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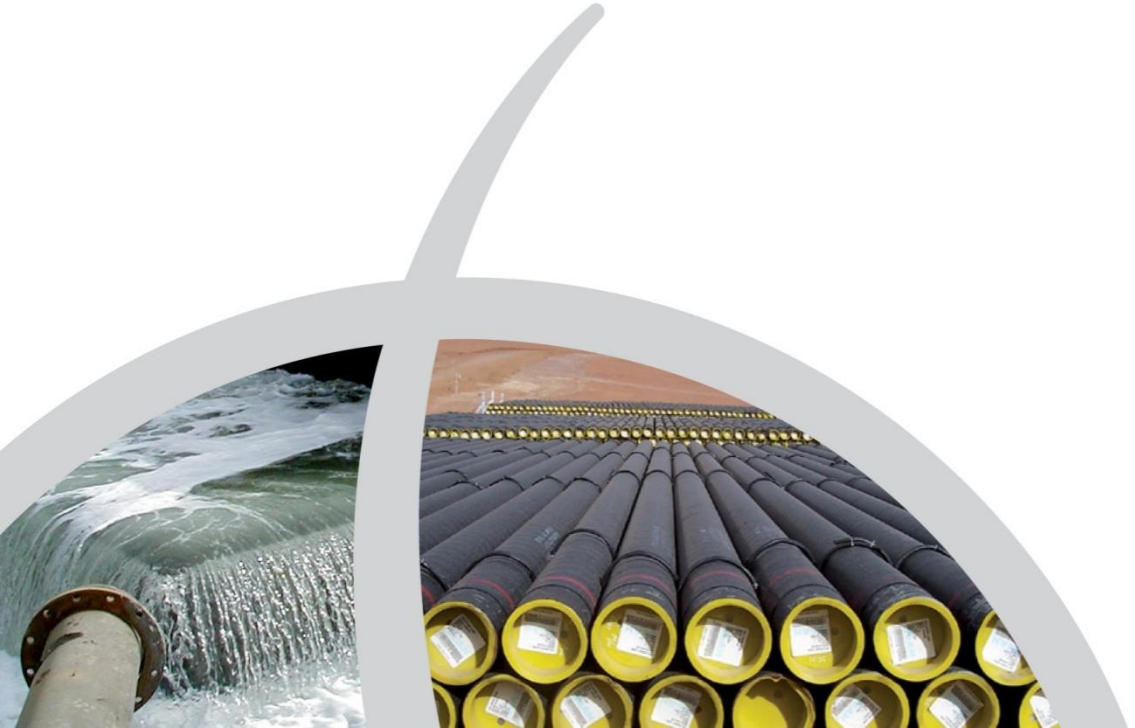
Wingstar Investments Pty Ltd

Environment Plan Summary

Cawse Pipeline (PL37) Care and Maintenance Operations

6 September 2021

Document No. 2053-OP-PLN-009
Revision 7



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Approval Status

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1 EXECUTIVE SUMMARY

The Cawse Gas Pipeline (PL37) commences at an offtake on the Goldfields Gas Pipeline (GGP) at the intersection of the GGP easement and Road Reserve 980 (being GGP Kilometre Point 1230) to the Cawse Cogeneration Plant site approximately 9km east of Ora Banda, and north-west of Broad Arrow (50km north-west of Kalgoorlie, Western Australia).

Gas was supplied to the Cawse Cogeneration Plant through a DN150, 35km pipeline. OSD Asset Services a division of Verbrec group of companies (ASX: VBC) is the nominated operator of the pipeline.

The pipeline is suspended therefore not supplying or flowing any gas to the mine site or other facilities. The pipeline has been isolated at the inlet and delivery stations. The natural gas has been purged and the pipeline filled with an insert substance (nitrogen gas) to the pressure of 450kPa(g). Wingstar Investments Pty Ltd (Wingstar) has engaged OSD for integrity management operations such as pipeline patrolling, third party access approvals and cathodic protection monitoring. This Environment Plan (EP) addresses the environmental requirements for the operation of the pipeline in accordance with the latest Department of Mines, Industry Regulation and Safety (DMIRS) Guidelines for the Preparation and Submission of an Environment Plan 2016.

The pipeline is located on historical road reserves adjacent to disturbed pastoral land which has been largely cleared of native vegetation for transport and pastoral use. The pipeline does not intersect any nature reserves, heritage areas or environmentally sensitive areas.

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2 SCOPE

This EP applies to all activities for the ongoing care and maintenance operations of the Cawse Gas Pipeline (PL37).

The implementation of the EP derives from risk assessment and OSD experience in managing and operating of pipelines within Australia. The assessment considers the potential environmental impact of nominated pipeline activities and identifies controls to mitigate that potential. Based on the identification of the controls and mitigation strategies, this EP and or ancillary documentation will be revised and subsequently approved to allow nominated pipeline activities to commence.

3 PURPOSE

The primary purpose of this EP is for the protection of the environment through minimisation of the effects of maintenance and operations activities and the restoration and rehabilitation of areas disturbed by pipeline activities. The EP documents the necessary processes to manage the environmental impacts of activities during the operating lifetime of the Cawse Pipeline.

4 ABBREVIATIONS AND DEFINITIONS

Term	Definition
4WD	4 Wheel Drive
Abandonment in Place	Abandonment where the aboveground infrastructure is removed but the pipeline is left in situ (AS2885.3-2012 section 10.6.2)
Abandonment by Removal	Abandonment where all infrastructure is removed (AS2885.3-2012 section 10.6.3)
AS	Australian Standard
DMIRS	Department of Mines, Industry Regulation and Safety, WA
DN	Nominal diameter
EP	Environment Plan (this Plan)
EPA	Environmental Protection Authority, WA
EP Act	*Environmental Protection Act 1986* (WA)
EPBC Act	*The Environment Protection and Biodiversity Conservation Act 1999*
GGP	Goldfields Gas Pipeline
GHG	Greenhouse gas
GPS	Global Positioning System
Hazardous Substance	Any substance (liquid or solid) that has the potential to cause harm to the environment or living organisms. Entered in the List of Designated Hazardous Substances. If the substance is not entered in the List of Hazardous Substances determined in accordance with the Approved Criteria for Classifying Hazardous Substances whether the substance is a hazardous substance.
HAZID	Hazard Identification
HSE	Health, Safety and Environment
IBRA	Interim Biogeographic Regionalisation of Australia
km	kilometre(s)
KP	kilometre point
Licensee	The Registered Petroleum Pipeline Licence holder of the PL37
Verbrec	Verbrec Ltd (ABN 90 127 897 689)
m	metre(s)
mm	millimetres
Norilsk	Norilsk Nickel Cawse Pty Ltd (previous Licensee)
Operation/Operational	Operations of the pipeline in care and maintenance that does not include the pipeline being fully pressurised to flow gas
OSD	OSD Asset Services Pty Ltd trading as OSD Asset Services (ABN 66 117 904 024)

