ENVIRONMENTAL IMPACT ASSESSMENT MATRIX FOR WATER SUPPLY LAGOONS

Action	Environmental Component Exposed	Environmental aspect	Environmental impact	Extension	Intensity	Duration	Probability	Legal aspects	Unmitigated significance	original risk	Mitigation measures	Extension	Intensity	Duration	Probability	Legal aspects	significance with mitigation	mitigated risk	impact degree
Expansion of the surface of the original lagoon	Soil	Aggregate removal	Substrate disturbance	2	4	4	4	2	256	High	M28: It must be (a) controlled that the extraction of aggregates does not generate an increase in accumulated water outside the lagoon, (b) extract aggregates only from the established area and (c) relocate the extracted aggregates in a scattered manner so as not to generate changes in the water drainage.	2	3	3	4	2	144	Medium	Equal to minimum or transient
	Environment	dust dispersion	Atmospheric pollution	3	2	2	3	2	72	Low	M9: complete the provisions of the directive for work abroad of the Argentine Antarctic Program	2	1	2	2	2	16	Low	Less than minimal or transient
Vehicle operation and movement of people	Soil	Interaction of personnel and vehicles with the substrate	Substrate disturbance	2	3	3	4	4	288	High	M3: (a) The activity will be carried out on the area already impacted by the base, (b) circulation through areas with vegetation must be avoided, (c) respect what is established as measures of approach to fauna, (d) respect maximum values of speed and (e) not cross the streams.	2	2	3	3	2	72	Low	Less than temporary minimum
Use of machinery	Fauna	Noise and vibration generation	harmful meddling	2	2	2	3	2	48	Low	M6: (a) Regular maintenance of all equipment to ensure its efficient operation, (b) the provisions of the wildlife approach manual will be respected, (c) vehicles will be used in a way that minimizes noise and (d) will control not to do activities that involve high levels of noise when there are nearby concentrations of fauna.	2	2	2	2	2	32	Low	Less than temporary minimum
Use of machinery	Air	GEI emission	Atmospheric pollution	3	4	2	3	2	144	Medium	M4: Supervise the state of vehicles and machinery to avoid incomplete combustion and thus minimize CO2 emissions into the atmosphere.	3	3	2	2	2	72	Low	Less than temporary minimum
Use of machinery	Soil	Loss of liquids (oils and fuels)	soil contamination	1	3	2	3	4	72	Low	M10: (a) establish and take into account the contingency measures of the future Base Contingency Plan, (b) have the corresponding anti-spill material for the primary contingency of the spill, (c) conduct spill training for all personnel, (d) ensure the provision of anti-spill response equipment and (e) ensure compliance with the maintenance plan for vehicles, facilities and generators.	1	2	2	2	4	32	Low	Less than minimal or transient
Lagoon waterproofing	Soil	Installation of geo-membranes	Introduction of anthropic elements	2	3	2	4	2	96	Low	M29: (a) ensure the use of the geo-membrane only on the surface of the lagoon, (b) ensure that parts of the geo-membrane will not be dispersed on the ground and (c) manage the remains of the geo-membrane with the corresponding waste stream.	2	2	2	4	2	64	Low	Less than minimal or transient
deepening of the lagoon	Soil	Increased retained water	Alteration of the original relief	1	4	4	4	2	128	Medium	M17: Carry out this activity in the selected area since it is impacted by the existence of the old facilities of the base, therefore new slaughter areas are not generated.	1	3	4	4	2	96	Low	Less than minimal or transient
Use of the lagoon	Water	Increased retained water	Alteration of water dynamics	2	2	2	4	2	64	Low	M30: (a) carry out periodic control of the level of the lagoons, (b) remove water from the lagoon if the level reaches maximum values to avoid overflows through portable cisterns and (c) control that no accumulations of water are collected in the area of water supply to the lagoon.	2	2	2	3	2	48	Low	Less than minimal or transient
Loss of retained water	Soil	Introducing water into the ground	Alteration of water dynamics	2	2	2	4	2	64	Low	M30: (a) carry out periodic control of the level of the lagoons, (b) remove water from the lagoon if the level reaches maximum values to avoid overflows through portable cisterns and (c) control that no accumulations of water are collected in the area of water supply to the lagoon.	2	2	2	3	2	48	Low	Less than minimal or transient
Vehicle operation and movement of people for supply	Soil	Interaction of personnel and vehicles with the substrate	Substrate disturbance	2	3	3	4	4	288	High	M3: (a) The activity will be carried out on the area already impacted by the base, (b) circulation through areas with vegetation must be avoided, (c) respect what is established as measures of approach to fauna, (d) respect maximum values of speed and (e) not cross the streams.	2	2	3	3	2	72	Low	Less than minimal or transient
Frozen pipes	Soil	overflow the lagoon	Alteration of water dynamics	2	2	2	4	2	64	Low	M30: (a) carry out periodic control of the level of the lagoons, (b) remove water from the lagoon if the level reaches maximum values to avoid overflows through portable cisterns and (c) control that no accumulations of water are collected in the area of water supply to the lagoon.	2	2	2	3	2	48	Low	Less than minimal or transient

Breaking of pipes	Soil	Introducing water into the ground	Alteration of water dynamics	2	2	2	4	2	64	Low	M30: (a) carry out periodic control of the level of the lagoons, (b) remove water from the lagoon if the level reaches maximum values to avoid overflows through portable cisterns and (c) control that no accumulations of water are collected in the area of water supply to the lagoon.	2	2	2	3	2	48	Low	Less than minimal or transient
Vehicle operation and movement of people	Soil	Interaction of personnel and vehicles with the substrate	Substrate disturbance	2	3	3	4	4	288	High	M3: (a) The activity will be carried out on the area already impacted by the base, (b) circulation through areas with vegetation must be avoided, (c) respect what is established as measures of approach to fauna, (d) respect maximum values of speed and (e) not cross the streams.	2	2	3	3	2	72	Low	Less than minimal or transient
Use of machinery	Fauna	Noise and vibration generation	harmful meddling	2	2	2	3	2	48	Low	M6: (a) Regular maintenance of all equipment to ensure its efficient operation, (b) the provisions of the wildlife approach manual will be respected, (c) vehicles will be used in a way that minimizes noise and (d) will control not to do activities that involve high levels of noise when there are nearby concentrations of fauna.	2	2	2	2	2	32	Low	Less than minimal or transient
Use of machinery	Air	GEI emission	Atmospheric pollution	3	4	2	3	2	144	Medium	M4: Supervise the state of vehicles and machinery to avoid incomplete combustion and thus minimize CO2 emissions into the atmosphere.	3	3	2	2	2	72	Low	Less than minimal or transient
Use of machinery	Soil	Loss of liquids (oils and fuels)	soil contamination	1	3	2	3	4	72	Low	M10: (a) establish and take into account the contingency measures of the future Base Contingency Plan, (b) have the corresponding anti-spill material for the primary contingency of the spill, (c) conduct spill training for all personnel, (d) ensure the provision of anti-spill response equipment and (e) ensure compliance with the maintenance plan for vehicles, facilities and generators.	1	2	2	2	4	32	Low	Less than minimal or transient