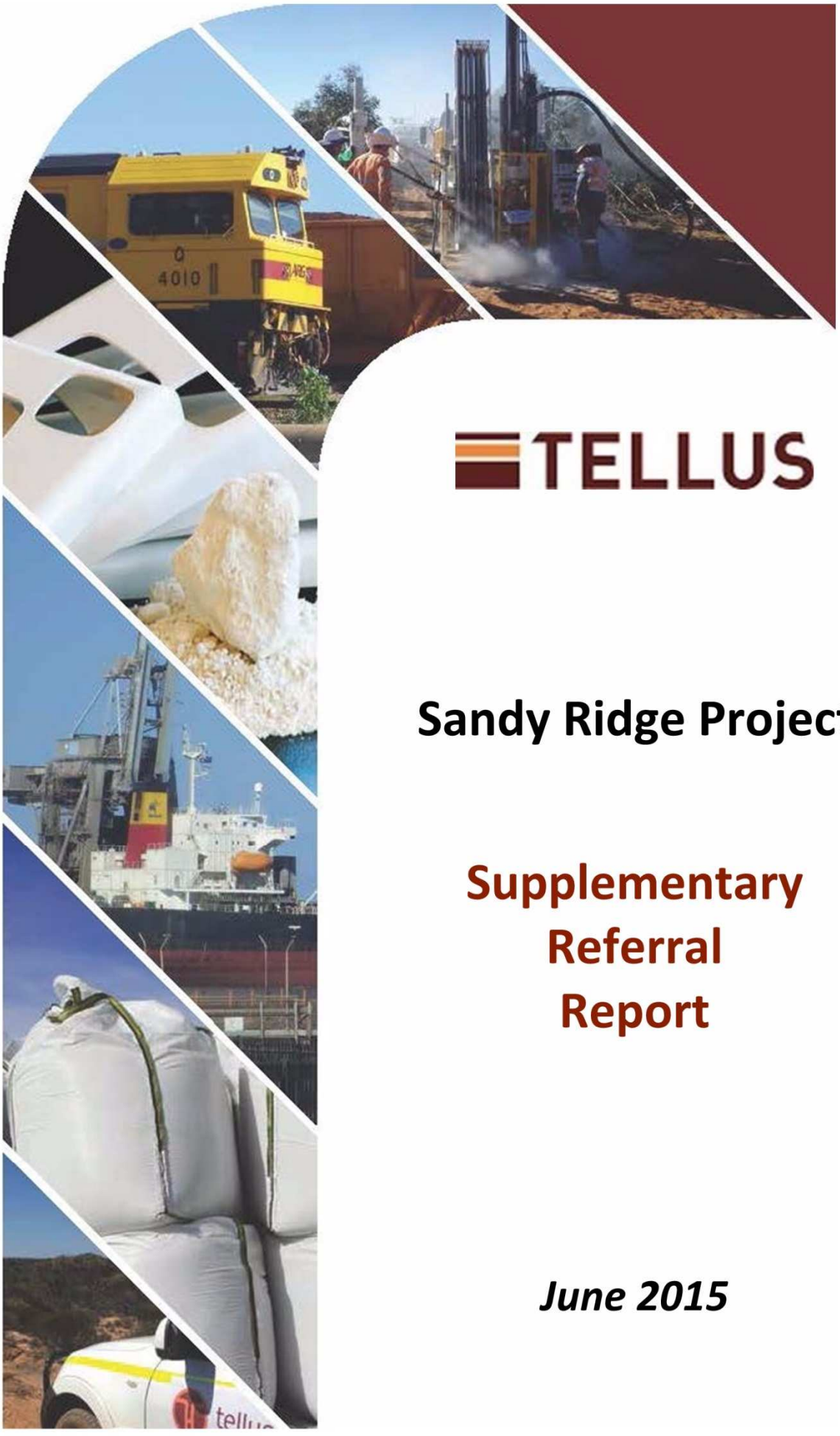

TELLUS

Sandy Ridge Project

Supplementary Referral Report

June 2015

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COMPETENT PERSON STATEMENT – SANDY RIDGE PROJECT

The information in this presentation that relates to Mineral Resources is based on information compiled by Terra Search Pty Ltd. Mr Jenkins is Principal Geologist of Terra Search and a Member of the Australian Institute of Geoscientists. Mr Jenkins has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he has undertaken to qualify as a Competent Person as defined in the 2012 Edition of the Australasian Code for the Reporting of Mineral Resources and Ore Reserves. For additional information refer to the Sandy Ridge - JORC media release (20 June 14).

QUALITY ASSURANCE

Tellus has implemented a comprehensive range of quality control measures on all aspects of the company's operation. An internal quality review process has been applied. Each document is carefully reviewed and signed off by senior members of the consultancy team and Tellus.

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LIST OF ABBREVIATIONS

ADG Code	*Australian Code for the Transport of Dangerous Goods by Road and Rail*
Cwlth	Commonwealth
EPA	Environmental Protection Authority
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
ha	hectare
JORC	Joint Ore Reserves Committee
NEPM	National Environment Protection (Movement of Controlled Waste between States and Territories) Measure 1998 (as amended)
Project	Sandy Ridge Project
ROM	Run of mine
tpa	Tonnes per annum

KEY DEFINITION

Kaolin clay	Kaolinite is a clay mineral also known as 'kaolin clay', with the chemical composition $Al_2Si_2O_5(OH)_4$. Kaolin clay is used in the paper, ceramics, fiberglass, paint and other industrial sectors.
Storage and Isolation Safety Case (SISC)	Tellus' Storage and Isolation Safety Case (SISC) considers the safety of: • the *transport* to a geological storage and isolation facility (GSIF) • the *construction and operation* of the facility • the safety of the facility in the very *long term* after it has been sealed and closed. Tellus' safety case uses best practice examples developed around the world for the safe storage and isolation of various types of wastes based on *strict acceptance criteria*, and for the construction in geological settings that are *internationally recognised* as suitable. Tellus' operation and long term safety case is underpinned by utilizing a combination of engineered and natural barriers, known as a *multi-barrier system*, which provides *long term containment and isolation* of the wastes. Tellus plans to store *like with like materials*, so as to create opportunities for the future long term, temporary storage, treatment and recovery of valuable materials or permanent isolation of hazardous waste.

1 INTRODUCTION

1.1 PURPOSE

This supporting information report accompanies the Sandy Ridge Project section 38 referral form submitted to the Environmental Protection Authority (EPA) to determine whether the Proposal should be formally assessed under Part IV of the *Environmental Protection Act 1986*. The document provides a concise summary of the Proposal and potential impacts to the environment.

1.2 PROPONENT - TELLUS HOLDINGS LTD

Tellus Holdings Ltd is an infrastructure project development company with a proposed dual revenue business model. This involves mining the commodities salt and kaolin and backfilling the voids left from mining with equipment, archives or the long term, temporary storage, treatment and recovery of valuable materials or permanent isolation of waste. Tellus' business model mirrors world's best practice solutions operating in the UK, Europe, USA and Canada. Tellus is developing the Chandler salt mine project in the Northern Territory and the Sandy Ridge kaolin mine project in Western Australia. Tellus' flagship Chandler Project was recently awarded Major Project Status by the Northern Territory Government.

Additional information regarding Tellus and the Sandy Ridge Project can be obtained from the website: www.tellusholdings.com.au

1.3 PROPOSAL OVERVIEW

Tellus is planning to develop the Sandy Ridge Project (the Proposal). Main components:

- Australia's first dual revenue kaolin clay and storage infrastructure project.
- Potentially longest life project in Western Australia, that can be operated for generations.
- Located 140 km West North West of Kalgoorlie.
- Kaolin clay mine business (kaolin clay used in ceramics, paint and fibre glass).
- Long term, reliable supplier of value-added, high grade kaolin clay.
- Complementary 'arid, near-surface, geological repository' business could assist in the environmentally superior long term, temporary storage, treatment and recovery of valuable materials or permanent isolation of various Class IV and V wastes.
- Based on scoping study (front end loading - FEL 1) assumptions:
    - 40-90 construction jobs, 18 direct Tellus jobs (excludes O&M contractors), 54 indirect jobs could expand and diversify local job opportunities in Goldfields region
    - $62 million (M) build and $27M annual opex cost could boost and diversify local economy
    - $474 million of potential royalties, taxes and levies over 25 year term could support other parts of the economy.

Exploration drilling on tenement E16/440 has outlined a JORC Inferred Mineral Resource[1] of 41.3 million tonnes kaolinite, with 7.9 million tonnes classified as ceramic grade over 2.1km2 of the exploration lease (E16/440).

Tellus' proposed commodity business involves mining kaolin mostly in an open cut methodology, processing on site and then exporting the kaolin in bulker bags in shipping containers via Fremantle to Asia where it will be used in the ceramics, paint and fibre glass industries.

Tellus' proposed complementary storage business involves storing "like with like" waste generated from the mining, oil and gas, manufacturing and agriculture industries. Tellus believes that intractable waste should be seen as a valuable potential future resource and by storing "like with like", recycle and recovery opportunities can be introduced when the resource recovery technology is available, and the volumes and economics justifies a treatment, recycle or recovery event and in turn improving overall product stewardship. Over the life of project, materials that cannot be treated, recycled or recovered should be permanently isolated in a safe arid near surface geological repository.

This approach is different to the nearby Mount Walton East Intractable Waste Disposal Facility (IWDF) operation as the dual revenue commodity/storage business will create additional regional investment, training and jobs, business opportunities, infrastructure, royalties and taxes for the State and improves overall product stewardship and environmental outcomes.

Tellus' **Storage and Isolation Safety Case** (SISC) considers the safety of:

- the transport to a geological storage and isolation facility (GSIF) .
- the construction and operation of the facility .
- the safety of the facility in the very long term after it has been sealed and closed.

Tellus' safety case uses best practice examples developed around the world for the safe storage and isolation of various types of wastes based on strict acceptance criteria, and for the construction in geological settings that are internationally recognised as suitable.

Tellus' operation and long term safety case is underpinned by utilizing a combination of engineered and natural barriers, known as a multi-barrier system, which provides long term containment and isolation of the wastes. Tellus plans to store like with like materials, so as to create opportunities for the long term, temporary storage, treatment and recovery of valuable materials or permanent isolation of hazardous waste.

