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Environmental, Social, and Health Impact Assessment (ESHIA) for Vista Onshore Operations

Mitigation Measures and Controls

18 June 2019

Project No.: 0510093

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Mitigation Measures and Controls

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8. MITIGATION MEASURES AND CONTROLS

The mitigation measures defined for construction and operational stages of Vista' Project will consider a wide range of specific environmental, biologic and social components. These measures seek to be a relevant tool for use during the execution of the Project for environmental and social performance and management. Compliance with the defined measures will be required for all Vista staff and contractors.

These measures have been developed in alignment with national regulation, Vista corporate standards, and the IFC Performance Standards and Applicable EHS Guidelines, specifically the EHS General Guidelines and the EHS Guidelines for Onshore Oil & Gas Guidelines (2007). Defined measures will be reviewed and updated as required as the Project progresses as part of the continuous improvement process.

8.1 Environmental Mitigation Measures

8.1.1 Air and Noise Management Program

Objective	Establish guidelines for the management of atmospheric quality (emissions of particulate material, combustion gases and noise levels).		
Execution	1. Construction	2. Operation	3. Abandonment
Environmental Impact	■ Changes to air quality ■ Increase in noise levels		
Type of Environmental Management Measure	Prevention	Mitigation	Correction
	Compensation	Control	Protection
Action To Be Taken	■ Restrict the movement of vehicles, machinery and equipment to areas authorized for project work. ■ Provide preventive maintenance to all vehicles, machinery and combustion engine equipment used in the Project. ■ Set a maximum speed limit of 60 km/h for vehicles in order to avoid dust generation. ■ Restrict ground movements to the areas designated to drilling activities. ■ Water the access roads in order to control and minimize dust (particulate matter). ■ Suspend activities related to soil movement and excavation during inclement weather (strong winds). ■ Cover or moisten the surface of all loose material prior to transportation in order to minimize the emission of dust and any other particulate material. ■ Install either an acoustic isolation, emission, or vibration control system, depending on the type of electric power generated. Note that acoustic insulation includes the installation of exhaust silencers, attenuation capsules and acoustic barriers (depending on the system model, these may already be incorporated in factory design). ■ Provide all workers with personal protective equipment (PPE) in line with the company's Occupational Health and Safety Standards and appropriate for the specific task related risks. ■ Monitor air quality and environmental noise levels, as per the Environmental Quality Monitoring Program. ■ Monitor atmospheric emissions as per the Environmental Quality Monitoring Program.		
Indicators of performance	■ Technical-mechanical certification of vehicles, machinery and equipment. ■ Results from the monitoring program for environmental noise, air quality and atmospheric emissions, as indicated in the guidelines for the Environmental Quality Monitoring Program.		

Place of Execution	■ Project area
Responsible for Execution	■ Vista Oil and Gas Argentina S.A. personnel ■ Aleph Midstream S.A. personnel ■ HSE Manager, Supervisors and Personnel
Expected Results Remarks	■ Emissions from project activity have no effect on the fauna in areas surrounding the wells. ■ The sources responsible for the emission of air pollutants are identified and reduced. ■ Company workers use appropriate personal protection equipment on an ongoing and permanent basis. ■ Monitoring results do not exceed the target standards recommended in the Monitoring Program.

8.1.2 Soil Management Program

8.1.2.1 Construction material management program

Objective	Establish guidelines for the management of construction material.		
Execution	1. Construction	2. Operation	3. Abandonment
Environmental Impact	■ Alteration of the soil quality		
Type of Environmental Management Measure	Prevention	Mitigation	Correction
	Compensation	Control	Protection
Action To Be Taken	■ Establish areas for the temporary storage of pipeline construction materials. These will be the main collection points from which materials will be transported to the drilling areas. ■ Store non-pipeline materials (cement, iron, etc.) according to their nature and volume. ■ Transfer any excess soils resulting from drilling during the construction stage to temporary and / or permanent deposits of construction materials. ■ Signal all work areas properly. ■ Do not locate disposal zones in bodies of water, near their banks or in or near springs. ■ Analyze the zones and ensure they have good geotechnical stability and the bearing capacity to receive the estimated volume of construction materials. ■ Prohibit the disposal of construction material in unauthorized areas and particularly in unstable areas. ■ If applicable, develop a specific design for each of the temporary construction material disposal areas, which indicates the storage capacity, measures to control stability and runoff management		
Indicators of performance	■ Volume of construction material arranged by area / storage capacity of each area. ■ Temporary Storage areas are equipped with some type of cover to retain solids		
Place of Execution	■ Project construction area		
Responsible for Execution	■ Vista Oil and Gas Argentina S.A.		

8.1.2.2 Landscape management program

Objective	Establish guidelines for the management of the project area landscape in order to reduce visual impact and restore scenic quality.		
Execution	1. Construction	2. Operation	3. Abandonment
Environmental Impact	■ Alteration of the scenic quality ■ Restoration of the scenic quality		
Type of Environmental Management Measure	Prevention	Mitigation	Correction
	Compensation	Control	Protection
Action To Be Taken	■ Ensure that activities are confined to only those areas deemed essential according to the project description and requirements. ■ Prohibit the burning of waste or any other type of material within project facilities. ■ Restrict ground movements to areas intended for project facilities. ■ Remove all equipment and materials immediately after the completion of drilling activities. ■ Ensure revegetation of the area during the abandonment stage, with species identified at the baseline. ■ Perform restoration activities for all works which impact the area.		
Indicators of performance	■ Implementation of the soil management program ■ Implementation of the revegetation management program		
Place of Execution	■ Project area		
Responsible for Execution	■ Vista Oil and Gas Argentina S.A. personnel ■ Aleph Midstream S.A. personnel ■ SE Manager, Supervisors and Personnel		
Expected Results Remarks	■ It is expected that areas will be reconditioned in accordance with the quality of the landscape at the end of all development activities.		

8.1.2.3 Runoff and Erosion Control management program

Objective	Establish guidelines for the management of runoff and erosion control.		
Execution	1. Construction	2. Operation	3. Abandonment
Environmental Impact	■ Increase in the erosion process		
Type of Environmental Management Measure	Prevention	Mitigation	Correction
	Compensation	Control	Protection
Action To Be Taken	■ Ensure personnel from runoff and erosion control team commence their work prior to the opening of areas so they can carry out required interventions, including the movement of soils. ■ Involve the team in charge of runoff and erosion control in thetopography survey in the areas of intervention. ■ Use pre-existing accesses and surfaces already affected by clearing tasks wherever possible. ■ Consider the following (and similar) actions during all activities related to the opening of areas: protection of the topsoil, measures for avoiding or minimizing soil compaction, and consideration of future revegetation. The control and management of runoff and erosion during these stages is critical and will prevent an increase of sediment loads to water bodies and should protect against future landslides in the most unstable areas. ■ Place removed vegetation in areas where natural drainage is not reduced so they can be used for erosion control during construction and operation and can provide plant material for revegetation. ■ Conduct temporary containment activities during the manual clearing, in order to minimize possible runoff and erosion processes. ■ Protect and avoid disturbing the original drainage paths, and avoid as much as possible the concentration of flows and minimize the volume and velocity of flow to prevent accelerated erosion. ■ Implement surveillance tasks during the operations stage (especially during the rainy season) in order to perform maintenance tasks and repair any problems which may arise. The sooner any erosion problem is identified and repaired, the least time consuming and costly it will be. ■ Avoid changing stream channels/dry wash courses or interfering with natural drainage in the excavation of the trench during the installation of gas and oil pipelines. ■ Generate berms to divert rainwater and stabilize the area through revegetation if it is considered necessary.		
Indicators of performance	■ Compliance with the work plan during the construction and operation stage.		
Place of Execution	■ Project area		

Responsible for Execution	■ Vista Oil and Gas Argentina S.A. personnel ■ Aleph Midstream S.A. personnel ■ SE Manager, Supervisors and Personnel
Expected Results Remarks	■ These measures achieve the stabilization of the intervened areas.

8.1.3 Surface water and Groundwater Quality Management Plan

Objective	Establish operational standards for water management (including surface water and groundwater) in order to minimize environmental impacts and comply with legal and other requirements.		
Execution	Construction	Operation	Abandonment
Environmental Impact	• Alteration of the surface water availability and/or quality • Alteration of the groundwater availability and/or quality		
Type of Environmental Management Measure	Prevention	Mitigation	Correction
	Compensation	Control	Protection
Action To Be Taken	Fresh water to be used at the Project includes both surface water and groundwater. A total amount of 776,200 m3 of surface water supply from Río Neuquén at the Añelo municipal loading facility was approved by the SRH through a "Gathering Permit" ("Permiso de Captación") for the drilling and completion of production wells. However, only 4,300 m3 of water was abstracted, transported by tanker truck to the Water Management Facility (CGA), and used for the drilling of the first four wells. VOG does not foresee to continue abstracting water from the Río Neuquén at the Añelo municipal loading facility given the risks associated with water transportation from this loading facility to the CGA. Fresh water used for the completion of the first four wells, was obtained from Cruz de la Lorena (CdL) Reservoir, operated by *O&G Developments S.A* (*Shell*) and transported to the CGA by means of a temporary pipeline. This operation has been authorized by the SRH through a second "Gathering Permit" of 200,000m3. Water to be used for fracking will be stored in ten 5,000-m3 reinforced concrete ponds, which will be connected with storage tanks/ponds at the Water Management Facility (CGA) by 8" to 10" portable pipes. At CGA, also flow back water is treated and re-used to reduce fresh water consumption. Lastly, groundwater will be obtained from water production well YPF.Nq.BMo-4 located at BMo oilfield. VOG has been authorized by SRH to extract up to 800 m3/day of water for industrial use from this pre-existing water supply well. Water for human consumption has been estimated at 2 – 4 liters/person/day. Potable water will be provided in 10 or 20-liters jars through cold/hot water dispensers, which will be distributed as necessary at the different work fronts. During the construction phase, the following measures are proposed: • Ensure that calculations are made in order to avoid cement slurry exceedance, which will result in a fresh water consumption reduction. In case that any exceedance exists, derive it to drilling treatment circuit (dry location equipment); • Adequate use and correct maintenance of "dry location" equipment (shakers, hydro cyclones and centrifuges) will result in a higher fluid recovery rate and therefore reduce fresh water consumption;		

- Reuse liquid phase recovered at the “dry location” for new mud preparation and consequent reduction of fresh water consumption.
- PADs located 100 m or less from a natural and/or artificial surface water stream should be provided with a perimeter embankment at the three sides nearest to the stream;
- As much as possible, facilities are to be located out of the surface water stream bed floodplain or area of influence, the alluvial danger zone (no matter if the stream is permanent or ephemeral); low or depressed areas and areas with endorheic drainage that flood during rain events should be avoided;
- Facilities, PADs and access roads are to be located at distances greater than 300 m from springs;
- Ensure that hydrologic (flooding and erosion) risks assessments are conducted for all facilities of the Project in order to determine alluvial risks in the area where the facility is to be located due to potential seasonal extreme rains, which could produce flooding and trigger dramatic erosion events with negative impacts to the Project;
- Implement construction (and other) measures recommended in the specific hydrologic studies developed for the facilities, in order to mitigate or avid flooding and erosion at all facilities;
- Slopes at the facilities will allow the normal drainage of surface water. Therefore, materials resulting from clearing, soil movement and/or excavation will be disposed in such a manner that prevent or avoid water accumulation at the facility area;
- Do not use groundwater from fresh water production wells destined for human consumption to supply water to industrial activities. Only use fresh water resources indicated and authorized to VOG;
- Do not use groundwater or surface water from wells or streams located in vicinity of the facility location. Only use fresh water resources indicated and authorized to VOG;
- Evaluate the feasibility to implement the treatment plant for the reuse of production/flow back water in order to reduce the consumption of fresh water.
- Ensure that the requirements set in fresh water supply/abstraction permits, in particular those related to the amount of fresh water to be used during the drilling and completion of production wells, are fully complied with;
- A Water Consumption Efficiency policy should be elaborated and implemented; this should define general fresh water consumption amounts and sources in each oilfield, and validate the source alternatives via the corresponding permits and policy objectives;
- Technically and financially feasible water consumption efficiency measures should be implemented, especially cost effective measures for improving efficiency. Benchmarking data could be obtained from neighbouring activities at other oil fields, in order to make a comparison to establish the relative level of water consumption efficiency in oil fields Entre Lomas and Bajada de Palo.
- Surface section of the production well will be drilled and cased and sealed to depths which allow the protection of aquifers potentially used for human consumption, irrigation, etc. These depths may vary depending on the information gathered during the drilling of wells in the vicinity and may be modified depending on the hydrogeological characteristics of the area where the well is to be drilled.

- Ensure that necessary well logging (open and tubed well logging) is conducted in new areas to be developed in order to determine the presence of exploitable aquifers and their correct isolation from contact with fluids from the production well;
- Ensure that drilling muds are adequately formulated in order to avoid affecting groundwater quality;
- Ensure that cement slurry is adequately prepared in order to guarantee isolation of exploitable aquifers from contact with fluids from the production well;
- Ensure that all drilling and completion procedures are applied and complied with in order to avoid contact between production well fluids and exploitable aquifers as well as between aquifers and oil productive horizons; and
- Provide the casing of the production wells with anticorrosive protection.

