin Energy undertook a seismic survey in spring 2018, comprising '4D' seismic surveys of the Piltun-Astokh field, a 3D/4D 'ocean bottom node' (OBN) survey around the Lunskoye-A platform and a source reduction OBN test in the Piltun-Astokh field. In preparation for the survey, Sakhalin Energy had developed and agreed with the WGWAP a Mitigation and Monitoring Plan (MMP), with a focus on protection of marine mammals and gray whales in particular. Unfortunately, implementation of the MMP during the seismic survey was hampered by a number of issues, including refusal of underwater noise monitoring permit due to concurrent naval operations and unusually extended periods of poor-visibility conditions. These issues and lessons learned will be discussed during the forthcoming Noise Task Force and WGWAP meetings in Moscow in November 2018.

1. INTRODUCTION

Ramboll Environment and Health UK Limited (hereafter 'Ramboll') 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 undertakes:

- Annual Project monitoring visits that cover a range of project activities, assets, programmes and plans.
- Biennial 'Level 1'[2] audits of selected Project facilities.

An annual Project monitoring site visit was conducted from 11th to 17th September 2018 and incorporated the following:

- OPF Gas Compression (OPF-C) Project:
  - Contractor's social performance, workers' accommodation and grievance management
  - Beach landing facility, soil and peat storage, nearby coastal dunes and protected species management
  - On-site environmental performance
  - Waste management
- Proposed Train-3 Project:
  - Sites of planned infrastructure / construction within the Prigorodnoye Production Complex
  - Contractor camp/workers' accommodation proposals
  - Ecological visit to Aniva Bay shoreline
  - Visit to nearby *Stroitel* dacha
- Third party waste transfer facility
- Right of Way
- Nogliki Information Centre
- Office meetings and update presentations, including:
  - LNG Train 3 project update
  - OPF-C project update
  - Environmental performance and permitting issues
  - HSE performance update
  - HSESAP document update
  - Right of Way (RoW) maintenance
  - Waste Management Strategy
  - Social performance highlights and investment programmes
  - Stakeholder engagement activities, including considerations for Train-3
  - Development of project-wide Critical Habitats Assessment (CHA) and Biodiversity Action Plan (BAP)
  - 4D seismic survey
  - Marine mammal observation programme
  - Oil spill response (OSR)
  - Closure of open Actions

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

[2] As defined in the HSESAP "HSE Assurance Standard Overview" document 0000-S-90-04-O-0015-00-E http://www.sakhalinenergy.ru/media/user/libraryeng/healthsocial/2015/88-0000-S-90-04-O-0015-00-E%20Appendix%201.pdf

- Opportunities for Improvement (Section 6). 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.
- An updated Findings Log (Section 7). The Findings Log is a live log of all Findings identified from IEC site visits and reviews of Project documentation. During the site visit, progress made towards the closure of open Findings was reviewed and the updated status of the Findings is provided in a revised Findings Log. The Findings Log has been updated following this monitoring visit.
- Follow-Up Items (Section 8), which are neither Findings nor OFIs, but a list of topics or issues that Ramboll 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. OPF COMPRESSION PROJECT MONITORING

2.1 Introduction

As part of the monitoring visit, Ramboll conducted a visit to the OPF Compression (OPF-C) Project located in the central, eastern side of Sakhalin Island.

Site preparation works on the OPF-C Project commenced in 2017, with Petrofac being appointed as the EPC contractor in Q3 2017. At the time of this monitoring visit, piling works were ongoing and the accommodation camp was under refurbishment (expected to be completed within Q4 2018). After that, projected key Project milestones include:

- Q3 2019 – Equipment delivery via Beach Landing Facility (BLF)
- Q3 2020 – Main tie-ins
- Q1 2021 – Construction completion (Greenfield & Brownfield)
- Q3 2022 – Final handover

It was reported that approximately 600 workers were currently working on the Project, with a peak of around 1,400 workers expected in 2019.

The visit focussed on:

- Contractor's social performance
  - Temporary workers' accommodation and welfare facilities
  - Grievance management
- Biodiversity management
  - Condition of coastal dunes
  - Beach Landing Facility (BLF) in preparation for delivery of large plant
  - Soil and peat storage and management
  - Protected species monitoring and management, and lichen translocation
- Environmental performance
  - On-site surface water management
  - Laydown and materials storage areas
- Waste management considerations.

The visit involved walkover inspections within the OPF-C Project site itself, the proposed BLF site, nearby monitoring locations and sites of ecological and biodiversity interest. The visit also involved discussions with the key staff from Petrofac, as well as ecological specialists from Sakhalin Energy responsible for environmental management as well as biodiversity monitoring.

2.2 HSE Performance & Assurance

In 2017, Sakhalin Energy and Petrofac completed a gap analysis of the contractor's Health, Safety and Environment and Social Performance Management System (HSE-SP MS) against Sakhalin Energy's HSE-SP MS, which was stipulated in the Contract Section VI – 'HSSE & SP Obligations'. An action plan was developed and implemented to address the identified gaps, and in certain areas Petrofac was required to adopt Sakhalin Energy's programmes, standards and systems (e.g. Goal Zero Programme, Road Safety Standard and grievance mechanisms). During this IEC monitoring visit, Sakhalin Energy reported that the Project HSE-SP MS was in place and the Project HSE organisation established.

Sakhalin Energy recognises the challenges around ensuring that its contractors (and subcontractors) adopt the correct HSE culture and has reportedly put significant resources into

working with Petrofac on both its project documentation and its induction and training programmes.

Petrofac has prepared a list of environmental and social management plans and procedures for the project, which have been reviewed and approved by Sakhalin Energy, and reviewed by Ramboll. Sakhalin Energy confirmed that all HSE-SP plans were either approved or in the final round of review and approval.

At the time of the visit, 1.2 million person-hours had been recorded on the OPF-C Project in 2018, with a Total Recordable Case Frequency (TRCF) reported to be 0.86. For the OPF-C Project to date, the reported TCRF was 0.75 and as of July 2018 and the Project had achieved 708 days Lost Time Incident (LTI) free.

Sakhalin Energy conducted a pre-mobilisation HSE-SP audit on Petrofac ahead of its starting work in May 2018 and has scheduled a further construction-phase audit in February 2019. Daily, weekly and monthly HSE inspections are reportedly undertaken by the Company and its contractors.

The approach to those inspections as well as the system of liaison between Sakhalin Energy, Petrofac and further subcontractors such as Stroygazconsulting (SGC) was discussed with Ramboll during the site visit by representatives of Sakhalin Energy, Petrofac and SGC. All parties were clearly aware of their roles and responsibilities within the system and of the relevant management systems.

Follow-up Item: *Based on discussions with Sakhalin Energy HSE personnel and on-site observations, Ramboll is generally comfortable with Sakhalin Energy's approach to contractor oversight and performance monitoring for the OPF-C Project. However, Ramboll will continue to monitor Project compliance with HSESAP requirements and will review with interest the February 2019 audit report on Petrofac.*

2.3 Social Performance

2.3.1 Key elements of Contractor's management system

Ramboll's social specialists conducted a series of interviews with representatives of Petrofac and its subcontracted organisations. During the interviews, major elements of the contractor's social management system were discussed. In general, it is understood that the following key elements constitute social management system of Petrofac:

- General social performance management will be ensured by a specific Petrofac's Social Performance Plan that was being finalized at the time of the site visit. It is expected that this document will comprise key indicators to be monitored throughout the involvement of Petrofac into the OPF-C project.
- Petrofac implements its Welfare Policy and Plan, which stipulating a set of standards regulating working conditions at the OPF-C construction sites, including matters related to accommodation. The document applies to all subcontractors of Petrofac. In order to implement the Policy and Plan, a Welfare Committee has been established that is chaired by an experienced HSE Manager.
- External stakeholder engagement practices are conducted by Sakhalin Energy representatives with involvement of Petrofac's specialists on an as-needed basis.
- Petrofac implements Sakhalin Energy's Community Grievance Procedure (as specified in its Social Performance Plan), which is applicable to Petrofac and all its subcontractors.

Petrofac's Social Performance Focal Points monitor, report and facilitate the resolution of any issues related to social performance of the OPF-C site. The Focal Points are reported to be at two levels:

1) Upper level: deputy director of Petrofac
2) Site level: HSE manager and administration manager

The site level focal points embrace the following roles and responsibilities in relation to social performance:

1) Ensure functioning of the Welfare Committee
2) Maintain a Risk Register
3) Manage grievances jointly with representatives of Sakhalin Energy and relevant subcontractors.

The Welfare Committee was founded in order to settle potential concerns raised by the workers at the OPF-C site. The committee consists of representatives of Petrofac and all 16 subcontractors (each contractor is represented by two team members). Apart from the grievance mechanism implemented (see more detailed description below), Petrofac initiates weekly awareness and feedback sessions held in a large hangar building to accommodate all interested visitors.

The Risk Register is a document mapping potential risks relating to OPF-C construction activities. In relation to social performance, it is reported that the major potential risks are travel safety and interfacing with local communities. During the monitoring visit Petrofac's representative noted that the latter risk is not a 'pressing issue'; nevertheless, the risk is being monitored by a security department.

As reported by Sakhalin Energy, OPF-C construction contractors undergo regular training sessions on social performance requirements. In 2017, three training sessions were held with 174 persons participating; in 2018, five training sessions were held (22 participants).

Specific elements of social performance and relevant actual/potential issues related to the OPF-C construction are discussed below.

2.3.2 Stakeholder engagement during OPF-C construction

The OPF-C construction activities triggered development of the specific Stakeholder Engagement Plan (SEP) and related Public Consultation and Disclosure Plan (PCDP). Both plans are prepared and are to be implemented by Sakhalin Energy staff. The interview conducted with the Petrofac HSE Manager, who also serves as a Social Performance Focal Point, indicated a lack of awareness of dedicated Petrofac personnel of these documents. Ramboll considers that awareness of the SEP and PCDP related to OPF-C construction activities should be raised among Petrofac's personnel and, in addition, members of Petrofac's team should be involved more intensively into future stakeholder engagement activities. This is deemed to be important in light of the two key matters discussed further in this section.

Although the construction site is located a long distance from the nearest settlement of Nogliki, there is a potential for interactions with some local stakeholders. Namely, the local fishermen have their structures seasonally located near the BLF construction site. Reportedly, no direct contact is made with the fishermen; however, regular communication is made with the organisation in charge of management of local fishing activities to ensure sufficient exchange of information.

An additional factor potentially triggering local communities' outreach is Sakhalin Energy's plan to construct a waste incineration facility. The Company is considering three potential locations for the development, one of which being in relative proximity to the Nysh settlement (circa 8 km)

and in direct proximity to the Nysh railway station. Selection of this location may potentially lead to concerns being raised by local communities regarding air emissions (see also section 2.6). This potential issue is acknowledged by the Sakhalin Energy team involved in external communication and social performance management. To address this matter, it is planned to open an additional Information Centre in Nysh.

Opportunity for improvement: *Awareness of the SEP and PCDP related to OPF-C construction activities should be raised among Petrofac's personnel to ensure more intensive involvement of Petrofac's team into future stakeholder engagement activities, especially in light of the potential incinerator construction near Nysh requiring additional measures for proper information exchange between the Project and local communities.*

2.3.3 Grievance Mechanism applied for the OPF-C Project

As per Petrofac's Social Performance Plan, Sakhalin Energy's Grievance Procedure shall be implemented by Petrofac and all its subcontractors. The grievance procedure is to be implemented by the sequence of steps as follows:

1. Receipt of the grievance
2. Flag the grievance and notify Sakhalin Energy
3. Log the grievance into the register of Sakhalin Energy
4. Steps to resolve the grievance are taken jointly with Sakhalin Energy
5. As required, the resolution actions are discussed as part of welfare committee of Petrofac.

The grievance mechanism is applicable to all workers engaged in OPF-C Project construction activities, including the subcontractors' personnel.

At the time of the visit, no grievances on undue salary payments had been received via the grievance mechanism from any construction staff member. However, during the reporting period, several grievances had been reported, either formally via grievance mechanism or informally, regarding accommodation conditions, including the availability of drinking water, leisure opportunities and cellular/internet connection in camps. The accommodation matters are discussed in more details in the dedicated section below.

In 2018 (as of 31st August), 5 grievances were lodged by OPF-C personnel (under the EPC contract) via the formal grievance procedure. The topics of the grievances included:

- Violation of safety rules by one of the OPF-C workforce representatives (two grievances)
- No warm area is provided during downtime (one grievance)
- Potential unauthorised removal of fuel from the OPF-C site (one grievance, submitted anonymously)
- Lack of shower rooms and toilets in the Fly camp (one grievance, submitted anonymously).

All grievances were reflected upon, analysed and responded to. Three of the grievances are currently marked as closed and two of the grievances are either awaiting complainants' feedback or Business Integrity Committee (BIC) approval (in the case of the anonymous grievance).

2.3.4 Workers' welfare and accommodation facilities at OPF-C

The matters of workers welfare and accommodation are regulated by the specific Workers' Welfare policy and Plan, developed and implemented by Petrofac. Based on our review of the document provided, Ramboll concludes that the Policy and Plan is a comprehensive document forming a basis for management and monitoring of accommodation facilities. The document's focus is beyond the matters of accommodation and considers the workers' welfare in its

complexity. Although the IFC/EBRD "Workers' Accommodation: Processes and Standards"[3] best-practice guidance is not directly referenced, it is concluded that the Worker Welfare Plan and Policy is developed in the spirit of its recommendations.

Petrofac's construction employees and its subcontractors are provided with accommodation facilities and related welfare amenities at the following venues:

1. Petrofac's construction camp ("Fly camp") located close to the construction site (operated by Petrofac)
2. MRTS construction camp (operated by an external party)
3. SU-4 camp (operated by an external party)

The listed camps were visited by Ramboll. Altogether, the indicated camps accommodate nearly 600 workers involved into OPF-C construction activities.

Fly Camp

The Fly camp currently accommodates 360 employees. The camp is currently undergoing the process of refurbishment, which is expected to be completed by the end of 2018 or in early 2019. The camp is found to be managed in line with the Petrofac's Welfare Policy and Plan. In particular, the Fly camp provides:

- Sufficient space per person in each room (circa 18-20 m^2 per a 4-bed room);
- Internet and cellular connection;
- Adequate toilet and shower facilities;
- Adequate laundry facilities;
- Equipped and staffed medical facility;
- Opportunities to be informed of the applicable policies and grievance mechanism.

[3] A public guidance note developed jointly by IFC and EBRD (August 2009), providing appropriate standards for workers' accommodation on financed projects.

The camp was found to be managed by a group of knowledgeable and experienced professionals headed by the Administration Manager. The team members conduct regular inspections of the Fly camp against the following generalised criteria:

- Transportation fleet and road network condition;
- Sanitary/hygiene and fire safety, or sleeping/common areas and canteen;
- Waste management;
- Health and safety conditions.

The inspections are scheduled on a monthly basis and are conducted on a weekly basis for each criterion.

