

**APPENDIX 7****Onshore Pipelines Right of Way****Purpose**

To manage environmental *Risks*¹ of Onshore Pipelines Right of Way (ROW).

Who is this for?

- *Onshore Asset Manager;*
- *Project Managers, Contract Holders and Contractors with work scope involving pipeline and/or RoW.*

Requirements for Operations phase**1. Manage roads and access ways.**

- a. Vehicle movements along the ROW shall be minimized where possible, and rivers (including river beds) will not be crossed except in limited /exceptional circumstances.
- b. Arrange and maintain measures to control unauthorized vehicle access to the Right of Way in cooperation with the landowner [EIA V4: 3.6.3; FERC comparison] where possible.
 - These measures may include: Signs (these shall be installed at critical areas); Fences with locking gates; Slash and timber barriers (including elevated ones), or a line of boulders across the ROW.
 - Access to Above Ground Installation shall be provided, where possible using existing access routes.
 - Illegal/increased access to previously inaccessible areas shall be deterred. In order to limit the potential for poaching, the ROW shall be blocked in an appropriate manner (use of fencing and measures such as barriers across roads), unless the road is designated as a permanent access road (refer Soil Reclamation and Site Reinstatement specification).
 - Unauthorized access shall be monitored by Pipelines Operations Department by regular inspections, helicopter flights, CCTV system, line walks, security inspections and liaison with local forestry departments.
- c. Implement Road Maintenance Program for those areas of the Southern Access Road (SAR) and Beach Access Road (BAR) that fall under the responsibility of the Company (as opposed to those that are maintained by the local authorities). Where erosion or landslides have taken place adjacent to either route, the Company shall undertake works to restore the road and surrounding area to its former condition. [EIA V6: 2.8.7]

2. **Regular inspections of the Pipeline RoW** shall be carried out by competent personnel by air (every 3 weeks during the winter and every two weeks in spring, summer and autumn.) and where possible, by vehicle or foot to identify any unacceptable risks to the pipeline, and monitor the environmental and geotechnical conditions along the pipeline route including subsidence and erosion.

3. Repair and maintenance requirements.

- a. Any areas identified as requiring stabilisation or restoration works shall be identified and maintenance activities undertaken to preserve pipeline integrity and environmental protection.
 - This shall include levelling any areas along the Right of Way where trench backfill material has subsided over time, and presents erosion or land use issues.
 - Subsidence of soil along the pipeline centreline shall be corrected.
 - Permanent slope breakers shall be maintained.
 - Any riverbank or riparian section of the Right of Way showing evidence of erosion or instability shall be repaired. This is particularly important in the first few years following pipeline installation until such a time that the backfill in the pipeline trench has been able to fully settle and the banks have recovered from the disturbance experienced during construction. This shall be executed during the

¹ Italicized terms in this document are included in the [Sakhalin Energy HSE Glossary](#).



summer months (outside the fish restriction period). [River crossing strategy, section 5] Refer River Crossings specification.

- In order to protect reinstated flora resources, the Right of Way shall be maintained through promoting soil stability and ongoing implementation of the SREPP.
- b. Limit overgrowth of hardy-shrub species adjacent to water bodies to allow a riparian strip at least (8 meters) 25 feet wide, as measured from the water body's average high water mark, to permanently revegetate with native plant species across the entire construction right-of-way.
 - However, to facilitate periodic pipeline corrosion/leak surveys, a corridor centered on the pipeline and up to 3 meters (10 feet) wide may be maintained in an herbaceous state.
 - In addition, trees that are located within 5 meters (15 feet) of the pipeline that are greater than (5 meters) 15 feet in height may be cut and removed from the permanent RoW.
- c. Routine vegetation maintenance clearing shall not be done more frequently than every 3 years. However, to facilitate periodic corrosion and leak surveys, the corridor specified above may be maintained annually.
- d. Inspect ROW for **non-desirable species** and where appropriate formulate mitigation measures. Any developed measures must be approved by a member of staff within HSE with the technical skills and linked into relevant monitoring and inspection programmes. [EIA VOL 4, Table 2.28 & Table 2.43.]
- e. Do not use herbicides or pesticides in or within (30 meters) 100 feet of a water body except as allowed by the appropriate land management or state agency. [River Crossing Strategy Report, FERC comparison – Wetland and Waterbody Construction and Mitigation Procedures VD2.]
- f. Refer also River Crossings² specification and Wetlands Specification operational controls.