During the operation and maintenance phase, the following measures are proposed to be implemented:

- Facility inspection plans should be elaborated and executed in order to ensure equipment and installation integrity. Inspection frequency will be determined based on the critical aspects of the equipment or installation, legal requirements, wear and weather, and results of previous inspections;
- Facility preventive and corrective maintenance programs should be developed and put in place in order to anticipate potential equipment or installation failure and/or mitigate the wear and weather effects;
- Facility monitoring plans should be prepared and implemented in order to determine any potential equipment and/or installation integrity threat and correct it. This is will be accomplished through measurement and monitoring of operational variables, among others.

During the abandonment phase, the following measures are proposed to be implemented:

- Implement proper technical facility abandonment processes in order to avoid potential surface and/or groundwater impacts. This should include activities such as:
    - *Wells*: dismantling and removing surface infrastructure and equipment; cementation (at least 2 cement plugs are to be executed) and closure (cutting the casing at a depth of 2 meters below the ground level, welding a steel cap to the casing, covering the cap with a 1-m3 concrete cube and finally backfilling the hole with soil up to ground level) of the well; demolition and removal of the cellar and any other civil constructions present at the PAD;
    - *Other Facilities*: closure (definitive stoppage of equipment and installations operation; application of inert gases, de-energisation and depressurisation of process and auxiliary equipment and installations; purging, emptying and cleaning of equipment, installations, systems, pipes, etc.; isolation of

equipment and installations), dismantling (disassembly, remove, recuperate and dispose, in safe conditions, of all structures, equipment, installations, systems, materials, fluids, wastes, etc.) and abandonment (leaving the site in safe condition for the considered future use of the land) of equipment and installations;

- Implement clean-up activities for the area where the facility is located in order to avoid potential soil and/or groundwater impact due to recently stopped activities. This should include determining whether or not the site was impacted, characterization of the potential impact, if any, and remediation of impacted medias, if any;
- Implement erosion control (grading and scarification), stabilization of slopes (if applicable), and revegetation activities in order to promote the recuperation of the affected area;
- Implement a monitoring plan in order to identify, control and/or mitigate risks related with structures, equipment and/or installations left on site.

During all phases of the Project, the following measures are proposed to be implemented:

- Provide personnel with potable and bottled water in reusable containers which can be filled repeatedly at the cold/hot water dispenser distributed as necessary in the different work fronts;
- Request the bottled water supplier to provide physical, chemical and bacteriological analysis results for bottled water;
- Cold/hot water dispensers are to be constructed with materials that represent no risks to human health. Proper control and cleaning measures are to be implemented to dispensers and reusable containers in order to ensure quality and safety of consumption water;
- Provide domestic wastewater portable treatment plants (WWTP) for sewage treatment. In case that WWTP cannot be provided, use portable chemical toilettes;
- Treated domestic wastewater is to be used for irrigation purposes when complying with wastewater discharge parameters established by local, provincial regulations. Periodically, treated wastewater analysis should be conducted in order to verify compliance;
- Where chemical toilettes are used, wastewater management will be performed by authorized and licensed contractors and wastewater treatment and/or disposal will be conducted at proper facilities designed for such purposes;
- In the following cases, domestic wastewater cannot be used for irrigation purposes: a) the facility is located at a distance of less than 100 m from a water abstraction well; or b) the facility is located at a distance of less than 100 m from a surface water stream; or c) when the facility is located in an area where groundwater is encountered at a depth of less than 5m. In these cases, domestic wastewater is to be collected in plastic totes, transported, treated and disposed of by authorized and licensed contractors;
- Water consumption will continually monitored in order to avoid waste. Water consumption registers are to be completed, maintained and updated;

	• Process water at the facilities will be managed in closed system and recycled within the facilities as much as possible, the goal being to reduce fresh water consumption and to and to generate zero discharge; • Excess water will only be discharged if it cannot be contained and/or reused at facilities, and it meets local and/or provincial statutory requirements as applicable; • Fuel, chemical products, hazardous substances, and wastes storage areas are to be provided with perimeter embankment in order to collect and contain potential spills and avoid their discharge and potential adverse effect on surface water quality. In addition, these storage areas are to be provided with impermeable or sealed floors to prevent potential infiltration to groundwater (also see Hazardous Substances Management Plan and Wastes Management Plan). • Avoid washing or cleaning equipment, vehicles, tools and materials at the facilities, prioritizing the execution of these activities at dedicated and authorized areas/installations. This will lead to a reduction of water consumption; • Maintenance of equipment and vehicles are to be conducted externally (outside the Project area) at dedicated and authorized areas/installations. This will result in a reduction of potential fluids spills and/or leakages and subsequent soil and water impact; • Conduct periodic maintenance of vehicles, equipment and tools, in order to avoid fluid (i.e. fuel, lubricant and/or hydraulic oils) leakages, spills, etc., and subsequent potential impacts to soil and/or water quality; • Equipment, vehicles and/or tools are to be provided with fluids collection trays and spill kits as needed, in order to collect and contain potential spills and/or leaks and prevent or minimize dispersion. This will reduce soil and/or water quality impacts; • Liquid residues generated due to spills, leakages and/or during the maintenance of vehicles and/or equipment, are to be managed as described in the Wastes Management Plan or collected and sent to the PTC for incorporation into the production circuit. • VOG and AM personnel, as well as third party contractor personnel, will act according to the Contingency Plan in case of an environmental (spill of oil, production water, oil-based drilling mud, chemical products, etc.) and/or safety incident; • If oil, production water, oil-based drilling mud, chemical products, etc., spills occur, clean-up activities will be implemented in order to avoid potential soil and/or surface or groundwater impact. Spills will be properly registered and recorded, and Environmental Authorities will be informed regarding the incident.
Indicators of performance	• Registration of abstracted fresh groundwater • Registration of supplied fresh surface water • Registration of fresh water consumption • Registration of supplied bottled water • Analytical results of abstracted and supplied fresh water • Analytical results of bottled water • Hydric (flooding and erosion) risks assessment reports

	• Water consumption efficiency assessment report (including measures) • Water consumption efficiency policy
Place of Execution	• Entre Lomas and Bajada del Palo áreas
Responsible for Execution	• Vista Oil and Gas Argentina S.A. personnel • Aleph Midstream S.A. personnel • Vista Oil and Gas Argentina S.A. and Aleph Midstream S.A. contractors personnel • Managers of Entre Lomas and Bajada del Palo areas • HSE Manager, Supervisors and Personnel
Expected Results Remarks	• No effects on groundwater quality • Identification and reduction of water polluting sources • Identification and reduction of unsustainable groundwater consumption practices • The results from groundwater quality monitoring do not exceed standards recommended in the Monitoring Program.

8.1.4 Drilling Muds Management Plan

Objective	Establish operational standards for the management of drilling muds in order to minimize environmental impacts and comply with legal and other requirements		
Execution	1. Construction	2. Operation	3. Abandonment
Environmental Impact	• Alteration of soil quality • Alteration of surface water availability and/or quality • Alteration of groundwater availability and/or quality		
Type of Environmental Management Measure	Prevention	Mitigation	Correction
	Compensation	Control	Protection
Action To Be Taken	The drilling methodology proposed to be used is “dry location”. This methodology ensures that drilling muds are not discarded but collected in metal lined ponds and recycled by means of shakers, hydro cyclones (desander and desilter) and centrifuges. Cuttings are initially separated from the drilling mud and cuttings coming from the well by means of shakers and collected in metallic tippers. Once the solids are separated, mud goes through a degasser in order to eliminate any potential gas content. After the degasification, the mud enters a series of hydro cyclones where sands and silts are separated, and finally passes through centrifugation pumps where fine particles are separated. After this last separation step, the mud goes through a dewatering process and finally into a conditioning tank where, if needed, new mud is added. After this conditioning step, the drilling mud is reinjected into the well to continue the drilling process. The following equipment have been initially considering for the dry location system: • Shakers MI Swaco Mongoose PT; • 1 mud cleaner MI Swaco 212/BT4 Mongoose PT, composed of one desander 2” x 16”, one desilter 16” x 4” and 2 centrifuge pumps Mission 6” x 8” x 75 HP; • 1 Vacuum truck; and • 1 tipper truck. Gas separated at the degasification stage is sent to the PAD’s burning pit and burned. Water recovered at the dewatering stage is reused for new mud preparation. If recovered water does not possesses the necessary physical and/or chemical characteristics for reuse for new drilling mud preparation, it is collected and transported for proper treatment at external authorized and licensed hazardous wastes operators. Drilling cuttings with water-based mud are initially separated from the drilling mud at the shakers, hydro cyclones and centrifugation equipment that form part of the “dry location” system used for drilling the wells. Once separated, cuttings are collected in metal containers and transported for dehydration at a dedicated and authorized area within BMo oil field identified as Water-based Muds Cutting		

Repository (placed at BMo 2020's quarry). After undergoing dehydration, cuttings are sampled and analyzed for chemical parameters, and, after authorization from the Environmental Authority of the Province of Neuquén, the cuttings are transported and disposed at an authorized site and/or rehabilitated.

Drill cuttings with oil-based mud are initially separated from the drilling mud at the shakers, hydro cyclones and centrifuge equipment that form part of the "dry location" system used for drilling the wells. Once separated, cuttings are collected in metal containers and transported for proper treatment by external authorized and licensed hazardous wastes operators.

The following measures are proposed to be implemented:

- Treat and reuse drilling muds in order to reduce fresh water consumption, reduce the generation of wastewater, and the consumption of chemical substances;
- Ensure that drilling muds are adequately formulated in accordance with the drilling mud program and the drilling program. This requires regular testing of the drilling;
- Quantities of fresh water and chemical substances consumed in drilling muds preparation should be monitored, registered and registers maintained and updated;
- When formulating the drilling muds, the contractor in charge of providing the mud services will consider using components that maximize the drilling effectiveness as well as minimize the risks to the environment;
- Ensure that all drilling procedures are applied and complied with in order to avoid contact between production well fluids and exploitable aquifers as well as between aquifers and oil productive horizons;
- Adequate use and correct maintenance of "dry location" equipment (shakers, hydro cyclones, centrifuges, etc.) will result in a higher fluid recovery rate and therefore a reduction in freshwater and chemical substances consumption and wastewater generation;
- Reuse liquid phase recovery at the "dry location" for new mud preparation and the consequent reduction in fresh water consumption as well as wastewater generation;
- Collect and temporarily store drill cuttings in metal receptacles, tanks or trippers. As needed, provide these receptacles with non-permeable covers in order to avoid potential spills reaching the soil;
- Assessments to be conducted in order to evaluate opportunities and propose water efficiency measures should consider all phases and activities of the Project, including drilling mud preparation and use;
- Transportation manifests as well as treatment and/or final disposal certificates for cuttings impregnated with oil-based mud and water recovered at the dewatering stage that cannot be used for new mud preparation are to be obtained from the external waste operators. Amounts of cuttings impregnated with oil-based mud and water recovered at the dewatering stage that cannot be used for new mud preparation, are to be registered and registers maintained and updated;
- Transportation manifests for cuttings impregnated with water-based drilling mud sent for dehydration at BMo 2020's quarry are to be obtained from waste transportation companies. Amounts of cuttings impregnated with water-based drilling muds generation as well as dry cuttings sent for disposal at BMo 2020's quarry are to be registered and registers maintained and updated;

	• Chemical substances used for drilling mud preparation are to be stored in dedicated areas provided with sealed floors and perimeter berms in order to collect and contain potential spills and avoid their dispersion and potential effect on soil and/or surface water quality. In addition, these storage areas are to be provided with non-permeable covers in order to avoid potential soil and/or groundwater impacts (also see Hazardous Substances Management Plan and Wastes Management Plan); and • VOG personnel, as well as third party contractor personnel, will follow the Contingency Plan in cases of environmental (water or oil-based drilling mud, drilling cuttings, water recovered at the dewatering stage, etc.) and/or safety incidents; and • If water or oil-based drilling mud, drilling cuttings, water recovered at the dewatering stage, etc., spills occur, clean-up activities will be implemented in order to avoid potential soil and/or water impact. Spills will be properly registered and recorded, and Environmental Authorities will be informed regarding the incident.
Indicators of performance	• Water consumption efficiency assessment report, including proposed measures for activities related to drilling mud preparation and use • Results of periodic drilling muds tests and analysis • Registration of fresh water and chemical substances consumed for drilling muds preparation • Transportation manifests as well as treatment and/or final disposal certificates for cuttings impregnated with oil-based mud and water recovered at the dewatering stage that cannot be reused for new mud preparation • Transportation manifests for cuttings impregnated with water-based drilling mud sent for dehydration at BMo 2020's quarry • Registration of amounts of dehydrated cuttings sent for disposal at BMo 2020's quarry • Analytical results of dehydrated cuttings presented to the Environmental Authorities • Registration of training sessions on Contingency Plan for VOG, AM and contractor's personnel • Registration of any drilling muds spills that may occur as well as reporting to the Environmental Authorities
Place of Execution	• Entre Lomas and Bajada del Palo areas
Responsible for Execution	• Vista Oil and Gas Argentina S.A. personnel • Vista Oil and Gas Argentina S.A. and. contractors personnel • Managers of Entre Lomas and Bajada del Palo areas • HSE Manager, Supervisors and Personnel
Expected Results Remarks	• Ensure that drilling muds are properly managed, including design, preparation and use • Reduction of potential soil and/or water impact due to drilling mud preparation and use • Ensure that solid and semisolid wastes generated during the preparation and use of drilling muds are managed (collected, transported, treated

	and/or disposed) according to international good environmental management practices and legal applicable requirements

8.1.5 Waste Treatment and Disposal Facilities

8.1.5.1 Solid Waste

Objective	Establish operational standards for the management of solid waste (including generation, segregation, storage, transportation, treatment, recovery and final disposal) in order to minimize environmental impacts and comply with legal and other requirements.		
Execution	1. Construction	2. Operation	3. Abandonment
Environmental Impact	■ Alteration of soil quality ■ Alteration of scenic quality ■ Alteration of the supply and quality of underground water		
Type of Environmental Management Measure	Prevention	Mitigation	Correction
	Compensation	Control	Protection
Action To Be Taken	All waste will be classified as follows: <u>Regular streams:</u> ■ Solid (non-hazardous) wastes (Biodegradable - Incinerable - Non-metallic): Waste considered as domiciliary / urban and non-contaminated industrial solids (food waste, paper, cardboard, wood, food residue, plastic bottles, membranes, nylon, belts, cameras, etc.). ■ Metallic: Ferrous and non-ferrous metal scrap with possibilities of reuse or sale. ■ Hydrocarbon and Hazardous wastes: Residues contaminated with hydrocarbons (rags, PPE's, filters, etc.) and other special waste. <u>Non-regular streams:</u> ■ Debris: Due to its non-reactive condition, it will be used as quarry filling or for other facilities. ■ Woody Debris: Due to its non-hazardous and non-reactive condition, it will be disposed as a filling for quarries or other sites defined for that purpose. ■ Medical waste: Waste generated from patient care must be temporarily placed in marked containers, either in the reservoir's infirmary or another available place as determined by the contractor in charge of the Emergency Service. The waste will be managed according to the applicable legislation (authorized trader and transporter) and will be the responsibility of the contractor providing the Emergency Service. All waste will be segregated or stored at its origin as follows: ■ It is the responsibility of the generator to deposit waste into the appropriate container (which must contain signage identifying the type of waste it is designed for).		