The weekly inspections are supplemented by an audit system aimed at checking the compliance of accommodation facilities with Petrofac's Welfare Policy and Plan, Sakhalin Energy standards and the regulations of the Russian Federation. The audits focus on specific issues (e.g. requirements on the number of tenants per room, lighting standards, space per person, etc.) and can be performed:

- Prior to commissioning (pre-commissioning audits)
- During commissioning
- Regularly (once per quarter)

In addition to the facilities listed, the main construction camp (located in close proximity to the Fly camp) is expected to be commissioned in full by mid-2019. It is understood that the camp will be operated jointly with the Fly camp by Petrofac. Segments of the main camp will be commissioned earlier.

Figure 2.2 Fly camp refurbishment and main camp construction area

MRTS Camp

The MRTS construction camp is located at a distance from the OPF-C site and daily transfer is provided to the workers to reach the construction area. At the time of the monitoring visit, the camp provided temporary accommodation to 100 workers (total capacity of the camp amounts to 112 beds). The MRTS camp is operated by an external party and is expected to be in use by Petrofac until the end of 2018 or beginning of January 2019. Reportedly, after this period is

over, the workers shall be transferred to the Fly camp, which is expected to be fully refurbished by that time. Petrofac representatives conducted a pre-commissioning audit of the camp in July 2018 and the follow-up inspection in early September 2018.

The audit conducted by Petrofac in July 2018 revealed a number of non-compliances of MRTS camp management practices against the applicable standards. The major issues red-flagged by Petrofac included the absence of the following:

- Security checks;
- Firefighting equipment in the dormitories;
- Night security overwatch;
- A medical professional;
- Emergency response plan;
- Proper cellular network signal.

In addition, a set of yellow- and green-flagged issues was also identified by Petrofac during the pre-commissioning audit, including lack of laundry facilities, absence of properly arranged clothes/boots drying room, lack of leisure activities, lack of shower cabins and toilets, inadequate provision of furniture (lack of wardrobes and other pieces of furniture), improper food storage, poor condition of the camp access road, etc.

Petrofac representatives reported that the majority of major issues were resolved as a result of the inspection conducted by Petrofac in early September. The inspection is documented and the inspection table identifies which non-compliances were closed, partially closed or remain open. The inspection report also contains the expected dates for some of the red-flagged issues. Among others, the following issues are reported to be closed:

- Necessary firefighting equipment installation;
- Night security watch arrangements;
- Medical professionals availability (partially closed: some extra equipment needs to be provided by October 15th 2018);
- Cellular network connection;
- Drying room arrangements.

During the visit, Ramboll observed that the camp now has a check-in system in place, a medical professional is available, and the leisure opportunities are improved at the camp premises. As discussed previously, a concern had been raised due to lack of drinking water; this grievance was successfully resolved by Petrofac: the camp tenants are provided with a sufficient amount of bottled water, as observed by Ramboll.

Figure 2.3 MRTS Camp: A) Drinking water available B) Gym and a common area

Some of the non-compliances, however, remain relevant. For example, the camp does not provide enough opportunities for leisure activities due to the lack of internet connection. As noted by Ramboll, not all providers' cellular network is well-functioning. The rooms' area is found to be in contradiction with the Petrofac's Welfare Policy and Plan as 3 m^2 are allotted per person. The rooms are observed to be under-furnished and small.

The following red-flagged issues are reported to be not closed by the inspection report:

- Water supply for firefighting purposes;
- Autonomous fire alarm is available in accommodation buildings;
- Connection of fire alarm in accommodation premises, offices and diesel generators to control panel, and availability of 24/7 duty personnel;

For all non-compliances listed above the inspection report sets October 10th 2018 as a closure date.

Figure 2.4 A sleeping room at the MRTS Camp

SU-4 Camp

The SU-4 accommodation camp, with a capacity of 110 beds, accommodates 103 workers and is also operated by an external party. The camp consists of two dormitory modules constructed in early 2000's and is currently in a dilapidated condition.

Similar to the MRTS camp, the SU-4 camp is a temporary construction accommodation option and the workers are expected to be transferred to the Fly camp as soon as its refurbishment process progresses. It should be noted that the OPF-C construction workforce are not the only tenants in the accommodation camp, and third-party workers are accommodated in other dormitory modules of the camp.

Figure 2.5 SU-4 Camp dormitory module

As reported by Petrofac, a pre-commissioning audit of the camp was conducted and a list of issues to be fixed was compiled. The follow-up HSE Inspection and Review Report results were provided to Ramboll for review. Numerous non-compliances were recorded by Petrofac's auditors including:

- Perishable food products are stored in the bedrooms;
- Laundry and toilet/shower cleaning schedules are not provided;
- Storage of cleaning equipment is not sufficient;
- Bunk beds do not have barriers and the ladders are not securely fixed;
- First aid kit is not easily accessible.

The Report provides a list of recommendations with a relevant implementation schedule.

In addition, the following issues were observed by Ramboll during the site visit in relation to the SU-4 accommodation facility:

- Poor condition of the structures;
- No medical specialist available (a medical facility is reportedly present; however, it is locked);
- Non-compliance with Petrofac's internal regulation and the IFC/EBRD best practice guidance on room area and lighting;
- No internet and limited cellular connection;
- Lack of fencing and of access control;
- Presence of stray animals.

In addition to the challenges listed above, a lower level of influence on the 'landlord' company was noted. This issue was identified during the camp inspection that Petrofac intended to conduct in early September 2018. The camp management was initially reluctant to allow the auditors to start their activities. The audit was undertaken following negotiations between Petrofac and the external company in charge of camp management.

Figure 2.6 SU-4 accommodation camp: A) Stray animals present at SU-4 camp, B) A room at SU-4 camp lacking space

The general dilapidated conditions of the camp may potentially raise the issue of heating system efficiency during winter time. The camp representatives reported that the expected temperature range in the sleeping areas during winter is 22-24 degrees Celsius.

It is also understood that, similarly to the MRTS camp, the tenants of SU-4 camp also raised concerns over the lack of drinking water availability. The issue was subsequently resolved by Petrofac.

***FINDING**: The MRTS and SU-4 accommodation camps are non-compliant with applicable standards, including the IFC/EBRD "Workers' Accommodation: Processes and Standards" and the Welfare Policy and Plan of Petrofac. Actions need to be taken in order to ensure adequate living conditions, leisure/communication infrastructure and safety (fencing/stray animals prevention) and in accordance with recommendations provided by Petrofac in their inspection reports.*

***FINDING**: In the case of the SU-4 camp, it is required to increase the level of influence of Petrofac over the camp owner, including ensuring access of Petrofac's auditors to the camp.*

2.4 Biodiversity Management

2.4.1 Peat Storage Area

In 2016, Ramboll visited the proposed location of the peat storage area prior to any peat deposition. Ramboll then revisited the site in 2017 once peat storage had begun and made some comments on it which formed 2017 OFI #28. Essentially, the storage of peat by Sakhalin Energy has been extremely ordered and in line with Russian Federation requirements. The height of the peat piles exceeds those previously used by Sakhalin Energy, but this has been addressed previously by Ramboll. During the site visit, a new settlement pond and recently permitted discharge point to the peatland habitats north of the site were observed, along with a very effective system of drainage channels taking water from the peat piles to the pond.

Figure 2.7 – Peat Storage Area Settlement pond and Discharge point

Those peat piles which have been in-situ from last year were seeded with a simple neutral grassland seed mix to stabilise them. Newer peat piles were still in the process of being created. It was clear from both types of pile that the material being deposited is not 100% peat with some non-peaty soils also mixed in. The peat has also lost all of its structure.

Figure 2.8 – Peat Storage Area showing seeded and vegetated piles and non-peaty soils

The peat is being stored for restoration of the OPF-C site following its decommissioning and removal. Only a small part of the stored peat will be required for that restoration. The majority of the peat will remain in-situ in the peat storage area in perpetuity. The area upon which the peat is stored was an area of natural habitat (as defined in IFC PS6) and under that standard, the aim is for no net loss of natural habitat. As such, Ramboll suggests that there may be actions that could be completed within the peat piles that might help to soften the area and allow natural vegetation to recolonise the area.

The soil storage area adjacent to the peat storage area shows the natural colonisation that is possible once such storage areas are left undisturbed following use. Trees and shrubs have colonised much of the area. It is that natural process which Ramboll believes might be enhanced within the peat storage area. Ramboll intends to liaise with Sakhalin Energy to agree the steps to be enacted to allow the closure of 2017 OFI #28. This may take the form of development of a habitat management plan for the peat storage area.

2.4.2 Lichens

Lichen translocation was undertaken in 2016 and Ramboll was on site to meet the experts undertaking the work. After inspecting one of the receptor areas in 2017, we returned this year to monitor progress further, with the caveat that lichens are extremely slow growing and changes from year are not expected to be great. The lichen translocation was considered to be completed to a high standard and the translocated specimens are well labelled to allow revisits. Of the labelled specimens seen by Ramboll, all appeared to be healthy.

Figure 2.9 – Translocated Lichens

2.4.3 Beach Landing Facility

Ramboll visited the coastline east of the OPF site where the OPF-C Project equipment is proposed to be landed by barge in June 2019. Whilst in the area, the area of previously disturbed dune habitats close to the pipeline landfall was also visited.

The equipment for the OPF was previously delivered by barge at the same location as that which will be used for the OPF-C. With the exceptions of a gap in the dunes and a track leading to the beach, there is little sign of those previous activities.

Figure 2.10 – Track and gap through dunes, current beach conditions

Native wildlife in the form of Steller's sea eagle *Haliaeetus pelagicus* and brown bear *Ursus arctos* continue to use the area. Potential impacts on those and other species need consideration in the development of plans to reuse the beach. In particular, nest locations of Steller's sea eagle are known from within 150 m of the beach access road. Ramboll met with the Sakhalin Energy specialists undertaking survey and assessment of the Steller's sea eagles and was provided with the management plans including details of proposed survey work and an explanation of how the Company will liaise with Petrofac on the issue for the equipment delivery. Ramboll is satisfied that the issue is being well managed.

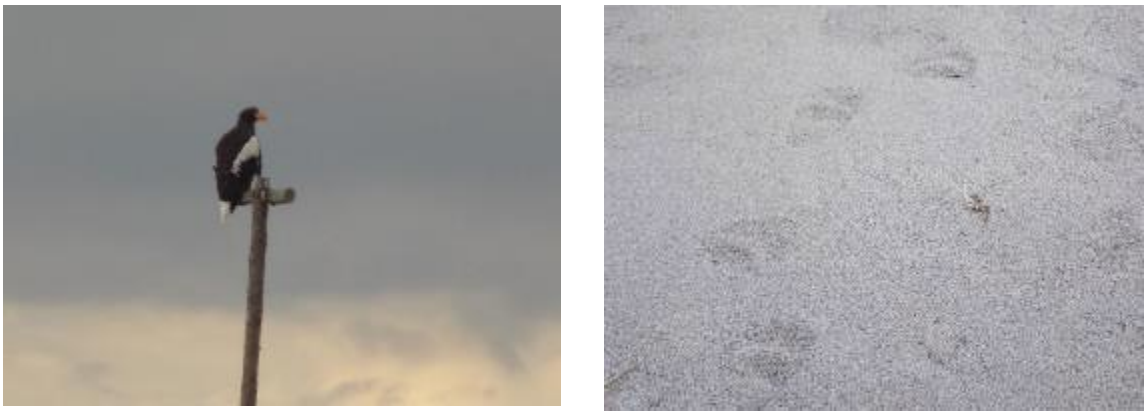

Figure 2.11 – Steller's sea eagle and bear tracks at the beach landing facility

The coastal dune area around the landfall (KP14) was re-visited, as in 2017. Recolonisation remains slow as identified previously, although it is considered that in time the area would fully revegetate naturally. Ramboll has previously recommended that the laydown area be fully restored following completion of beach landing operations (OFI #23) and further comments that at the time of that restoration, the potential for measures also to be undertaken at the landfall should be considered.

2.4.4 Long-billed Murrelet monitoring

Whilst travelling to and from the BLF and the lichen translocation site, Ramboll briefly observed a number of the locations used during the long-billed murrelet survey work. Ramboll confirms that the locations used were suitable for the purposes of that survey.

2.5 Environmental Performance

2.5.1 Surface Water Management

During the 2017 visit to the OPF-C site, Ramboll identified concerns with the on-site surface water management, particularly within the construction area itself as opposed to the camp area. In particular, an outflow from the north-eastern corner of the construction area had clearly allowed sediment to be deposited onto the natural peatland habitats beyond the construction area. In relation to 2017 OFI #22, new measures have been installed on-site to improve the situation. These were seen to be very good and an improvement. Ramboll has made one further suggestion to Sakhalin Energy regarding the possibility to increase the height of measures designed to prevent sediment reaching the habitats at the outflow with a view to the closure of the OFI.

Figure 2.12 – Improved on site water management (photos courtesy of Sakhalin Energy)

2.5.2 Laydown and Materials Storage

Activity on the construction site was limited at the time of the visit. Test piles have been completed, however, only one main pile had been completed and further piling works were not ongoing. As such, limited amounts of equipment or materials were seen on the site. The main feature was a small concrete batching plant and associated materials the area around which was neat and tidy.

Figure 2.13 – Concrete batching plant and associated storage area on Construction site

As can be seen in the photos of the batching plant (Figure 2.13 above), secondary containment for all liquid storage observed on site had been provided in one form or another. Chemicals were stored within a sealed container and all other camp materials were similarly well stored in a separate container.

Figure 2.14 – Chemical and material storage. Liquid Barrels bunded (oily rags in blue barrel)

2.6 Waste Management

The Company reported that a Waste Management Plan has been implemented for the OPF-C Project and that adequate segregation and storage arrangements are in place at the construction site. All waste from the OPF-C construction site is currently being removed to the camp area each day. During the site visit, storage of waste was found to be extremely well organised. Well managed segregation of waste was seen, with each area clearly signposted.

Figure 2.15 – Wood and Metal Waste Segregation at the OPF-C site

As with all Hazard Class I-III wastes generated on the Island, such wastes are transported to the mainland for recovery or disposal. Sakhalin Energy reported that the Company remains committed to installing a waste incinerator for Hazard Class IV & V wastes as part of the OPF-C Project, but as a separate sub-project (also by Petrofac but under a separate contract and permit). Furthermore, Sakhalin Energy stated clearly that it was its intention to retain the incinerator beyond the completion of OPF-C project construction for disposal of operations waste from the OPF and OPF-C. This will require the permit to be transferred over to Sakhalin Energy.

As mentioned earlier in this report, the location of the incinerator is still under assessment. Three options are being considered: on-site at the OPF on industrial land; on-site at the OPF on forest land; and close to Nysh village (near the railway station). Each location has its own set of permitting and/or ES risks, which are currently being assessed by a working group.

Ramboll noted the slower than anticipated progress on the OPF-C incinerator sub-project since the last monitoring visit. The location is still to be decided upon and the EIA and permitting processes have not yet commenced. It was reported that these processes could take up to two years to complete, meaning that the incineration plant may not be operational until at least half-way through OPF-C construction (i.e. circa 2020). Whilst it is recognised that Sakhalin Energy is allowed to store waste for up to 11 months, which could subsequently be incinerated, it still means the use of the Nogliki landfill site for disposal of Hazard Class IV & V construction waste for more than 12 months.