4. Implement Geohazard Monitoring Schedule.

- a. As-built geological records for the Makarov Mountains shall be developed and maintained for the pipeline covering cut slopes, pipe trenches and spoil disposal areas.
- b. Operations geohazard monitoring schedule shall be established, implemented and maintained, including geohazards management contingency plans.

Requirements for Construction Activities

The following requirements 5 to 10 relate to pipeline construction in case of any new pipeline/RoW, extension to existing pipeline(s)/RoW, and where relevant to the scope of any repair works to the pipelines/RoW.

- 5. Mitigation measures specifically required for construction activities within, or close to, protected areas shall be developed in accordance with the requirements of specific construction permits. This approval process requires consultation with the relevant authorities that have jurisdiction over the management of the protected areas. Operate pipeline in accordance with any special requirements stipulated by the relevant authority responsible for the management of the protected area. [EIAA Chapter 11 Protected Areas]
- 6. Protected areas.
 - a. Pipeline construction crews shall be briefed on the importance of avoiding disturbance within protected reserves and the necessity to minimise the duration of construction activities taking place in their vicinity. Toolbox talk and personnel environmental plan. [EIAA Chapter 11 Protected Areas]
 - b. Where practical, activities associated with pipeline construction shall not be undertaken within designated reserve areas, and within periods when construction is not allowed in accordance with the relevant Permits.. If required, winter river crossings shall be timed to take place during March-April. However, if this is not feasible then consultation with the relevant authorities shall take place and a deviation from the conditions sought to allow construction during the winter. [EIAA Chapter 11 Protected Areas]
- 7. Measures shall be implemented to prevent or appropriately limit access to previously undisturbed areas remaining within the land allocation.

² Underlined items in this document refer to Sakhalin Energy Controlled Documents.

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- a. Illegal/increased access to previously inaccessible areas shall be discouraged through the appropriate use of fencing and measures such as barriers across roads. In order to limit the potential for poaching, new temporary access roads constructed by the Contractor or new extensions to pre-existing roads or tracks during the pipeline laying operations shall be removed and access to the ROW blocked when construction activities have been completed, unless the road is designated as a permanent access road. The number of permanent access roads left in place following construction shall be minimised.
8. Minimise the need for project related vehicular access along the ROW. [EIA VOL 3, Section 3.3.2, EIA VOL 4, Table 2.28, EIA VOL 4 Table 2.43] Fixed site construction areas shall be fenced to limit vehicular access to adjacent land. [EIA, VOL 3, Section 3.3.2]
 - Plan for safe and accessible conditions at all roadway crossings and access points during construction and restoration. Site safety staff shall monitor safety aspects of access roads and recommend corrective action where deemed necessary. [FERC comparison - Upland Erosion Control, Revegetation and Maintenance Plan, IIID]
9. Project-related ground disturbance shall be limited to the width of the construction ROW along its entire length, extra workspace areas, pipe storage yards, borrow and disposal areas, access roads, and other approved areas (as determined through relevant RF Standards (SNiP), legislation and permitting). Any project-related ground disturbing activities outside these areas, except those needed to conform with necessary measures and procedures (e.g., slope breakers, energy-dissipating devices, dewatering structures, drain tile system repairs) shall require prior approval. All construction or restoration activities outside of the approved areas are subject to all applicable survey and mitigation requirements. Requirements set out in SREPP. [FERC comparison - Upland Erosion Control, Revegetation and Maintenance Plan. IVA1]
10. For newly cleared areas, vegetation originally cleared for construction shall be reused on the ROW or recycled (all wood with diameter > 8cm is separately stored and distributed as firewood to communities or used as building materials). [EIA VOL 4, Table 2.28]

Requirements relating to Geohazards for any future onshore pipeline construction

11. Sakhalin Energy and its contractor shall hold regular geohazard meetings to ensure that the contractor is aware of all geohazards, and the required mitigations in the area scheduled for immediate work.
12. Sakhalin Energy shall implement/continue the training program to inform construction personnel of the dangers associated with geohazards and best practice for mitigation and monitoring. Sakhalin Energy shall promote communication and cooperation between the geo team and the environmental team on the basis that these two disciplines interrelate and the environmental team will benefit from the available geo-engineering solutions and the geo-team needs to understand the environmental commitments and undertakings.
13. A qualified geologist or engineering geologist/geotechnical engineer will be present at critical times during construction activities at active landslides and active fault crossings (e.g. on completion of excavation and during remedial works). This geologist will document the geological conditions present at these areas and the as built aspects of the engineering measures shall be implemented.
14. Sakhalin Energy and its contractor shall review all known landslides and re-assess the potential re-routing/avoidance on those areas where pipe is not yet in the ground. Where re-routing is not possible, detailed mitigation plans will be developed.