Tellus plans to work closely with the regulators to achieve the optimal design and operation of the facility which fully complies with the regulatory framework. At this stage Tellus assumes it will mine kaolin under the *Mining Act 1978* and store waste under the *Environmental Protection Act 1986*. These are two separate businesses run on the same site.

[1] Refer to Tellus Media Release 19 June 2014 Sandy Ridge – JORC Resource Estimation (www.tellusholdings.com.au)

1.3.1 Location

The Proposal is located approximately 75 kilometres (km) north-east of Koolyanobbing, Western Australia (Figure 1). Access is via a 100 km road to the Mount Walton East IWDF (Crown Reserve No. 44102) that extends northward from the Boorabbin Siding on Great Eastern Highway; a 4.5 km portion of an eastward private existing road to Mt Dimer and a 5.3 km northwards section of site access road into the development envelope (Figure 2).

1.3.2 Key Proposal Characteristics

In accordance with *Environmental Assessment Guideline for Defining the Key Characteristics of a Proposal (EAG1)* (EPA, 2012), the key characteristics of the Proposal have been defined in Table A.

TABLE A: KEY PROPOSAL CHARACTERISTICS

SUMMARY OF THE PROPOSAL		
Proposal title	Sandy Ridge Project	
Proponent name	Tellus Holdings Ltd	
Short description	The Proposal is to develop a kaolin open cut and underground mine for kaolin clay sales and using the voids resulting from mining for the secure storage and isolation of hazardous and intractable waste using best practice storage and isolation safety case (SISC). The Proposal is located approximately 75 km north-east of Koolyanobbing, Western Australia (Figure 1).	
PHYSICAL ELEMENTS		
Element	**Location**	**Proposed Extent Authorised**
Open cut kaolin mine pits	Figure 2	Clearing no more than 37.2 hectares (ha) or 4.3% within a 875 ha development envelope
Mine Infrastructure (surface)	Figure 3	Clearing no more than 11.8 ha or 1.4% within a 875 ha development envelope
Accommodation Camp	Figure 2	Clearing no more than 2.5 ha or 0.3% within a 875 ha development envelope
Complementary waste storage and isolation pits (Class IV & V)	Figure 2	Same footprint as open cut kaolin mine above. Using the voids resulting from mining
Class II waste disposal facility	Figure 2	Clearing no more than 0.25 ha or 0.03% within a 875 ha development envelope
Underground kaolin mine / Complementary waste storage and isolation	Figure 2	Clearing no more than 4 ha or 0.5% for overburden pile within an 875 ha development envelope
Total disturbed area		Clearing no more than 100 ha or 11.4% within 875 ha

SUMMARY OF THE PROPOSAL		
		development envelope. For comparison Tellus' 100 ha disturbance area is approximately 16% of the disturbance area of a proposed Hematite project in the vicinity .
OPERATIONAL ELEMENTS		
Element	**Location**	**Proposed Extent Authorised**
Ore Processing	Figure 3	Year 1: 42,000 tpa Average over 25 years 80,000 tpa (Average growth 2%pa +/- 20% annual variation) Maximum by Year 25 **106,000 tpa**
Kaolin saleable product		Year 1: 15,000 tpa Average over 25 years 27,000 tpa (average growth 2%pa +/- 20% annual variation) Maximum by Year 25: **37,000 tpa** Plant will be built to a 40,000 tonne capacity. Scale up depending on demand and project economics.
Arid Near Surface Geological Repository – Class IV and V	Figure 2	Year 1: 50,000 tpa Average over 25 years <66,000 tpa (average growth 2%pa +/- 20% annual variation) Maximum by Year 25: **100,000 tpa** Facility will be built to a 100,000 tonne capacity. Scale up depending on demand and project economics.
Waste Disposal Facility - Class II for waste generated on the site.	Figure 2	Up to 500 tpa

1.3.3 The Resource

Kaolinite is a clay mineral also known as 'kaolin', with the chemical composition $Al_2Si_2O_5(OH)_4$. Kaolin is formed by the chemical weathering and decomposition of rocks in hot, moist conditions. Most of Tellus' Sandy Ridge kaolin clay bed weathering would have finished approximately 20 million years ago and forms part of a stable, flat 40 km by 80 km clay bed.

Exploration drilling has outlined a JORC Inferred Mineral Resource[2] of 41.3 million tonnes kaolinite, with 7.9 million tonnes classified as ceramic grade over 2.1km^2 of the exploration lease (E16/440). A mining lease application is pending. A 41.3 million tonne resource equals a 1,475 year mine life (over 4% of lease area). However for financial purposes the Proposal assumes a mine life of only 25 years.

In the development envelope the average overburden thickness is 9 meters (m), which includes 3 m of kaolinitic material. Beneath the overburden, the kaolin zone likely to be mined is on average 14 m thick (9 to 23m depth). Beneath the kaolin zone is a saprolite zone (kaolinitic, including some incompletely weathered granite). Below the saprolitic zone is thick granite.

[2] Refer to Tellus Media Release 19 June 2014 Sandy Ridge – JORC Resource Estimation (www.tellusholdings.com.au)

The on-going mine-planning activity will ensure a sufficient thickness of kaolinised material below the bottom of the pit (average 23 m deep, 120 m long, 60 m wide) and above the top of the granite.

1.3.4 Kaolin Products

Kaolin is the most important of the industrial clays in terms of both consumption volume and value. Properties of fine particle size, platy structure, inertness, non-toxicity, and high brightness and whiteness make it a most versatile mineral, with applications in a wide variety of industries.

Tellus' proposed commodity kaolin business involves processing the kaolin on site and then exporting the kaolin to Asia (Japan and China) where it can be used in the ceramics, paint and fibre glass industries.

Tellus is looking to be a long term, reliable supplier of value-added, high grade kaolin clay.

It is proposed to mine an average over 25 years of 80,000 tpa Run of Mine (ROM) and post processing to sell an average over 25 years of 27,000 tpa of kaolin. The kaolin processing plant will be built to a 40,000 tonne capacity. There is the potential to scale up depending on market demand and project economics.

1.3.5 Kaolin market and customers

Global uses of kaolin are; paper 35%, ceramics 29%, fiberglass 6%, paints 6% and other 24% and production in 2012 was 25.9 million tonnes with an average growth of 2.4% per annum, the market is expected to grow to 28.7 million tonnes by 2017 and the global industry is valued at $4.4 billion.

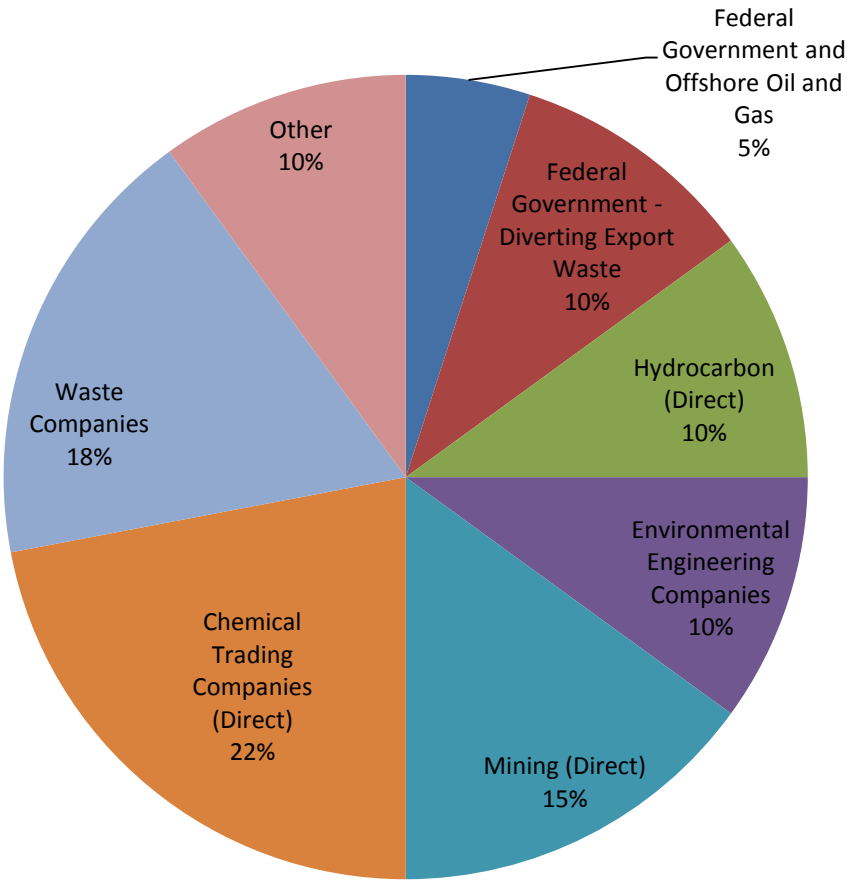
Tellus is planning on exporting approximately 80% of the volume to paper, ceramic, paint and other applications in Asia and approximately 20% domestically.

1.3.6 Storage and isolation market and customers

Australia produces approximately 6.5 million tonnes per annum of reported hazardous waste (KMH Environmental, 2013). Western Australia produces approximately 0.9 million tonnes per annum of reported hazardous waste. The unreported figure is much higher.

Tellus has undertaken market research of the waste industry sector in Australia. This research identified eight waste generating sectors; chemical trading companies, waste companies, mining, hydrocarbons (e.g. oil and gas industry), environmental engineering companies, federal government (in terms of obtaining waste that is usually exported overseas and assisting with disposal of wastes during disaster events (e.g. oil spill) and other wastes. These sectors will provide the wastes likely to be disposed of at the facility and are illustrated in Plate A.

PLATE A: POTENTIAL WASTE CUSTOMERS BY SECTOR



The information presented in this documentation provides notional target tonnages based on Expressions of Interest from prospective clients. More detailed information on waste volumes and types will be presented in the impact assessment documentation.

Plate A shows Tellus' potential waste customers. The highest volumes of waste will be sourced from chemical trading (13,750 tonnes per annum) which represents 22% of the market, waste companies 11,250 tpa (18%), and the mining sector 9,375 tpa (15%). A combined total of approximately 18,750 tpa, or 30%, will be sourced across environmental engineering, hydrocarbon and from the Federal Government. The remaining volume of waste (9,400 tpa) will be sourced from State or Local Governments, heavy industry, and construction companies.