The Nogliki landfill has faced permitting challenges in the past and the facility cannot be considered to meet GIIP standards in all respects. In addition, the limited landfill capacity in the north of the Island is generally a long-term concern.

Opportunity for Improvement: *Given the previous permitting issues experienced by Nogliki landfill, and landfill capacity on the island overall, Ramboll encourages the Company to implement its plans to install the OPF-C incinerator as soon as possible. Sakhalin Energy should provide Ramboll with a Project Execution Plan (or similar) and Impact Assessment (including assessment of any impacts on local air quality that will be particularly important should the option close to Nysh village be selected) for review once the location is finalised. This should, inter alia, provide detail on the Project schedule and specification, which should meet GIIP.*

3. TRAIN-3

3.1 Introduction

Sakhalin Energy management provided an overview of the LNG Train-3 Project scope and progress. Primarily, the Train-3 Project scope involves:

- Upgrades to the existing gas transportation system, including construction of two additional booster stations: BS-3 and BS-4; [Note that minor upgrades required for BS-2 are 'out of scope' of the Train-3 project and are planned to be undertaken as part of Phase 2 project general maintenance work.]
- Construction of a third LNG production train, third LNG tank (100,000 m^3), second jetty and additional associated utilities.

It was stated that Front-End Engineering Design (FEED) work was complete and the permitting process was at an advanced stage, including State Environmental Expert Review (SEER). Review of the draft ESHIA for the Project was ongoing with Ramboll. However, a strategic decision by shareholders is awaited as to the upstream source of gas and associated infrastructure for the Train 3 Project.

Sakhalin Energy plans to deliver the Train 3 LNG Project, under a Production Sharing Agreement, by 2023 to 2024. The peak construction period would be expected in 2021 to 2022.

The third LNG production train will be constructed within the existing footprint of the Prigorodnoye Production Complex, so no major early works are anticipated. Given its proximity to Trains 1 and 2, the Company is also trying to maximise the use of shared infrastructure. The Train-3 Project will comply with the IFC 2012 Performance Standards and Sakhalin Energy Standards. The Project ESHIA, which is at an advanced stage, is being completed to Russian and international standards.

The Company has identified the following key environmental and social risks:

- Jetty construction (management of marine aspects and impacts)
- Land take, protected species, restoration
- Waste management
- Community/neighbour relationships.

Within 2018, the main HSE focus areas for the Project have included: the ESHIA; waste management strategy (see Section 5.5 for further discussion); water well installation at BS-4; erosion control plan for BS-3 and BS-4; monitoring visits to BS-3 and BS-4 (reporting ongoing); and surveys of the Materials Offloading Facility (MOF) area.

3.2 Train-3 Site Walkover

As part of the monitoring visit, Ramboll conducted a brief walkover of the locations within the existing Prigorodnoye facility boundary identified to be developed for the Train-3 Project. These included the areas earmarked for the Train-3 production facility itself, the additional bulk storage tank and the additional LNG loading jetty (the latter being observed from distance). Ramboll was accompanied during the walkover by members of the Sakhalin Energy Train-3 Project team.

From the walkover, it is understood that although still vegetated, the onshore locations are essentially ready for the commencement of construction with only minor cable relocation works to be conducted in the main Train-3 production area.

Figure 3.1 - General views of the area earmarked for LNG Train 3 production facility, east of the existing LNG facility.

Figure 3.2 - View of the areas earmarked for new LNG loading Jetty (between the MOF and existing LNG loading jetty) and for the new bulk LNG storage tank.

3.3 Social Issues

3.3.1 Social Management System

This section is aimed at summarising the general approach of Sakhalin Energy to manage social performance in relation to Train-3 activities.

It is understood that social performance is/will be regulated by a set of internal and external (disclosure-oriented) documents:

- Policy-level documents (Social Performance Standard, Code of Conduct, Sustainable Development Policy, Human Rights Policy, Commitment and Policy on Health, Safety, Environment and Social Performance);
- Implementation mechanisms (HSE and Social Performance Plans, Communication Plans, Stakeholder Engagement Plans, Issue Management Plan (on hold), Social Performance Plans (currently on hold for Train-3), PCDP (currently on hold for Train-3);
- Control and analysis processes (monitoring, audits and checks, reporting (including PCDRs), public opinion surveys).

The Social Performance Standard is one of the key documents regulating social management of Sakhalin Energy, indicating responsible parties and general requirements to social performance of the Company. The document currently undergoes minor update and will be re-issued.

3.3.2 Stroitel dachas community (Stroitel co-operative)

As reported by Sakhalin Energy representatives, no additional land allocation is expected for Train-3 construction activities that would affect the Stroitel dachas community; nor is it expected that the Sanitary Protection Zone (SPZ) will be expanded towards the Stroitel co-operative. Despite this, the rumour of the upcoming Train-3 construction has raised concerns among the Stroitel dachas community members. The community is situated 1200 m from the Prigorodnoye Production Complex site boundary, as indicated in Figure 3.3 below.

Figure 3.3 Location of Stroitel dachas community

In 2004-2006, the Stroitel dachas community involved 71 households. These households were offered compensation packages during the course of the compensation measures implemented in 2006-2008. The Project and the dachas community negotiated a deal according to which dacha tenants had two options:

1. Receive full market-price compensation and relocate elsewhere (opted by 28 households)
2. Receive half market-price compensation and remain in the community (opted by the rest of the households)

Sakhalin Energy reports that the latter group of households continues to submit claims for additional compensation due to future Train-3 construction activities.

The Stroitel dachas community is understood to be currently made up of 37 households. It is understood that since the end of 2017 the group is more active in terms of participation in public meetings due to Train-3 information being disseminated among local communities by Sakhalin Energy. The group is led by the chairperson of Stroitel co-operative.

After the interviews conducted by Ramboll, it may be concluded that the Company takes regular actions to ensure sufficient engagement with dachas community members. The methods used by the Company include:

- Communication with community members by the Sakhalin Energy focal point: Sakhalin Energy has a designated person in charge of communication with Stroitel community members;
- Communication with the community members via the Community Liaison Officer in Korsakov;
- Stakeholders' dialogues as part of the Sustainable Development Report preparation (dachas community members are invited, however their participation is not regular);
- Monitoring of air and noise with involvement of representatives of the Stroitel co-operative (dachas community members are invited, however Sakhalin Energy advises that they chose not to be present during the monitoring);
- Public meetings with Sakhalin Energy specialists in Korsakov;
- Focus meetings with Sakhalin Energy specialists (as requested by Stroitel community members);
- Meetings as part of the social monitoring process.

In 2018, the following key activities were undertaken by the Company to engage with the Stroitel community:

- February: the chairperson of Stroitel co-operative participated in the dialogue with stakeholders as part of the sustainable development report preparation.
- May-October: air and noise monitoring results reported to the chairperson of the Stroitel co-operative. The dachas owners were invited to participate in the monitoring sessions; however, no participants from the community were registered. No exceedances were registered during this monitoring.
- April: meeting of the community members with the Head of External and Corporate Affairs in charge of general management of social issues and stakeholder engagement practices.
- June: annual public meeting with the company's specialists;
- July: meeting as part of social monitoring process;
- Sufficient notifications on the gas flaring at the Prigorodnoye Production Complex and on planned maintenance works with gas flaring.

The major topic of concern raised by the dachas community members still relates to additional compensation due to Train-3 activities. The Company's position on this claim is as follows: the community members opted their form of compensation in 2006-2008 and shall not be compensated repeatedly.

The dachas community obtained two new households over the few past years. However, the new households occupied previously-used land parcels; thus, the community is not expanding spatially. It is still noted that the number of tenants at Stroitel should be monitored as the empty land lots with legacy structures (previously belonging to fully-compensated persons) are now in possession of local administration and there is some potential for them to be re-occupied by newcomers. In such event, the stakeholder list shall be revisited by Sakhalin Energy.

Overall, it is understood that the Train-3 construction activities shall require additional Stroitel community engagement practices. To these ends, operation of Information Centres and the CLO office in Korsakov is viewed as critical. We recommend that the Company revisits the stakeholder engagement methods on a regular basis to ensure that they are sufficiently tailored to the needs and abilities of Stroitel dachas community.

Figure 3.4 Abandoned houses in Stroitel

3.3.3 Yunona camp upgrade

Train-3 construction will require accommodation facilities to be expanded at Prigorodnoye to accommodate larger numbers of construction workforce. To achieve this accommodation capacity, the Yunona camp located in proximity to the LNG Plant site will be restructured and reconstructed.

In its current condition, Yunona camp can accommodate 480 workers and has a canteen with a capacity of 120 tables. Currently it is being used on a yearly basis during scheduled shutdowns.

For Train-3 construction activities, Yunona camp will be renovated to accommodate 4200 persons. To reach this objective, the four-stage approach shall be taken as follows:

1. Construction of a new canteen and new two-storied dormitories to reach total capacity of 800 beds
2. Construction of new infrastructure buildings (additional canteen, gym, generator and utilities)
3. Construction of additional set of two-storied dormitories
4. Demolition of currently existing buildings to replace them with newly constructed dormitories.

After the first load of cargo is dispatched from Train-3, the camp facilities will be relocated to a new area due to a change of SPZ (current location of Yunona camp will be within Train-3 SPZ). The location of this area is as yet unknown. It is recommended that the future Yunona camp relocation alternatives should aim to minimise the potential for physical displacement of local communities.

Figure 3.5 Yunona camp in its current condition

3.3.4 Other social issues related to Train-3 development

The current road approaching the Prigorodnoye Production Complex is found to be a source of dust formation due to traffic, including Project-related traffic. It is understood that, potentially, dust generation may increase if heavy-load vehicles are required by the Train-3 development.

The road goes along the beach actively used by local residents for recreational purposes, including swimming and fishing. As reported by Sakhalin Energy, the local municipality is in charge of construction of the by-pass road, while the Company acts as a sponsor for these activities. Ramboll noted during the visit that the road construction works are on-going. While the schedule for the finalisation of the works is not certain, the issue of dust formation is expected to be resolved when the road is commissioned.

***Opportunity for Improvement**: While the Prigorodnoye by-pass road is not commissioned, it is recommended to ensure sufficient dust suppression activities at the Prigorodnoye Production Complex approach road.*

3.3.5 Stakeholder Engagement

The stakeholder engagement practices undertaken by Sakhalin Energy are described in Section 5.6 of this report.

3.4 Aniva Bay

Ramboll undertook a visit to the key ornithological locations close to the LNG. Accompanied by the Company's ornithological specialist, the visit included:

- Salmon Bay
- Rocky shore west of LNG
- Mereya wetland
- Beach immediately adjacent to the LNG
- Rocky shore east of the LNG.

It was clear that Salmon Bay, which lies almost 20 km west of the LNG and not in a direct line of flight as it is north of Korsakov, provides the best coastal habitats for birds within the immediate area of the LNG. The tide was low at the time of the visit and abundant waders, herons and ducks were in the area along with various raptors. In contrast, the rocky shores east and west of the LNG (both c. 3 km) supported only occasional gulls and ducks. Notably, the largest gathering of gull species was recorded on the beach adjacent to the existing LNG jetty with small numbers of ducks swimming under the jetty and cormorants resting on the structure itself.

Figure 3.6 – Rocky shore west of LNG and gull roost adjacent to LNG

The Mereya wetland (less than 1 km west of the LNG) was also visited, and the waterbody was found to be entirely devoid of any birdlife. In discussion with the Sakhalin Energy ornithologist, it seems that the waterbody is only used infrequently by birds, not least as hunting still occurs there. Nonetheless, bird monitoring reports produced by Sakhalin Energy have identified the surrounding wetland as providing important breeding locations for species such as Latham's (Japanese) snipe *Gallinago hardwickii.* Works apparently restarting on the mothballed bridge across the Mereya will need to take account of that constraint.

Figure 3.7 – Mereya Wetland, showing proximity to LNG and restarted bridge works

In advance of the visit, Ramboll had asked Sakhalin Energy to consider the citation for the Aniva Bay Important Bird Area (IBA) with particular focus on the species list. Whilst on site, it was explained to Ramboll that the citation contains many errors with regards to the species listed as present or the seasons at which it states that they would be present. Those assertions are based on Sakhalin Energy's ornithologist's data gathered for the project and their knowledge of the ornithology of the area, as explained to Ramboll during the site visit.

Opportunity for Improvement: *Ramboll suggests that Sakhalin Energy uses the ornithologist's data to review the Aniva Bay IBA citation in detail to ensure that the assessment provided in the Train-3 ESHIA is appropriate and proportionate, considering only those species which are known to, or realistically could use the areas around the LNG.*

3.5 Waste Management

For the LNG Train-3 Project, the Sakhalin Energy reported that it was continuing to look for opportunities to minimise waste during design and procurement (such as purchasing chemicals in larger re-useable containers) and confirmed that all soil was to be retained on site.

Senior management stated that the Company was still committed to installing an incinerator unit at Prigorodnoye for solid non-hazardous wastes as part of the Train-3 Project. The permit for the incinerator was not included in the Train-3 project permitting package, reportedly due to timing issues, however it was confirmed that the design, permitting and installation of the incinerator has been included in the EPC Contractor Scope of Work which is prepared but has not yet been released for tender. The incinerator would receive camp and general construction wastes and then long-term would receive operational wastes from the expanded Prigorodnoye Production Complex.

Follow-up Item: *Ramboll remains supportive of Sakhalin Energy's strategy of developing its own incinerator facility at LNG (as part of Train-3). However, it should be noted that the facility should be designed to meet Lender standards and that key elements of this are:*

- *Risk assessment should be applied to the design and location of the facilities;*
- *The designs will need to meet IFC PS and IFC EHS Guidelines for Waste Facilities.*

Ramboll will follow-up on this as part of our Train-3 ESHIA review.

4. OTHER LOCATIONS MONITORING

4.1 ETNO Waste Transfer Facility

As part of the monitoring visit, Ramboll conducted a visit to a waste transfer facility located in an industrial zone in the north of Yuzhno-Sakhalinsk. The facility is operated by licensed waste management and transport company ETNO and reportedly collects and handles a variety of Hazard Class I to V wastes from Sakhalin Energy assets across the south of the island, including the LNG facility, Zima accommodation facility and Sakhalin Energy offices.

The purpose of the visit was to observe how the facility was set up and run, to check that Sakhalin Energy wastes were being handled in an environmentally responsible manner, and to obtain greater understanding of this key step in Sakhalin Energy's overall waste management arrangements.

The visit was conducted on the 13th September 2018 in the company of Sakhalin Energy's Logistics (ALG) HSE Manager and ETNO's Site Manager and HSE Officer. The ETNO personnel interviewed exhibited a good level awareness in terms of legal requirements, Sakhalin Energy waste management requirements and good practice.

