

Peak Helium

EP134

2D Seismic EMP

PKH1

Appendices

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Appendix C – EMP Risk Assessment

Theme	Aspect	Activity	Possible impact	Assumptions/Limitations/Information	L	C*	IR*	Mitigation measures	Mitigation effectiveness	L	C*	RR*	Uncertainty (SCI)	ALARP Rationale	Environmental outcome	Environmental performance standard (Performance measure)	Measurement criteria (monitoring and records)	Reporting	Responsibility	COP Section
LAND	Terrestrial Ecosystems	Clearing or disturbing vegetation	Removing habitat for threatened species	RESULTS FROM FIELD SURVEY	B	4	High Risk (14)	Preventative •Undertake selective clearing, such as only clearing when an alternative route is unavailable, and avoiding trees. •Avoid clearing all large trees – notably the patches of Desert Oak – and minimise impacts to patches of shrubs where possible. •Avoid clearing the potential occurrences of Desert Quandong (threatened species) within the entire investigation area, notably in the northern end of line 1. •Minimise disturbing dune crests / sand ridges as these areas are favourable habitat for a variety of threatened and endemic species, including the Itjaritjari (Southern Marsupial Mole). •If dune crests need to be crossed to gain access to the adjacent swale, the dune crest should be scouted on foot or quad bike prior to vegetation clearing for passage to choose area of minimum impact (i.e. low point and/or existing cattle pass-over points to minimise impact to pristine locations). •Avoid Coolabah swamps and clay pans to preserve the biodiversity within the region. Current layout travels close to, but does not interfere with areas of Coolabah or seasonal swamps, however issues may arise if a revised line laydown is considered.	Medium	A	4	Moderate Risk (10)	Low	Clearing methodology will limit impacts on threatened species in areas where clearing is unavoidable.	No clearing outside the proposed seismic survey area. No disturbance to high conservation areas.	All clearing in approved areas Code of Practice for Petroleum Activates in the Northern Territory Part A – Surface Activities NTG Land Clearing Guidelines 2019	Activity audits will be undertaken weekly and results recorded, along with any photographs. Record any fauna encounters, injuries or death as result of seismic survey on fauna register for the duration of works.	Annual environmental performance report will be submitted to DPEWS	PM	A.3.1 Site Selection and Planning A.3.5 Biodiversity Protection
LAND	Terrestrial Ecosystems	Clearing or disturbing vegetation	Removing significant habitat	RESULTS FROM FIELD SURVEY	B	4	High Risk (14)	Preventative •Undertake selective clearing, such as only clearing when an alternative route is unavailable, and avoiding trees. •Avoid clearing all large trees – notably the patches of Desert Oak – and minimise impacts to patches of shrubs where possible. •Avoid clearing the potential occurrences of Desert Quandong (threatened species) within the entire investigation area, notably in the northern end of line 1. •Minimise disturbing dune crests / sand ridges as these areas are favourable habitat for a variety of threatened and endemic species, including the Itjaritjari (Southern Marsupial Mole). •If dune crests need to be crossed to gain access to the adjacent swale, the dune crest should be scouted on foot or quad bike prior to vegetation clearing for passage to choose area of minimum impact (i.e. low point and/or existing cattle pass-over points to minimise impact to pristine locations). •Avoid Coolabah swamps and clay pans to preserve the biodiversity within the region. Current layout travels close to, but does not interfere with areas of Coolabah or seasonal swamps, however issues may arise if a revised line laydown is considered.	Medium	A	4	Moderate Risk (10)	Low	Where reasonably possible, areas of sensitive habitat has been avoided. Clearing methodology will limit impacts on threatened species in areas where clearing is unavoidable.	Reduce impact to significant vegetation	All clearing in approved areas Code of Practice for Petroleum Activates in the Northern Territory Part A – Surface Activities NTG Land Clearing Guidelines 2019	Activity audits will be undertaken weekly and results recorded, along with any photographs. Record any fauna encounters, injuries or death as result of seismic survey on fauna register for the duration of works.	Annual environmental performance report will be submitted to DPEWS	PM	A.3.1 Site Selection and Planning A.3.5 Biodiversity Protection
LAND	Terrestrial Ecosystems	Clearing or disturbing vegetation	Erosion		B	2	Low Risk (5)	Preventative •Development and implementation of an Erosion and Sediment control plan (ESCP) •Minimise disturbance of riparian buffers and vegetation along drainage lines. •Use existing roads and access tracks where possible •Conduct access track and seismic line clearing during the dry season •Undertake selective clearing (i.e. blade up), such as only clearing when an alternative route is unavailable, and avoiding trees •Using lighter machinery such as graders or smaller bulldozers, taking care not to overwork tracks •Works will cease if there is a forecast for 50mm of rain or more within the next 48 hours. •Dunes should be crossed at right angles so as to minimise area of impact and erosion potential. •Minimise number of creek/drainage line crossings to reduce erosion management. Mitigative •Rehabilitation and stabilisation of disturbed areas as per the Rehabilitation plan. •Removed vegetation and/or topsoils to be re-spread over disturbed area to assist rehabilitation	High	A	2	Low Risk (3)	Low	Selective clearing will ensure that the minimum area of vegetation will be cleared to complete the activities. Light machinery will lessen the impact on the areas that are cleared, and rehabilitation efforts will ensure cleared locations return to pre-clearing status.	No soil erosion and discharge of sediment or soil into waterways or established drainage systems. No new instances of erosion and sedimentation	No evidence of active erosion. Code of Practice for Petroleum Activates in the Northern Territory Part A – Surface Activities NTG Land Clearing Guidelines 2019 Appendix D ESCP Appendix I Rehabilitation Plan International Erosion Control Association (IECA) Best Practice for Erosion and Sediment Control (2008)	Spatial data of vehicle route supplied to DEPaWS Visual inspection and monitoring of existing tracks, seismic lines. These will occur: During siting of seismic lines (baseline assessment) After completion of a key phases of activity After the wet season to look for signs of erosion Annually (post wet) for up to 5 years. Routine visual inspections of the creek and drainage line crossings. These will occur weekly or following a rainfall event (i.e. greater than 20 mm in a 24-hour period)	Annual environmental performance report will be submitted to DPEWS	PM	A.3.1 Site Selection and Planning A.3.4 Erosion and Sediment Control and Hydrology
LAND	Terrestrial Ecosystems	Clearing or disturbing vegetation	Direct mortality of fauna		B	3	Moderate Risk (9)	Preventative •Clearing will be conducted in a single direction, allowing any fauna to move out of way of clearing activities •Halt clearing in the presence of any fauna •Areas of known fauna habitat will be avoided where possible •Slow vehicles when passing cattle or other wildlife Mitigative •Record fauna near-miss/strike in register	Medium	A	3	Low Risk (6)	Low	Clearing methodology will limit direct mortality	Minimised fauna deaths.	No fauna deaths reported Code of Practice for Petroleum Activates in the Northern Territory Part A – Surface Activities NTG Land Clearing Guidelines 2019	Record any fauna encounters, injuries or death as result of seismic survey on fauna register for the duration of works.	Annual environmental performance report will be submitted to DPEWS	PM	A.3.1 Site Selection and Planning A.3.5 Biodiversity Protection
PEOPLE	Culture and heritage	Clearing or disturbing vegetation	Sacred sites or heritage		A	3	Low Risk (6)	Preventative •A stop works will be implemented if artefacts are located during activities on site. •Employees will be briefed on potential cultural heritage items that may be encountered. •Although a detailed survey has been undertaken, seismic lines will be moved to avoid archaeological sites and artefacts that are located during activities on site. Mitigative •The Project Manager will be notified immediately, who will then liaise with the NT Heritage Branch, for further instructions.	High	A	2	Low Risk (3)	Low	Risk is as low as possible as the relevant stakeholders have been consulted with, and operational staff will be educated on sacred site/heritage identification to reduce risk of impact is these sites/items are present.	No prohibited access to, or disturbance of, cultural heritage inclusive of Sacred Sites, and Indigenous and non-Indigenous heritage sites	No sacred sites/heritage damages AAPA Certificate and any conditions outlined on the certificate NT Heritage Act Code of Practice for Petroleum Activates in the Northern Territory Part A – Surface Activities	Heritage register maintained. Physical inspections that known sites are flagged on primary spatial databases to avoid accidental impacts. Also ensure that any changes to the route or widening of activities are updated on databases	Annual environmental performance report will be submitted to DPEWS	PM	A.3.1 Site Selection and Planning
AIR	Air Quality	Clearing or disturbing vegetation	Dust generation		B	2	Low Risk (5)	Preventative •Use existing road and tracks where practicable and ensure tracks are suitable for the intended purpose and volume of traffic required. •Site environmental inductions for all site personnel and contractors in relation to land management tasks •All vegetation clearing must be in accordance with the Federal, Territory and local government vegetation clearing requirements. •Vehicle speed restrictions apply when travelling in permit (60 km/hr on unsealed roads in proximity (<200 m) to sensitive receptors) or drive to condition. Mitigative •Disturbed areas will be stabilised in accordance with the Rehabilitation Plan. •Use water truck where applicable to manage dust emissions from vehicle movement on the site	High	A	2	Low Risk (3)	low	Industry standards for dust management has been adopted. Based on the remote location of the works these dust management methods should prevent any dust impacts on surrounding stakeholders/communities.	Minimise environmental nuisance at sensitive receptors	No significant dust plumes identified, no complaints from surrounding landholders. Code of Practice for Petroleum Activates in the Northern Territory Part A – Surface Activities	Daily visual monitoring will be carried out to ensure that visibility for moving equipment and vehicles is not obscured. In this event, water will need to be applied to reduce dust.	Annual environmental performance report will be submitted to DPEWS	PM	A.3.1 Site Selection and Planning

PEOPLE	Society and economy	Clearing or disturbing vegetation	Noise affecting cattle and people	Assuming cattle and people will be located within/adjacent to the project area of influence.	B 2	Low Risk (5)	Preventative •Slow vehicles when passing cattle, people or sensitive receptors •Provide at least two weeks notification to households and businesses if operations are to be conducted within 10 km of their premises. •Ensure site environmental inductions for all site personnel and contractors include noise, vibration and light emissions requirements. •Ensure vehicles, machinery and equipment is maintained in good working order. •Daily and ongoing consultation with station managers and station personnel Mitigative •All nuisance-related complaints from sensitive receptors investigated and reported upon.	High	B 1	Low Risk (2)	Medium	Remote location Landholders will be able to ensure cattle are located away from work fronts Vehicles well maintained and speed will be limited when within proximity to receptors.	Minimise nuisance noise on surrounding communities or exploration workers. Minimise disruption to fauna and stock.	No complaints Code of Practice for Petroleum Activates in the Northern Territory Part A – Surface Activities Northern Territory Noise Management Framework Guidelines	ongoing consultation with landholders	Annual environmental performance report will be submitted to DPEWS	PM	A.3.1 Site Selection and Planning A.3.3 Noise
AIR	Atmospheric Processes	Clearing or disturbing vegetation	Greenhouse gases		B 3	Moderate Risk (9)	Preventative •Undertake selective clearing, such as only clearing when an alternative route is unavailable, and avoiding trees. Mitigative •Stockpiling any cleared vegetation for rehabilitation purposes. •Progressively rehabilitating cleared areas once works have been completed.	High	B 2	Low Risk (5)	Low	Minor clearing taking place.	Minimise greenhouse gas emissions	Code of Practice for Petroleum Activates in the Northern Territory Part A – Surface Activities	Clearing records	Annual environmental performance report will be submitted to DPEWS	PM	A.3.1 Site Selection and Planning
LAND	Terrestrial Environmental Quality	Clearing or disturbing vegetation	Weed introduction and spread (also mentioned under vehicle movement)		A 3	Low Risk (6)	Preventative •A Weed Management Plan will be developed and implemented . The plan will include the following mitigation measures: - o All machinery and equipment to be certified weed free by a suitably qualified person prior to arrival at site. - o Control of declared weeds on-site as per the NT Weeds Management Act. - o All weeds removed will be and disposed of appropriately to ensure no further spread of weeds. - o Identification of any declared weed will be reported to the Weeds Branch in accordance with the NT Weeds Management Act.	high	A 2	Low Risk (3)		Controls are industry standard for weed management. The introduction of weeds has been limited in line with standards and any weeds introduced or present on site will be identified and appropriately managed to reduce extent.	The risk of exotic species and plant diseases being imported into or exported from the exploration permit area is avoided. The risk of spreading weeds within the seismic survey area is avoided. Where weeds are identified they are treated in accordance with the Weed Management Plan.	Code of Practice for Petroleum Activates in the Northern Territory Part A – Surface Activities Weed Management Planning Guide: Onshore Petroleum Projects NTG Land Clearing Guidelines 2019 Appendix E Weed Management Plan	A post wet-season weed survey will be conducted of seismic lines, and access tracks. All weed monitoring and survey activities will be recorded in accordance with the NT Weed Data Collection Guidelines.	Annual environmental performance report will be submitted to DPEWS	PM	A.3.1 Site Selection and Planning A.3.5 Biodiversity Protection A.3.6 Weed Management
PEOPLE	Society and economy	Seismic activity	Noise affecting cattle and people		B 2	Low Risk (5)	Preventative •Slow vehicles when passing cattle, people or sensitive receptors. •Provide at least two weeks notification to households and businesses if operations are to be conducted within 10 km of their premises •All nuisance-related complaints from sensitive receptors investigated and reported upon •Ensure site environmental inductions for all site personnel and contractors include noise, vibration and light emissions requirements •Ensure vehicles, machinery and equipment is maintained in good working order •Daily and ongoing consultation with station managers and station personnel		B 1	Low Risk (2)		Remote location Landholders will be able to ensure cattle are located away from work fronts, and Vehicles well maintained and speed will be limited when within proximity to receptors.	Minimise nuisance noise on surrounding communities or exploration workers. Minimise disruption to fauna and stock.	No complaints Code of Practice for Petroleum Activates in the Northern Territory Part A – Surface Activities Northern Territory Noise Management Framework Guidelines	ongoing consultation with landholders	Annual environmental performance report will be submitted to DPEWS	PM	A.3.1 Site Selection and Planning A.3.3 Noise
LAND	Terrestrial Environmental Quality	Seismic activity	Vibration		A 3	Low Risk (6)	Preventative •Ensure operating hourse for seismic line operation are established and communicated to personnel and contractors. •Consult with pastoral landholders and take into consideration stock movements •Provide at least 2 weeks notification to households and businesses if operations are to be conducts within 10km of the premises •Work conducted in a progressive line allowing wildlife to avoid the area. •Ensure site inductions for all site personnel include vibration requirements •Ensure vehicles. plant and equipment are maintained and in good order •Ongoing consultation with pastoral station manager and other relevant parties Mitigative •All nuisance related complains to be investigated and acted upon		A 2	Low Risk (3)		Remote location Landholders will be able to ensure cattle are located away from work fronts Vehicles well maintained and speed will be limited when within proximity to receptors. Wildlife will be able to avoid the area of influence due to progressive work activities.	Minimise nuisance vibration on surrounding communities or exploration workers. Minimise disruption to fauna and stock.	No complaints Code of Practice for Petroleum Activates in the Northern Territory Part A – Surface Activities	ongoing consultation with landholders	Annual environmental performance report will be submitted to DPEWS	PM	A.3.1 Site Selection and Planning
LAND	Society and economy	Accessing land	TO, landholder and community approval		B 3	Moderate Risk (9)	Preventative •Site inductions are to ensure that all personnel are aware of and understand social constraints of working with in the permit area, including conditions specified in the Land Access Agreement with the host pastoral leaseholder. •All workers will be required to attend cultural awareness training and code of conduct. •Work instruction to be issued to all contractors relating to access constraints. •Consult with relevant land users and public interest groups, such as pastoral leaseholders, Aboriginal communities, natural resource managers, conservation groups, tourism operators and other affected parties, to exchange information and facilitate good working relationships as required. •Prior to commencement onsite, communicate with pastoral leaseholders for access permission. Provide detail of the time and dates proposed to be on site, and the location, in advance of works commencing according to the regulations, including detailed maps showing pastoral infrastructure. •LAA to be in place with each station prior to commencement of the regulated activity in the permit area.		A 2	Low Risk (3)	Low	Land access agreements and stakeholder consultation will ensure all parties are aware of access requirements and informed of activities. Nothing further can be done to reduce this risk.	Ongoing stakeholder and other regional engagement indicates approval has been aquired.	No complaints Code of Practice for Petroleum Activities in the Northern Territory Part A – Surface Activities NT Petroleum (Environment) Regulations Stakeholder Engagement Guidelines Land Access	Community engagement records	Annual environmental performance report will be submitted to DPEWS	PM	A.3.1 Site Selection and Planning
LAND	Society and economy	Accessing land	Restrict access/interfere with pastoral operations or TO activities		B 2	Low Risk (5)	Preventative •Daily engagement with station manager and station personnel during activities to monitor potential disturbances to cattle and jointly arrive at reasonable solutions to mitigate any observed effects.		A 2	Low Risk (3)	Low	Land access agreements and stakeholder consultation will ensure all parties are aware of access requirements and informed of activities. Nothing further can be done to reduce this risk.	Ongoing stakeholder and other regional engagement shows no concerns regarding access to pastoral properties or impact on pastoral leaseholders activities. No reports of trespass during work activities.	Code of Practice for Petroleum Activities in the Northern Territory Part A – Surface Activities NT Petroleum (Environment) Regulations Stakeholder Engagement Guidelines Land Access	Community engagement records	Annual environmental performance report will be submitted to DPEWS	PM	A.3.1 Site Selection and Planning
LAND	Society and economy	Accessing land	Facilitation of unwanted access		A 2	Low Risk (3)	Preventative •Site inductions are to ensure that all personnel are aware of and understand social constraints of working with in the permit area, including conditions specified in the Land Access Agreement with the host pastoral leaseholder •Ensuring that any site gates/access points are closed to prevent unwanted access. •Access tracks signed to prevent unauthorised access Mitigative •Progressively rehabilitating tracks after project activities complete, to minimise the ease of access.	High	A 1	Low Risk (1)	Low	Working with neighbouring groups and communities to facilitate working relationships, as well as ensuring access tracks are closed and rehabilitated will limit the time that unwanted access is possible.	Minimise unwanted access to project area	No complaints Code of Practice for Petroleum Activities in the Northern Territory Part A – Surface Activities NT Petroleum (Environment) Regulations Stakeholder Engagement Guidelines Land Access	Access report	Annual environmental performance report will be submitted to DPEWS	PM	A.3.1 Site Selection and Planning

LAND	Terrestrial Environmental Quality	Accessing land	Impacting tracks due to wet weather		B 2	Low Risk (5)	Preventative •Timing works to coincide with the dry season and completing the bulk of the activities prior to the onset of the wet season. •Wet weather contingencies have been identified in the ESCP for any works that are scheduled close to the onset of the wet season. •Due to the known ground conditions following rainfall events can make access impossible. The primary mitigation will be to monitor 7-day forecasts leading up to mobilising and daily during the program. •Works will cease if there is a forecast for 50mm of rain or more within the next 48 hours.	High	B 2	Low Risk (5)	Low	Minimising access during wet periods and monitoring weather conditions ensures that work is completed during dry times, and minimises the impact on tracks. This reduces the risk to as low as possible .	Minimise track impacts and erosion	No evidence of active erosion. Code of Practice for Petroleum Activates in the Northern Territory Part A – Surface Activities NTG Land Clearing Guidelines 2019 Appendix D ESCP Appendix I Rehabilitation Plan International Erosion Control Association (IECA) Best Practice for Erosion and Sediment Control (2008)	Visual inspection and monitoring of existing tracks, seismic lines, water waterway crossings. These will occur: During siting of seismic lines (baseline assessment) After completion of a key phases of activity After the wet season to look for signs of erosion Annually (post wet) for up to 5 years. Routine visual inspections of the creek and drainage line crossings. These will occur weekly or following a rainfall event (i.e. greater than 20 mm in a 24-hour period)	Annual environmental performance report will be submitted to DPEWS	PM	A.3.1 Site Selection and Planning A.3.4 Erosion and Sediment Control and Hydrology
LAND	Terrestrial Ecosystems	Vehicles and plant	Introducing or spreading weeds	Regional Weed Management Plan is available for the Katherine Region	B 3	Moderate Risk (9)	Preventative •A Weed Management Plan will be developed and implemented . The plan will include the following mitigation measures: - o All machinery and equipment to be certified weed free by a suitably qualified person prior to arrival at site. - o Control of declared weeds on-site as per the NT <i>Weeds Management Act</i>. - o All weeds removed will be and disposed of appropriately to ensure no further spread of weeds. - o Identification of any declared weed will be reported to the Weeds Branch in accordance with the NT <i>Weeds Management Act</i> .	High	A 3	Low Risk (6)	Medium	Weed management plan is in place and is guided by the Regional Weed management plan for Katherine. This management plan outlines standard practice management techniques for the NT, that are proven.	The risk of exotic species and plant diseases being imported into or exported from the exploration permit area is avoided. The risk of spreading weeds within the seismic survey area is avoided. Where weeds are identified they are treated in accordance with the Weed Management Plan.	Weed inspections identify and destroy weeds Code of Practice for Petroleum Activates in the Northern Territory Part A – Surface Activities Weed Management Planning Guide: Onshore Petroleum Projects NTG Land Clearing Guidelines 2019 Appendix E Weed Management Plan	A post wet-season weed survey will be conducted of seismic lines and access tracks. All weed monitoring and survey activities will be recorded in accordance with the NT Weed Data Collection Guidelines.	Annual environmental performance report will be submitted to DPEWS	PM	A.3.6 Weed Management
LAND	Terrestrial Ecosystems	Vehicles and plant	Direct mortality or impacts to fauna		D 2	Moderate Risk (12)	Preventative •Site inductions will ensure that all personnel are aware of their obligations and know the correct procedures for fauna encounters. •Vehicle movement will be restricted to existing access tracks and seismic lines. •Common terrain or vegetation types will be favoured for access tracks because they will generally have lower habitat significance. •Vehicle movement will be restricted to existing access tracks within permit to 60 km /hr. •Driving on site will be restricted to daytime hours, wherever possible. •Ensure site environmental inductions for all site personnel and contractors include the management of onsite vegetation and flora, including site personnel to stay within designated access roads and work areas. •The seismic acquisition equipment, whilst heavy is fitted with large floatation tyres for operating on minimal tracks, the ground pressure of this equipment is equivalent to a Toyota Landcruiser at ~220kPa.	Medium	C 2	Moderate Risk (8)	Low	Speed limits will be reduced and track placement will limit direct mortality to ALARP. There will be no significant impact to species populations in the case of some direct mortatlity of fauna.	Minimised fauna deaths.	No fauna deaths reported Code of Practice for Petroleum Activates in the Northern Territory Part A – Surface Activities NTG Land Clearing Guidelines 2019	Record any fauna encounters, injuries or death as result of seismic survey on fauna register	End of activity report Annual environmental performance report will be submitted to DPEWS	PM	A.3.1 Site Selection and Planning A.3.5 Biodiversity Protection
LAND	Air Quality	Vehicles and plant	Dust generation		C 2	Moderate Risk (8)	Preventative •Use existing road and tracks where practicable and ensure tracks are suitable for the intended purpose and volume of traffic required. •Site environmental inductions for all site personnel and contractors in relation to land management tasks •Vehicle speed restrictions apply when travelling in permit (60 km/hr on unsealed roads in proximity (<200 m) to sensitive receptors) or drive to condition. Mitigative •Disturbed areas will be stabilised in accordance with the Rehabilitation Plan. •Use water truck where applicable to manage dust emissions from vehicle movement on the site	High	B 2	Low Risk (5)	Low	Industry standards for dust management has been adopted. Based on the remote location of the works these dust management methods should prevent any dust impacts on surrounding stakeholders/communities.	Minimise environmental nuisance form dust at sensitive receptors	No significant dust plumes identified, no complaints from surrounding landholders. Code of Practice for Petroleum Activates in the Northern Territory Part A – Surface Activities	Daily visual monitoring will be carried out to ensure that visibility for moving equipment and vehicles is not obscured. In this event, water will need to be applied to reduce dust.	Annual environmental performance report will be submitted to DPEWS	PM	A.3.1 Site Selection and Planning
LAND	Terrestrial Environmental Quality	Vehicles and plant	Introducing pests		B 2	Low Risk (5)	Preventative •Visual inspection of machinery and equipment will be undertaken prior to arrival and departure from site.	High	A 2	Low Risk (3)	Low	Visual inspections are standard practice for identifying pests on vehicles and plant. No further actions can be taken to limit this impact.	No increase in the spread of existing feral animal and pest species as result of exploration activity. Prevent introduction of feral animals and pest species.	No introduction of pest species detected. No observed pest presence. Code of Practice for Petroleum Activates in the Northern Territory Part A – Surface Activities Weed Management Planning Guide: Onshore Petroleum Projects NTG Land Clearing Guidelines 2019 Appendix E Weed Management Plan	Visual inspections of machinery upon arrival. Keep records of equipment and vehicle weed hygiene declaration forms on arrival.	Annual environmental performance report will be submitted to DPEWS	PM	
LAND	Terrestrial Environmental Quality	Vehicles and plant	Spills (refuelling and other chemicals)	(Specify chemicals known on site and storage infrastructure i.e. above ground).	C 3	High Risk (13)	Preventative •Storage and handling of hazardous materials will be developed as part of the site specific EMP •Designated waste storage will be locates away from sensitive receptors area such as waterways or drainage lines •All loading, unloading and refuelling operations will take place in designated areas, with portable bunding and away from sensitive receptors •All chemicals or hazardous materials will be stored within portable bunding of sufficient size •Fuel and flammable chemicals will be stored and handled in accordance with <i>AS 1940-2004</i> •Fit for purpose spill kits to be positioned at refuelling and storage areas •All personnel on site will be trained in use of spill kits, in the event of an spill Mitigative •In the event of a spill all contaminated soil will be collected and disposed of via a licensed waste facility	High	A 3	Low Risk (6)	Low	Chemicals and hazardous materials will be stored and per industry best practice. Appropriate spill kits and spill response procedures and materials will be available on site minimising the risk consequence	No impacts on soil, surface water, groundwater, sensitive habitat and air quality. No ground surface contamination or spill incidents.	No off-site releases of chemicals or hydrocarbons. No accidental on-site release of chemicals or hydrocarbons. Spills cleaned up immediately. NT Dangerous Goods Act and Flammable and Combustible Liquids Regulations and AS1940. NT Waste Management and Pollution Control Act 1998 National Environment Protection (Assessment of Site Contamination) Measure.	Daily inspection of fuel and chemical storage areas, including containment areas and structures, containers and spill kits Spills reporting	Annual environmental performance report will be submitted to DPEWS	PM	A.3.8 Containment of Contaminants C.7.2 Spill Management Plan

LAND	Terrestrial Environmental Quality	Vehicles and plant	Erosion (including during wet season)		C 3	High Risk (13)	Preventative •Implementing a Erosion and Sediment Control Plan (ESCP) for the site •Containing vehicle and plant movement to existing or constructed tracks where ever possible. •Using lighter machinery such as graders or smaller bulldozers, taking care not to overwork tracks. Overworking the site can lead to the loss of topsoil, compaction, formation of windrows and wheel rutting. •Ground surface to be stabilised before the onset of the wet season (November to March). •Works will cease if there is a forecast for 50mm of rain or more within the next 48 hours. •The seismic acquisition equipment, whilst heavy is fitted with large floatation tyres for operating on minimal tracks, the ground pressure of this equipment is equivalent to a Toyota Landcruiser at ~220kPa. •Dunes should be crossed at right angles so as to minimise area of impact and erosion potential. •Minimise number of creek/drainage line crossings to reduce erosion management. Mitigation •Disturbed areas will be stabilised in line with the rehabilitation plan. •Cleared vegetation will be uniformly re-spread over disturbed area to assist with rehabilitation process through agencies of increased infiltration and return of seed-bearing topsoil. If required, additional native seed mix from the area could be respread to speed up rehabilitation process.		B 2	Low Risk (5)	Low	Implementing an ESCP developed by a qualified professional that outlines industry standard controls will ensure risks are limited to ALARP.	No soil erosion and discharge of sediment or soil into waterways or established drainage systems. No new instances of erosion and sedimentation	Code of Practice for Petroleum Activates in the Northern Territory Part A – Surface Activities NTG Land Clearing Guidelines 2019 Appendix D ESCP Appendix I Rehabilitation Plan International Erosion Control Association (IECA) Best Practice for Erosion and Sediment Control (2008)	Visual inspection and monitoring of existing tracks, seismic lines, water waterway crossings . These will occur: During siting of seismic lines (baseline assessment) After completion of a key phases of activity After the wet season to look for signs of erosion Annually (post wet) for up to 5 years. Routine visual inspections of the creek and drainage line crossings. These will occur weekly or following a rainfall event (i.e. greater than 20 mm in a 24-hour period)	Annual environmental performance report will be submitted to DPEWS	PM	A.3.1 Site Selection and Planning A.3.4 Erosion and Sediment Control and Hydrology
LAND	Marine environmental quality	Vehicles and plant	Affecting cattle		B 2	Low Risk (5)	Preventative •Consult with pastoral leaseholders prior to scheduling of activities to take into consideration stock movements. •Daily engagement with station manager and station personnel during activities to monitor potential disturbances to cattle and jointly arrive at reasonable solutions to mitigate any observed effects. •Slow down vehicles when passing cattle. •Daily and ongoing consultation with station managers and station personnel.		A 2	Low Risk (3)	Low	Remote location Landholders will be able to ensure cattle are located away from work fronts. Vehicles well maintained and speed will be limited when passing catte	No impact to landholders or cattle	No complaints Code of Practice for Petroleum Activities in the Northern Territory Part A – Surface Activities NT Petroleum (Environment) Regulations Stakeholder Engagement Guidelines Land Access	ongoing consultation with landholders	Annual environmental performance report will be submitted to DPEWS	PM	A.3.1 Site Selection and Planning
LAND	Society and economy	Vehicles and plant	Affecting landholders		B 3	Moderate Risk (9)	Preventative •Site inductions are to ensure that all personnel are aware of and understand social constraints of working with in the permit area, including conditi ons specified in the Land Access Agreement with the host pastoral leaseholder. •Work instruction to be issued to all contractors relating to access constraints. •Prior to commencement onsite, communicate with pastoral leaseholders for access permission. Provide detail of the time and dates proposed to be on site, and the location, in advance of works commencing according to the regulations, including detailed maps showing pastoral infrastructure		A 2	Low Risk (3)	Low	Land access agreements and stakeholder consultation will ensure all parties are aware of access requirements and informed of activities. Regular contact with landholders will ensure land use isn't significantly affected by work activities.	No interference with pastoral activities.	No complaints Code of Practice for Petroleum Activities in the Northern Territory Part A – Surface Activities NT Petroleum (Environment) Regulations Stakeholder Engagement Guidelines Land Access	ongoing consultation with landholders	Annual environmental performance report will be submitted to DPEWS	PM	A.3.1 Site Selection and Planning
LAND	Society and economy	Vehicles and plant	Increased traffic on roads due to project activities		B 2	Low Risk (5)	Preventative •Site inductions are to ensure that all personnel are aware of and understand social constraints of working with in the permit area, including conditions specified in the Land Access Agreement with the host pastoral leaseholder •Engagement with landholders and community to communicate expected timeline of works and estimates of increased road traffic. Mitigative •All complaints to be noted and responded to in a timely manner.		B 1	Low Risk (2)	Low	Engagement with stakeholders will ensure theyare aware of work activities and the increased traffic this will bring.	No complaints regarding increased traffic. No significant impacts to road/track condition	No complaints Code of Practice for Petroleum Activities in the Northern Territory Part A – Surface Activities NT Petroleum (Environment) Regulations Stakeholder Engagement Guidelines Land Access	ongoing consultation with landholders	Annual environmental performance report will be submitted to DPEWS	PM	A.3.1 Site Selection and Planning
AIR	Air Quality	Vehicles and plant	Greenhouse gases		C 2	Moderate Risk (8)	Preventative •All vehicles and equipment used on site will be well maintained to minimise emissions. •Vehicles to be switched off when not in use.		B 2	Low Risk (5)	Low							
LAND	Human health	All	Fire		C 4	High Risk (18)	Preventative •A Bushfire Management Plan (BMP) has been developed that includes the following information: -Analysis of baseline fire information (at least 10 years) -Analysis of impacts of the proposed activities on the existing fire management regime -Coordination with the landholder and other land users and consistency with the landholder’s fire management obligations and strategies •No hot works are permitted on total fire ban days without written approval from a fire control officer or fire warden •Implementation of the interest holder’s appropriate fire mitigation measures such as: -Monitoring of seasonal conditions and fuel loads -Maintenance of fire access trails and fire breaks around infrastructure -Communication system for monitoring bushfire alerts in the area - Annual fire mapping to monitor changes to fire frequency in the relevant area - Monitor the NAFI website and adhere to total fire ban days. Updates provided at daily toolbox meetings. •Fire extinguishers fitted to all vehicles •All personnel and contractors will be informed about the key features of the BMP as part of their induction •Clean out vehicle engine bay regularly, with special attention paid on red alert days, to prevent grass igniting on the hot vehicle components •Smoking only allowed in designated smoking areas. The BMP outlines the industry standard controls that will be implemented to reduce the risk of fire. Fire extinguising devices will be available at all work to control fires as needed. Equipment controls and safety mechanisms, as well as regular checking of fire danger will ensure this risk has been reducedd to ALARP.		B 3	Moderate Risk (9)	Low		No fires caused by site activities.	No fires. Code of Practice for Petroleum Activities in the Northern Territory Part A – Surface Activities NT Bushfire Management Act Bushfire Management Planning Guide: Onshore Petroleum Projects Appendix F Bushfire Management Plan	Daily monitoring for bushfire alerts (primarily via the https://secure.nt.gov.au/alerts and https://www.bushfires.nt.gov.au/incidentmap/ websites Notifying all site personnel of the risks of fire during toolbox meetings Incident investigations.	Annual environmental performance report will be submitted to DPEWS	PM	A.3.7 Fire Management
LAND	Terrestrial Ecosystems	Vehicles and plant	Damage to SOCS area from use of existing tracks		B 2	Low Risk (5)	Preventative •No new tracks will be created within the SOCS. Only tracks within the SOCS buffer are used - no tracks that travers the areas of conservation value are used. •Using existing tracks within the SOCS to access the seismic lines is minimising the surface footprint of the project. •The seismic acquisition equipment, whilst heavy is fitted with large floatation tyres for operating on minimal tracks, the ground pressure of this equipment is equivalent to a Toyota Landcruiser at ~220kPa. •No other activities are located within the SOCS area and pose no threat to the SOCS area.		A 2	Low Risk (3)	Low	Using existing tracks within the SOCS to access the seismic lines is minimising the surface footprint of the project. If new access tracks had to be built to avoid the use of existing station access tracks in the SOCS buffer areas, this poses more environmental risks and clearing of habitat.	No damage to SOCS	No damage to SOCS area through use of existing pastoral property tracks Code of Practice for Petroleum Activities in the Northern Territory Part A – Surface Activities NT Petroleum (Environment) Regulations Stakeholder Engagement Guidelines Land Access	ongoing consultation with landholders	Annual environmental performance report will be submitted to DPEWS	PM	A.3.1 Site Selection and Planning

		Vehicles and plant	Damage to SOCS area from critical maintenance of existing tracks		B	2	Low Risk (5)	Preventative - Only absolutely critical maintenance of tracks is to occur within the SOCS area. This is to be undertaken in agreement with Station owner. This may include grading, patching and watering - Maintenance of these tracks will occur only within their existing footprint, i.e no land outside of what the existing tracks currently occupy will occur - No maintenance of tracks is to occur when the area is wet from previous rainfall as this has the potential to cause more damage - Implementing an ESCP developed by a qualified professional that outlines industry standard controls will ensure risks are limited to ALARP.	A	2	Low Risk (3)	Low	Only absolutely critical maintenance of tracks within the SOCS area is to occur. Maintenance of these tracks would be on an as needed basis and is in the best interest of the surrounding environment. If tracks are not maintained when degraded or damage has occurred, this poses more risk to the surrounding environment than the maintenance of the tracks poses. Therefore risks associated with performing maintenance on tracks within the SOCS area on an as required basis is considered ALARP.	No damage to SOCS	No damage to SOCS area through use of and maintenance of existing pastoral property tracks Code of Practice for Petroleum Activities in the Northern Territory Part A – Surface Activities NT Petroleum (Environment) Regulations Stakeholder Engagement Guidelines Land Access Appendix D ESCP International Erosion Control Association (IECA) Best Practice for Erosion and Sediment Control (2008)	ongoing consultation with landholders Visual inspection and monitoring of existing tracks. These will occur: During siting of seismic lines (baseline assessment) After completion of a key phases of activity After the wet season to look for signs of erosion Annually (post wet) for up to 5 years.	Annual environmental performance report will be submitted to DPEWS	PM	A.3.1 Site Selection and Planning A.3.4 Erosion and Sediment Control and Hydrology
LAND	Terrestrial Environmental Quality	Stream crossings	Erosion due to stream crossing works	RESULTS FROM FIELD SURVEY	c	3	High Risk (13)	Preventative - Implementing a Erosion and Sediment Control Plan (ESCP) for the site - Containing vehicle and plant movement to existing or constructed tracks where ever possible. - Using lighter machinery such as graders or smaller bulldozers, taking care not to overwork tracks. Overworking the site can lead to the loss of topsoil, compaction, formation of windrows and wheel rutting. - Ground surface to be stabilised before the onset of the wet season (November to March). - Works will cease if there is a forecast for 50mm of rain or more within the next 48 hours. - The seismic acquisition equipment, whilst heavy is fitted with large floatation tyres for operating on minimal tracks, the ground pressure of this equipment is equivalent to a Toyota Landcruiser at ~220kPa - Implement the suggest realignments contained in Appendix F of Appendix A, this will help avoid certain risks such as trees, areas of erosion etc. - Dunes should be crossed at right angles so as to minimise area of impact and erosion potential. - Minimise number of creek/drainage line crossings to reduce erosion management. - Use existing station tracks to avoid having to make cuts - Where possible, it is recommended that the 2D seismic lines are aligned to be positioned in swales to minimise impacts to dune habitat, with any required dune crossed occur at right angles - Deviate seismic lines to avoid cuts to drainage lines and avoid trees - Dune crossing points should aim to occur at a low point, or break, in the dune to minimise cut requirement on its crest. - Temporary stockpiling of soil, equipment and materials within watercourses, or on adjacent banks and floodplains, is to be avoided (unless integral to drainage control requirements) Mitigation - Disturbed areas will be stabilised in line with the rehabilitation plan. - Cleared vegetation will be uniformly re-spread over disturbed area to assist with rehabilitation process through agencies of increased infiltration and return of seed-bearing topsoil. If required, additional native seed mix from the area could be respread to speed up rehabilitation process.	B	2	Low Risk (5)	Low	Implementing the mitigation measures and an ESCP developed by a qualified professional that outlines industry standard controls will ensure risks are limited to ALARP.	No soil erosion and discharge of sediment or soil into waterways or established drainage systems. No new instances of erosion and sedimentation	No evidence of active erosion within 12 months of works completion. Code of Practice for Petroleum Activates in the Northern Territory Part A – Surface Activities NTG Land Clearing Guidelines 2019 Appendix D ESCP Appendix I Rehabilitation Plan International Erosion Control Association (IECA) Best Practice for Erosion and Sediment Control (2008)	Visual inspection and monitoring of existing tracks, seismic lines. These will occur: During siting of seismic lines (baseline assessment) After completion of a key phases of activity After the wet season to look for signs of erosion Annually (post wet) for up to 5 years. Routine visual inspections of the creek and drainage line crossings. These will occur weekly or following a rainfall event (i.e. greater than 20 mm in a 24-hour period)	Annual environmental performance report will be submitted to DPEWS	PM	A.3.1 Site Selection and Planning A.3.4 Erosion and Sediment Control and Hydrology
LAND	Terrestrial Environmental Quality	Rehabilitation	If ineffective ongoing degradation of land and soil		B	3	Moderate Risk (9)	Preventative - Correct implementation of the rehabilitation plan will ensure the following: - Work areas are progressively rehabilitated as soon as possible following the completion of work. - Stockpiled vegetation is re-spread over disturbed areas to facilitate vegetation regrowth and limit erosion.	A	2	Low Risk (3)	Low	Rehabilitation plan implements industry best practice methodology and ongoing monitoring will ensure rehabilitation success.	Disturbed areas returned to pre-disturbance condition	Rehabilitation monitoring condition returned to level as identified in pre-disturbance site assessments. Code of Practice for Petroleum Activities in the Northern Territory Part A – Surface Activities NTG Land Clearing Guidelines 2019 Appendix D ESCP Appendix I Rehabilitation Plan International Erosion Control Association (IECA) Best Practice for Erosion and Sediment Control (2008)	Monitoring will take place at the end of the wet season (February to June): approximately between six and nine months post rehabilitation works, yearly for the first three years post rehabilitation works and annually until successful rehabilitation criteria have been met and signed off by the Project Manager	Annual environmental performance report will be submitted to DPEWS	PM	A.3.9 Rehabilitation

Appendix D – Erosion and Sediment Control Plan



Erosion Sediment Control Plan

EP134 Seismic Survey 2021

Peak Helium Pty Ltd



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Appendices

Appendix A	ESCP Typical Standard Designs
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1 INTRODUCTION

Peak Helium are the operators of Exploration Permit (EP) 134, located over pastoral leases approximately 200 km South of Alice Springs in the Northern Territory (NT). The southern boundary of EP 134 borders on the NT/ South Australia (SA) border.

Peak Helium proposes to undertake 120 km of two dimensional (2D) seismic survey between September 2021 and September 2022. These works will be regulated through an Environmental Management Plan (EMP) approved by DENR. EcOz were engaged to prepare the EMP and associated documents, including this Erosion Sediment Control Plan, which is required under the Petroleum (Environment) Regulations (the Regulations).

1.1 Purpose

This erosion and sediment control plan (ESCP) has been prepared to provide a best-practice framework for implementation of effective erosion and sediment control associated with Peak Helium's seismic survey works.