Tellus is not planning accepting nuclear waste (enriched uranium and plutonium), biological waste or any materials that are not safely containerized certified. But, for transparency, Tellus are looking at waste streams like medical isotopes used in medical research and X rays used by dentists and doctors. Therefore, this site will be classified as a contral action site which will require additional oversight from both Commonwealth and State Government regulatory authorities, like the Department of Industry and Science, Environments, ARPANSA and Radiation Health WA.

The type of wastes from a regulatory definition perspective to be stored and isolated at Sandy Ridge include Class V intractable wastes (Prescribed Premises Category 66) and Class IV hazardous wastes (Prescribed Premises Category 65) from a variety of industries.

Guidance in terms of the level of activity acceptable at the site for disposal will be sourced from the following Codes of Practice in consultation with the Radiation Health Branch of Department of Health and the Radiological Council of WA, the bodies responsible for regulating the disposal of radioactive waste in Western Australia:

- Code of Practice for the near-surface disposal of radioactive waste in Australian (NHMRC, 1992)
- Disposal of Radioactive Waste – Specific Safety Requirements No. SSR-5 (IAEA, 2011)

Tellus has met with senior staff at the Radiation Health Branch and informed them about the proposal and they are supportive of the use of the Codes described above in guiding acceptance of radioactive wastes at the site.

1.3.7 Proposal Justification

The viability of the Sandy Ridge Project will rely on implementing both aspects of the dual revenue proposal: The kaolin commodity business; and waste isolation and storage business in an arid near surface geological repository.

Kaolin business

Kaolin is found across Australia, with large deposits in Western Australia, but significant production is now restricted to Victoria. Kaolin customers like Australian kaolin quality but are wary of Australian supply reliability. The Asia/Pacific region continues to have the largest kaolin market influence globally, underpinned by strong manufacturing demand and continued urban development amongst its emerging economies. These trends are expected to continue and consolidate Asia as the fastest growing kaolin demand side region over the next 5 years, hosting the top four growth users, China, India, Malaysia, and Thailand.

Western Australia has a number of world class kaolin deposits but none of these has been able to be developed on a commercial scale because of development and operating cost hurdles. In the case of Sandy Ridge, these economic disincentives are overcome because of the synergies of operating a dual revenue kaolin and waste repository on the same site and collecting two revenue streams.

As a result, for the first time, Western Australia will have a viable kaolin mine, and storage facility which will generate additional regional investment, training and jobs, business opportunities, infrastructure, royalties and taxes for the State and improved overall product stewardship. The kaolin deposit at Sandy Ridge has been determined to be high grade and Australia is well positioned geographically for the distribution of the processed kaolin products to the Asian marketplace.

The dual revenue business model is attractive to investors as it generates a higher margin and is countercyclical and hence produces a more predictable revenue stream. The customers who want to buy the kaolin and customers who want to use the storage space also like the dual revenue business as it gives them confidence that the operations will be reliable, cost effective, and sustainable and that Tellus will be around over the next 25 years.

Storage and isolation business

A number of Tellus' customers have also expressed interest in responsible product stewardship. Kaolin is used as a bulk input in industrial processes, some of which ends up in a waste stream that cannot be landfilled. Tellus can then offer a bulk commodity chemical input and also cost effectively take back the chemical waste product.

Currently Class V waste generated in Western Australia is disposed of at the state-owned and operated Mount Walton East IWDF. Originally approved by the Minister for the Environment in 1992, the operation and acceptance of wastes at the Mount Walton East IWDF has occurred in eight separate disposal events with the last occurring in 2008. It is recognised that the environmental setting, regional geology and hydrogeology of the area around the IWDF make the area world class in terms of a safety case for establishing an arid near surface geological repository for intractable waste.

It has been a recurrent issue for State Government to find a suitable government agency to take responsibility for operation of the IWDF. The IWDF was originally established under the control of the Department of Health but then transferred to the then Department of Environmental Protection when responsibility for waste regulation transferred to that agency. This move made it necessary for the EPA to take up the role of regulator to resolve the conflict of interest of a regulatory agency operating a disposal site. Subsequently a special purpose agency (known as Waste Management WA) was established in legislation to operate the IWDF and the Forrestdale Liquid Waste site. More recently, responsibility for the IWDF has been transferred three more times to the Department of Housing and Works, the Department of Treasury and Finance and the Department of Finance. The regular transfer of responsibility has resulted in a loss of corporate knowledge regarding the site within Government, although some knowledge has been retained due to the fact that the site is largely run by a Facilities Management Contractor and the same contract personnel have been involved in operating the site since 1992.

The IWDF operates as a site of last resort for receiving waste and the onus is on waste holder to demonstrate that they have exhausted all other potential options for handling the waste materials before they can be directed to the IWDF. This coupled with the very high cost structures associated with each disposal campaign and the infrequent basis on which it operates means that the IWDF is a very unattractive disposal option for most waste holders. This is particularly so for those with smaller quantities of waste where the waste holder wishes to achieve disposal in a reasonable timeframe.

The result of the restricted nature of the IWDF is that there is little knowledge of its existence amongst the holders and generators of waste. In addition, hazardous and intractable waste is often stored for long periods in unsafe or non-secure locations. It is also likely that some wastes may be disposed of in an inappropriate or illegal manner. This situation has been further exacerbated by the fact the only Class IV landfill (located at the Redhill Landfill Site) has not been operational on a regular basis for a number of years.

The Sandy Ridge facility will accept similar wastes to those accepted by the IWDF (i.e. significantly contaminated soils and sludges and low level radioactive wastes such as medical isotopes). This Proposal will provide waste producers with a commercially attractive option for storage or isolation of their intractable wastes and will be capable of accepting waste on a continuous basis rather than

campaign basis. This will provide a higher quality service while also relieving the State Government and taxpayers from paying costs to operate the Mount Walton IWDF. The commissioning of the Sandy Ridge Facility will also reduce the environmental risks associated with the long term storage of intractable wastes while waiting for a disposal operation to occur at the IWDF.

The Proposal will provide a direct economic benefit to the Goldfields region in terms of employment and the generation of additional economic activity at a time where the mining industry is at low ebb. Additionally there will be benefit in working with the indigenous community to provide opportunities for training and employment. This is only possible because of the dual nature of the Proposal which makes it more robust commercially.

When operating, the facility will also provide a reliable long term utility service to other industries that due to their business also produce waste materials within Australia. The facility could also attract new kaolin and waste recycle and recovery industries to Western Australia, plus support industrial development in Western Australia bringing attendant economic benefits. Export of kaolin will also bring royalties to the State and a waste levy will bring additional revenue. Another element of the project is a proposed hybrid 1.2 MW LNG/ solar energy plant that will be used to power the onsite infrastructure.

In summary the benefits of the Proposal to Western Australia are the; direct creation of jobs during the construction and operation phases and indirect contribution to job creation and economic stimulation of the local Goldfields community, generation of revenue to the State through royalties and taxes and removal of environmental hazards by providing a cost effective option for the safe storage and safe isolation of hazardous and intractable waste which is often stored for long periods in unsafe or non-secure locations.

2 PROPOSAL DESCRIPTION

2.1 MINING

2.1.1 Mining Operations - Kaolin

The kaolin deposit is very large (JORC Inferred Mineral Resource of 41.3 million tonnes) and is of sufficient size and grade to support mining for more than 25 years at an average production rate of 27,000 saleable tpa or at a much higher rate if demand and project economics justifies this. In fact 41.3 Mt would support a mine life for 1,475 years.

The principal mining method will be open cut to extract overburden (topsoil, silcrete and laterite) and kaolin ore. The surface area of each kaolin pit will be cleared and opened by a mixture of excavation of the topsoil and subsurface soil with carefully controlled blasting of the hard silcrete layer that overlays the kaolin. The kaolin will then be recovered by conventional earthmoving equipment in a moving strip operation. Based on exploratory drilling work the kaolin ore is expected to be dry at approximately 10% moisture, and is expected to be free-digging with an excavator. The mobile plant fleet is likely to be limited to an excavator (25 to 35 tonne), dump trucks and a front end loader which will operate within the pit, loading excavated overburden and ore into dump trucks. The dump trucks will deposit the kaolin in stockpiles adjacent to the process plant. Overburden will be stockpiled adjacent to the pit for use later in backfilling operations (Figure 3).

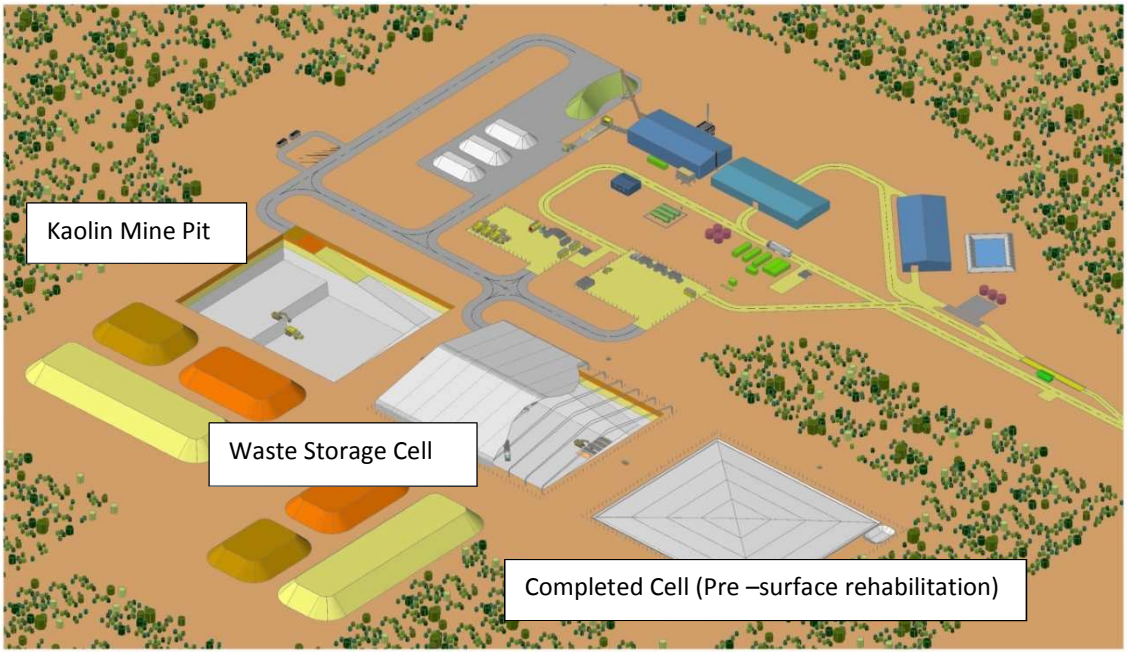
2.1.2 Mining Operations - Storage

Normal practice under the Mining Act in similar strip-mining operations is to backfill with plant tailings, overburden, and topsoil as the mining progresses forward. However Tellus under the Environmental Act propose to backfill voids created due to mining. At this point Tellus terminology changes and the pit gets referenced as a cell as additional engineering gets applied. Using a controlled sequential placement of wastes, and storing like with like, overburden and kaolin plant tailings (i.e. quartz sand) and unprocessed kaolin are placed in the cell and on the top to produce an impermeable capping layer.