- Household waste should preferably be placed in closed bags, to avoid contact with vectors (mammals, insects, etc.) and the production of leachate.
- The generator must ensure waste collection sites are kept clean and in order.
- The waste generated by oil changes in repair shops of internal combustion engines, pumping equipment, pumps, hydraulic circuits, electrical appliances, etc., should be stored in containers. These should be stored in proper sites with sealed floors, containment berms and roofed as feasible to avoid any possible spills or releases to the ground, and transported in an appropriate way to the production circuit.
- Other liquid wastes containing hydrocarbons (from repair and completion equipment, tank cleaning, spill clean-up, etc.) must be stored in a tank truck or other suitable container and unloaded at the point of the production circuit deemed appropriate by the supervisor responsible for the area.
- Any kind of waste generated, which is not included in the classifications of the current procedure, must be immediately reported to the person in charge of HSE, who will determine the necessary management procedures.

All waste will be transferred to the waste reservoirs or scrap yards:

- The generator is responsible for the removal of waste and its transfer to the waste reservoirs or scrap yard of each province, as appropriate.
- The discharge of waste must be made on the during operating hours of the storage places and scrap yards.
- It is prohibited to discharge waste without authorization from the waste facility or scrap yard manager, or to abandon containers in the vicinity.
- Waste must be transferred in suitable containers in order to avoid the risk of it spilling or spreading. The load capacity of vehicles must not be exceeded.

All waste will be received as follows:

- The person in charge of receiving waste in the storage center must ensure it is correctly segregated. If badly classified waste is detected, it is NOT permitted to discharge this waste. The generator must have the necessary means to correct this situation.
- Once the discharge is authorized, the person in charge must complete a Control and Reception of Solid Residues - Scrap form, recording all the necessary data (type of waste, estimated quantity, origin, etc.) in a complete and clear manner. The form must be signed by the receiver at the storage center/scrap yard and by the person responsible for the transfer.
- In the case of waste entering the scrap yard, the person in charge completes the form, which then must be signed by both the person in charge and the carrier.
- Those in charge of waste reservoirs and the scrap yard must present each month (between the 1st and 5th of the month) the register of forms to the HSE department.

In the waste reservoirs, the following measures should be established:

	■ HSE staff are responsible for coordinating with the assigned transport company the removal of waste collected in the storage centers ■ Transportation of different types of waste (up until its final disposal) must be conducted by a transport company, which has the relevant authorization required to transport all waste streams. ■ Transportation of hazardous waste must be carried out by authorized companies, and the corresponding transportation manifest must be prepared and safeguarded. Treatment and final disposal of waste: ■ The treatment and final disposal of hazardous waste must be carried out by a processing company authorized by the relevant provincial authority. It must be accompanied by the issuance of the certificate of final disposal, which is archived by the HSE department. ■ For non-hazardous waste, preference will be given to recycling or reusing the waste whenever possible. ■ The left-over material collected in the scrap yard will be internally recovered and/or sold, and is the responsibility of warehouse personnel. ■ The recovery and/or sale of material collected in the scrap yard is the responsibility of warehouse personnel. ■ Management of waste from medical clinics will be the responsibility of the company in charge of the medical emergency service. Each month, they must report the volume of waste generated and provide records of its treatment and final disposal to the HSE department. ■ Incineration and / or burial in situ is prohibited as a method of treatment and final waste disposal.
Indicators of performance	■ Registration of theoretical and practical training for personnel who work directly with waste ■ Waste Generation Reports ■ Residue Internment Registry ■ Registration of waste discharge ■ Registration of control and receipt of solid waste / scrap
Place of Execution	■ All concessions, Entre Lomas, and Bajada del Palo .
Responsible for Execution	■ Vista Oil and Gas Argentina S.A. personnel ■ Aleph Midstream S.A. personnel ■ Vista Oil and Gas Argentina S.A. and Aleph Midstream S.A. contractors personnel ■ Managers of Entre Lomas and Bajada del Palo areas ■ HSE Manager, Supervisors and Personnel ■

Expected Results Remarks	■ It is expected that the areas will be restored in accordance with the quality of the landscape at the end of all the deposit activities.

8.1.5.2 Liquid Waste

<table>
<tr><td>Objective</td><td colspan="3">Establish operational standards for the management of liquid effluents and residues (including generation, segregation, storage, transportation, treatment, recovery and final disposal) in order to minimize environmental impacts and comply with legal and other requirements</td></tr>
<tr><td>Execution</td><td>Construction</td><td>Operation</td><td>Abandonment</td></tr>
<tr><td>Environmental Impact</td><td colspan="3">• Alteration of soil quality
• Alteration of surface water availability and/or quality
• Alteration of groundwater availability and/or quality</td></tr>
<tr><td rowspan="2">Type of Environmental Management Measure</td><td>Prevention</td><td>Mitigation</td><td>Correction</td></tr>
<tr><td>Compensation</td><td>Control</td><td>Protection</td></tr>
<tr><td>Action To Be Taken</td><td colspan="3">Wastewater generated during the construction, operation and abandonment phases of the facilities of the Project, include:
• Domestic wastewater (sewage);
• Oily liquid residues from the drilling process;
• Flow back water;
• Hydro test water (only for pipelines);
• Industrial wastewater (mainly from PTC/PTG); and
• Production water.

Sewage is collected by a dedicated network and conducted to portable sanitary wastewater treatment plants (WWTP) for proper treatment. Treated wastewater is finally discharged to nearby areas.
In cases where portable WWTP cannot be provided, portable chemical toilettes will be used. Toilettes will be periodically emptied and evacuated wastewater will be transported to external authorized operators for proper treatment and disposal. Wastewater from kitchens and dining rooms will be collected in plastic drums or other appropriate receptacles and transported to external authorized operators for proper treatment and disposal.
Oily liquid residues from the drilling process will be collected separately in metal containers or pumped directly into vacuum trucks and sent for proper treatment at external authorized and licensed hazardous waste operators.
Flow back water, this is the water used at the fracking step along with production water, will be collected in metal containers/ponds, conditioned and treated, and reused in the fracking process. When not possible, flow back water will be transported to authorized and licensed hazardous wastes operators for proper treatment.
With regards to the water used for the hydrostatic testing of pipelines, once the test finalizes, water will be retained within the pipes until the start of operations. At that time, water is included within the production circuit of the block and treated as</td></tr>
</table>

production water at the saltwater treatment plant (PTAS) and later injected at disposal wells through the saltwater injection plants (PIAS). It has been considered that initially treated production water will be injected at a disposal well (BMo 2040). However, in order to manage the increase in production water resulting from the newly drilled wells, the Project is currently analyzing potential modifications at the BMo's PIAS as well as the converting production well BMo 10 and/or BMo 11 to injection wells, and drilling and installing one new injection well, BMo.(s) 3081.

Industrial wastewater generated at facilities such as PTC and PTG, will be conducted and treated at PTAS and later injected at disposal wells through PIAS, as mentioned in the previous paragraphs.

Production water obtained will be collected and sent for proper treatment at PTAS and later injected at disposal wells through PIAS, as previously mentioned.

During the construction phase, the following measures are proposed:

- Treat and reuse both flow back water and drilling muds in order to reduce fresh water consumption and reduce the generation of wastewater;
- Ensure that the requirements set in wastewater discharge permits and the WBG EHS Guidelines are complied with;
- Ensure that drilling muds are adequately formulated in order to avoid affecting groundwater quality;
- Ensure that cement slurry is adequately prepared in order to guarantee isolation of exploitable aquifers from contact with fluids from the production well;
- Ensure that all drilling and completion procedures are applied and complied with in order to avoid contact between production well fluids and exploitable aquifers as well as between aquifers and productive oil horizons;
- Adequate use and correct maintenance of "dry location" equipment (shakers, hydro cyclones (desander and desilter) and centrifuges) will result in a higher fluid recovering rate and therefore to a reduction in fresh water consumption and wastewater generation;
- Reuse liquid phase recovered at the "dry location" for new mud preparation which will reduce fresh water consumption and liquid effluent generation;
- Ensure that calculations are made in order to avoid cement slurry exceedance. In case of exceedances, deliver any surplus to drilling treatment circuit (dry location);
- Fluids obtained from well testing, containing production water and hydrocarbons, will be collected in metal tanks and delievered to EPF, PTAS and PIAS for proper treatment and disposal;

During the operation and maintenance phase, the following measures should be implemented:

- Facility inspection plans should be elaborated and executed in order to ensure equipment and installation integrity. Inspection frequency will be determined based on the criticality of the equipment or installation, legal requirements, wear and weather mechanisms and results of previous inspections;

- Facility preventive and corrective maintenance programs should be developed and put in place in order to anticipate potential equipment or installation failure and/or mitigate wear and weather effects;
- The facility monitoring plan should be prepared and implemented in order to determine any potential equipment and/or installation integrity threats and then correct them. This is generally through measurement and monitoring of operational variables, among others.

During the abandonment phase, the following measures are to be implemented:

- Implement proper technical facility abandonment procedures in order to avoid potential surface and/or groundwater impacts. This should include activities such as:
    - *Wells*: dismantling and removing surface infrastructure and equipment; cementation (at least 2 cement plugs are to be executed) and closure (cutting the casing at a depth of 2 meters below the ground level, welding a steel cap to the casing, covering the cap with a 1-m3 concrete cube and finally backfilling the hole with soil up to ground level) of the well; demolition and removal of the cellar and any other civil constructions present at the PAD;
    - *Other Facilities*: closure (definitive stoppage of equipment and installations operation; application of inert gases, de-energisation and depressurisation of process and auxiliary equipment and installations; purging, emptying and cleaning of equipment, installations, systems, pipes, etc.; isolation of equipment and installations), dismantling (disassembly, removal, decontamination and disposal, in accordance with national regulations and the WBG EHS Guidelines, of all structures, equipment, installations, systems, materials, fluids, wastes, etc.) and abandonment (leaving the site in safe conditions for the considered future use of the land) of equipment and installations;
- Implement clean-up activities for the area where the facility is located in order to avoid potential soil and/or groundwater impacts due to recently stopped activities. This should include determination of whether or not the site was impacted, details of the potential impact, if any, and remediation of impacted medias, if any;
- Implement erosion control (grading and scarification), stabilization of slopes (if applicable), and revegetation activities in order to accelerate the restoration of the affected area;
- Implement a monitoring plan in order to identify, control and/or mitigate risks related with structures, equipment and/or installations left on site.