The objectives of this ESCP are to:

- Provide risk-based erosion control measures for specific areas based on the best practice guidelines.
- To maintain, and where practical, enhance the land use capabilities of disturbed areas with respect to land's soil, water and vegetation attributes
- Guide erosion and sediment control requirements along proposed seismic lines based on soil risk factors.
- Prevent erosion, sedimentation and associated adverse impacts resulting from seismic line clearing.
- To ensure satisfactory stabilisation of the site at completion of works.

1.2 Scope

This ESCP has been prepared by a suitably qualified consultant and reviewed by a Certified Professional in Erosion and Sediment Control (CPESC). It provides ESC recommendations and designs consistent with the International Erosion Control Association (IECA) (2008). *Best Practice Erosion and Sediment Control* and the Northern Territory Government, Erosion and Sediment Control Guidelines (2017). The ESCP:

- Identifies areas vulnerable to erosion and sedimentation
- Identifies risks to sensitive receptors associated with erosion and sedimentation
- Outlines both temporary and permanent erosion and sediment control measures to be implemented at all stages of the project (pre, during and post works)
- Includes information regarding proposed timing and staging of works, site manager contact details, maintenance and monitoring requirements, and reporting procedures.

2 PROJECT DESCRIPTION

2.1 Project location

The proposed area of works (project footprint) that this ESCP applies to, is located within EP 134. The project footprint is situated 70 kms north of Kulgera and is spread across two pastoral leases; Horseshoe Bend (NT Portion 659) and Idracowra (NT Portion 2958). It also lies within the Karinga Creek drainage system.

2.2 Seismic line program

Peak Helium proposes to undertake a two-dimensional (2D) Seismic Program in the north western corner of EP 134 comprising of eight lines, four to five meters wide totalling 120 km in length. To undertake these works the following key activities are required:

- Vegetation clearing and some grading
- Re-spreading of cleared vegetation on the seismic lines following completion of the program, to promote regeneration
- Upon completion, removal of all surface infrastructure and rehabilitation.

2.3 Extent of ground disturbance

Civil works involve vegetation clearing and grading as described below.

2.3.1 Campsite and access tracks

No campsite will be required as part of this project. Accommodation will be organised at Erldunda Roadhouse.

Only existing access tracks through the Karinga Creek SOCS will be used as part of this project. No new access tracks will be established as part of this project. Only established main roads (Horseshoe bend road) and the railway service track and existing pastoral station tracks will be used during site activities. General maintenance of tracks may be required during and following project activities, undertaken in agreement with Station owner. This may include grading, patching and watering.

To minimise damage to access tracks works will cease if there is a forecast for 50 mm of rain or more within the next 48 hours.

2.3.2 2D seismic profiling

Methodology

Seismic acquisition is undertaken to 'image' below the surface and identify where oil and gas deposits may have accumulated. This method has a long history in the Australian petroleum industry, and can be used to identify and delineate geological structures and boundaries.

The seismic line survey is undertaken using vibrator trucks as energy sources to create acoustic waves, which travel through the earth and are then reflected from geological structures below the earth's surface. These reflections are recorded in a digital format and relayed to a seismic data processing centre to produce a 'cross-section' of the layers of the earth's crust. This data is interpreted to identify future drilling locations.

Preparation

2D seismic lines need to be approximately 5 metres wide to ensure sufficient access for the 2D seismic survey vehicles. This will require some clearing of lines to allow for unobstructed access. Clearing of lines will as far as is possible avoid the removal of topsoil, rootstock and seeds, but will unavoidably involve some disturbance. Such vegetation will regenerate quickly after appropriate rehabilitation of the cleared lines.

2D seismic lines will be deviated within the 2D seismic acquisition corridors where needed to reduce impacts and avoid sensitive areas.

2D seismic line will avoid trees and large shrubs, as well as creek or drainage lines, however there will be instances where 2D seismic lines cannot be moved to avoid large trees and they will be required to be cleared. Where creek crossing are required, the least sensitive crossing point will be utilised.

2D seismic lines will be prepared utilising a grader or small bulldozer to allow access to the survey vehicles. The majority of the 2D seismic lines will be traversed 'blade up' to minimise environmental impact, however due to the nature of the environment the blade may be needed for short sections. This will include when encountering dense vegetation, erosion channels, holes etc.

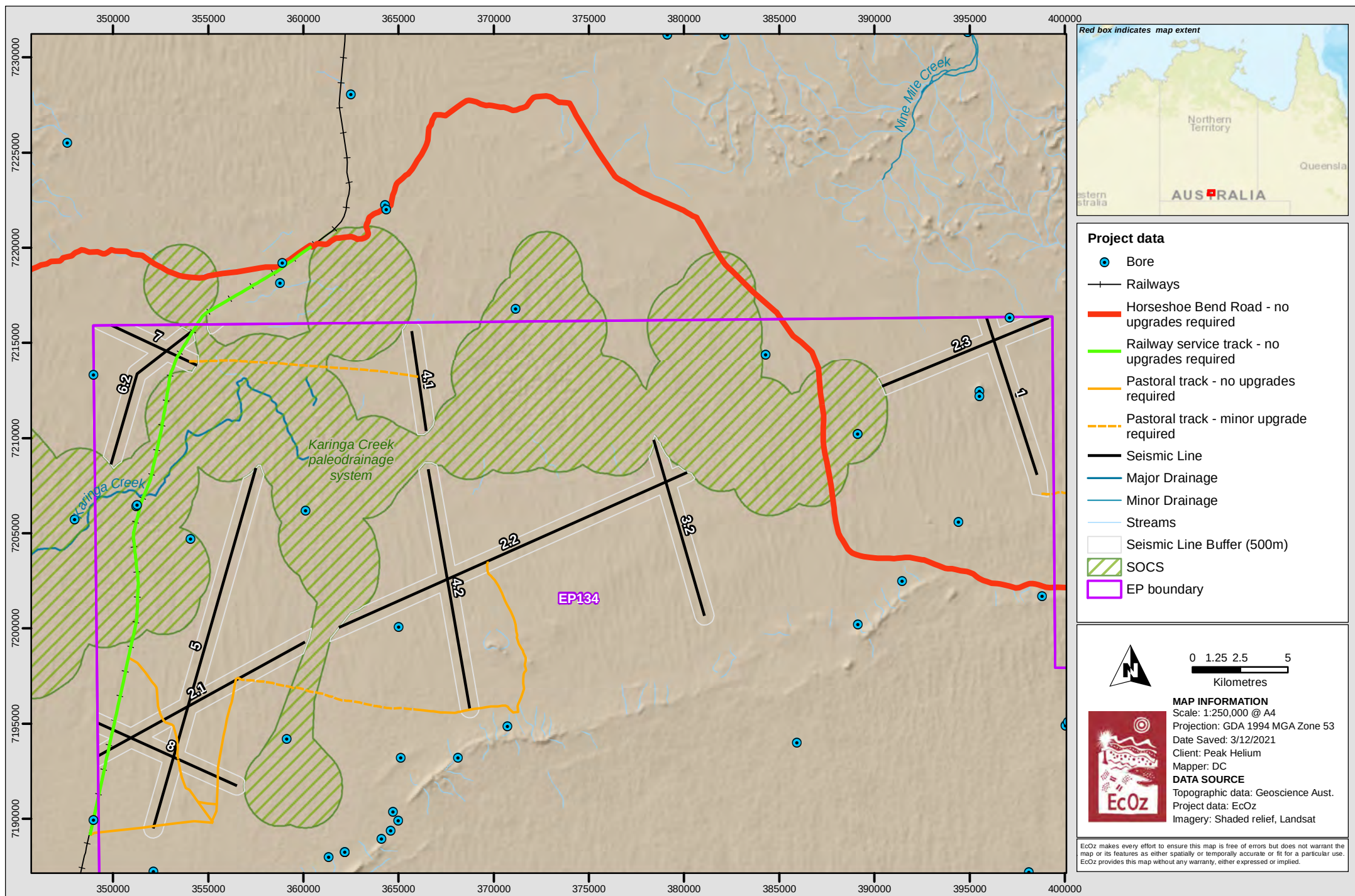
Peak Helium propose surveying of 120 km of 2D vibroseis seismic over 8 lines are proposed.

2.4 Project schedule

Peak Helium propose the following schedule for project activities (Table 2-1).

Table 2-1. Schedule of activities

Activity	Duration	Dates
2D Seismic line clearing, survey and pointing	3 weeks duration	4 th till 24 th December 2021
2D seismic data acquisition	3 weeks duration	14 th December 2021 till 3 rd January 2022
2D seismic line rehabilitation	1 week duration	31 st December 2021 till 6 th January 2022



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Figure 2-1. Map showing project footprint

3 SITE CHARACTERISTICS

3.1 Climate and rainfall

The region experiences an arid to semi-arid climate, which is characterised by hot dry summers and cool dry winters, with a low average annual rainfall. Typically for this region, maximum and minimum temperatures are highest in summer. The closest long-term Bureau of Meteorology weather station is Kulgera (station ID 015603) approximately 65 km south-west of the project footprint. Average annual rainfall is 249.9 mm; however, the amount of rainfall in the region is highly variable. For example, 2001 experienced 652.3 mm of rain, while 2002 experienced 153.4 mm of rain. If heavy rainfall occurs, it is generally in the summer months from November to March, and can result in flash flooding in the waterways.

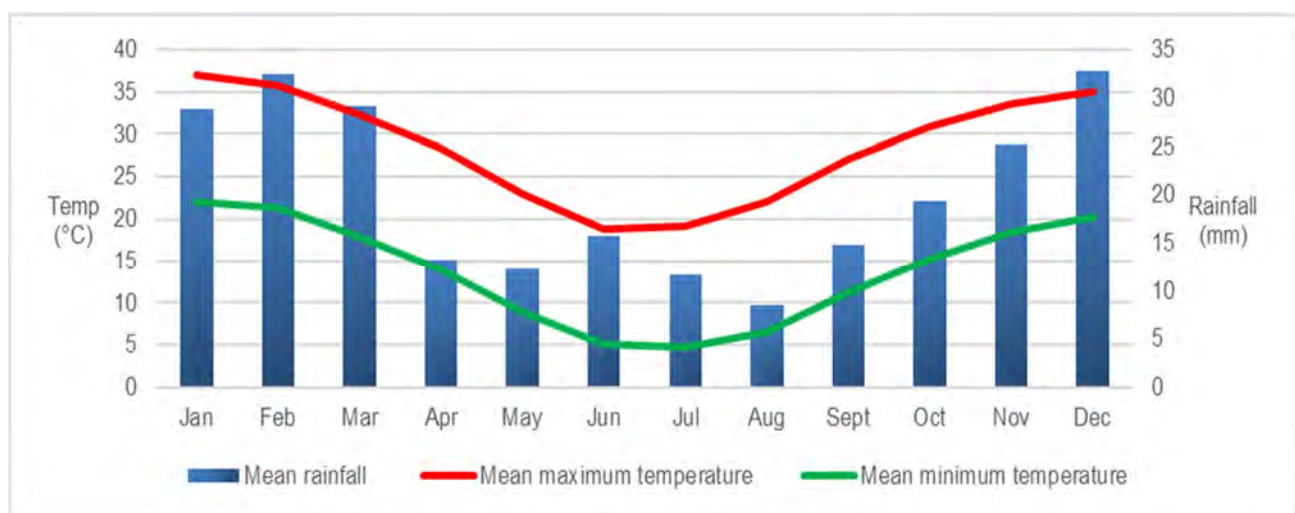


Figure 3-1. Average monthly temperature and rainfall, Kulgera NT

3.2 Land units, systems and soils

3.2.1 Land Units

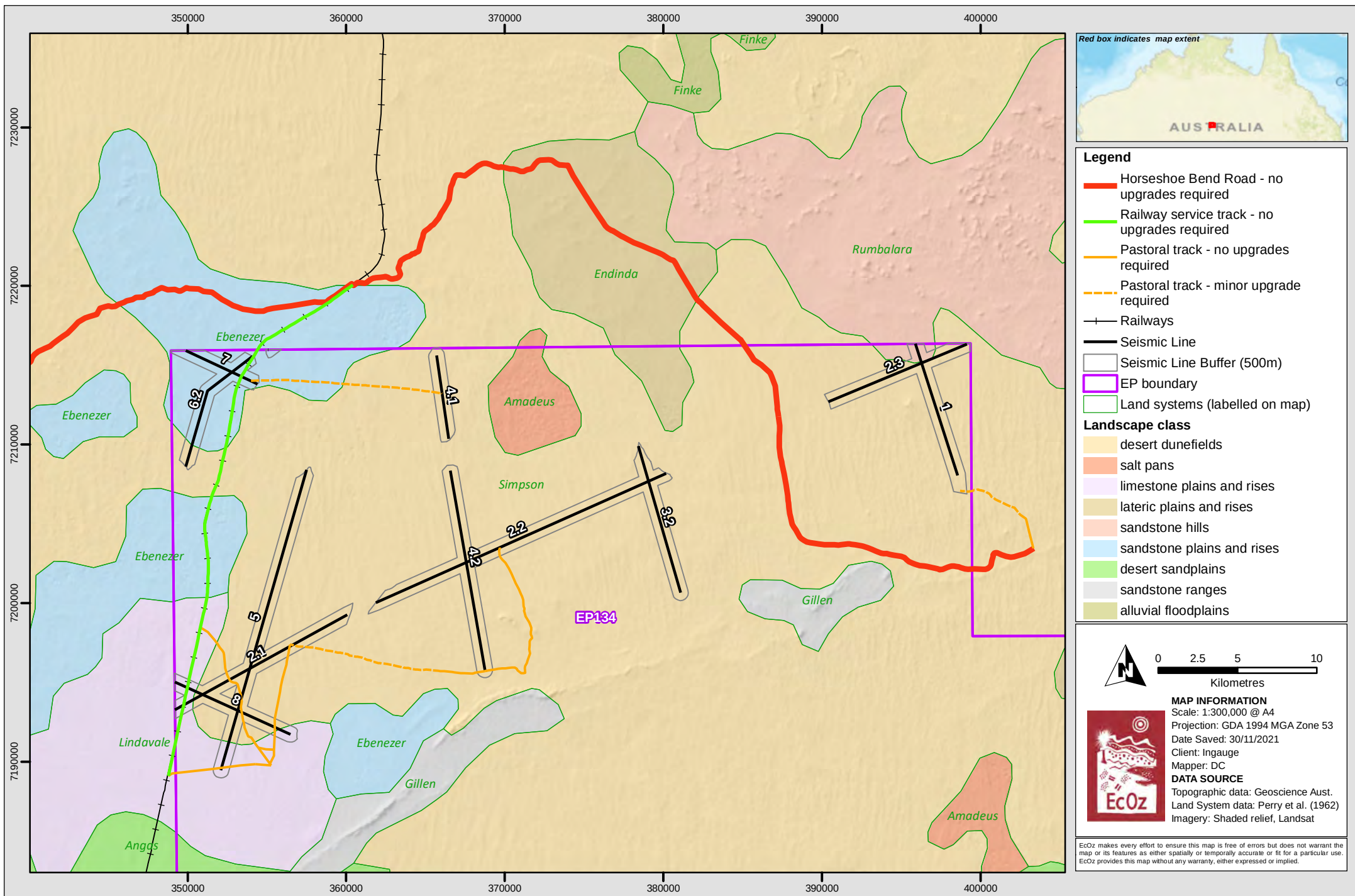
A land unit is an area with uniform landform, soil, vegetation, and hence management attributes within the resolution of the mapping scale (Kennedy & Sugars 2001). Land unit mapping does not exist for the majority of the project footprint.

3.2.2 Land systems and soils

Land Systems are defined as an area or group of areas throughout which there is a recurring pattern of topography, soils, and vegetation at a scale generally around 1:250K (Christian & Stewart 1953). There are 20 land systems within EP134, although only four of these are within the proposed work areas (seismic line buffers). These land systems include, Ebenezer, Lindavale, Rumbalara and Simpson.

Land systems were verified through on-ground assessment of landform, soils and vegetation characteristics. These are summarised within the EMP,

Figure 3-2, Table 3-1 and Table 3-2.



Path: Z:\01 EcOz_Documents\04 EcOz Vantage GIS\EZ21053 - EP134 environmental review\01 Project Files\Report maps\Figure 2.3. Map of land systems within and surrounding the project footprint.mxd

Figure 3-2. Land systems across the site

Table 3-1. Land systems within the project footprint

Land system	Landscape Class	Class description	Interim Geomorphic Zone	Area of works including buffer (ha)
Ebenezer (Eb)	Sandstone plains and rises	plains, rises and plateaux on mostly on sandstone, siltstone, claystone, shale and some limestone; commonly shallow soils with surface stone and rock outcrop	Finke	30
Rumbalara (Ru)	Sandstone hills	low hills, hills and stony plateaux on sandstone, siltstone, quartzite and conglomerate (deeply weathered in places); outcrop with shallow stony soils	Finke	<1
Lindavale (Li)	Limestone plains and rises	plains, rises and plateaux on weathered and unweathered Cambrian limestone, dolomite, chalcedony, shale, sandstone and siltstone with associated sand sheets; sandy and earth soils	Great Sandy Desert	0 Horseshoe Bend road passes through this LS
Simpson (Si)	Desert dunefields	dunefields with parallel linear dunes, reticulate dunes and irregular or aligned short dunes; red sands	Tanami	9,578

Table 3-2. Field observations
Field observations undertaken in June 2021

Seismic line	Landform	Soil type	Surface rock	Land condition	Other observations
1	Mostly drainage, some rocky flats, hills and breakaways	Red/orange sands Red-brown loamy sands	Generally moderate cover of rock, scattered and patchy in some areas	Generally poor due to erosion and weed cover	Will require cut to cross some sections (range from minimal to complicated) Consideration for alternative routes to minimise disturbance in some areas (High risk of erosion areas in particular)
2.1	Loamy depression	Clay to loamy clay	Scattered calcrete fragments	Good	-
2.2	Drainage, loamy depression, clay pan	Sandy red earth Clay loam and loamy clay	None	Average in areas of drainage landforms, good in other areas	Minor channels observed. Erosion control required in drainage areas and crossings to be installed where banks are less defined.
2.3	Drainage, seasonal swamp	Heavy clays, red-orange sands and pales sands	None	Good	Swamp is to be avoided due to presence of Coolabah trees. Crossings recommended in drainage areas.
3.2	Loamy depression	Sandy loam	Scattered calcrete fragments	Good	-
4.1	Rocky rise	Clay loam	High cover of calcrete	Good	-
4.2	Loamy / clay depression, sandplain, dune	Clay loam, sandy red earth	Scattered calcrete fragments in loamy depression	Good	-
5	Loamy depression, rocky rise, dune, clay pan	Sandy loam, red-brown loam, brown clay	Calcrete fragments, No rock observed in dunes	Good Poor/average in clay pan landform	-
6.2	Sandplain, dune, rocky rise, loamy depression, clay pan	Red sand, loam, clay loam	High cover in rocky rises Rocks overserved in loamy depressions and clay pans	Good	-

Seismic line	Landform	Soil type	Surface rock	Land condition	Other observations
7	Rockly plains, loamy depression and drainage	Red sands, loam, brown clays	Scattered gravel, calcrete in rocky plains None in other landforms	Good	-
8	Sandplain, loamy depression	Sandy red earth, sandy loam, clay loam	Calcrete fragments / gravel in loamy depression None in other landforms	Good	Some areas recovering from fire

Erosion

Erosion issues have emerged in areas of existing drainage landforms (i.e. along the banks of drainage lines or within drainage channels). Rill erosion was also observed on an old seismic line where the proposed seismic survey line 1 is to be located. Table 3-3 below outlines existing erosion and provides photos at waypoints where worst erosion was observed. Further information about how these risk areas are to be mitigated and managed are provided in Section 5.1.

Table 3-3. Active erosion observed on site (NO LONGER WITHIN PROJECT FOOTPRINT)

Seismic line	Erosion	Waypoint	Photo		
1	Active erosion channels along drainage lines throughout most of proposed seismic line. Erosion more severe at northern end where topography changes are more evident.	2400			
		2347, 2347, 2348			
		2402, 2403, 2405			

Seismic line	Erosion	Waypoint	Photo		
2.3	Minor erosion present in drainage lines towards the eastern end of proposed seismic line.	2340, 2341			

3.3 Surface water and drainage

EP143 lies within the Diamantina-Georgina Rivers catchment, see Figure 2 1. The project footprint is situated at the eastern end of the Karinga Creek paleodrainage system, a series of saline lakes that span 240 kms east-west just south of the Lasseter highway. The lakes are supplied by groundwater discharging at permanent springs and ephemeral seepage creeks near the lake margins (Duguid et al. 2005), however are usually dry. There are a few other creeks within the region, but the dominant watercourses in proximity to the project footprint are Karinga Creek and Nine Mile Creek. All watercourses in the region only flow after periods of heavy rainfall.

A water crossing inspection was undertaken during the site inspection in June 2021 and a detailed written assessment has been provided in Appendix C of Appendix A of the Peak Helium EMP. A visual of the identified water crossings that will need to be addressed upon beginning works is shown in Figure 3-3 and addressed in Section 6.2 and Appendix A.

3.4 Significant areas

The project footprint occurs within close proximity to a number of significant areas (Figure 2 1). However, the project footprint has been laid out so as to avoid significant areas, yet access between each project footprint may involve travel through these sites of significance.

National parks and reserves

No national parks or reserves occur within or proximate to the project footprint. The nearest is Chamber's Pillar Historical Reserve is located approximately 30 km to the north.

Sites of Conservation Significance

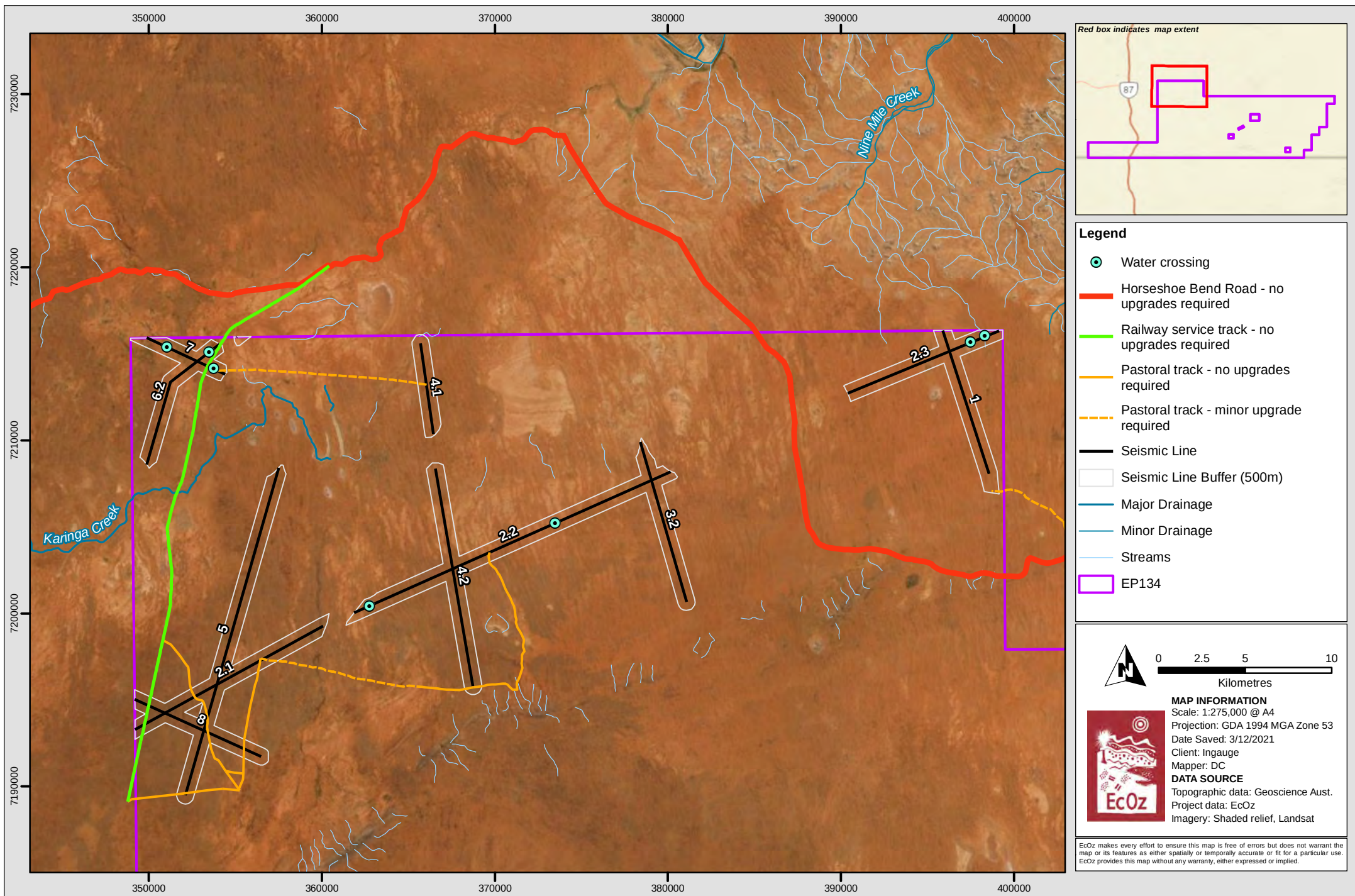
The NT Government has identified a number of Sites of Conservation Significance (SOCS) – the most important sites for biodiversity conservation for the NT. These are described in Harrison et al. (2009).

The project footprint surrounds the Karinga Creek paleo-drainage system SOCS – and is considered to be of international significance. This system provides vital migratory stop-over grounds for migratory shorebirds, including internationally significant records of Banded Stilt, Red-capped Plover, and Sharp-tailed Sandpiper. The Karinga Creek paleo-drainage system provides important temporary salt pans and lakes, which support a diverse assemblage of flora and fauna species in an otherwise arid landscape.

Sites of Botanical Significance

The NT Government has identified a number of Sites of Botanical Significance (SOBS) – areas in the lower half of the NT that have distinguishable vegetation features from the surrounding landscape, and therefore are considered important for plant conservation generally, and specifically for conserving significant plant taxa (White et al. 2000).

There are two SOBS adjacent to the project footprint – Poona located between the four north-eastern project footprints, and Karinga Creek immediately to the west of the project footprint. Both SOBS are areas of bioregional significance.



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Figure 3-3. Water crossings

4 EROSION HAZARD AND RISK

Erosion hazard and risk ratings have been determined for the Peak Helium seismic survey project footprint based upon monthly rainfall erosivity, average monthly rainfall depth and estimated soil loss rate.

4.1 Erosion Hazard

Erosion hazard is assessed using the Revised Universal Soil Loss Equation – RUSLE (IECA 2008). This is used to predict the long term, average, annual soil loss from sheet and rill erosion under specified management conditions.

The RUSLE is represented by the following equation:

- A = R * K * L * S * P * C**, where:
- A: estimated soil loss (tonnes/ha/yr)
 - R: rainfall erosivity factor
 - K: soil erodibility factor
 - LS: slope length/gradient factor
 - P: erosion control practice factor
 - C: ground cover and management factor

Table 4-1. RUSLE equation inputs

Factor	Description	Value	Comment
A	estimated soil loss (tonnes/ha/yr)	Variable	As calculated per catchment
R	rainfall erosivity factor	891	Annual rainfall erosivity factor calculated by following equation $R = 164.74 (1.1177)^S S^{0.6444}$ Where: $S = 2 \text{ yr ARI, 6hr event (0.5 EY design rainfall)}$
K	soil erodibility factor	Variable	Sandy clay loam texture adopted (sand plains, loamy depressions, rocky rises observed during site visit)
LS	slope length/gradient factor	Variable	Based on catchment characteristics
P	erosion control practice factor	1.3	Construction phase condition
C	ground cover and management factor	0	Based on proposed surface cover

Rainfall erosivity (R-factor)

The rainfall erosivity factor (R-factor) is a measure of the ability of rainfall to cause erosion. It is a product of two components: total energy (E) and maximum 30-minute intensity for each storm (Landcom 2004). The R-factor is an input component in measuring estimated soil loss using the RUSLE calculation. The adopted annual R-factor of 891 for the seismic survey area was adopted and calculated by the equation shown in Table 4-1.

Erodibility (K-factor)

The K-factor is a numerical representation of the ability of soils to resist the erosive energy of rain (IECA 2008). Soil texture is the principle component affecting K, but soil structure, organic matter and profile permeability also contribute. A K-factor of 0.03 has been adopted for the seismic survey area as this value represents the erodibility of the soils that are recorded to occur on site as per IECA 2008 *Table E5 – Typical K-factors based on Unified Soil Classification System* (refer to Section 2.2 for a description of soils that underwent laboratory analysis).

Slope (LS-factor)

The LS-factor describes the combined effect of slope length and slope gradient on soil loss. The access roads and seismic lines will traverse topography up to 4 % slope.

Cover factor (C-factor)

The cover and management factor is a measure of the level of soil surface protection provided by various groundcovers. It includes proportion of vegetation, rock, hardstand, paving, soil binders, matting and associated non-erodible material. Bare soil/erosive surface has been assumed for the majority of the project (access roads and survey areas) as a conservative measure. The C-factor for the project will vary depending on stabilisation and management of surfaces exposed by construction and operation and is to be updated progressively within each specific ESCP. C-factors for various surface are summarised in Table 4-2.

Table 4-2. Adopted C-factors

Surface type	% cover	C-factor
Vegetation (highly variable)	25	0.37
Soil stabiliser (eg. Vital Bon-Matt HR or Bon-Matt RDS (S72))	80	0.025
Rock	80-100	0.025 - 0
Bare soil, erosive surface	0 - 20	1 - 0.44

Erosion control practice factor (P-factor)

The P-factor measures the combined effect of all support practices and management variables. It also represents structural methods for controlling erosion (IECA 2008). The nominated P-factor for all areas without permanent stable groundcover is 1.3 (based on the default construction phase condition).

4.2 Estimated soil loss

Potential soil loss calculations and associated erosion hazard for defined project footprints are provided within Table 4-3. Nominated project components reflect the proposed site layout.

Table 4-3. Soil loss and erosion hazard

Project footprints	Road access	Seismic survey area
Rainfall erosivity (R)	920	920
Soil erodibility (K)	0.03	0.03
Slope length (L)	10	200
Slope gradient (S)	4	4
Length/gradient (LS)	0.3	1.47
Erosion control practice (P)	1.3	1.3
Ground cover in disturbed catchment - %	0	0

Project footprints	Road access	Seismic survey area
Ground cover in disturbed catchment (C)	1	1
Soil Loss (t/ha/yr)	11	53
Soil Loss Class	1	1
Erosion Hazard	Very low	Very low

4.3 Erosion Risk

Erosion risk refers to the evaluation of the “risk” of soil erosion when consideration is given to both the degree of erosion (consequence) and the likelihood of the erosion occurring. Best practice erosion control depends on the likelihood and intensity of expected wind or rainfall and therefore requires an assessment of erosion risk utilising information such as mean monthly rainfall data and mean monthly erosivity (i.e low, medium and high) (IECA, 2008).

In the absence of a site specific risk assessment procedure, erosion risk rating is determined from the mean monthly rainfall depth for Kulgera BoM station (station ID 015603). Erosion risk ratings range from very low to low.

Table 4-4. Erosion risk rating – mean monthly rainfall depth (Kulgera BoM, 2021)

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rainfall	28.9	32.5	29.1	13.3	12.3	15.8	11.6	8.5	14.8	19.4	25.2	32.8
Rating	Very Low	Low	Very Low									Low

4.4 Erosion and sediment control requirements

Recommended erosion and sediment control measures are based upon the relationship between erosion hazard (as determined from Table 4-3) and erosion risk (Table 4-4). The dry and arid climate of this region during the months of April to October, provides a low risk of erosion from rainfall throughout these months, although wind erosion potential (dust) is significant.

Avoidance is the major measure used for a seismic program. A light footprint is essential. In these areas Erosion and sediment control measures are to be implemented prior to the commencement of works. Table 4-5 summarises erosion and sediment control requirements for all stages of civil construction and operation across a full calendar year. Typical measures to be implemented during works are discussed in Section 5

Table 4-5. Erosion risk and ESC requirements during project

Erosion Risk Rating	Monthly Rainfall Depth	Period	Erosion & Sediment Control Requirements
Very low	0 to 30mm	Jan March to Nov	• ESCs not required for activities which do not disturb groundcover • Unfinished earthworks are suitably stabilised if rainfall is reasonably possible • Sediment control to be installed around areas of erosion risk prior to commencement of works
Low	30mm to 45mm	Feb Dec	• ESCs not required for activities which do not disturb groundcover • Unfinished earthworks are suitably stabilised if rainfall is reasonably possible • Sediment control to be installed around areas of erosion risk
Notes:	^[1] Areas of erosion risk may be protected using the following types of cover: hardstand, soil binder (eg. polymer), placement of mats, blankets (eg. geotextile, jute).		

5 EROSION AND SEDIMENT CONTROLS

Erosion and sediment control measures required during civil construction and operation have been derived based on the site erosion hazard and risk. Conceptual details of the controls are provided in the sections below based on the current level of design detail.

5.1 Erosion control

Prevention of erosion is the primary approach for the prevention of adverse impacts associated with sedimentation. Project activities are to be undertaken so as to reduce the duration of soil exposure to erosive forces (wind and water), either by holding the soil in place or by shielding it. Measures to be used include a variety of construction practices, structural controls and vegetative measures aimed at managing runoff at a non-erosive velocity, and the protection of disturbed soil surfaces.

The specific measure(s) implemented will be based on seasonal erosion risk and construction considerations. Measures will be documented in the most current Progressive ESCP and based upon IECA guidelines. Proposed controls are listed below:

- Undertaking initial civil works in the drier months of the year as far as schedule allows.
- Minimise disturbance to existing vegetation as far as practical within the project footprint. This includes utilising and upgrading existing road infrastructure as far as practical.
- Promptly stabilising exposed areas once civil works are completed.
- Protection of soil surface (temporary and permanent) including placement of hardstand surfaces, use of soil binder, vegetation establishment (including mulch), and protection with mats & blankets (e.g. jute, geotextile) where practical.
- Application of dust suppression by wetting of exposed surfaces (water truck), application of soil binder, and/or application of soil cover.

5.1.1 Site specific erosion recommendations

Based on the field inspection, the following soil erosion management controls have been proposed

Logistical recommendations

- Vehicles utilised for surveying should be customised for sandy off-road driving (i.e. broad sand terrain tyres, low tyre pressure, high clearance etc.)
- Personnel should be adequately trained in off road driving, and have preferably have current 4WD training certificates (which are conducted in Alice Springs by various companies).

Seismic line clearing

- Seismic line will be located to avoid requirement for ground disturbance within riparian areas where possible (eg. watercourse crossings).
- The dozer will 'walk' with the blade up in easily traversable terrain, with the marks of the dozer tracks being sufficient for the surveyors and recording crew to follow.
- The dozers will not be utilised in areas where riparian vegetation is present..
- Existing topography will remain unaltered.

5.2 Sediment control standards

Sediment control standards are described below and are based upon the soil loss calculations relevant to the project footprints (Table 4-3). Typical designs are provided within Appendix A, with more detailed designs to be provided as engineering drawings and applicable site-specific Progressive ESCP's.

Based on soil loss calculations for all work areas (Table 4-3), Type 3 sediment control measures are the minimum standard required (i.e. calculated soil loss <75t/ha/yr).

Type 3 sediment control measures required:

Buffer Zone

An undisturbed vegetation buffer zone adjacent to discharge areas capable of 100% infiltration of site run off.

Instances where further controls are required the following Type 2 sediment controls can be implemented:

Filter Bag/Tube

Filter tubes are geotextile bags through which site runoff is directed to enable filtering and treatment of sediment.

Coir logs

Coir logs are biodegradable tubes filled with densely packed coconut fibre wrapped in coir netting. They can be used as flow diversion berms or to provide sediment control by providing temporary ponding and filtering of site runoff.

Sediment fence

Sediment fence may be used in locations where placement of rock berms is not practical (due to access, materials and equipment constraints).

In addition to adopting measures as per IECA Standard Drawings, variations to these may be implemented where it can be demonstrated that they are equally as effective and meet the intent of IECA standards.

Typical sediment control design options are provided within Appendix A.

6 SPECIFIC AREAS AND ACTIVITIES

6.1 Site roads/access

- New access tracks will be only be established as a last resort as part of this project.
- Established main roads (Horseshoe bend road) and the railway service track and existing pastoral station tracks will be used during site activities.
- General maintenance of tracks may be required during and following project activities, undertaken in agreement with Station owner. This may include grading, patching and watering.
- To minimise damage to access tracks works will cease if there is a forecast for 50 mm of rain or more within the next 48 hours.

6.2 Watercourse crossings

- Seismic lines that cross watercourses are to be as low impact as possible with minimal or no use of blades.
- Implement the suggest realignments contained in Appendix F of Appendix A of the EMP, this will help avoid certain risks such as trees, areas of erosion etc
- Ground surface to be stabilised before the onset of the wet season (November to March).
- Works will cease if there is a forecast for 50mm of rain or more within the next 48 hours.
- Seismic lines crossing waterways are to be constructed in accordance with the following requirements:
 - o Temporary stockpiling of soil, equipment and materials within watercourses, or on adjacent banks and floodplains, is to be avoided (unless integral to drainage control requirements).
 - o Where possible, crossings should be constructed at right angles in locations where the stream is straight.
 - o Seismic line runoff is to be prevented from directly entering the watercourse by construction of flow diversion banks (rollovers) immediately upslope to divert flow.
- All drainages should be clear of cleared soil and debris to enable natural flow of water, because if drainages are blocked or impeded erosion may occur or the material will be lost (and therefore unavailable for post survey rehabilitation activities). Therefore, the method to create access ramps at creek crossings is described and illustrated below:
 - o Select crossing where bank is lowest, avoiding trees and dense vegetation (if possible).
 - o Construct ramp by **pushing material away from the creek bank** (i.e. *don't push material into the creek*).
 - o Build a cross bank (using the pushed up material) at the top of the ramp. This directs water away from the ramp, reducing the chance of gully erosion development if rainfall occurs prior to rehabilitation.
 - o Ramp to be constructed at right angles to direction of flow.
 - o These techniques are to be undertaken on both approaches of the creek.

- Rehabilitation should involve pushing and compacting material (used to make the low bank) back to its original position. If available, spread any surface vegetation that was removed for the creation of the ramp (as this will help reduce surface water velocity).

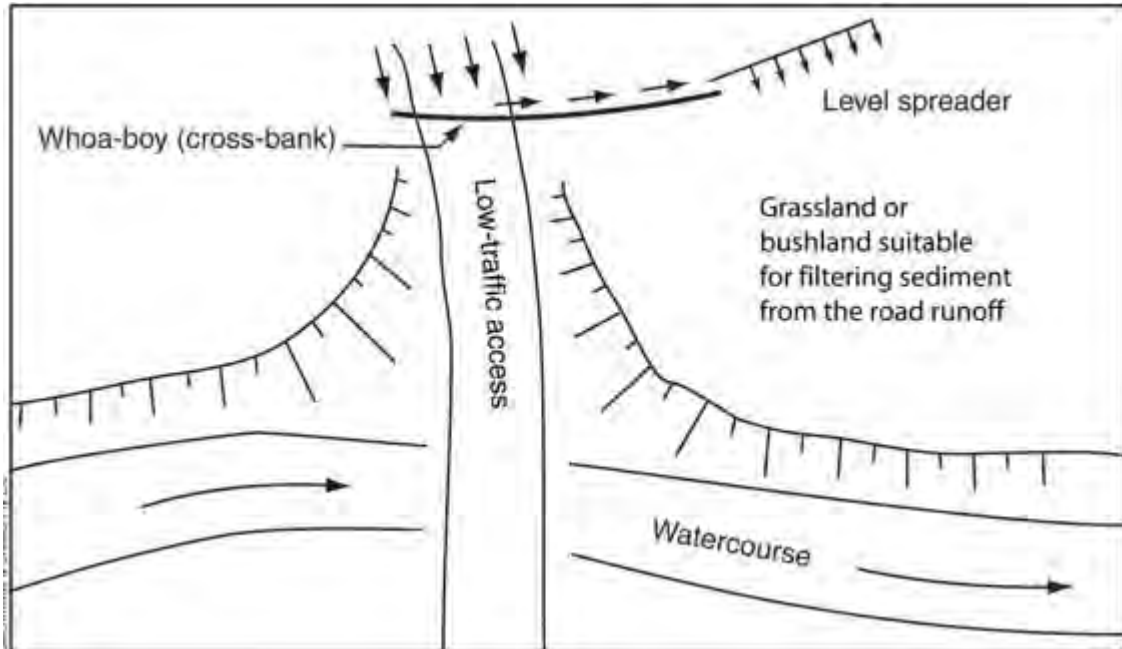


Figure 4. Construction technique for water crossing taken from IECA 2008 best practice.

6.3 Rehabilitation of cleared areas

After survey activities are complete, all tracks and lines should be scouted to identify potential erosion zones. These locations should be rehabilitated by ripping the site perpendicular to flow direction and scattering large timber, increasing roughness and encouraging revegetation. This also minimises concentration of water flow during rainfall events – which can cause severe rilling and gullyng.

Rehabilitation of the seismic lines should occur as soon as possible to prevent these lines becoming preferred walking trails for cattle, which, if allowed to travel along the lines will damage soil structure and accelerate erosion.

6.4 Vegetation clearing

Vegetation clearing associated with exploration activities is to be undertaken in accordance with applicable approvals. Clearing methodology is to incorporate the following:

- Clearing activities to be implemented consistent with the *NTG Land Clearing Guidelines* (DENR 2019)
- Vegetation clearing shall be kept to the minimum amount necessary to allow access and/or approved activities.
- Areas of protected vegetation and significant areas of vegetation are to be retained, and must be clearly identified prior to the commencement of clearing
- Approved areas for native vegetation clearing to be clearly identified.
- Previously cleared areas shall be utilised where possible for laydown and turn around points.

- Disturbance to natural watercourses and associated riparian zones must be limited to the minimum practicable.
- Cleared vegetation is to be retained and reused in site rehabilitation wherever possible.

7 MANAGEMENT AND IMPLEMENTATION

This ESCP provides a framework for managing erosion and sediment issues for the exploration activities as detailed within the Project EMP (EcOz 2021). The implementation strategy is detailed within the EMP.

7.1 Responsibilities

Key personnel roles and responsibilities are detailed within the EMP and summarised in Table 7-1 below.