Once the wastes are placed within the void, it will be described an ‘arid near surface geological repository’ (refer to section 2.2 for more details) using best practice storage and isolation safety case (SISC).

Each cell will be approximately 120m in length, 60m wide, and have a maximum depth of around 30m and will occupy approximately 7,200m^2. The waste storage and isolation cell will be temporarily covered by a light–weight fabric covered steel structure to prevent rainfall ingress during emplacement operations (Plate B).

PLATE B: GRAPHIC REPRESENTATION OF CELLS



The scale of the kaolin mining and waste storage requirements are aligned to a degree to get the optimal economics. It is anticipated that with the volume of kaolin removed and the volume of waste stored, there may be a slight deficit in volume for backfilling of cells at the completion of mining. Hence it is anticipated that no permanent above-ground waste dumps or stockpiles will be required.

2.1.3 Kaolin Processing

The basis of design assumes that the kaolin processing plant would be constructed to allow a production of approximately 40,000 saleable tpa. However initially only 15,000 tpa will be produced with production scaling up in response to market demand and economics. Two processing techniques are currently being evaluated (dry and wet processing). The final process technique to be adopted will be determined in the detailed feasibility stage. Conceptual process flow diagrams are provided in Appendix 1 and described below.

Ore will be recovered from the run of mine (ROM) pad and placed in the ROM feed bin by front end loader. Ore will be expelled onto a conveyor and dropped into a sizer. In the dry process, the ore will then be transported to a rotary kiln and dried, with dust extracted by ventilation fans and directed to a dust collection system with the cleaned air stream ultimately discharged through a stack to the atmosphere. Once dry, ore from the rotary kiln will move to a hammer mill to break down lumps. From there it will progress to the air classifier (a powered cyclone) where the tailings stream (i.e. quartz sand) will be separated from the kaolin and stockpiled. Kaolin will be conveyed pneumatically to the bagging area, where dust will be collected in a bag filter prior to discharge of the cleaned air through a stack to the atmosphere. Kaolin will drop onto a conveyor where it will be loaded via bucket elevator into the bagging silo, and ultimately deposited into bulk bags ready for export.

In the wet process, ore from the sizer is mixed with water in a drum scrubber before being screened to remove coarse oversize which is conveyed to an oversize stockpile. Following the drum scrubber ore moves to the primary screen which rejects >300µm quartz which is conveyed to the coarse oversize stockpile. The fine slurry is then pumped to the primary cyclone, secondary cyclone and to the filter press, which dewaters the refined kaolin slurry to produce a damp filter cake. Filter cake is then fed to the pug mill, which breaks the damp kaolin into pieces small enough to dry easily. The kaolin is then transported to a gas fired band dryer to remove moisture before being conveyed to the bagging silo and deposited into bulk bags for export.

2.2 WASTE MANAGEMENT AND THE SAFETY CASE

2.2.1 Inventory of Materials to be Stored and Isolated

Waste generated interstate (all states and territories) and within coastal waters (within 3 nautical miles of the territorial sea baseline) and within Commonwealth waters will be accepted at the facility.

The type of industrial materials to be stored or permanently isolated are intractable and hazardous materials from blue chip companies from the mining, oil & gas, heavy industry, agricultural and government (emergency service) sectors.

Intractable wastes are those problematic by virtue of their toxicity or chemical or physical characteristics which make them difficult to dispose of or treat safely and are not suitable for Class I to IV landfills (DEC, 1996 as amended 2009). Hazardous wastes are those components of the waste stream which by its characteristics pose a threat or risk to public health, safety or the environment (includes substances which are toxic, infectious, mutagenic, carcinogenic, teratogenic, explosive, flammable, corrosive, oxidising and radioactive) (DEC, 1996 as amended 2009). Examples of wastes to be accepted at Sandy Ridge include:

- Mining - Industrial sludges. For example arsenic and cyanide from the gold industry (these will be blended with absorbent materials on-site before storage);
- Oil & gas – For example hydrocarbons in contaminated soil or from processing from upstream, midstream and downstream. Note some waste from the oil and gas industry contains naturally occurring radioactive materials (NORMS)
- Heavy industry - For example spent catalyst wastes (Aluminum slag)
- Agricultural – For example pesticides
- Government (state emergency service) – For example waste generated due to man-made or natural disasters that need to be removed safely by Government out of the community. For example - asbestos clean ups
- Medical isotopes - For example used in medical research and X rays used by dentists/doctors.

Due to the medical isotopes, this site will be classified as a controlled action site which will require additional oversight from both Commonwealth and State Government regulatory authorities, like the Department of Industry and Science, Environments, ARPANSA and Radiation Health WA.

The types of waste that will **NOT** be accepted for long-term storage and isolation are:

- Infectious materials[3] — Infectious waste means waste capable of producing an infectious disease because it contains pathogens of sufficient virulence and quantity so that exposure to the waste by a susceptible human host could result in an infectious disease. These wastes include isolation wastes, cultures and stocks of etiologic agents, blood and blood products, pathological wastes, other contaminated wastes from surgery and autopsy, contaminated laboratory wastes, sharps, dialysis unit wastes and discarded biological materials known or suspected to be infectious.
- Explosive materials — dangerous goods of Class 1 (of ADG Code).
- Nuclear material — Depleted uranium, enriched uranium (including low and high), uranium 233 and plutonium.
- Uncertified waste — Waste arriving at site where the contents is unknown and where it does not pass Tellus' strict certification criteria.
- Putrescible waste — Material suitable for disposal at a Class I, Class II or Class III landfill.

2.2.2 Isolation and Storage Approach

The design and management philosophy for the Sandy Ridge arid near surface geological repository is based on the use of multiple engineered and geological barriers, underpinned by internationally recognised operational procedures to provide the highest level of security and containment for wastes during the transport, handling, and storage and following final placement in the isolation cells at the facility. These processes and controls contribute to the overarching goal of permanently isolating the waste in the facility from the biosphere. The key features contributing to the safety case are:

Waste content — at all times in the waste handling process (transport, storage and isolation) Tellus will ensure 'like with like' wastes are handled and stored together, so as to create opportunities for the future long term, temporary storage, treatment and recovery of valuable materials or permanent isolation of hazardous waste.

Waste form — where required, waste will be pre-treated by solidification or immobilisation to reduce solubility of the contaminants.

Waste packaging — multiple packaging layers will be utilised during transport storage and isolation. Typically a minimum of two containment layers and often three e.g. plastic lined steel drums enclosed within a shipping container during transport would be used.

Backfill — careful selection of material and backfilling of the mine void (including around the placed waste) to ensure geotechnical stability and minimise the risk of slumping failures in the capping system and provide an additional barrier between the waste and the biosphere.

Sealing — the cell will be sealed with compacted kaolin clay keyed into the surrounding soils and silcrete layer under strict engineering supervision to produce an engineered barrier.

[3] As defined by US EPA (no date) - http://www.epa.gov/waste/nonhaz/industrial/medical/mwpdfs/missouri.pdf

Host rock/Geological Setting — The Sandy Ridge site has been selected because it is a seismically stable site, with an arid climate where evaporation far exceeds rainfall with no surface watercourses or surface water bodies in the near vicinity, no detectable groundwater, and is underlain by impermeable hard rock beneath a thick layer of highly impermeable clay (further details on site suitability is provided in Section 3). This means that there are no identifiable pathways for migration of waste into the surrounding biosphere.

Best Practice Management — Tellus maintains a commitment to internationally recognized best practice management throughout the life of the facility and during any institutional control period.

2.2.3 The Safety Case Approach

Tellus' *Storage and Isolation Safety Case* (SISC) considers the safety of:

- the *transport* to a geological storage and isolation facility (GSIF)
- the *construction and operation* of the facility
- the safety of the facility in the very *long term* after it has been sealed and closed

Tellus' safety case uses best practice examples developed around the world for the safe storage and isolation of various types of wastes based on *strict acceptance criteria*, and for the construction in geological settings that are *internationally recognised* as suitable.

Tellus' operation and long term safety case is underpinned by utilizing a combination of engineered and natural barriers, known as a *multi-barrier system*, which provides *long term containment and isolation* of the wastes. Tellus plans to store *like with like materials*, so as to create opportunities for the future long term, temporary storage, treatment and recovery of valuable materials or permanent isolation of hazardous waste.

2.2.4 Transport Operations

Tellus' preferred method of transport is by rail which will be expressed clearly to the waste owner. Tellus' standards will be met prior to acceptance of waste at the facility. These standards include:

- Packaging of waste for transport to the site must be in accordance with the *Australian Code for the Transport of Dangerous Goods by Road and Rail* (ADG Code; Commonwealth of Australia, 2014, edition 7.3) for all dangerous goods, with the exception of radioactive material.
- Medical isotopes must be transported in accordance with the *Code for the Safe Transport of Radioactive Material* (ARPANSA, 2014).
- Transport arrangements will conform to the *Environmental Protection (Controlled Waste) Regulations 2004* and equivalent legislation in other States and Territories and the *National Environment Protection (Movement of Controlled Waste between States and Territories) Measure 1998* (as amended).
- All deliveries will be tracked from point of origin to site.