According to ETNO personnel, the contractor has been managing waste on behalf of Sakhalin Energy for over eight years. Its current Waste Management Licence reportedly allows for handling of more than 500 different waste types and the corresponding limits have been confirmed by Sakhalin Energy to be more than sufficient for the Company's needs. It is only permitted to temporarily store waste shipments (for up to 11 months) and aggregate them ready for transfer to recycling or other disposal facilities on Sakhalin island or the mainland. It also operates a baling machine to compress and bale waste cardboard.

Site management reported that ETNO conducts only limited sorting or segregation of waste received from Sakhalin Energy, such as separation and baling of cardboard. It is agreed between the two parties that Sakhalin Energy will conduct sorting and segregation at its own facilities (in accordance with HSESAP Waste Management Standard 0000-S-90-04-O-0258-00-E Appendix 7). No waste disposal activities reportedly take place at the transfer facility and no evidence of disposal (e.g. signs of waste burning) were observed during the visit.

Given the nature of its operations, the facility is not required to register on the State Register of Waste Disposal Facilities (known as 'GRORO Register'). However, it is subject to regulatory inspection. The Site Manager reported that the local environmental authorities last inspected the facility in 2017 and no concerns were raised.

The facility is situated within a larger industrial compound operated by the same company and was observed to be surrounded by a perimeter wall, with access controlled by a manned access gate and monitored by CCTV. The nearest residential facilities were identified by the Site Manager to be at least 200 metres from the waste transfer facility. Reportedly, no complaints have been raised by local residents in relation to facility operations.

The facility is comprised of two main elements:

- An industrial-style shed used for receipt, limited sorting, storage and aggregation of mixed solid non-hazardous domestic waste and other Hazard Class IV and V wastes, including cardboard, which is compacted and baled;
- A series of metal shipping containers, used for storage of Class I-III wastes, including spent fluorescent tubes, batteries, oils, oil-contaminated materials (e.g. cloths and spent spill kits materials).

ETNO also operates a small fleet of waste and wastewater collection vehicles from the same site. The Site Manager reported that the vehicles were refuelled and serviced at off-site 3rd party operated fuel stations and workshops.

During the walkover, Ramboll observed a good standard of housekeeping across the transfer facility as well as pollution prevention measures, fire-fighting equipment, and spill response equipment (including chemical and oil spill kits and over-drums for damaged/leaking containers).

The principal pollution prevention measure was an impermeable liner, which appeared to be installed below the area used for storage of Hazard Class I-III wastes. In addition, each type of Hazard Class I-III waste was observed to be stored within labelled drums, IBCs or boxes, within separate, dedicated (and labelled) shipping containers, and those shipping containers containing liquid wastes were afforded additional containment bunds or berms across the door way.

No obvious signs of leaks or spills of hazardous liquid wastes were noted by Ramboll during the brief walkover (e.g. ground surface staining, odour or distressed vegetation) and no significant incidents (fires or spills) were reported to have occurred.

Figure 4.1 - General views of the exterior and interior of the non-hazardous waste storage shed

Figure 4.2 - Views across hazardous waste storage area (including trays for initial reception of drums and impermeable liner visible around the perimeter)

4.2 Right of Way

On 13th September 2018, Ramboll conducted a brief visit to a section of the pipeline Right of Way (RoW) on the northern outskirts of Yuzhno-Sakhalinsk, at KP 567. Ramboll was accompanied on the visit by a representative of the Sakhalin Energy pipeline maintenance team. The purpose of the visit was to observe a section of the Southern RoW in order to check the effectiveness of biological reinstatement and ongoing RoW monitoring and maintenance programmes.

It was reported that biological reinstatement works were completed on this section of the RoW in circa 2012. The RoW was observed to be completely vegetated in both directions with grasses and small bushes. Sapling trees were visible in both directions although more dense stands were noted to the north. It was reported that this section of the RoW had been identified for tree removal works next year (in accordance with the tree control strategy – see Section 5.4). The RoW was clearly signposted. Either side of the RoW, the land was in agricultural use. No people or animals were observed on the RoW during the visit.

The section of the RoW viewed was relatively flat and no erosion features were noted. Two drainage ditches running across the RoW were observed to be heavily vegetated and the surface water appeared to be clear, with no obvious signs of pollution (e.g. oily sheen).

Also during this visit, Ramboll viewed one of the two operational Gas Transfer Terminals (GTT), which takes gas from the main pipeline and feeds into the local network, principally for local power generation. The GTT was under maintenance and so no entry was permitted, however limited visual observations made from the fence line indicated a good standard of housekeeping.

Figure 4.3 – Views of the Southern RoW (looking north and south from KP 567)

4.3 Zima Wastewater Treatment Plant

On 15th September 2018, Ramboll conducted a brief visit to Sakhalin Energy's Zima 1 & 2 accommodation facility in the south of Yuzhno-Sakhalinsk in order to see the facility's dedicated domestic wastewater (sewage) treatment plant (STP) and the point at which treated wastewater is discharged into the Pravy Stream.

Ramboll was accompanied by representatives of Sakhalin Energy Central HSE team, including the environmental specialist responsible for monitoring the discharge, as well as a representative of the contractor responsible for managing the STP.

The purpose of the visit was to better understand how the facility is operated in accordance to relevant permits, how Sakhalin Energy is optimising the treatment process, and to observe the discharge into the stream, which is categorised under RF law as a fisheries class watercourse.

The STP was in operation at the time of the visit and appeared to be well maintained. Contractor and Sakhalin Energy explained that key elements of the plant was over 20 years old and elaborated upon the challenges the operators face to meet the relatively strict discharge limits (which reflect the Fisheries Class designation that the receiving water course has been given). Several exceedance events have been recorded by Sakhalin Energy in 2017 (24 events[4]) and Q1-Q3 2018 (21 events). The challenges largely relate to complying with limits on biological oxygen demand (BOD), total suspended solids (TSS), ammonium nitrogen, phosphates and aluminium (the latter being linked to the flocculant used in the treatment process). In addition, it was reported that during the spring snow melt, the facility also struggles to comply with its volume limits as large volumes of melt-water enters the drainage system through drain covers.

The Company continues to report these exceedances to the authorities and pays a higher rate of pollution payments, as according to RF law[5]. It was stated by Sakhalin Energy that no concerns have been raised by the authorities.

It was reported that it remains Sakhalin Energy's long-term plan to re-direct the treated water from the plant to the municipal sewerage system, thus eliminating the discharge to the Pravy Stream. In 2017, a project reached an advanced stage to install a connection by mid-2018. However, in 2018, the municipality decided to broaden the scope of the project to include

[4] One event equates to a recorded exceedance against a single parameter.
[5] The amount of payment by SEIC for the over-limit discharges for 2017, including but not limited to Zima, amounted to 65718 Rubles.

discharges from a number of other developments in the locality and this project is still being assessed. The new target date for realising the project is now end of 2019 (subject to successful cooperation with the municipality and internal approval).

It was also reported that on the basis that it expected the municipal connection project to go ahead in 2018, the Company did not renew its waste discharge permit and let it expire. At the time of the visit, it was reported that an application is now being prepared and the permit was expected to be obtained by the end of 2018.

In the meantime, it was reported that Sakhalin Energy and its contractors continue to maintain and optimise the existing STP and achieve compliance as far as possible. Around 2015, Sakhalin Energy did start a project to update the filtration process, however it was reported that after receiving proposals from contractors the project was cancelled, as it could not be demonstrated that the technologies available at the time would achieve the required treatment standards.

During this latest visit, Sakhalin Energy considers that, given the age of the plant, the permit limits and the improvements already implemented during 2015-2018, there are no practicable options for further enhancing the performance of the existing plant.

Sakhalin Energy continues to monitor the discharge taking three samples per month at three locations (i.e. treated wastewater quality, and background concentrations in the stream at the point of discharge and upstream of the discharge).

At the discharge point, Ramboll observed that the river ran through a moderately developed area comprising a mix of residential and commercial/light industrial land uses. The treated water being discharged from the Zima facility appeared clear in colour and no odour was detected, and the banks and river bed were heavily vegetated. Another discharge pipe was observed in close proximity to Sakhalin Energy's pipe. Sakhalin Energy personnel stated that this discharge was associated with a third party and was not permitted. As such, the Company had taken the positive step of reporting it to the relevant authorities. It was further noted that Sakhalin Energy's monitoring programme indicates that the stream has degraded water quality upstream of the Zima discharge point (particularly in relation to TSS and aluminium concentrations).

See section 5.1.1 for our specific Findings regarding the Zima STP.

5. OTHER PROJECT UPDATES

5.1 Environmental performance and permitting issues

5.1.1 Sewage Treatment Plants

Previous IEC monitoring reports have described compliance issues with discharges from a number of Sakhalin Energy's onshore STPs, including at the OPF and the Company's staff accommodation facilities in Yuzhno-Sakhalinsk (Zima) and Korsakov (KPA), at BS-2 and the pipeline maintenance depots (PMDs). The Company is implementing action plans to resolve these issues, which are summarised below:

Zima:

In summary, Ramboll notes that the re-scoping and subsequent delay in the municipal sewerage connection project has led to another year of Zima's STP operating with several exceedance events. Furthermore, no valid water discharge permit is in place. Please refer to Section 4.3 above for more detail.

As an iteration of existing Finding WATER.20 (which is now considered superseded and closed), Ramboll makes the following specific Findings for Zima:

***FINDING**: Ramboll notes that the re-scoping and subsequent delay in the municipal sewerage connection project has led to another year of Zima's STP operating with several exceedance events. Sakhalin Energy should continue to work with the municipality to realise the Zima municipal sewerage connection project but does not rely on it as its only way forward. Ramboll requests regular updates from the Company in this regard, for example in its quarterly reporting to Lenders.*

***FINDING**: No valid water discharge permit is in place for Zima STP. Sakhalin Energy should make all efforts to obtain the necessary permits discharge and water use permit for Zima before the end of 2018.*

***FINDING**: The Company should provide for Lender review a Position Paper and feasibility assessment of all options considered to date to achieve compliance with the Zima STP discharge permits and applicable Lender standards. This should include:*

- *Comparison of the extent of the deviations from permitted discharge limits and applicable Lender standards.*
- *Evaluation of Best Available Technological options (and associated cost-benefit analysis) for replacement of the STP.*
- *All alternative wastewater disposal options considered, such as alternative discharge points or tankering it away.*

KPA:

The Company continues to experience occasional exceedances of Water Use Permit limits in relation to the treated sewage discharge from this accommodation facility (primarily in relation to chlorides). Twelve exceedances of Water Use Permit limits have been recorded in Q1-Q3 2018, although only one of these events reportedly resulted in an exceedance of the relevant Ambient Water Quality (RF Fishery) Standards (exceedance on BOD). As at Zima, but to a lesser extent, there is a challenge meeting the particularly strict limits set for the discharge into a Fisheries Class waterbody.

The current water use and discharge permits expire in 2018 and the Company intends to renew them. Whilst the Company may be successful in obtaining less stringent limits in the new

discharge permit, this is uncertain. Diversion of the discharge to the municipal sewerage network is reportedly not feasible at this location.

Similarly to our approach for Zima STP, as an iteration of the existing Finding Water 19 (which is now considered superseded and closed), we make the following Finding:

FINDING*: Ramboll notes that unlike for the STP and associated discharge at Zima, there appears to be no long-term strategy for achieving permit compliance at the KPA STP on a regular basis (e.g. through STP replacement/upgrade combined with process optimisation, as conducted at other assets). Therefore, the Company should provide for Lender review a Position Paper and feasibility assessment of all options considered to date to achieve compliance with the KPA STP discharge permits. This should include:*

- *Comparison of the extent of the deviations from permitted discharge limits and applicable Lender standards.*
- *Evaluation of Best Available Technological options (and associated cost-benefit analysis) for replacement of the STP.*
- *Details of any liaison with the Authorities regarding the sampling point.*
- *All alternative wastewater disposal options considered, such as alternative discharge points or tankering it away.*

BS-2:

The Company reported that at BS-2, the commissioning of a new STP was ongoing and that the plant was expected to be operating by the end of September 2018.

Follow-up Item: *Ramboll will continue to follow the progress of the BS-2 STP project and requests that the Company provides at least two rounds of monitoring data post-commissioning to demonstrate the new plant is operating in compliance with relevant standards.*

OPF

At the OPF Temporary Camp, the Company completed a technical survey of the existing STP in November 2017 and subsequently has recognised that it needs to replace the STP. Funds for replacement have reportedly been included in 2019-2020 budget. At the time of this IEC visit, the budget was understood to be pending approval. Initial groundworks for construction of the new STP have commenced and the main components were seen stored in a laydown area of the OPF-C camp.

Follow-up Item: *Ramboll will continue to follow the progress of the OPF temporary camp STP project and requests the Company provides at least two rounds of monitoring data post-commissioning to demonstrate the new plant is operating in compliance with relevant standards.*

At the OPF-C Fly camp, there was one permit exceedance event recorded in relation to the existing STP in April 2018, involving ammonium nitrogen, BOD and suspended solids. The Company reported that it was able to achieve improvements to the water quality discharged from this STP following expert evaluation of technical conditions.

Furthermore, it was reported that there is no water discharge permit currently in place for this STP (only a water use decision, which expires in 2021). Ramboll understands from Sakhalin Energy that the current water use decision was issued in May 2016 on the condition that the Company conducts monitoring, develops discharge limits and then applies for a discharge permit. The Company conducted the monitoring to establish the baseline but made the decision to require Petrofac as the EPC Contractor to install a new STP (replacing the old STP) and also obtain the necessary discharge permit. The initial baseline data collection has reportedly been

completed by Sakhalin Energy and the data handed over to Petrofac. It is understood that Petrofac has initiated the process of approval of discharge limits and the intention is to have the new (permitted) STP operational in early 2019.

Follow-up Item: *Ramboll will continue to monitor progress on the implementation of the STP plans at the OPF-C Fly Camp.*

5.1.2 Discharges to Land

A general permitting issue relating to discharge of treated water to land/soakaways has previously been identified and reported in September 2012 (see item WATER.08 in the Findings Log). A number of water discharges (e.g. treated surface water runoff and treated sewage) to ground at various assets 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. Sakhalin Energy's original RTN permits for discharge of water to land have expired and RPN has no legal basis to re-approve for such permits. As such, Sakhalin Energy still does not have valid permits for its ongoing discharge of treated water to ground from onshore assets. Sakhalin Energy continues to monitor the discharged water quality and compare it against the expired permit limits for reference.

Since Ramboll's 2017 visit, and in anticipation of a RF regulatory change in the near future likely to impose new regulatory requirements and charges for discharges to land, the Company has evaluated and identified alternative wastewater disposal options such as discharge to waterbodies to remove discharges to land for several assets. For example, the Company was able to get the discharge from the LNG quality pond re-classified as a discharge to the Goluboy Brook under a new Water Use Permit obtained by Sakhalin Energy. However, at the time of the visit, the plans to deal with remaining discharges to land at the OPF, BS-2 and PMDs was still under discussion.

Follow-up Item: *Item WATER.08 in the Findings Log remains open until such time as a clear plan (approved by Sakhalin Energy management) has been developed for all such discharges. Ramboll will continue to monitor this issue.*

5.1.3 Environmental Monitoring

The Company provided an update to Ramboll on the various environmental monitoring programmes it has implemented including a summary of the 2017 results and future strategies.