During all phases of the Project, the following measures are proposed to be implemented:

- Water consumption efficiency policy as well as technically and financially feasible water consumption efficiency measures should be proposed and

	implemented. This will result in streamlining and reducing water consumption and, consequently, in a reduction of wastewater generation; • Provide personnel with potable in containers which can be refilled at the cold/hot water dispenser distributed as necessary in the different work fronts; • Request the bottled water supplier to provide physical, chemical and bacteriological analysis results for bottled water in order to verify compliance with applicable health and safety regulations; • Cold/hot water dispensers are to be constructed with materials that represent no risks to human health. Proper control and cleaning measures are to be implemented to dispensers and water containers in order to ensure quality and safety of consumption water; • Provide domestic wastewater portable treatment plants (WWTP) for sewage treatment. In case that WWTP cannot be provided, use portable chemical toilettes; • Treated domestic wastewater is to be used for irrigation purposes when it meets the wastewater discharge parameters established by local, provincial regulations and the WBG EHS Guidelines. Period testing of treated wastewater should be conducted in order to verify compliance; • At sites where chemical toilettes are used, wastewater management will be performed by authorized and licensed contractors and wastewater treatment and/or disposal will be conducted at facilities intended for such purposes; • In the following cases, domestic wastewater cannot be used for irrigation purposes: a) the facility is located at a distance of less than 100 m from a water abstraction well; or b) the facility is located at a distance of less than 100 m from a surface water stream; or c) when the facility is located in an area where groundwater is encountered at a depth of less than 5 m. In this cases, domestic wastewater is to be collected in plastic totes or other receptacles, transported, treated and disposed of by authorized and licensed contractors; • Sludge and treated wastewater from portable WWTP start up and fine tuning that do not comply with the Project's effluent discharge parameters, are to be collected and transported for proper treatment and/or disposal at authorized operators facilities; • Wastewater transportation manifests as well as treatment and/or final disposal certificates should be obtained from waste operators. Wastewater transportation and treatment/final disposal are to be registered and the register maintained updated; • As much as possible, rainwater contacting industrial areas, equipment, installations, etc., is to be collected and provided with proper on-site and/or off-site treatment and/or disposal; • Avoid washing or cleaning equipment, vehicles, tools and materials at the facilities, prioritizing the execution of these activities externally at dedicated and authorized areas/installations. If it necessary to clean/wash at the facility, use as little water as possible in order to minimize wastewater generation; • Maintenance of equipment and vehicles are to be conducted externally and at dedicated and authorized areas/installations; • Conduct periodical maintenance of vehicles, equipment and tools, in order to avoid fluid leaks (i.e. fuel, lubricant and/or hydraulic oils) leakages, spills, etc.;

	• Equipment, vehicles and/or tools are to be provided with fluid collection trays and spill kits as needed, in order to collect and contain potential spills and/or leaks as well as preventing dispersion; • Liquid residues generated due to spills, leakages and/or during the maintenance of vehicles and/or equipment, are to be managed as described in the Wastes Management Plan or collected and sent to the PTC for incorporation into the production circuit; • Water consumption will continually be scrutinized in order to avoid wastage and/or generation of unnecessary wastewater. Water consumption registers are to be completed, maintained and updated; • Measure and register amounts of treated and injected wastewater at PTAS and PIAS. • Process water at the facilities will be managed in a closed system and recycled within the facilities as much as possible, to reduce fresh water consumption and as possible generate zero discharges; • Excess water will be discharged or disposed of only if it cannot be contained and/or reused at facilities, and meets local and/or provincial statutory requirements as applicable; • Implement a treated wastewater monitoring plan in order to periodically verify compliance with requirements established by applicable regulations, discharge permits and the WBG EHS Guidelines; • Fuel, chemical products, hazardous substances, wastes, etc., storage areas are to be provided with sealed floors and perimeter berms to collect and contain potential spills and avoid their dispersion and potential affects on surface water and groundwater quality. In addition, these storage areas are to be provided with non-permeable covers in order to avoid potential groundwater quality affection (also see Hazardous Substances Management Plan and Wastes Management Plan); • VOG and AM personnel, as well as third party contractor personnel adhere to the Contingency Plan in the case of an environmental (spill of oil, production water, oil-based drilling mud, chemical products, etc.) and/or safety incident; and • If an oil, production water, oil-based drilling mud, chemical products, etc., spill occurs, clean-up activities will be implemented in order to avoid potential soil and/or water impact. Spills will be properly registered and recorded, and the Environmental Authorities will be informed regarding the incident.
Indicators of performance	• Registration of abstracted fresh groundwater • Registration of supplied fresh surface water • Registration of wastewater treatment at PTAS • Registration of treated wastewater injection at PIAS • Wastewater transportation manifests and treatment/final disposal certificates • Analytical results of raw and treated wastewater • Water consumption efficiency assessment report (including measures) • Water consumption efficiency policy
Place of Execution	• Entre Lomas and Bajada del Palo areas

Responsible for Execution	• Vista Oil and Gas Argentina S.A. personnel • Aleph Midstream S.A. personnel • Vista Oil and Gas Argentina S.A. and Aleph Midstream S.A. contractors personnel • Managers of Entre Lomas and Bajada del Palo areas • HSE Manager, Supervisors and Personnel
Expected Results Remarks	• Identification and reduction of wastewater sources • Identification and reduction of unsustainable wastewater generation practices • Ensuring that all generated wastewater streams are properly managed, including collection, transportation, treatment and final disposal • Reduction of potential soil and/or water impact due to wastewater management • Compliance with requirements set by wastewater discharge permits and applicable regulations and the WBG EHS Guidelines

8.1.6 Hazardous Substances Management Program

<table>
<tr><td>Objective</td><td colspan="3">Establish guidelines for the adequate storage, transportation and management of hazardous substances (fuels, lubricants and chemical products), in order to reduce any associated environmental risks.</td></tr>
<tr><td>Execution</td><td>1. Construction</td><td>2. Operation</td><td>3. Abandonment</td></tr>
<tr><td>Environmental Impact</td><td colspan="3">■ Alteration of soil quality
■ Alteration of the supply and quality of underground water</td></tr>
<tr><td rowspan="2">Type of Environmental Management Measure</td><td>Prevention</td><td>Mitigation</td><td>Correction</td></tr>
<tr><td>Compensation</td><td>Control</td><td>Protection</td></tr>
<tr><td>Action To Be Taken</td><td colspan="3"><u>Management of chemical substances</u>
■ The storage areas will have sealed floors, containment berms and roofs, which will protect and / or isolate the chemical products from the environment.
■ The storage area for chemical products must have a sealed floor (e.g., concrete or other impermeable material) and a resistant roof in order to protect the products from the rain.
■ The person in charge of managing the chemical product containers will coordinate the storage according to quantity, size, type (using Material Safety Data Sheet (MSDS) information) physical presentation and compatibility.
■ Incompatible products should not be stored near each other, due to possible reactions.
■ All workers must use the appropriate protective equipment.
■ Each product must be identified and must have the corresponding MSDS information in place.
■ Nothing can obstruct the area used for loading and unloading products in the warehouse.
■ The storage of gasoline or diesel in the chemical products warehouse will be strictly prohibited.
■ Smoking will not be permitted in the chemical storage area.
■ At all times, it must be verified that conditions in the storage area(s) do not present any risks to workers or products due to changes in temperature, pressure or reactions between components.

<u>Management of hydrocarbon</u>
■ Storage will be in bladders placed in containment pits which are waterproofed with geomembrane and under a roof (made from wooden structures and awnings) for rain protection.</td></tr>
</table>

	■ An appropriate place should be selected, which is away from bodies of water and preferably in the plains. ■ The area must have adequate ventilation. ■ The containment berm will be completely lined with impermeable geomembrane. ■ Appropriate signage, a fire extinguisher and spill control kit will be installed inside and outside the enclosure. ■ Diesel loading and unloading operations will be conducted by personnel appropriately trained for these activities. ■ Routine inspections of the surrounding areas will be carried out. ■ All personnel will have the appropriate personal protection equipment.
Indicators of performance	■ Registration of entry and exit of hazardous substances
Place of Execution	■ Storage area for hazardous substances
Responsible for Execution	■ Vista Oil and Gas Argentina S.A. personnel ■ Aleph Midstream S.A. personnel ■ Vista Oil and Gas Argentina S.A. and Aleph Midstream S.A. contractors personnel ■ Managers of Entre Lomas and Bajada del Palo areas ■ HSE Manager, Supervisors and Personnel
Expected Results Remarks	■ Avoid the pollution of areas adjoining the storage sites for hazardous substances.

8.1.7 Structural Stability Management Plan

Objective	Establish the guidelines regarding the adequate management of the structural stability and pollution prevention when fracking		
Execution	1. Construction	2. Operation	3. Abandonment
Environmental Impact	■ Alteration of geotechnical stability ■ Alteration of structural conditions of the well while drilling or injecting formation water ■ Increased noise level		
Type of Environmental Management Measure	Prevention	Mitigation	Correction
	Compensation	Control	Protection
Action To Be Taken	<u>For fracking:</u> ■ Conceptual hydrogeological models should be prepared that support reliable risk analysis for all potential impact pathways. The scope of such conceptual models should be large enough to support assessment of the impacts of exploration and exploitation of unconventional gas – via fracking – both for the specific sites involved and with regard to the large geological systems involved. ■ For areas in which water-related environmental impacts cannot be ruled out, numerical groundwater-flow models should be prepared/refined such that the pertinent risks can be quantified. As a rule, this will entail preparing a formation-level model that can then serve as a basis for local models within and around the actual gas-production area. ■ The aforementioned models have to be continually verified and calibrated on the basis of data obtained through monitoring (both preliminary and during drilling). For monitoring to be effective, it must be based on an adequate understanding of the geologic system involved. At the same time, the understanding of the system involved (conceptual or numerical model) can be improved with the help of data obtained via monitoring. ■ Ultimately, options must be available for stopping, limiting or reversing any undesired developments, to ensure that no damage occurs and that risks do not increase. ■ The company must follow the fracking technology conditions established by the competent mining and water authorities and good international practice, for adequate precautions to be taken, and so that risk of an adverse impact on groundwater is avoided. ■ In order to enhance safety, particular attention should be given to ensuring compliance with applicable guidelines for wells and casings, and to ensuring that casings are fully cemented. In addition, completed wells should be inspected and checked for pressure-tightness in light of the predicted fracking pressures.		

- The existing requirements applying to the leak-tightness of cementations should be reviewed, and further detailed if necessary, in light of the specific requirements applying to fracking. Such review should also include suitable studies and monitoring procedures for ensuring the long-term integrity of wells (casing and cementations).
- For cases involving hydraulic stimulation, fracking propagation should be monitored via suitable procedures.
- Assessment of selected fracking fluids used in unconventional production, along with the available information on the characteristics of flowback, will reveal injected fluids characterization, and fluids requiring disposal, can pose considerable hazard potentials. Complete disclosure of all substances used, with regard to substance identities and quantities, is mandatory.
- The company should generate an assessment of the toxicological and eco toxicological hazard potentials of substances used, and provide all physical-chemical and toxicological substance data. If relevant substance data are lacking, the gaps in the data must be eliminated – if necessary, via suitable laboratory tests or model calculations. In the process, the effects of relevant substance mixtures must be taken into account.
- The project should ensure substitution for unsafe substances (especially substances that are highly toxic, carcinogenic, mutagenic or toxic for reproduction), reduction or substitution of biocides, reduction of the numbers of additives used, lowering of concentrations used, and determination and assessment of the characteristics of site-specific formation water with regard to constituents of relevance to drinking-water quality (e.g., salts, heavy metals, Naturally Occurring Radioactive Material – NORM, hydrocarbons).
- The company will generate a determination and assessment of the characteristics of site-specific flowback, with regard to constituents of relevance to drinking-water quality (e.g., salts, heavy metals, NORM, hydrocarbons), and with regard to additives used (primary substances) and their transformation products (secondary substances); determination and assessment of the proportion of fracking fluids recovered with the flowback; determination of the behavior and fate of substances in the ground, via mass-balancing of the additives used; and modeling of substance transport, for assessment of possible risks to any exploitable groundwater, from any ascending formation water and fracking fluids.
- Technical treatment and “environmentally sound” disposal of flowback should be considered for establishing specific environmental management measures, including description of all technically feasible treatment processes and of the possibilities for reusing substances. In cases involving injection into disposal wells, site-specific risk analysis, and description of the impacts on water resources that accumulate spatially and over time should be performed.
- The project has to observe monitoring and system-oriented examination, including installation of near-surface groundwater measuring stations to determine the reference condition with regard to additives and methane; if appropriate, installation of deep groundwater measuring stations to determine the characteristics of formation water and the relevant hydraulic potentials should be implemented.

<u>For water formation injection in wells:</u>

- To keep a maximum flow of up to 2200 m3/day and a maximum injection pressure of up to 1990 PSI, between 2000 and 2324 meters under the well head, in the Centenario geological formation levels, the annular space of the perforation will be contracted and isolated through the use of a packer, a balanced plug, tubing and corresponding cementation in order to protect susceptible water bearing formations.
- According to the industrial wastewater discharge permit and in accordance with regular discharge requirements for this type of permits, the quality of fluids that are authorized to be injected, may not present a density greater than 1.15 g/cm3, nor exceed by 10% the major ionic contents of the formation water at disposal levels. Additives or minor compounds should be verified: phenols 0.450 mg / l, arsenic <0.005 mg / l, total lead <0.003 mg / l, cyanides <0.01 mg / l, hexavalent chromium <0.002 mg / l, mercury <0.001 mg / l, cadmium < 0.003 mg / l.
- In addition, monthly sampling of the fluid to be injected should be carried out for the determination of at least the parameters: major ions, hydrocarbons-TPH, BTEX, HAP's, detergents, phenols, cyanides, heavy metals and additives used, whose protocols should be submitted to the authority, starting once the sampling has been carried out. Depending on the results obtained, the authority may increase the frequency of report, or modify the parameters to be analyzed or decrease its periodicity.
- A tracer should also be used in the injected disposal fluids to allow monitoring such that early identification of any potential effect on underground water resources from the injection is detectable.
- The monitoring program approved by the authority must be carried out in order to ensure zero effects of the fluids injected on the groundwater resources
- Also, the monitoring program for groundwater should be executed with quarterly sampling, to determine the parameters: major ions, hydrocarbons - HTP, BTEX, HPA's, heavy metals, additives used, and the planned tracer, whose protocols should be presented to the authority quarterly once the sampling has been carried out. Depending on the results, the authority may increase or decrease the monitoring frequency and modify the parameters to be analyzed. It is also necessary to implement fluid transit profiles, with an annual pre-requisite, to determine and confirm the tightness of the injection well, the profiles and their elevation, which must be presented annually prior to June 30 each year.
- The control and continuous recording of the pressure values at the wellhead of the Tubing and the Casing, and the flow and quality of the injected liquid should be carried out daily.
- A safety system must be installed having an indicator of automatic cut off when of the injection well pressure exceeds 1990 PSI measured at the wellhead, and the proposed pressure sensing instrument to be installed and its location must be presented to the authority.
- A “T” connection with a tap must be installed in the pre-injection line at the wellhead, suitable for taking samples of the fluid that is injected. The company must present the proposed instrument to be installed and its location to the authority.