2.2.5 Strict Waste Acceptance Criteria

The framework for strict waste acceptance criteria at the facility will include:

- Compliance with all Regulatory requirements and Tellus' strict waste management acceptance criteria and procedures.
- Waste will only be accepted with prior written agreement (Waste Acceptance Certificate) will be issued to the waste owner of the facility operator to ensure that only suitable materials arrive at the site.
- All waste deliveries to be accompanied by Consignment Note or National Environmental Protection Measure (NEPM) documentation which will be reviewed on site arrival.
- All waste loads will be inspected on arrival at site to confirm waste is as described in the documentation and packaging is intact. Where loads do not match documentation or are not suitable for acceptance at the site the load will be returned immediately to the owner at their cost or stored on-site pending return to owner; or treatment to render suitable for isolation/storage.
- Where waste is held in an interim store, or the waste has a possible treatment, recycle or recovery opportunity then this storage will meet all legislative requirements (e.g. Dangerous Goods License) and the ADG Code and a Storage Certificate will be issued.
- If there is no economically viable recycle or recovery opportunity, waste will still be stored like with like as a future generation with new technology may still find a way to recover and treat valuable materials and the waste will be permanently isolated and a Permanent Isolation Certificate will be issued.

Given the unique nature of the environment and remote location of the Sandy Ridge Project, the waste acceptance criteria has been designed based on the premise that all controlled waste, regardless of concentration will be accepted at the site. The waste acceptance criteria limits those wastes described as not accepted in Section 2.2.1 (e.g. infectious materials, explosive materials, flammable materials, corrosive materials and gases) as these wastes may generate void spaces within the disposal cell and therefore compromise the integrity of the geological repository.

To clarify the waste acceptance criteria is:

- All controlled waste, defined by the NEPM and the *Environmental Protection (Controlled Waste) Regulations 2004* (WA), regardless of concentration limit will be accepted at the facility.
- Those wastes that are not suitable for disposal in the geological repository will either be treated and conditioned to solidify them suitable for disposal, or will not be accepted at all. These include the following categories from the *Environmental Protection (Controlled Waste) Regulations 2004* (WA):
    - E – Reactive Chemicals
    - K – Putrescible and Organic Wastes

  - R – Clinical and Pharmaceutical (specifically R100 Clinical and related wastes)
- Solid and Liquid Waste will be accepted at the facility, however liquid waste will be solidified prior to disposal in the geological repository.
- Wastes with the following characteristics will not be accepted at the facility; explosive, flammable or corrosive.
- Only low-level radioactive waste suitable for near-surface disposal as outlined in the Code of Practice for the near-surface disposal of radioactive waste in Australia (NHMRC, 1992) will be accepted.

The key components of our Safety Case are the engineered and environmental barriers. Materials / wastes are ultimately sealed from the surrounding environment with three barriers in place, as described below:

Engineered Barrier 1: Storage Containers

- Man-made engineered barrier systems with strict storage and/or disposal acceptance criteria, sealed containers with a minimum of 2 skins during transport and management systems.

Engineered Barrier 2: Sealed trench

- Man-made engineered barrier systems backfilled trench within clay bed

Environmental Barrier 3: Clay

- Natural clay geological barrier system that entombs waste for millions of years.

PLATE C: TELLUS STORAGE PRODUCTS

Best practice systems	Industry Waste Sources	Waste Acceptance Criteria
✓ **Certified Management System**	✓ Oil & gas (includes NORM's)	✓ Liquid waste in barrels, lined and bunded
✓ **Strict acceptance criteria**	✓ Mining	✓ Dry waste multiple lined and bagged
✓ **Packaging and transport criteria**	✓ Heavy Industry / Power Generation	✗ Nuclear waste (Medical, Defence, Energy)
✓ **Safety case engineering**	✓ Manufacturing	✓ Uranium mining waste
✓ **Safety case geology**	✓ Agricultural	✗ Infectious (medical) waste
✓ **Safety case**	✓ Government / SES	✗ Uncertified waste

Ongoing surface monitoring will be conducted to identify any signs of surface subsidence. The adjacent IWDF has such a system in place and has not detected subsidence within the monitoring period.

Groundwater monitoring bores will be installed as part of ongoing environmental monitoring system. This system is also in place at the IWDF and no groundwater has been recorded since installation (Aurora, 2013).

PLATE D: MAIN STEPS IN STORAGE PROCESS

Steps involved	Description (8 step process)
1. Client site	• The generator / owner of the waste must obtain the facility's approval before transporting the waste to the facility by sending a description and analysis of the composition and packaging of the waste to the regulation authorities. • After a first check at the disposal site to ensure the waste meets the agreed acceptance criteria, the documents may be referred to relevant State/ Territory authorities for transport approval.
2. Transport to site	• Wastes will be transported by the producer or waste management company to the Sandy Ridge facility, by rail and/or road. The carriages or vehicles & containers are initially inspected at the entrance gate and weighbridge. Here the documentation and packaging is assessed for conformance to site requirements and the load is weighed on the weighbridge a check for radioactivity levels is also implemented.
3. Receiving, weighing and unloading	• Vehicles are then directed to a bunded and semi-enclosed intermodal facility for unloading. • The waste is only unloaded if it is identified as indicated in the waste documents and fulfils specific waste acceptance criteria. Otherwise, the disposal of the waste is rejected (Rejected loads may be directed to a dedicated hazardous goods rated warehouse while the most appropriate action is assessed or it is returned to the producer at their cost). After acceptance, control and determination of the conformity, the waste is cleared for storage. It is then unloaded from the delivery vehicle by, for example, forklifts, and is placed on dedicated internal transport vehicles for placement either directly in underground storage chambers or an appropriate storage facility.
4. Control	• At the receival facility the waste documents are assessed in detail and the number and type of package is confirmed to comply with the documentation; • Each container is assessed for damage or leaks and if necessary damaged containers are placed in oversize containers and directed for repackaging in specialised controlled facilities incorporating leak containment and scrubbing on ventilation systems • Samples of the waste are taken randomly from each waste load and analysed on site at NATA a credited laboratory (degassing, visual inspection, chemical composition).
5. Downloading	• Site transport vehicles are designed to be used in surface warehouses to minimise the need for loading and unloading pallets.
6. Storage and documentation	• Waste being directed to its pit location is then stacked in its designated and recorded storage site.
7. Recovery	• Retrievable material will be placed in specified locations to facilitate recovery when appropriate.
8. Disposal and documentation	• For disposal, the trench or pits are backfilled with clay

2.2.6 Waste Emplacement (5 Layer System)

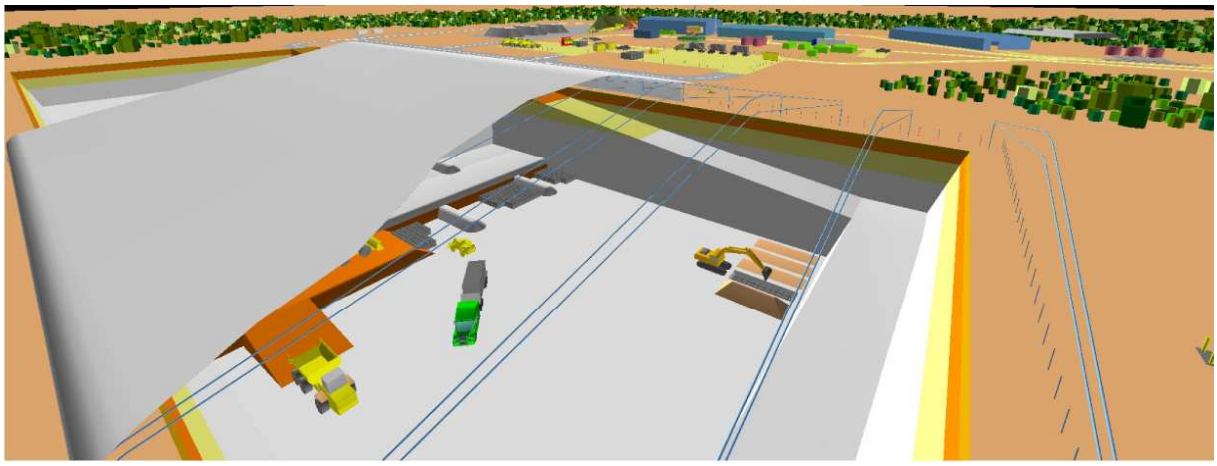
As outlined above, two to three multiple barriers of protection (layers) will be implemented during transport of intractable wastes:

1. Packaging of the material in standard transport units:
    a. Double lined hazardous waste rated 1 tonne bulka-bag (layer 1 and 2).
    b. Heavy duty PVC bag (layer 1) placed into 205 litre steel drum (layer 2).
    c. Small steel containers – 1, 3 or 5 tonne (layer 1).
    d. Bulka-bags and drums will be placed on pallets, on a solid board (to prevent nails passing through pallet during transport), strapped with heavy duty fibre and cling wrapped. Where required, bunding will be placed under containers.
2. Smaller containers (bulka-bags and drums on pallets and smaller steel containers) to be placed in 20' or 40' steel shipping containers (layer 3).

The standard transport units will be transported via rail and/or road to the mine's surface waste transfer station. The contents will be weighed and audited to ensure no leakage or rupture of packaged materials and the material that arrives on site matches the accompanying waste documentation.

Once the initial assessment has been completed and the materials verified as meeting the facility waste certification criteria, the shipping container will be unpacked. Wastes will be either be directed to a temporary storage enclosure or to the appropriate storage/isolation area within the Class IV or Class V waste storage and isolation cell (Plate E).

PLATE E: GRAPHIC REPRESENTATION OF WASTE STORAGE AND ISOLATION CELL



The location and method of isolation within the cell will vary with the tonnage and type of waste, but wastes of similar characteristics will always be stored with one another, i.e. on a "like for like basis". The empty shipping containers and pallets will be cleaned and sent back into the supply chain.