Term	Definition
PEC	Priority Ecological Communities
PL	Petroleum Pipeline Licence
ROW	Right of Way
Suspended Pipeline	The operation of a pipeline shall be considered as suspended where the pipeline is maintained in a non-flowing condition for an extended period for an indefinite period (AS2885.3-2012 section 10.2.7)
TEC	Threatened Ecological Communities
WA	Western Australia
Wingstar	Wingstar Investments Pty Ltd (ABN 51 073 571 927)

Table 1: Abbreviations and Definitions

5 CORPORATE ENVIRONMENTAL POLICY

All employees and contractors shall comply with theVerbrec Health Safety and Environment Policy (Appendix A). This Policy will be posted in OSD Offices and communicated to all personnel and contractors through OSD Training and Induction processes.

6 FACILITY AND ACTIVITY DESCRIPTION

The Cawse Pipeline is located approximately 50kms from the town of Kalgoorlie and within the boundary of the City of Kalgoorlie-Boulder. The pipeline services the Cawse Nickel mine site (approximately 9km east of Ora Banda and north west of Broad Arrow). The mine site is currently not in operation.

6.1 Facility Area and Location

The facility area covered by this EP comprises of the gas pipeline and delivery station.

The Cawse Pipeline is located within the pipeline license corridor along Road Reserves 980 and 1073 that traverses the Mt Vetters pastoral lease. (Figure 1). The road reserves provide access to the pipeline for care and maintenance. Temporary access or work areas outside this area require landholder consent and appropriate regulatory approvals.

GDA 94 / MGA 51	Easting	Northing
Start Point	350880.137	6639291.958
End Point	323508.281	663877.304

Table 2-Coordinates PL37

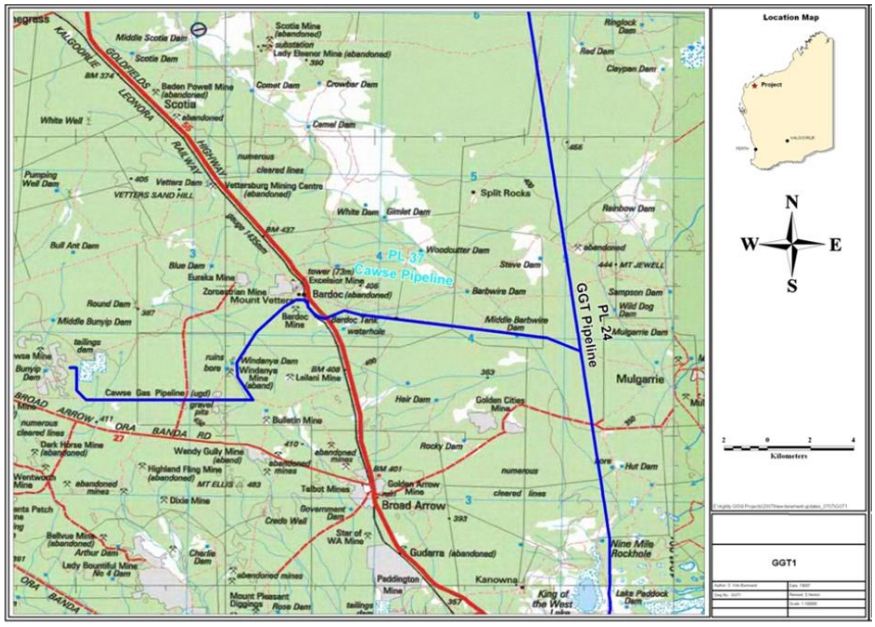

Figure 1 - Locality Map

6.2 Pipeline

The pipeline commences at a buried flange at a location being the intersection of the Goldfield Gas Pipeline (GGP) easement and Road Reserve 980 adjacent to the GGP at KP 1230 (east of Broad Arrow) along roads 980 and 1073.

The DN150 pipeline has a minimum pipe wall thickness of 4.0mm and is buried for its full length at a minimum depth of 750mm. The pipeline is designed to transport non-corrosive, sweet, dry and dehydrated natural gas for energy supply to the Cawse Nickel Powers Station that is currently in care and maintenance. The pipeline material is API 5L X-52.

The external wall of the pipeline is protected by High-density polyethylene (HDPE) coating and protected by a sacrificial anode cathodic protection system replenished in October 2017.

6.3 Facility

The facility associated with the pipeline is listed in Table 3. The facility is currently in care and maintenance. The pipeline commences at a buried flange outside of an Offtake Station from the GGP. The Offtake Station is licensed under PL24 operated by APA and as such the pipeline has only one facility being the Delivery Station at the Cawse Nickel Mine Site.

Facility	Location	Resources
Cawse Pipeline Delivery Station PL37 License Area	Within Cawse Mine Site adjacent to the Power Station	• Scraper Receiver • Filtering • Pressure Reduction • Water Heater and Heat Exchanger • Pressure Relief • Emergency Shutdown Valve

Table 3 – Facility

7 PIPELINE OPERATIONS

The Cawse Pipeline has a design life of 40 years. Although the pipeline is purged of natural gas, it is intended to maintain the pipeline as a suspended pipeline in accordance with AS2885.3 Section 10.2.7 Operations of a Suspended Pipeline.