Table 7-1. Key personnel roles and responsibilities

Role	Responsibility
Project Manager	• Ensure overall compliance with the EMP. • Ensure relevant environmental legislative requirements, performance outcomes, performance standards, measurement criteria and requirements in the implementation strategy in this EMP are communicated to the activity key personnel; and audited. • Undertake consultation with relevant persons throughout project planning and implementation. • Document consultation with relevant persons. • Ensure any commitments to relevant persons are undertaken
Site Manager	• Ensure adequate resources are in place to meet the requirements within the EMP (i.e. implement relevant management plans such as this ESCP) • Undertake daily environmental checks as described within the EMP • Ensure incidents and non-conformances are managed as per EMP • Report environmental incidents to the Project Manager and ensure reporting and investigations are undertaken. • Ensure records and documents are managed so they are available and retrievable. • Ensure non-conformances identified are communicated and actions completed.

7.2 Training and awareness

All personnel, contractors and visitors to site will be required to undergo environmental and safety inductions for the site. The environment and safety inductions will include:

- Pastoral leaseholder requirements
- Regulatory requirements including specific conditions on the exploration permit and AAPA certificates
- Environmental considerations and special procedures to be used for environment protection and archaeological and cultural sites protection as well as the discovery of unrecorded artefacts. This is to include the ESCP, Weed Management Plan, Bushfire Management Plan, Waste Management Plan, Spill Response Plan and Rehabilitation Plan.
- Health and safety information for remote areas, including procedures for the safe use of vehicles and equipment as well as first aid.
- Toolbox talks will be held daily for any updates to be communicated to all personnel.

7.3 ESC installation and maintenance

The installation and maintenance of all ESC measures is to be overseen by a suitably qualified person. Installation is to be consistent with this ESCP and any associated progressive ESCP's.

All required temporary erosion and sediment control measures must be fully operational and maintained in proper working order until permanent stabilisation is achieved. If ESCs are observed to have reduced capacity, damage or insufficient effectiveness, they are to be repaired, improved or substituted as follows:

- Identified soil erosion areas are to be resolved as soon as possible, with additional control measures implemented to prevent recurrence.
- All sediment control devices (other than sediment basins) must be de-silted and made fully operational as soon as reasonable and practicable after runoff-producing rainfall, or if the sediment retention capacity of the device falls below 75% of the design retention capacity (IECA 2008).
- Sediment removed from areas of deposition is to be incorporated within subsoil stockpile areas and/or buried on-site.

Spare materials including geo-fabric, sediment fence material, mulch and rock are to be stored on-site to enable repairs to be conducted within a short timeframe.

7.4 Monitoring & reporting

ESC measures will be inspected in accordance with the EMP, including:

- weekly during work activities
- as soon as reasonably practical after receiving significant rainfall events, if they occur during the program (i.e. >10 mm in 24 hr period).

Visual assessment will be carried out of surface water runoff structures, drainage structures and erosion control structures to ensure they are operating efficiently.

Environmental objectives and targets for erosion and sediment control are to be documented in the EMP. Where monitoring identifies that environmental objectives are not being achieved, corrective actions will be enacted. Where significant erosion and/or major exceedances of water quality triggers are recorded, a CPESC will be engaged to advise on suitable controls.

7.5 Updates and variations

ESCP's are dynamic documents, typically requiring updating as construction and operational stages progress and site characteristics alter. Any alterations to the implementation of erosion and sediment controls within specific areas will be recorded and outlined in progressive ESCP's. This may include the following scenarios:

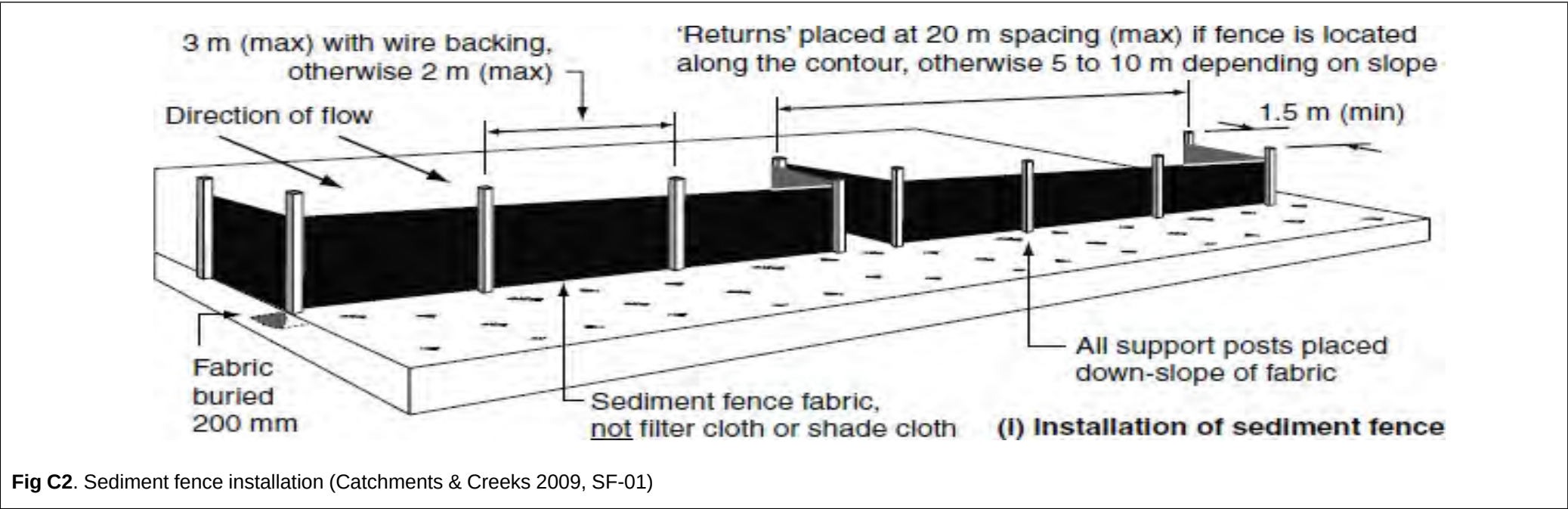
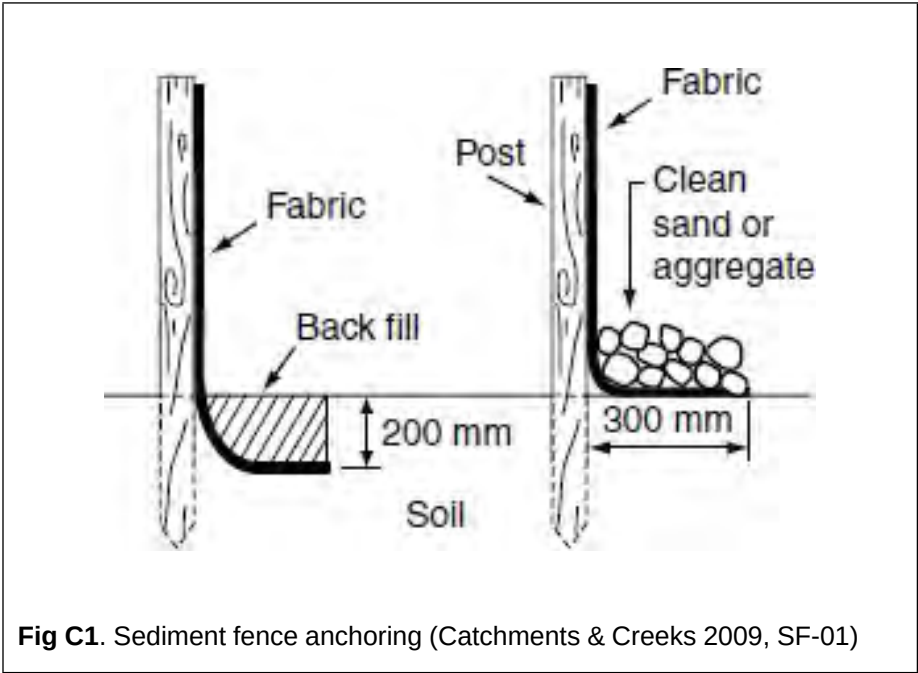
- Controls require alteration due to change in work practices or new stage of works is commenced.
- Controls require alteration due to change in seasonal conditions.
- Changes occur in slope gradients and drainage paths, with their exact form unpredictable before works start.
- A change in the project design occurs that potentially impacts on ESC requirements.
- The desired outcome (e.g. protection of receiving environments) is not being achieved.

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APPENDIX A ESCP TYPICAL STANDARD DESIGNS

Sediment Fence (SF)



Revision	Date	Drawn	Approved	Description			PREPARED FOR: 	Exploration Permit 134 – Primary ESCP Typical ESC Designs (adopted from Catchments & Creeks 2009/10)		
DRAFT	-	AF	-	Sent to client						
								NOT TO SCALE	EZ21053-ESCP-Doc ID 202516	REVISION:1

Cross banks

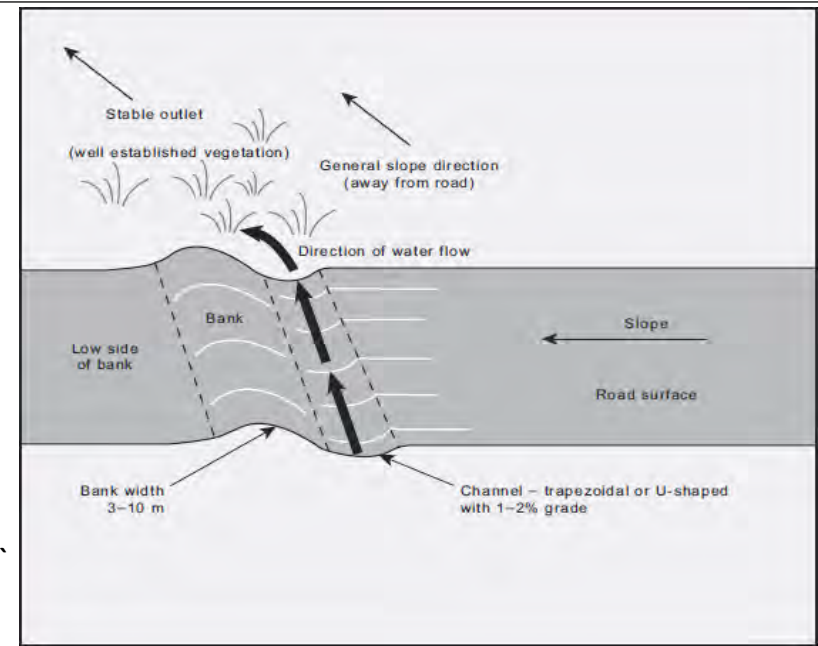


Figure D1. Typical Cross Bank Construction (DECC 2008, modified from Beatty 1995)

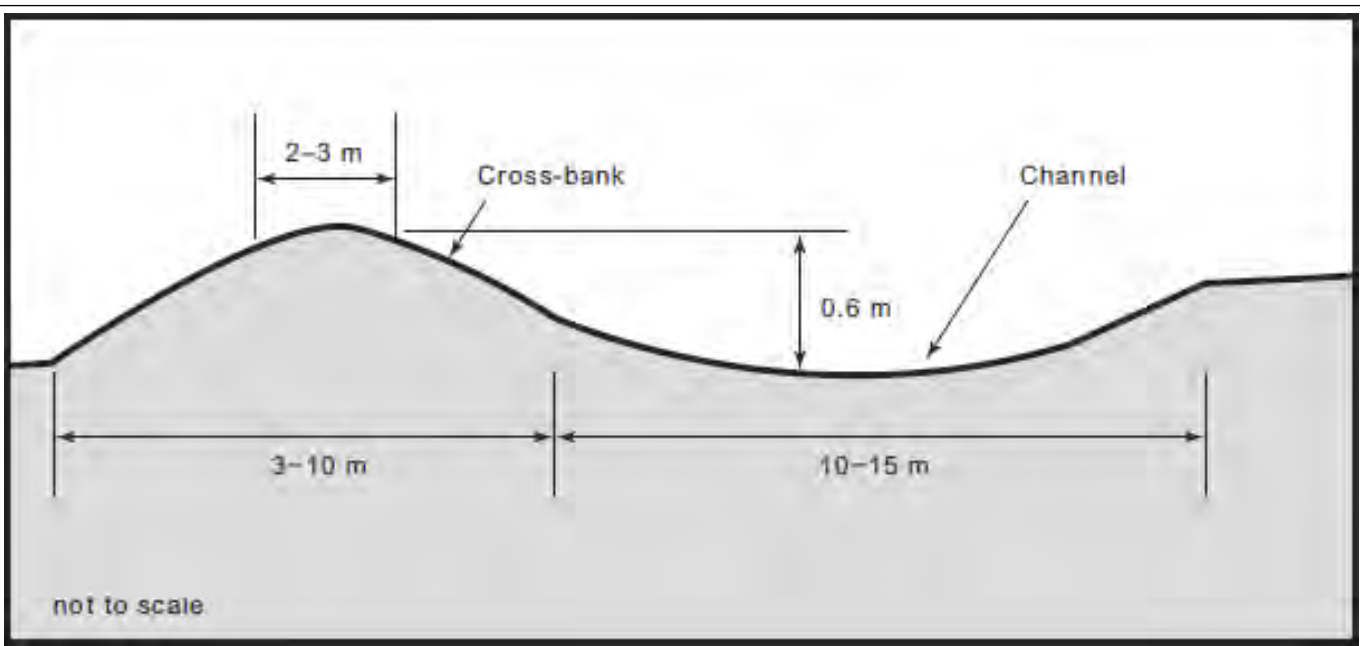


Figure D2. Typical Cross Bank – Cross Section (DECC 2008, modified from Beatty 1995)

Road grade (%)	Maximum distance (m)
< 9	30

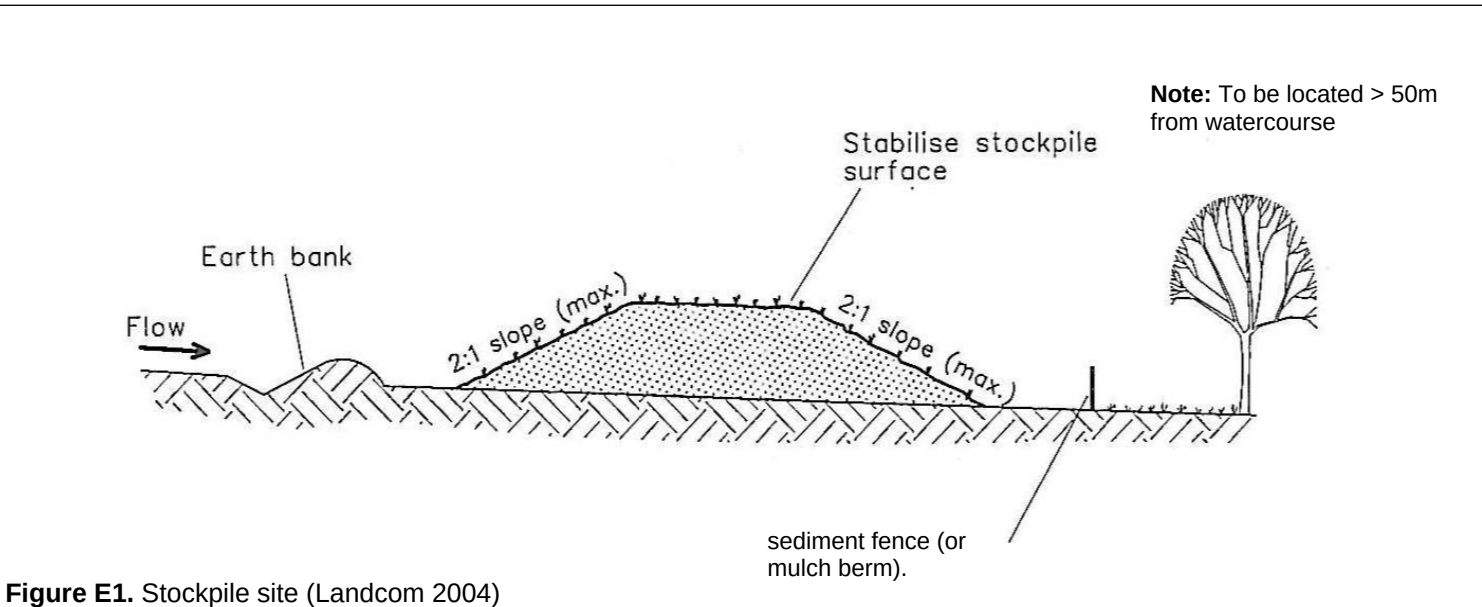


Figure E1. Stockpile site (Landcom 2004)

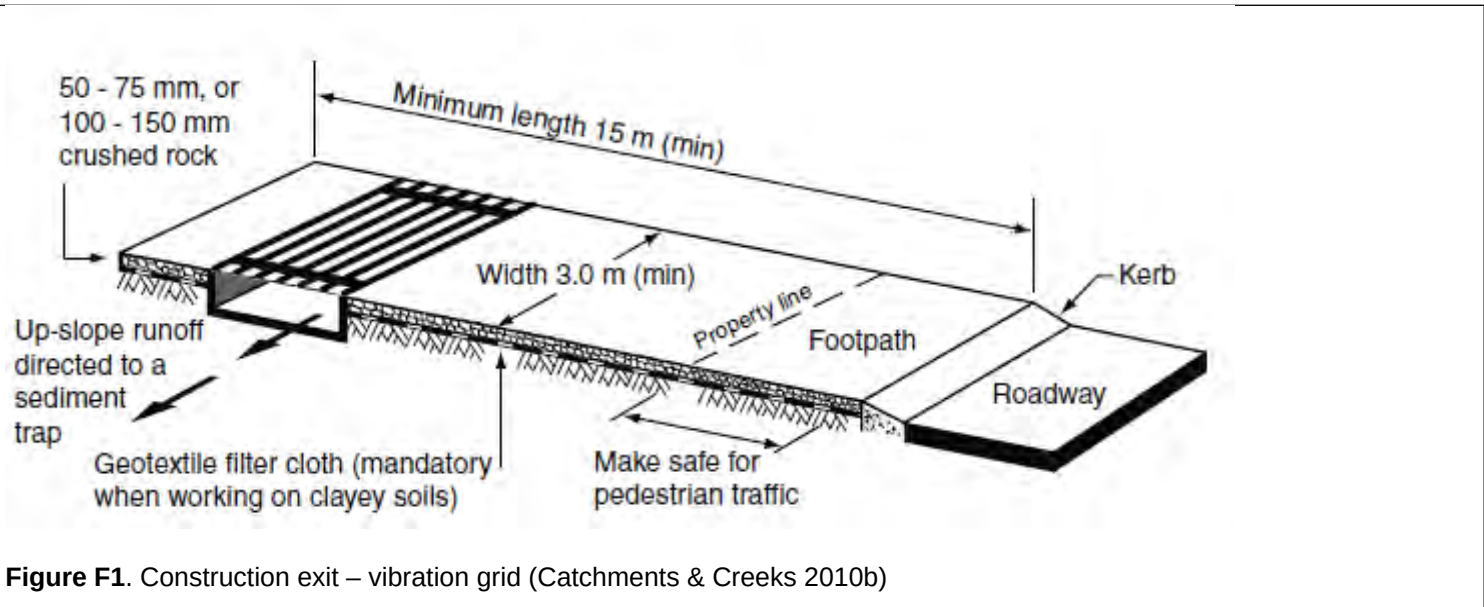
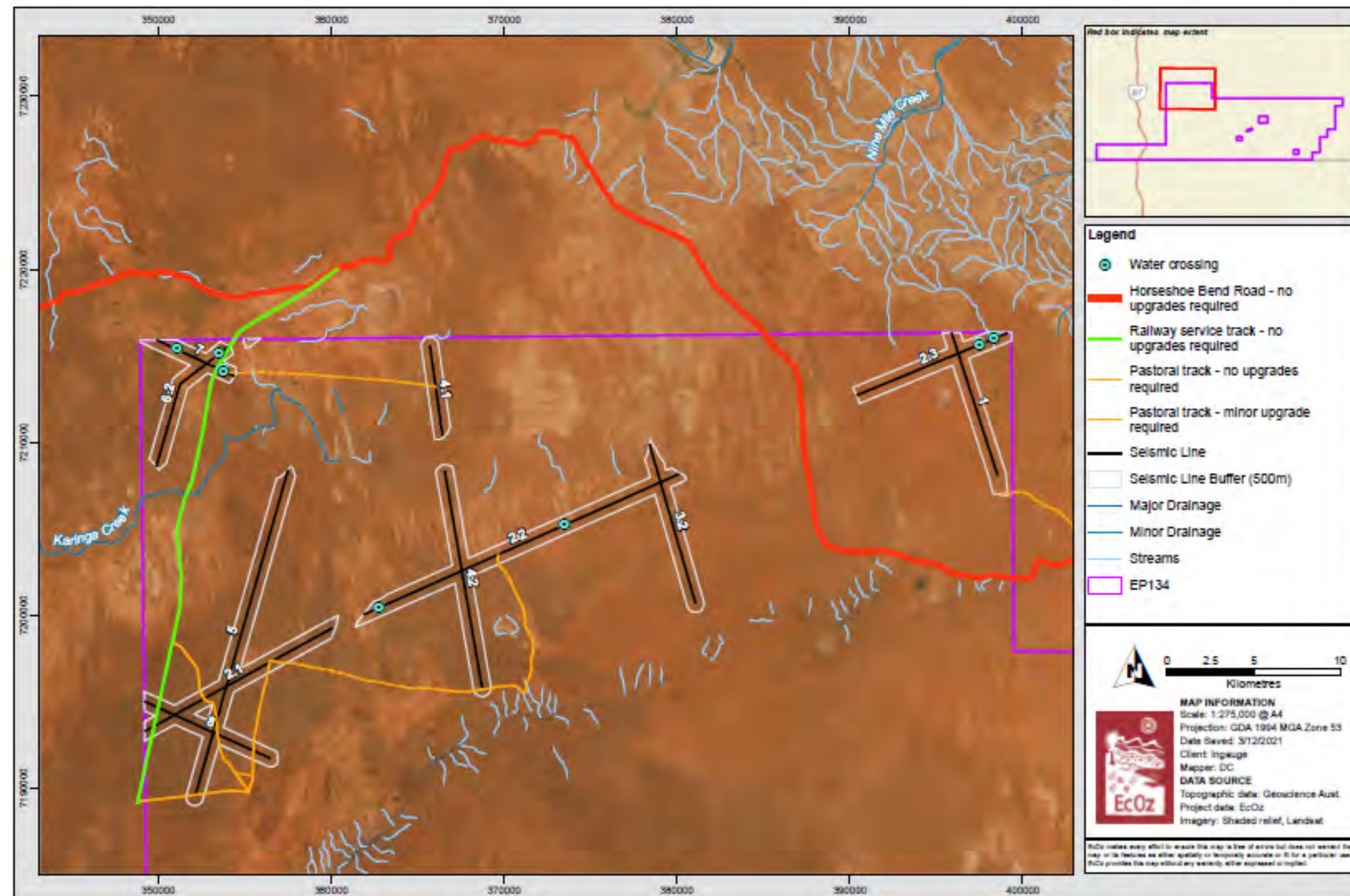


Figure F1. Construction exit – vibration grid (Catchments & Creeks 2010b)

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							(adopted from Catchments & Creeks 2009/10)		
							NOT TO SCALE	NOT TO SCALE	NOT TO SCALE

Seismic Line	Lat	Long
1	-25.154	133.963
1	-25.145	133.960
1	-25.144	133.959
1	-25.143	133.959
1	-25.128	133.954
1	-25.132	133.956
1	-25.125	133.954
1	-25.122	133.955
1	-25.122	133.955
1	-25.121	133.955
1	-25.121	133.955
1	-25.120	133.955
1	-25.119	133.955
1	-25.114	133.953
1	-25.113	133.952
1	-25.111	133.951
2.2	-25.264	133.743
2.2	-25.306	133.636
2.3	-25.172	133.983
2.3	-25.168	133.991
3.1	-25.150	133.793
3.1	-25.104	133.809
3.1	-25.092	133.813
3.1	-25.078	133.814
3.1	-25.072	133.815
3.1	-25.070	133.815
3.1	-25.064	133.814
3.1	-25.060	133.816
3.1	-25.050	133.828
6.1	-25.173	133.546
7	-25.182	133.549
7	-25.170	133.522



Construction Notes:

- Location of measures broadly indicative only. Exact location and confirmation of layout to be determined on site, considering prevailing site conditions.
- Uncontrolled discharge of site runoff into watercourses/drainage lines to be avoided.
- Dust to be suppressed via the use of water carts or soil cover (eg. Polymer soil binder).
- Measures to be monitored regularly. Measures to be repaired/modified as required to ensure they are performing to their design standard.
- Refer to information provided in Section 6.2 of Primary ESCP document

Figure H: Waterway crossings based on field observations conducted in June 2021 – to be addressed in more detail in each of the progressive ESCPs.

Revision	Date	Drawn	Approved	Description		PREPARED FOR: 	Exploration Permit 134 – Primary ESCP		
DRAFT	-	AF	-	Sent to client			Typical ESC Designs		
							(adopted from Catchments & Creeks 2009/10)		
							NOT TO SCALE	NOT TO SCALE	NOT TO SCALE



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Appendix E – Weed Management Plan



Weed Management Plan

EP 134 Seismic Survey 2021

Peak Helium



DOCUMENT CONTROL RECORD

Job	EZ21053
Document ID	202426-56
Author(s)	Narelle Harvey

DOCUMENT HISTORY

Rev	Reviewed by	Approved by	Issued to	Date
1	Ray Hall	Ray Hall	Client	14/07/2021
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3	Ray Hall	Ray Hall	Client	15/10/2021
4	Ray Hall	Ray Hall	Client	27/10/2021
5	Ray Hall	Ray Hall	Client	04/11/2021
6	Ray Hall	Ray Hall	Client	22/11/2021
7	Ray Hall	Ray Hall	Client	06/12/2021

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1 INTRODUCTION

Peak Helium is a leading helium explorer in Australia, with a focus on exploring and developing its highly prospective Amadeus Basin pure helium permit. Peak Helium operates exploration permit (EP) 134 (project area), located over pastoral leases at Kulgera, approximately 275 km South of Alice Springs in the Northern Territory (NT). The southern boundary of EP 134 borders on the NT/ South Australia (SA) border.

Peak Helium proposes to undertake 120 km of two dimensional (2D) seismic survey between September 2021 and September 2022. These works will be regulated through an Environmental Management Plan (EMP) approved by DENR. EcOz were engaged to prepare the EMP and associated documents, including this Weed Management Plan, which is required under the Petroleum (Environment) Regulations (the Regulations).

1.1 Scope and objectives

The scope of this weed management plan is to outline the weed management measures that will be implemented to prevent the introduction and spread of weeds during the works associated with the project.

The objectives of this weed management plan are to:

- Comply with all applicable legislation, regulations, conditions and regional weed management plans.
- Address the specific weed management requirements of station owners.
- Provide controls for all project activities to avoid introducing new weed species into the project area.
- Avoid or control the spread of existing weed species into new areas within the project area.
- Detail the monitoring, reporting and incident response procedures appropriate for the management measures.

The weed management plan is applicable to all activities associated with the 2D seismic survey on EP 134 and will be used by all personnel (including contractors) involved in project activities.

1.2 Dedicated weed officer

The *Scientific Inquiry into Hydraulic Fracturing* recommended a dedicated weed officer for each gas field. To ensure necessary weed management outcomes, the weed officer must have relevant skills and experience and availability to successfully manage weed related issues for the project. Contact details for Peak Helium's weed officer for the project are:

Jed Farley inGauge OCR	Mobile: 0459 165 778 Email: Jed.farley@ingauge.com.au
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2 PROJECT AREA

2.1 Project components

Key components associated with the project are described below and shown in Figure 2-1. The 'project area' refers to the physical footprint of the proposed activities.

2.1.1 2D seismic program

Peak Helium proposes to undertake a two-dimensional (2D) Seismic Program, comprising of eight lines totalling 120 km, on EP 134. To undertake these works the following key activities are required:

- Vegetation clearing
- Grading, excavation, stockpiling, compaction of soil material
- Re-spreading of any removed vegetation on the 2D seismic lines following completion of the program, to promote regeneration
- Upon completion, removal of all surface infrastructure and rehabilitation.

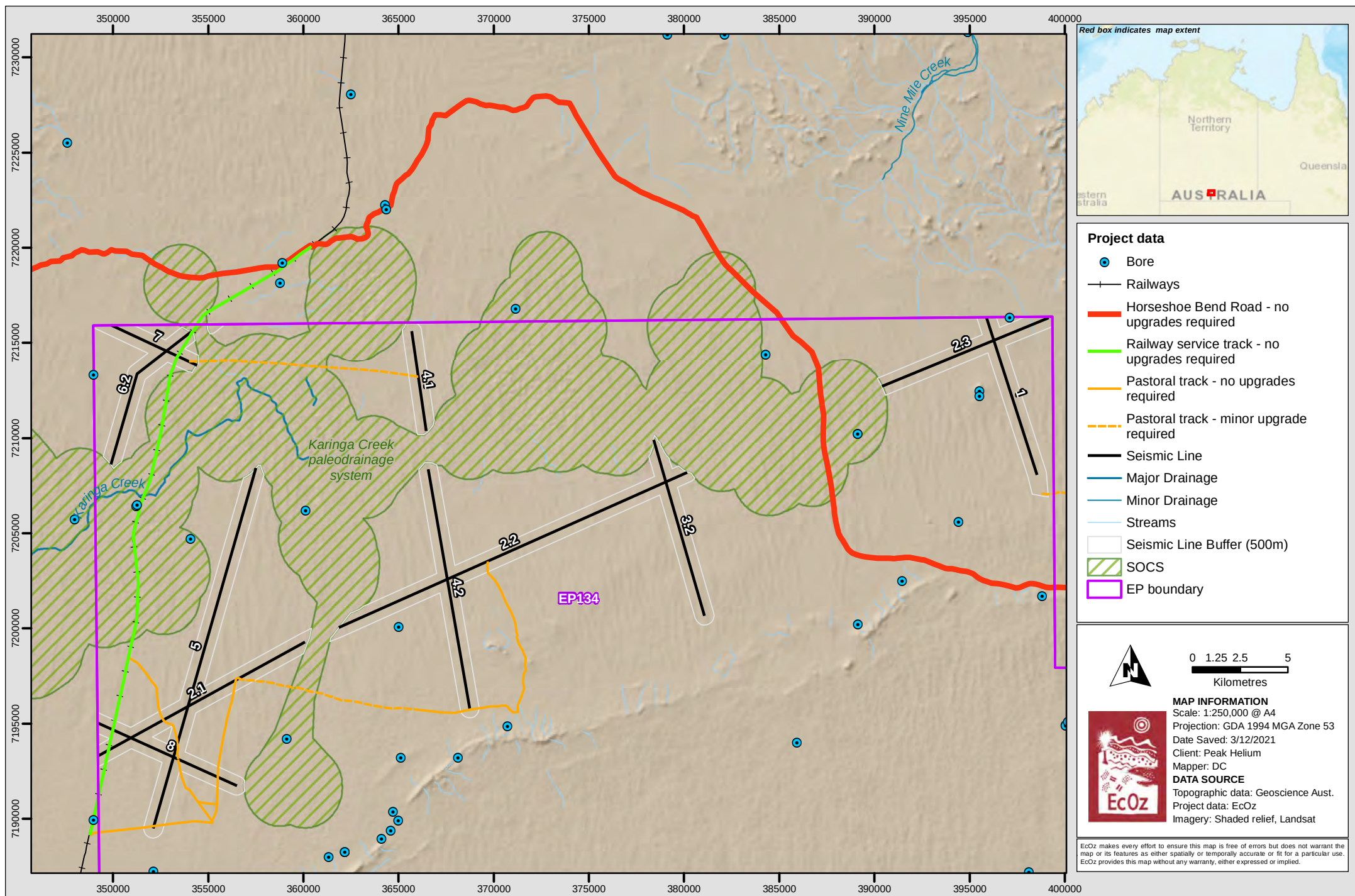
2.1.2 Access tracks

Only established main roads (Horseshoe bend road) and the railway service track and existing pastoral station tracks will be used during site activities. General maintenance of tracks may be required during and following project activities, undertaken in agreement with Station owner. This may include grading, patching and watering.

To minimise damage to access tracks works will cease if there is a forecast for 50 mm of rain or more within the next 48 hours.

2.1.3 Campsite

No campsite will be required, accommodation will be organised off site.



Path: Z:\01 EcOz_Documents\04 EcOz Vantage GIS\EZ21053 - EP134 environmental review\01 Project Files\Report maps\Figure X-X. Investigation area.mxd

Figure 2-1. Map of project location and proposed infrastructure

3 LEGISLATION

The following legislation, statutory obligations and guidelines were considered during the preparation of this weed management plan.

3.1.1 Petroleum (Environment) Regulations

The Petroleum (Environment) Regulations, (the regulations), require submission of an EMP prior to any petroleum exploration or production activity. This weed management plan represents a component of the 2021 Peak Helium 2D Seismic Survey EMP, as required under the regulations.

3.1.2 Weed Management Act

This NT Act aims to:

Protect the Territory's economy, community, industry and environment from the adverse impact of weeds

It declares undesirable species of plants as weeds, and requires these species to be controlled, eradicated or prevented from entering the Northern Territory (NT) depending on their classification. Under the Act, weeds are classified into one of three classes:

- Class A declared plant – to be eradicated
- Class B declared plant – growth and spread to be controlled
- Class C declared plant – not to be introduced into the NT (all Class A and B weeds are also Class C)

The Act specifies how weeds in each of the classes must be treated. Weed management plans for specific weeds are endorsed under this Act.

The Commonwealth government has also categorised some species as Weeds of National Significance (WoNS). The remaining introduced flora species are referred to as environmental weeds.

3.1.3 Management Plans and guidelines

Statutory Weed Management Plans

These plans are legal documents containing specific information about management requirements for certain high priority weeds. Section 5 lists weeds that are present or have the potential for introduction onto on EP 134 and notes those with an associated statutory weed management plan.

Guidelines and standards

The following guidelines associated with the management of weeds in the NT have also been considered during the preparation of this WMP:

- *Northern Territory Weed Management Handbook* (Weed Management Branch, 2015a)
- *Northern Territory Weed Data Collection Manual* (Weed Management Branch, 2015b)

3.1.4 Peak Helium environmental policy

Peak Helium's Environmental Policy is a public declaration of its understanding of the environmental impacts and risks associated with its operations, as well as a demonstration of its compliance with all relevant environmental, health and safety regulations, legislation and guidelines. A copy is provided as Appendix A.

4 WEED RISK MITIGATION MEASURES

The EMP risk assessment process identified a number of weed introduction and/or spread risks associated with the scope of this project. Table 4-1 documents these risks, as well as the mitigation measures that will be implemented to reduce this risk.

Table 4-1. Weed risk and mitigation measures

Weed risk	Mitigation measures	Measurement criteria	Responsible person
Introduction of new weed species to EP 134 from plant and vehicles.	All vehicles / machinery /equipment entering the EP to be cleaned and free of soil and vegetative matter, and have a valid weed hygiene declaration	A register of vehicle / equipment / machinery inspection is kept. ¹ Spot checks on vehicle / equipment / machinery to ensure inspections are completed correctly	Peak Helium Dedicated Weed Officer
	Site environmental inductions for all personnel and contractors to include vehicle weed hygiene requirements	All project staff undertake an environmental induction, to be recorded in the Peak Helium Training Register	Peak Helium Dedicated Weed Officer
Weed spread in on EP 134 resulting from vehicles/plant traversing existing weed infestations	All tracks and seismic lines to be inspected prior to use by project equipment	All tracks and seismic lines declared 'open' for use prior to anyone utilising them.	Peak Helium Dedicated Weed Officer
	All infestations of declared weeds are mapped; all personnel and contractors made aware of existing infestation locations and trained in the identification of existing weeds	All project staff undertake an environmental induction, to be recorded in the Peak Helium Training Register Weed maps and factsheets included as part of environmental induction All operational staff to attend weed identification training delivered by the NT Weed Management Branch	Peak Helium Dedicated Weed Officer
	All vehicles, machinery and equipment to stay on formed access tracks, except for those involved in clearing	All vehicle movements tracked via in-vehicle management systems	Peak Helium Dedicated Weed Officer
	If infestations are identified during the 2021 program, they will be demarcated and avoided, where possible, via a detour around the infestation	Maintain demarcation during operations and inspect (and rectify if needed) daily	Peak Helium Field Representative
	If infestations cannot be avoided, treat prior to traversing using methods set out in Table 6-1.	Work plan to reflect additional tasks required	

¹ Weed hygiene declaration included as Appendix B.

Weed risk	Mitigation measures	Measurement criteria	Responsible person
	Vehicles/plant to be cleaned and free of soil and vegetative matter prior to moving beyond infestation	Spot checks on vehicle / equipment / machinery to ensure inspections are completed correctly	Peak Helium Field Representative / Peak Helium Dedicated Weed Officer
Existing weed distribution not fully known due to survey conducted outside of prime growth period	Further monitoring to be undertaken, as set out in Section 7 of this document	Annual reporting against this WMP, as per Section 7.	Peak Helium Dedicated Weed Officer

5 WEED SPECIES

Weed distribution is often related to environmental disturbances caused by the construction of roads and tracks, cattle grazing and feral animals. Weeds are most prevalent on land under pastoral lease, with infestations generally concentrated around infrastructure such as water points, fence lines and tracks, and also along the banks of watercourses where cattle and feral animals tend to congregate.

A review of the NT Weed Branch weed dataset shows that part of the project footprint, to the east, occurs within the Athel Pine Management Zone. The dataset also shows that the whole project area is also located within the Bellyache Bush, Brazilian Pepper, Gamba grass and Mimosa Management Zones. Other weeds are present within the project footprint and indicative of pastoral use, but by far the most frequently reported species is Athel Pine (*Tamarix aphylla*). This Class A/B weed was deliberately introduced as a shade and windbreaks. Its deep, woody root system means it can readily establish within arid regions, particularly around river systems and wetlands. Other common weeds are listed in Table 5-2.

The project footprint lies within the Alice Springs Regional Weeds Strategy 2021-2026 (DEPWS 2021). This strategy focusses on weeds that are most important to the region, categorising them as either:

- *Category 1 – Priority weeds* (present in the region, widely considered feasible to eradicate from the Region, typically evaluated as very high risk and have isolated and restricted distributions)
- *Category 2 – Priority weeds or strategic control – including the eradication of outliers* (species warranting strategic control across the landscape due to the high impact they have on land managers and on broader economic and environmental values)
- *Category 3 – Weeds of concern* (assessed by the weed risk management system as a medium to high risk, or have not been assessed, but have been identified by stakeholders as posing a threat to the values of the Region)
- *Category 4 – Hygiene and biosecurity weeds* (it is important for landholders to implement weed hygiene and other biosecurity measures to prevent the spread of weeds into clean areas, and to control these species where the opportunity arises)
- *Category 5 – Alert weeds* (have the potential to have a high level of impact to the region should it become established, the likelihood of the species naturalising and spreading in the region is perceived to be high).

All such weeds are listed in Table 5-2. Buffel Grass (*Cenchrus ciliaris*) is described in the plan as a significant threat but, because of its value to pastoralists, is not a declared weed.

Weed species in the region mainly occur within watercourses, disturbed areas (i.e. roadsides, rail lines, fences and water-points), and on drainages or depressions. Sandplains, salt pans, and rocky rises generally do not support declared weed species.

Field studies were conducted by Tom Reilly (EcOz) 15 June 2021. Ground based surveys collected data on landform, vegetation, and basic soil information. Photographs were taken at each site. Each ground-based survey site was surveyed for weeds and all low level aerial transects were focussed on all environmental investigation aspects, especially weeds. Figure 5-4 shows the survey locations within the project area. Note that that the 'survey tracks' shown on Figure 5-4 are the helicopter GPS track log, surveying was done along the seismic lines, but not in transit between the seismic lines.

There were no declared weeds found within the project footprint, however there were two introduced flora species were observed as prominent during the site inspection Buffel Grass (*Cenchrus ciliaris*) and Colocynth (*Citrullus colocynthis*). Couch Grass (*Cynodon dactylon*) was also prominently observed within EP134 in other areas surveyed prior to changes in the project footprint area. Weed species were concentrated within the existing stock tracks and, unusually, on dune crests. A declared weed was identified nearby to the project footprint – Athel Pine (*Tamarix aphylla*) – which is listed as a Class B weed in the lower Finke catchment. This species is also a Weed of National Significance.

No listed weed species were observed in the dune fields; however, Colocynth (*Citrullus colocynthis*) was occasionally spotted along station tracks within the dune field and close to water supply bores. Therefore, it is possible that *C. colocynthis* could be spread by exploration activities – whether it is directly via vehicles/grading or by cattle utilising seismic lines post survey.

Declared weed species recorded within and in proximity to the project area are listed in Table 5-1, and mapped in Figure 5-3.

Table 5-1. Declared weed species recorded in project area

Species	NT Class	Comment
Athel Pine (<i>Tamarix aphylla</i>)*	B	Located near the rail line, outside of project footprint. This species is a Weed of National Significance and has potential to spread by vegetative growth. This species should not be touched.

* Found outside of project footprint however, important to avoided to prevent spread and further infestations.

Table 5-2. Weed species relevant to the project footprint

Common name	Botanical name	Class	WoNS	Status in management plan
Rope Cactus	<i>Cylindropuntia</i> spp. including <i>C. imbricata</i> , <i>C. fulgida</i>	A		Category 1, very high
Prickly Pears	<i>Opuntia</i> spp. including <i>Opuntia stricta</i>	A		Category 1, very high
Athel Pine	<i>Tamarix aphylla</i>	A/B	Yes	Category 2, very high
Parkinsonia	<i>Parkinsonia aculeata</i>	B	Yes	Category 2, very high
Buffel Grass	<i>Cenchrus ciliaris</i>	Not declared		Category 2, very high
African Lovegrasses	<i>Eragrostis</i> spp. including <i>E. cilianensis</i> , <i>E. barreleri</i> , <i>E. cylindriflora</i> , <i>E. minor</i>	Not declared	No	Class 3, *medium
Mexican Poppy	<i>Argemone ochroleuca</i>	B	No	Class 3, medium
Kapok	<i>Aerva javanica</i>	Not declared	No	Class 3, N/A
Ruby Dock	<i>Acetosa vesicaria</i>	Not declared	No	Class 3, low
Saffron Thistle	<i>Carthamus lanatus</i>	B	No	Class 3, medium
Mossman River Grass	<i>Cenchrus echinatus</i>	B	No	Category 4, medium
#Caltrop	# <i>Tribulus terrestris</i>	B		Category 4, low

*Only *Eragrostis cylindriflora* has been assessed for weed risk.