	■ A casing air tightness assessment must be carried out on an annual basis, the profiles and their evaluation must be presented before June 30 of each year. ■ A profile of evaluating the state of cementation of the drilling should be made every 5 years and submitted prior to June 30 of the corresponding year. ■ A pipe thickness profile should be made - tubing and casing - showing the state of internal and external corrosion every 5 years prior to June 30 of the corresponding year. ■ The automated measurement instrumentation installed in the location of the authorized deep injection well, must follow the instructions of the injection permit, and the measurement records must be presented quarterly to the Authority. ■
Indicators of performance	■ Technical-mechanical certification of well drilling procedure ■ Results of the monitoring of environmental noise
Place of Execution	■ Project area
Responsible for Execution	■ Vista Oil and Gas Argentina S.A. drilling personnel ■ Aleph Midstream S.A. personnel ■ Vista Oil and Gas Argentina S.A. and Aleph Midstream S.A. contractors personnel ■ HSE Manager, Supervisors and Personnel
Expected Results Remarks	■ No effects on geological stability especially regarding underground water protection. ■ Identification and reduction of the operational noise ■ Constant use of appropriate personal protection by workers of the company and contractors. ■ The results of well monitoring which meet water permit requirements.

8.1.8 Transit Management Program

<table>
<tr><td>Objective</td><td colspan="3">The main objective is manage risks associated with routes used by Vista that can affect nearby populations.
Other specific objectives are:
■ Management of communications with VISTA staff, the population and local authorities.
■ Management of training in response to emergencies or traffic accidents with VISTA staff, the population and local authorities.
■ Management of routes with the population and local authorities.</td></tr>
<tr><td>Execution</td><td>1. Construction</td><td>2. Operation</td><td>3. Abandonment</td></tr>
<tr><td>Environmental Impact</td><td colspan="3">■ Increased Transit of Vehicles</td></tr>
<tr><td rowspan="2">Type of Environmental Management Measure</td><td>Prevention</td><td>Mitigation</td><td>Correction</td></tr>
<tr><td>Compensation</td><td>Control</td><td>Protection</td></tr>
<tr><td>Action To Be Taken</td><td colspan="3"><u>Informative road signs and road safety</u>
■ The signs that will be used are the temporary information, signs of limitation of access and transit within the VISTA facilities; Vista must also place warning signs for specific risks at certain areas or where certain activities are taking place.
■ Drivers must have training certification evidence and corresponding licenses for the handling of heavy machinery and transit vehicles within VISTA's operations. All drivers are screened traffic warnings or sanctions, and all must be trained in defensive driving.
■ In addition to the above, Vista employees are trained in road safety matters and the different types of signage used, and this training is also extended to the communities to raise awareness and educate the citizens regarding road safety and risks.
<u>Coordination actions with local authorities</u>
■ The road safety of the area should be established in coordination with the competent local authorities, to improve traffic signals in the area, also to establish routes and schedules for the movement of machinery and heavy transport during the construction, operation and abandonment phases of the VISTA Project.
<u>Response measures for possible traffic accidents that affect the local population</u>
Response actions must be coordinated in the event of accidents or incidents during the construction, operation and abandonment phases with multiple parties, including Vista H&S, health centres, posts, etc. Among the measures that will be taken into account to avoid the occurrence of traffic accidents are:
■ Increase awareness of the risk factors of road safety and preventive measures.</td></tr>
</table>

	▪ Establish and monitor compliance with speed limits and related traffic standards to reduce accidents and speed-related injuries. ▪ Establish and monitor compliance with transport, health and safety laws for the safe operation of cargo vehicles, heavy machinery and transport. Given the occurrence of accidents, response measures should be considered including: ▪ Create systems of immediate notification of traffic accident and provide single emergency telephone number. ▪ Provide first aid and support services to patients injured in traffic accidents. ▪ Encourage a thorough investigation of accidents and the application of an effective emergency response to victims of traffic accidents. Establish specific prevention and response measures for different types of road accidents depending on: machinery involved, accident zones, people and affected workers. <u>Stakeholder Engagement regarding Transit</u> ▪ Related to its external stakeholders, Vista will engage local (provincial and municipal) authorities to plan for: transit route management, road safety campaigns, and transit emergency action plans. Authorities must be properly informed of these control measures, the risks they attend and each party's responsibilities. In addition, Vista will coordinate will the local population to participate in road-safety action campaign. Finally, Vista will engage local health centres and posts to coordinate eventual actions in the context of a traffic emergency. Each engagement action related to this program must be considered in the Stakeholder Engagement Plan (SEP), and added to the Stakeholder Communication Strategy.
Indicators of performance	▪ Number of training provided to Vista staff, local populations and local authorities. ▪ Number of vehicular safety signage implemented in the project.
Place of Execution	▪ Routes of entry and exit of the project
Responsible for Execution	▪ Vista Oil and Gas Argentina S.A. personnel ▪ Aleph Midstream S.A. personnel ▪ Vista Oil and Gas Argentina S.A. and Aleph Midstream S.A. contractors personnel ▪ Managers of Entre Lomas and Bajada del Palo areas ▪ HSE Manager, Supervisors and Personnel ▪ Patrimonial Security Supervisor
Expected Results Remarks	▪ Education and road awareness by Vista workers, the population and local authorities

8.2 Biological Mitigation Measures

8.2.1 Flora Management Program

Objective	To establish the guidelines regarding the proper management of the flora in order to avoid and / or minimize the alteration of the vegetation during the different stages of the project		
Execution	1. Construction	2. Operation	3. Abandonment
Environmental impact	■ Decrease in the vegetation cover and alteration of native floristic composition due the clearing activities ■ Reduction of the plant regeneration capacity due the compaction of soil as a consequence of the transit of heavy vehicles and machinery and soil removal.		
Type of environmental management measure	Prevention	Mitigation	Restauration
	Compensation	Control	Protection
Actions to be taken	■ To reduce, and as possible prevent, adverse effects to the native flora community, the construction and operation activities will be strictly limited to the working area. ■ The maximum road width for truck will be 12 m and 6 m for those that interconnect wells (in accordance to Law 1875-TO, Law 2267-, Decree 2656/99, Annex VII, Title 4 , Chapter 2, art. 37). ■ Transit will be reduced as much as possible and the roads will be regularly watered to avoid the generation of dust that could settle on plants. ■ There will be adequate signage to prevent other areas being unnecessarily affected. ■ Vista Oil staff and all contractors will be prohibited from collecting plant specimens. ■ Vista Oil staff and their contractors will be trained on the importance of preserving native flora species. ■ The native plant material obtained from the clearing operations will be replanted in denuded areas that require protection against erosive effects, this will help to maintain the soil´s physical conditions and as a consequence, contribute to its fertility. ■ The areas affected by the installation of infrastructure and roads will be gradually revegetated as part of The Revegetation Program, at the end of the construction stage during the abandonment of temporary facilities including temporary access roads.		
Application site	■ Project area of direct influence		
Responsible of the execution	■ Vista Oil environmental coordinator along with a botanist.		

8.2.2 Fauna Management Program

Objective	To establish the guidelines regarding the proper management of the fauna in order to avoid and / or minimize the alteration of the biota during the different stages of the project		
Execution	1. Construction	2. Operation	3. Abandonment
Environmental impact	■ Alteration of the composition and abundance of the fauna due to the presence of staff, transit of vehicles, clearing and noise from the construction and operational activities ■ Reduction of the ecological niche for several species and fragmentation of their habitat		
Type of environmental management measure	Prevention	Mitigation	Restauration
	Compensation	Control	Protection
Actions to be taken	■ Activities will be strictly limited to the work area, thus avoiding increasing damage to wildlife habitats. ■ Before carrying out clearing and any construction activity, a tour in the working area will be carried out to determine the presence of individuals of fauna and implement measure to drive mobile species using different techniques. For example, equipment that reproduces special sounds that generate alertness to the animals or rods to move the branches of shrubs. ■ A Rescue and Relocation Plan (R&R Plan) should be evaluated to be developed and executed in the areas of excavation/intervention.. As some endemic species of herpetofauna have been registered in the project area, and since there is the potential presence of a Critically Endangered species (CR) ***Liolaemus cuyumhue***, the rescue of these species would be priority. Before any construction activity begins, a meticulous search of individuals should be conducted. Once an individual is found, it will be captured and released in a distant site with the appropriate habitat characteristics. The objective is to relocate individuals to a non disturbed area, ecologically equivalent to the original one. Protocols will be implemented with all the procedures and recommendations established by an environmental/biologist specialist in coordination with a wildlife veterinarian. ■ All personnel will be strictly prohibited from collecting, extracting or hunting wildlife in the project area and surroundings. ■ Field staff will be trained in the recognition of threatened and potentially dangerous species. ■ Defenses will be placed in the excavation areas to prevent the fall of wild animals. ■ An adequate management of solid waste will be carried out so as not to affect the dynamics of potential pest species (rodents, insects). ■ Protocols and procedures will be development for Fauna encounter.		
Application site	■ Project area of influence		

Expected results	■ To accomplish the repelling or rescue and relocation of 100% of the vertebrates found in the
Responsible of the execution	■ Vista Oil environmental coordinator, a biologist and a veterinarian (for the Rescue and Relocation Plan).

8.2.3 Revegetation Program

Objective	Establish the actions and / or measures for revegetation in the areas of clearing in order to return these areas as similar as possible to the original habitat, allowing the restoration of the erosion protection functions, habitats for fauna and ecosystem services.		
Execution	1. Construction	2. Operation	3. Abandonment
Environmental impact	■ Recovery of the vegetation cover and plant composition ■ Recovery of the terrestrial ecosystem functionality and services		
Type of environmental management measure	Prevention	Mitigation	Restauration
	Compensation	Control	Protection
Actions to be taken	■ Before any revegetation activity begins, areas to be rehabilitated will be identified and delimited. ■ Planting protocols will be elaborated and executed by specialist in this matter. ■ The soil will be properly conditioned to receive the seedlings. The soil will be decompacted and the initial physical and mechanical characteristics will be restored. ■ Seedlings will be acquired from a certified nursery. An important issue is to have a high number of seedlings of good quality. ■ Planting will be carried out with native species originally found at the sites, such as: *Atriplex lampa, Grindelia chiloensis, Prosopis flexuosa, Sueda divaricata*. ■ Planting will follow, as far as possible, the natural pattern of the vegetation distribution. ■ A monitoring program will be developed to document and evaluate the success of the revegetation program.		
Application site	■ Project area of direct influence		
Expected results	■ To obtain at least a 70% planting success, measured with the quantity of survival individuals. ■ To obtain similar spatial distribution as in the non-intervened areas in the region. The spatial distribution of plants is an important factor of an ecosystem dynamics ■ To obtain similar diversity and plant composition as in the undisturbed areas of the surroundings of the Project site.		
Responsible of the execution	■ Vista Oil environmental coordinator along with a botanist.		

8.3 Monitoring Program

8.3.1 Water and Effluent Monitoring

<table>
<tr><td>Objective</td><td colspan="3">The objective of the Environmental Quality Monitoring Program for Water and Effluent is to measure, monitor and ensure compliance with the measures established by VISTA in the Environmental Management Plan that aim to minimize the negative environmental impacts that may arise from project activities.</td></tr>
<tr><td>Execution</td><td>1. Construction</td><td>2. Operation</td><td>3. Abandonment</td></tr>
<tr><td>Environmental Impact</td><td colspan="3">■ Alteration of water quality</td></tr>
<tr><td rowspan="2">Type of Environmental Management Measure</td><td>Prevention</td><td>Mitigation</td><td>Correction</td></tr>
<tr><td>Compensation</td><td>Control</td><td>Protection</td></tr>
<tr><td>Action To Be Taken</td><td colspan="3">Results analysis

To analyze the physicochemical and bacteriological results, it is advisable to create charts or maintain a database which clearly show the variation of parameters over time at different sampling points. This will support interpretation of results. It is important to consider the conditions of the sampling site, and the permissible ranges according to current legislation and the WBG EHS Guidelines.

Parameters to assess Produced Water

The guideline values used for analysing produced water quality are those outlined in Disposition N° 0372/15 from the SRH of the Province of Neuquén, in which VOG is authorized to deep injection of fluids originated during the exploration and/or operation of Borde Montuoso oilfield with previous treatment at disposal well BMo.s 2040, as well as the Emissions,Effluent and Waste Levels from Onshore Oil & Gas Development included in the IFC EHS Guideline for Onshore Oil and Gas Development (2007).