In order to maintain the integrity of the suspended pipeline:

1. Nitrogen pressure must be maintained above atmospheric pressure;
2. Cathodic Protection (CP) system must remain operational to prevent the potential of corrosion;
3. Right of Way (ROW) patrols are undertaken to assess the condition of the ROW, above ground facility, check CP readings, third party encroachments;
4. Maintain Line of sight of the pipeline marker signs:
5. Undertake track maintenance as required; and
6. Monitor any third-party works being undertaken on the pipeline license area.

These activities are undertaken during the quarterly ROW ways patrols.

7.1 Right of Way (ROW) Patrols

Pipeline ROW vehicle patrols occur quarterly. Vehicle patrols are completed by pipeline technicians and involve visual inspections of the pipeline corridor from a light vehicle. Patrols may identify issues such as:

- Third Party encroachments;
- Vegetation growth;
- Presence of weeds;
- Erosion; and
- Condition of CP equipment and signage.

CP Readings are undertaken to ensure the CP system retains functionality.

Pipeline technicians utilise checklists during these patrols and these are retained and incorporated in Patrol Reports issued to the Pipeline Licensee. All patrols are undertaken during day light hours.

Vehicle patrols require use of a Light 4WD Vehicle typically rented from service providers in Kalgoorlie. Technicians fly to Kalgoorlie and travel by the Goldfields Highway to site. The vehicles must be to OSD specifications and are individually inspected before use.

Light vehicles will be fuelled in Kalgoorlie as there is no storage or service provision at the site. There is no form of waste storage on the site, no ablutions, accommodation or office facilities and therefore these services are not covered by this EP.

7.2 Track Restoration and Line of Sight Clearing

Vegetation regrowth has occurred along the access track and RoW of the pipeline. It is the intention to maintain access by clearing the overgrowth on the pipeline access track for the safety of personnel.

The track that is within roughly formed Road Reserves Road Reserves 980 and 1073 will be graded by a road grader to a two to three metre width (maximum). Vegetation will be pushed to near the pipe

centreline to restrict access across the pipeline in the open cross-country areas. Where third party access is required, the vegetation stockpiled will be stored adjacent to the crossing or mulched and spread across the RoW to breakdown.

For the line of sight, vegetation will be pushed over or trimmed to restore line of sight, it is the intention not to remove root stock unless the root stock poses an unacceptable safety risk. The line of sight restoration will be completed by means of stick rakes on a small dozer or bobcat or by chainsaws or line trimmer types.

A maximum width of 3m will be cleared for the track and a maximum width of 1m will be cleared for the line of sight. The total estimate of clearing is 9ha, with a site inspection to confirm intended actuals.

The clearing of the vegetation will be in accordance with the Environmental Protection (Clearing of Native Vegetation) Regulations 2004, Regulation 20 – Prescribed clearing, Low Impact or other minerals or petroleum activities).

The specific exemption that applies to the pipeline operations is provided for under Regulation 5, item 20 —Low impact or other mineral or petroleum activities.

This exemption is applicable as: -

- The activity is provided for under PL 37;
- The clearing is being undertaken with the authority of pipeline licence (PL 37) holder;
- The clearing is being undertaken within an authority area (the dedicated PL 37 pipeline area);
- The site is not located within a non-permitted area under Schedule 1 of the Environmental Protection (Clearing of Native Vegetation) Regulations 2004; and
- The activities being undertaken by APA satisfy the definition of —Low impact or other mineral or petroleum activities under Schedule 1 of the Environmental Protection (Clearing of Native Vegetation) Regulations 2004, which state that:

– The following activity is a mineral or petroleum activity for the purposes of item 20, to the extent to which it is carried out under an authority granted under the Mining Act 1978 , the Petroleum and Geothermal Energy Resources Act 1967, the Petroleum Pipelines Act 1969 or the Petroleum (Submerged Lands) Act 1982 — clearing in an authority area for any purpose, being clearing which does not, together with all other clearing carried out under this subclause in the area in the financial year in which the clearing takes place, exceed 10 ha.

7.3 In-line Inspection

An In-line inspection (ILI) is completed by driving a speciality tool down the inside of the pipeline using compressed air or nitrogen. The ILI tool measures metal wall loss, dents and pipeline location while moving down the pipeline.

Any contaminants within the pipeline will be pushed out by the ILI tool into either the pig receiver or the dry gas filters (F0201 & F20202) within the gas processing facility. The contaminates will and be collected using a vacuum truck and transported for disposal at to a registered waste facility for disposal. As this is a dry gas pipeline it is anticipated 5-10 litres of dust would be collected via dry gas filters and removed off site.

7.4 Integrity dig ups

Any critical pipeline defects picked up by the ILI tool will need to be investigated by excavating the pipeline at the defect location, removing the pipeline coating, Non-Destructive Testing (NDT), engineering evaluation, pipeline repair (if required), replace coating and back fill. The top and subsoils shall be divided into separate stockpiles either side of the pipeline centreline, to ensure the topsoil is not contaminated by the subsoils. If there is any risk of heavy rainfall, the works will either be rescheduled or slit fencing installed around the soil stockpiles. All soil is placed back into the trench to remove the requirement to import soils.

During rehabilitation, the subsoils are placed back into the trench first and compacted. The topsoil is loosely placed back over the subsoil to slightly higher than the original surface level to allow for some subsidence. The topsoil will be reseeded with local provenance seed. All dig locations will be monitored during the quarterly inspections to ensure the rehabilitation has been effective.

A rehabilitation compliance audit will be conducted within 12 months upon completion of any excavation and rehabilitation activities to ensure the areas are not affected by subsidence or erosion and the vegetation is consistent with the surrounding area.

All waste pipeline coating products shall be removed from site, temporarily stored in a Light Vehicle until and disposed of at a licenced waste facility.

A dig up campaign is expected to take between 2-3 weeks with individual areas being left open for a maximum of 4-5 days to allow for NDT and engineering review. Any excavation area will be fully fenced off to prevent livestock, fauna and the general public from entering the area. The area will be excavated with fauna ramps to allow any small animals to exit the excavation area safely. Once the pipeline has been repaired it will be immediately backfilled.