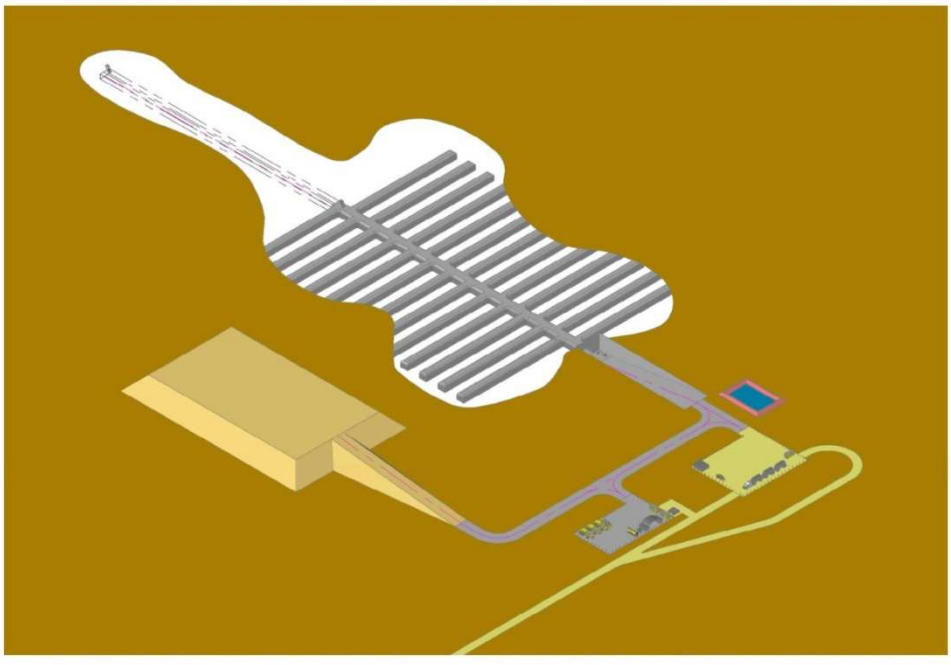
After the placement of waste in the cell has been completed, the following protection measures will be implemented:

- An all-weather cover will be maintained over the cell until it is backfilled and capped to allow for all weather operations without the possibility of creating leachates or contaminated surface water.
- Any airspace surrounding the placed waste will be backfilled with kaolin processing plant waste product (low value kaolin and quartz sand) to fill all void space and provide stability.
- The isolation area/trench will then be backfilled with compacted clay, silcrete, laterite and surface sand (layer 4).
- The surface of the cell will be covered with compacted clay creating a domed engineered cap to shed any surface water (layer 5).
- Waste will be completely isolated by the combination of the engineered and natural geological barriers formed either for permanent storage or future recovery.

Waste will be temporarily isolated in the safety of the natural barriers formed by the extensive geological repository until feasible resource recovery technology is available, or waste will be permanently isolated.

Materials like medical isotopes used by medical researchers or X rays used by doctors and dentists will be stored in a separate area to the other hazardous and intractable wastes as shown on Figure 2. Current planning is being undertaken on a best practice design for storage of this material which may include underground storage as depicted in Plate F. The design involves a 415m main drive, with a herringbone design with a number of drifts off to the side. Each drift is 80m long, 5m high with 10m support pillars and can take approximately 2,600 tonnes of materials.

PLATE F: GRAPHIC REPRESENTATION OF UNDERGROUND STORAGE



2.2.7 Closure and Rehabilitation

After a period of monitoring to confirm the stability and integrity of the clay cap capping, topsoil will be placed over the cap and the area re-vegetated with species of local provenance. Surface monitoring of rehabilitated cells will be conducted to identify any signs of surface subsidence. For comparison the Mount Walton East IWDF has had a 22 year subsidence monitoring program. The first pit packed and covered 22 years ago has reported a small subsidence (<50cm) which was subsequently rectified. Subsequent pits employed stricter methodologies for placement of waste and backfilling and no subsidence has been reported in subsequent disposal programs.

Tellus will monitor and manage the site for an extended period following closure before returning ownership to State, a period termed institutional control, with the necessary financial resources to ensure that the community of WA will not need to fund post-closure management of the site. Tellus will discuss and agree the post-closure monitoring and management period and the extent of financial provisions with the State Government before commencing operation of the facility.

2.2.8 Institutional Control Period

The institutional control period at Sandy Ridge will need to be negotiated between the parties and will be based on what is stored:

- For Class I-IV landfill institutional control periods of between 0-30 years is common depending on if the facility is already closed (old licence on legacy site), operational (licence issued within the last 30 years) or is a new facility (licence issued within the last 5 years).
- For Class V facilities that handle low level radioactive material there is a material difference between a surface landfill with a temporary liner, arid near surface geological repository and deep geological repositories where the geological repositories' have multiple barriers built into the safety case and a geological barrier/ linear that permanently isolates the waste from the biosphere.
- The key issue is the half-life of the low level radioactive material stored. For example the half-life of the following that Tellus is planning to store or permanently isolate will vary a lot but is a lot shorter than nuclear waste: smoke detectors, medical isotopes, naturally occurring radioactive material (NORM's) found in oil and gas sector and potassium rich agricultural fertiliser.
- Tellus is not planning on storing nuclear waste (Depleted uranium, enriched uranium (including low and high), uranium 233 and plutonium, which have a much longer half-life. It is common for facilities that store intermediate and high level nuclear waste to have an institutional tail for 100 years or more.

The appropriate institutional control period for the Sandy Ridge Project will be agreed to between Tellus and the regulator, Radiological Council of Western Australia. The institutional control period will take into account the nature of the radionuclides, their total activity and activity concentration of the waste proposed to be disposal of at the facility.

Typically waste disposal sites are subject to a non-statutory post-closure management period to ensure that these sites are left in in a stable non-polluting state. For a conventional landfill accepting putrescible wastes the post-closure management period is typically 20-25 years because the wastes being accepted at such sites are actively decomposing, producing leachates and landfill gas. These emissions must be managed for an extended period following the final acceptance of waste at the site. These biological processes produce liquids and gases that must be treated and result in a significant reduction in waste volume that may affect capping integrity.

In the case of the Sandy Ridge facility, waste placed in the long term near-surface repository will be strictly vetted to ensure they are not biodegradable or chemically active. In addition, the management practices ensure that the disposal cell is backfilled with compacted kaolin and sand to prevent subsidence of compaction on closure. Tellus propose that a post-closure management plan over an agreed period of time is provided to ensure the integrity of the disposal cell caps and demonstrate that all waste is securely contained before responsibility for the site is transferred to the State Government.

Extended institutional control periods are likely to apply when radioactive wastes are disposed of in a geological repository. The institutional control period is imposed because radioactive materials continue to emit radiation as they decay within the disposal cell and in some cases produce radioactive gases such as radon. The level of activity reduces over time as the wastes decay and the institutional control period is imposed as a statutory requirement to ensure management control is maintained over access to the site whilst decay is occurring. Radiation monitoring is undertaken during the institutional control period until such time as activity levels have reduced to background levels. Conclusion of monitoring signifies that the likelihood of human health impacts associated with radioactivity at the surface of the site is very low.

Advice from radiation expects will be sought and agreement reached with the Radiological Council of Western Australia with regard to the institutional control period for the Sandy Ridge Project during the preparation of environment impact assessment document.

The Code of Practice for the near-surface disposal of radioactive waste in Australia (NHMRC, 1992) which is the applicable Code in Western Australia at present indicates that Institutional Control periods are a minimum of 100 years according to the usage of the facility. Other near-surface disposal sites around the world have institutional control periods ranging between 100 and 300 years (NEA, 1999). A summary of Institutional Control Periods applied to similar facilities overseas is provided in Appendix 4.

2.3 UTILITIES

The Proposal will require the following inputs:

- **Power** – The assumed electrical power requirement is 1.2 megawatts supplied by diesel and solar powered generators (see power station location on Figure 3).
- **Mine Water** –
    - **Dry process -** Approximately 55 mega liters per annum (ML pa) or 0.15 ML / day (ML pd) to be abstracted from groundwater sources in the region (location to be determined pending

further investigation) if a dry process is used to refine the kaolin. Water will be used for dust control in the mining operations (water cart), for compaction of clay during backfilling, and for ablutions

- If a **wet process** is implemented at the plant, this will require an additional 0.3 ML pd or 117 ML pa
- For comparison under the wet process Tellus' combined 0.45 ML pd or 172 ML pa is approximately 13% of the volume of a proposed hematite project in the area. This is also approximately 25% of the volume of evaporated water from an iron ore mine's evaporation ponds in the area.

- **Potable Water** – Potable water will be supplied through a reverse osmosis system (Novatron® unit or similar) at both the accommodation camp and at the mine.

2.4 INFRASTRUCTURE

2.4.1 Fixed Infrastructure

Support infrastructure to the mine and waste facility operation is shown on Figures 2 and 3 and will include:

- Accommodation Camp to be located approximately 1.6 km south east of the infrastructure area, with a capacity to house up to 40 people (Figure 2).
- Contractor laydown yard including repair and maintenance facilities for earthmoving and plant equipment.
- Waste Transfer Area consisting of hard stand areas that will be used to receive and handle packages containing materials/goods for storage and a dedicated intermodal facility designed for unloading all types of vehicles and wastes in a secure environment. It is expected that this facility will be bunded to contain spillages with its own dedicated drainage system.
- Sewage Plants, a BioMAX® system or equivalent, will be installed at both the accommodation camp and at the mine.
- Administration building (offices, first aid, training centre, communications, lunch room, ablutions).
- Water tanks including potable water and firefighting water.
- Fuel storage area.
- Power station.
- Kaolin processing plant and associated conveyors and dust extraction system.
- NATA accredited laboratory facilities for storing and analysing waste samples (This will require as a minimum the following equipment: sample conditioning, preparation and storage, ICP, GC-MS, 4 decimal place balances, fume hoods and waste water treatment systems).
- Finished product (kaolin) storage.

- Dangerous Goods Storage Building, for temporary storage of wastes and including a dedicated and secure facility for repackaging material delivered in damaged packaging.
- Turkey's nest for water storage.
- Vehicle wash-down facility and wash down tanks.
- Secure site fencing and gatehouse incorporating a computerised weighbridge.
- Portable skid mounted cell cover/awning for protection from inclement weather.
- Explosives magazine.
- Putrescible landfill (Class II) for disposal of camp and office waste. The facility will comprise a series of single trenches (opened as required) that are 60m long, 3m wide and 3m deep.
- Decontamination units consisting of a demountable building fitted out with decontamination equipment.