Neuquen Guideline Values Guide for Treated Produced Water

<table>
<tr><th>Constituent Dangerous</th><th>Unit</th><th>Guideline Level</th></tr>
<tr><td>Total Petroleum Hydrocarbons</td><td>mg/l</td><td>< 300</td></tr>
<tr><td>Majority Ions
(chlorides, sulphates, carbonates and bicarbonates)</td><td>mg/l</td><td>≤ 110% of majority ions concentration in produced water</td></tr>
<tr><td>Phenols</td><td>mg/l</td><td>450</td></tr>
<tr><td>Arsenic</td><td>mg/l</td><td>< 0.005</td></tr>
<tr><td>Total Lead</td><td>mg/l</td><td>< 0.003</td></tr>
<tr><td>Cyanides</td><td>mg/l</td><td>< 0.01</td></tr>
<tr><td>Hexavalent Chromium</td><td>mg/l</td><td>< 0.002</td></tr>
<tr><td>Mercury</td><td>mg/l</td><td>< 0.001</td></tr>
<tr><td>Cadmium</td><td>mg/l</td><td>< 0.003</td></tr>
</table>
Source: Disposition SRH N° 0372, 2015.</td></tr>
</table>

Treated Produced Water Guidelines

Constituent Dangerous	Unit	Guideline Value
Total Petroleum Hydrocarbons	mg/l	10
pH	UpH	6 - 9
Biological Oxygen Demand	mg/l	25
Chemical Oxygen Demand	mg/l	125
Total Suspended Solids	mg/l	35
Phenols	mg/l	0.5
Sulfides	mg/l	1
Chlorides	Mg/l	600
Arsenic	mg/l	5
Cadmium	mg/l	5
Total Chromium	mg/l	5
Copper	mg/l	5
Lead	mg/l	5
Mercury	mg/l	5
Nickel	mg/l	5
Silver	mg/l	5
Vanadium	mg/l	5
Zinc	mg/l	5

Source: IFC EHS Guideline for Onshore Oil and Gas Development (2007).

Parameters to assess Deep Wells and Freatimeters

Considering that there is no national standard for groundwater quality, the following guide values have been considered as a reference guideline:

- The guide values used for the environmental water quality are those indicated in Annex II of National Decree 831/93 (Brackish Water)
- DPA N°886/15 (Rio Negro) Maximum limits allowed for discharges
- Decree N°790/99 (Neuquen) Maximum limits allowed for discharges

Results of Deep Wells Sampling

DPA N°886/15 mg/l	Decree N°790/99 mg/l	Decree 831/93 Brackish water (ug/l)
6-9	6,5 – 9,5	-
30	45	-
5,0	30	-
10	-	-
0,5	0,5	1
1,0	1,0	-
0,5	2,0	-
-	0,5	-
0,05	0,5	50
2,0	-	-
-	0,5	-
0,1	-	0,05
0,2	2,0	170

1,0	0,1	50
0,5	2,0	100
0,5	-	-
0,001	0,005	0,1
0,5	0,1	5
0,1	0,005	10
0,1	0,1	5

Parameters to assess effluent – Domestic Waste Water

The guideline values used for analyzing domestic wastewater quality are those outlined in Disposition N° 0084/17 from the SRH of the Province of Neuquén, in which BACS S.A., the manufacturer of the WWTP, is authorized to treated wastewater from the WWTP for natural vegetation irrigation, as well as the Indicative Values for Treated Sanitary Sewage Discharges included in the IFC EHS General Guidelines (2007) for discharging treated sanitary wastewater.

Values Guide for Treated Wastewater

Constituent Dangerous	Unit	Guideline Level
Electrical Conductivity	µS/cm	6 - 8
pH	UpH	1,750
Biological Oxygen Demand	mg/l	< 100
Chemical Oxygen Demand	mg/l	< 250
Residual Free Chlorine	mg/l	0.05 - 2
Total Nitrogen	mg/l	< 50
Total Phosforus	mg/l	< 5
Detergents	mg/l	< 3
Phenols	mg/l	< 0.05
Oils and Fats	mg/l	50
Total Petroleun Hydrocarbons	mg/l	< 0.2
Esterichia Coli	mg/l	250

Source: Disposition SRH N° 0084, 2017.

Indicative Values for Treated Sanitary Sewage Discharges

Constituent Dangerous	Unit	Guideline Value
pH	UpH	6 - 9
Biological Oxygen Demand	mg/l	30
Chemical Oxygen Demand	mg/l	125
Total Suspended Solids	mg/l	50
Total Nitrogen	mg/l	10
Total Phosforus	mg/l	2
Oils and Fats	mg/l	10
Total Coliform Bacteria	mg/l	400

Source: IFC EHS General Guidelines, 2007.

Monitoring frequency	<u>Water quality</u> ■ During the construction and operation phases, monitoring should be conducted quarterly. <u>Effluent- Domestic Wastewater</u> ■ Monitoring is required at domestic wastewater treatment plant (WWTP), monitoring should be conducted quarterly.
Place of Execution	■ In the same monitoring stations currently monitored by Vista Oil and Gas Argentina S.A.
Responsible for Execution	■ Vista Oil and Gas Argentina S.A. and Aleph Midstream S.A. HSE Manager and Supervisors

8.3.2 Air and Emissions Monitoring

<table>
<tr><td>Objective</td><td colspan="3">The objective of the Environmental Quality Monitoring Program for Air and Emission is to measure, monitor and ensure compliance with the measures established by VISTA in the Environmental Management Plan that aim to minimize the negative environmental impacts that may arise from project activities.</td></tr>
<tr><td>Execution</td><td>1. Construction</td><td>2. Operation</td><td>3. Abandonment</td></tr>
<tr><td>Environmental Impact</td><td colspan="3">• Alteration of air quality</td></tr>
<tr><td rowspan="2">Type of Environmental Management Measure</td><td>Prevention</td><td>Mitigation</td><td>Correction</td></tr>
<tr><td>Compensation</td><td>Control</td><td>Protection</td></tr>
<tr><td>Action To Be Taken</td><td colspan="3">Monitoring of air and emission quality

The sampling of air quality will be conducted at the sites established in the physical baseline. Gaseous emissions will be measured near the generating equipment of the CTEL according to Res. ENRE 121/18 and in other sources that the organization considers of interest.

The parameters for analysis of emissions include Nitrogen Monoxide, Oxygen, Nitrogen Dioxide, Carbon Monoxide, and Particulate Material indicated in Annex II of National decree 831/93. In addition, analysis includes the parameters recommended in the WBG EHS Guidelines.

Results Analysis

To analyze the physicochemical results, it is advisable to use charts or maintain a database, which clearly show the variation of parameters over time at different sampling points. This will help with the interpretation of results. It is important to take into account the conditions of the sampling site, and the permissible ranges according to current legislation and the WBG EHS Guidelines.

Parameters to assess air quality

The guideline values used for analysing air quality are those outlined in Annex II of National Decree 831/93, the regulations of the province of Buenos Aires (as reference) and the Ambient Air Quality of the IFC General EHS Guideline (2007).</td></tr>
</table>

Values Guide for Atmospheric Air Quality

Parameters	Concentration (mg/m^3)	Period average (min)
Acetaldehyde	0.01	30
Vinyl Acetate	0.15	30
Ammoniac	1.5	30
Aniline	0.05	30
Arsenic	0.01	20
Benzene	0.2	20
Cadmium	0.01	30
Hydrogen Cyanide	0.015	30

Cyclohexane	1.4	30
Chlorine	0.01	20
Chlorobenzene	0.1	30
Hydrogen chloride	0.05	30
Cresols	0.6	30
Chrome	0.0015	30
Dichloroethane (1,2-)	3	30
Di-Isocyanate of Tolueno	0.05	30
Styrene	0.01	30
Phenol	0.01	20
Fluorides	0.02	30
Formaldehyde	0.035	30
Polynuclear Aromatic Hydrocarbon	5	30
Manganese	0.03	30
Meth Paration	0.008	30
Naphthalene	0.003	30
Acid fog (H2s04)	0.006	30
Nitrogen oxides	0.9	60
Ozone-Photochemical Oxidizers	0.3	60
Lead	0.002	30
Carbon Sulfide	0.03	30
Hydrogen sulfide	0.008	30
Carbon tetrachloride	4	30
Toluene	0.6	30
Trichlorethylene	0.2	30
Xylenes	0.2	30

Source: Annex II of National Decree 831/93, 1993.

Values Guide for Atmospheric Air Quality

Parameters	Guideline Value (mg/m3)	Guideline Value (ppm)	Period average
Sulfur dioxide (SO2)	1,300 0,365 0,080	0,50 0,14 0,03	3 horas 4 horas 1 año
Particulate Matter (PM 10)	0,050 0,150		1 año 24 horas
Nitrogen oxides (NO2) (expressed as nitrogen oxide)	0,367 0,100	0,2 0,053	1 hora 1 año
Ozone	0,235	0,235	0,235

Source: Ambient Air Quality Standard of Buenos Aires.

Ambient Air Quality Guidelines

Parameters	Period average	Guideline Value (ug/m3)	Guideline Value (mg/m3)
Sulfur dioxide (SO2)	10 minute	500	0.5
Nitrofen dioxide (NO2)	1 hour	200	0.2
Particulate Matter (PM 10)	24 hours	50	0.05
Particulate Matter (PM 2.5)	24 hours	25	0.025

Ozone	8 hours daily maximun	100	0.1

Source: Environmental, Health, and Safety Guidelines- General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality, 2007.

Parameters to assess emissions

For combustion sources, it is expected that sources will be considered "small combustion source" and will fire natural gas (filed gas) or diesel (dual). Combustion equipment will be designed to meet or exceed the guidelines in Table 1.1.2 of the General IFC EHS standards:

Table 1.1.2 - Small Combustion Facilities Emissions Guidelines (3MWth – 50MWth) – (in mg/Nm³ or as indicated)

Combustion Technology / Fuel	Particulate Matter (PM)	Sulfur Dioxide (SO_2)	Nitrogen Oxides (NOx)	Dry Gas, Excess O_2 Content (%)
Engine				
Gas	N/A	N/A	200 (Spark Ignition) 400 (Dual Fuel) 1,600 (Compression Ignition)	15
Liquid	50 or up to 100 if justified by project specific considerations (e.g. Economic feasibility of using lower ash content fuel, or adding secondary treatment to meet 50, and available environmental capacity of the site)	1.5 percent Sulfur or up to 3.0 percent Sulfur if justified by project specific considerations (e.g. Economic feasibility of using lower S content fuel, or adding secondary treatment to meet levels of using 1.5 percent Sulfur, and available environmental capacity of the site)	If bore size diameter [mm] < 400: 1460 (or up to 1,600 if justified to maintain high energy efficiency.) If bore size diameter [mm] > or = 400: 1,850	15
Turbine				
Natural Gas =3MWth to < 15MWth	N/A	N/A	42 ppm (Electric generation) 100 ppm (Mechanical drive)	15
Natural Gas =15MWth to < 50MWth	N/A	N/A	25 ppm	15
Fuels other than Natural Gas =3MWth to < 15MWth	N/A	0.5 percent Sulfur or lower percent Sulfur (e.g. 0.2 percent Sulfur) if commercially available without significant excess fuel cost	96 ppm (Electric generation) 150 ppm (Mechanical drive)	15
Fuels other than Natural Gas =15MWth to < 50MWth	N/A	0.5% S or lower % S (0.2%S) if commercially available without significant excess fuel cost	74 ppm	15
Boiler				
Gas	N/A	N/A	320	3
Liquid	50 or up to 150 if justified by environmental assessment	2000	460	3
Solid	50 or up to 150 if justified by environmental assessment	2000	650	6

Notes: -N/A/ - no emissions guideline; Higher performance levels than these in the Table should be applicable to facilities located in urban / industrial areas with degraded airsheds or close to ecologically sensitive areas where more stringent emissions controls may be needed ; MWth is heat input on HHV basis; Solid fuels include biomass; Nm^3 is at one atmosphere pressure, 0°C ; MWth category is to apply to the entire facility consisting of multiple units that are reasonably considered to be emitted from a common stack except for NOx and PM limits for turbines and boilers. Guidelines values apply to facilities operating more than 500 hours per year with an annual capacity utilization factor of more than 30 percent.

Monitoring frequency	Air quality ■ During the construction phase, monitoring should be conducted quarterly. ■ During operation, monitoring should be conducted biannually. Emissions ■ During the construction and operation phase, monitoring should be conducted quarterly.
Place of Execution	■ In the same monitoring stations currently monitored by Vista Oil and Gas Argentina S.A. Additionally, two (2) environmental air quality monitoring points will be established near the area where the project activities will be carried out. ■ Regarding emissions, in the the most important sources of air emissions: engines, heaters and furnaces, gas venting without burning, and gas burning.
Responsible for Execution	■ Vista Oil and Gas Argentina S.A. and Aleph Midstream S.A. HSE Manager and Supervisors

8.3.3 Biodiversity Monitoring Program

According to the Convention on Biological Diversity "Biodiversity monitoring is an obligatory component in many international agreements and each contracting party is obligated, *'as far as possible and as appropriate'*, to *'identify components of biological diversity important for its conservation and sustainable use* ..., to *'monitor, through sampling and other techniques, the components of biological diversity identified'*[1] ".

In the same way, IFC (International Finance Corporation) Guidance Note 6 (2018) stablishes that long term monitoring may be required to validate the accuracy of the predicted impacts and risks to biodiversity values posed by the project and the predicted effectiveness of management actions.

Even though the Project is operating in a largely modified habitat due to previous cattle ranching followed by oil and gas development, five monitoring plans are planned to fulfil IFC requirements:

- Large mammals monitoring,
- Bird monitoring,
- Herpetofauna monitoring,
- Revegetation monitoring.

During the construction activities, every wildlife sightings will be recorded at all the work fronts. Each of the encounters with fauna will be registered and communicated among the personnel working at the site. The Environmental Supervisor will be responsible for collecting the information registered by the workers and for ensuring that the information is entered into the biodiversity monitoring database spreadsheet. This is a first step in the mitigation of flora and fauna disturbance, in part to raise awareness among the workers, and does not represent a systematic survey.

Once the construction stage is over, two surveys per year will be carried out as part of the monitoring program. The methodology for the assessment of each taxonomical group is detailed below. According to the results of this monitoring, the need for additional surveys will be considered. Also, the need for redefining the periodicity of the monitoring in the Operation stage will be considered. The survey biologists in coordination with the Environmental Department of Vista Oil will define the number and location of the monitoring stations.