8 Pipeline Abandonment

Should the pipeline cease operations and is abandoned in accordance with AS2885, the primary option will be for Abandonment by Removal which involves the full removal of the pipeline and associated surface and subsurface infrastructure. All surface plant infrastructure will be decommissioned and removed within 12 months of the decision to abandon. Subsurface infrastructure will also be decommissioned and removed. The secondary option subject to approval from the Minister is to Abandonment In Place which involves all surface infrastructure to be decommissioned and removed from site and subsurface infrastructure to be left in-situ. A detailed decommissioning plan will be developed in consultation with the relevant stakeholders (including land title holders, and safety, environmental, and lands regulators), and submitted for approval in accordance with the prevailing regulations. All infrastructure no longer agreed to remain with Stakeholders will be decommissioned and removed at the termination or expiration of the Licence.

9 DESCRIPTION OF ENVIRONMENT

9.1 Climate

The climate of the Kalgoorlie Province is semi-desert Mediterranean with 9 – 11 dry months in the year (Tille, 2006). The closest Bureau of Meteorology weather station is located at the Kalgoorlie-Boulder Airport approximately 50km from the start of the pipeline. Statistics obtained from the Bureau of Meteorology website for the Kalgoorlie-Boulder Airport weather station are as follows: -

- Annual mean daily temperatures range between 11.6°C and 25.2°C;
- Annual minimum and maximum temperatures range between -3.4°C and 46.5°C;
- The annual rainfall average is 268.4mm; and
- Average daily wind gusts range between 15 and 15.9km/hr.
- To date there have been no instances of meteorological and atmospheric conditions impacting on the operational ability of the pipeline.

9.2 Physical Environment

9.2.1 Topography

The Kalgoorlie Province consists of an extensive plateau of low relief. The topography of the Kambalda Zone is flat to undulating with hills, ranges and some salt lakes and stony plains (Tille, 2006). More specifically, the Cawse Pipeline is located within an area consisting of large expanses of colluvial flats with some elevated ground (ecologica, 1997).

9.2.2 Geology and Soils

The Kalgoorlie Province is located on the central eastern portion of the Yilgarn Craton overlying Archaean rocks of the Southern Cross domain and the eastern Goldfields Superterrane. The Kambalda Zone is underlain by a mixture of basement rocks including granite, gneiss and greenstone. Even grained porphyritic granite rocks intruded by quartz veins and dolerite dykes are also common in the north of the Kambalda Zone where the Cawse Pipeline is located (Tille, 2006).

Soils of the Kambalda zone vary, including Calcareous loamy earths, Red Loamy earths with some Salt Lake soils and some Red–brown hardpan shallow loams and Red sandy duplexes (Tille, 2006).

9.2.3 Biogeographic and regional setting

A biogeographic regionalisation of Australia has been developed collaboratively in which bioregions (broad scale regionalisations) are formally recognised and mapped: the Interim Biogeographic Regionalisation for Australia (IBRA), currently version 7 (DoE 2013). IBRA version 7 provides a landscape-based approach to the classification of the land surface of Australia, with bioregions being classified according to common climate, geology, landform, native vegetation and species information. Bioregions each reflect a unifying set of major environmental influences which shape the occurrence of flora and fauna and their interaction with the physical environment across Australia. Subregions are more localized and homogeneous geomorphological units within each bioregion.

The project area occurs within two bioregions: the Coolgardie and the Murchison. Both regions are further split into subregions of Eastern Goldfields (Coolgardie 3 - COO3) and Eastern Murchison (Murchison 1 – MUR1).

Coolgardie 3 lies on the Yilgarn Craton's 'Eastern Goldfields Terrains'. The relief is subdued and comprises of gently undulating plains interrupted in the west with low hills and ridges of Archaean greenstones and in the east by a horst of Proterozoic basic granulite. The underlying geology is of gneisses and granites eroded into a flat plane covered with tertiary soils and with scattered exposures of bedrock. Calcareous earths are the dominant soil group and cover much of the plains and greenstone areas. A series of large playa lakes in the western half are the remnants of an ancient major drainage line. The vegetation is of Mallees, Acacia thickets and shrubheaths on sand plains. Diverse Eucalyptus woodlands occur around salt lakes, on ranges, and in valleys. Salt lake support dwarf

shrublands of samphire. Woodlands and Dodonaea shrubland occur on basic graninulites of the Fraser Range. The area is rich in endemic Acacias (Cowan, 2001).

The northern parts of the 'Southern Cross' and 'Eastern Goldfields' Terrains of the Yilgarn Craton. Characterised by its internal drainage, and extensive areas of elevated red desert sandplains with minimal dune development. Salt lake systems associated with the occluded Paleodrainage system. Broad plains of red-brown soils and breakaway complexes as well as red sandplains. Vegetation is dominated by Mulga Woodlands often rich in ephemerals; hummock grasslands, saltbush shrublands and Halosarcia shrublands (Cowan, 2001).

9.2.4 Hydrology

Groundwater in the vicinity of the Cawse mine site is considered to flow in a north-westerly direction, likely influenced by the groundwater abstraction from the borefields to the north-west of the processing plant (Norilsk Nickel 2013b). The main aquifers coinciding with the Cawse lease area are:

- Fractured basement rocks – minor aquifers, commonly yielding brackish to saline waters (Karrillon Groundwater 2011);
- Weathered and vuggy siliceous caprock aquifers – developed over mafic/ultramafic rocks, water is generally brackish to saline (Karrillon Groundwater 2011);
- Tertiary paleo channels – saline to hypersaline water quality (Karrillon Groundwater 2011); and
- Quaternary/recent alluvium and chemical sediments – sands and calcretes/silcretes in shallow infilled valleys, water quality is fresh to brackish (Karrillon Groundwater 2011).

Two aquifers were accessed via the Construction and Caprock borefields for supply of water to the processing operation for Cawse, both of these were the siliceous caprock type aquifers. These production bores are all licensed (Licence number: GWL63475(6)). No groundwater is being abstracted for the borefields.