#It is uncertain whether caltrop (*Tribulus terrestris*) is considered native or introduced to the Northern Territory. It is a weed to be controlled around tracks, parks and other infrastructure because their spiny fruit can cause nuisance.

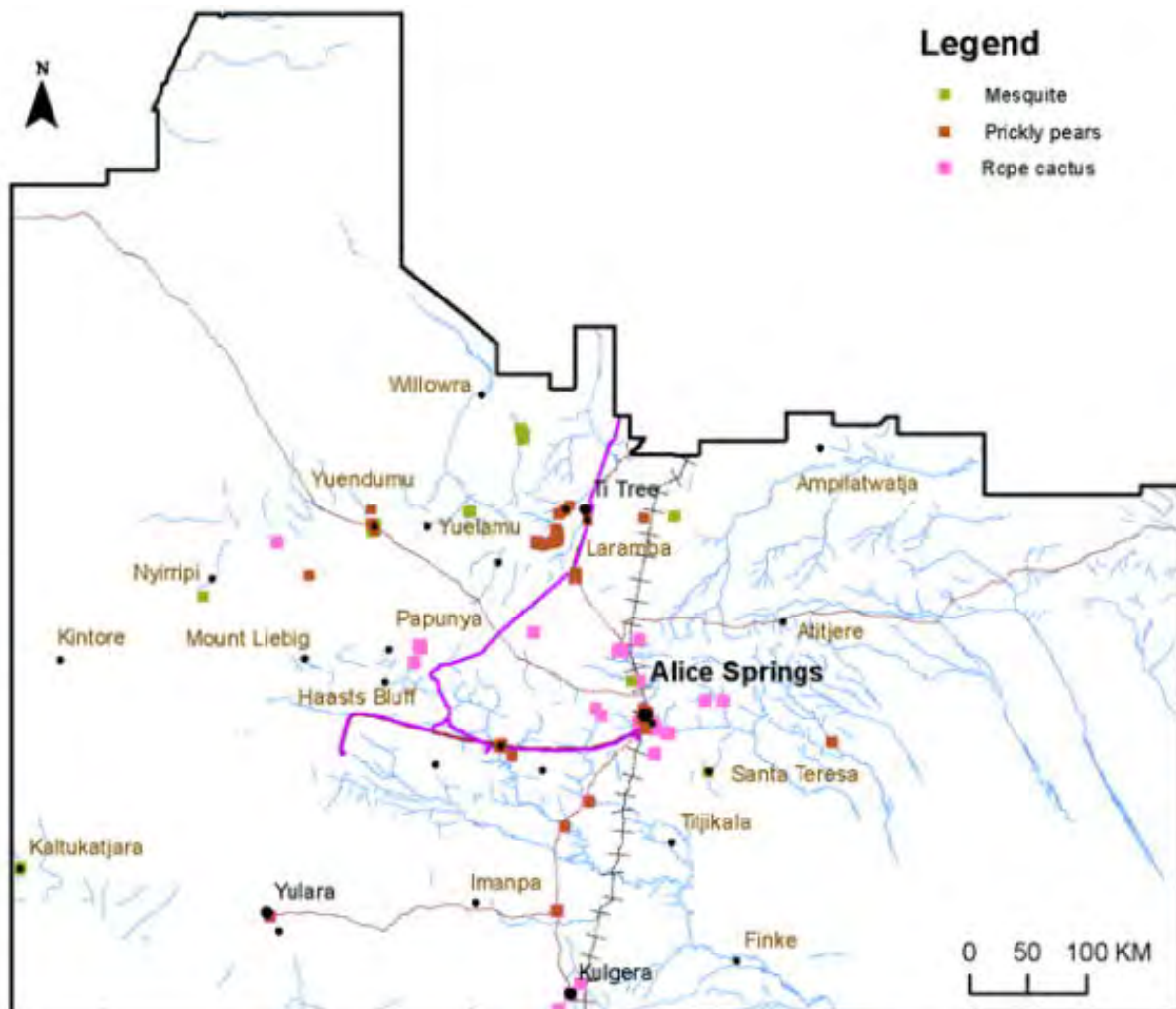


Figure 5-1. Distribution of priority weed species for eradication in the Alice Springs Region (DEPWS 2021)

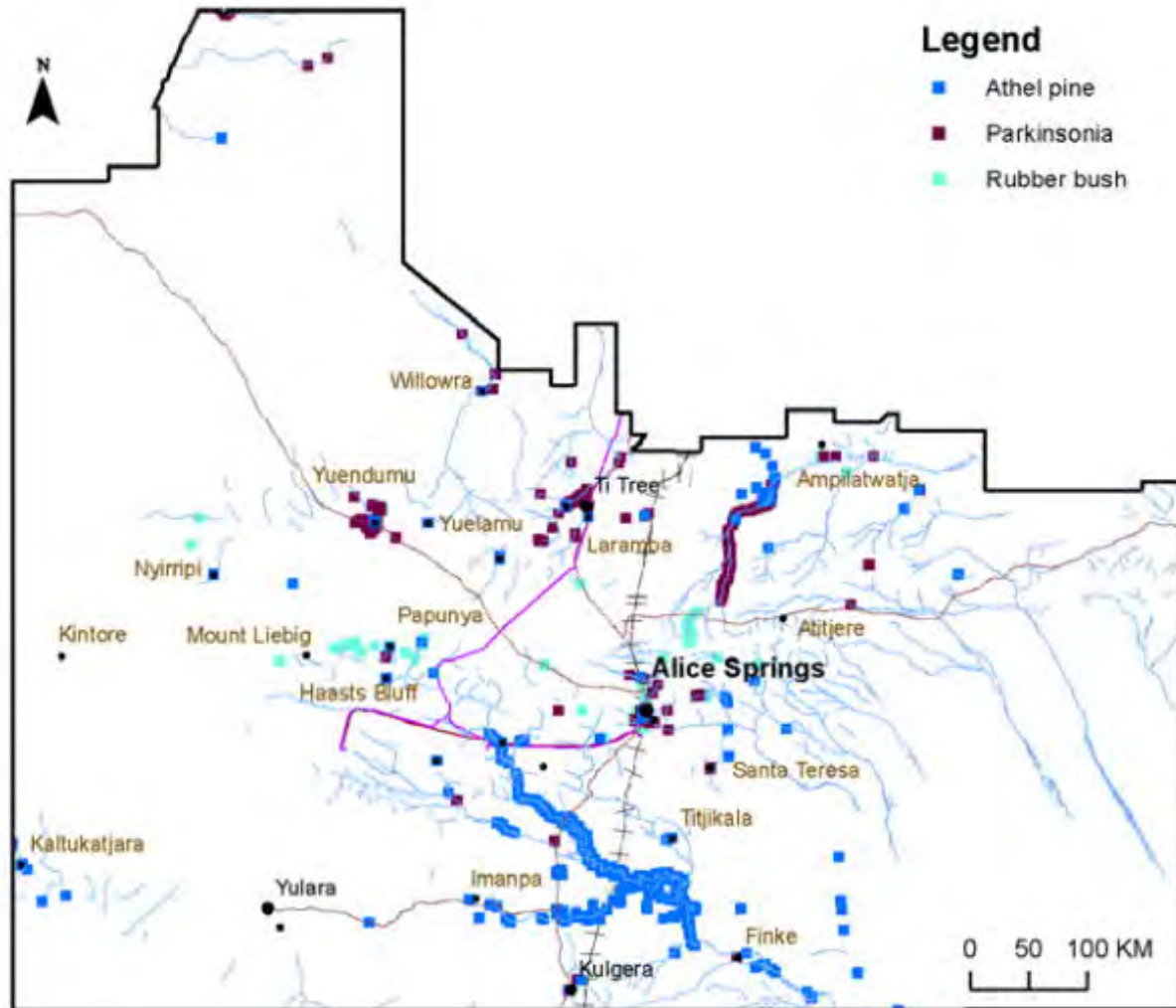
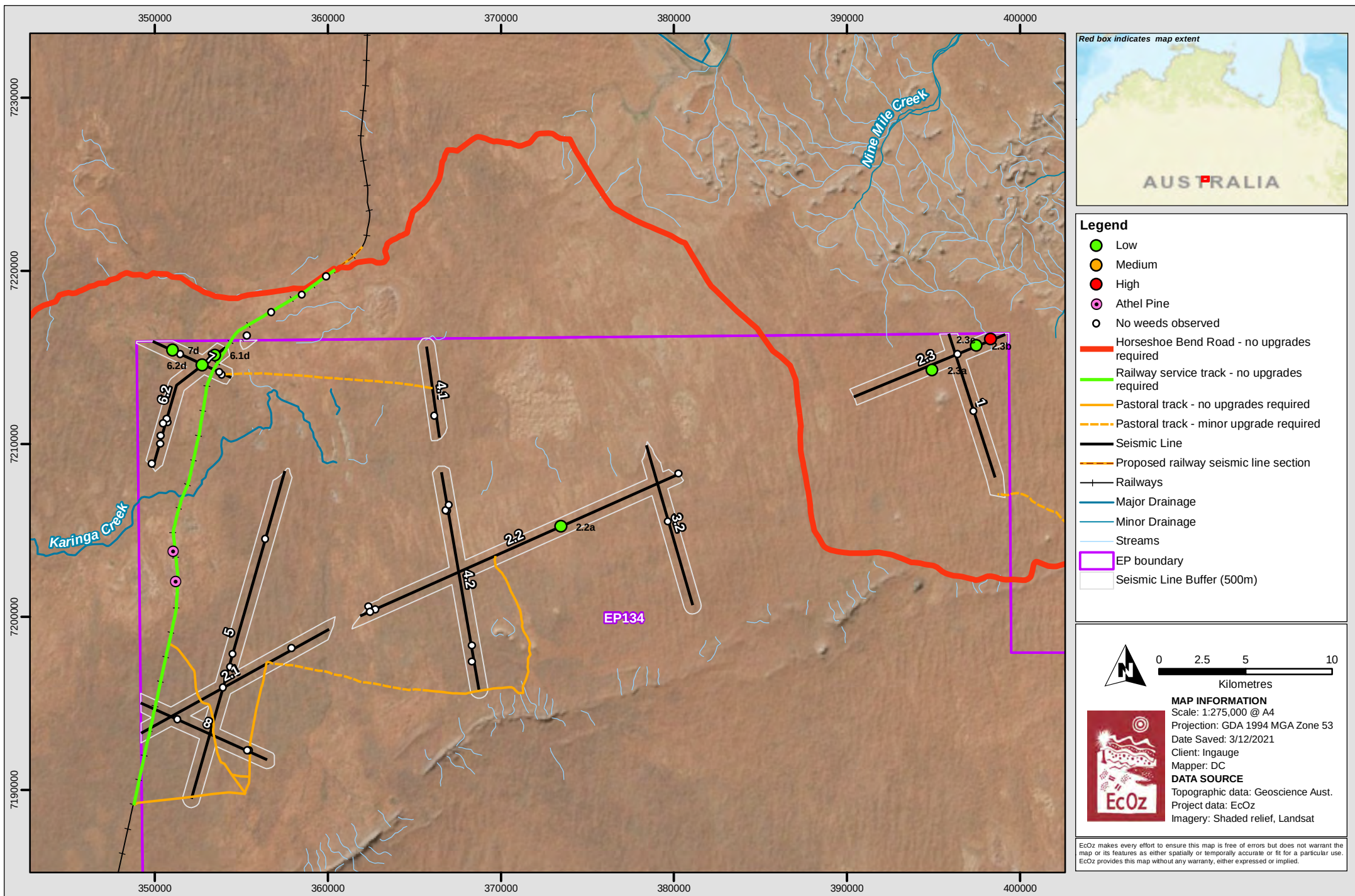
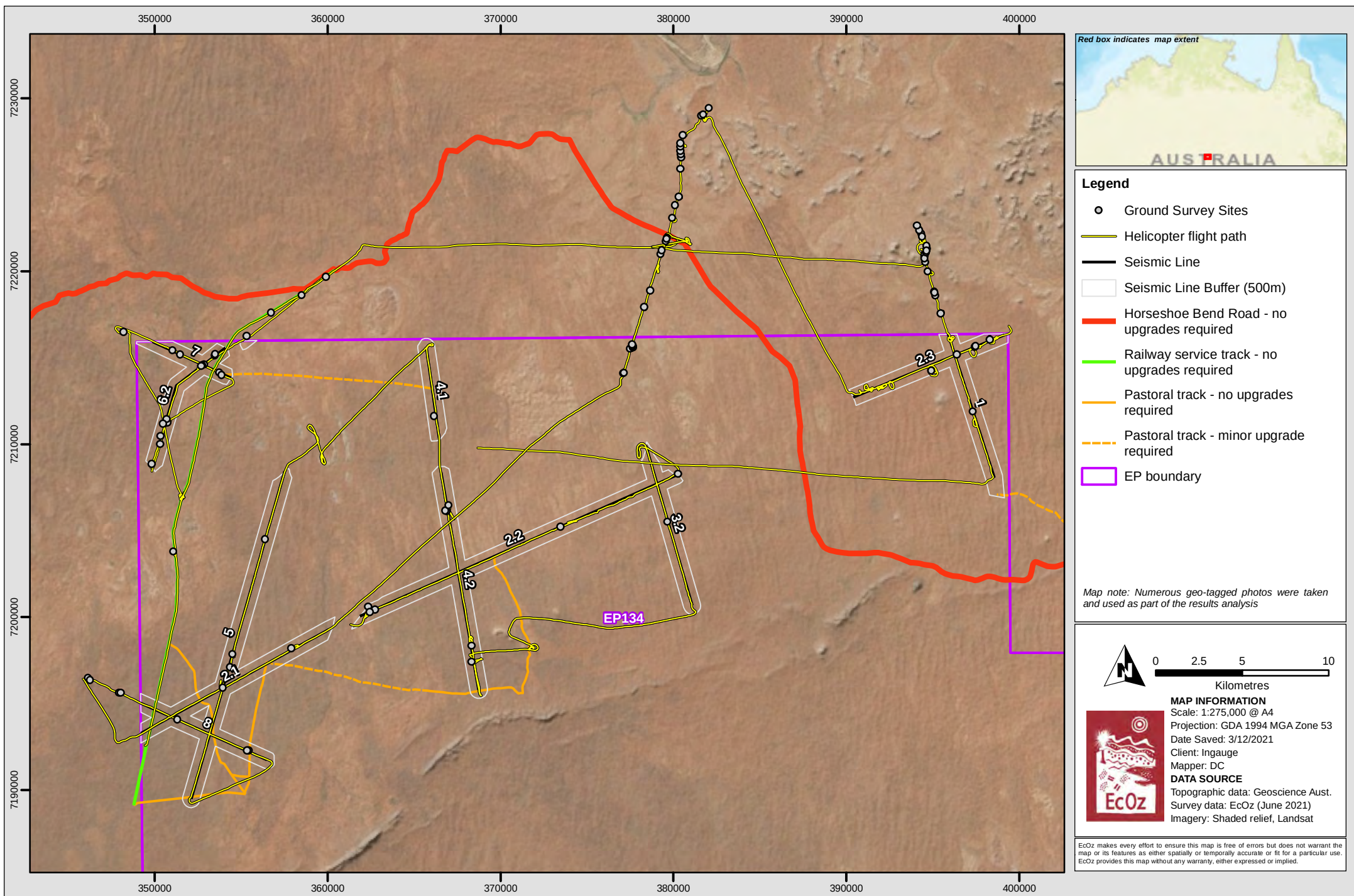


Figure 5-2. Distribution of priority weed species for strategic control in the Alice Springs Region (athel pine, parkinsonia and rubber bush only) (DEPWS 2021)



Path: Z:\01 EcOz_Documents\04 EcOz Vantage GIS\EZ21053 - EP134 environmental review\01 Project Files\Report maps\Figure X-X. Map of weeds and athel pine.mxd

Figure 5-3. Map of weed sites recorded during the survey relevant to project area



Path: Z:\01 EcOz_Documents\04 EcOz Vantage GIS\EZ21053 - EP134 environmental review\01 Project Files\Report maps\Figure 3 1. Map showing survey effort.mxd

Figure 5-4. Map showing survey effort within project area

6 ANNUAL ACTION PLAN

The annual action plan in Table 6-1 details the survey and control activities for weeds recorded within the project area.

Table 6-1. Annual action plan

Weed Management Area	Weed species	Management objective	Survey / monitoring time/s	Treatment time/s	Control method/s	Herbicide
2D seismic lines Access tracks		Prevent the introduction of weeds	Within 4 weeks of the next rainfall event that is sufficient to result in weed growth.	Immediately if weeds are found	Refer to the <i>NT Weed Management Handbook</i>	

7 WEED MONITORING

The requirements for weed monitoring within each component of the project area are outlined above in Section 6. Additional to the survey / monitoring times listed in Table 6-1, monitoring for weed incursions will be ongoing during operations, as all operational staff will have a responsibility to report new weed incursions to Peak Helium's dedicated weed officer. Should new weed incursions be identified during monitoring, control will be undertaken during recommended treatment times, and follow-up surveys will be within three months to ensure effective eradication of the incursions.

The potential for weed spread within the project area is mostly within the access tracks and the 2D seismic lines. To target survey efforts within areas at high risk of weed establishment, annual weed monitoring will focus on the following areas:

- Known weed locations
- Along access tracks
- Seismic lines
- 50 m buffer around stock watering points traversed by access tracks

7.1 Notification procedure

All new weed incursions will be reported to the NT Weed Management Branch by Peak Helium's dedicated weed officer. Initial notification will be verbal, followed by written notification of preliminary species identification and location within seven working days.

7.2 Recording

All weed monitoring and survey activities will be recorded in accordance with *the NT Weed Data Collection Guidelines* available at: <https://nt.gov.au/environment/weeds/weed-mapping-and-data-sharing>.

The following attributes of any new weed infestations will be recorded into a GPS-enabled device:

- Site ID
- Weed name
- ID confidence
- Date of record
- Coordinate information
- Recorder / organisation
- Infestation size
 - o 5 m diameter
 - o 20 m diameter
 - o 50 m diameter
 - o 100 m diameter
- Infestation density
 - o 1 = Absent, no weeds of this species in the area
 - o 2 = < 1%; very few, not many weeds
 - o 3 = 1 – 10%; more than one or two isolate plants
 - o 4 = 11 – 50%; Many plants, covering up to half the area
 - o 5 = > 50%; Weed forms the dominant cover

Weed data will be submitted as an Excel spreadsheet to the Weeds Management Branch (refer Appendix C for an example template).

7.3 Reporting

Peak Heliums' weed management officer will submit annual reporting against this WMP as a component of the EMP environmental reporting requirements. This will include

- Details of activities implemented to address weed spread and introduction risks
- Submission of all weed data collected
- Details of survey and monitoring events, including dates, personnel, maps and track data
- An overview of weed control events and success rates.

This annual report will be reviewed by the NT Government's Onshore petroleum weed management officer.

8 REFERENCES

Weed Management Branch (2015a) *Northern Territory Weed Management Handbook*,
Department of Land Resource Management, Northern Territory Government, Darwin

Weed Management Branch (2015b). *Northern Territory Weed Data Collection Manual*,
Department of Land Resource Management, Northern Territory Government, Darwin

APPENDIX A PEAK HELIUM ENVIRONMENTAL POLICY



Environmental Policy

Peak Helium is committed to ensuring that all activities are conducted in a manner that protects and preserves the environment. Peak Helium will ensure that any potential adverse effects on the environment are either avoided or minimised by thorough investigation and planning before the commencement of its activities.

Peak Helium objectives in the fulfilment of this policy are to:

- Ensure all applicable industry and statutory requirements are met, and obligations are fulfilled
- Ensure all employees and contractors are fully aware of their responsibilities concerning relevant environmental matters.
- Develop and document environmental actions and contingency plans to control and minimise all environmental risks with all activities.
- Apply accepted engineering principles in all its operations to reduce and restrict the production of waste products known to be harmful to the environment and dispose of such waste by recycling or other accepted practice.
- Minimise the environmental impact of its operations, including the prevention of pollution
- Promote Peak Helium commitment to continuous improvement of management and protection of the environment, involve the community and stakeholder interests through consultation and address any concerns.

Art Malone
Managing Director
Peak Helium

APPENDIX B WEED HYGIENE DECLARATION

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APPENDIX C WEED CONTROL RECORDING TEMPLATE

Weed Branch data entry sheet_Feb19 - Excel

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2	ORG_NAME:				GPS NAME/MODEL:				RECORDING METHOD:						
3	SITE_ID	DATE_REC	LAT_G34	LONG_G34	WEED_NAME	SIZE_DIA_M	DENS_CAT	SEEDLINGS	JUVENILES	ADULTS	SEED_PRES	PAST_TREAT	TREATMENT	HERBICIDE	COMMENTS
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QMS Certification Services



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Appendix F – Bushfire Management Plan

Peak Helium EP134 Seismic Survey 2021 Bushfire Management Plan

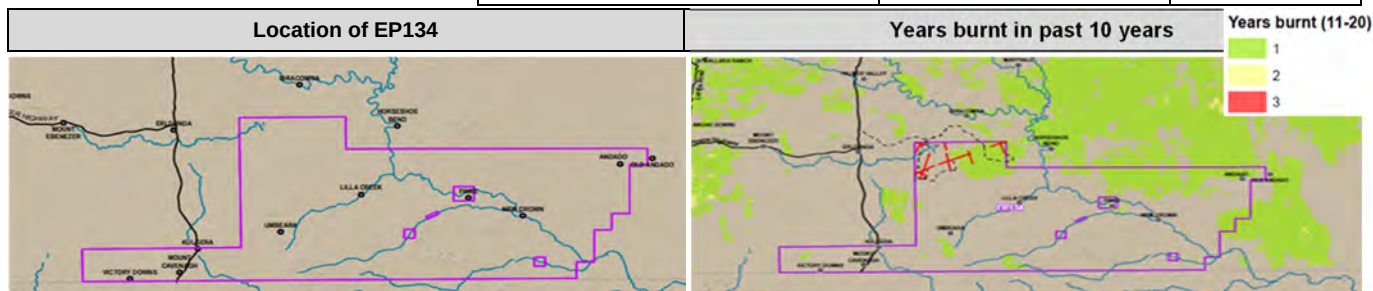


Plan prepared by:



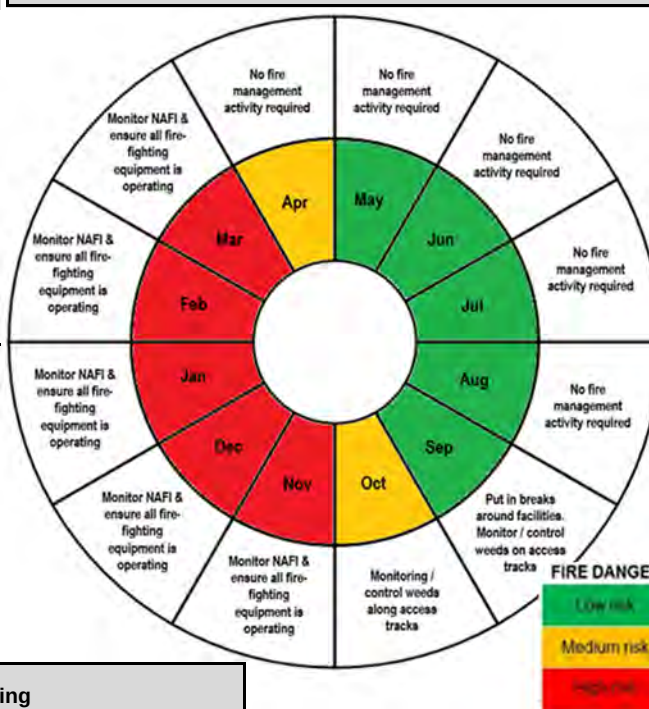
Plan to be reviewed / updated annually,
or as new information becomes available

Stakeholder contacts	Phone	Name
Peak Helium Project Manager	0459 165 778	Jed Farley
Idracowra Station	08 8956 0972	
Horseshoe Bend Station	08 8956 0969	
EMERGENCY	000 or 112	
Bushfires NT Alice Springs	08 8951 9270 (business hrs only, 000 if out of hrs)	
Wildfire information NAFI—North Australian Fire Information website Bushfire Alerts and Warnings	www.firenorth.org.au or the NAFI mobile app www.securent.nt.gov.au/alerts)	



Land Use Fire Protection	
Property Land uses	- Primary = Cattle grazing - Secondary = gas exploration
Property aim (Peak Helium)	- Undertake the seismic exploration activities with minimal impact on primary users
Fire management objectives	- Protect the campsite and associated infrastructure - Coordinate fire management actions with Station landholders. - Prevent any human-induced bushfire ignitions that cause loss of life, property or environmental harm

Annual works calendar



Fire Management Actions and Mitigation Measures

Infrastructure Protection Buffer	Protect infrastructure by maintaining 10 meter bare earth buffer around buildings and facilities
Infrastructure Fire Exclusion	Ensure all vehicles are fitted with fire extinguishers, and that all firefighting equipment and water supplies are checked regularly. -Ensure all staff / contractors are trained in operation of firefighting equipment and aware of this Plan Site Supervisor to monitor NAFI regularly and liaise with Station manager if fire threatens infrastructure. All infrastructure including vehicles and machinery are to be operated and maintained to mitigate risk of ignition
Fire control	Every vehicle or piece of equipment has relevant fire extinguisher capacity to extinguish a small fire.
Fire access tracks	Monitor access roads for weeds, and spray where appropriate
Controlled burns	No controlled burns will be undertaken as part of this project due to the short time frame of works.

Preparedness planning

On any day rated as having a fire danger of severe, extreme or catastrophic, personnel responsible for bushfire safety must: -Alert all staff to fire rating danger -Ensure all staff, contractors etc know that they must immediately report any form of fire activity, near or far and who to report to. -Staff working away from the Infrastructure Protection Buffer must be aware of heightened fire risk -Regularly monitor NAFI as well as scanning the surrounds for smoke plumes and any other suggestions of fire. -Ensure days' work plans are suitable for current fire rating -Ensure that equipment is stored within the Infrastructure Protection Buffer area -Ensure communication and notification channels are readily available and functioning -Ensure any firefighting equipment is available and functioning

Bushfire First Responder Actions

Remove yourself and others from potentially dangerous situations Raise the alarm with the Peak Helium Fire Officer Identify; a. Location b. Immediate threats c. Fire characteristics (what is burning, direction and speed of travel) d. Weather – wind strength and direction If possible, wait in a safe location for directions from the Fire Officer or the Pastoralist and communicate this fact. The Peak Helium Fire Officer is responsible for alerting the Land Owner and Bushfires NT and arranging what response should be taken to the fire.

Appendix G - Waste Management Plan



Waste Management Plan

EP 134 Seismic Survey 2021

Peak Helium



DOCUMENT CONTROL RECORD

Job	EZ21053
Document ID	202600-36
Author(s)	Narelle Harvey

DOCUMENT HISTORY

Rev	Reviewed by	Approved by	Issued to	Date
1	Ray Hall	Ray Hall	Client	14/07/2021
2	Ray Hall	Ray Hall	Client	13/08/2021
3	Ray Hall	Ray Hall	Client	21/11/2021

Recipients are responsible for eliminating all superseded documents in their possession.

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1 INTRODUCTION

1.1 Context

Peak Helium is a leading helium explorer in Australia, with a focus on exploring and developing its highly prospective Amadeus Basin pure helium permit. Peak Helium operates exploration permit (EP) 134 (project area), located over pastoral leases at Kulgera, approximately 275 km South of Alice Springs in the Northern Territory (NT). The southern boundary of EP 134 borders on the NT/ South Australia (SA) border.

Peak Helium proposes to undertake 120 km of two dimensional (2D) seismic survey between September 2021 and September 2022. These works will be regulated through an Environmental Management Plan (EMP) approved by Department of Environment, Parks and Water Security (DEPWS). EcOz were engaged to prepare the EMP and associated documents, including this Spill Response Management Plan.

1.2 Purpose and Scope

Impacts from improperly managed wastes are recognised as a potential negative impact from 2D seismic survey works. This report will detail the potential negative impacts from proposed works, and present management and monitoring strategies to limit these impacts, as well as assigning responsibilities to ensure these strategies are implemented.

2 RESPONSIBILITIES

Peak Helium will be responsible for ensuring that project wastes are managed in a manner consistent with Peak Helium policies and procedures including:

- Development and control of this Waste Management Plan including:
 - o Collecting and maintaining an inventory of waste management
 - o Developing continual improvement strategies
 - o Reporting on compliance with the plan
 - o Communicating requirements of the plan to personnel, contractors and authorities, as required
 - o Provision of waste awareness training to personnel and contractors.
- Monitoring waste management performance of contractors by undertaking regular audits.
- Ensure all waste management facilities are able to receive the wastes assigned to them.

Project contractors are responsible for ensuring that all types of waste are managed in accordance with this Waste Management Plan including:

- Compliance with Peak Helium policies and procedures and any other relevant legislative requirements.
- Storage of waste in accordance with this plan.
- Proper management and disposal of waste through provision of waste generation and waste management data.
- Auditing of compliance against this plan.
- Training of staff as required.

3 SOURCES OF WASTE

During the 2D seismic exploration program, waste will be managed in accordance with the internationally accepted guide for prioritising waste management practices with the objective of achieving optimal environmental outcomes. Waste will be managed in accordance with the following hierarchy principals:

- 1) Avoid: eliminate the generation of wastes through design modification.
- 2) Reduce: reduce unnecessary resource use or substitute a less resource intensive product or service.
- 3) Re-use: reuse a waste without further processing.
- 4) Recycle: recover resources from a waste.
- 5) Treatment: treat the waste to reduce the hazard of the waste prior to disposal.
- 6) Disposal: disposal of waste if there is no viable alternative

The characterisation and separation of waste will be conducted as far as reasonably practicable at the waste source.

3.1 Liquid waste

Liquid waste may be produced in the following ways:

- Parking, refuelling and waste storage areas – used oil, oily waters
- Areas for equipment and vehicle washing – used oil, oily waters

3.2 Solid waste

Solid waste will be produced in the following ways:

- General site:
 - o Food waste
 - o Paper and cardboard
 - o Plastics
 - o Glass
 - o Hazardous waste (e.g. small batteries).
- Supply of materials – plastic and metal containers, packaging material
- Vehicles and mobile plant – used tyres, batteries, waste hydrocarbons, air filters
- First Aid – medical and biological waste.

3.3 Hazardous waste

A material that is an explosive, irritant, flammable, toxic, carcinogenic or corrosive is classed as a hazardous waste. Examples of hazardous waste include oil, chemical containers, explosives, batteries, aerosols, coolants, paint and paint tins, tyres and fluorescent light tubes etc. Due to their hazardous properties, materials in this waste stream must be dealt with separately from other waste and in an approved manner.

Hazardous waste receptacles must display correct and prominent signage. Hazardous wastes, such as fuels, oils, lubricants, batteries and chemicals, are to be contained within a bunded area until transport for disposal at a facility licenced to accept these materials. Consideration as to whether this area should be covered also needs to be made depending on the time of year.

4 WASTE MANAGEMENT

Appropriate management of wastes will assist in avoiding solid and liquid waste discharges into the surrounding environment. It is essential that wastes are appropriately stored, collected and disposed of, to minimise the accidental spillage/leakage of potentially harmful products into the environment.

4.1 Handling and segregation of waste

All wastes generated during the day e.g. at the location of clearing and 2D seismic survey, is to be conveyed back to the site waste facilities at the end of the day.

Segregating waste at the source increases the efficiency throughout the waste management process, reduces the volume of waste going to landfill and increases the volume of recyclable material by avoiding contamination.

The site will be equipped with skip bins where required and waste will be segregated into the following streams:

- Metals
- Plastics
- Paper and cardboard
- Putrescibles
- Hazardous waste.

4.2 Disposal of waste

The volume of waste produced during the 2D seismic survey is likely to be small. All wastes, specifically listed wastes (as described in Schedule 2 of the *Waste Management and Pollution Control (Administration) Regulations*) generated as part of the regulated activity will be removed from the project area, for disposal or recycling at a licensed facility authorised to receive those wastes (as summarised in the NT Listed Waste Company summary spreadsheet). Table 4-1 below provides the waste disposal methods for the various waste sources.

Table 4-1. Waste management summary

Waste source	Indicative volume	Disposal method
Putrescible waste	<400kg	Disposal: Collected in dedicated waste bins for transport to an approved landfill site.
Paper and cardboard	<300kg	Recycled: Collected in dedicated waste bins for recycling at an off-site facility.
Glass and cans	<100kg	Recycled: Collected in separate waste bins for recycling at an off-site facility.
Scrap metal	<1 tonne	Recycled: Collected in designated skip for recycling at an offsite facility.
Used chemical and fuel drums	<500kg	Recycled: Collected in designated skip for recycling at an offsite facility.
Chemical wastes	<100L	Re-use / disposal: Collected in approved containers for disposal at approved landfill or returned to supplier.
Oily rags, oil/fuel contaminated	<100kg	Recycled / Disposal: Used oil will be collected in

Waste source	Indicative volume	Disposal method
materials, filters and other hydrocarbon materials		suitable containers for disposal at approved landfill or recycled at a recycling facility
Timber pallets	<500kg	Recycled: Collected in designated skip for recycling at an offsite facility.
Vehicle tyres	<500kg	Recycled / Disposal: Tyres will be collected in skip for disposal at approved landfill site or recycled at a recycling facility

4.3 Monitoring

A monitoring program will be implemented to ensure all waste management actions are conducted in accordance with applicable legislation, International guidelines and company standards. Monitoring will assist in ensuring that Peak Helium avoid and minimise the risk of pollution due to waste storage, transfer, treatment and final disposal activities, through early detection and therefore early mitigation of potential polluting events.

The following waste monitoring activities will be conducted:

- A waste register/inventory will be kept to assist in identification of excessive wastage. The inventory will detail the number of skips filled, types of waste generated and location of final disposal (e.g. landfill, recycled, etc.).
- Waste storage areas will be inspected at least fortnightly (twice weekly during wet weather). Inspections will analyse integrity of bunds, condition of storage containers/skips, appropriate labelling, and that wastes are properly segregated and covered. Non-compliances and incidents will be documented in the inventory/register along with corrective actions taken to control and minimise environmental harm.



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Appendix H – Spill Response Management Plan



Spill Response Management Plan

EP 134 Seismic Survey 2021

Peak Helium



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1 INTRODUCTION

1.1 Context

Peak Helium is a leading helium explorer in Australia, with a focus on exploring and developing its highly prospective Amadeus Basin pure helium permit. Peak Helium operates exploration permit (EP) 134 (project area), located over pastoral leases at Kulgera, approximately 275 km South of Alice Springs in the Northern Territory (NT). The southern boundary of EP 134 borders on the NT/ South Australia (SA) border.

Peak Helium proposes to undertake 120 km of two dimensional (2D) seismic survey between September 2021 and September 2022. These works will be regulated through an Environmental Management Plan (EMP) approved by DEPWS. EcOz were engaged to prepare the EMP and associated documents, including this Spill Response Management Plan.

1.2 Purpose and scope

Accidental spills of potentially hazardous material may result in contamination of land and water. This Spill Response Management Plan outlines appropriate procedures for reducing the likelihood of spills and the severity of impact from spills.

2 ISSUE AND IMPACT

2.1 Chemicals and wastes stored on site

The chemicals that will be stored onsite include:

- Diesel fuel
- lubricating and hydraulic oil for machines
- solvents and degreasers etc

During the wet season, the transport of chemicals on unsealed roads will not be undertaken.

All loading, unloading, transfer and refuelling operations are to be undertaken in designated areas, with portable bunding and away from any sensitive receptors. Peak Helium will ensure access tracks used for transporting fuel are adequate and safe. All transport of fuel is to be carried out during daylight hours only.

Use, storage and handling of fuel, chemicals and oils on site:

- must comply with WHS legislation
- be in accordance with their approved safety data sheet
- must be stored to prevent release to the environment and to contain any spills
- liquid hydrocarbons, whether separated or mixed with other fluids at a concentration greater than 1% by volume, must not be stored in any open top structure or pit

Any hazardous chemicals or those that may cause environmental harm are to be stored within secondary containment.

Secondary containment must meet all of the following:

- sufficient capacity to hold 100% of the volume of the largest container stored in the area plus 10%, unless the container is equipped with individual secondary containment
- permeability able to contain materials or waste until it can be removed or treated

- provide for separation of clean and dirty water
- be compatible with the material or waste stored or used within the containment
- be resistant to physical, chemical and other failure during handling, installation and use
- be maintained in good order at all times
- secondary containment requirements can be met with double-lined or double-walled storage tanks.

Daily inspections of fuel and chemical storage areas will be undertaken, including containment areas and structures, containers and spill kits. If the containment is damaged or compromised, repairs must be carried out as soon as practicable.

Materials that escape from primary containment or are otherwise spilled onto secondary containment shall be removed as soon as possible.

Inspection reports and maintenance records of secondary containment shall be kept.

2.2 Spill scenarios

Only limited chemicals and hazardous materials will be used during the seismic survey; however, there remains a risk of contamination as a result of spills from the following sources:

- Fuel spill during refuelling of vehicles and machinery.
- Inappropriate storage or handling of materials used during vehicle maintenance works e.g. lube oil, used batteries etc.
- Diesel fuel leakage.
- Inappropriate storage or handling of paints and solvents used in maintenance of vehicles and equipment.

Spills can result on the contamination of land and water (including groundwater). This in turn can lead to impacts to ecosystem function and health, vegetation death, respiratory disorders, and toxicity to individual organisms (including people).

The steps involved in cleaning up severe or minor spills are very similar. The difference lies in the type and degree of hazard, location of the spill, equipment required to clean up the spill and required personal protective equipment.

It is important to know what you are dealing with, appropriate training to deal with the spill, and the necessary equipment to clean up the spill.

Health and safety comes first. DO NOT attempt to clean up or contain a spill if you do not have the necessary skills and equipment, or you are putting yourself or others at further risk.

Risks associated with spills have been assessed in the EMP. Table 2-1 below provides a summary of spill scenarios and management measures.

Table 2-1. Summary of spill scenarios

Spill scenario	Duration	Mechanisms	Location	Quality	Quantity	Management measures	Monitoring	Receptors
Spills from chemical handling and storage onsite	Duration of works (Approximately 3 weeks)	Rupture of containers Spill during handling	Chemical storage area Re-fuelling area	Chemicals listed	<1000L for diesel fuel <100L for all other chemicals	All personnel using chemicals will be trained in their use Any hazardous chemicals or those that may cause environmental harm are to be stored within secondary containment. As described above. Designated storage areas with appropriate segregation of in compatible chemicals. General purpose and hazardous substance spill kits available at appropriate locations (i.e. in close proximity to the storage or use areas of all substances). All loading, unloading, transfer and refuelling operations are to be undertaken in designated areas, with portable bunding and away from any sensitive receptors. Ensure access tracks used for transporting fuel are adequate and safe. All transport of fuel to be carried out during daylight hours. Daily inspections of fuel and	Daily inspections of fuel and chemical storage areas will be undertaken, including containment areas and structures, containers and spill kits	Retained on-site

Spill scenario	Duration	Mechanisms	Location	Quality	Quantity	Management measures	Monitoring	Receptors
						chemical storage areas will be undertaken, including containment areas and structures, containers and spill kits. Ensure that all personnel are familiar with this spill response plan and site inductions cover transport, storage, refuelling, response and clean-up activities.		
Spills from chemical transportation (off-site)	Duration of works (Approximately 3 weeks)	Transport spill, partial or total spill due to accident	Off-site along public roads	Chemicals listed	<50 000L for total loss of diesel fuel <1000L for others	Transport companies are to be appropriately licenced to transport chemicals and waste including the requirement to detect and respond to spills (<i>Dangerous Goods and Waste Management and Pollution Control Act</i>)	Monitor the performance of contractors engaged	Chemical transport between Site and Alice Springs and Darwin, Queensland or South Australia

2.3 Safety Data Sheets

Safety Data Sheets (SDS) information should be used in spill response planning and preparation, and reviewed when substances are delivered to site, to identify the type of substance being used and the required equipment necessary to contain a spill of that substance, as well as any PPE requirements in the event of a spill.

It is important to know what you are dealing with, the appropriate training required to deal with the spill, and the necessary equipment to clean up the spill, prior to the event of a spill. Health and safety comes first. DO NOT attempt to clean up or contain a spill if you do not have the necessary skills and equipment, or you are putting yourself or others at further risk.

SDS are to be kept in areas used to store or handle hazardous materials. These forms contain the following important information:

- The identity of the chemical product and its ingredients
- The hazards of the chemical including health hazards, physical hazards and environmental hazards
- Physical properties of the chemical, like boiling point, flash point and incompatibilities with other chemicals
- Workplace exposure standards for airborne contaminants
- Safe handling and storage procedures for the chemical
- What to do in the case of an emergency or spill
- First aid information
- Transport information
- Personal Protective Equipment (PPE) requirements.

3 SPILL RESPONSE PROCEDURE

Spill response procedures follow the basic priority of (depending on the nature and extent of the spill):

ASSESS > SECURE > CONTROL > ABSORB > DISPOSE > REPORT

3.1 Assess

Assess the spill by determining:

- Type of substance
- Location of the spill
- Source of the spill and whether it can be isolated
- Can the spill be controlled / contained
- What is required to deal with the spill – personal protective equipment etc.

The severity of the spill can be assessed using Table 3-1 and Table 3-2.