Objective	To improve the information available for decision-makers in the Project area through the regular collecting of data on flora and fauna populations. The focus is on identifying trends in biodiversity.		
Execution	1. Construction	2. Operation	**3. Abandonment**
Environmental impact	■ Alteration of abundance and composition of the flora and fauna composition		
Type of environmental management measure	Prevention	Mitigation	Restauration
	Compensation	**Control**	Protection
Actions to be taken	■ *Mammal Monitoring*: For the monitoring of large mammals, a line transect technique will be used. Each transect of at least 2 km will be travelled in a		

[1] Article 7: "*Identification and Monitoring*" of the Convention on Biological Biodiversity.

	slowly pace (1.5 km/h). The presence of larger mammals will be obtained through the recording of direct evidence (observations and vocalizations) and indirect evidence (tracks, feces, feeding signs, hair, scratches, roosts, bites or marks on tree trunks, etc.). For each evidence observed, time, habitat characteristics, geographic coordinates and photographs will be taken and recorded. ■ *Bird Monitoring*: The sampling method to be used for the monitoring will be point count not limited to distance. This is a method widely used in the evaluation of avifauna, which allows the assessment of species richness and relative abundance. In addition, it allows for the evaluation of different types of habitats. This method involves establishing a number of points for counting or census in the area or habitat to be evaluated. The points are visited by an observer, who remains stationary for a specified time. The observer records all species of birds seen or heard including the number of individuals of each species. In addition, indirect evidence of the presence of birds such as vidence such as the recognition of tracks, nests, burrows, roosts, fallen feathers, and feces will be noted and recorded. ■ *Herpetofauna Monitoring*: For the this survey, the Visual Encounter (VES) sampling technique will be used. This method involves the systematic search for reptiles (and amphibians) within a habitat or area of interest during a given period. The systematic search consists in the removal of stones and meticulous searching of vegetation at each monitoring station, as well as possible places of rest or reproduction. The duration time for each VES will be 60 minutes. In each VES the date, time, habitat characteristics, species, number of individuals, activities observed, geographic coordinates and photographs will be recorded. This technique obtains quantitative data and is appropriate for inventory studies and monitoring. This method is effective in the search for key species that can be easily recognized as well as for uncommon species ■ *Revegetation Monitoring*: This monitoring will make it possible to follow up the results of revegetation and identify areas that may require maintenance. First, the revegetation area will have been delimited. The indicators used in the monitoring will be the number of surviving individuals, the total coverage of the community, the phenological status and the average height of the dominant species in each area. At species level, the indicators will be abundance of each species, health status of each individual planted, and height. If the monitoring program indicates that the vegetation cover is not being restored in the expected manner or if excessive soil erosion has been detected, the affected area will be re-contoured (if necessary) and reseeded.
Parameters to be evaluated	■ Species richness ■ Abundance of individuals for each species ■ Diversity of species ■ Presence of endemic species ■ Presence of species listed in a conservation category according to Argentine legislation and IUCN
Application site	■ Project area of influence
Monitoring frequency	■ Mammals, birds and herpetofauna monitoring: Twice a year (every 6 months) ■ Revegetation monitoring: every two months for the first year or until the self-sustainability of the plants is guaranteed.

Responsible of the execution	■ Vista Oil and Gas Argentina S.A. and Aleph Midstream S.A. HSE Manager and Supervisors

8.4 Social Mitigation Measures

8.4.1 Land Access Program

Land Access Program			
Objective	Manage the process of land access required by Vista through negotiation criteria that allows controlling risks and mitigating the impacts that the change in land use and the income generated by the easement may have on landowners' livelihoods, in accordance with IFC PS5.		
Execution	This program will be applicable for construction and operation stages of the Project. There are wells already operating in the area. This is applicable not only to the new agreements, but to any previous agreements as well, in order to avoid social risks. Despite the holders being the only ones with the right to compensation, not all the landowners have property titles. To avoid social risks, Vista is implementing a policy of compensating occupants with occupation rights, even if it is a state or private land, in which cases Vista pays double easement.		
Social Impact	Change in land use and landowners livelihoods: The use of land in the direct area of influence is mainly for cattle purposes. The ranch properties are very large areas of desert terrain bordering the 250 hectares and above. The traditional local economy is a subsistence economy, thus, an important portion of landowners are a vulnerable group, at least in terms of income and lack of access to basic services. Easement arrangements needed for the Project to access land can cause a change in land use and livelihoods among landowners. To date there are around of 50 easement agreements and Vista expects to continue with the land access process in order to develop more production areas in the Bajada del Palo West area. The landowners are converted into rent holders, receiving an income from easement agreements that far exceeds the income from their previous livestock practices. While rural uprooting has multiple causes, the Project might increase incentives to migrate to other economic activities, mainly among the younger generation. When it comes to the operating wells, the landowners do not live in the Project area any longer, and the vulnerable population is the ranch caretakers (labourers) who lack of basic services (water and sanitation).		
Social risks	Not having a standardized negotiation process can lead to financial and legal risks, as well as delays in schedule and conflicts with landowners. There is also a risk of generating dependency on easement income among landowners, since there is no investment plan that would guarantee sustainable income for local families.		
Type of social management measure	Prevention	Mitigation	Correction
	Compensation	Control	Protection
Actions to be developed	This program is applicable for all land access processes implemented by Vista in order to develop new production areas with the intention to protect to the extent possible those landowners identified as vulnerable. However, this Program will also cover those cases already negotiated, as it will seek to mitigate the		

Land Access Program

easement agreements effects on some landowners and the ranch caretakers (non-owners) livelihoods and monitor their living conditions.

The following activities will be implemented:

1) Landowner information profile: At the beginning of the process and once the technical area has defined the area of interest, the Land Access area, in coordination with the Sustainability Department, will generate a baseline information survey on the surface area located in the area of interest. The information that this folder must contain, as a minimum, the following:

- Each landowner[2] must hold an information folder with the easement agreements documentation.[3]
- Landowner socioeconomic profile: Dependents (family, workers, tenants), residence, access to basic services (water, sanitation, transportation, etc.), educational level, occupation, approximate annual income, perceptions regarding cattle, other vulnerability indicators.
- Land characteristics: Social infrastructure, productive infrastructure, carrying capacity, water sources, water and soil quality, sites of cultural interest, etc.

2) Consultation and information disclosure process: From the beginning of the information gathering process and up to the monitoring phase, the Sustainability Department, in coordination with the Land Access team, will maintain a permanent communication with the affected parties (owners, tenants or peons), either through direct communications or through community relation officers, ensuring that all communications are culturally appropriate. All communication and information generated must be documented for internal reporting and monitoring purposes.

- Access to information: Before signing new well agreements, more detailed information needs to be provided to landowners such they fully understand the magnitude of the developments to be performed in their territory. The disclosure of all relevant information is required as well as consultation and informed participation of affected landowners.
-

3) Grievance mechanism:
An active grievance mechanism beginning with initial information and consultation phase is needed and should be integrated with the general complaints mechanism *(see Stakeholder Engagement Program).* This will allow Vista to collect and respond specific concerns about compensation in a timely manner, and establish a mechanism to interpose resources, aimed at resolving conflicts in an impartial manner. The Vista Institutional Relations Manager is the responsible of the task.

4) Negotiation and signing of easement agreement:
The standardized easement agreement process is comprised of two steps: an identification of Project impacts in the field, followed by the multiplication of identified impacts by referenced compensation values, based on the legislation (see Remarks). Regulations set reference tables of compensation values according to installation (well, roads, pipelines, conduits) and surface characteristics of the site. The easement compensations correspond to 1) lost profit, and 2) control and surveillance costs.[4] Once the negotiation has

[2] This is applicable not only to the new agreements, but to any previous agreements as well, in order to avoid social risks.

[3] Despite the holders being the only ones with the right to compensation, not all the landowners have property titles. To avoid social risks, Vista is implementing a policy of compensating occupants with occupation rights, even if it is a state or private land, in which cases Vista pays double easement.

[4] First, the norms assume that the landowner/tenant will continue producing while receiving the compensation, which does not happen in the majority of cases. Second, the compensation for reimbursement of expenses for controlling / supervising the activity of others within their lands, is understood as time, petrol, fences, etc.; whose reference values correspond to the surface area characteristics.

Land Access Program

	been completed, an easement agreement is signed. Most agreements are re-negotiated annually. 5) Annual monitoring of livelihoods: There is a risk of generating dependency on easement income, and there is no associated investment program for the recipients of compensation to use in order to invest the compensation monies to provide future income once the compensation period ends, and more importantly to guard against rapid spending of the new income. Thus, as part of the annual monitoring of landowners livelihoods, efforts linked to capacity-building training for resource management (financial and planning advisory, talks and resources) of vulnerable landowners should be documented. The Vista Institutional Relations Manager is the responsible of the task.
Application Site	This program will be applicable for all Land Access process implemented by Vista, with special focus on nonconventional production areas in Bajada del Palo West. Stakeholders involved are landowners, tenants and peons dependent on the land.
Responsible for execution	Vista Institutional Relations Manager Vista Land Access Manager
Expected results	○ A landowner information gathering system with a folder per affected population (landowner, tenant and/or peons) including easement agreements documentation, socioeconomic profile and land characteristics. ○ Landowners participate in an informed manner in the easement negotiations and are adequately consulted by Vista. Vista will generate documented evidence of all communication and consultation interactions. ○ Landowners are informed and have access to a permanent and active grievance mechanism beginning with the initial information and consultation phase. ○ Specific concerns and grievances of landowners are answered by Vista in a timely manner. ○ Easement agreements follow the newly standardized process. ○ Vista implements a permanent monitoring of affected populations' living conditions, generating documented evidence of such monitoring, and in relation with the below performance indicators.
Performance Indicators	• % of landowners holding a complete folder (easement agreements documentation, landowner socioeconomic profile and land characteristics) as part of a landowner information gathering system. • % of vulnerable landowners according to the socioeconomic profile assessment. • % of landowners being informed and consulted regarding the easement process, evidenced by records of information disclosure and consultation processes (informative brochures about technical and legal matters, signed letters, etc.). • % of concerns and grievances of landowners being addressed in a timely manner per grievance mechanism records. • % of easement agreement signed acts, following the newly standardized process.

Land Access Program	
	• .
Remarks	Within Vista´s Sustainability Plan, a Local Capacities Strengthening initiative involves a Landowners Relationship Policy and Procedures. The relationship with landowners falls under a comprehensive framework that includes economic agreements and patterns of coexistence. Clearly, the coexistence between Vista and the landowners requires a communication strategy based on systematized documentation, the grievance mechanism and standardized negotiation criteria and monitoring measures. The national easement legislation has two levels: ○ At the national level: Law Nº 17.319[5], Decree 861/96 Indemnifications Cuyana and Neuquén Areas[6] and Decree 860/96 Indemnifications South Zone[7], whose values were updated in 2018 through the Joint Resolution-E 1/2018[8] and the Joint Resolution-E 2 / 2018[9], and one year later, through the Joint Resolution 1/2019[10] and the Joint Resolution 2/2019[11]. ○ At Neuquén provincial level: Law 2183[12] and Provincial Decree 353_98[13] clarify that the terms and amounts are those established in National Decree 861/96 and the regulations that modify / update it. ○ Vista will also follow the guidance of IFC PS5.

Source: ERM.

[5] http://servicios.infoleg.gob.ar/infolegInternet/anexos/15000-19999/16078/norma.htm
[6] http://servicios.infoleg.gob.ar/infolegInternet/anexos/35000-39999/38236/norma.htm
[7] http://servicios.infoleg.gob.ar/infolegInternet/anexos/35000-39999/38235/norma.htm
[8] http://servicios.infoleg.gob.ar/infolegInternet/anexos/305000-309999/305499/norma.htm
[9] https://www.argentina.gob.ar/normativa/nacional/resoluci%C3%B3n-2-2018-305500/texto
[10] http://servicios.infoleg.gob.ar/infolegInternet/anexos/320000-324999/322396/norma.htm
[11] http://servicios.infoleg.gob.ar/infolegInternet/anexos/320000-324999/322397/norma.htm
[12] http://hidrocarburos.energianeuquen.gov.ar/MARCOLEGAL/LEYESPROVINCIALES/Ley%202.183.pdf
[13] http://hidrocarburos.energianeuquen.gov.ar/MARCOLEGAL/DECRETOS_PROVINCIALES/Dec0353_98.pdf

8.4.2 Local Capacity-Building Program

This program is composed of three subprograms aimed at strengthening local capacities related to local governments, suppliers of goods and services, and employees/contractors. It is oriented towards promoting long-term benefits in the area of influence of the Project, and efficiently managing stakeholder's expectations through positioning Vista as a strategic ally for local development.