There are no potable water abstractions or stock/irrigation water abstractions within one kilometre of the processing plant. The Basalt and Flatrocks Borefields also exist within a paleo channel aquifer close to the project area but are not utilised by Cawse. Cawse also owns tenure over the Flatrocks Extended/Scotia, Leaky Dam and Scorpion Borefields, but these are yet to be developed. Due to high salinity levels, none of the aquifers in the mining lease area are used to provide stock drinking water (Norilsk Nickel 2013b).

Whilst the two aquifers (Construction and Caprock) were considered separate in terms of hydrogeology, groundwater level responses have indicated there may be some connection between the borefields (Karrillon Groundwater 2011). Further, in terms of regional system connectivity, at the northern end of the Caprock aquifer there is connection to a tributary of the paleo channel system, which the Leaky Dam Borefield is situated in (Karrillon Groundwater 2011). In the central section of the Caprock aquifer it is thought there may also be a connection to the Flatrocks Borefield paleochannel tributary (to the north east) (Karrillon Groundwater 2011). The Scorpion Borefield aquifer system is located approximately 80 km to the west of site and extends approximately 120 km north then east to the Lake Ballard salt lake system. The Scorpion Borefield was investigated as part of a prefeasibility study for the Cawse Expansion project as it contained adequate water of acceptable salinity (35,000 – 55,000 mg/L) for the process (AGRA Minproc 2000).

9.2.5 Fauna

Formal surveys within the Cawse project area have identified 47 bird species, 7 native mammals, 2 frogs and 21 species of reptile (Norilsk Nickel 2013b). A full list of identified fauna from baseline surveys (Ninox Wildlife Consulting 1995; cited Woodward-Clyde 1996a) of the Cawse project area is included in the Cawse Nickel Project Consultative Environmental Review (Woodward-Clyde 1996a).

Fauna likely to be present in the areas within which the pipeline lies will vary across the length of the pipeline due to the differences in habitat and other influences.

Prominent fauna known to occur in the wider region include Macropus rufus (Red Kangaroo), *Macropus robustus erubescens* (Common Wallaroo or Euro), *Canis lupus* (Dingo) Dromaius novaehollandiae (Emu) and flocks of *Cacatua sanguinea* (Corella) and *Cacatua roseicapilla* (Galah). Numerous species of snakes and lizards are also likely to be present. Avifauna include EPBC vulnerable species such as the Malleefowl and Slender-billed Thornbill.

However, the presence or absence of rare fauna either within or near the Pipeline sites cannot be confirmed without site specific fauna surveys. Though there is limited habitat in close proximity to the sites due to the surrounding landscape bring predominantly highly disturbed as a result of pastoral activity.

Feral animals such as goats, dogs, foxes, cats and rabbits which are widespread and responsible for significant declines in native fauna presence in the region as a result of habitat destruction, competitive influences and hunting tendencies (Gascoyne Regional Development Commission, 2012). The Cawse project area is also situated on pastoral leases, with livestock located on the property.

9.2.6 Flora

A survey of the vegetation of the Cawse Pipeline easement was conducted in 1997 by Ecologica environmental consultants. The survey found that the area consisted of four broad units of vegetation types (based on structure and species composition) as follows: -

- Acacia dominated shrublands;
- Eucalypt dominated woodlands;
- Disturbed low shrublands; and
- Granite outcrop (generally lacking in vegetation with some degraded Acacia shrubland, low Eucalyptus loxophleba woodland, scattered Artriplex sp. and Juncus sp.)

No declared rare or priority flora species were located in the area during the 1997 Ecologica field surveys nor have they been observed in the area since. The area is not listed as environmentally significant under the Commonwealth EPBC Act 1999 and contains no threatened ecological communities. However, searches of the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) *Protected Matters Search Tool* indicate that the Threatened Flora taxon, *Gastrolobium graniticum* (Granite Poison) has the potential to occur in the vicinity of the project area.

Mattiske (1995) conducted a baseline flora and vegetation survey of the Cawse project area, 131 vascular plants from 65 genera were identified (Norilsk Nickel 2013b). Five families were dominant, contributing up to 50% of the flora in the area, including Asteraceae (daisies) with 17 species, Scrophulariaceae (poverty bushes) with 16 species, Myrtaceae (eucalypts) with 14 species, Fabaceae (wattles) with 10 species and Chenopodiaceae with 9 species (Norilsk Nickel 2013b).

9.2.7 Weeds

Weeds can spread into natural environments by many vectors, including wind, water, and the movement of soils, people, vehicles, machinery and fauna (including native animals and stock). The most relevant of these in relation to the Project are the movement of vehicles and machinery. Weeds are generally able to rapidly invade locations subject to disturbance, land clearing and/or altered fire regimes, and can smother and replace native plants and dominate and simplify natural ecosystems.

The term weed is commonly used to define a plant, whether native or introduced, that is a nuisance in the context of a particular land use (including the conservation of environmental values). For the purposes of environmental management, weeds are grouped into three categories as follows: -

1. Declared Plants: A weed/plant species that has been gazetted by the Department of Primary Industries and Regional Development.

2. Weeds of National Environmental Significance listed by the Department of Primary Industries and Regional Development.

3. Weeds (other): A plant that has, or has the potential, to have a detrimental effect on economic, social or conservation values. Also referred to as — environmental weeds.

Weeds of National Environment Significance and Declared plants are recognised as posing a real threat to agriculture, stock and/or crops. Declaration under the Biosecurity and Agriculture Management Act 2007 transfers a legal requirement for control of Declared plants by responsible persons/entities.

The following declared weed species that have previously been recorded in the Pipeline area include:

- Bathurst Burr (Xanthium spinosum) – C2, C3
- Parkinsonia (Parkinsonia aculeata) – C3
- Mexican Poppy (Argemone mexicana) – C1

Management is usually considered whereby non-declared plants pose problems for surrounding land use and/or values.