Requirements for monitoring and inspection of construction activities

15. Routine monitoring of construction areas shall be carried out to identify any unacceptable risks and to monitor the environmental conditions. Any areas requiring stabilisation or reinstatement works within construction areas and the ROW shall be identified and maintenance activities undertaken, to preserve site integrity and to protect the environment.
16. During construction, the appropriate environmental monitoring specialists shall be appointed, who shall possess the required competency skills and experience including a degree in an environmental or earth



science and at least seven years' relevant experience. The number of required monitoring specialists will be defined in the scope of work.

17. The environmental monitoring staff shall:

- a. Undertake a site inspection visit prior to work being undertaken and shall be responsible for identifying and ensuring that the appropriate suite of mitigation measures identified in this Specification and the river crossing Execution Plan are implemented during construction;
- b. Be responsible for monitoring the implementation of these measures and assessing whether they are achieving their intended objectives;
- c. Have peer status with all other activity inspectors;
- d. Verify that the limits of authorized construction work areas and locations of access roads are properly marked before clearing;
- e. Verify the location of signs and highly visible flagging marking the boundaries of sensitive resource areas, waterbodies, wetlands, or areas with special requirements along the construction work area;
- f. Identify erosion/sediment control and soil stabilization needs in all areas;
- g. Ensure that the location of dewatering structures and slope breakers will not direct water into areas of unstable or semistable soils or slopes, known cultural heritage sites or locations of sensitive species;
- h. Verify that trench-dewatering activities do not result in the deposition of sand, silt, and/or sediment near the point of discharge into a wetland or waterbody. If such deposition is occurring, the dewatering activity shall be stopped and the design of the discharge shall be changed to prevent reoccurrence;
- i. Advise the Construction Site Manager when conditions (such as wet weather) make it advisable to restrict construction activities to avoid excessive rutting;
- j. Ensure restoration of contours and topsoil;
- k. Where potentially fertile soil layer is imported, verify that soils for agricultural or residential use have been certified as free of noxious weeds and soil pests, unless otherwise approved by the landowner (it should be noted that there are no plans to import any topsoil for the Sakhalin 2 Project);
- l. Determine the need for and ensure that erosion controls are properly installed as necessary to prevent sediment flow into wetlands, waterbodies, sensitive areas, and onto roads. Inspect effectiveness of control measures at a frequency in line with construction activity during or immediately following any moderate rainfall or snowmelt (access permitting);
- m. Ensure the prompt repair of all ineffective temporary erosion control measures and conduct proactive maintenance on such measures adjacent to sensitive rivers;
- n. Keep records of compliance with the environmental conditions and the mitigation measures during active construction and restoration;
- o. Identify areas that should be given special attention to ensure stabilization and restoration during or after the construction phase. This will require interaction with the geologist or geotechnical engineer;
- p. Have the authority to stop activities that violate the requirements of this Specification, environmental conditions of permits, or landowner requirements; and to order appropriate corrective action. If issues are not satisfactorily addressed, then the Contractor's environmental Officer, in consultation with the Sakhalin Energy environmental Officer (if different) and Sakhalin Energy Construction Site Representative (CSR), is responsible for issuing a non-conformance document, stop the work and initiate corrective measures. Both Sakhalin Energy's construction team and Sakhalin Energy's environmental staff shall have experienced personnel to advise in issue resolution, should this be required.

[EIAA, Pipeline construction in wetlands, section 3.9; FERC comparison - Upland Erosion Control, Revegetation and Maintenance Plan IIA/B.]

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Requirements for management of human activity during construction/repair works

18. The access of people and animals shall be restricted from entering open trenches by keeping a minimum amount of trench open at any time and by having temporary barriers around open trenches near residential areas. Exit ramps shall be provided at suitable locations and the trench inspected in areas where the potential ingress of people and animals is considered to be an issue. [EIA VOL 2, Section 2.3.7, Page 2-42]
19. Vehicle access shall be kept to a minimum within construction sites and vehicles shall be restricted to construction areas, the ROW, and approved access roads through the appropriate use of fencing and barriers. Fixed site construction areas shall be fenced to limit vehicular access to adjacent land. [EIA, V3: 3.6.2; V4: 3.10.1; V5: 3.6.1]