3.1.1 Severity of the spill

Table 3-1. Assessing severity ranking of spill

Minor	Reversible and localised impact on the environment. OR Environmental impact requires a programmed commitment of time and/or money to remediate, OR would take less than 2 years to recover naturally. OR Damage to TR's reputation with a single or small group of organisations or individuals
Moderate	Significant but reversible, OR irreversible and localised, impact on the environment. OR Environmental impact requires a programmed commitment of moderate time and/or money to remediate, OR would take 2-10 years to recover naturally. OR Local / regional damage to Defence's reputation. Negative press coverage at a local or regional scale
Major / severe	Significant AND irreversible impact on the environment. OR Environmental impact requires emergency commitment of significant time and/or money to remediate, OR would take more than 10 years to recover naturally. OR National / international damage to Defence's reputation. Negative press coverage at a national or international scale.

In terms of volume, Table 3-2 can be used as a guideline for determining severity.

Table 3-2. Volume of spill to determine severity

Minor	>100L to inland waters/land
Moderate	100 – 1500L to inland waters/land
Major / severe	>1500L to inland waters/land

It is important to consider Table 3-2 in the context of Table 3-1 when determining severity of a spill.

3.2 Secure the spill

If safe to do so, the spill should be immediately secured. Personnel working in or near the area are to be notified of the spill occurrence immediately. Eliminate any ignition sources (e.g. open flames, internal combustion engines etc.). The area is to be secured by means of barricading, signage or danger tape around the spill area to prevent personnel from accessing the area unnecessarily. In the case of a severe or life threatening spill, immediately call emergency services. Any spill identified as 'severe' is to be reported to the authorities as soon as possible (within 24 hours).

3.3 Control the spill

If safe to do so, the source of the spill is to be isolated to prevent the spill from becoming larger and/or entering the receiving environment, particularly waterways/drainage systems. The spill is to be contained by

appropriate means which may include using sand bags or earthen bunds to construct a bund wall, use of absorbent material, temporary sealing of cracks or leaks in containers and use of geotextile or silt fencing.

3.4 Absorb the spill

Spills are to be cleaned up by means of absorption. This will convert a liquid spill into a solid and enable more effective clean-up. General purpose and hazardous substance spill kits are available at appropriate locations (i.e. in close proximity to the storage or use areas of all substances). Various absorbent materials are supplied in the spill kits including absorbent booms, absorbent pads, granular absorbents, disposable bags and ties.

Spill response training is available and will be delivered to all personnel, to educate personnel on the appropriate material to use for various spill scenarios. Do not attempt to clean-up a spill unless you have received the relevant training or you are unsure of methods to use. Personal protection equipment **MUST** be worn.

3.5 Dispose of contaminated materials

The method of disposal will be dependent upon the nature and extent of the spill. Advice should be sought from the relevant authorities to determine the appropriate disposal method for a particular spill.

Used absorbent material including granular absorbent, boom and pads shall be put into disposable bags, tied and placed in regulated waste bins. Bags should be clearly labelled.

Small quantities of contaminated soils may be disposed of in regulated waste bins or contaminated soil bins if available. On-site disposal of contaminated waste must be co-ordinated and approved by the Peak Helium Site Manager.

3.6 Report the spill

All spills are to be reported to Peak Helium Site Manager who will notify Station owners within 24 hours. Management personnel will review the circumstances of the spill and implement or modify controls to prevent further occurrence of a similar nature. Notifications will include as a minimum;

- Time, date, nature, duration and location of the incident
- Location of the place where incident has occurred
- Nature, the estimated quantity or volume and the concentration of any pollutants involved
- Circumstances in which the incident occurred and cause of the incident, if known
- Action taken or proposed to be taken to deal with the incident
- Failure to complete the required notifications will be considered a system non-conformance.

4 RESPONSIBILITIES

It is the responsibility of all Peak Helium employees and contractors on site who witness a spill to report it to the Peak Helium Site Manager, who will report the spill to Station owners within 24 hours, as per the reporting requirements detailed in Section 3.6 above.



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Appendix I - Rehabilitation Plan



Rehabilitation Plan

EP134 Seismic Survey 2021

Peak Helium



DOCUMENT CONTROL RECORD

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1 INTRODUCTION

1.1 Context

Peak Helium is a leading helium explorer in Australia, with a focus on exploring and developing its highly prospective Amadeus Basin pure helium permit. Peak Helium operates exploration permit (EP) 134 (project area), located over pastoral leases at Kulgera, approximately 275 km South of Alice Springs in the Northern Territory (NT). The southern boundary of EP 134 borders on the NT/ South Australia (SA) border.

Peak Helium proposes to undertake 120 km of two dimensional (2D) seismic survey between September 2021 and September 2022. These works will be regulated through an Environmental Management Plan (EMP) approved by DEPaWS. EcOz were engaged to prepare the EMP and associated documents, including this Rehabilitation Plan.

1.2 Purpose and scope

Rehabilitation is the process of returning disturbed land to a stable, self-sustaining land form that is similar to pre-existing and adjacent vegetation communities and/or land forms. Success of rehabilitation is a critical component of this project, and failure of rehabilitation a major risk. This report will detail rehabilitation methods, monitoring procedures and define rehabilitation success criteria.

2 REHABILITATION STRATEGY

2.1 Rehabilitation objectives

Peak Helium will ensure that rehabilitation is:

- Stable and self-sustaining.
- Safe for the land users and wildlife.
- Returned to an agreed and close-to pre-disturbance level that requires little or no ongoing management.
- Complementary to the adjoining landscape.
- Re-instated to reflect the natural ecosystem/s, or establish an alternative outcome that is commiserate with the surrounding land use e.g. vegetation growing, cropping, etc.

2.2 Rehabilitation strategy

The proposed rehabilitation approach is assisted natural regeneration in areas that have been cleared, and natural regeneration for the seismic line areas. Wherever practicable, vegetation will not be cleared, and vehicles will traverse over or around the vegetation instead. This approach is most suitable for open lightly wooded areas and grasslands and will result in minimal ground disturbance and rehabilitation efforts.

Rehabilitation of the seismic lines will be carried out in a progressive manner, following behind with the completion of each survey line. This will ensure that land is stabilised as soon as possible after disturbance to reduce the occurrence of erosion, sedimentation, loss of topsoil and weed invasion.

Methods for final rehabilitation are discussed in more detail in Section 3.

2.3 Outcomes

Extensive consultation has been undertaken with landholders. It is expected that this will be an ongoing process and will assist in determination of an agreed rehabilitation outcome. In some cases, it may be the wish of the landholder for the land to be rehabilitated for a future land use; however, in most cases the land will be rehabilitated to a mutually agreed level consistent with surrounding land uses and ecological values.

Rehabilitation requirements and objectives will be determined on a case-by-case basis, but will be compatible with the safety, landform, vegetation cover and soil stability of the surrounding area and methods developed in this plan.

3 REHABILITATION METHODS

3.1 Vegetation clearing

Cleared vegetation is to be pushed to one side of the 2D seismic lines, to assist in future rehabilitation works. Cleared vegetation may also be used in erosion and sediment control structures. Retention of green waste can assist in creation of micro-habitats for seed germination, promote retention of soil moisture, and provide habitat for fauna.

In areas of high weed occurrence, cleared vegetation should be flagged so that it is not used in rehabilitation works. Vegetation clearing is to avoid removal of large trees (>50 cm DBH) where possible.

3.2 Natural regeneration

Where clearing is required (e.g. within dense vegetation on 2D seismic lines), cleared vegetation will be stockpiled to be respread following the works. The topsoil will contain a natural seedbank. Spreading of waste vegetative matter over disturbed areas provides micro-habitats and slows run-off during rainfall events, thus enhancing infiltration. This is proposed to be implemented progressively at the end of the 2D seismic exploration activities for each line.

3.3 Assisted natural regeneration

Assisted natural regeneration combines natural regeneration with soil preparation and weed control. If monitoring demonstrates that natural regeneration is unsuccessful, additional soil preparation combined with reseedling using local provenance seed shall be carried out.

3.4 Erosion and sediment control

The following erosion and sediment control measures can be used to protect rehabilitated areas. Further information is available in the project Erosion and Sediment Control Plan.

- Rehabilitation will be undertaken in a progressive manner to limit erosion risk.
- Inspections, following heavy rainfall, of areas prone to concentration of surface water flows.
- Erosion and sediment control structures are to be installed prior to land disturbance, and maintained in place until after rehabilitation is complete.
- All erosion and sediment control devices are to be constructed with consideration of the IECA Best Practice Erosion and Sediment Control Guidelines 2008.
- Construct, improve or repair drainage control measures to reduce water movement.

3.5 Weed management

Vehicles moving to and from the rehabilitation area/s are to be free from weed seed. Weed hygiene is to be carried out prior to access into areas undergoing rehabilitation e.g. wash vehicle down.

Weed control is required for at least 12-months post rehabilitation, to remove any emerging weeds within the rehabilitated area/s.

All materials and equipment used during rehabilitation are to be clean and free from dirt that may contain weed seed.

Species specific management will be developed if identified as required.

3.6 Maintenance and monitoring

Following rehabilitation works, vehicular access should be limited except where required for maintenance or monitoring work. Regular monitoring will be carried out to ensure:

- Vegetation re-establishment is on track and consistent with success criteria and surrounding land.
- Erosion and sediment control measures are effective.
- Weed species are controlled.
- Landforms remain stable.

Further maintenance work may be required in areas not showing the above features. For example, additional weed control, erosion control measures and planting may be required. Regular maintenance will be undertaken during and after the program to ensure that rehabilitated areas do not degrade or stall.

3.7 Access tracks

Only established main roads (Horseshoe bend road) and the railway service track and existing pastoral station tracks will be used during site activities. General maintenance of tracks may be required during and following project activities, undertaken in agreement with Station owner. This may include grading, patching and watering.

To minimise damage to access tracks works will cease if there is a forecast for 50 mm of rain or more within the next 48 hours.

3.8 2D seismic lines

2D seismic lines will result in minimal impact, so it is expected that most areas will regenerate naturally. More heavily impacted areas will be treated the same as new access tracks, with light surface scarification and ripping. Rip lines are to be spaced such that movement of soil is limited. Direct seeding will be used where required.

3.9 Accommodation camp

No campsite will be required, accommodation will be organised off site.

4 SUCCESSFUL REHABILITATION CRITERIA

The following, quantifiable criteria has been established so that it is possible to assess the success of rehabilitation. The success criteria are performance objectives and/or standards against which rehabilitation success can be measured. Using these criteria, it should also be possible to assess rehabilitation trends, to ensure it is moving towards a safe, stable and sustainable ecosystem.

Rehabilitation will be deemed successful when the following conditions have been met:

- Safe for the land users and wildlife.
- Returned to an agreed and close-to pre-disturbance level that requires little or no ongoing management.
- Complementary to the adjoining landscape.
- Re-instated to reflect the natural ecosystem/s, or establish an alternative outcome that is commiserate with the surrounding land use e.g. vegetation growing, cropping, etc.
- No signs of erosion, sedimentation, loss of topsoil or weed invasion.
- Rehabilitation is stable and self-sustaining.

Analogue sites (selected pre-works) are to be surveyed to determine levels of species composition and richness, and to assist in reaching the specified rehabilitation success criteria. Due to the linear nature of the 2D seismic lines clearing, it may be necessary to establish several analogue sites along each line.

5 MONITORING

Monitoring will assess the following parameters:

- Percent plant cover – canopy, sub-canopy and shrub layers
- Percent groundcover
- Percent weed species
- Number of large trees present
- Species richness – tree, shrub, grass and forb
- Presence of debris – woody, leaf litter etc.
- Total vegetative ground cover
- Signs of erosion.

Linear sites (e.g. seismic lines) will have smaller plots measured within each vegetation type, nominally 1 m x 1 m, the number of sites will depend on the size of the vegetation assemblage, but should be a minimum of two per assemblage.

5.1 Frequency of monitoring

Rehabilitation success will be monitored annually during and after the program. This annual assessment should occur after rainfall for a period of five years (see Table 5-1).

Table 5-1. Rehabilitation monitoring schedule

Rehabilitation stage	Timing
Preliminary assessment (Six to nine months)	Select a time soon after the first significant rainfall (minimum 10mm) hopefully between six and nine months post rehabilitation works
Early rehabilitation (Years 1 to 3)	Annual inspections preferably during April or May, yearly for the first three years post rehabilitation works
Long-term rehabilitation (Years 4 onwards)	Annual inspections preferably during April or May until successful rehabilitation criteria have been met and signed off by the Project Manager

6 REPORTING AND RESPONSIBILITIES

6.1 Data management and reporting

Any rehabilitation works carried out will be recorded by the Site Manager. This information will be given to the Project Manager who will compile a report for senior management.

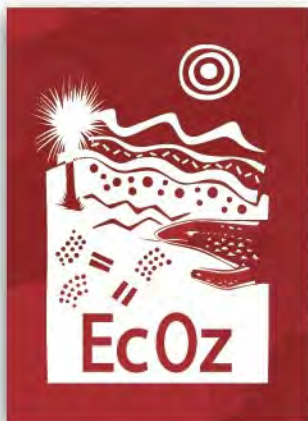
All monitoring data collected by staff or contractors will be provided to the Site Manager and stored in a database, for inclusion in final reporting.

All data and reports will be kept by Peak Helium for a minimum of five years.

6.2 Roles and responsibilities

Project employees and/or contractors will undertake rehabilitation works and monitoring under the direction of the Site Manager.

The Site Manager will compile monitoring data and information on rehabilitation works undertaken, and provide these to the Project Manager. The Site Manager will compile the final rehabilitation report under the direction of the Project Manager, for submission to relevant authority.



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Appendix J - Stakeholder Engagement Log

Appendix J Stakeholder Engagement Log

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1.1 Overview

This appendix contains a log of communications with Stakeholders, in relation to EMP PHK1, to the date of submission.

Although not a direct stakeholder, Peak Helium has engaged with the Central Land Council (CLC) to discuss the work program covered under this EMP. Peak Helium has received a confidentiality agreement from the CLC regarding getting an Exploration Agreement in place for future work programs; correspondence received from the Central Land Council following this meeting is included for completeness

1.2 Log

Table 1: Key Relevant Stakeholder Communications log

Stakeholder	Contact Details	Date	Information provided	Written Response Received	Peak Helium Response	Change to EMP
Pastoral Lessee Idracowra	PMB 66 Alice Springs NT 0872	13/05/2021	Phone conversation; Introductions and discussions on Peak Helium’s purchase of EP134, and proposed 2021 seismic work program.	No objections or concerns raised	Agreed to follow up with written correspondence	No change needed
Pastoral Lessee Horseshoe Bend	PMB 23 Alice Springs NT 0872		Phone conversation; Introductions and discussions on Peak Helium’s purchase of EP134, and proposed 2021 seismic work program.	No objections or concerns raised	Agreed to follow up with written correspondence	No change needed
Pastoral Lessee Idracowra	PMB 66 Alice Springs NT 0872	13/05/2021	Email; Introductions and discussions on Peak Helium’s purchase of EP134, and proposed 2021 seismic work program. Attachments; • 2D Seismic Work Methodology • A map of the whole of property showing the proposed 2D seismic lines, campsite/laydown and associated buffers. • A map focusing on the proposed 2D seismic lines, campsite/laydown and associated buffers. (refer sections 1.3.4 through 1.3.6, inclusive, and section 1.3.4 for the information provided)	No objections or concerns raised	Agreed to follow up with written correspondence	No change needed

Stakeholder	Contact Details	Date	Information provided	Written Response Received	Peak Helium Response	Change to EMP
Pastoral Lessee Horseshoe Bend	PMB 66 Alice Springs NT 0872	13/05/2021	Email; Introductions and discussions on Peak Helium's purchase of EP134, and proposed 2021 seismic work program. Attachments; 2D Seismic Work Methodology - A map of the whole of property showing the proposed 2D seismic lines, campsite/laydown and associated buffers. - A map focusing on the proposed 2D seismic lines, campsite/laydown and associated buffers. (refer sections 1.3.1 through 1.3.3, inclusive, and section 1.3.4 for the information provided)	No objections or concerns raised	Agreed to follow up with written correspondence	No change needed
Pastoral Lessee Idracowra	PMB 66 Alice Springs NT 0872	31/05/2021	Phone conversation; Discussions on Peak Helium's proposed 2021 seismic work program and required site visits for Ecological and Archaeological Assessments.	No objections or concerns raised		No change needed
Pastoral Lessee Horseshoe Bend	PMB 23 Alice Springs NT 0872	31/05/2021	Phone conversation; Discussions on Peak Helium's proposed 2021 seismic work program and required site visits for Ecological and Archaeological Assessments.	No objections or concerns raised		No change needed
Pastoral Lessee Idracowra	PMB 66 Alice Springs NT 0872	31/05/2021	Email; Request for face to face meeting at Pastoral Lessee's property regarding Peak Helium's proposed 2021 seismic work program (refer section 1.3.7 for the information provided)	No objections or concerns raised		No change needed
Pastoral Lessee Horseshoe Bend	PMB 23 Alice Springs NT 0872	31/05/2021	Email; Request for face to face meeting at Pastoral Lessee's property regarding Peak Helium's proposed 2021 seismic work program (refer section 1.3.8 for the information provided)	No objections or concerns raised		No change needed
Pastoral Lessee Idracowra	PMB 66 Alice Springs NT 0872	06/06/2021	Email; Request for site visits for Ecological and Archaeological Assessments. (refer section 1.3.9 for the information provided)	No objections or concerns raised		No change needed

Stakeholder	Contact Details	Date	Information provided	Written Response Received	Peak Helium Response	Change to EMP
Pastoral Lessee Horseshoe Bend	PMB 23 Alice Springs NT 0872	06/06/2021	Email; Request for site visits for Ecological and Archaeological Assessments. (refer section 1.3.10 for the information provided)	No objections or concerns raised		No change needed
Pastoral Lessee Idracowra	PMB 66 Alice Springs NT 0872	07/06/2021	Face to face meeting; Discussions on Peak Helium's proposed 2021 seismic work program and ongoing work programs that would be contingent on the seismic program outcomes, along with the upcoming site visits for Ecological and Archaeological Assessments.	No concerns on the 2021 seismic program. Concerns raised in regards to possible impacts of future development on the running of the property	Peak Helium reiterated that we would work with the Pastoral Lessee to minimise the impacts of Peak Helium's operations and that where practicable work programs would fit in with property operations.	No change needed
Pastoral Lessee Horseshoe Bend	PMB 23 Alice Springs NT 0872	07/06/2021	Face to face meeting; Discussions on Peak Helium's proposed 2021 seismic work program and ongoing work programs that would be contingent on the seismic program outcomes, along with the upcoming site visits for Ecological and Archaeological Assessments.	No concerns on the 2021 seismic program. Concerns raised in regards to previous experience with Petroleum activities. Concerns raised in regards to possible impacts of future development on the running of the property	Peak Helium reiterated that we would work with the Pastoral Lessee to minimise the impacts of Peak Helium's operations and that where practicable work programs would fit in with property operations.	No change needed
Pastoral Lessee Idracowra	PMB 66 Alice Springs NT 0872	05/08/2021	Email; Requestion confirmation of details for "Negotiation notice"	No concerns Confirmed details		No change needed
Pastoral Lessee Horseshoe Bend	PMB 23 Alice Springs NT 0872	05/08/2021	Email; Requestion confirmation of details for "Negotiation notice"	No concerns Confirmed details		No change needed

Stakeholder	Contact Details	Date	Information provided	Written Response Received	Peak Helium Response	Change to EMP
Reference Line A	NA	NA	Program scope discussion Written information; • Work methods for 2d Seismic acquisition • Scope footprint map • Scope footprint map with property overlay • Scope footprint map with EP overlay • Scope footprint map with SOCS overlay (refer sections 1.3.11 through 1.3.15, inclusive for the information provided)	No written response; Concerns were raised regarding working within the Karingal Creek system, due to the cultural significance of the system Requests for local indigenous interest holders to be considered for employment and business opportunities	All works will avoid disturbance within the Karingal Creek system. Peak Helium will liaise with indigenous interest holders regarding employment and business opportunities as the project progresses.	NA
Traditional Owner	Ormiston Gorge	27/05/2021	As per reference line A	As per reference line A	As per reference line A	No change needed
Traditional Owner	Alice Springs	22/07/2021	As per reference line A	As per reference line A	As per reference line A	No change needed
Traditional Owner	Alice Springs	22/07/2021	As per reference line A	As per reference line A	As per reference line A	No change needed
Traditional Owner	Wallis Rockhole community	07/2021	As per reference line A	As per reference line A	As per reference line A	No change needed
Traditional Owner	Alice Springs	07/2021	As per reference line A	As per reference line A	As per reference line A	No change needed
Traditional Owner	Alice Springs	07/2021	As per reference line A	As per reference line A	As per reference line A	No change needed
Traditional Owner	Wallis Rockhole community	07/2021	As per reference line A	As per reference line A	As per reference line A	No change needed
Traditional Owner	Alice Springs	07/2021	As per reference line A	As per reference line A	As per reference line A	No change needed
Traditional Owner	Alice Springs	07/2021	As per reference line A	As per reference line A	As per reference line A	No change needed
Traditional Owner	Alice Springs	07/2021	As per reference line A	As per reference line A	As per reference line A	No change needed
Traditional Owners On Country Meeting	Titjikala	10/2021	As per reference line A	As per reference line A	As per reference line A	No change needed
Traditional Owners On Country Meeting	Outstations	10/2021	As per reference line A	As per reference line A	As per reference line A	No change needed
Traditional Owners On Country Meeting	Finke	10/2021	As per reference line A	As per reference line A	As per reference line A	No change needed

1.3 Correspondence

From: [Anthony Alexopoulos](#)
To: [Art Malone](#); [Jon Bennett](#)
Subject: Summary of introductory meeting.
Date: Tuesday, 8 June 2021 11:39:53 AM
Attachments: [image3dbfbf.PNG](#)

Dear Art and Jon,

It was good to catch-up with you both briefly yesterday. I appreciated the project overview and progress update.

As discussed, the CLC processes put a strong emphasis on including traditional owners early on, and could ultimately lead to an agreement for exploration between Peak and the CLC on their behalf. The purpose of this process, and the agreement is to give certainty to Peak that the right people have been consulted and that they consent to exploration. As the Native Title Representative Body for the area over which EP134 is situated, engagement with the CLC is the best way to ensure all parties that any agreement is strong and dependable through the life of the project.

A critical component of our agreements relate to sacred site protection. The CLC has a robust process that identifies and then consults a broad group of people with cultural connection and knowledge for the area being worked upon. In this way the CLC is confident that our Sacred Site Clearance Certificates (SSCC) provide a defence against prosecution under the NT Aboriginal Sacred Sites Act. The processes for applying for a SSCC are on the CLC website, however an agreement is required between the CLC and the company before we would commence a sacred site clearance. As mentioned, a careful approach will be required in exploration planning on the target areas as the CLC is aware that the Karinga Lakes are considered sacred sites.

I look forward to receiving further information on the proposed works, and hopefully continuing the discussion about a possible agreement that would protect sacred sites, bring benefit to traditional owners, and ensure Peak Helium builds relationships, and has certainty for their project.

All the best
Anthony

Anthony Alexopoulos

MANAGER - MINERALS AND ENERGY

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1.3.1 Peak Helium - 2021 Seismic program - Idracowra email - 21 05 13

From: jon.bennett@ingauge.com.au
To: admin@umbearaholdings.com.au
Cc: "Art Malone"; "Jordan Bunning"
Subject: Peak Helium - 2021 Seismic program
Date: Thursday, 13 May 2021 2:00:01 PM
Attachments: [image001.png](#)
[Peak Helium - 2021 Seismic Program - Idracowra - Zoomed.pdf](#)
[Peak Helium - 2021 Seismic Program - Idracowra - Whole of Property.pdf](#)
[Peak Helium - 2021 2D Seismic - Work Methodology.pdf](#)

Hi Angus and Kimberley

Thanks for your time on the phone, this morning Kimberley.

As discussed, Peak Helium is acquiring EP134 from Tristar and intends to carry out a 2D seismic program for Helium exploration in the North West section of EP134.

This 2D seismic program will consist of the following on your Idracowra:

- ~140km of Seismic line
 - Cleared for 5m access as required
 - Within a 500m buffer to allow fine-tuning of the alignment on-site to reduce the impact of the works
 - Where seismic lines cross fencelines without a gate nearby, we will install a temporary access point, to be removed on the completion of works

Please find attached;

- 2D Seismic Work Methodology
- A map of the whole of Idracowra showing the proposed 2D seismic lines, campsite/laydown and associated buffers.
- A map focusing on the proposed 2D seismic lines, campsite/laydown and associated buffers.

Would you be available tomorrow to discuss the proposed works in more detail?

Thanks

Jon

Jon Bennett

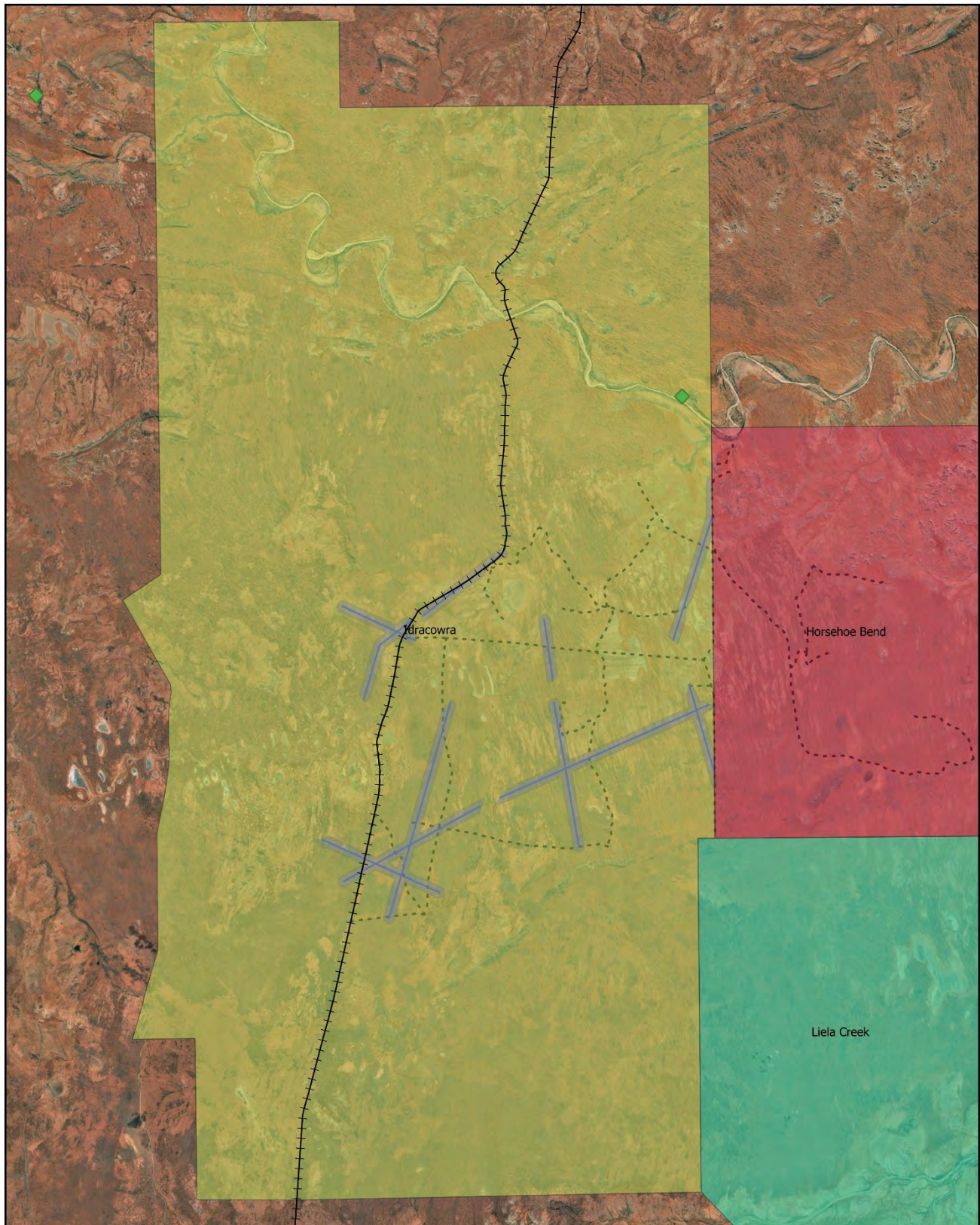
M +61 (0) 400 007 635

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1.3.2 Peak Helium - 2021 Seismic Program - Idracowra - Whole of Property



Legend

- Horsehoe Bend
- Idracowra
- Liela Creek
- homesteads
- Access Tracks
- 2021 Seismic
- 2021 Seismic Campsite
- Seismic_Acq_3.1_Buffered
- Seismic_Acq_3.1

Peak Helium
EP134 - 2021 Proposed Seismic
Idracowra - Whole of Property

Project name: EP134 - 2021 Seismic
 Document Name: Idracowra Proposed Works - Property
 Revision No:
 Created by/on: Jon Bennett / 13/05/2021
 inGauge Energy Pty Ltd

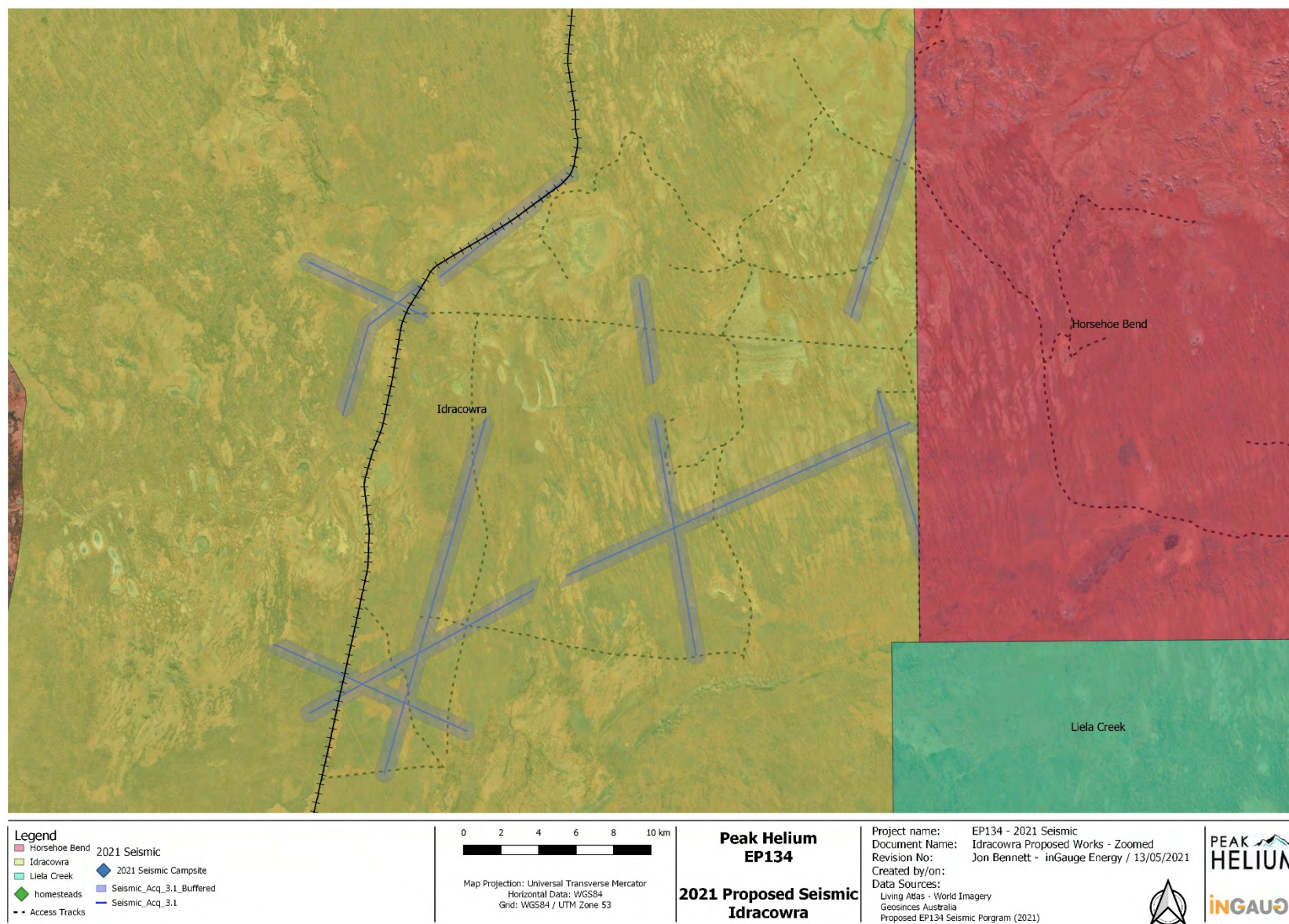
0 2 4 6 8 km

Map Projection: Universal Transverse Mercator
 Horizontal Data: WGS84
 Grid: WGS84 / UTM Zone 53

Data Sources:
 Living Atlas - World Imagery
 Geosciences Australia
 Proposed EP187 work program (2021-25)



1.3.3 Peak Helium - 2021 Seismic Program - Idracowra – Zoomed



1.3.4 Peak Helium - 2021 Seismic program - Horseshoe Bend email - 21 05 13

From: jon.bennett@ingauge.com.au
To: "Viv Oldfield"
Cc: "Art Malone"; Jordan Bunning
Subject: Peak Helium - 2021 Seismic program
Date: Thursday, 13 May 2021 12:37:14 PM
Attachments: [image001.png](#)
[Peak Helium - 2021 2D Seismic - Work Methodology.pdf](#)
[Peak Helium - 2021 Seismic Program - Horseshoe Bend - Zoomed.pdf](#)
[Peak Helium - 2021 Seismic Program - Horseshoe Bend - Whole of Property.pdf](#)

Hi Viv

Thanks for your time on the phone.

As discussed, Peak Helium is acquiring EP134 from Tristar and intends to carry out a 2D seismic program for Helium exploration in the North West section of EP134.

This 2D seismic program will consist of the following on your Property Horseshoe Bend:

- ~32km of Seismic line
 - Cleared for 5m access as required
 - Within a 500m buffer to allow fine-tuning of the alignment on-site to reduce the impact of the works
 - Where seismic lines cross fencelines without a gate nearby, we will install a temporary access point, to be removed on the completion of works
- 1 of 100m x 100m camp/laydown area

Please find attached;

- 2D Seismic Work Methodology
- A map of the whole of Horseshoe Bend showing the proposed 2D seismic lines, campsite/laydown and associated buffers.
- A map focusing on the proposed 2D seismic lines, campsite/laydown and associated buffers.

Would you be available tomorrow to discuss the proposed works in more detail?

Thanks

Jon

Jon Bennett

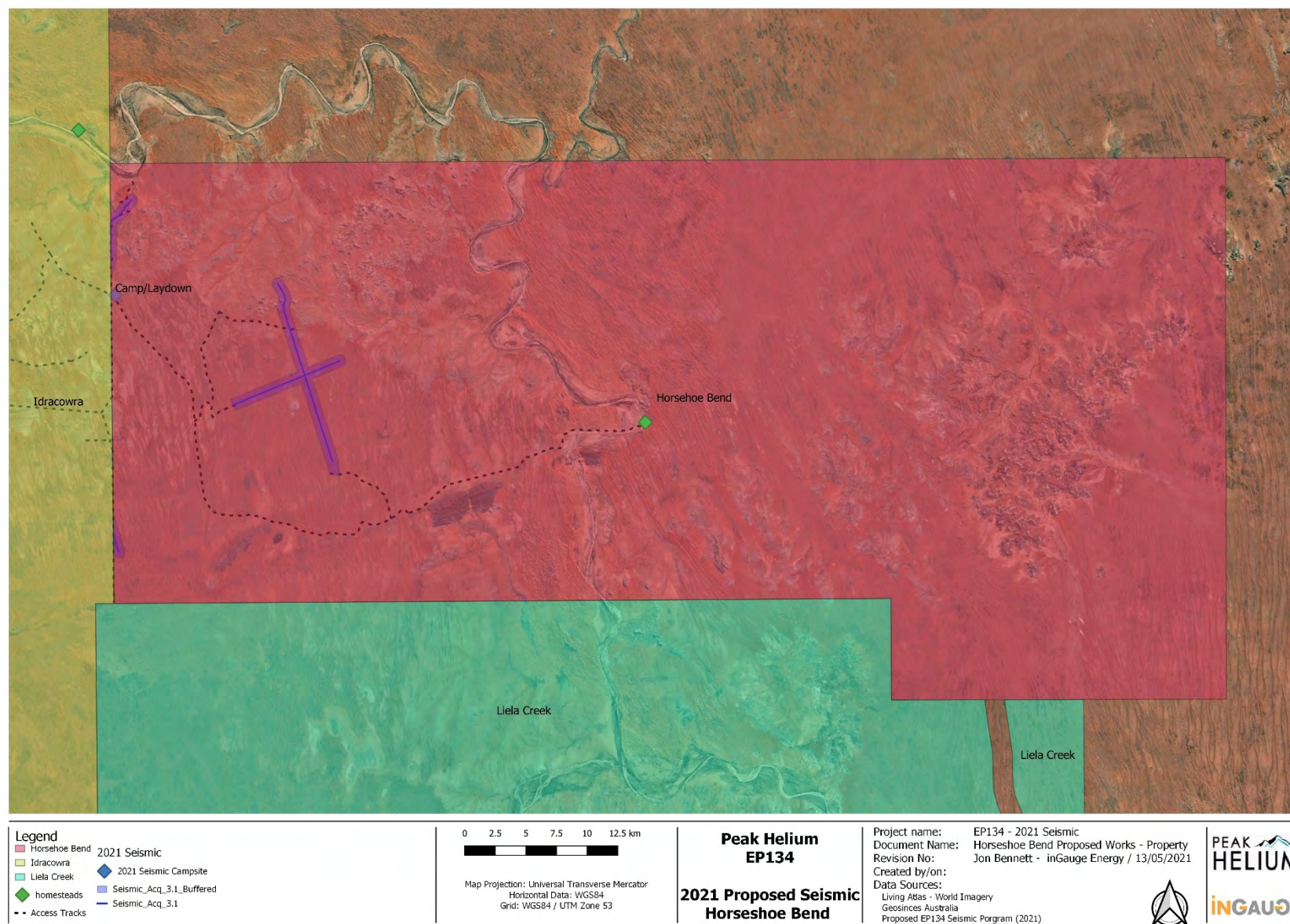
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1.3.5 Peak Helium - 2021 Seismic Program - Horseshoe Bend - Whole of Property



1.3.6 Peak Helium - 2021 Seismic Program - Horseshoe Bend – Zoomed



1.3.7 Peak Helium - 2021 Seismic program - Idracowra email - 21 05 31

From: jon.bennett@ingauge.com.au
To: admin@umbearraholdings.com.au
Cc: "Art Malone"; Jordan Bunning
Subject: Peak Helium - EP134 - 2021 Seismic Program
Date: Monday, 31 May 2021 1:42:27 PM
Attachments: [image001.png](#)

Hi Kathleen and Angus

Thanks for your time on the phone this morning, Angus.

As discussed, Art and I would like to catch up on Monday the 7th of June 2021 to run through the 2021 seismic work program and Peak Helium's plans for EP134.

It looks like the best way to the Umbearra homestead is to turn left down the Finke road at Kulgera for ~3km, then turn left for ~40km to the homestead.

Is that right?

I will get into Darwin on Sunday, is there anything that you want to be picked up in town and brought out?

If it's ok, we'll get there at 7:00 a.m., so we don't interfere with your day too much.

Thanks

Jon

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1.3.8 Peak Helium - 2021 Seismic program - Horseshoe Bend email - 21 05 31

From: jon.bennett@ingauge.com.au
To: donny@crownpoint.com.au; colleen@crownpoint.com.au
Cc: "Art Malone"; "Jordan Bunning"; "Viv Oldfield"
Subject: Peak Helium - EP134 - 2021 Seismic Program
Date: Monday, 31 May 2021 2:17:59 PM
Attachments: [image001.png](#)

Hi Colleen and Donny

Thanks for your time on the phone this morning, Colleen.

As discussed, Art and I would like to catch up on Monday the 7th of June 2021 to run through the 2021 seismic work program and Peak Helium's plans for EP134.

Just confirming, the best way to the New Crown homestead is to head south from Finke for ~33km (sweeping East), past the tee intersection for ~1km, then turn left for ~1km to the homestead.

Is that right?

I will get into Alice on Sunday, is there anything that you want to be picked up in town and brought out?

If it's ok, we'll get there at 11:00 a.m.

Thanks

Jon

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1.3.9 Peak Helium - 2021 Seismic program - Idracowra email - 21 06 06

From: jon.bennett@ingauge.com.au
To: admin@umbearrahholdings.com.au
Cc: "Art Malone"; "Ray Hall"; Jordan Bunning; "Clinton Brisk"
Subject: Peak Helium - EP134 - 2021 Seismic Program - Archaeological and environmental survey
Date: Sunday, 6 June 2021 6:07:46 AM
Attachments: [image001.png](#)

Hi Kathleen and Angus

As discussed, Peak Helium need to carry out an Archaeological and environmental survey on the proposed 2021 seismic program area.

This will be carried out by helicopter on the 11th and 12th of June 2021 using a helicopter. Most of the survey works will be carried out by air, landing only where a more detailed survey is required.

Art and I will be in Alice Springs today and catching up with you at the homestead tomorrow, as planned.

Thanks
Jon

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1.3.10 Peak Helium - 2021 Seismic program - Horseshoe Bend email - 21 06 06

From: jon.bennett@ingauge.com.au
To: colleen@crownpoint.com.au; donny@crownpoint.com.au; "Viv Oldfield"
Cc: "Art Malone"; "Ray Hall"; "Jordan Bunning"; "Clinton Brisk"
Subject: Peak Helium - EP134 - 2021 Seismic Program - Archaeological and environmental survey
Date: Sunday, 6 June 2021 6:28:58 AM
Attachments: [image001.png](#)

Hi Colleen, Donny and Viv

As discussed, Peak Helium need to carry out an Archaeological and environmental survey on the proposed 2021 seismic program area.

This will be carried out by helicopter on the 11th and 12th of June 2021 using a helicopter. Most of the survey works will be carried out by air, landing only where a more detailed survey is required.

Art and I will be in Alice Springs today and catching up with you at the homestead tomorrow, as planned.