Monitoring around Offshore Assets

In relation to environmental monitoring around Sakhalin Energy's offshore assets, based on the 2017 monitoring results, the Company concluded that the programme was proving effective and that there were no indications of negative impacts on marine biodiversity from platform operations, including well construction. The programme is intended to be continued on an annual frequency between 2018-2020 based on an optimised scope. Ramboll will continue to review the scope of the environmental monitoring programmes as results are obtained, including the Company's monitoring strategies post-2020.

Opportunity for Improvement: *In relation to monitoring of the chemical composition of bottom sediments around offshore platforms, a distinct increase was detected in the concentrations of phenols and detergents in bottom sediments sampled in 2017 around all three platforms, when compared to 2016 results. Although external anthropogenic sources were reportedly suspected, no confirmed explanation for the results could be provided to Ramboll. Whilst it is understood that there are no relevant regulatory limits, it was acknowledged by Sakhalin Energy that these increases (which exceeded the baseline) should be further*

investigated in order to better understand possible causes and eliminate platform operations as a source.

Ramboll was shown presentations on the following biological monitoring programmes:

- OPF area monitoring of vegetation, rivers and protected/rare bird species;
- Pipeline monitoring of soils, vegetation, wetland, rivers, Sakhalin taimen, and protected/rare birds (including Steller's sea eagle, white-tailed eagle and Siberian grouse);
- LNG area monitoring of soils, vegetation, rivers and Pacific salmon; and
- Ballast water and offshore water monitoring in Aniva Bay.

The presentations were very informative and Ramboll broadly agrees with both their conclusions and proposed monitoring scopes for future years. There are some items which we would like the opportunity to consider in further detail, for example monitoring for protected bird species, particularly Siberian grouse.

Follow-Up Item: *Ramboll requests to see the reports described in the Local Monitoring presentations to allow us to review the conclusions and proposed monitoring scopes.*

5.2 HSE Performance Update

In May 2018, Sakhalin Energy was re-certified to international health & safety management system standard OHSAS 18001:2017 and certified to the updated environmental management system standard ISO 14001:2015 by accredited certification company Russian Register. The certification audit conducted by Russian Register identified no Non-conformances against ISO 14001.

The Company's 'Goal Zero' programme for achieving 'No harm. No leaks" was reported to be continuing to be implemented and in 2018 significant efforts have been made in terms of training staff and contractors. It was reported that the Company is working on approximately 700 Continuous Improvement programmes. The Company reported that the new Head of Corporate HSE was due to commence work in October 2018.

A review of Sakhalin Energy's 2018 HSE Scorecard indicated that the Company was on target in terms of four out of six metrics, with behind target scores being related to the 'Golden Person' programme (a training related metric) and process safety events (see below). Both these metrics were considered just below target and were predicted to be on target by the end of the year.

In terms of asset integrity and process safety incidents, it was reported that so far within 2018 there had been no Tier 1 incidents and one Tier 2 incident. This incident occurred in January 2018 and involved a crude oil leak from a flange on a drain valve in the condensate pump shelter at the OPF. The incident report confirmed that all of the estimated 0.3 m^3 of oil that leaked was reportedly contained within the pump shelter bunded area and subsequently recovered, and as such, there was reportedly no release to the natural environment. In addition, a total of 36 m^3 of oil-contaminated snow captured within the bunded area was collected and disposed of.

The TRCF for the Company was reported as of July 2018 at 0.1 against a target of 0.5. As of July 2018, two Recordable Cases had reportedly occurred involving a burn to a foot in a kitchen at the OPF-C and injury to the face from a scaffold pole at the OPF. Two further incidents, not yet reflected in the statistics, have reportedly occurred more recently at the Zima accommodation, involving the same contractor and resulting in minor injuries.

In addition, the Company reported that three accidental deaths had occurred in 2018, which were not considered by Sakhalin Energy to be work-related accidents. These have not been recorded

in the TRCF, and Ramboll concurs that this is also common practice in other international jurisdictions, including the UK. However, the Company is reportedly looking at potential health programmes in light of these events.

5.3 HSESAP Document Update

Sakhalin Energy provided a progress update on the latest update to the HSESAP. The target for completion and approval by Lenders of Revision 5 of the HSESAP is Q4 2019. The review process involving Ramboll was ongoing at the time of the visit, and of the 18 individual standards undergoing update within the HSESAP it was reported that nine had already been finalised.

Opportunity for Improvement: *In relation to the Water Use Management and Ground Water Protection Standard, which is currently under development as part of Revision 5 of the HSESAP, Ramboll was advised that the Company has piloted a number of secondary containment measures at PA-A, as included in the revised Chemical Management Specification. Ramboll recommends that following Lenders' approval of the revised Chemical Management Standard, the Company ensures that the agreed measures are fully implemented on the other platforms PA-B and LUN-A.*

5.4 RoW Maintenance

Based on information provided by the Sakhalin Energy pipeline maintenance team during the visit, it was evident that the Company continues to take a positive and proactive approach to managing environmental issues relating to the RoW.

Sakhalin Energy continues to implement active monitoring of the RoW with a focus on high risk issues such as river erosion and landslips. This proactive approach is reducing the number and severity of incidents, as well as the associated scale of environmental damage and resulting repair works required.

A total of three Category 2 (routine) repairs were undertaken in 2017 and nine were undertaken to date in 2018, including slope stabilisation and protection projects and wash-out repairs. In terms of Category 3 projects (non-routine, requiring engineering input), there were five in 2017 and three in 2018 (including river crossings and landslips).

Tree removal on the RoW continues to be performed in late summer using hand-held equipment only. The tree cutting works are limited to the late summer period. The short seasonal opportunity for works reduces the area that can be cut in any particular year and areas need to be cut according on an ongoing rotational basis. More than 100 ha of RoW were cleared in both 2017 and 2018. The current hand-held equipment removal method avoids soil disturbance and the loss of non-tree vegetation and is an improvement from early mechanical methods employed by the Company.

In terms of disposal of cut vegetation, it was reported that the principal route remains collection and disposal to landfill, although chipping and on-site spreading is reportedly done in some places (where access allows). Either approach has pro and cons. If completed carefully, chipping on-site could help to provide organic matter to the soil, replacing that lost during construction. However, if spread too thickly it could suppress vegetation growth. The Company reported that it continues to evaluate other techniques, including application of a non-toxic bio-reactive substance (decomposer) on to cut material to encourage quicker decomposition.

Follow-Up Item: *Tree control on the RoW remains an ongoing issue. While Company appears to have maintained tree growth control efforts at a steady level, it will be subject to future review by the IEC. It is also recommended that the method for disposal of tree cuttings continues to be evaluated to find the optimal methodology in terms of environmental impacts.*

5.5 Waste Management Strategy

Ramboll has previously reported to Lenders on significant issues in relation to Sakhalin Energy's waste management strategy for non-hazardous waste related to capacity issues at existing landfills, legal restrictions which unexpectedly stopped use of certain landfills and hindered development by others.

In response to these issues, Sakhalin Energy has developed a revised waste management strategy, which has continued to evolve in recent years. During this most recent IEC monitoring visit the Company provided a further update, the key items of which were as follows:

- The Company reported an overall trend of reduced waste volumes going to landfill over the period 2015-2017 (although there was a small increase in 2017 from 2016 due to major shut-downs in 2017). This has been achieved by improving segregation and recycling.
- The OPF-C scope includes incineration as part of the EPC Contract (see Section 2.6 above).
- Waste disposal strategy for the LNG Train-3 Project is aligned with the Company strategy, including planning for an incineration plant (see Section 3.5 above).
- Regarding the continued use of the Nogliki landfill in the north of the Island, reportedly 70% of the design capacity of the Sakhalin Energy cell remains available. A new municipal landfill to serve Nogliki is still planned by the municipality, however, it is not expected that its development will impact Sakhalin Energy's use of the existing landfill.
- Regarding the Smirnykh landfill, it remains unavailable for use by Sakhalin Energy. Subject to successful land recategorisation and permitting, this landfill is expected to be available for use in Q3 2019. In the meantime, the Company still uses Nakhodka landfill on the mainland for disposal of some solid domestic waste from assets in the centre and south of the Island. A new landfill at Tymovsk (central part of the Island) is expected to come on line in Q4 2018 – Q1 2019. Export of waste to landfills on the mainland is seen as a temporary back-up option.
- The Company renewed its contract with Korsakov landfill in the south of the Island in 2017, but only for Hazard Class V wastes and only up to 20m^3 per week (due to regulatory restrictions – reflecting limited remaining capacity). A new landfill is reportedly still planned to be developed by the municipality, however, for various reasons, it is not expected to be available for the Company's use for at least two years.
- A new replacement municipal landfill in Yuzhno-Sakhalinsk, reportedly built to new RF standards (aligned with EU Landfill Directive standards), has been delayed but is now almost completed. However, it is not clear when it will become operational. The old landfill (not used by Sakhalin Energy) does not comply with RF legislation.
- The Company does not plan to construct any new landfill facilities or co-fund municipal landfill developments.
- Hazard Class 1 to 3 (hazardous) wastes continue to be disposed of on the mainland.

Follow-up Item: *IEC will continue to follow-up on the status of the development of new landfill facilities by the Sakhalinsk Oblast.*

In addition to the ongoing challenges for the Company's Waste Management Strategy to address, Sakhalin Energy reported a new challenge during this latest IEC monitoring visit. A legislative change due to come in in January 2019 will mean that a 'Regional Operator' model is to be introduced across Russia, whereby a waste company appointed by the regional authorities will be responsible for solid domestic waste (SDW) collection and disposal. As a result, Sakhalin Energy is likely to lose control over SDW handling standards and disposal routes and there is potential for Sakhalin Energy wastes to be sent for disposal to landfills not complying with Project

standards. Furthermore, the lower tariffs being proposed (set by the authorities) means that Sakhalin Energy predicts lower overall standards of service.

Sakhalin Energy will retain control over how its non-SDWs are managed and was reportedly using its influence with both the authorities and the chosen 'Regional Operator' (AO "Otkhody" – a current contractor to Sakhalin Energy) to define and agree the best solution for reducing the risks identified above and ensuring compliance with this new RF legislation.

Opportunity for Improvement: *On conclusion of discussions with the Sakhalin Oblast and new Regional Operator, Sakhalin Energy should update its Waste Management Strategy to clearly describe how it intends to manage the forthcoming legislative change. The updated strategy document should be shared with IEC and Lenders as soon as possible. The strategy should clearly describe the risks, the mitigation measures that the Company is able to implement and then any residual risks (which the Company cannot control/influence).*

5.6 Corporate Social Performance

5.6.1 Social Investment Highlights

Sakhalin Energy continues to implement its Social Investment Strategy, including its flagship programmes: "Safety is important", the Sakhalin Indigenous Minorities Development Plan (SIMDP), Korsakov Sustainable Development Partnership Council, Fund of Social Initiatives "Energy", and others. Ramboll representatives conducted an interview with a designated IP CLO responsible for communication with indigenous communities of Sakhalin and it is understood that:

- The current issue of the SIMPD (SIMDP 3) was developed in 2015 and is valid from 2016 until 2020;
- Development of the next SIMDP will be performed in 2020 through consultations with indigenous peoples (IPs) in all 12 IP settlements and sociological studies;
- Examples of the most successful elements of SIMDP were described to Ramboll as being educational and cultural projects;
- Sakhalin Energy aims to ensure that the programmes that are implemented as part of the Plan are sustained after the Company's support diminishes;
- The SIMDP is assessed regularly by an independent IP consultant.

5.6.2 Stakeholder Engagement

Sakhalin Energy stakeholder engagement process is based on the following major documents:

1) Corporate Stakeholder Engagement Plan (SEP). Note that specific activities within the Project also have their specific SEPs, namely, additional SEPs are developed for Train-3 and OPF-C.
2) Corporate Public Consultation and Disclosure Plan (PCDP). As for the SEP, specific PCDPs are developed for Train-3 and OPF-C.
3) Public Consultation and Disclosure Reports (PCDRs), that are aimed at reporting on the stakeholder engagement activities undertaken by Sakhalin Energy.
4) SIMDP, which regulates, *inter alia*, engagement with IP.

Stakeholder engagement planning activities are regulated by PCDP (disclosure-oriented document) and SEP (internal methodological document). The SEP includes identification and mapping of the stakeholders, sets out the roles and responsibilities, and indicates preferred methods while engaging both external and internal stakeholders. Stakeholder

mapping/prioritisation is provided based on the criticality of the stakeholders to the Project's success and the stakeholders' interest.

The Company reports on its stakeholder engagement activities undertaken via a variety of documents. However, the major reporting instrument is considered to be the corporate-level PCDR. Following our review of the 2017 PCDR, Ramboll recommended that document should include more details on the past activities, concentrating on the actual concerns and issues raised by local communities and other relevant stakeholders during stakeholder engagement activities.

The Company discloses the PCDPs, PCDRs and SIMDP at various venues, including information centres, CLO offices and its corporate public websites.

Sakhalin Energy continues to operate a number of information centres, including in Nogliki and in Korsakov. Overall, 23 information centres are functioning in the libraries in the settlements located along the trans-Sakhalin pipeline and in the vicinity of other Company assets. In 2017, 4,925 visitors were registered as visiting Sakhalin Energy information centres; in January-June 2018, 2,584 visitors were registered. Visitors to the information centres were mainly interested in requesting "*Vesti*" news bulletin and general information on the Project.

The Company conducts annual training courses and workshops for the information centre consultants on a variety of topics. In 2017, these topics included grievance procedures, biodiversity and environmental monitoring and social programmes.

Figure 5.1 Information centre in Nogliki

Sakhalin Energy has reflected upon Ramboll's previous recommendations on the information centres' operation and general stakeholder engagement practices, and throughout the reporting period has ensured the following:

- Availability of 'master copies' of the "*Vesti*" news bulletin's most recent editions in the information centres;
- Information centre consultants are advised to refer job-seekers to the contractors' list;
- A separate column has been added to the visitors register to specifically identify grievance procedure requests;
- Existing columns have been reviewed to avoid potential overlapping of topics that may confuse the information centre consultants;

- Training on filling in the visitors register during the 2017 workshop was conducted;
- The grievance forms are now available separately/independently of the grievance procedure brochures;
- A date of publishing has been added to the grievance procedure brochure's title page;
- Verbal queries are reported to be registered by information centre professionals and by the CLOs;
- At least one 'master copy' of the grievance procedure brochure is always available at each information centre.

In February 2017, Sakhalin Energy re-opened the CLO office in Korsakov due to raised public interest in the Project based on the Train-3 information dissemination. The CLO office is considered by Ramboll as an important source of information about the Project in general and about future Train-3 activities. The office is run by a local knowledgeable professional based in Korsakov. The CLO office has opening hours twice per week and registers all visitors, information requests and phone calls. In addition, the CLO provides necessary support to local community members whenever needed. For example, the list of all contractors and their employment procedures are available in the office; the CLO also assists local residents in filling out the CVs and job application forms. Concerns regarding employment opportunities from local stakeholders are regularly registered by the CLO with regard to Train-3.