9.3 Social Environment

9.3.1 Socioeconomic

The City of Kalgoorlie-Boulder covers an area of 95,576 square kilometres, which is a mix of industry, mining, pastoral and residential area. The population is just over 30,000 however this number is known to include fly-in, fly-out workers staying at mining camps. The pipeline is located approximately 50kms from the Town of Kalgoorlie.

Pipeline operations do not comprise activities which pose a disturbance to local industry or recreational activities. Minor inconvenience may be experienced by landholders or other organisations who wish to undertake works on the pipeline corridor. Local industries in the area comprise of mining/prospecting/exploration (gold and nickel) and farming (primarily cattle). Active mining in the immediate vicinity of the Cawse Pipeline corridor is by Excelsior Mining Limited to which is currently gold exploration and excavation works. The Cawse Pipeline corridor is contained within two unmade road reserves (more tracks) that intersects the Mt Vetters Pastoral Station as displayed in Figure 1. The pipeline commences at the Goldfields Gas Pipeline, travels under the Goldfields Highway and Gudarra to Goongarrie Railway travelling through the Mt Vetters Station until the Cawse Nickel mine site.

Mt Vetter's Homestead is the closet residency to the pipeline (200m). This homestead is within the abandoned Kanowna Townsite is resides between the rail and road corridors. A further homestead (un-named) is also with 300m of the pipeline on the eastern side of the highway. No other residences are within kilometre of the pipeline. The nearest conservation estate is the Goongarie National Park 29kms directly north of the commencement of PL37Heritage

10 ENVIRONMENTAL RISK ASSESSMENT

The Environmental Risk Assessment for the operations of the Cawse Pipeline was undertaken on 24 November 2016. The operational activities were again reviewed in June 2017, June 2018 and August 2019. A summary of the outcomes is provided in the Management Protocols in the following section.

11 ENVIROMENTAL MANAGEMENT PROTOCOLS

11.1 Flora and Vegetation Management

Flora and Vegetation Impact Management	
Environmental Aspects	Inappropriate management of flora and vegetation can result from: • Vehicle movement or clearing other than on designated roads or tracks.
Environmental Impacts	Damage to native or pastoral vegetation and habitat beyond that permitted. Damage to vegetation or habitat of conservation significance.
Broad Objective	Minimise adverse impacts of activities on flora and vegetation.
Mitigation Measures	
1. Completed flora and vegetation surveys for pipeline route. 2. Historically disturbed corridor being both road reserve and pipeline ROW. 3. No declared rare or priority flora species were located in the area during the 1997 ecological field surveys nor have they been observed in the area since. 4. The area is not listed as environmentally significant under the Commonwealth EPBC Act 1999 and contains no threatened ecological communities. 5. Personnel to stay within approved access routes and established ROW access tracks. 6. Personnel training including restriction of off-ROW driving. 7. Integrity dig ups will be limited to validation dig or critical defects only, to minimise disturbance. 8. During pipeline integrity excavations, topsoil and associated seed bank will be reinstated to encourage rehabilitation. 9. Easement Inspections and Patrols to report on any unauthorised off ROW encroachments. 10. Report any disturbance beyond marked or approved boundaries, or damage to vegetation off the approved access tracks. 11. Line of sight clearing will retain root stock where possible. 12. Line of sight and access track clearing limited to 3m corridor to minimise disturbance.	

Flora and Vegetation Impact Management
13. Excess vegetation will be mulched and spread on RoW to improve soil structure and minimise erosion.

11.2 Weed Management

Flora and Vegetation Impact Management	
Environmental Aspects	Inappropriate management of weeds can result from: • Inadvertent transport of vegetation and soils. • Vegetation clearing and soil disturbance creating suitable conditions for the establishment and spread of weed species.
Environmental Impacts	Introduction, spread, or encouragement of weed species, with impacts on land uses, vegetation, and habitats.
Broad Objective	Minimise adverse impacts of activities on land uses, vegetation, and habitats.
Mitigation Measures	
1. All vehicles to be checked for soil deposits and cleaned to ensure no seeds are transported. 2. Verify vehicles and materials as clean, and free of soil deposits, seeds or vegetation before use. 3. Personnel to stay within approved access routes and established ROW access track. 4. Information in the form of inductions, tool boxes and ID materials are made available to assist in identification. 5. If any weeds of national environmental significance or declared plants (DPIRD 2020) be identified onsite or along pipeline route they are reported and the DPIRD notified. 6. If plant is confirmed as "declared", the area is to be marked off and access restricted to prevent further spread. 7. Consult landholders and other relevant stakeholders on weed management requirements/expectations; incorporate into procedures. 8. Report breaches of hygiene, or new or spreading weed populations, for investigation and corrective action.	

11.3 Fauna Management

Fauna Management	
Environmental Aspects	Fauna Interaction from movement of vehicles.
Environmental Impacts	Fauna Interaction resulting in injury or mortality.
Broad Objective	Minimise adverse impacts to native fauna and their habitats.
Mitigation Measures	
1. Personnel to stay within approved access routes and established ROW access track. 2. Personnel training including restriction of off-ROW driving. 3. Unless otherwise signposted, the ROW speed limit is driving to conditions but not exceeding 40 km/h. Furthermore, a general maximum speed limit of 80 km/h applies on any unsealed road.	

Fauna Management
4. Easement Inspections and Patrols. 5. Report any disturbance beyond access track, or damage to vegetation within ROW, for investigation and corrective action. 6. Recorded fauna interactions through incident reporting. 7. Environment personnel available in Kalgoorlie who has suitable training for handling of fauna. 8. All above ground facilities will be fenced and locked to prevent access to fauna. 9. Record all fauna injury and mortality; report injury or mortality of significant fauna to DMIRS/DBCA. 10. Integrity digups will be fully fenced to prevent larger fauna from entering the excavation. 11. Fauna ramps will be installed to allow smaller fauna to safely exit the excavation area. 12. Excavation will be backfilled within a maximum 4-5 days to limit the exposure

11.4 Fire Management

Fire Prevention	
Environmental Aspects	Sources of Ignition – fire.
Environmental Impacts	Bushfires.
Broad Objective	Prevent fires as a result of activities and minimise the risk of bushfire, reducing fire risks for native habitat, personnel and the public.
Mitigation Measures	
1. Personnel to stay within approved access routes and established ROW access track. 2. Personnel training including restriction of off-ROW driving, smoking and fire training. 3. Easement Inspections and Patrols. 4. Vegetation growth on ROW reported and assessed for potential hazard. 5. Light 4 wheel drive vehicles will be equipped with 1kg Fire Extinguishers whilst larger mobile plant will be equipped with 9kg Fire Extinguishers.	