2.4.2 Mobile Equipment

Mobile equipment for the kaolin processing operations (excluding the mining fleet) will consist of:

- Forklifts used for handling of bulk-bagged kaolin from the plant into the storage shed, and loading of trucks with bagged product.
- A tele-handler for maintenance work (and back-up truck-loading should a forklift be out-of-service).
- A separate tele-handler dedicated to waste unloading and placement.
- Light four wheel drive utility vehicles for personnel access around the site.
- Two small buses for transport of shift operators to and from the camp (approximately 1.6 km away).

2.5 SUPPLY CHAIN

Road access to the site is required for delivery of all consumables (fuel, product packaging), incoming waste for storage, and export of kaolin products. The site access road will need to be suitable for all weather access for a haulage truck to be used all year round. It is proposed that the site will be accessed by Mount Walton East Road, a 100 km long gravel road from the Great Eastern highway north to the Mount Walton East IWDF. An access agreement with the Department of Finance (Building, Management and Works) is required for use of this road. From the Mount Walton East Road transport will be west along 4 km of Mt Dimer Road, a private road within Miscellaneous Licence L77/135, owned by Vector Resources; and then along the proposed Sandy Ridge access road north to the infrastructure area. Tellus will commence road access and route negotiations with the relevant parties over the next few months.

If required, Tellus will construct sealed slip-lanes at the Mt Walton East Road – Great Eastern Highway intersection, to allow for the safe entry of the haulage trucks onto the highway. This is

assumed to require the addition of slip lanes for traffic both entering and leaving Mt Walton East Road, and will include signage.

The distance by road from Sandy Ridge to Fremantle Port is approximately 750 km. Road transport will be required either from Sandy Ridge to Kalgoorlie for rail transport or from Sandy Ridge to Fremantle Port if road transport is used.

3 ENVIRONMENTAL SUITABILITY FOR ARID NEAR SURFACE GEOLOGICAL REPOSITORY

The characteristics that make Sandy Ridge particularly suitable for an Arid near Surface Geological Repository are discussed briefly below:

- **Geologically stable** — the site sits within the Archean Yilgarn Block and is geologically typical of areas overlying deeply weathered granite domes. It has very low seismicity and no volcanic or tectonic activity;
- **Natural geological barrier —** The clay bed is laterally extensive (80 km long and 40 km wide), been stable for approximately 20 million years and is up to 36m thick at Sandy Ridge. To get to the clay in the development envelope the average overburden thickness is 9 m, which an impermeable 5 m thick caprock comprised of laterite and silcrete. Beneath the overburden, the kaolin zone likely to be mined is on average 14 m thick (9 to 23 m depth). Beneath the kaolin zone is a saprolite zone (kaolinitic, including some incompletely weathered granite). Below the saprolitic zone is thick granite. The clay in situ has very low permeability at around 1 x 10-9m/s. When combined with the thickness and extent of the clay it will not transmit waste off-site, even if a solute (water) was present;
- **Semi-arid desert Mediterranean climate** — averages just over 250 mm of rainfall per annum and evaporation is greater than 2,000 mm per annum;
- **No water table** — the site lies in an area that does not have a regional water table. This is because any rain falling in the region is either evaporated, evapo-transpirated or runs off at the surface. It is also due to the thickness and impermeability of the geologic profile, which includes 5 m of impermeable silcrete and up to 36 m of low permeability clay. The impermeable cap rock in the open cut will be disturbed but will be replaced with a consolidated engineered clay capping. Except for the small decline entry into the proposed underground area, the impermeable cap rock will not be disturbed over the galleries;
- **Watershed** - The fact that the area lies near a surface water divide also assists, as rainfall will migrate offsite at the surface or if present for short periods, at the sand/silcrete interface. No significant water deposits have been found at the silcrete/clay interface or at the clay/basement interface within the vicinity of the site. Drilling results in the area indicate that the basement undulates with peaks and troughs and as a result, even if water could migrate to that interface, it would be trapped in these troughs. This is highly unlikely however, because besides all of the other parameters affecting water migration, the clay is relatively dry and will tend to absorb any water that passes into the profile. It is for all these reasons that no water table has been detected in the region and it is also the reason that *no credible scenario can be developed that involves migration of a contaminated plume from the isolation cells. This is further confirmed by the fact that monitoring wells in the area have been tested for more than 20 years and have always been dry;*
- **No flooding** — the site is not subject to flooding, nor is it predicted to be in the future, no risk of cyclones;

- **Very low rates of erosion** — the site is not subject to the erosive forces of high winds or rain and has been stable for thousands of years;
- **Lack of commercial mineral deposits** – There is no evidence to suggest that there is potential for economic mineral or hydrocarbon deposits beneath the kaolin deposit;
- **Topography** – the site is flat to gently undulating and suitable for the construction of infrastructure and heavy vehicle movement;
- **Absence of Population** – It is an area of extremely low population, the nearest population centre is a non-permanent camp approximately 52 km away;
- **Agricultural land use** – There is no potential for medium to high value agriculture;
- **Environmental values** – The site has no special environmental features;
- **Heritage** –no special cultural or historical significance has been identified through a completed heritage study and consultation with stakeholders familiar with the area.

It can be concluded on the basis of the characteristics of the site, that there is little credible risk to human health or the environment from suitably conditioned and packaged hazardous or intractable wastes that might be stored and isolated at the Sandy Ridge Site.

To further underpin this assertion the Mount Walton IWDF, Australia's only Class V waste disposal facility is located to the east of the development envelope as the locality has previously been recognised for its suitability for intractable wastes and has a 22 year safe operating history.

4 STAKEHOLDER CONSULTATION

Once there is a level of confidence of the technical and commercial business case of the Project, Tellus' approach to stakeholder consultation is to complete a stakeholder engagement plan were the main stakeholders (Tier 1) are identified. Then Tellus engages first at a 'grass roots' level whereby the community most impacted by the Project, or whose area the Project is in, or the Government Department's whose approvals are required to start field work etc, is informed about the Project. Then engagement is broadened to incorporate other key Local, State and Federal Government groups and other interested stakeholders identified during the initial engagement (Tier 2).

Tellus explains the Project in terms of both definition, timelines, impacts and benefits and then listens to feedback on concerns, issues or opportunities raised and then responds accordingly. Tellus' policy of early engagement, open and transparent discussions, allows for Tellus to adapt the business and engagement plan in a timely manner. Feedback is incorporated into each stage of the project life, from conception to constructions, operations and closure.

The first phase ('Tier 1') of stakeholder consultation for Sandy Ridge has been completed. Neutral to broad support has been received for the Proposal. Most parties have requested to be kept informed as the Project progresses through its capital investment plan which includes a number of GO / NO-GO gates. Identified Tier 1 stakeholders included; the community, local, state and federal government. A summary of the feedback received from the community is presented in Table B.

Tier 2 of consultation is currently progressing and involves consultation with the non-government organisations, local politicians and other interested parties.

Tellus maintains a stakeholder register (summary - Table B) and continue to liaise with the community throughout the life of the Sandy Ridge Project. Tellus will also place key community and regulatory related information on the website (http://www.tellusholdings.com/) and by sharing News Updates to interested stakeholders.

In parallel to stakeholder consultation, Tellus has a policy of creating as many local business opportunities as possible and training and hiring locally. Tellus has already contracted many Western Australian, local and aboriginal owned business. Tellus has also supported a local rangers training program in association with the Goldfields Sea and Land Council, WA Government and local stakeholders.

TABLE B: STAKEHOLDER CONSULTATION REGISTER

STAKEHOLDER	CONSULTATION DATE	CONSULTATION METHOD	RESPONSES AND KEY ISSUES RAISED
State Government			
Gary MacLean, Principal Policy Adviser to the Honourable Bill Marmion MLA (Minister for Finance; Mines and Petroleum) and Adrian Wiley, Principal Policy Advisor Office of the Minister for Mines and Petroleum	24 February 2015	Meeting - Initial presentation of the proposal	• Expressed interest in the proposal and wished to stay informed.
Belinda Walker, Principal Policy Advisor to the Honourable Albert Jacob MLA (Minister for Environment; Heritage).	25 February 2015	Meeting - Initial presentation of the proposal	• Expressed interest in the proposal and wished to stay informed.
Paul Vogel (Chairman of the EPA) and Anthony Sutton (Director of Assessment and Compliance, Officer of the EPA)	26 February 2015	Meeting – Initial presentation of the proposal	• Noted the sensitivity of the proposal and suggested it would probably warrant formal assessment • Expressed concern regarding the impact of there being no disposal operations at Mt Walton for a number of years and that this may be contributing to waste being stored / disposed incorrectly • Pre-referral meeting is essential • Suggested consultation with several key government agency stakeholders prior to submission of referral • Expressed interest in the proposal and wished to stay informed.
WA Department of Mines and Petroleum — Phil Gorey (Executive Director Environment), Steve Tantala (Director Operations), Ian Mitchell (Team Leader Minerals Kalgoorlie) and Charlotte Hall (Geoscientist)	26 February 2015	Meeting – Initial presentation of the proposal	• Expressed interest in the proposal and wished to stay informed.
WA Department of Mines and Petroleum – Ian Mitchell (Environmental Branch - Team Leader Minerals Kalgoorlie) and Dean Crouch (Resources Safety Branch - Mines Inspector)	22 April 2015	Second meeting to discuss mining environmental approvals and DMP's role in regulating radioactive materials	• DMP (Environment Branch) is open for consultation during the preparation of the Mine Closure Plan • DMP (Resources Safety) will be looking to ensure that systems will be in place to protect the health of people working at the site during construction and operations. • A Radiation Safety Officer for the site is recommended to ensure long-term consistency and to ensure the same person is across all safety issues on the site.
Office of the EPA —	23 March 2015	Meeting – Discussion of	• Waste acceptance criteria – referral to include details of waste