Overall, Ramboll's general conclusions after review of the most recent preliminary versions of the corporate documents are as follows:

- It is expected that prior to Train-3 construction phase, more details on planned stakeholder engagement activities are shared via the Train-3 PCDP;
- More details on the community feedback and consultations held to date are required in PCPD/PCPR.

Opportunity for improvement*: Ensure that the PCDR reflects the nature of the actual views/ concerns/ suggestions/ general questions of stakeholders, provides appreciation of their significance, and indicates the Company's response to them (if any).*

5.7 Development of project-wide Critical Habitats Assessment (CHA) and Biodiversity Action Plan (BAP)

Sakhalin Energy is in the final stages of producing a Critical Habitat Assessment (CHA) for the project as required under IFC PS6. Ramboll met with the Sakhalin Energy specialist working on the assessment and discussed our most recent comments in detail. The CHA is now with Sakhalin Energy to complete.

Sakhalin Energy updated its existing Biodiversity Action Plan (BAP) in 2018. Ramboll has reviewed the document and provided comment. The current document does not align entirely with the requirements for a BAP under IFC PS6. It was agreed with Sakhalin Energy that following the completion of the CHA, Ramboll would provide feedback on the next steps to develop such a BAP and that rather than further edits to the existing BAP, the individual action plans for each species/feature/habitat will be provided in an annex to the existing BAP, allowing them to be used as standalone documents that can be provided to any staff who need to be informed or undertake activities.

5.8 4D Seismic Survey & Western Gray Whales

Sakhalin Energy undertook a seismic survey in spring 2018. The survey comprised:

1. '4D' seismic surveys of the Piltun-Astokh field involving:
    a) A repeat of the 2015 streamer survey of the field

   b) Ocean Bottom Node (OBN) surveys around the PA-A and PA-B platforms (this was the first time OBN surveys had been performed by Sakhalin Energy and the principal reason for their use was that OBNs enable surveys to be undertaken in closer proximity to the platforms than is possible with streamer surveys)
2. A 3D/4D OBN survey around the Lunskoye-A (LUN-A) platform
3. A source reduction OBN test was also undertaken in the Piltun-Astokh field for the purpose of investigating whether OBN surveys may be effectively performed using reduced sounds sources; if significantly lower sound sources are found to be effective, then this would raise the potential for future seismic surveys to be performed with reduced noise impacts on marine mammals.

In preparation for the survey, Sakhalin Energy had developed and agreed with the WGWAP (the 'Panel') a Mitigation and Monitoring Plan (MMP) for implementation during the survey with a focus on protection of marine mammals and gray whales in particular. Ramboll attended the Noise Task Force (NTF) meetings of the WGWAP where the MMP was discussed and agreed. Overall, we consider the approach to the development of the MMP to be good, and particularly note that Sakhalin Energy displayed a positive and open attitude towards the Panel throughout the MMP development. To support the practical implementation of the MMP, an advisory working group of selected members of the Panel (including the co-chairs) was established to provide advice within 24 hours on operational matters during the planning and performance of the seismic surveys. In addition, one of the Panel members was appointed to act as an independent observer during the performance of the seismic survey (noting that this role was not part of the WGWAP function itself).

Implementation of the MMP during the seismic survey was hampered by a number of issues, including:

1. Subsequent to the agreement of the MMP, Sakhalin Energy was informed by the RF Authorities that a permit would not be granted to undertake underwater noise monitoring, which was an important part of the MMP[6]. (This issue, and the discussions undertaken with the WGWAP, has previously been reported to lenders by Ramboll and is not discussed further here.)
2. Unusually extended periods of poor visibility conditions due to fog adversely affected the ability to observe marine mammals during the seismic survey. The MMP includes certain restrictions on seismic operations during poor visibility conditions (related to the difficulties in observing marine mammals within exclusions zones in such conditions), and so the high of occurrence of fog resulted in the overall duration of the survey be extended due to operational shutdowns. The extent of the delays meant that one of the primary mitigation objectives of the MMP, namely to complete the survey as early in the season prior to peak numbers of gray whales, would be affected. Sakhalin Energy therefore took the decision to relax some of the marine mammal observation-based restrictions of the MMP in order to prevent the survey extending further towards the peak gray whale season. We understand that to try and minimise the effect of this, the Company tried to optimise the use of observations from scout vessels etc. to observe for marine mammals during fog conditions.

The issues related to the implementation of the MMP, including implications on gray whale protection, lessons learned and potential improvements to the MMP to adapt to adverse weather conditions, will be subject to detailed discussion and review during the forthcoming NFT and WGWAP meetings scheduled in Moscow in November 2018.

[6] The Authorities did not explain the reason to Sakhalin Energy for not providing the permit.

Follow-up Items:

- *Ramboll will attend the NTF and WGWAP meetings in November 2018 and will report to Lenders on the findings and recommendations from the Panel in relation to the implementation of the MMP and its future development in due course.*
- *Results from the sound source reduction OBN test will be available in 2019, and Ramboll will report on the findings and specifically the potential for lower noise impacts from future seismic surveys in due course.*

5.9 Marine Mammals Observation Programme

Sakhalin Energy continues to implement its Marine Mammals Protection Plan (Rev.09, August 2018) to reduce the risk of vessel collisions with marine mammals and to minimise the direct impact of offshore activities on cetaceans. Mitigation measures employed include speed restrictions to vessels operating in crew boat corridors, navigation corridors, and to the west of corridors; to specify safe distances between vessels and marine mammals; and to use experienced marine mammal observers (MMOs).

It was reported that in 2017, a team of nine MMOs were available to cover eight vessels. A total of 370 sightings of 1767 mammals were made and there were no cases of exceeding speed limits or collisions recorded. No collisions have been reported so far in 2018. Deviations from designated corridors were recorded and were related to: special monitoring of WGWs; offshore environmental monitoring; vessel emergency training; and the bypass of 3rd party vessels.

5.10 Oil Spill Preparedness and Response

Sakhalin Energy currently has in place six asset-specific oil spill response plans (OSRPs), which are reviewed and updated periodically by the Company and subsequently must receive approval from the State Environmental Expert Review Board prior to implementation. During the monitoring visit, the Company provided an update on its most recent update cycle of OSRP revisions:

Offshore Assets:

- Piltun-Astokh field
- Lunskoye field
- Prigorodnoye offshore facilities
  - Positive opinions (approval) from the State Environmental Expert Review Board, and the plans have been implemented.

Onshore Assets:

- Pipeline Transportation System
- OPF
- Prigorodnoye onshore facilities
  - These plans have been reviewed and updated in view of comments made by the Lenders oil spill experts, PCCI Incorporated (PCCI), and are awaiting approval from the state authorities.

Sakhalin Energy reported that the four new special-purpose 'emergency and rescue' vessels discussed in PCCI's 2017 OSR Exercise visit report[7] are now operational. The four vessels – one platform supply vessel (PSV) and three OSR standby vessels – are identical and each vessel has multi-purpose capabilities in support of oil production/ice-breaking operations, oil spill response

[7] PCCI Evaluation of the Sakhalin Energy Well Control Exercise November 21-22, 2017 (issue 2, 14 February 2018)

and emergency response (personnel evacuation, search and rescue, firefighting), irrespective of weather conditions. They are specifically designed for the region's severe ice conditions and are equipped with dispersant spraying systems and more effective skimmer and boom systems. The standby-by vessels are strategically positioned near the platforms and Prigorodnoye and are ready to respond 24 hours a day, 365 days a year.

Regarding non-mechanical response techniques, Sakhalin Energy advised that it had undertaken a net environmental benefit analysis (NEBA) and obtained all necessary approvals and has developed and implemented a procedure for the use of dispersants at offshore facilities. This is not new information and has already been reported to Lenders in previous IEC monitoring reports. Sakhalin Energy also advised that the process for obtaining a permit for the use of dispersant Corexit-9527 was in its final stages and it was considering the issue of obtaining additional stocks of Corexit-9527, however it is Ramboll's understanding that worldwide availability of this obsolete dispersant is limited, and that the Company was instead investigating procurement of the more modern dispersant Corexit-9500 (as reported by Sakhalin Energy in Finding OSR.27).

***Follow-up item**: Ramboll requests an update on the Company's strategy and procurement / current stock levels of Corexit-9527 and/or Corexit-9500.*

Based on the results of a preliminary NEBA, Sakhalin Energy has developed and implemented a decision-making procedure for the burning of oil in ice conditions, and has now obtained a permit to burn oil at a spill point in ice conditions at PA and Lunskoye fields. Ramboll and PCCI will continue to report on this development with interest.

During the monitoring visit, the Company also reported on the major emergency response exercise undertaken in 2018 with the involvement of government authorities (a terrorist attack scenario resulting in oil pipeline blow-up), and OSR training provided to Emergency Co-ordination Team members since our last monitoring visit.

6. 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 7) 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	OPF-C	Awareness of the SEP and PCDP related to OPF-C construction activities should be raised among Petrofac's personnel to ensure more intensive involvement of Petrofac's team into future stakeholder engagement activities, especially in light of the potential incinerator construction near Nysh requiring additional measures for proper information exchange between the Project and local communities.	Petrofac, via SE	SEIC to make sure the awareness of Petrofac's personnel is risen with regards to SEP and PCDP related to OPF-C construction activities. Petrofac's team should be involved more clopsely into future stakeholder engagement activities. **Action taken:** The Contractor (Petrofac) and subcontractors were informed about the Project's SEP and PCDP, including input in the OPF-C construction related stakeholder engagement activities expected from them. This was done as part of special sessions to roll-out Contactor's SP Plan (on site – Nov 14 and in Yuzhno – Nov 16). Relevant picture provided as evidence. OfI closed.
2	OPF-C Waste management	Given the previous permitting issues experienced by Nogliki landfill, and landfill capacity on the island overall, Ramboll encourages the Company to implement its plans to install the OPF-C incinerator as soon as possible. Sakhalin Energy should provide Ramboll with a Project Execution Plan (or similar) and Impact Assessment (including assessment of any impacts on local air quality that will be particularly important should the option close to Nysh	SE	Sakhalin Energy should provide Ramboll with a Project Execution Plan (or similar) and Impact Assessment (including assessment of any impacts on local air quality that will be particularly important should the option close to Nysh village be selected) for review once the location is finalised. This should, inter alia, provide detail on the Project schedule and

Opportunities for Improvement				
		village be selected) for review once the location is finalised. This should, inter alia, provide detail on the Project schedule and specification, which should meet GIIP.		specification, which should meet GIIP. Target date 01.11.2019
				Company to provide the Level 1 schedule for the incinerator installation with the specific milestones: • EIA preparation and approval • Firm decision on incinerator location • Date of operational permit application • Anticipated incinerator start-up Target date 31.03.2019
				Company to provide the detailed execution plan Target date 31.05.2019
3	Train-3 construction	While the Prigorodnoye by-pass road is not commissioned, it is recommended to ensure sufficient dust suppression activities at the Prigorodnoye Production Complex approach road.	SE	SEIC to consider a responsibility to provide sufficient dust suppression activities at the Prigorodnoye Production Complex approach road. Korsakov Municipal Authorities plan to start asphalting the road in May-2019. Taking into account the winter period, anti-dust measures are being postponed.
4	Train-3 ESHIA	Ramboll suggests that Sakhalin Energy uses the ornithologist's data to review the Aniva Bay IBA citation in detail to ensure that the assessment provided in the Train-3 ESHIA is appropriate and proportionate, considering only those species which are known to, or realistically could use the areas around the LNG.	SE	The reports with birds monitoing results in Aniva Bay for 2018 will be provided by SEIC specialists to ERM by the end of January – 2019. Target date 28.02.2019. The results for 2017 have already been shared.
5	Monitoring	In relation to monitoring of the chemical composition of bottom sediments around offshore platforms, a distinct increase was detected in the concentrations of phenols and detergents in bottom sediments sampled in 2017 around all three platforms, when compared to 2016 results. Although external anthropogenic sources were reportedly suspected,	SE	SEIC to investigate the possible increase causes and eliminate platform operations as a source. The evidences should be provided. Target date 31.03.2019

Opportunities for Improvement				
		no confirmed explanation for the results could be provided to Ramboll. Whilst it is understood that there are no relevant regulatory limits, it was acknowledged by Sakhalin Energy that these increases (which exceeded the baseline) should be further investigated in order to better understand possible causes and eliminate platform operations as a source.		
6	Secondary containment	In relation to the Water Use Management and Ground Water Protection Standard, which is currently under development as part of Revision 5 of the HSESAP, Ramboll was advised that the Company has piloted a number of secondary containment measures at PA-A, as included in the revised Chemical Management Specification. Ramboll recommends that following Lenders' approval of the revised Chemical Management Standard, the Company ensures that the agreed measures are fully implemented on the other platforms PA-B and LUN-A.	SE	Following Lenders' approval of the revised Chemical Management Standard, the Company shall ensure that the agreed measures are fully implemented on the other platforms PA-B and LUN-A. Target date Q3 2019
7	Waste management strategy	On conclusion of discussions with the Sakhalin Oblast and new Regional Operator, Sakhalin Energy should update its Waste Management Strategy to clearly describe how it intends to manage the forthcoming legislative change. The updated strategy document should be shared with IEC and Lenders as soon as possible. The strategy should clearly describe the risks, the mitigation measures that the Company is able to implement and then any residual risks (which the Company cannot control/influence).	SE	The waste Management Strategy will be updated and the initial WMS update provided to IEC for their further review. Target date 31.03.2019
8	PCDR	Ensure that the PCDR reflects the nature of the actual views/ concerns/ suggestions/ general questions of stakeholders, provides appreciation of their significance, and indicates the Company's response to them (if any).	SE	Agreed. Target date 30.04.2019

7. 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 and Sakhalin Energy through the Findings Log, which includes:

a) All Issues[8] 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 2014 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[9], 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.

7.1 Findings WATER.19, 20 and 21 and WASTE.24

Please note that following discussions with Sakhalin Energy, Ramboll has closed *and superseded* Findings WATER.19, 20 and 21 with a series of more specific Findings in order to focus on the key compliance issues at each location and also to enable Sakhalin Energy to more easily close out each action (i.e. avoiding complex, multiple-part Findings that subsequently remain open for many years).

Similarly, Finding WASTE.24 has been closed and superseded with one specific to Train-3.

[8] 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).

[9] Assessed as per Risk Assessment Matrix

Findings Log – October 2018								
Ref[10]	**Rank**[11]	**Status**	**Date**	**Topic**	**HSESAP Ref**	**Finding**	**Action Progress Review**	**Action #**
Air Emissions and Energy Management								
AIR.13	Low Amber	**Closed**	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. **Sept 17**: During meetings with the IEC and Lenders as part of the September monitoring visit, Sakhalin Energy presented its justifications for changing the NOx emissions limit in the HSESAP to bring it in line with the full requirements of the EU Industrial Emissions Directive, upon which the Company NOx standard was established (the emission limit only applies to above 70% load). Ramboll Environ agrees with the Company's proposals. **October 2017**: Everything mentioned above has been discussed during the Lenders monitoring visit in September and in terms of action review during the telecon with Ramboll on 3 October 2017. It was proposed for closure after the review of SEIC's reply to the Lenders.	863290 – CLOSED March 2018

[10] 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.