11.5 Dust Management

Dust Management	
Environmental Aspects	Generation of Dust.
Environmental Impacts	Potential environmental impacts include: • Community Nuisance and impact to other stakeholders. • Deposition of dust on flora.
Broad Objective	Ensure that the effects of dust generation on the environment, personnel and local communities are minimised.
Mitigation Measures	

Dust Management
1. Easement Inspections and Patrols will identify any degradation of vegetation due to excess dust accumulation on vegetation. 2. All occupiers of land adjacent to the ROW will be advised of inspections and contact numbers to enable complaints should dust affects their social amenity. 3. Normally single light vehicle movements during patrols. Periodic light grading of access track should track condition become unsuitable. 4. During ILI runs, compressed inert gases will be vented into the dry gas filter to ensure any dust from the pipeline is captured in the filter prior to being released to the environment.

11.6 Noise and Vibration Management

Noise Management	
Environmental Aspects	Generation of Noise.
Environmental Impacts	Potential environmental impacts include: • Disturbance to fauna. • Negative impact on local amenity and adjacent land use.
Broad Objective	Minimise excessive noise and vibration generated by activities to reduce the risk of disturbance to fauna and adjacent land uses/users.
Mitigation Measures	
1. Select project vehicles conformant to current Australian standards for noise emissions. 2. Use of Light 4WD Vehicles from professional hire firms (well maintained). 3. Operate and inspect and maintain vehicles according to manufacturer's specification to minimise noise (over revving etc). 4. Works restricted to day light hours. 5. No machinery operated that can produce vibration impact. 6. ILI venting will be a once off event for a single day.	

11.7 Hazardous Material Management

Hazardous Material Management	
Environmental Aspects	Spills or leaks of hydrocarbons or other hazardous material.
Environmental Impacts	Potential environmental impacts from accidental spills of hazardous materials include: Health impacts or loss of flora and fauna and ecosystem damage through contamination of habitat, soil, surface water or groundwater.
Broad Objective	Ensure that the handling and storage of hazardous materials do not pose a risk to personnel, fauna or the environment.
Mitigation Measures	
1. Refuelling and servicing vehicles will not be conducted on site. Hire Vehicles from Kalgoorlie will be sourced. 2. All vehicles subject to mobile plant inspection and checklist prior to use.	

Hazardous Material Management
3. Any spill will be the subject of an incident report and cleaned up for disposal at licensed waste management facilities in Kalgoorlie. 4. Primary source of hydrocarbons will capacity of standard 4WD (60 litres). Heavy equipment with a maximum capacity of 1,000 litres of Diesel and Hydraulic oil will have very limited use, with generally once off use. Potential use of lubricants for maintenance limited to less than 1 litre tubing. 5. . 6. Where heavy plant is used spotters will be used to monitor for oil leaks so machinery can be shutdown as quick as possible to minimise the spillage. 7. No vehicle/heavy plant maintenance activities will be undertaken in flooded/heavy rain conditions to eliminate the risk of potential contamination to any nearby water courses. For heavy plant, spills are localised to no greater than 35m^2 in worst case. Ground water is more than 50m below the surface and will not be impacted in the unlikely event of a spill. 8. No storage of lubricants or hazardous chemicals allowed on site, only temporary storage within vehicles. 9. Spills to be cleaned up immediately to avoid contamination by the use of shovels and containment bags. Where heavy plant is available this equipment will be used. 10. Limited type of vehicles utilised being Light 4WD Wagons for normal operational activity e.g. patrols (that is no heavy plant for normal operations). 11. During ILI runs, compressed inert gases will be vented into the dry gas filter to ensure any dust from the pipeline is captured in the filter prior to being released to the environment. 12. Pipeline contaminates will be collected from the dry gas filters and pig receivers using a vacuum truck and disposed of at a licence waste facility. 13. Waste material generated during integrity digups, such as removed coating, new coating packing material, pipeline rock shield and silt fencing products will be collected during the works and disposed at a licence waste facility. Under no circumstance shall waste products be buried onsite.

11.8 Cultural Heritage Management

Cultural Heritage Management	
Environmental Aspects	Impacts on cultural heritage can arise from: • Lack of recognition of the presence and importance of cultural or historic heritage material. • Uncontrolled movement of vehicles other than on designated and permitted roads, tracks or the CROW. • Inadvertent disturbance of cultural heritage site.
Environmental Impacts	The consequences of heritage impacts include: • Accidental disturbance or removal of Aboriginal or European Heritage sites. • Loss or damage to historically significant material, places, values and beliefs. • Breaching legislation and internal permits and licences. • Loss of co-operation with Aboriginal communities.

Cultural Heritage Management	
	• Loss of reputation.
Broad Objective	To avoid disturbance to known cultural heritage sites and manage heritage discoveries during operational activities.
Mitigation Measures	
1. ROW is within two road reserves being previously disturbed areas. 2. Pipeline was constructed in 1997 utilising a 30m wide construction area any sites will have been historically disturbed 3. Heritage surveys were completed for construction areas in conjunction with traditional owners. 4. ROW Access Track was established within disturbed construction corridor. 5. Restrict movements to ROW, approved access routes, and other approved workspaces. 6. Cease work within ~100m and notify traditional owners if artefacts of suspected heritage significance found in the course of the activity. 7. Address cultural heritage in inductions, training, and procedures. 8. Report any disturbance of known or suspected places or artefacts of heritage significance, or established exclusion areas, for investigation, and corrective action.	