Thanks
Jon

Jon Bennett

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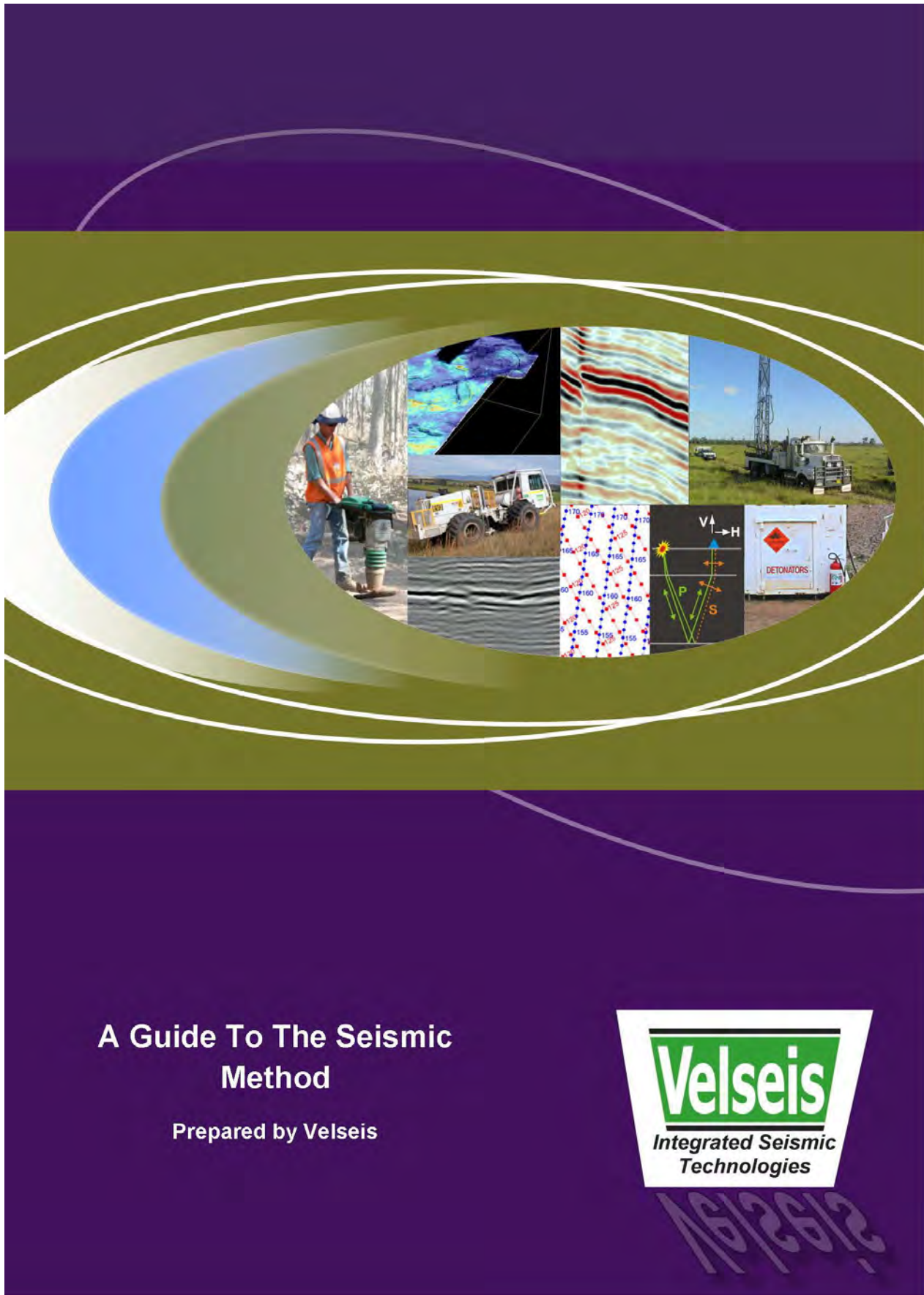
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1.3.11 Work methods for 2d Seismic acquisition



1 Description

1.1 General Overview of the Seismic Method

The seismic reflection method has a long history in the Australian petroleum industry, where it is generally used to delineate geological structures.

The method uses sound waves (seismic) to image the subsurface. These are usually generated using mechanical equipment (source) at the surface. The sound waves generated by this technique travel through the subsurface and are reflected from various geologic boundaries. Upon their return to the surface, these are recorded by receivers (Geophones) (Figure 1).

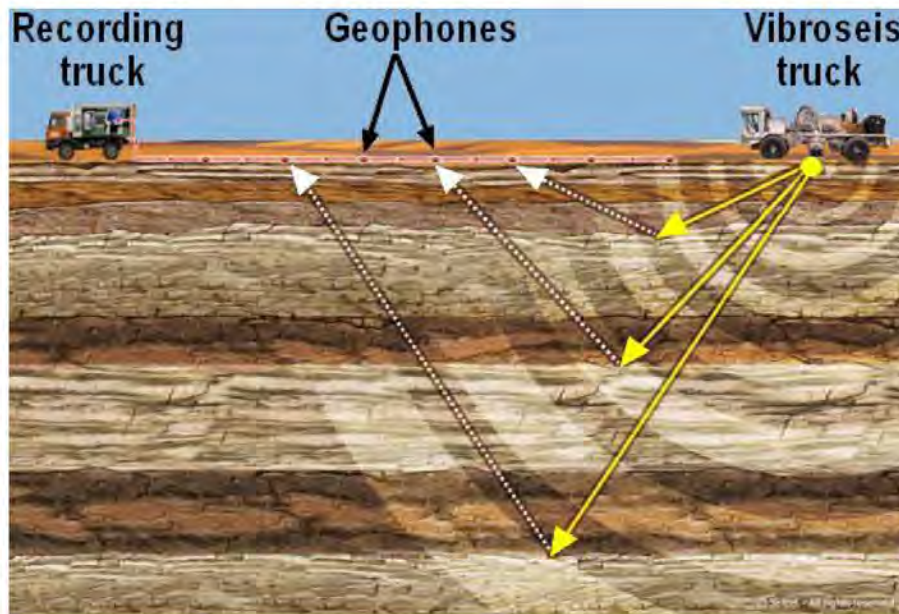


Figure 1. Seismic field operations

Seismic surveying consists of three main areas. These are:

- Survey design.
- Infield activities.
- Processing and Interpretation of the data.

The greatest interaction with the environment occurs during the infield phase. This involves line preparation, coordinate surveying, seismic acquisition, and environmental rehabilitation.

1.2 Equipment

The seismic source will most likely comprise 1-3 37 tonne "Vibroseis" seismic vibrators (Figure 1). The Vibroseis technique uses an oscillating machine to create vibrations that pass into the subsurface. Vibroseis buggies have a vibrator pad that vibrates through a range of frequencies when the pad is lowered to the ground. Typically, 1 to 2 buggies work together lowering their vibrator pads at regular points along the line so that the vibration is localised.



Figure 1. The Inova AHV-IV "Renegade" seismic vibrator

A spread of small recording devices (geophones) is laid out along the 2D lines to record the sound energy generated by the source. Each geophone is separated by a distance which varies based on the objectives of the survey. Typical increments may range from 5 – 20m and the length of the live spread actively recording the sound energy along the line, maybe in the order of 5-10Km.

Depending on the requirements of the survey, there is the option of one of two types of seismic system, either a cabled system or a nodal system (Figure 2). Each has its advantages.



Figure 2 Nodal (left) and cabled (right) recording systems.

That said the majority of surveys typically record seismic data using the nodal option.

When working in remote locations, away from towns, It is often necessary for the acquisition crew to set up a field camp. This is typically set up at a central location enabling access to all of the survey. Approximately 13 vehicles operate on the seismic lines at any time, comprising the three vibrators, a service truck, a recording truck and up to eight tray-back four-wheel-drive vehicles. However, this is subject to change based on the size of the survey and the recording parameters used. Some aspects of the proposed seismic acquisition are still to be finalised; hence the exact numbers in this document are preliminary.

1.2.1 Construction of Access Tracks

To effectively and efficiently record seismic data, good access along a seismic line is required. Typically companies attempt to avoid constructing access tracks, preferring to follow existing tracks and fence lines. Nevertheless, in areas where access provided by the existing tracks is inadequate for the seismic survey, lines need to be cleared using earthmoving equipment (e.g. slasher, bulldozer, grader) before the seismic acquisition. This is always subject to the approved EMP and requires consultation with the land-holders and agreement on maintenance measures required. It will also require a clear understanding of access requirements on each property. For instance, gates will be installed where access is required through existing fence lines. Crossing of waterways and drainage lines will be minimised wherever possible and efforts made to find the most suitable crossing point.

Where any bulldozing is required, it will be preceded by environmental and archaeological surveys along the centre line of the proposed tracks. Wherever possible, the new tracks will be located to avoid vegetated areas, to ensure rootstock remains intact. Some clearing may be required in areas of thick vegetation where it is not possible to gain access without vegetation removal. Old-growth vegetation (mature trees) will be avoided, especially trees with nesting hollows. All vehicle access will be restricted to the identified access tracks. To provide flexibility for avoidance of environmentally and culturally significant sites and mature trees, environmental and archaeological surveys should allow for a deviation away from the centre line track. Typically, such clearance will allow for line preparation to deviate +/- 20-50m away from the centre line.

1.2.2 Preparation of Seismic Lines

Seismic line clearing allows access for the Vibroseis vehicles and other support vehicles. This activity can be the greatest source of environmental impact because of associated loss of vegetation, loss of habitats and the possibility of soil destabilisation, creation of erosion fronts and the furnishing of potential weed establishment areas.

Historically, seismic lines were required to be relatively straight, cut with bulldozer blades, and travelled at speeds of up to 60 km/hr. This approach is associated with a range of environmental impacts, including loss of visual amenity and creation of access routes for unauthorised persons. More recently, the preparation of seismic lines has been refined so that they are difficult to see from existing roads and tracks and are implemented in a manner that reduces the risk of erosion and increases the rate of vegetation recovery. The clearing of vegetation for seismic lines will only occur if necessary because of these possible effects.

Seismic lines are approximately 5m wide, enough to allow safe passage of vehicles. The creation of windrows along the sides of the seismic lines are avoided, and instead, minimal vegetation will be removed to allow for natural regeneration from seed and rootstock. Wherever possible, the seismic lines will weave around large shrubs and trees and avoid crossing drainage lines or creek channels. Where it is necessary to have crossings, detours will be made to find the least sensitive crossing point. Where the seismic line crosses an existing road or track it will deviate for a short distance on either side of the track to reduce the line of sight.

A Surveyor will follow behind the line preparation crew marking recording the desired seismic receiver location. They also record access routes, create mud maps and mark hazards. These allow for safer operations and reduced environmental impact.

1.2.3 Field Camp

Ideally, accommodating the crew using local service providers is preferred, however, the availability of such accommodation may be limited, and in this instance, a field camp will be required. The field camp will be configured to satisfy regional council guidelines. It will require the use of a lay-down area situated close to the seismic lines and road access. Whilst the exact configuration of any camp depends on the crew number; the camp generally comprises sleeper caravans, kitchen and dining facilities, ablutions, site office, waste treatment and storage, potable water tanks, diesel storage and a diesel generator.

2 Environmental impact

Velseis aims to conduct our field activities with a minimum of disturbance to the natural environment. We have an active program of development of seismic procedures and equipment that reduces our field operations' environmental impact.

To ensure the safety of staff and protection of the environment, Velseis has an extensive number of task procedures and task risk assessments. These include those on Vibroseis operations and maintenance, emergency spill response, and line preparation. These can be viewed as required.

Some important areas of possible environmental impact are related to the seismic source.

2.1 Source footprint

The Vibroseis source is designed to have the least amount of impact on the environment possible. The acquisition of each source point involves a pad being lowered to the ground and vibrating. This produces a small impression in the ground having an area of approximately 2.5 square metres. These have minimal depth (<5cm) and are usually not visible within a week.

2.2 Source Noise

The noise level generated by the Vibroseis truck is comparable with the noise emitted by a large truck engine (peaking at ~80dB(A)). The noise is not expected to cause disturbance as these vehicles are not stationary but are continually in a go-stop-go mode of movement (only staying at one source point for approximately 20 seconds), and the vehicles would not be close to any sensitive receptors.

The National Standard for Occupational Noise (NOHSC: 1007(2000)) indicates that unprotected continuous noise should be less than 85dB(A) and peak noise should be less than 140 dB(A). The operation range of the Vibrator is well within both of these.

To further protect other workers and the public, we also enforce a 30m exclusion zone from the source for non-operators. This significantly reduces the noise levels at this distance.

2.3 Source Vibration

Ground vibration is inherent in the seismic technique. These are generally very small for the Vibroseis technique and decay rapidly with distance from the source. To limit the possible impact of seismic, a minimal operating distance of 20m is implemented for any sensitive infrastructure.

2.4 Access

To reduce the impact to the survey area, access is restricted to existing tracks, seismic lines and pre-approved routes. In order to move from one area to another, existing gates are used. In some circumstance, the client may negotiate with the landholder to install extra gates and/or access lines.

Seismic lines often cross fences. This has no impact on the fence as receiver lines can be connected through the fence, and source acquisition can be diverted around the fence using existing gates and access corridors.

In areas where there are complexities or restrictions on access, such as creeks, dams, dense bush, or environmental/culturally sensitive sites, there are a number of options for both source and receiver lines. If light vehicles cannot access the area, receivers can be hand-carried or the seismic line may be diverted around these. If Vibroseis buggies are unable to access the area, the source points may be skipped. Whilst this may impact sub-surface coverage, this can be mitigated by carefully considering the survey design.

2.5 Hazard Avoidance

During the planning phase of a seismic survey, it is not uncommon for environmental and cultural heritage assessments to identify areas that are considered no-go for large items of equipment. Typically, a buffer is placed around such sites within which line preparation machinery or the Vibroseis buggy is unable to proceed.

Each line preparation machine and Vibroseis buggy has mounted within it a GPS tablet. This tablet is used to identify the seismic line location and also has the exclusion zones and associated buffers overlaid. This provides operators with both visual and audible queues, mitigating the risk of entering these zones of exclusion.

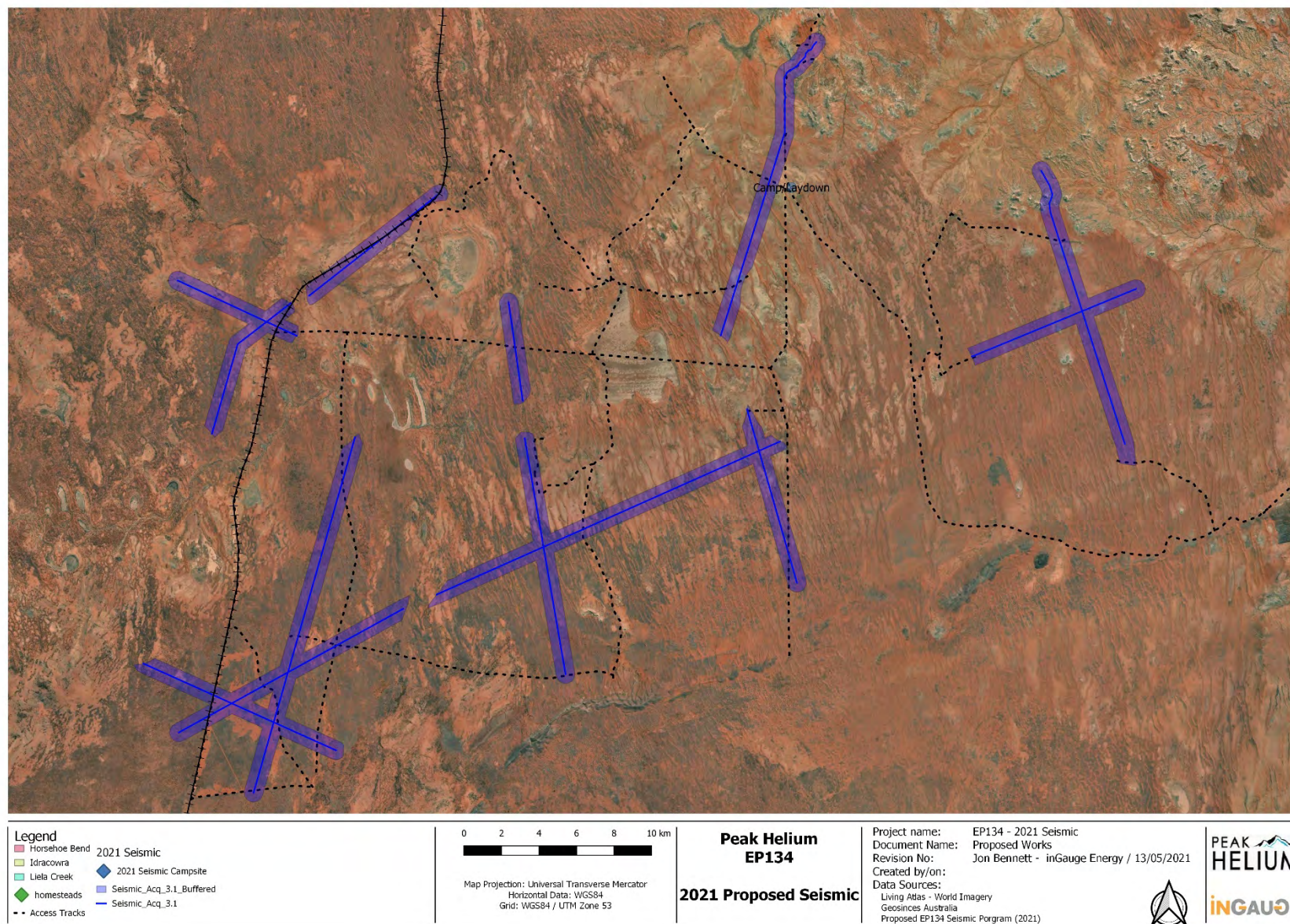
2.6 Monitoring

Our aim is to have no Environmental Incidents on a project. However, if an incident occurs, every effort must be made to contain and repair any damage. Crew members are to notify the Crew Supervisor immediately of any incident or near-miss. The Crew Supervisor is to notify the Peak Helium Representative and QHSE Coordinator of any incident as soon as practical, and not more than two hours after the incident or near-miss.

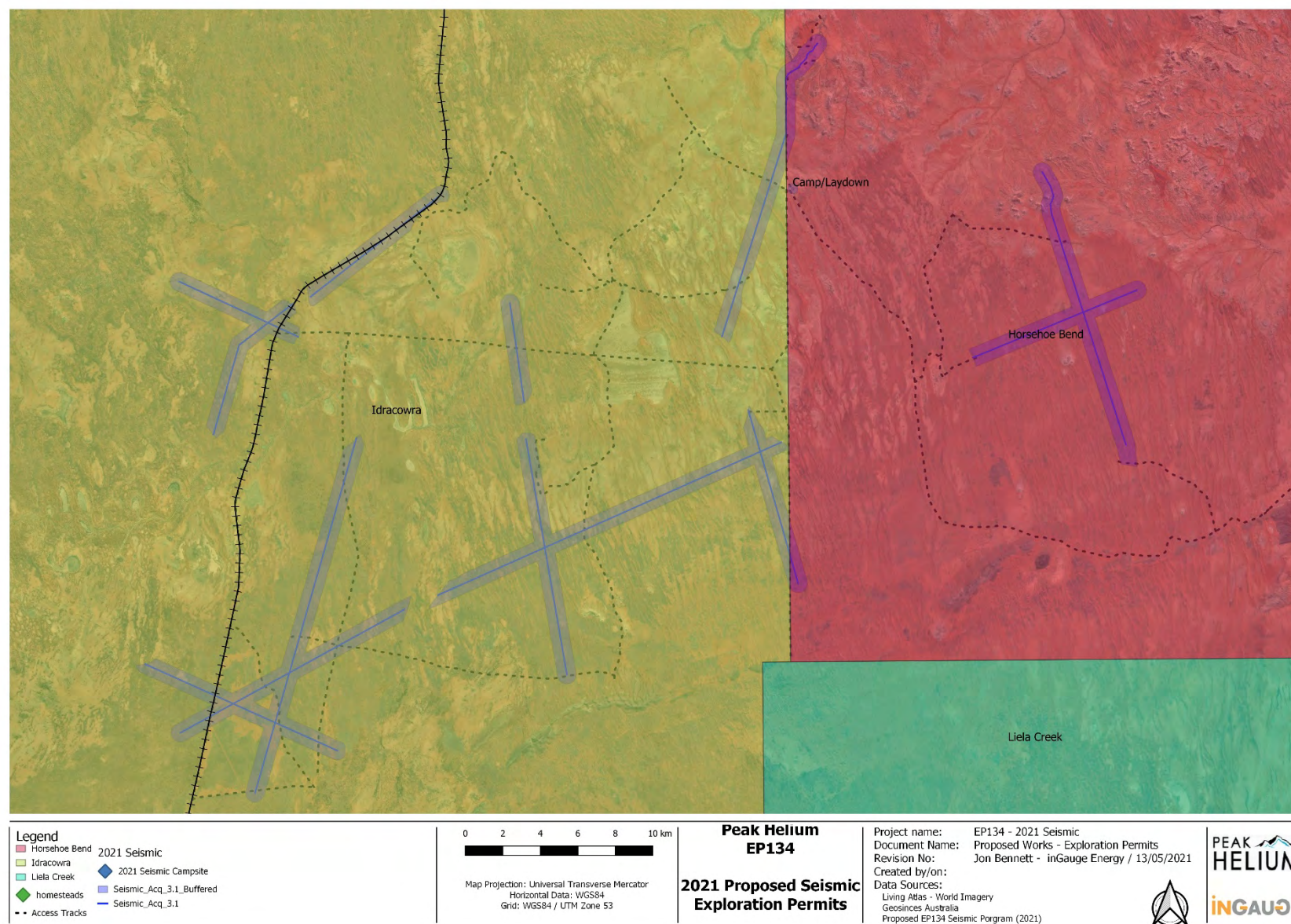
Velseis aims to reduce the companies Environmental Impact on the Project Area by recording the following –

- Water Use
- Fuel Use
- Waste to Recycling
- General Waste
- Chemical Disposal
- Tyres Used
- Weed waste material / Number of Weed Hygiene Inspections
- Waste Oil
- Waste Oil Filters

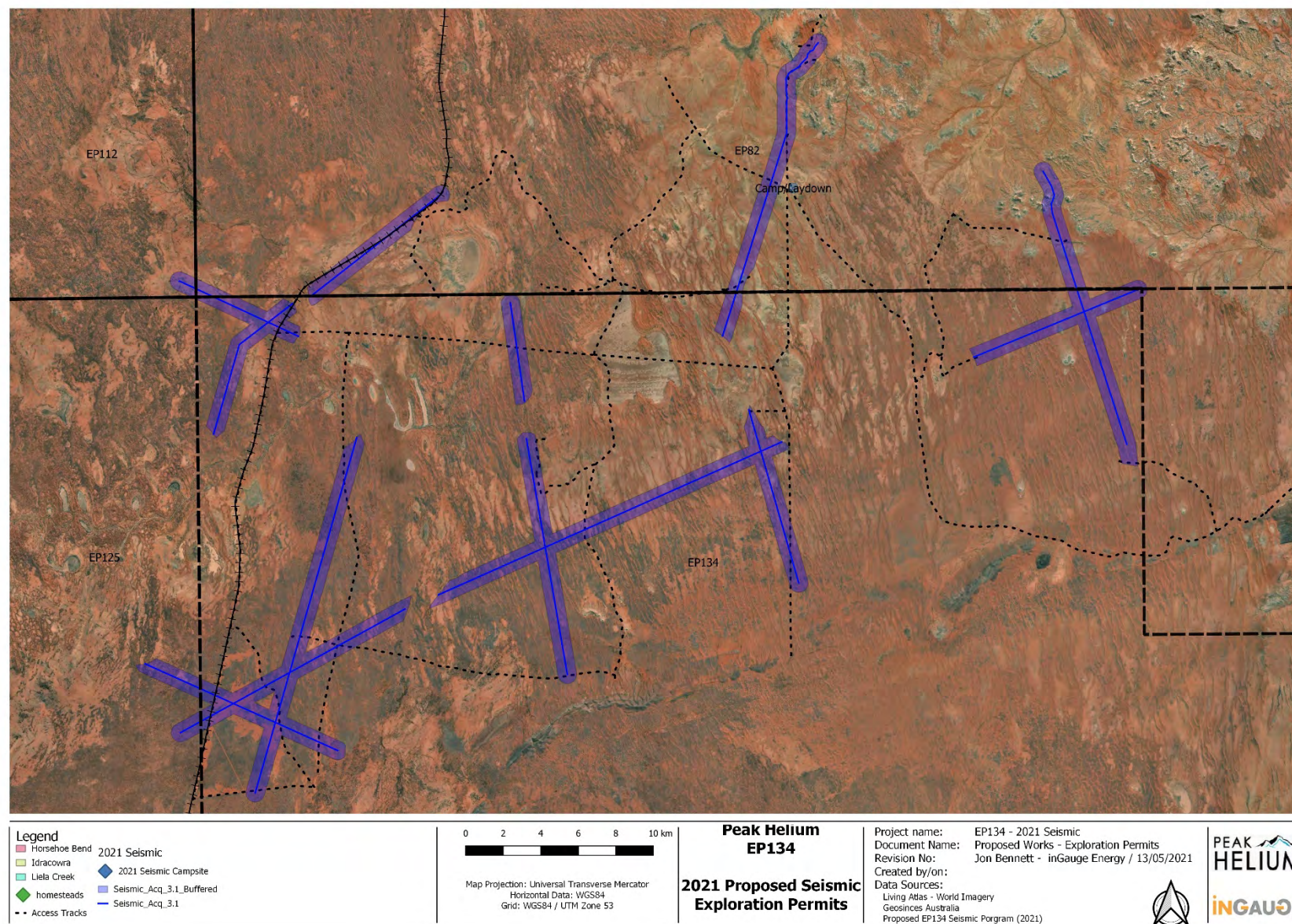
1.3.12 Peak Helium - 2021 Seismic Program Map



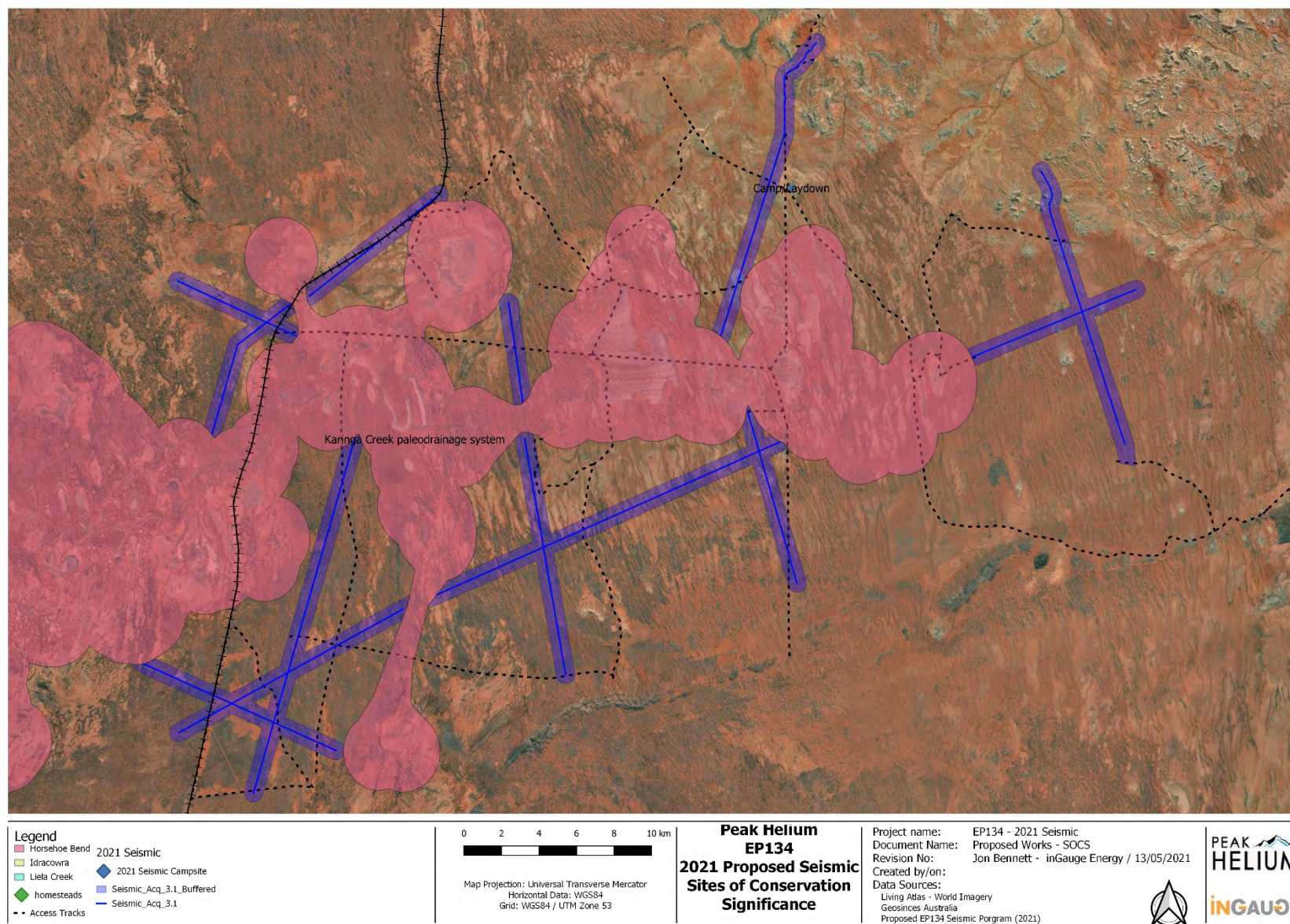
1.3.13 Peak Helium - 2021 Seismic Program Map – Properties Overlay



1.3.14 Peak Helium - 2021 Seismic Program Map - Exploration Permits Overlay



1.3.15 Peak Helium - 2021 Seismic Program Map - Sites Of Conservation Significance Overlay



1.3.16 Peak Helium - 2021 Seismic Program – On Country Meeting Pack



Background - Who is Peak Helium?

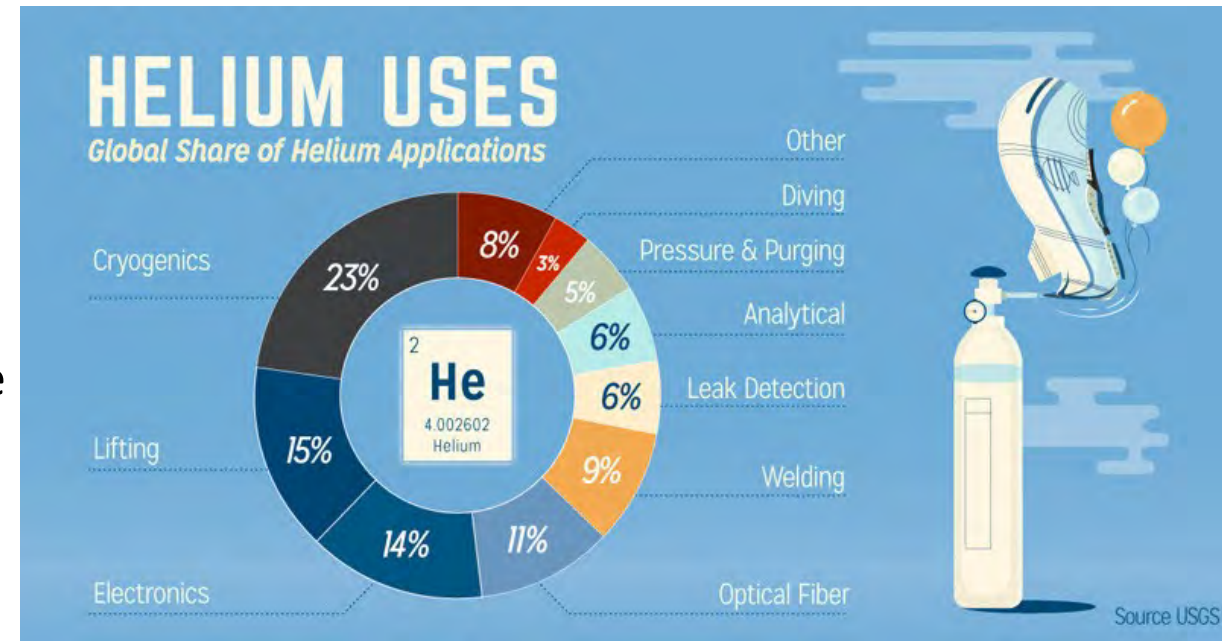
- Australian Company
- A leading Helium explorer in Australia
- Holds the EP134 Permit
- Art Molone is the Co-Founder & Managing Director.

Art is a Senior Energy and Resource Executive with a background in engineering compliance and asset management in the global resource sector including exploration, operations, advisory, venture capital and private equity for ASX, AIM and TSX listed junior and mid-tier resource companies and private entities.



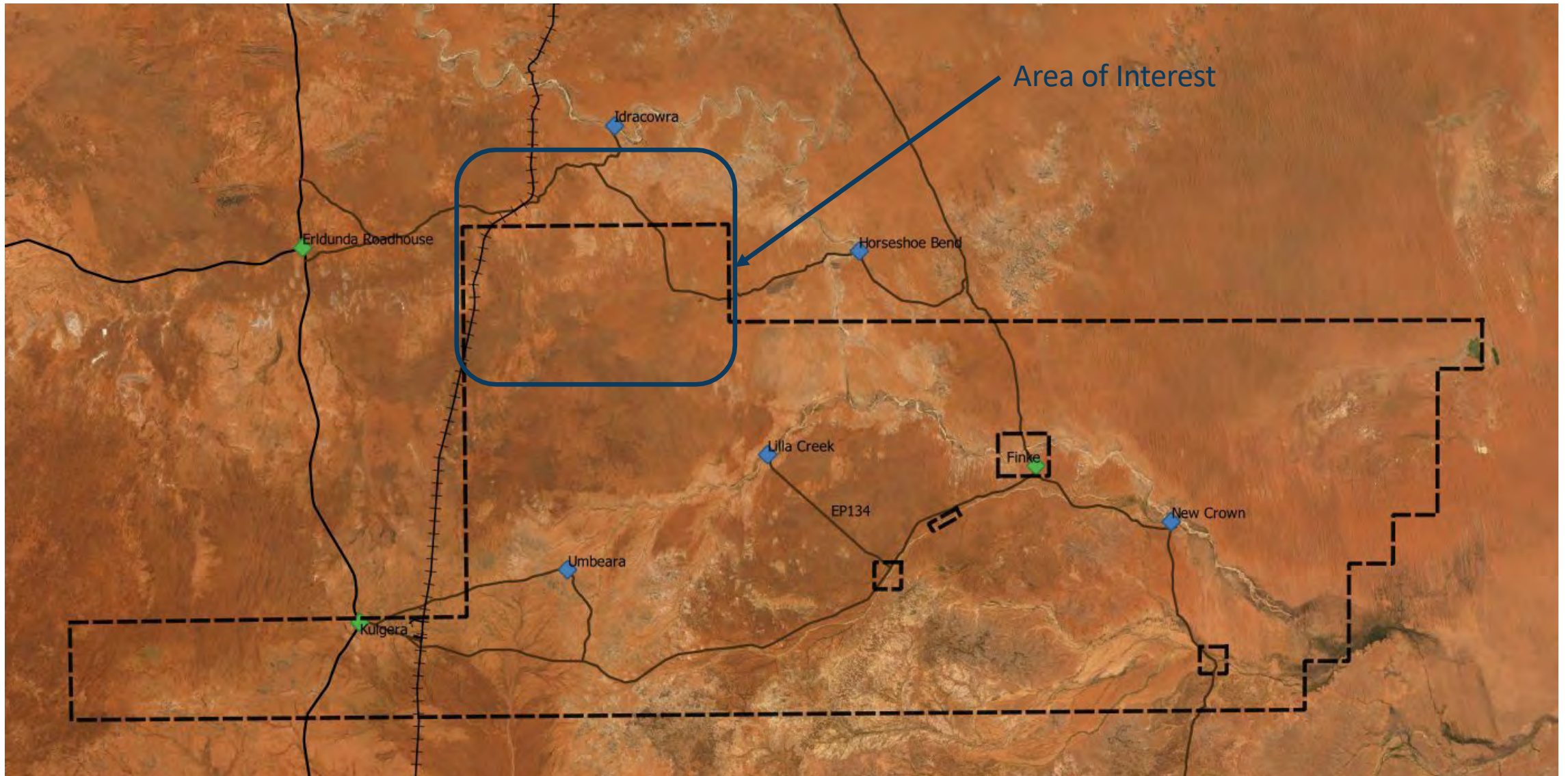
Background – What Helium used for?

- Helium has unique properties
 - The second lightest gas
 - Non-reactive, non-flammable, non-poisonous
 - Boils at -268°C. No other element can remain a liquid at this temp
 - The only element that is non-renewable (it cannot be synthesized)
 - Non-polluting - only element that escapes the atmosphere to outerspace
- Helium is:
 - Essential in medical imaging (MRIs)
 - Used in micro-electrics, supercomputers and numerous Defense technologies
 - Essential for cleaning the fuel tanks in space shuttles
 - Used in weather balloons, research balloons and party balloons!



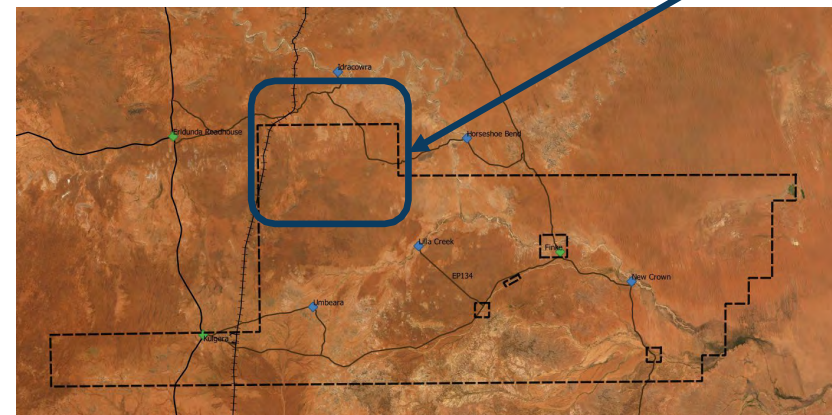
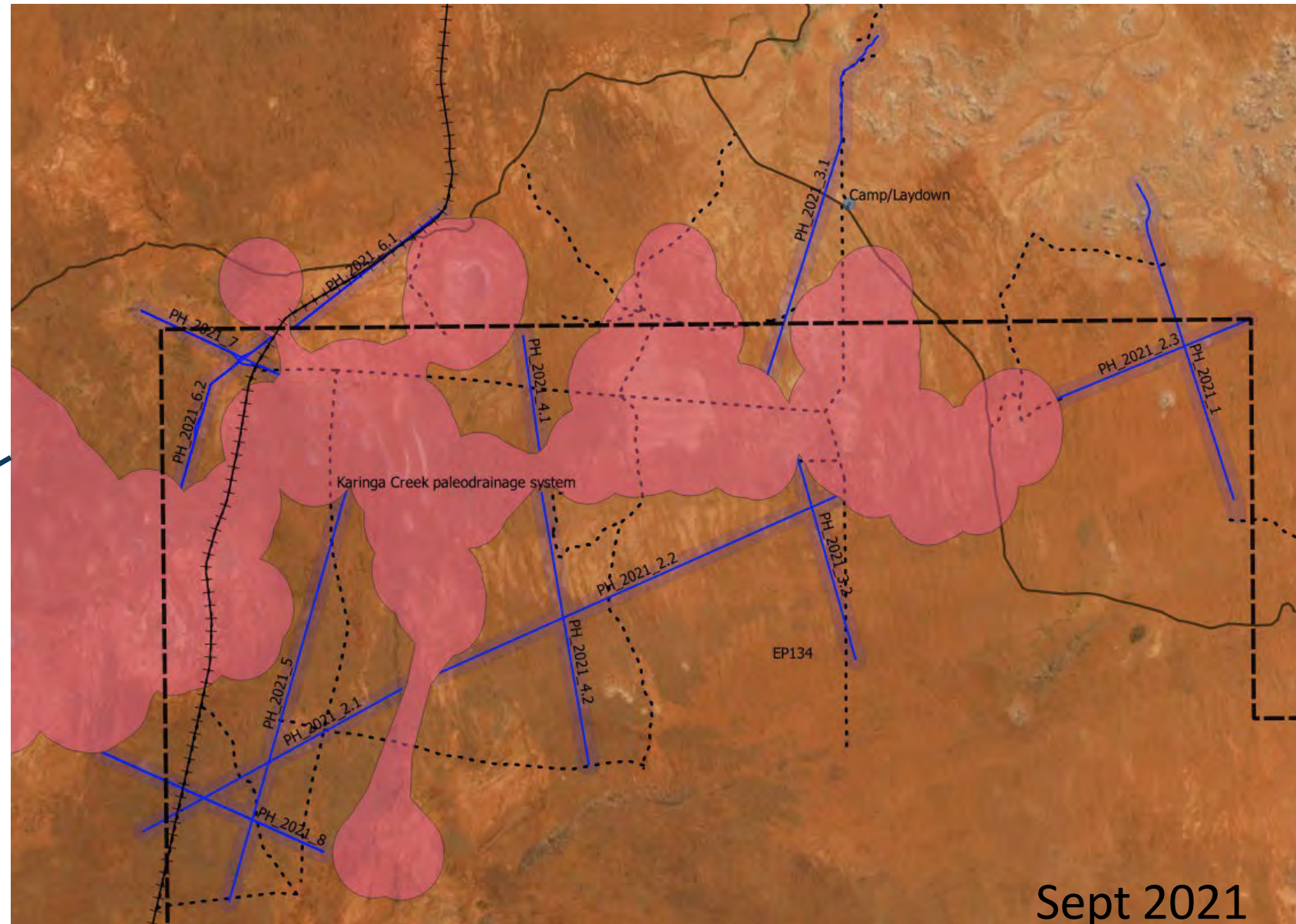
Sept 2021

EP 134 Location & Area of Interest



EP 134 Location & Area of Interest

- Peak Helium's area of interest surrounds the Eastern end of Karinga Creek paleodrainage system
- Seismic Lines have cut short of the Karinga Creek system
- Existing access tracks and fencelines will be used to cross the Karinga Creek System
- Future wellpads will be along the seismic lines
- Pink area is a Site of Conservation Significance (SOC)



- 2021 - Seismic surveys to determine the location of possible drilling locations
- 2022 - Drilling of an exploration well and production test
Dependent on seismic results
- Future – Production and road transport to Darwin
Dependent on drilling and production test results

Production Potential:

- To give Peak Helium a better understanding of the production potential of Helium in the area of interest in EP134 to sell to the market.