[11] **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 – October 2018								
Ref[10]	**Rank[11]**	**Status**	**Date**	**Topic**	**HSESAP Ref**	**Finding**	**Action Progress Review**	**Action #**
							March 2018: Appendix 4 of Air Emission Standard was reviewed by the Lenders' Independent Environmental Consultant and the Lenders (through the Environmental Bank) and had no further questions or comments. The action is closed by the Lenders.	
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, SE is assessing whether it would be appropriate to request that	467657 - CLOSED 28/6/11 618507 - CLOSED 15/11/12 **NOTE**: WATER.03 will not be closed until permanent treatment system is in place.

Findings Log – October 2018								
Ref[10]	**Rank[11]**	**Status**	**Date**	**Topic**	**HSESAP Ref**	**Finding**	**Action Progress Review**	**Action #**
							the discharge limits for TSS and dispersed hydrocarbon set in the licence for the disposal well be increased. **Sept 17**: Sakhalin Energy is working with the research contractor TymenNIIGiprogaz to improve the treatment of process water injected to the disposal well. It is also negotiating with the regulators to seek a less stringent hydrocarbon limit of 50 mg/l. **Sept 18**: Update requested from Sakhalin Energy. This Action is regarding the process water treatment plant within the OPF process area (not domestic STP). It was Ramboll's understanding that the upgraded plant should be operational by now.	
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 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	**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 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	Fountain action not required

Findings Log – October 2018								
Ref[10]	**Rank[11]**	**Status**	**Date**	**Topic**	**HSESAP Ref**	**Finding**	**Action Progress Review**	**Action #**
						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.	action can be developed. RE agrees with this approach. **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. **Sept 17**: Work continues on assessing the alternatives to discharging to land. **Sept 18**: Ramboll to discuss with SEIC which parts may be closed (suggest on an asset/discharge by asset/discharge basis). There must be a clear (and documented) way forward provided for each discharge.	
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.	846171 - CLOSED 25/2/15

Findings Log – October 2018								
Ref[10]	**Rank[11]**	**Status**	**Date**	**Topic**	**HSESAP Ref**	**Finding**	**Action Progress Review**	**Action #**
							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 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. **Sept 17**: The hose is still used when the STP has operational issues. It is likely to remain in use as required until around 2020, when a new STP is built as part of the Train-3 Project. **Sept 18**: No firm commitment or timeline was able to be provided regarding the pipe's replacement as part of the Train-3 project, therefore this Finding remains open.	
WATER.16	Low Amber	**Open**	Oct-14 - LNG	Water treatment at LNG	Water Use Standard Comparison Specification 0000-S-90-04-O-	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	**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	846244 CLOSED 846246 CLOSED

Findings Log – October 2018								
Ref[10]	**Rank[11]**	**Status**	**Date**	**Topic**	**HSESAP Ref**	**Finding**	**Action Progress Review**	**Action #**
					0255-00-E App 4	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.	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.) **08.09.16**: Revised Water Use standard – now "Water Use and Groundwater Protection" – provided for review. **09.12.16**: Clarification that soils management will move to newly created "Land Management and Soil Standard", to be finalised June 2017. RE notes that <u>both</u> the above documents must be reviewed to complete this action. **11.10.18**: New revisions of both the "Water Use and Groundwater Protection" and "Land Management and Soil Standard" have been provided to Ramboll for review. Action may be closed when these standards are approved by Lenders.	

Findings Log – October 2018								
Ref[10]	**Rank[11]**	**Status**	**Date**	**Topic**	**HSESAP Ref**	**Finding**	**Action Progress Review**	**Action #**
							Action #757382: To review SE Requirements stated currently in Soil and Groundwater Standard to provide general guidance on hazardous materials management including secondary containment requirements. **09.12.16**: Sakhalin Energy provided chemicals handling documentation, including flammable, explosive and dangerous materials. SE requests documentation regarding leak collection and containment on platforms. **16.10.17**: PA-A Chemical Storage Procedure (for platforms) provided for IEC review. SE plan is to roll out the procedure to the other platforms following lessons learned from the PA-A pilot.	757382
WATER.19	Low Amber	**Closed (super-seded) – see intro to this section.**	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 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	**Action**: To undertake the action plans as developed to bring all STP discharges back into compliance.	---
							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 **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. **Sept 18**: Superseded with more appropriate actions.	913148 (Zima)
							Action #913149: For LNG (KPA): Make a final decision on developing a new water application package with the	913149 (KPA) –

Findings Log – October 2018								
Ref[10]	**Rank[11]**	**Status**	**Date**	**Topic**	**HSESAP Ref**	**Finding**	**Action Progress Review**	**Action #**
						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.	CLOSED 28/7/16
							Action #927449: SE to obtain new water application package KPA STP from MNR and notify RE accordingly. **Sept 18**: Superseded with more appropriate actions.	927449
							Action# 913150: BS-2: Replace STP; PMD's: Develop STP improvement. **2016**: SE advises that technical scope for STP repair is in place. PMD improvement plans are developed. Some organisational actions are planned for 2016 and technical actions planned for implementation in 2017. **Sept 17**: *BS-2 STP*: New STP (BR-30) delivered to site; commissioning and start-up is planned for Q3 2017. Dismantlement of existent STP to commence following OPF shutdown (26 July 17). *PMD improvement plans*: Due to PMD STPs reaching end-of-life and RF legislation still unable to regulate discharge to land, SE proposes to continue to operate its PMD STPs in accordance with current Facility Operation Permits and undertake a detailed inspection of each unit to decide whether to repair or replace. **Sept 18**: Superseded with more appropriate actions.	913150 (BS-2, PMDs)
WATER.20	Low Amber	**Closed (super-seded) – see**	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	**Sept 18**: Superseded with more appropriate actions.	

Findings Log – October 2018								
Ref[10]	**Rank[11]**	**Status**	**Date**	**Topic**	**HSESAP Ref**	**Finding**	**Action Progress Review**	**Action #**
		intro to this section.				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.		
WATER.21	Low Amber	**Closed (super-**	Jun-16	Wastewater Mgmt	GIIP	Following review of monitoring data made available during the	**Sept 17**: SE is awaiting data calculation results. Data calculation for new permit (based on dilution by Zima	932560 / 932561

Findings Log – October 2018								
Ref[10]	**Rank[11]**	**Status**	**Date**	**Topic**	**HSESAP Ref**	**Finding**	**Action Progress Review**	**Action #**
		seded) – see intro to this section.				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	river) will be provided by SE's contractor in September. These data will form the Company's decision regarding the improvement its sewage treatment plants (STP). Scope of Work for STP upgrade project will be prepared once the calculation is ready. **Sept 18**: Superseded with more appropriate actions.	
							The inspection of utility drainage pipe (till the shutdown valve of the pipe directing an effluent into the river) is planned. **Sept 18**: Superseded wtih more appropriate actions.	932562 / 932563

Findings Log – October 2018								
Ref[10]	**Rank[11]**	**Status**	**Date**	**Topic**	**HSESAP Ref**	**Finding**	**Action Progress Review**	**Action #**
						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.		
WATER.22	Low Amber	**New**	Sept-18	Compliance	Overarching 0000-S-90-04-P-7070-01-E Revision 04	Ramboll notes that the re-scoping and subsequent delay in the municipal sewerage connection project has led to another year of Zima's STP operating with several exceedance events. Sakhalin Energy should continue to work with the municipality to realise the Zima municipal sewerage connection project but does not rely on it as its only way forward. Ramboll requests regular updates from the Company in this regard,		

Findings Log – October 2018								
Ref[10]	**Rank[11]**	**Status**	**Date**	**Topic**	**HSESAP Ref**	**Finding**	**Action Progress Review**	**Action #**
						for example in its quarterly reporting to Lenders.		
WATER.23	High Amber	**New**	Sept-18	Compliance	Overarching 0000-S-90-04-P-7070-01-E Revision 04	No valid water discharge permit is in place for Zima STP. Sakhalin Energy should make all efforts to obtain the necessary permits discharge and water use permit for Zima before the end of 2018.		
WATER.24	Low Amber	**New**	Sept-18	Compliance	Overarching 0000-S-90-04-P-7070-01-E Revision 04	The Company should provide for Lender review a Position Paper and feasibility assessment of all options considered to date to achieve compliance with the Zima STP discharge permits and applicable Lender standards. This should include: • Comparison of the extent of the deviations from permitted discharge limits and applicable Lender standards. • Evaluation of Best Available Technological options (and associated cost-benefit analysis) for replacement of the STP. • All alternative wastewater disposal options considered, such as alternative		

Findings Log – October 2018								
Ref[10]	**Rank[11]**	**Status**	**Date**	**Topic**	**HSESAP Ref**	**Finding**	**Action Progress Review**	**Action #**
						discharge points or tankering it away.		
WATER.25	Low Amber	**New**	Sept-18	Compliance	Overarching 0000-S-90-04-P-7070-01-E Revision 04	Ramboll notes that unlike for the STP and associated discharge at Zima, there appears to be no long-term strategy for achieving permit compliance at the KPA STP on a regular basis (e.g. through STP replacement/upgrade combined with process optimisation, as conducted at other assets). Therefore, the Company should provide for Lender review a Position Paper and feasibility assessment of all options considered to date to achieve compliance with the KPA STP discharge permits. This should include: • Comparison of the extent of the deviations from permitted discharge limits and applicable Lender standards. • Evaluation of Best Available Technological options (and associated cost-benefit analysis) for replacement of the STP.		

Findings Log – October 2018								
Ref[10]	**Rank[11]**	**Status**	**Date**	**Topic**	**HSESAP Ref**	**Finding**	**Action Progress Review**	**Action #**
						• Details of any liaison with the Authorities regarding the sampling point. • All alternative wastewater disposal options considered, such as alternative discharge points or tankering it away.		
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
							[Summarised for brevity – please see previous monitoring reports for full details]
							21.01.15: Ramboll Environ considers that the [*OPF-C*] 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 OPF-C Project. Action kept open until waste management plans are developed.
							June 16: We understand that WMP is available in Russian, but that the English version is yet to be produced. RE will review the English version of the document when available.
							July 17: Accurate waste generation assessment will be included in EPC contractor's WMP, due Q4 2017.
							Sept 17: Sakhalin Energy has updated its waste management strategy to include incinerators in the EPC scope for the OPF-C and Train 3 projects, and proposes to retain incineration facilities for the operations phases of
								846201

Findings Log – October 2018								
Ref[10]	**Rank[11]**	**Status**	**Date**	**Topic**	**HSESAP Ref**	**Finding**	**Action Progress Review**	**Action #**
						of waste facilities and the associated design implications	both projects. The Nogliki landfill is now available to Sakhalin Energy again, and is currently being used for disposal of OPF-C construction wastes. **July 18**: Petrofac's waste management plan was provided to Ramboll for review. **August 18**: Action #846201 is considered to have been *partially met*, in that the OPF-C Waste Management Plan was provided and was found to contain a broad outline of the estimated waste types and waste minimisation was considered, however not in sufficient detail to satisfy this Finding. Further detail requested. **Sept 18**: It is recognised that the Nogliki landfill is available again and Sakhalin Energy has made clear its commitment to install an incinerator as part of the OPF-C project (in the process of identifying location). However Ramboll still considers that a full understanding of projected waste volumes (per waste type) is essential to future waste management planning, therefore proposes to close action #846201 and Finding upon receipt/review of the more detailed WMP. Remains open.	
WASTE.24	High Amber	**Closed (super-seded) – see intro to this section.**	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 facilities in Yuzhno and Nogliki,	Incinerator was included as mandatory requirement in EPC Contract, Appendix VI HSSE&SP, compliant with HSESAP requirements and capable to treat the maximum number of the waste streams generated at the Worksite. **Sept 17**: Sakhalin Energy is committed to the use of on-site incinerators during the construction of the OPF-C and LNG Train 3 Projects. Incinerator has been included as a mandatory requirement in the OPF-C project EPC contract; SE is also investigating the possibility of including a contractual provision for OPF-C EPC contractor to incinerate other SE waste (e.g. from OPF and other	932553

Findings Log – October 2018								
Ref[10]	**Rank[11]**	**Status**	**Date**	**Topic**	**HSESAP Ref**	**Finding**	**Action Progress Review**	**Action #**
						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 OPF-C and Train 3 projects. This is therefore now an urgent issue for the OPF-C project and we recommend that the Company confirms the status of the permitting status for the OPF-C project and whether it is still possible to include permanent incineration facilities within the RF approvals for that project.	sites). The Company is also investigating the potential use of incinerators located at the OPF site and Prigorodnoye in the south of the island. **Sept 18**: It is proposed to close this Finding and supersede it with a more appropriate Finding regarding the strategy for Train-3 and installation of an incinerator in the south of the island.	
WASTE.26	High Amber	**Closed**	Sept-17 (OPF)	Waste Storage	HSESAP Waste Management Standard Appendix 10	Six nominally empty 205 litre plastic drums were noted on the hardstanding at the OPF, near upturned empty drums. Upon	**Action**: Ensure correct labelling and storage of wastes. **13.07.18**: Sakhalin Energy advises: • The "Waste chemical disposal" point now prohibits any residues when empty containers are removed.	981661 – CLOSED 13.07.18

Findings Log – October 2018								
Ref[10]	**Rank[11]**	**Status**	**Date**	**Topic**	**HSESAP Ref**	**Finding**	**Action Progress Review**	**Action #**
					(Waste Containers, Labeling and Transport)	closer inspection at least two of the drums contained a significant amount (c. 10-20% of a drum's volume) of liquid, presumed to be residual corrosion inhibitor (thioalcohol solution, labelled as an environmentally hazardous substance). The drums are not labelled as waste, which is a non-compliance with Requirement 4 of Appendix 10 of the Waste Management Standard.	In case of any residue, the methods of its disposal must be agreed with the Shift Master. • All OPF operations involving chemical injections include drip trays and sorbents as a mandatory requirement. The trays volume is optimized for full containment including the reserve space in case of a spill. The requirement is included into the Work Permit (example provided with updated equipment description). • All operations are to be conducted at the concrete bottom of MEG area, which has a slope towards the center right into the discharge point which guarantees spill localization. Also, in case of any additional spill, the liquid will be collected into Tank-5603 within the bounds of MEG area. • We continue to make our contractors aware on waste labelling requirements (minutes of meetings and a part of the presentation provided as evidence). • The waste transfer area is designated with an information board indicating the working hours and employees in charge (photo provided). Ramboll considers this Finding closed.	
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	**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.	Fountain action not required. Action is monitored yearly through

Findings Log – October 2018								
Ref[10]	**Rank[11]**	**Status**	**Date**	**Topic**	**HSESAP Ref**	**Finding**	**Action Progress Review**	**Action #**
						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 exiting the OPF site to the north and entering what appeared to be a natural stream.	**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 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 OPF-C 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 OPF-C 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 OPF-C Project. **Sept 17**: The settlement pond at the northeast corner of the OPF-C site is poorly constructed and has insufficient capacity to accommodate runoff from a storm. It is also evident that large quantities of sediment have washed off the construction site and entered the surrounding bog vegetation. **Sept 18**: [HOLD: Based on our positive site observations, Ramboll consider that this Finding may be closed provided we can confirm receipt of the Drainage & Erosion Control Plan (advised to be 5000-E-90-04-R-10-12). Please can Sakhalin Energy provide this document to enable us to close the Finding.]	audits and visits by IEC.