8.4.2.1 Support to local governments Sub Program

Support to local governments Sub Program			
OBJECTIVES	The overall objective of this sub program is to strengthen the public management capacities of the governments of Añelo, Catriel and San Patricio de Chañar, so they can take advantage of the opportunities generated by the development of the oil and gas sector, and thereby enhance the socio economic development and good governance of their localities. The specific objectives of the project are to: • Strengthen the capacities of local institutions through the financing of programs and projects, investment in equipment and teamwork support. • Contribute to strengthening the capacities of local governments to plan, budget and manage public resources. • Contribute to strengthening the capacities of local governments for the design, preparation, implementation and monitoring of investment programs. • Contribute to strengthening the capacities of local governments to communication with their stakeholders and promote accountability		
EXECUTION	Construction	Operation	Abandonment
SOCIAL IMPACT	Positive Impact: Opportunities generated by the development of the oil project of Vista Oil & Gas, in terms of capacity building for local governments		
SOCIAL RISK	Excessive expectations of support from Vista Oil & Gas from the municipalities in the area of influence of the project		
TYPE OF ENVIRONMENTAL MANAGEMENT MEASURE	Prevention	Mitigation	Correction
	Compensation	Control	Protection
ACTIONS TO BE TAKEN	• Vista Oil & Gas plans to work with the Local Innovation Network (RIL), an institution that aims to improve the management capabilities of local governments. To this end, Vista Oil & Gas will generate an agreement in which RIL will participate as a strategic partner in actions to strengthen the capacities of local governments, starting with the diagnosis of these needs. • Development of an institutional agreement with the Local Innovation Network Association (RIL), for the professionalization of the public sector and continuous improvement of capacities. • Financing of the capacity building project of local governments, through the Association of Local Innovation Networks (RIL). • Strengthening the capacities of local institutions, through the financing of programs and projects, investment in equipment and infrastructure and the support of their employees. • Development of institutional agreements with the municipal governments of Añelo, Catriel and San Patricio de Chañar, so that their officials participate in the capacity building project for public management.		

Support to local governments Sub Program

	• Financing of the training project for local governments, through the Local Innovation Network Association (RIL). • Monitoring and evaluation of the institutional agreements for capacity building, with the respective counterparts, for its correct implementation and continuous improvement. • Monitoring of the implementation of municipal initiatives and projects, in which the implementation of the new capabilities acquired by the officials is evidenced.
INDICATORS	• Number of training workshops to strengthen the management capacities of local governments developed. • % of participating officials that complete the training workshops satisfactorily. • Number of initiatives and municipal projects, in which the implementation of the new capacities acquired by the officials is evidenced. • Number of municipalities using performance assessment measures in practice and indicators for the management. • Number of municipalities planning for programmatic budgeting • Agreement with RIL to strengthen local governments. • Donation policy, structured and approved by senior management of Vista Oil and Gas
APPLICATION SITE	This sub program will be implemented in the Social Indirect Area of Influence, corresponding specifically to the municipalities of Catriel (Rio Negro), Añelo and San Patricio de Chañuar (Neuquen).
RESPONSIBLE FOR EXECUTION	Institutional Relations and Sustainability Management of Vista Oil and Gas
EXPECTED RESULTS	• Vista Oil & Gas is considered by local governments as a strategic ally, for the promotion of local development • Vista Oil & Gas, has a Social License to operate, managing the oversized expectations of the company's role in local development • Local government officials know and apply methodologies and tools to plan, budget and manage public resources effectively and efficiently. • Local government officials know and apply methodologies and tools for the design and development of successful, efficient and effective projects and programs. • Local government officials know and apply methodologies and tools for the development of key indicators for the management and evaluation of projects and programs. • Local government officials know and apply methodologies and tools to improve communication with their stakeholders.
REMARKS	• The Agreement with RIL is an instrument that will allow local governments to develop and strengthen institutional capacity. The agreement with RIL, in turn, contributes to the Social License for the project. • It must be clearly established by means of an agreement, that the mayor and vice mayor , will support the training and improvement of the capacities of their staff.

8.4.2.2 Supplier Development Sub Program

Supplier Development Sub Program			
OBJECTIVES	Enhance key technical or commercial business aspects in Vista's Local Suppliers, in order to promote growth and competitiveness and to improve services supplied to Vista, while contributing to local development in the region. Specific objectives: • Contribute to enhancing key commercial or technical business aspects of Local Suppliers to improve service delivery to Vista and other clients.		
EXECUTION	Construction	Operation	Abandonment
SOCIAL AND ENVIRONMENTAL IMPACT	The Program will attend the Increased Demand for Local Goods and Services.		
TYPE OF ENVIRONMENTAL MANAGEMENT MEASURE	Prevention	Mitigation	Correction
	Compensation	Control	Protection
ACTIONS TO BE TAKEN	• Development of an inter-institutional agreement with the Local Trade Union (ADENU), to select participants, define areas of improvement and identify and provide a training/coaching Program in key business aspects to Local Suppliers (including Improvement Plan development). • Selection of participating Local Suppliers (in coordination with Local Trade Union, ADENU). • Definition of areas of improvement and training/coaching Program topics (in coordination with Local Trade Union, ADENU). • Development of an inter-institutional agreement with selected Local Suppliers (from Añelo, Catriel and San Patricio de Chañar), for training/coaching Program in key business aspects, in coordination with the Local Trade Union (ADENU). • Co-financing of a training/coaching Program for selected Local Suppliers (including development of an Improvement Plan and a Microcredit Application Project) • Monitoring and evaluation of the training/coaching Program for selected Local Suppliers, to ensure proper implementation. • Monitoring and evaluation of selected Local Suppliers improvement, measured by Improvement Plan Development of a Post Service Quality Assessment for Suppliers.		
INDICATORS	• Number of Local Suppliers contracted/ number of Total suppliers contracted. • Number of selected Local Suppliers (in process of 'Improvement' in articulation with ADENEU)/ number of Local Suppliers contracted. • Number of training/coaching Program sessions provided to selected Local Suppliers. • Number and percentage of selected Local Suppliers that complete training/coaching Program successfully (measured by development of an Improvement Plan). • Number and percentage of selected Local Suppliers that fully implement their Improvement Plan. •). • Number and percentage of selected Local Suppliers that fully implement.Iimprovement Plan • Number and percentage of selected Local Suppliers that approve Post Service Quality Assessment by Vista.		

Supplier Development Sub Program	
APPLICATION SITE	Selected Local Suppliers that provide services to Vista.
RESPONSIBLE FOR EXECUTION	Institutional Relations/Sustainability Management, Vista Oil and Gas Supply Chain Manager, VOG and AM
EXPECTED RESULTS	• Selected Local Suppliers participate in the training/coaching Program and improve key commercial or technical capacities. • Selected Local Suppliers develop and implement Improvement Plans and Microcredit Projects.
REMARKS	• The Improvement Plan is an instrument that will allow selected Local Suppliers to develop and implement key technical or commercial business capacities and improve service delivery. • The Microcredit Application Project is an instrument that will allow Local Suppliers to apply for a small loan from Vista to develop a key aspect of their business. Vista, in coordination with the Local Trade Union (ADENEU), will be able to use the Application to pre-evaluate Project quality and ensure success. • Vista should establish from the outset, through the inter-institutional agreement, that the selected Local Supplier will support training/coaching and capacity improvement and will commit to participate and to improve service delivery.

8.4.2.3 Job Training and Employability Sub Program

Job training and Employability sub program			
OBJECTIVES	• Train members of the community of Añelo, Catriel and San Patricio de Chañar so that they can access job opportunities in the industry and develop professionally in the short, medium and long term, through training scholarships at educational institutions of Neuquen and Río Negro. • Accompany the educational offer of the region, promoting initiatives that promote innovation in areas of knowledge linked to the industry. • Encourage interaction within the industry to order to increase demand for training and education for the coming years. • Promote the development of skills and abilities that contribute to the strengthening of labor competencies of young people from Añelo, Catriel and San Patricio de Chañar, through internships and other practices at Vista Oil and Gas, or their contractors. • Achieve a practical experience in real situations that improve the position of young people, facing the labor market by combining the theoretical knowledge of the educational system with practical aspects of the labor and professional reality.		
EXECUTION	Construction	Operation	Abandonment
SOCIAL AND ENVIRONMENTAL IMPACT	Positive impact: opportunities generated by the development of the oil project of Vista Oil & Gas, in terms of job training and employability for women and men in the community		
SOCIAL RISK	Excessive expectations of the population regarding benefits due to the presence of Vista Oil & Gas in the localities of the area of influence.		
	Prevention	Mitigation	Correction

Job training and Employability sub program			
TYPE OF ENVIRONMENTAL MANAGEMENT MEASURE	Compensation	Control	Protection
ACTIONS TO BE TAKEN	• Diagnosis of training needs, based on job opportunities offered by the market in the Oil&Gas sector, and taking into account the gender approach. • Development of institutional agreements for the training of men and women of Añelo, Catriel and San Patricio de Chañar, in Neuquen and Río Negro Training Centers that are linked to the different types of services required for hydrocarbon activities. • Selection of male and female participants, for scholarships, technical internships, training courses and financing of research projects. • Search and selection of the best Training Centers for the realization of agreements. Some Local Training Centers, which could be considered for the agreements, are, for example: The Patagonian Institute of Training and Employment, the Vocational Training Center Number 6, the Institute of Higher Education (IFSSA), and Non-University Higher Institutes as in the Tertiary Level Educational Center -CENT- N ° 40; and CENT No. 44 of Catriel, among others. • Design of profiles, criteria, basic requirements and application procedures to access for scholarships, technical internships, training courses and financing of research projects • Coordination with the different areas and suppliers of Vista Oil and Gas, to know the opportunities and needs of technical internships for men and women from Añelo, Catriel and San Patricio de Chañar. • Selection of men and women from Añelo, Catriel and San Patricio de Chañar who will participate in the technical internships agreements • Development of internship agreements with men and women from Añelo, Catriel and San Patricio de Chañar, in Vista Oil and Gas, or their contractors. • Monitoring of the development of agreements for technical internships, scholarships, training courses and financing of research projects.		
INDICATORS	• Number of institutional agreements for training with Training Centers in Neuquen and Río Negro. • Number of educational scholarships granted. • Number of technical internships performed. • Number of training courses for women and men carried out • Financing policy for research projects • Number of research projects financed • Results report of the sub program implemented		
APPLICATION SITE	Area of Influence of the project		
RESPONSIBLE FOR EXECUTION	Institutional Relations and Sustainability Management of VOG Institutional Relations Management AM		
EXPECTED RESULTS	• Courses developed in Training Centers of Neuquen and Río Negro, with which the training agreements are made in a period of one year • • Agreements have been signed with institutions to provide training . Those training institutions have a good level of educational quality. . • People who receive training scholarships, technical internships and training courses, have the skills and tools that enable their employability in institutions and companies linked to the different services required for hydrocarbon activities.		

Job training and Employability sub program	
	• People, who receive training scholarships, technical internships and training courses, are inserted in the labor market of Neuquen and Río Negro, in some activity related to the subject of hydrocarbons.
REMARKS	• Improving the employability and job placement of the people in the towns of Añelo, Catriel and San Patricio de Chañar, brings both personal benefits for the participants and social benefits for the community in general. • A personal benefit for the participants is to promote personal growth through the acquisition of work experience, the expansion of social networks and the strengthening of self-esteem. • One of the main lines of action for the development of the employability of the people involved in the project is labor intermediation. This is understood as the set of actions that aim to put young people and young participants in contact, with the contractors of Vista Oil and Gas for employment.

8.4.3 Archaeological, Historical, and Cultural Resources

It is considered necessary to develop a technical evaluation of the impact that may be produced to the archaeological and/or paleontological resources, as well as, a prospecting prior to the initiation of works in order to detect remains, deposits or objects. Likewise, it is considered important to have a rescue and preservation plan and forecast its cost in the general budget of the Project and by this way give full compliance to provincial regulations.

If chance findings occur, the following chance find procedure should be applied.

Archaeological and Paleontological Chance Find Procedure			
OBJECTIVES	• Provide protocols to follow in the case of a chance archaeological or paleontological find during the development of the works. • Comply with national and provincial legislation on the protection of cultural heritage: National Law N° 25743, Provincial Law N° 2184 and its Regulatory Decree N° 2726/96 (Neuquén); Provincial Law N° 3041 and its Regulatory Decree N° 1150/2003 (Río Negro).		
EXECUTION	Construction	Operation	Abandonment
ENVIRONMENTAL IMPACT	• Alteration of archeological and/or paleontological sites. • Destruction of fossil and/or historical record.		
TYPE OF ENVIRONMENTAL MANAGEMENT MEASURE	**Prevention**	**Mitigation**	**Correction**
	Compensation	**Control**	**Protection**
ACTIONS TO BE TAKEN	In case of chance findings during the execution and operation of the project: • Stop immediately the activities in the area where findings take place. • Activities may continue in sectors where no findings were observed. • Immediately give intervention to CSMS and wait until it reports on the granting of the corresponding permit to continue with the tasks. CSMS must immediately notify the Competent Authority of the province in which the finding occurred. In cases where this take place in territories of national jurisdiction or involving two or more provinces, it is also necessary to notify the National Competent Authority. Authorities: Province of Neuquén: Provincial Directorate of Culture. Province of Río Negro: Environment Council (CODEMA). • Designate a legally qualified Professional expert (archaeologist or paleontologist), who must establish the rescue mechanism and certify the steps to follow for the continuity of the work. • In the case of findings with high heritage value or that, due to their magnitude, complexity, and/or scientific value, cannot be adequately investigated in the times needed for the works, alternative sites should be sought in order to preserve the findings.		
INDICATORS	• Induction to new employees about this procedure • Hours of training about the correct implementation of this mechanism		
APPLICATION SITE	Direct Area of Influence		
RESPONSIBLE FOR EXECUTION	The Project Managers, CSMS Coordinators, Supervisors and Site Inspector are responsible for ensuring compliance with this procedure. Contractors are responsible for implementing the work practices detailed in this procedure.		
EXPECTED RESULTS	Work staff involvement in archaeological protection, information and cooperation activities in case of an eventual finding.		

REMARKS	Train company personnel about the proper actions that need to be taken when materials of historical or cultural interest are discovered.

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