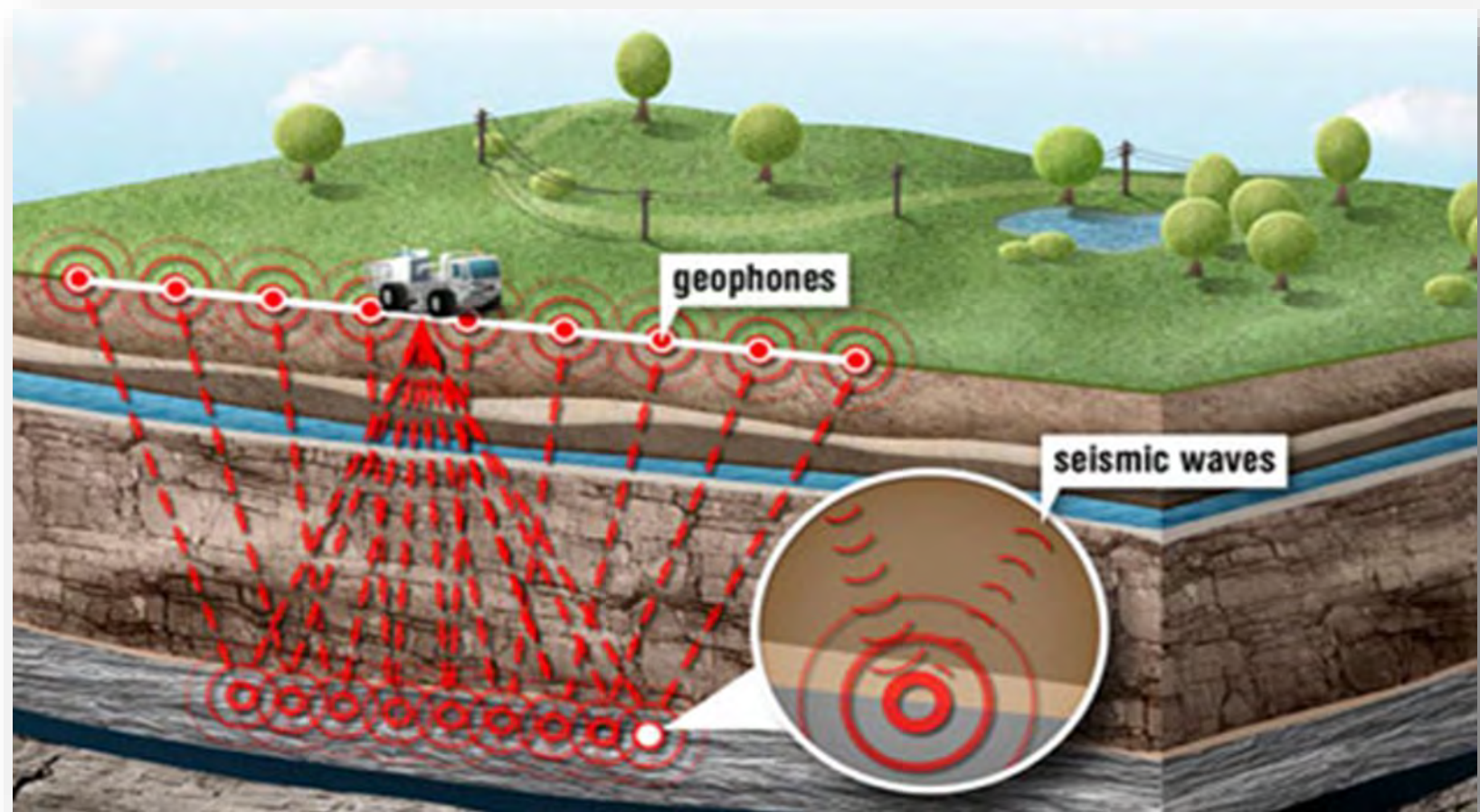
Future local opportunities:

- If the area of interest does prove to be economic and production to market is achieved, there could be an opportunity for ongoing local business engagement and employment.

2021 Seismic Program

How it works:

- A vibration is put into the ground with Vibroseis buggies
- The vibration travels through the ground, reflecting off of different formations
- Geophones pick up the reflected vibrations and the information is stored
- A map of the subsurface formations is built from the stored information



2021 Seismic Program – Line clearing

- Cleared with bulldozer and grader
- Works monitored by Traditional Owners
- Work around trees where possible
- Leave roots in soil where possible



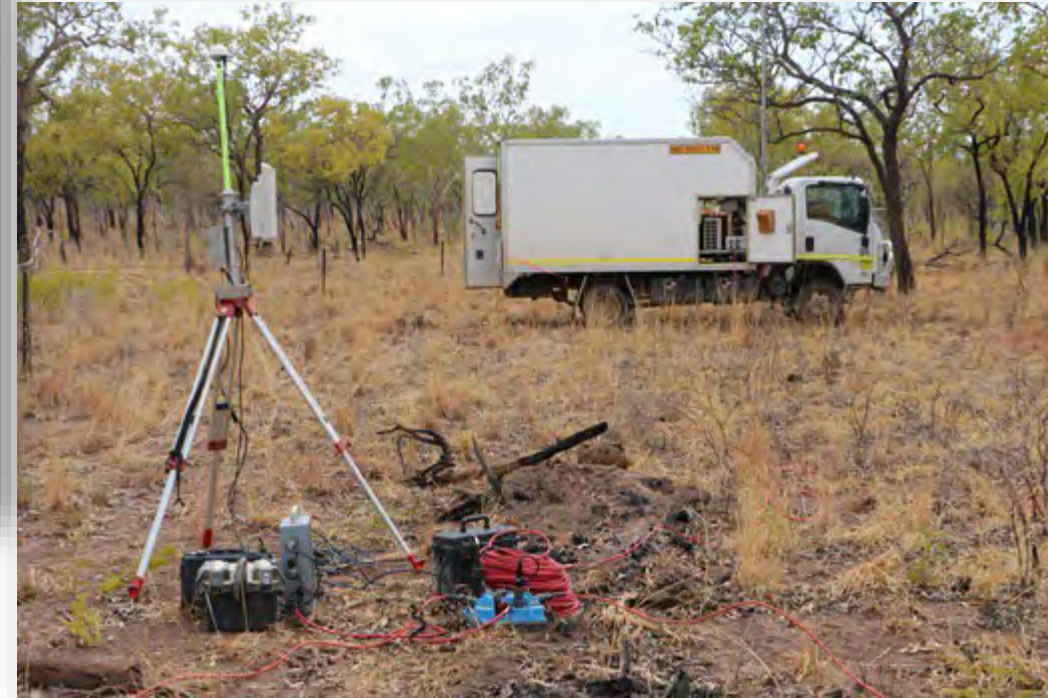
Cultural Monitors for clearing operations

2021 Seismic Program – Geophone Install

Geophones are installed by hand

- May be cabled or non-cabled

Report back to central station/mobile office



2021 Seismic Program – Survey Acquisition



Vibroseis buggies work in pairs

Information is monitored in the mobile office



Seismic Program Rehabilitation example

X Example

Left

Seismic lines several days after rehabilitation
December 2019

Right

Seismic lines July 2020 during the post wet season weed survey

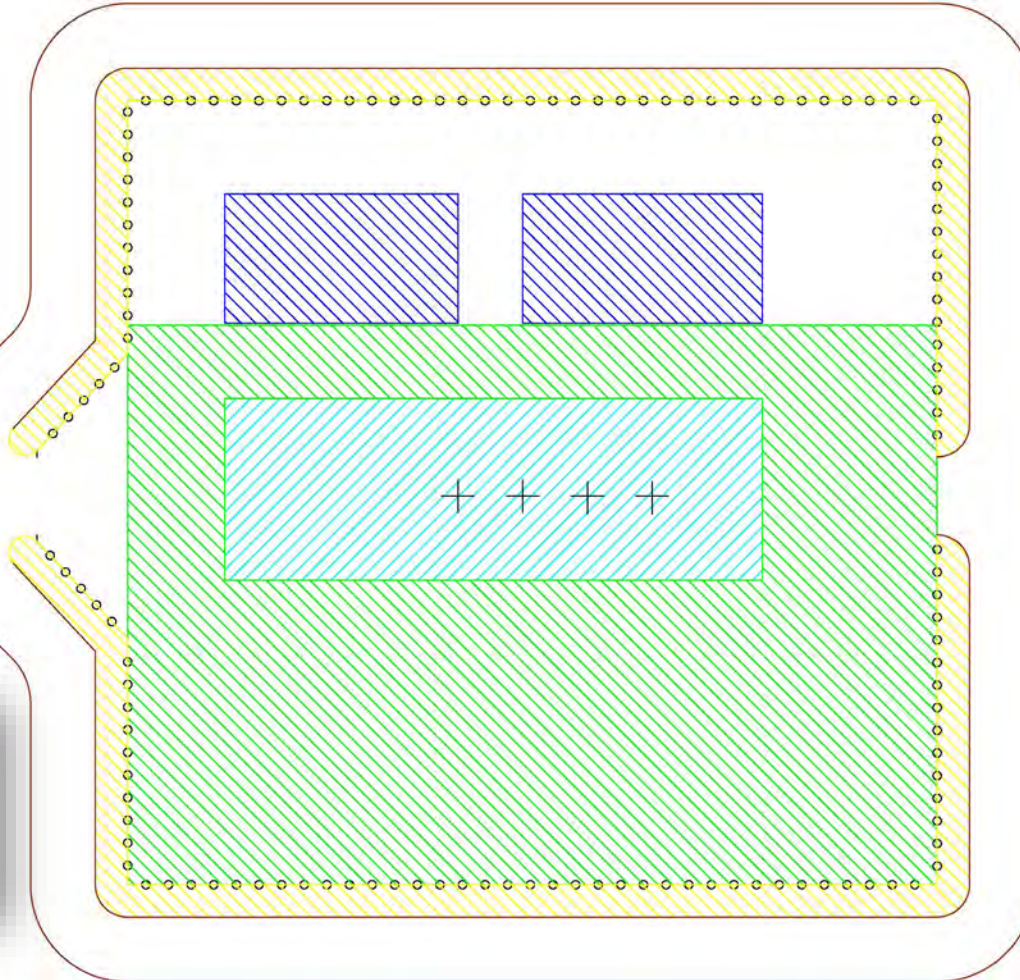
The survey found;

- 40% of seismic lines are now hard to find as grass coverage has returned to the same/better as in paddock.
- 40% of seismic lines have same grass coverage as the paddock with exception of a cattle trail
- 20% of seismic lines have grass coverage striking and being used by grazer or is slow growing spinifex similar to the surrounding paddock



Wellpad Construction

- Clearing and leveling of the site for safe works
- Installation of lined pits of the storage of drilling fluids
- Fencing to keep stock out
- Cultural Monitors for first disturbance

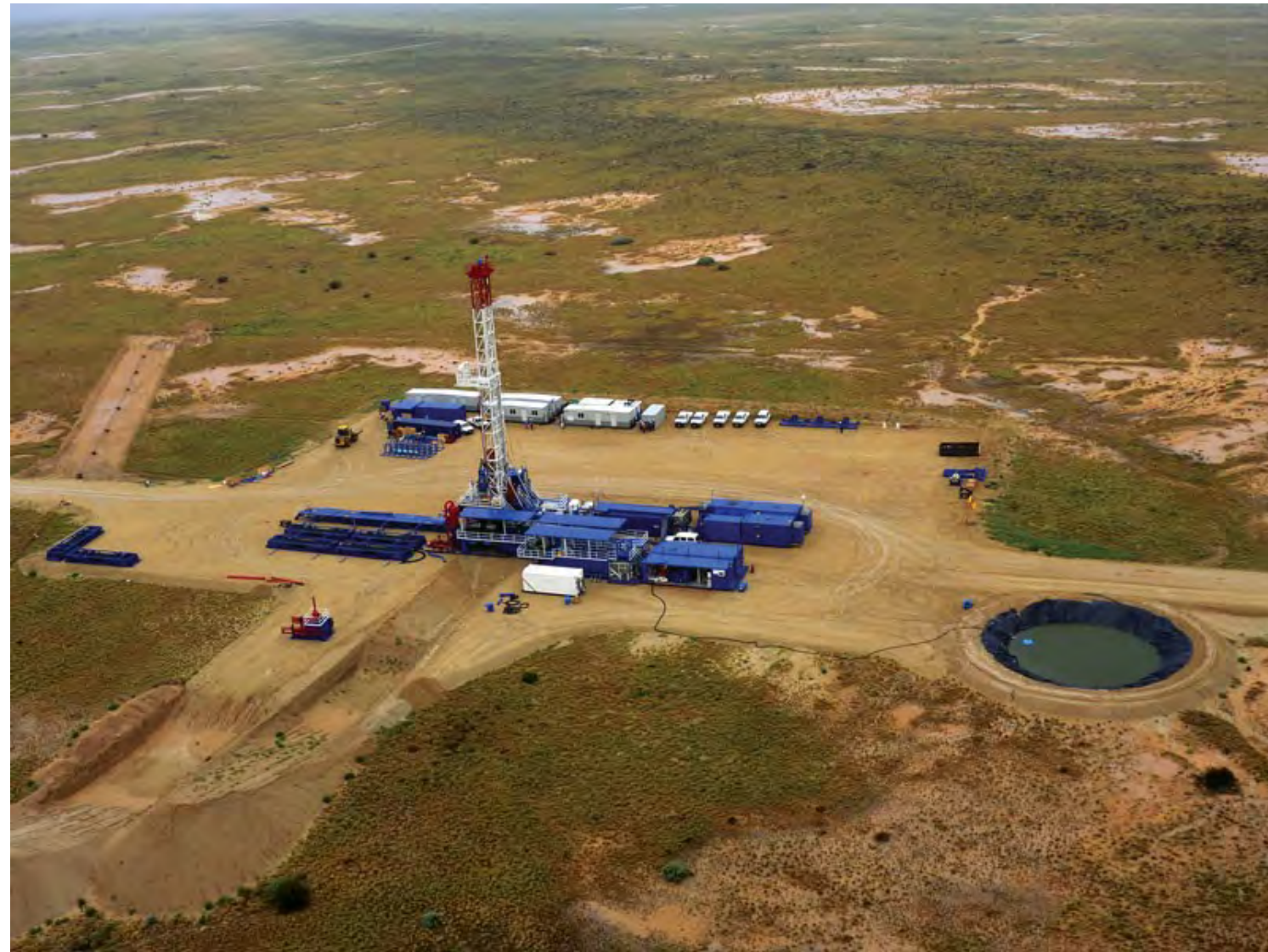


- Wellpad, on Natural Contour
- Level Area, Flat and compacted
- Hardstand, flat and compacted
- Sump and Pits, As per profile
- Fence, Stock proof
- Sump and Pit material Stockpile
- Wellhead

- Notes:
1. Wellpad: timber removed, stump holes backfilled, watered and rolled on natural grade.
 2. Hardstand: excavate 0.5m below natural surface and backfilled with approved compacted and conditioned material.
 3. Sump and Containment pit detail on attached drawings.
 4. 500mm high compacted bund around sump and pits.
 5. Lease fenced with stock proof fencing with gates at entrance, entrance points to be rifed on site.
 6. Lease access roads; to be as straight as practical and taper from 12m at entrance back to 6m wide.
 7. 500mm high compacted bund around sump and pits.

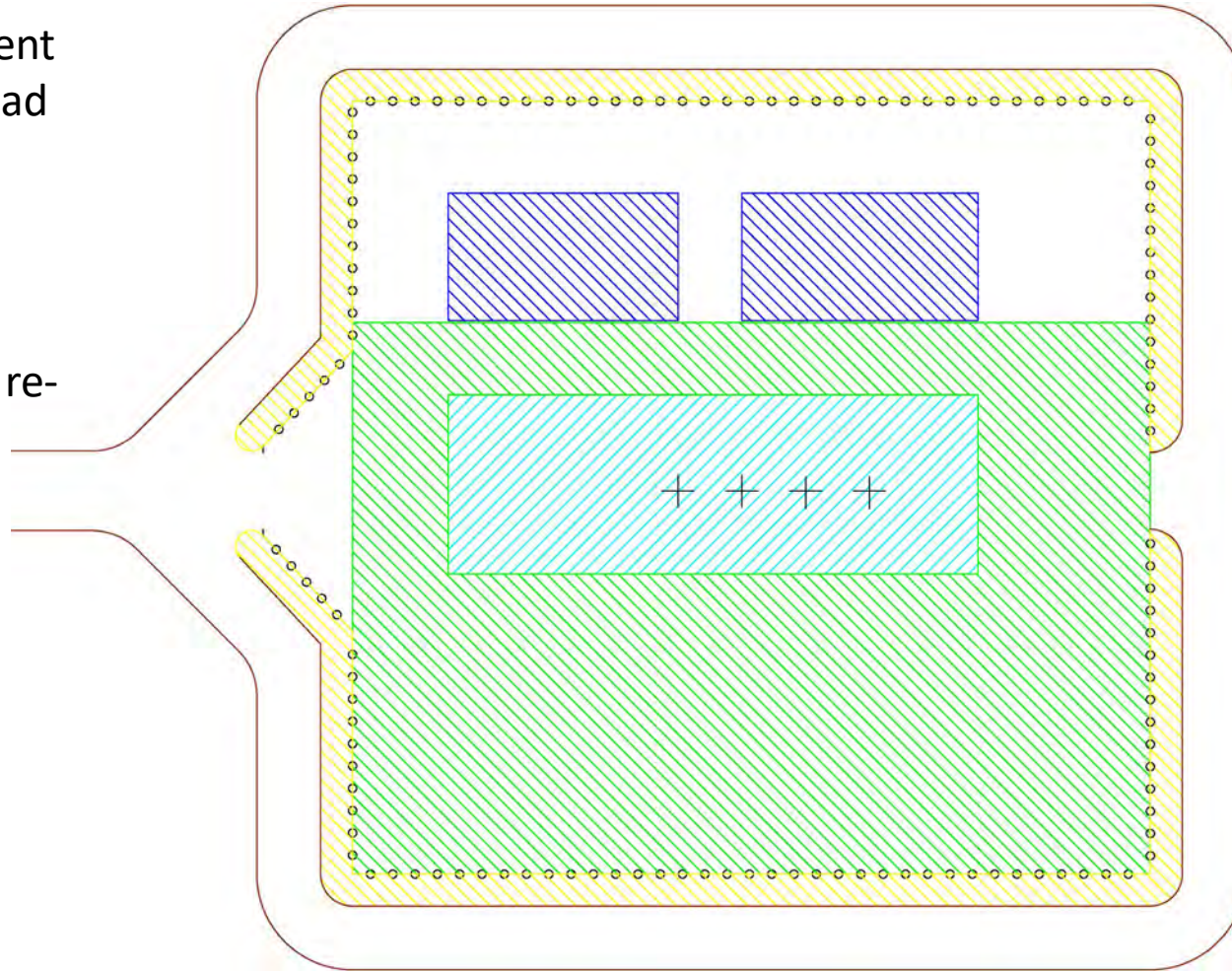
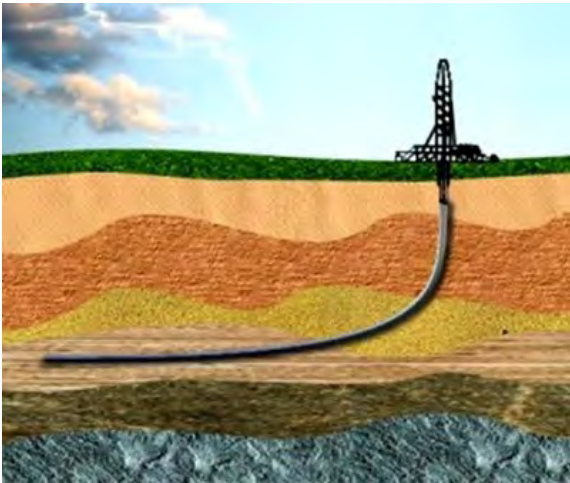
EP134 – Drilling

- Only water based drilling fluids are used
- Each section is drilled, cased and cemented before the next section is drilled
- Aquifer is isolated behind casing and cement before drilling into any hydrocarbon zones
- Drilling fluid and cuttings are stored in lined ponds



Wellpad Construction - Multiwell Pad

- Multiple wells drilled on the same pad
- Horizontal drilling is used to reach different sub-surface targets from the same wellpad
- Reduces the number of wellpads and access tracks required
- Allows one set of tanks and ponds to be re-used for several wells



- ▨ Wellpad, on Natural Contour
- ▨ Level Area, Flat and compacted
- ▨ Hardstand, flat and compacted
- ▨ Sump and Pits, As per profile
- ⊕ Fence, Stock proof
- ▨ Sump and Pit material Stockpile
- + Wellhead

- Notes:
1. Wellpad: timber removed, stump holes backfilled, watered and rolled on natural grade.
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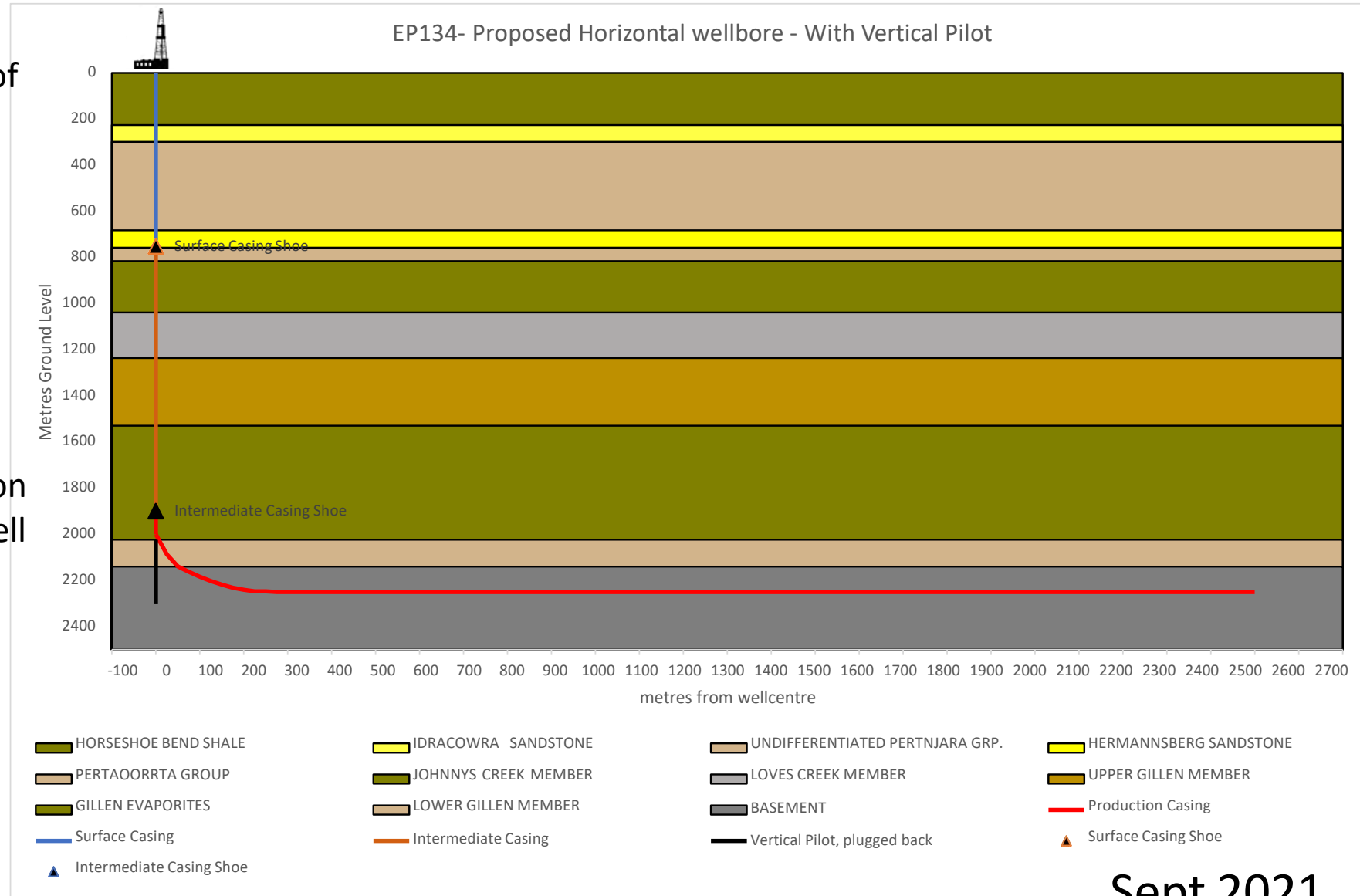
Drilling - Horizontal Wells

Horizontal wells:

- Allows drilling into a larger area of the formation from one well
- Reduces the number of wells required

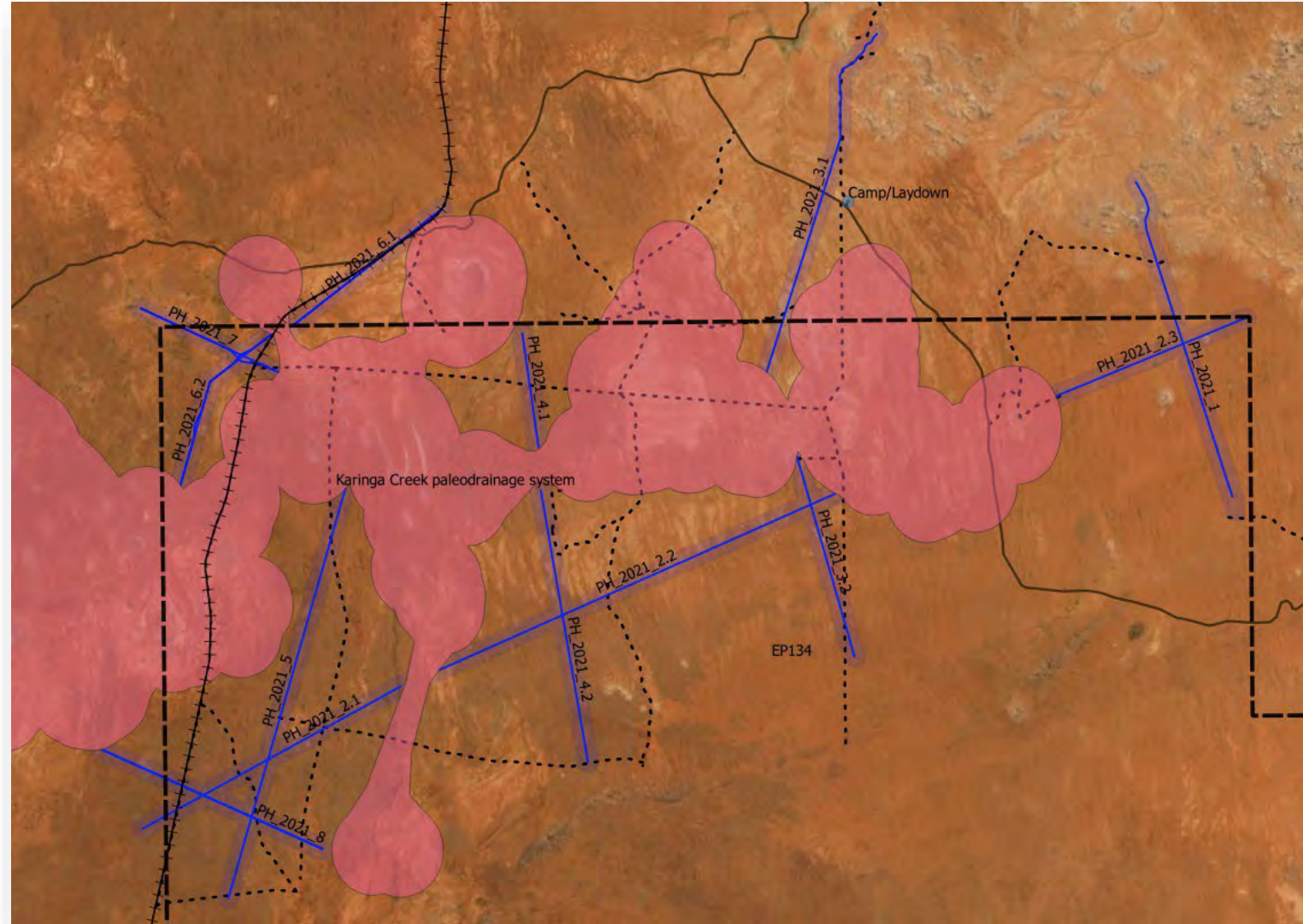
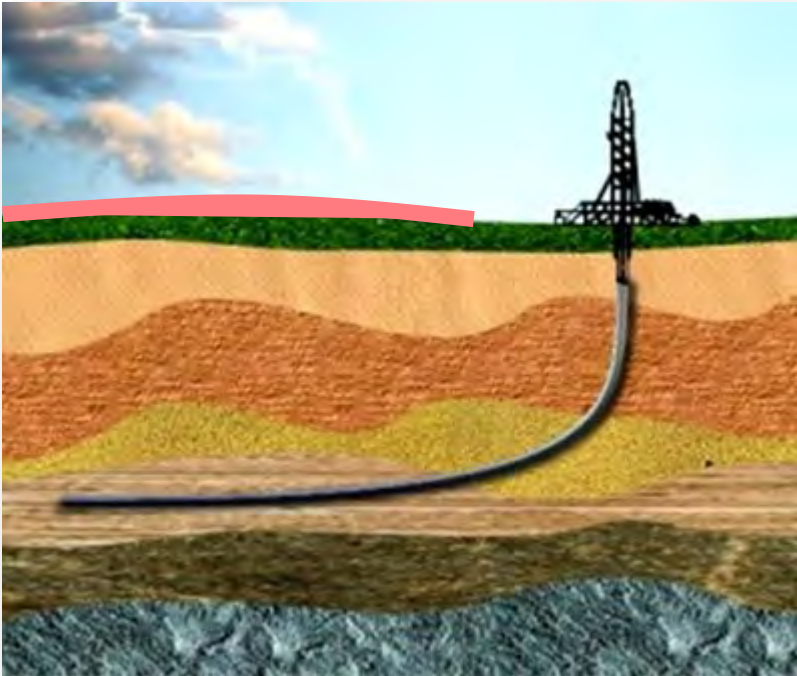
Method:

- Drill a vertical well first to check formation depths (Vertical portion of well may only occur on first well of each pad, dependent on well objectives)
- Plug back the bottom of the vertical well
- Drill the horizontal well

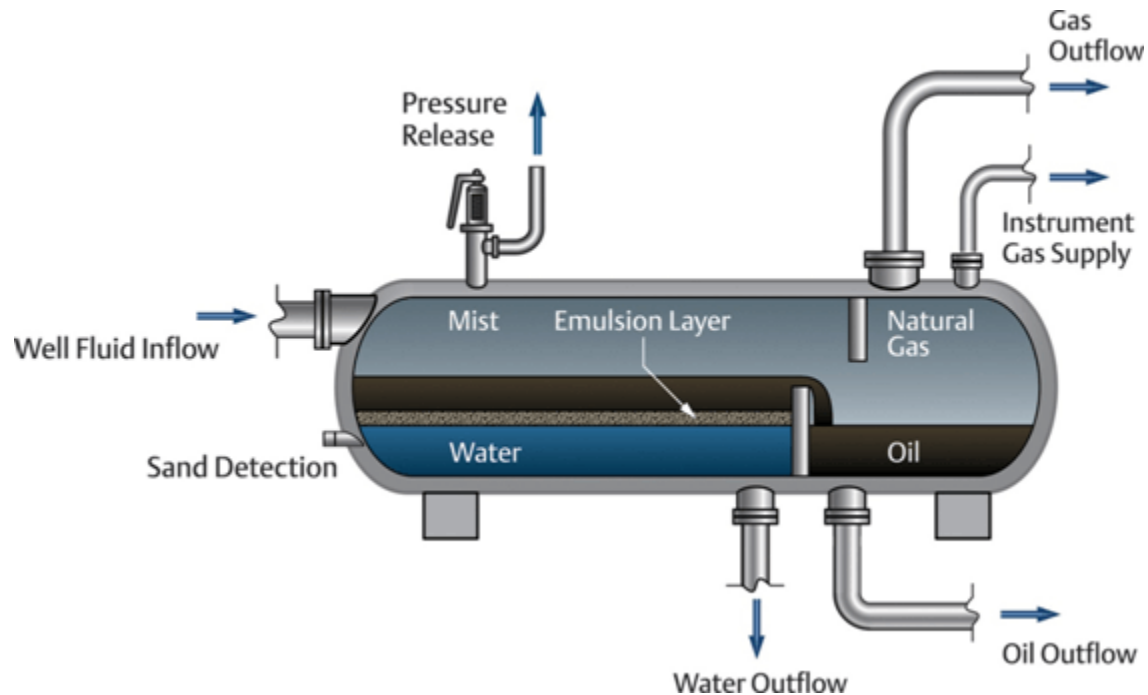


Drilling - under a Site of Conservation Significance

- Karinga Site Of Conservation Significance within EP134
- No direct impacts
- Drilling will possibly extend underneath the Karinga System
(at least 1,00m below the surface)



- Test each well for up to 90 days to get an understanding of the potential to produce gas at commercially viable rates
- Wells will most likely be dry, with no water or condensate



Sept 2021

THANK YOU

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Appendix K – Emergency Response Plan



Emergency Response Plan

EMP PKH₁

NT Exploration Permit (EP) 134

Version	Description	Date	Author(s)	Reviewer	Approved
Rev 0	Drafted	001/09/2021	Jon Bennett	Jordan Bunning	Art Molone

This document has been prepared for Peak Helium by:

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E: admin@ingauge.com.au

ABN: 51 164 429 190



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1 Introduction

This Emergency Response Plan (ERP) describes processes to be followed by Peak Helium in the event of an emergency during exploration activities at Exploration Permit 134 (EP134).

The ERP is designed to guide the Peak Helium response team for the project in conjunction with the support from the engineering and project management subcontractors and relevant third parties to respond effectively and promptly to site-level emergencies and return the site to normal operations.

This ERP will be used in conjunction with relevant;

- Spill Management Plan/s
- Bushfire Management Plan/s

Seismic Acquisition contractors are required to have their contractor specific ERPs.

In these cases, this ERP will be bridged to the contractor specific ERPs to ensure alignment and clarity between the two plans.

2 Scope

This plan applies to all employees, contractors, and visitors; involved with the EP134 project operations, including:

- Exploration activities

3 Background

The EP134 project includes ongoing helium exploration in the north western section of EP134. The project area is in the Northern Territory, approximately 170km to the south of Alice Springs, approximately 45 km to the east of the Sturt Highway.

The works include seismic acquisition.

The location of the area that this ERP applies to is shown in Figure 1 below.

All activities involved with the project operations will not rely on the NT Fire and Rescue services (NTFRS), as the project area is outside the NTFRS Emergency Response Area.

4 Emergency Response Priorities

All actual or potential emergencies will be assessed under the following activation trigger principles:

- **People:** Serious injuries/loss of life or emotional harm,
- **Environment:** Serious impact to the biological, physical environment or eco-system functions,
- **Asset:** significant damage or threat to property/assets,
- **Reputation:** serious impact to community, cultural heritage sites, or both,
- **Liability:** serious regulatory breach,
- **Continuity:** loss or extended disruption to critical services & ability to continue operations.

Refer to Figure 2 and Figure 3 for incident assessment and activation flowchart.

4.1 Activation Immediate Actions

When a site-level emergency is declared, follow the Activation immediate actions flow chart available in Figure 3 and escalate it where appropriate. Refer to Section 7 for specific response scenarios.

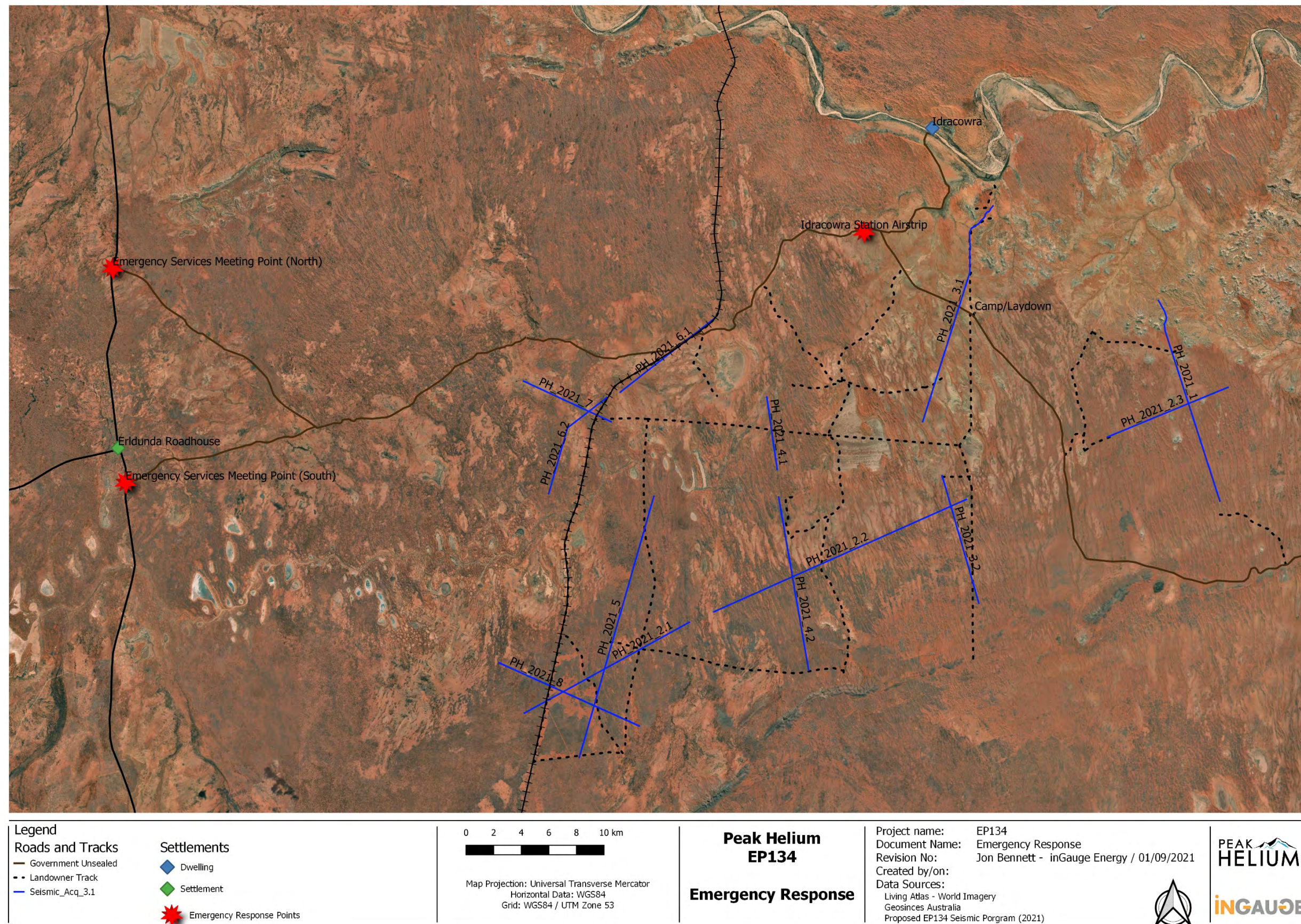


Figure 1. EP134 – 2021 Seismic program – Emergency Points

5 Definition of Site Emergency

An emergency could be defined as an accident or deliberately caused situation that poses an immediate risk within a specific site. In many cases, the situation could be dangerous, requiring urgent/immediate intervention to prevent the situation from escalating or worsening. Incidents could have an impact on:

- **People:**
 - o Death, injury or near-miss
- **Environment:**
 - o Uncontrolled release of a substance to air, land, or water
- **Asset:**
 - o Loss or damage to physical assets
- **Reputation:**
 - o Loss or damage to business
 - o Loss of control of any health, safety environment or community related incident
- **Liability:**
 - o The potential for any of the above