11.9 Soil Management

Soil Management	
Environmental Aspects	Disturbance of ground structure.
Environmental Impacts	Damage to or erosion leading to a loss of topsoil resources.
Broad Objective	Minimise the loss of topsoil resources to assist in remediation.

Mitigation Measures

1. ROW is within two road reserves being previously disturbed areas.
2. ROW Access Track was established within disturbed construction corridor.
3. Personnel to stay within approved access routes and established ROW access track.
4. ROW driving will be restricted due to environmental conditions such as wet/damp where the potential for vehicles to cause rutting exists.
5. Report any disturbance beyond access track and pipeline centreline for investigation and corrective action.
6. Report substantial erosion or poorly controlled drainage on ROW for investigation and corrective action.
7. Integrity dig ups will be infrequently required and will be limited to 2-3 week campaigns. Individual excavations will be open for a maximum of 4-5 days.
8. Top and subsoils will be separated into individual stockpiles on either side of the pipeline centreline to prevent contamination. The soil will be reinstated in the same order.
9. Silt fencing will be used if heavy rain is expected or the works will be rescheduled.
10. The topsoil will be seeded after the works to encourage consolation of the soil.

11.10 Air Emission Management

Air Emissions Management	
Environmental Aspects	Emissions to Air.
Environmental Impacts	Impacts on local air quality. Contribution to global greenhouse effect.
Broad Objective	Minimise the impact by air emissions to the local environment.

Mitigation Measures

1. Select project vehicles and fuels conformant to current Australian standards for emissions.
2. Use of 4WD Vehicles from professional hire firms (well maintained).
3. Operate and inspect and maintain vehicles according to manufacturer's specification to minimise emissions.
4. Record fuel use quantities; estimate emissions for reporting to DMIRS.
5. Report unreasonable/ excessive emissions for investigation and corrective action.
6. ILI will be driven using compressed inert gases to prevent hydrocarbons emissions.

11.11 Public Amenity

Public Amenity Management	
Environmental Aspects	Disturbance to public amenity.
Environmental Impacts	Impact on third party land uses.
Broad Objective	Minimise the impact on land uses and/or third party activity
Mitigation Measures	
1. Access is via granted Pipeline License based on historical land access permissions including Shire approval for the use of dedicated public roads. 2. Personnel to stay within approved access routes and established ROW access track. 3. Personnel training including restriction of off-ROW driving. 4. Easement Inspections and Patrols. 5. All occupiers of land adjacent to the ROW will be advised of inspections and contact numbers to enable coordination of activities with third parties.	

12 OPERATIONS PHILOSOPHY

12.1 Roles and Responsibilities

All personnel managing or working on the pipeline shall be responsible for environmental management and continuous improvements in performance. All personnel associated with the pipeline shall be required to comply with the requirements of all applicable environmental legislation, regulations, codes of practice as well as standards, procedures and work instructions.

An outline of the environmental responsibilities of key personnel and contractors on the pipeline operations phase are given below in Table 4.

Table 4: Roles and Responsibilities

Position	Roles and Responsibilities
All personnel associated with the Project.	• Comply with statutory requirements and the Environmental Policy. • Participate in and adhere to all HSE instructions, procedures and activities. • Promptly report all incidents and hazards to management. • Present a mature approach to working safely and environmentally responsibly. • Participate in awareness training as directed by management.
Manager – Asset Services	• Manage the Asset Services consistent with OSD policies. • Develop the strategies and operational requirements for Asset Services. • Lead and manage the successful implementation of those strategies and operational requirements so that the planned outcomes are achieved year on year.

Position	Roles and Responsibilities
	• Ensure that all employees know, understand and are committed to OSD Environmental performance. • Provide leadership fostering a positive and contributory culture within the team. • Directly responsible for the management of the operations of the Cawse Pipeline and facility including all environmental aspects. • Review, approval and custody of the EP. • Monitor and report to the PL37 Pipeline Licensee on the activities and compliance to the Petroleum Pipeline Act and Petroleum Pipeline (Environment) Regulations. • Monitor implementation of the EP. • Monitor project HSE key performance indicators. • Ensure programs of environmental inspection and audit to be completed on behalf of Licensee. • Demonstrate and arrange necessary resources required to achieve specified activities/tasks and achievement of environmental objectives. • Ensure regulatory reporting and consultation with DMIRS are managed and maintained. • Implementation, management of Emergency Response Plans and exercise including training requirements. • Ensure adequate field resources are available for operation works including HSE provisions for major works.
Pipeline Inspector	• Directly responsible for fulfilling commitments contained in the EP. • Reports to the Operations Manager regarding environmental performance. • Necessitate implementation of the EP and regulatory requirements. • Halt activities in the event of inadequate environmental performance or unacceptable risk. • Accountable for ongoing development and implementation of environment activities and safety practices. • Monitor effectiveness of inductions and training programs. • Monitor incident/hazard reports. • Ensure scheduled meetings and inspections are carried out.
HSEQ Coordinator	• Responsible for HSE compliance management. • Ensure OSD keeps abreast of changes to environmental legislation, regulations and industry best practice. • To provide functional support to Business Leaders and Operational Managers.

Position	Roles and Responsibilities
	• Monitor OSD's HSE key performance indicators. • Responsible for the management of incidents, investigations and corrective actions.

13 CONSULTATION

Third party involvement is an integral part of Pipeline Integrity Management. OSD maintains an ongoing stakeholder program to ensure continued engagement of third parties affected by the Pipeline.

Landholder contact is undertaken at least annually by mail, email, personal contact or phone and appropriate records maintained. Personal contact is also made by pipeline inspectors working on the pipeline corridor as they carry out general duties associated with pipeline maintenance.

All stakeholders occupying the pipeline corridor are notified of pending patrols.

The following stakeholders are identified of having an interest in the operations:

- DMIRS
- City of Kalgoorlie-Boulder
- Department of Fire and Emergency Services (DFES)
- Mt Vetters Pastoral Lease
- Norilsk Nickel Cawse Pty Ltd (Previous PL37 Licensee)
- Wingstar Investments Pty Ltd (PL37 Licensee)
- Bardoc Gold Limited (previously Excelsior Gold Ltd)