Findings Log – October 2018								
Ref[10]	**Rank[11]**	**Status**	**Date**	**Topic**	**HSESAP Ref**	**Finding**	**Action Progress Review**	**Action #**
Land Management								
LAND.16	Low Amber	**Open**	Oct-11	Land mgmt. – re-instatement 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. **Sept 17**: Previously visited sandy slopes revisited in September 17 are now well vegetated and show no signs of erosion. However, low naturalness of vegetation compared to pre-construction baseline. Poor vegetation observed at other areas with sandy soil, including Fault Crossing #1ALT and KP14 (LUN-A to OPF). Specialist vegetation restoration programme would be required to restore natural vegetation types such as dune vegetation, lichen mats and biogenic crusts. **Sept 18**: [HOLD: Ramboll considering evidence for closure]	612568 – CLOSED Sept 12

Findings Log – October 2018								
Ref[10]	**Rank[11]**	**Status**	**Date**	**Topic**	**HSESAP Ref**	**Finding**	**Action Progress Review**	**Action #**
LAND.19	Low Amber	**Closed**	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	[Summarised for brevity – further detail in previous monitoring visit reports] **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). 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	846204 – CLOSED for report 2/4/15 CLOSED for culverts 20/10/15 757372 – CLOSED 9/4/15

Findings Log – October 2018								
Ref[10]	**Rank[11]**	**Status**	**Date**	**Topic**	**HSESAP Ref**	**Finding**	**Action Progress Review**	**Action #**
						recommend that such measures may need to be considered.	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 **Sept 17**: Additional installed culverts observed. Functioning of water flow was not viewed due to recent low rainfall. It is understood that the wetlands are part of longer term monitoring and it is recommended that this is continued to verify that the hydrological linkage between either side of the RoW has been restored and the wetland vegetation maintained. The wetland vegetation within the RoW is unlikely to restore to pre-construction conditions due to the loss of peat topsoils during construction. **Sept 18**: This location could not be visited in 2018 due to logistical and time constraints. Given that the wetlands are part of longer term monitoring programme and the installation of additional culverts at KP 230-231 has been undertaken, Ramboll proposes to close this Finding now and open any further SMART findings as necessary following future monitoring visits.	
LAND.20	Low Amber	**Closed**	Sept-17	Soil Monitoring	HSESAP – HSE Monitoring and Reporting Standard 0000-S-90-04-O-0009-00-E (Appendix 6)	Section 8.8 of the HSE Monitoring and Reporting Standard specifies that soil should be monitored outside the OPF site boundary every three years from 2014 for a range of physical and chemical parameters. However, no such monitoring has been conducted. SE to conduct the soil monitoring as per Section 8.8 of the HSE Monitoring and Reporting	**February 2018**: Soil Monitoring was conducted in 2013 and in 2016 (one time in every 3 years). The reports are available and provided to Environ as evidence. Based on that SEIC proposes to close the action. **Sept 18**: Finding closed.	N/A

Findings Log – October 2018								
Ref[10]	**Rank[11]**	**Status**	**Date**	**Topic**	**HSESAP Ref**	**Finding**	**Action Progress Review**	**Action #**
						Standard and provide the evidence.		
LAND.21	Low Amber	**Open**	Sept-17	Erosion control – BS3	Land Management Standard 0000-S-90-04-O-0254-00-E App 6	Vehicle movements and other forestry operations have removed the covering of vegetation in many areas, exposing bare soil. The proposed site of BS3 is located on a relatively steep slope and signs of soil erosion are already present. The run-off of sediments poses a significant risk to the adjacent retained forest habitats and nearby water courses unless a robust monitoring and control plan is instigated.	**03.08.18**: SE advises that the Drainage & Erosion Control Strategy for Train 3 Project (BS3 & 4) has been developed in compliance with effective RF legislation and associated SE procedures. The objectives of this Strategy are: • Minimize the soil erosion • Maintain the integrity of BS3 & BS4 sites construction • Avoid contamination of natural water by sediments Document provided for REH review. **Sept 18**: [HOLD: Under Ramboll review, opinion to be provided]	
Biodiversity								
---	---	**---**	---	---	---	---	---	---
Oil Spill Response								
OSR.27	Low Amber	**Closed**	Oct-11	Non-Mechanical Response Options and Capability	0000-S-90-04-O-0014-00-E Appendix 15	[Summarised for brevity] 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] **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	594741 - CLOSED 7/8/12 Expect six-monthly updates in half-yearly HSESAP reports

Findings Log – October 2018								
Ref[10]	**Rank[11]**	**Status**	**Date**	**Topic**	**HSESAP Ref**	**Finding**	**Action Progress Review**	**Action #**
						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.	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. 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. **Sept 18**: Sakhalin Energy advised that the process for obtaining a permit for the use of dispersant Corexit-9527 was in its final stages and it was considering the issue of obtaining additional stocks of Corexit-9527, however it is Ramboll's understanding that worldwide availability of this obsolete dispersant is limited, and that the Company was instead investigating procurement of the more modern dispersant Corexit-9500 (as reported by Sakhalin Energy in Finding OSR.27). Ramboll has requested an update on the Company's procurement plan and current stock levels of Corexit-9527 and/or Corexit-9500 as a Follow-up Item. Based on the results of a preliminary NEBA, Sakhalin Energy has also developed and implemented a decision-making procedure for the burning of oil in ice conditions,	

Findings Log – October 2018								
Ref[10]	**Rank[11]**	**Status**	**Date**	**Topic**	**HSESAP Ref**	**Finding**	**Action Progress Review**	**Action #**
							and has now obtained a permit to burn oil at a spill point in ice conditions at PA and Lunskoye fields. Ramboll and PCCI will continue to report on this development with interest. Is is decided that this Finding will now be closed and the subject tracked through the "Follow-up Items" process and SEIC's updates in the Lenders' half-yearly HSESAP reports.	
OSR.39	High Amber	**Open**	Jun-16	OSRP	GIIP	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	**Sept 17**: Not addressed by IEC during site visit; Lenders' oil spill consultants to discuss in November 17. **25.07.18**: Sakhalin Energy provided for review the document "Oil spill modeling for the East Sakhalin shelf of the Sea of Okhotsk for assessment of 2-year long consequences of well accidents". **24.08.18**: Ramboll and PCCI are pleased to see Sakhalin Energy developing and analysing such robust oil spill scenarios for uncontrolled well blow-outs. PCCI believes that the assumptions made are well-founded and solid, and that the Company has taken a conservative approach both in its assumptions and trajectory analyses, resulting in realistic and possibly maximum estimates of oil volumes impacting shorelines and the geographic spread of oil on the sea's surface. PCCI's review provides observations & recommendations for future modelling work and OSR readiness for such an event based on our understanding of Sakhalin Energy's current position. A teleconference is being arranged for end-October 2018 to discuss PCCI's review and to discuss what Company intends to do in response to the modelling findings.	

Findings Log – October 2018								
Ref[10]	**Rank[11]**	**Status**	**Date**	**Topic**	**HSESAP Ref**	**Finding**	**Action Progress Review**	**Action #**
						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 OSRPs (see also follow-up Item 6 in Ramboll Environ's June 2016 Site Visit report).		
Health & Safety								
---	---	**---**	---	---	---	---	---	---
Social								
SOC.09	High Amber	**New**	Sept-18	OPF-C Camps	GIIP (IFC/EBRD "Workers' Accommodation: Processes and Standards". Welfare Policy and Plan of Petrofac	The MRTS and SU-4 accommodation camps are non-compliant with applicable standards, including the IFC/EBRD "Workers' Accommodation: Processes and Standards" and the Welfare policy and Plan of Petrofac. Actions need to be taken in order to ensure adequate living conditions, leisure/communication infrastructure and safety (fencing/stray animals prevention) and in accordance with recommendations provided by Petrofac in their inspection reports.		

Findings Log – October 2018								
Ref[10]	**Rank[11]**	**Status**	**Date**	**Topic**	**HSESAP Ref**	**Finding**	**Action Progress Review**	**Action #**
SOC.10	Low Amber	**New**	Sept-18	OPF-C Camps	Audit and Assurance	In the case of the SU-4 camp, it is required to increase the level of influence of Petrofac over the camp owner, including ensuring access of Petrofac's auditors to the camp.		
General								
GEN.11	High Amber	**Open**	Jun 16	OPF-C Project mgmt plans		Under the CTA/HSESAP the HSE Management Plan(s) for the OPF-C 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.	**Action #932547**: SE to provide for Lenders' review Biodiversity Action Plan (BAP) (as Chapter in the Company-wide BAP). **01.06.17**: Draft version of the BAP provided. **05.06.17**: RE reverted to SE with a number of comments and improvements. The whole document needs a fundamental reworking as part of the inclusion of OPF-C and Train 3 elements. It was agreed that amendments to the BAP would be discussed further during the September monitoring visit. **March 2018**: The updated version of BAP was provided to Ramboll. **Sept 18**: Following face-to-face discussion between Ramboll and Sakhalin Energy during the monitoring visit, the BAP is with Sakhalin Energy for further revision. **08.11.18**: Ramboll considers that Sakhalin Energy has progressed development of the CHA and BAP as required under Action #932547, and is is satisfied that this finding can be closed. Note that a new Finding BIODIV.09 has been opened to track both CHA and PS6-compliant BAP to completion.	932547 – CLOSED 8/11/18

Findings Log – October 2018								
Ref[10]	**Rank[11]**	**Status**	**Date**	**Topic**	**HSESAP Ref**	**Finding**	**Action Progress Review**	**Action #**
							Action #932548: SE to provide for Lender's review OPF-C Project Road Safety Plan. **07.02.17**: OPF-C Road Safety Plan provided. **17.05.17**: RE queried whether SE had considered installing a wheel wash facility at the quarry sites to reduce the transfer of debris onto roads, and requested that a number of acronyms be defined in the Plan. **01.06.17**: SE advised that consideration had been given to a wheel facility, but was deemed inappropriate for the following reasons: 1) the quarries are arranged in such a manner as to limit the transfer of dirt; and 2) the SAR is gravel surfaced, is mainly used by the Company and maintained by a sub-contractor. SE provided a revised, updated version of the Plan for review. **02.06.17**: Action #913149 closed.	932548 – CLOSED 2/6/17
							Action #932549: SE to provide for Lenders' review Industrial Environmental Control Programme for Early Works. **19.12.16**: 'Environmental Production Control Program for Site Preparation Works for OPF-C' provided for review. **06.01.17**: RE reverted with a number of comments. **15.06.17**: SE provided a finalised version for review, in response to RE's comments. This action was superseded with the requirement to produce management plans for the main construction works.	932549 – CLOSED
							Action #932550: SE to provide for Lender's review Sanitary Industrial Control Program for Early Works. **07.02.17**: Sanitary Industrial Control Program for Early	932550 – CLOSED 17/5/17

Findings Log – October 2018								
Ref[10]	**Rank[11]**	**Status**	**Date**	**Topic**	**HSESAP Ref**	**Finding**	**Action Progress Review**	**Action #**
							Works provided for review. RE concluded that the plan appeared to cover a range of health-related issues required by Russian legislation and the HACCP food safety assessment was comprehensive. **17.05.17**: Action #932550 closed.	
							Sept 17: Petrofac was awarded the EPC contract in September 2017. They have prepared a list of environmental management plans and procedures for the main construction phase, which will be reviewed by Sakhalin Energy in a pre-mobilisation audit in December 2017. It is not clear from the list whether the following topics will be covered: air emissions (e.g. waste incinerator off-gases, combustion products from generators and vehicles etc. and dust); noise; environmental monitoring and reporting; reinstatement; grievance management; and worker accommodation standards. Relevant management plans will be provided for IEC review upon their readiness and new actions will be opened accordingly.	

8. 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 (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	OPF-C	Based on discussions with Sakhalin Energy HSE personnel and on-site observations, Ramboll is generally comfortable with Sakhalin Energy's approach to contractor oversight and performance monitoring for the OPF-C Project. However, Ramboll will continue to monitor Project compliance with HSESAP requirements and will review with interest the February 2019 audit report on Petrofac.	Routine monitoring / liaison
2	Train-3 Waste management	Ramboll remains supportive of Sakhalin Energy's strategy of developing its own incinerator facility at LNG (as part of Train-3). However, it should be noted that the facility should be designed to meet Lender standards and that key elements of this are: • Risk assessment should be applied to the design and location of the facilities; • The designs will need to meet IFC PS and IFC EHS Guidelines for Waste Facilities. Ramboll will follow-up on this as part of our Train-3 ESHIA review.	Train-3 ESHIA review
3	Sewage Treatment Plants	Ramboll will continue to follow the progress of the BS-2 STP project and requests that the Company provides at least two rounds of monitoring data post-commissioning to demonstrate the new plant is operating in compliance with relevant standards.	Updates requested as they become available
4	Sewage Treatment Plants	Ramboll will continue to follow the progress of the OPF temporary camp STP project and requests the Company provides at least two rounds of monitoring data post-commissioning to demonstrate the new plant is operating in compliance with relevant standards.	Updates requested as they become available
5	Sewage Treatment Plants	Ramboll will continue to monitor progress on the implementation of the STP plans at the OPF-C Fly Camp.	Updates requested as they become available
6	Wastewater discharge	Item WATER.08 in the Findings Log remains open until such time as a clear plan (approved by Sakhalin Energy management) has been developed for all such discharges. Ramboll will continue to monitor this issue.	Updates requested as they become available
7	Local Monitoring Programmes	Ramboll requests to see the reports described in the Local Monitoring presentations to allow us to review the conclusions and proposed monitoring scopes.	Review of results as they become available

Follow-Up Items			
8	Tree growth	Tree control on the RoW remains an ongoing issue. While Company appears to have maintained tree growth control efforts at a steady level, it will be subject to future review by the IEC. It is also recommended that the method for disposal of tree cuttings continues to be evaluated to find the optimal methodology in terms of environmental impacts.	Annual monitoring visits
9	Waste management	IEC will continue to follow-up on the status of the development of new landfill facilities by the Sakhalinsk Oblast.	Updates requested as they become available
10	Gray whales	Ramboll will attend the NTF and WGWAP meetings in November 2018 and will report to Lenders on the findings and recommendations from the Panel in relation to the implementation of the MMP and its future development in due course.	Attendance at NTF and WGWAP meetings
11	Gray Whales	Results from the sound source reduction OBN test will be available in 2019, and Ramboll will report on the findings and specifically the potential for lower noise impacts from future seismic surveys in due course.	Attendance at NTF and WGWAP meetings
12	Non-mechanical OSR techniques	Ramboll requests an update on the Company's strategy and procurement / current stock levels of Corexit-9527 and/or Corexit-9500.	Updates requested as they become available