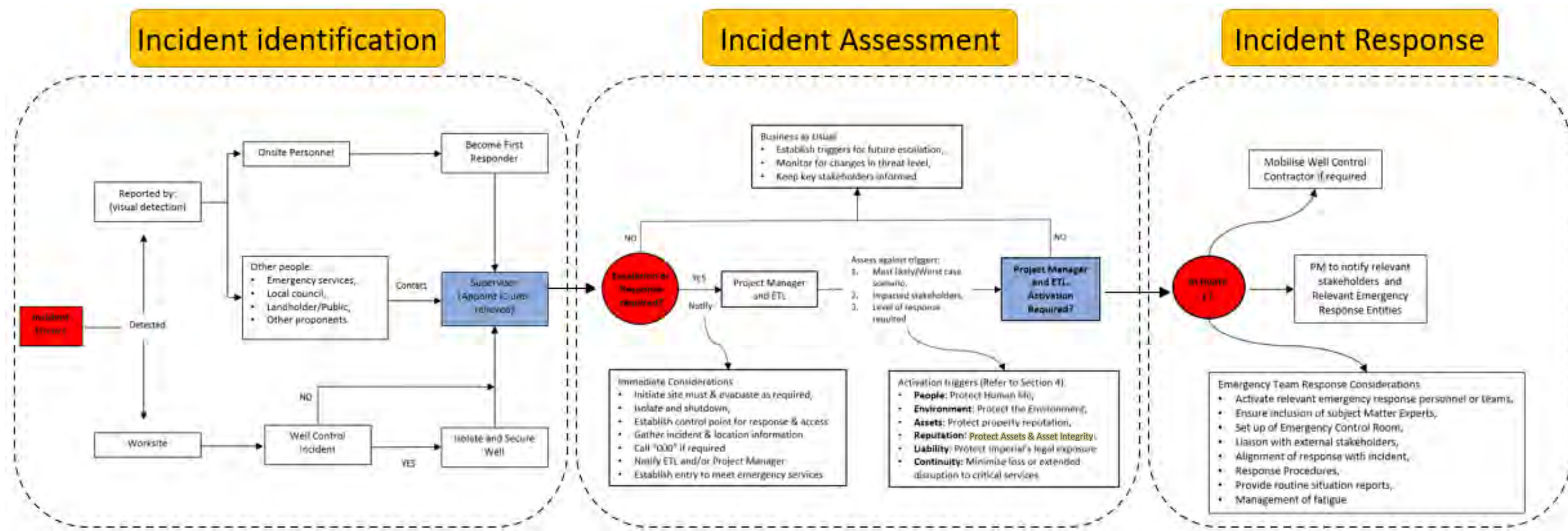


Figure 2. Identify, Assess, Response Flowchart

Activation Flow-Actions

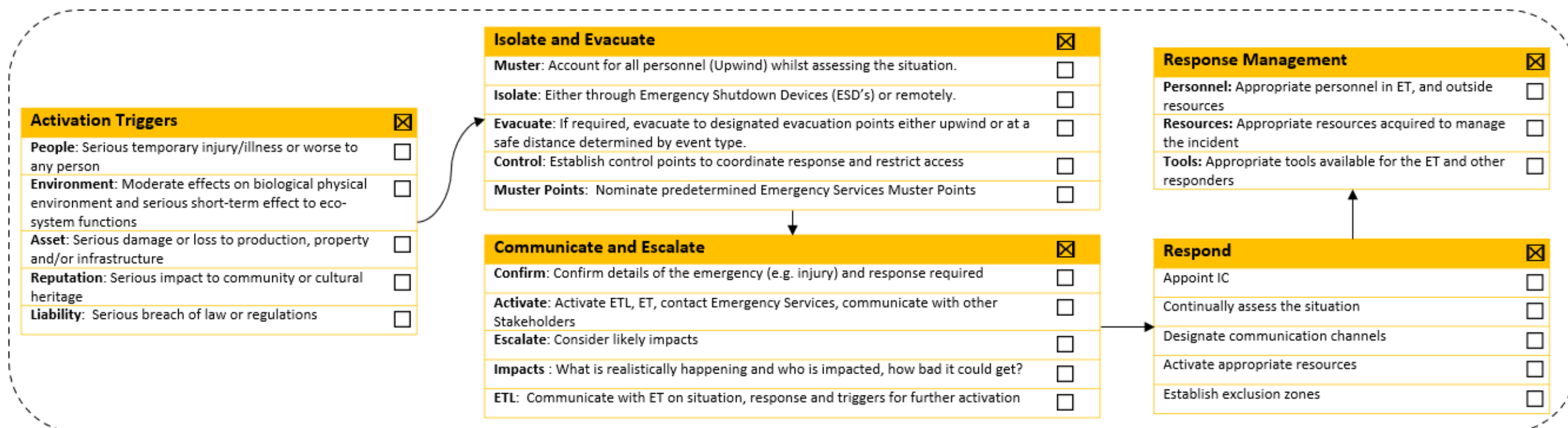


Figure 3. Activation Actions

6 Roles & Responsibilities

Table 6.1 Emergency Response roles and responsibilities

Person(S)	Responsibilities
First Responder Located at the scene, this could be on-site personnel or a contractor	- Adhere to the Project Emergency Response Plan. - Maintain a high level of awareness of actions to be taken in the event of an emergency. - On identification of an emergency, immediately report to the Site Supervisor indicating the location, type of emergency, need for assistance, and intentions to assist. - Check the area and assess any person for injuries, provide First Aid to injured persons within training and ability levels. - Move injured, only if they are in immediate and/or further danger, to avoid any additional injuries/risk to persons - Note the impacts of the emergency and any potential requirements for evacuations.
First Aiders Located at the site	- Provide first aid treatment or assessment as needed, working within their skill level. - Determine the need for medical assistance and provide information to Medical personnel or Emergency services as required. - Ensure that First Aid kits are maintained and complete, and items are in-date. - Ensure that all treatments provided, regardless of the type or complexities, are recorded.
Incident Commander (IC) - Located at the incident scene - Manage first response at site level	- Act as the site Incident Commander (IC) and manage the first response at the site level. - Maintain familiarisation with Peak Helium site ERP and Contractor ERP's, key emergency respondents and respective notification and callout requirements. - Ensure all initial Emergency Response Resources (ERR) are available and in working order. - Ensure the Emergency Team Leader (ETL) is notified ASAP in the event of an alert or emergency event. - Escalate to the Operations/Project Manager and Emergency Services if required. - Monitor the safe suspension of operations and associated activities. - Ensure that emergency action plans are discussed regularly at Pre-Start / Toolbox meetings so that all persons under their control are aware of the project emergency procedures. - Maintain a log of incident events, actions, messages, and decisions made in the chronological summary and provided to ETL. - Ensure the safety of other team members and establish exclusion zones around the incident scene if appropriate.
Emergency Team Leader (ETL) Located at either the Site Emergency	- Responsible for the overall management of emergencies on Peak Helium controlled worksites - Nominate IC for the incident Alert emergency contact(s), Confirm details, Activate resources (as required)

Person(S)	Responsibilities
Control Room (ECR), or In the main office	- Ensure adequate personnel and resources are available to support, manage and close out any site emergency, - Conduct emergency response drills. - Arrange additional support staff for the Emergency Team (ET) communications/administrative activities as required. - Filter incident events information to ET. - Utilise Emergency Response Incident Log Sheets. - Ensure early notification and Site reports are sent to ET as appropriate.
Project Manager (PM) Located in the main office	- During project planning, ensure this ERP is bridged to relevant Contractor ERP/EHSMS - Provide support to the ETL. - Act as journey contact for field teams. - Pass on information to Peak Helium relevant personnel to communicate to impacted/relevant stakeholders. - Support field team with emergency service direction/calls as requested.
Emergency Team (ET) Located in the main office.	- Provide support to the ETL and Site Supervisor regarding operations, planning, logistics etc. - Provide tactical response to site incidents. - Provide direction and backup support to Stakeholders. - Provide expertise and technical advice in support of the Emergency response effort. - Open, clear, and prepare the Emergency Control Room (ECR) for immediate use.
Crisis Management Team (CMT) Located at the inGauge Operations Base in Brisbane	- The ET has a reporting responsibility to the CMT for all low-level incidents or greater, as per the Peak Helium Incident Report and Investigation Procedure. - The CMT will assume an operational support overview of incidents and provide operational management support to site ET during incidents that present an actual or potential threat to Peak Helium operations. - The CMT will request emergency response drills as appropriate and ensure appropriate authority and equipment to hold the emergency response drills. - Maintain a log with all the information regarding the incident. - Manage media in concert with the Peak Helium Managing Director.
Personnel on-site	- Avoid placing themselves or others in danger. - Maintain familiarisation with Peak Helium site ERP, relevant Contractor ERP's, and respective emergency notification requirements. - Be familiar with the site Muster Points and evacuation procedures. - Be alert for and report hazardous situations that could escalate into an emergency. - Immediately report any actual or potential emergencies. - Report any further emergency arising from an existing incident to the nominated Peak Helium Site Supervisor / ETL or designated IC. - MUST NOT communicate with the Media under any circumstances.

7 Response Scenarios

Peak Helium emergency preparedness and response capability are supported by underpinning risk management processes. Each site must risk assess potential emergency events to support the site emergency management requirements.

Table 7.1 describes some emergency response scenarios and recommended actions.

Table 7.1. Response Scenarios

Category	Response	☒
Basic Emergency Response	Remove yourself and others from danger	☐
	Raise the alarm – Notify the Site Supervisor through the available channels of communication (e.g. radio) - Report location, - type and extent of the incident	☐
	Stop all work and makes sure the area is safe	☐
	Activate emergency shutdown devices/isolate equipment as necessary if safe to do so	☐
	Provide First Aid to any injured persons (DRSABCD)	☐
	Account for people	
	Reach Emergency Team Leader	☐
	Call emergency services if required	☐
	Follow the directions of emergency services or response personnel and assist as required if you feel safe and capable to do so	☐
	Follow the Response Procedure and Gather information (Table 9.1)	
	Notify appropriate Peak Helium contacts	☐
	Determine the recovery strategy and resources required: - Check for equipment integrity, - Ensure all protection systems are restored, - Replenish, replace or return emergency equipment.	☐
Fire, Building Evacuation	Initiate Emergency Response Plan	☐
	If you see SMOKE, FLAMES or hear a FIRE ALARM, alert others in your vicinity immediately	☐
	Remove anyone in danger if safe to do so	☐
	Activate the Fire Alarm	☐
	If you can see a fire, attempt to extinguish it if safe to do so. If the fire is small enough, use a nearby fire extinguisher to control and extinguish the fire. Do not fight the fire if the following conditions exist: - You have not been trained or instructed in using a fire extinguisher. - You don't know what's burning. - The fire is spreading rapidly and might block your means of escape. - You don't have the proper equipment.	☐

Category	Response	☒
	- You might inhale toxic smoke. - Your instincts tell you not to do so. - If the first attempts to put out the fire fail, evacuate the building immediately.	
	Close any doors if safe to do so	☐
	Call 000 and contact the Fire Brigade	☐
	Ensure all personnel leave the building	☐
	All persons leaving the building should follow the Green Exit Signs to leave through the nearest emergency exit	☐
	All persons should leave the property via the identified entrance to ensure clear access for emergency service and proceed to Emergency Evacuation Point	☐
Fire, (Building Evacuation)	Do not return to the building until advised by emergency personnel	☐
	Do not leave the Emergency Evacuation Point at any time without advising and gaining the approval of the Building Warden or Managing Director	☐
	Follow Peak Helium Incident Notification and Investigation Procedure	☐
Injury (Medical Emergency)	Initiate Emergency Response Plan	☐
	If injuries require more than First Aid but are not critical or life-threatening, and the person can be transferred by vehicle, take the injured person/s to the closest medical facility or site paramedic if available	☐
	If injuries are critical or life-threatening, call 000 and then the site paramedic if available	☐
	Continue First Aid until assistance arrives	☐
	Follow Peak Helium Incident Notification and Investigation Procedure	☐
Criminal Activity (Civil disturbance)	Initiate Emergency Response Plan	☐
	Always avoid physical confrontation	☐
	Contact your supervisor and police if necessary	☐
	Move to the muster location or safe location	☐
Snakebite	Initiate Emergency Response Plan	☐
	Life-threatening effects from snakebite aren't usually seen for a few hours but can appear in minutes - what to look for: - Fang marks - Headache, difficulty breathing - Nausea and vomiting - Stomach pain - Swollen glands in the armpits & groin - Weakness, collapse	☐
	Check the immediate area for danger to yourself or the injured person	☐
	Calm the person and keep them still	☐
	Call for assistance	☐
	If a person is unconscious, check breathing & pulse and apply CPR	☐

Category	Response	☒
	Do not wash or suck the bite or use a tourniquet	☐
	If bitten on a limb, apply a pressure bandage or cloth approximately 10-15cm wide upwards from the fingers or toes, firm but not too tight	☐
	Keep the limb still by using a splint	☐
	If able to do so, mark the area of the bandage where you think the bite occurred – this will assist medical staff	☐
	Leave the splint or bandage on until reaching the hospital	☐
	Follow Peak Helium Incident Reporting an investigation Procedure	☐
Vehicle Accident	Raise the alarm (report location, type and extent of incident)	☐
	Request assistance of Emergency Services as required	☐
	Switch off the vehicle ignition	☐
	Assess vehicle and site damage; take relevant actions to secure the accident scene	☐
	If the vehicle is in contact with power lines, stay clear and advise occupants to stay in the vehicle	☐
	Do not try to remove casualties from the vehicle until sure other dangers are not present	☐
	When possible, remove trapped/injured personnel, provide medical aid (as qualified)	☐
Bushfire	Initiate Emergency Response Plan	☐
	Initiate Medical Emergency Response if required	☐
	Account for all personnel	☐
	Contact Supervisor	☐
	Obtain information about the fire, such as location and size of the fire	☐
	Initiate contact with emergency services	☐
	Consider escape routes and alternate routes	☐
	Consider task timings and pack up timings	☐
	Consider checking of fire breaks if safe to do so	☐
	Follow Peak Helium Incident Notification and Investigation Procedure	☐
Environmental Incidents (Hazardous Spill – chemicals & wastewater)	Notify ET and advise situation and request assistance if needed	☐
	Consider ESD – depending on location, proximity or safety need	☐
	Ensure all personnel are safe and clear of the area -Stay clear of Vapour, Fumes, Smoke and Spills	☐
	All necessary action should be taken to minimise the size and any adverse effects of the release. Different PPE (Face shields, goggles, heavy gloves, Gumboots) may be required to perform the task safely	☐
	If adequate resources are not available to contain the release and if it threatens public health, property or the environment, the state fire brigades should be contacted for emergency assistance - phone 000	☐

Category	Response	☒
	Always pay attention to fire and health hazards. Remove all sources of ignition to reduce the potential fire hazard;	☐
	Establish the source of spill/leak, and determine the extent of pollution	☐
	Stop further leakage (e.g. stop pumping or in case of pipeline leak give warnings to stop the flow), close valves, attempt to stop leaks, move the object on its side;	☐
	Activate containment operations immediately to Isolate spill or leak area for at least 100 metres (330 feet) in all directions to prevent the spread of spilled product (if the situation requires- i.e. block drains, dam ditches, boom watercourses, close water intakes);	☐
	Divert or stop traffic (do not start vehicles if a low flash-point product has been split);	☐
	Clean up - Retrieve as much as possible with sorbents - Permeable ground - break up remaining patch/s with a rake to aerate the soil - Remove contaminated subsoil to reduce transfer to groundwater	☐
	Points to Remember: - Activate containment operations immediately - Do not allow vehicles to run over any spill saturated areas - Do not flush the spill down clean drains on areas or other inlets - Do not use mechanical excavators on areas with free oil on the surface - Contain & recover at the source - Never attempt to perform a rescue without support or adequate forethought	☐
Missing/ Overdue Personnel	After being notified of a missing or overdue person, Journey Management plan timeframes will be utilised to escalate the tracing and notification processes. Refer to Section o.	☐
	Obtain information on the time and location of the last sighting	☐
	Attempt to establish communication with the missing person via mobile phone and SMS contact and, if possible, UHF, VHF, Satellite phone	☐
	Advise Supervisor and EHS Representative	☐
	If possible, contact the destination point, e.g. hotel/motel/camp, to determine if the person has arrived	☐
	If possible and safe to do so (i.e. weather conditions), despatch other nearby employees to look for the missing person	☐
	After some time without contact (as determined collaboratively by the Supervisor, Manager, EHS Representative and Senior Management), notify the police of the missing person	☐

Category	Response	☒
Weather-Related (Flood, cyclone)	Initiate Emergency Response Plan	☐
	Initiate Medical Emergency Response if required	☐
	Account for all personnel	☐
	Contact Supervisor	☐
	Contact emergency services if required	☐
	Take shelter if possible	☐
	Monitor weather alerts and radio stations	☐
	Consider escape routes and alternate routes	☐
	Consider task timings and pack up timings	☐
	Never cross a flooded creek, road or causeway – always assess the risk before crossing	☐
	Follow Peak Helium Incident Notification and Investigation Procedure	☐
Transport of Chemicals and wastewater (Spills/release, road haulage – wet weather)	Ensure vehicles can safely navigate to and from areas of concern – provide alternate routes if possible	☐
	Ensure all personnel are safe and clear of the area -Stay clear of Vapour, Fumes, Smoke and Spills. Use safety-related equipment as required to safely extract personnel if in immediate danger	☐
	Always pay attention to fire and health hazards. Extricate personnel and team to a safe distance and clear of potential hazardous fumes (Upwind);	☐
	All necessary action should be taken to minimise the size and any adverse effects of the release	☐
	Activate containment operations immediately to prevent the spill from reaching a surface watercourse or groundwater	☐
	Attempt to Identify the spill - refer to the HAZCHEM code, Truck Placarding, Driver or SDS for methods of control/management;	☐
	If adequate resources are not available to contain the release and if it threatens public health, property or the environment, the state fire brigades should be contacted for emergency assistance - phone 000	☐
	Divert or stop traffic (do not start vehicles if a low flash-point product has been split) if tanker truck or Chemical event is involved in a fire, ISOLATE for 800 metres in all directions	☐
	If fluid forms, attempt to prevent the spread of spilled product from the vehicle itself (shut valves – internal/external) if safe to do so, using hazard-specific PPE	☐
	Remove all sources of ignition to reduce any potential of fire	☐
	Notify ET and advise situation and request assistance if needed	☐
	Clean up. - Retrieve as much as possible with sorbents - Permeable ground - break up remaining patch/s with a rake to aerate the soil - Remove contaminated subsoil to reduce transfer to groundwater	☐
	Points to Remember:	☐

Category	Response	☒
	• Activate containment operations immediately • Do not allow vehicles to run over any spill saturated areas • Do not flush the spill down clean drains on areas or other inlets • Do not use mechanical excavators on areas with free oil on the surface • Contain & recover at the source • Never attempt to perform a rescue without support or adequate forethought;	

8 Respond communication

The following flowchart (Figure 4) presents the communication between the first responders (internal or external personnel) and the organisation management team, including external support agencies' contact.

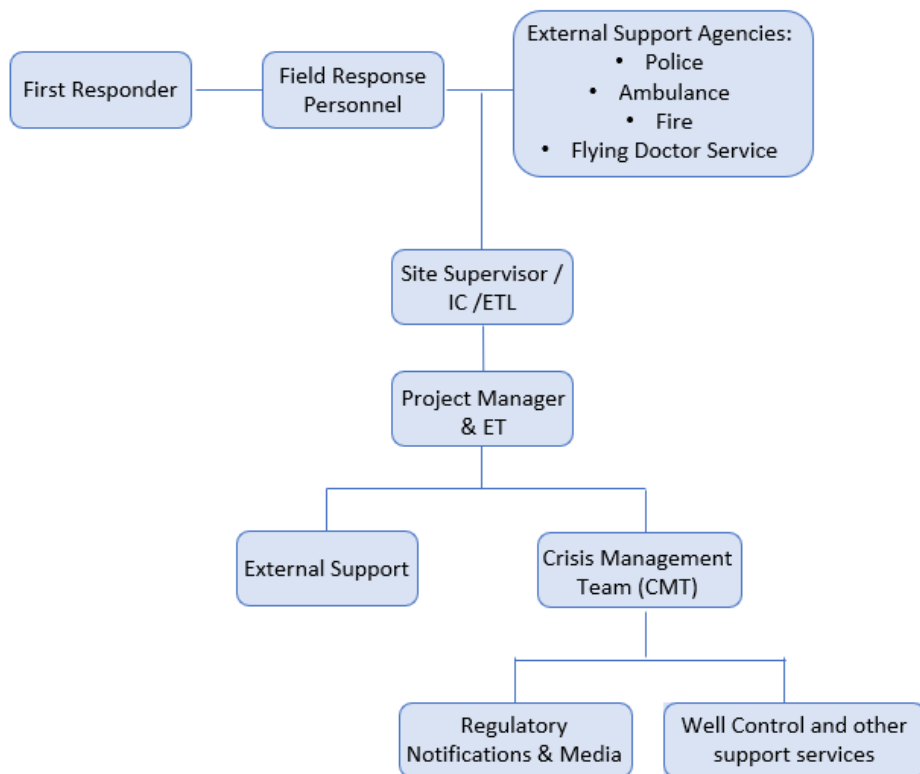


Figure 4. Communication Flow

8.1 Stakeholder Communication

The Project Manager may be required to communicate/liaise with relevant stakeholders that could be impacted by the incident/emergency. Potential stakeholders include regulatory authorities (local councils, landowners, emergency services, etc.).

Initial information should include the state/type of the emergency, possible cause, effects/consequences, likely duration, and potential impacts.

8.2 Regulatory Notification

A regulatory notifiable incident is an incident or non-compliance with a Mandatory External Obligation or Voluntary External Obligation that requires notification or reporting to a Regulator as prescribed by applicable Laws and Regulations. HSE regulatory notifiable incidents required to be reported to a regulator are listed in Appendix 1

The Project Manager must be consulted to determine contractual obligations for incident notification and reporting.

8.3 Media Enquiries

All personnel have been instructed to direct all media enquiries to the Project Manager, redirecting the calls to the questions to the Peak Helium representative as required.

It is important to remember that there is no such thing as "off the record". Even if you are speaking informally, you could be quoted at any time.

9 Incident notification

Table 9.1 below provides some examples of the information required to be gathered during an incident. Refer to Appendix 1 for Incident Notification Guideline.

Table 9.1. Incident notification examples

Element	Information examples	☒
Initial contact	- Name of the caller and receiver - Personnel involved in the incident	☐
Incident location	- Coordinates or landmarks - Clear directions on how to get to the incident site	☐
Incident Type and description	- Injury - Explosion - Vehicle accident - Fire - Well incident related - Missing personnel	☐
Description of the incident	- Time incident occurred - Cause of incident if known - Any actions taken on-site and emergency required	☐
Incident size or injury severity	- Area - Height - Volume - Description of injury - Number of people involved - Preliminary assessment of medical assistance required	☐
Current status	- Has the incident or potential of the incident to cause more damage or injury stopped - Level of emergency response required - First Aid applied to date and Degree/Level of controls in place - Environmental situation (wind, rain, etc.).	☐

10 Emergency Response Equipment and Personnel

Table 10.1 presents the different emergency equipment available on-site at any one time to provide, where possible, the initial response required to avoid any incident from escalating.

Table 10.1. Emergency Response Equipment

Equipment	Location
First Aid	First Aid kits will be located at the site office, where established, with additional First Aid Kits available in the Peak Helium Site Supervisor vehicle.
Fire Equipment	Fire extinguishers will be located within all operating plant. Further fire equipment will be available in the Peak Helium Site Supervisors vehicle, including extinguishers and blankets and at site offices where established.
Defibrillator	A defibrillator unit is to be located at any site office, where established.
Oil Spill Kits	Oil Spill Kits will be located on any refuelling and service vehicles..
Paramedic	First Aid trained personnel will be on-site for all operations.
Royal Flying Doctors Services	Available on-call; 1 hour to Idracowra Station Airstrip

11 Journey Management

All contractors engaged in carrying out work at Peak Helium's exploration activity sites must have a sound Journey Management (JM) process. Each contractor will provide detail of their company journey management process (JMP) during prequalification. At a minimum, or where no journey management process is in place, the following procedures shall be complied with:

- All contractors shall have been inducted and trained in the JM system being utilised.
- Suitable safety equipment must be installed in each vehicle and operable (e.g. satellite phone, first aid kit).
- Should the contractor company not have their JMP system, they shall utilise this Peak Helium procedure.
- All travelling personnel or groups shall have a Journey Coordinator (JC) allocated to assist with journey management. The Journey Coordinator and the travelling person must be aware of who has been allocated to the JC role and the responsibilities of each party.
- The JC should advise the Site Supervisor (SS) of the impending journey, confirm their status as JC and keep the SS updated on the journey details. The SS may be used as the JC, but it must be clear that the SS has this responsibility.

When a journey is undertaken, the Journey Coordinator should maintain close communication with the travelling person/group and ensure all information about the journey has been gathered and tracked for the whole journey. Information should include:

- Full name(s) of person(s) travelling
- Frequency and method of check-in during the journey
- Contact details for all members of the travelling group and the JC
- Next of kin of people travelling
- Date of the trip
- Estimated Time of Departure (ETD)
- Estimated Time of Arrival (ETA)
- Route to be followed
- Description of vehicle eg registration number and vehicle type

Any changes to the above should be informed to the JC before departure.

It is critical that communication protocols be established between the JC and travelling person/group and clearly understood by both parties.

When ETA has not been fulfilled, the following actions will be taken by JC & SS:

Communication 1 Hour Overdue

- Call and keep monitoring all communication channels;
- Communicate with next of kin to check if the person(s) has communicated;
- Supervisor to alert IC & ET of the situation as required;
- Confirm the last known location of the vehicles tracker unit;
- Initiate a search party if the situation demands.

Communication 2 Hours Overdue

- Request the ERP be activated, if not already underway;
- If not already activated, ensure rescue party is underway, by road if suitable;
- Prepare for air search (if necessary) on latest coordinates and planned route; and
- Inform authorities and other parties in the area;
- Alert the most suitable Medical person(s) of the situation.

Action 4 Hours Overdue

- Authorities take control of incident;
- Keep monitoring progress of the search parties by road; and
- Relevant supervisor to keep PM and ET informed.

12 External support (Road & Air)

External support can be sourced to support during an emergency. This support can be either obtained by road (e.g. Ambulance) or air (e.g. The Royal Flying Doctors Services)

12.1 Road

- Ambulance services can be dispatched from:
 - o Alice Springs and be on-site in approximately 3.5 hours,
- Emergency Services will be intercepted by a Peak Helium erial employee at a designated location along the Stuart Highway and directed to the site,
- On-site first aiders will provide an initial response until further assistance arrives on site.
- Constant communication will be maintained with external support to avoid service delays or to obtain assistance for an adequate on-site response.

12.2 Aircraft

- The Royal Flying Doctors Services will be contacted when the severity of the incident/injury cannot be mitigated or responded to by road assistance.
- Landing of aircraft can be conducted at Idracowra Station Airstrip
 - o Ensure constant communication is held with aircraft personnel and IC.
 - o Do not approach aircraft until the pilot has given you the approval to do so.
 - o Remove any loose clothing (e.g. hats) when approaching aircraft.

13 Recovery Actions

Table 13.1 provides post-emergency actions required to be followed to return to pre-incident state operations.

Table 13.1. Recovery Actions

Action	Description
Review	- Discuss strength and weaknesses, - Necessary improvements for this plan and related procedures, - Identify actions to be undertaken.
Investigate	- Secure incident site and do not disturb area until the investigation has been completed - Collect any evidence that may assist in the investigation (e.g. testimonies, records of actions taken, photographs, etc.)
Recover	- Verify infrastructure integrity as well as security equipment restoration, - Replenish, replace, or return emergency equipment, - Ensure personnel impacted by the incident receive the required counselling or information to continue with safe operations, - Revised ERP and implement changes or training as required.
Clean-up	- Assess for potential decontamination needs - Repair or replace damaged equipment and test for safe functionality - Attend to commissioning and site reinstatement.

13.1 Emergency Conclusion

After the emergency has ended, several key issues must be considered when standing down personnel. These issues relate to ongoing emergency control, investigation processes and recovery actions, including appropriate resources for key responsibilities. Final information releases must be considered for affected parties and key stakeholder groups, including:

- External Contractors and Services
- Government Authorities
- Shareholders
- Media
- Employees/employee relatives.

An emergency would be over when:

- Where involved, the Emergency Services have formally declared the emergency is over and returned control of the affected site
- The Emergency Team declares the emergency has been terminated and the site facilities have been returned to a safe condition
- All people have been accounted for
- Injured persons have been stabilised and/or evacuated
- Effective environmental controls are in place.

13.2 Debriefing

A debriefing is to be conducted by the Project Manager to discuss problems and necessary improvements for incorporation into the emergency preparedness and procedures. This discussion should include:

- Recognition of success and what was accomplished exceedingly well
- Equipment or procedure deficiencies
- Unsafe practices/near-miss incidents
- The cause of any injuries sustained
- Unforeseen problems and relevant resolution steps
- Communication/supervision problems
- Environmental considerations
- External problems, i.e. media, landowners, local authority, producers or customers

The minutes from the debrief meeting, when available, will be sent to all attendees.

14 Training

Personnel who receive the necessary training are more able to perform more effectively when responding to an emergency. The training will give the employee a greater understanding of their responsibilities and build their confidence to accurately react during an emergency event to minimise or reduce the likelihood of an incident from escalating.

All personnel will be trained against this plan. Training will be provided in the form of:

- Practical drills,
- Simulated exercises,
- Competency-based training,
- Toolbox meetings,
- Resource and equipment checks,
- Desktop exercises.

15 Review and update

The ERP will be reviewed and updated as necessary in response to one or more of the following:

- Annually
- When major changes have occurred, which may affect the Emergency Response coordination or capabilities
- Following routine testing of the plan
- After an actual emergency
- Before installing and commissioning new plant and equipment

During the review, the following aspects are also to be considered:

- Lessons learned from an emergency
- Lessons learned from exercises
- Changes in legal requirements
- Improvements to effectiveness in terms of response strategy, management and communication
- Developments in the latest techniques and technology in handling an emergency
- Changes to, or movement of people within our organisation
- Changes to contact numbers of internal and external organisations
- Revisions to existing, or availability of, emergency management tools and equipment and resource suppliers and contractors

16 Emergency Contact Details

See Appendix 2 for the Site Emergency Response Display Sheet.

Peak Helium

Name	Position	Contact Number
Art Molone	Managing Director	0411 781 207

inGauge Energy

Position	Name	Phone Number	E-mail
Principal Engineer	Jordan Bunning	0405 727 677	jordan.bunning@ingauge.com.au
Project Manager	Jon Bennett	0400 007 635	jon.bennett@ingauge.com.au
Site Supervisor InGauge OCR	Jed Farley	0459 165 778 0402 492 902	Jed.farley@ingauge.com.au

Government and Stakeholders

Name	Location	Contact Number
Department of Industry, Tourism and Trade (DITT)	Darwin	Ph: 08 8999 6567 - 08 8999 6350 A.H: 0439 744 119 - 0430 739 507 Emergency: 1300 935 250
Environment, Parks and Water Security (DEPWS)	Darwin	Ph: 08 8973 8871 or 08 8973 8872 or 08 8973 8870
NT Work Safe	Darwin	1800 019 115
MacDonnel Regional Council	Alice Springs	08 8958 9600

Emergency services, and others

Entity	Name	Location	Contact Number
Medical Services	Alice Springs Hospital	Alice Springs	(08) 8591 7777
	St Johns Alice Springs Ambulance	Alice Springs	(08) 8959 6600
Aeromedical Services	Royal Flying Doctors Service	Alice Springs	(08) 8958 8411 24hr Emergency 1800 167 222
Police	Emergency		000 24h Assistance 131444
	Alice Springs Police	Alice Springs	(08) 8951 8823
	Alice Springs Fire Station	Alice Springs	(08) 8951 6688
Service Station	Erlunda Roadhouse	Stuart Hwy	(08) 8956 0984

17 Appendixes

Appendix 1. Incident Notification Guideline

Regulation	Incident Description	Communication by	Contact Details	Timeframe
Work Health and Safety (National Uniform Legislation) Act 2016 and Regulations 2017	PCBU must notify the regulator as soon as they become aware of a death, serious injury or illness or dangerous incident that arises out of the business or undertaking's conduct. A dangerous incident includes: • Uncontrolled escape, spillage or leakage of a substance, gas or pressurised substance, • Uncontrolled implosion, explosion or fire, • Electric shock • Fall or release from height of plant, substance or thing, • Collapse, overturning, failure or malfunction of, or damage to, any plant/equipment/structure/excavation, • In-rush of water, mud or gas in an underground excavation tunnel or interruption of ventilation in said tunnel A serious injury or illness means that results in: • work-related injury, • immediate hospital treatment as an in-patient, • immediate treatment for serious injuries (for example, amputation, scalping, a spinal injury, loss of a bodily function or a serious laceration, burn, head injury or eye injury), or • medical treatment within 48 hours of exposure to a substance.	Telephone	1800 019 115 Worksafe ntworksafe@nt.gov.au	Immediately after becoming aware
Schedule of Onshore Petroleum Exploration and Production	An incident involving death or serious injury (reports shall be in addition to and not take precedence over reports required by NT WorkSafe) A serious injury is one that requires immediate attention by a medical practitioner	Telephone and in writing	1300 935 250 or 08 8999 6350 DITT Petroleum.Operations@nt.gov.au	Immediately after becoming aware

Regulation	Incident Description	Communication by	Contact Details	Timeframe
Requirements 2017				
Schedule of Onshore Petroleum Exploration and Production Requirements 2017	An incident involving serious damage (other than Environmental Harm) including loss, destruction or damage to property exceeding \$50k or when any person dies or suffers serious injury	Telephone and in writing	1300 935 250 or 08 8999 6350 DITT Petroleum.Operations@nt.gov.au	Immediately after becoming aware
	An incident involving or could potentially involve the injury to a person or serious damage to property that is professionally considered to have been caused by an event that is not in the normal or ordinary course of an operation (Potentially Hazardous event)			
	An incident where damage to property occurs that is not serious damage to property, but which results in a significant loss of structural integrity or load-bearing capacity in the property damaged or resulted in some other significant unsafe condition			
	An incident that is considered to be an emergency	Telephone		Immediately (after 000)
Petroleum (Environment) Regulations 2016	An incident arising from a regulated activity that has caused, or has the potential to cause, material environmental harm or serious environmental harm as defined under cl. 117AAB(1) the Petroleum Act	Telephone and in writing	1800 413 567 DEPWS	As soon as practicable but no later than two hours after the first occurrence of the incident or after the time Peak Helium becomes aware of the incident
Petroleum Act 2018 and associated Regulations 2016	<i>Applicable to ON TENURE SPILLS (note Off tenure spills under Waste Management and Pollution Control Act 1998):</i> Reportable Incident: <i>An incident arising from a regulated activity that has caused or has the potential to cause material environmental harm or serious environmental harm.</i>	Telephone and in writing	1300 935 250 or 08 8999 6350 DITT Petroleum.Operations@nt.gov.au	As soon as practicable (not later than two hours after the incident)

Regulation	Incident Description	Communication by	Contact Details	Timeframe
	Material environmental harm means harm that: a) Is not trivial or negligible in nature; b) Consists of an environmental nuisance of a high impact or on a wide scale; c) Results, or is likely to result, in not more than \$50k or the prescribed amount (whichever is greater) being spent in taking appropriate action to prevent or minimise the environmental harm or rehabilitate the environment; or d) Results in actual or potential loss or damage to the value of not more than \$50k or the prescribed amount (whichever is greater). Serious environmental harm means environmental harm that is more serious than material environmental harm and includes environmental harm that: a) Is irreversible or otherwise of a high impact or on a wide scale; b) Damages an aspect of the environment that is of a high conservation value, high cultural value or high community value or is of special significance; c) Results or is likely to result in more than \$50k or the prescribed amount (whichever is greater) being spent in taking appropriate action to prevent or minimise the environmental harm or rehabilitate the environment; or d) Results in actual or potential loss or damage to the value of more than \$50k or the prescribed amount (whichever is greater).			<24 hours after oral notice (written notification) Three days after the incident (initial report) 90 days intervals from the date of the initial report (interim reports) 30 days after clean up or rehabilitation (final)

Regulation	Incident Description	Communication by	Contact Details	Timeframe
Petroleum Act 2018 and associated Regulations	Recordable Incident: An incident that has resulted in an environmental impact or environmental risk not specified in the current plan for the activity; or has resulted in the contravention of an environmental performance standard specified in the current plan for the activity; or is inconsistent with an environmental outcome specified in the current plan for the activity; and it is not a reportable incident.	In writing	1300 935 250 or 08 8999 6350 DITT Petroleum.Operations@nt.gov.au	15 days after each 90 day period after the day on which the environmental management plan is approved
Environmental Protection Biodiversity Conservation Act	Incidents considered having an impact on Matters of National Environmental Significance	In writing	Compliance@environment.gov.au & DAWE	within 5 business days of becoming aware
Energy Pipelines Act 2015 and associated Regulations	A reportable incident that involves: • Death or serious injury (or the potential to cause) • Significant damage to a pipeline (or potential to cause) • Immediate investigation	Telephone and in writing	1300 935 250 or 08 8999 6350 DITT Petroleum.Operations@nt.gov.au	As soon as practicable
	A significant pipeline accident event that: • Is connected with work carried out on or in relation to a pipeline • Causes, or has the potential to cause human death			
Waste Management and Pollution Control Act 1998 and associated Regulations	Duty to notify of incidents causing or threatening to cause pollution <i>Applicable to off tenure related spills (note ON tenure spills under Petroleum (Environment) Regulations):</i> 1) Where: a) an incident occurs in the conduct of activity; and b) the incident causes, or is threatening or may threaten to cause, pollution resulting in material environmental harm or serious environmental harm, the person conducting the activity must notify the NT EPA in accordance with subsection (3) as soon as practicable after (and in any case	Telephone	NT EPA Pollution Hotline, 24h: 1800 064 567 Pollution@nt.gov.au & DEPWS	As soon as practicable after (and in any case within 24 hours) first becoming aware of the incident or the time they ought reasonably be expected to become aware of the incident.

Regulation	Incident Description	Communication by	Contact Details	Timeframe
	within 24 hours after) first becoming aware of the incident or the time he or she ought reasonably to be expected to have become aware of the incident." An incident that causes, or is threatening or may threaten to cause, pollution resulting in material environmental harm or serious environmental harm. Refer to the definition of material and <i>serious environmental harm</i> provided in the <i>Petroleum Act</i> section above. Pollution means: a) A contaminant or waste that is emitted, discharged, deposited or disturbed or that escapes, or b) A contaminant, effect or phenomenon, that is present in the environment as a consequence of an emission, discharge, deposition, escape or disturbance of a contaminant or waste. Note: does not apply to incidents confined within petroleum activities land (including air and water above or below) – see the EMP for the area of petroleum activities land			
Environmental Protection Act and associated Regulations	Alteration of action in such a manner that the environmental significance of the proposed action may be changed	In writing	08 8924 4218 NT EPA ntepa@nt.gov.au	As soon as practicable
Bushfire Management Act 2016 and associated Regulations	Unable to control a fire on the land	All reasonable steps	08 8973 8871 or 08 8973 8872 or 08 8973 8870 DEPWS Note, also required to notify landholder	Following the fact

Regulation	Incident Description	Communication by	Contact Details	Timeframe
Heritage Act 2016 and associated Regulations	Discovery of archaeological places and objects	In writing	08 8999 5039 DTC - Heritage Branch heritage@nt.gov.au & DEPWS	As soon as practicable (within 7 days of discovery)
Weeds Management Act 2013	(a) First becoming aware of a declared weed that has not previously been, or known to have been, present on the land.	Not specified	08 8999 4567 DEPWS – Weed Management Branch weedinfo@nt.gov.au	14 days of becoming aware
Transport of Dangerous Goods by Road and Rail (National Uniform Legislation)	If a driver of a road vehicle transporting dangerous goods and the vehicle is involved in an incident resulting in a dangerous situation they must notify the prime contractor for the goods, the Competent Authority, and the police or fire service, of the incident.	Not specified	The prime contractor for the goods, the Competent Authority, and the police or fire service	As soon as practicable after the incident

Appendix 2. Site ERP Display Sheet

Project Name: EP134 ERP			
Coordinates:			
Idracowra Station Airstrip ;;			
Latitude: 25°03' 45"S		Longitude: 133° 44' 19"E	
Emergency Services Meeting Point (North);			
Intersection on Stuart Highway			
Latitude: 25° 04' 50"S		Longitude: 133° 11'53"E	
Emergency Services Meeting Point (South);			
Latitude: 25°13'15"S		Longitude: 133°12'17"E	
Emergency Contacts			
Entity		Location	Number
General	Police - Emergency	-	000 24h Assistance 131444
	Alice Springs Police	Alice Springs	(08) 8951 8823
	Alice Springs Fire Station	Alice Springs	(08) 8951 6688
	Erlunda Roadhouse	Stuart Hwy	(08) 8956 0984
Medical Services	Alice Springs Hospital	Alice Springs	(08) 8591 7777
	St Johns Alice Springs Ambulance	Alice Springs	(08) 8959 6600
Aeromedical Services	Royal Flying Doctors Service	Alice Springs	(08) 8958 8411 24hr Emergency 1800 167 222
inGauge Energy			
Position		Name	Number
Principal Engineer		Jordan Bunning	0405 727 677
Project Manager		Jon Bennett	0400 007 635
Site Supervisor InGauge OCR		Jed Farley	0459 165 778 0402 492 902

Appendix L – Occupational Health and Safety Policy



OCCUPATIONAL HEALTH & SAFETY POLICY

Peak Helium recognises its moral and legal responsibility to provide and maintain a work environment in which employees, contractors and visitors are able to work safely. This commitment extends to ensuring that the organisation's operations do not place the local community at risk of injury, illness or property damage.

Peak Helium will use a “practical approach” methodology in achieving a high standard of health and safety in activities in which the company is engaged whilst using “A No Blame” culture when investigating incidents/accidents, conducting audits and/or implementing any other part of the safety system, so as to obtain constructive outcomes from such investigations.

Effective Occupational Health and Safety practices will be a common objective for everyone including the Chairman, Directors, Managers, Supervisors, Employees and Contractors.

The Policy of Peak Helium is to ensure that every employee works in an environment where direct efforts are made to prevent accidents, injury and disruption to employees’ health from foreseeable work hazards.

Peak Helium acknowledges a duty to achieve their objectives by:

- Providing and maintaining a safe workplace, safe plant and safe systems of work in a practical approach;
- Using a “No Blame” culture;
- Providing adequate training, instruction, communication and supervision to enable employees to perform their work safely and effectively;
- Investigating incidents properly to eliminate the root causes, and reduce the level of risk;
- Complying with relevant statutory legislative requirements.

Employees, contractors and visitors, have a duty in the attainment of these objectives by:

- Working with care for their own safety and that of other employees, contractors and members of the public who may be affected by their acts or omissions;
- Reporting conditions that appear to be unsafe to their supervisor;
- Assisting in the investigation and the reporting of any incidents with the objective of introducing measures to prevent reoccurrence.

Art Malone
Managing Director
Peak Helium

Appendix M – Environmental Policy



Environmental Policy

Peak Helium is committed to ensuring that all activities are conducted in a manner that protects and preserves the environment. Peak Helium will ensure that any potential adverse effects on the environment are either avoided or minimised by thorough investigation and planning before the commencement of its activities.

Peak Helium objectives in the fulfilment of this policy are to:

- Ensure all applicable industry and statutory requirements are met, and obligations are fulfilled
- Ensure all employees and contractors are fully aware of their responsibilities concerning relevant environmental matters.
- Develop and document environmental actions and contingency plans to control and minimise all environmental risks with all activities.
- Apply accepted engineering principles in all its operations to reduce and restrict the production of waste products known to be harmful to the environment and dispose of such waste by recycling or other accepted practice.
- Minimise the environmental impact of its operations, including the prevention of pollution
- Promote Peak Helium commitment to continuous improvement of management and protection of the environment, involve the community and stakeholder interests through consultation and address any concerns.

Art Malone
Managing Director
Peak Helium

Appendix N – AAPA Certificate