STAKEHOLDER	CONSULTATION DATE	CONSULTATION METHOD	RESPONSES AND KEY ISSUES RAISED
Sally Bowman (Manager, Mining and Industrial Branch – North) and Dr Robert Hughes (Principal, Environmental Officer).		draft referral	not accepted at the facility. • Stakeholder consultation is important • Give government a degree of certainty of risk for institutional control/safety • Transport of material like medical isotopes • Preliminary key environmental factors are terrestrial environmental quality, inland waters environmental quality, human health, rehabilitation and closure • Expressed interest in the proposal and wished to stay informed.
WA Department of Finance (proponent of IWDF) — Stewart Barrett (Project Leader – IWDF) and Randall Haigh (Senior Project Manager).	12 December 2014	Meeting - Tellus presented project general information and update on planned study and field-work activities occurring in 2015	• Expressed interest in the proposal and wished to stay informed.
	27 February 2015	Tellus presented updated proposal information.	• Expressed interest in the proposal and wished to stay informed.
WA Department of Finance (proponent of IWDF) — Mino Intini (Director Regional Programs).	26 February 2015	Phone call outlining the proposal.	• Expressed interest in the proposal and wished to stay informed.
WA Department of Lands (DoL) – Antoine Macmath (Manager Land Access), Darren Corr (Manager Major Projects), Jonathan Cramer (Manager Contaminated Sites).	8 April 2015	Meeting – Initial presentation of the proposal	• Advised to discuss the proposal with the Department of State Development (DSD), as they drive major project status, DoL do land assembly after DSD • Suitable long term project tenure can be structured over unallocated crown land (UCL)) • The mining lease will legally permit the establishment of a mine • Address Native Title. • DoL can issue 'general purpose lease' under Section 79 of the Land Administration Act 1997 to facilitate the waste side of the business.
WA Department of Environment Regulation – Kerry Laszig (Director, Licensing and	8 April 2015	Meeting – Initial presentation of the proposal	• A decision under Part V of the Environmental Protection Act 1986 cannot be made until Part IV process is complete.

STAKEHOLDER	CONSULTATION DATE	CONSULTATION METHOD	RESPONSES AND KEY ISSUES RAISED
Approvals), Stephen Checker (Manager, Licencing (Waste Industries)).			• Need to present more detailed engineering information when submitting applications under Part V. • Essential to adopt Best Practice. • Need to demonstrate the safety case for the geological repository.
Radiation Health WA – Hazel Upton (Managing Health Physicist), Duncan Surin (Senior Health Physicist) and Leif Dahlskog (Senior Health Physicist).	2 April 2015	Meeting – Initial presentation of the proposal.	• Would require approvals to operate under the Acts and Regs administered by Radiation Health WA, who would in turn report to ARPANSA • Each type of waste will have to be placed in appropriate type of storage – case by case basis • Long life elements may need to be placed deeper to meet surface activity limits and extended institutional control requirements • Main concern for other types is to ensure that primary encapsulation is not compromised by storage with other chemicals (e.g. corrosive) • Need to demonstrate appropriate safety • Tellus needs to further consult with Radiation Health during the preparation of approval documents • New classifications will at some point be adopted for use in Australia • Radiation Health has no particular concern in relation to operation of a privately owned facility provided the necessary safeguards are in place • Radiation Health is in need of secure surface storage facilities and more regular (than IWDF offers) isolation activities. Current Radiation Health store is full and waste owners are storing wastes at their own premises.
Department of State Development — Peter Goodall (Senior Project Manager Strategic Projects), Steve Morris (Project Manager Strategic Projects).	22 April 2015	Meeting – Initial presentation of the proposal	• Expressed interest in the proposal and wished to stay informed
Federal Government			
Department of the Environment – Michael Ward (Director, North West Section,	10 April 2015	Teleconference – Initial presentation of the proposal	• Provided update on Government' expense cost recovery model under the EPBC Act

STAKEHOLDER	CONSULTATION DATE	CONSULTATION METHOD	RESPONSES AND KEY ISSUES RAISED
Environmental Assessment and Compliance Division) and Denis Snowdon (Assistant Director North West Section West Assessment Branch).			• Provided information on the current status of the bilateral agreement with WA • The identification of Threatened species to be made clear in the referral • Terms and identification of waste types to be made clear in the referral.
Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) – Geoffrey Williams (Radioactive Waste Safety), Jack Dillich (Chief Inspector Regulatory Services), Keith Dessent (Senior Regulatory Officer), Dave Urban (Senior Regulatory Officer) and Julia Carpenter (Assistant Director, International Policy and Coordination).	16 April 2015	Meeting – Initial presentation of the proposal	• Confirmed ARPANSA do not provide the formal regulatory approval • Considers the site wholly appropriate and suitable for the isolation of materials like medical isotopes given its co-location to Mt Walton East IWDF.
Local Government			
Shire of Coolgardie – Paul Webb (CEO), Sandra Donkin (Manager Community Services) and Terry Sargent (Manager Development Services).	4 March 2015	Meeting – Initial presentation of the proposal	• Community consultation • Local community employment opportunities. • Economic development for the shire and long lasting community benefits. • Transport of hazardous waste through the community.
City of Kalgoorlie Boulder – Don Burnett (CEO) and Alex Wiese (Director Development Services).	4 March 2015	Meeting – Initial presentation of the proposal	• Local community employment opportunities. • Transport of hazardous waste through the community, in particular emergency response planning. • Opportunities for intermodal transport hub currently under consideration.
Community			
Sambo Family	3 March 2015	Meeting – Initial presentation of the proposal	• Happy to work with Rory O'Connor as TO Liaison for engagement
Logan Family	3 March 2015	Meeting – Initial presentation of the proposal	• Happy to work with Rory O'Connor as TO Liaison for engagement
Champion Family	4 March 2015	Meeting – Initial presentation of the proposal	• Happy to work with Rory O'Connor as TO Liaison for engagement

STAKEHOLDER	CONSULTATION DATE	CONSULTATION METHOD	RESPONSES AND KEY ISSUES RAISED
Goldfields Land and Sea Council (GLSC) – Darren Forster (Land Management Officer) and Bradley Jennings (Anthropologist).	3 March 2015	Meeting – Initial presentation of the proposal	• Greatest concern was Native Title and getting families to work with them
Mineral Resources (Carina Iron Ore Mine operators).	February 2015	Various informal phone calls during February 2015	• Calls to mine manager regarding safety and traffic movements for February and March field-work activities • Expressed interest in the proposal and wished to stay informed.
Members of Parliament			
Wendy Duncan (Member for Kalgoorlie, National Party)	23 April 2015	Meeting – Initial presentation of the proposal	• Expressed interest in the proposal and wished to stay informed. • Tellus should consider Esperance port as an alternative export port to Fremantle • Community benefits program
Dr Graham Jacobs (Member for Eyre, Liberal Party)	23 April 2015	Meeting – Initial presentation of the proposal	• Expressed interest in the proposal and wished to stay informed. • Tellus should consider Esperance port as an alternative export port to Fremantle • Community benefits program

5 ENVIRONMENTAL FACTORS

5.1 ASSESSMENT OF ENVIRONMENTAL FACTORS

Aurora Environmental reviewed the EPA's *Environmental Assessment Guideline (No. 16) for Referral of a proposal under s38 of the Environmental Protection Act 1986 – Appendix A* (Appendix 2) to assist in identifying key environmental factors for the Proposal. The EPA's objectives for each factor are listed in Table C. The rationale of determining which factors are key environmental factors (i.e. that may have significant impact on the environment) is listed in Table D. Note: environmental factors relating to the sea have not been examined given the Proposal will be located inland.

TABLE C: EPA'S OBJECTIVES

FACTOR	OBJECTIVES
Flora and Vegetation	To maintain representation, diversity, viability and ecological function at the species, population and community level.
Landforms	To maintain the variety, integrity, ecological functions and environmental values of landforms and soils.
Subterranean Fauna	To maintain representation, diversity, viability and ecological function at the species, population and assemblage level.
Terrestrial Environmental Quality	To maintain the quality of land and soils so that the environment values, both ecological and social, are protected.
Terrestrial Fauna	To maintain representation, diversity, viability and ecological function at the species, population and assemblage level.
Hydrological Processes	To maintain the hydrological regimes of groundwater and surface water so that existing and potential uses, including ecosystem maintenance, are protected.
Inland Waters Environmental Quality	To maintain the quality of groundwater and surface water, sediment and biota so that the environmental values, both ecological and social, are protected.
Air Quality	To maintain air quality for the protection of the environment and human health and amenity.
Amenity	To ensure that impacts to amenity are reduced as low as reasonably practicable.
Heritage	To ensure that historical and cultural associations are not adversely affected.
Human Health	To ensure that human health is not adversely affected.
Offsets	To counterbalance any significant residual environmental impacts or uncertainty through the application of offsets.
Rehabilitation and Decommissioning	To ensure that premises are decommissioned and rehabilitated in an ecologically sustainable manner.

TABLE D: ASSESSMENT OF ENVIRONMENTAL FACTORS

FACTOR	ENVIRONMENTAL ASPECT[4]	INHERENT IMPACTS[5]	RECEIVING ENVIRONMENT	MITIGATION MEASURES	RESIDUAL IMPACTS	MEETS EPA'S OBJECTIVE?	ASSUMPTIONS
Flora and Vegetation	Clearing of native vegetation	Loss of individual plants	No bush forever sites given the site is not within the metropolitan area or other conservation reserves. Vegetation type to be cleared expected to be similar to other types within the Goldfields Region.	Small footprint of clearing (100 ha). Limiting the extent of clearing through detailed feasibility study. Seed collection, propagation and transplantation into rehab areas. Ongoing rehabilitation of mined pits and engineered closed cells during operations so as return topsoil and revegetate landform.	Loss of individual plants until rehabilitation is completed. Following rehabilitation no residual impacts are expected.	Meets the EPA's objective	The site is within the Jackson Vegetation System (Beard, 1972) which comprises *Acacia /Allocasuarina* thickets, mixed Proteaceae-Myrtaceae scrub heaths and *Eucalyptus* Woodlands. The current (2013) extent of Jackson Vegetation System (Beard, 1972) in the Coolgardie IBRA bioregion is 1,490,171 ha (Government of Western Australia, 2013). Of this (<0.01%) may be cleared for the Proposal.
Landforms	Open cut mining (majority design)	Modification of landform	No significant natural land features.	Returning of topsoil and contouring of the mined pits and engineered closed cells as close to	No aesthetic difference in landforms above ground surface, except for fencing for	Meets the EPA's objective	The landform is not significant nor of environmental value. The removed ore will not affect hydrogeology as a water table is unlikely to exist in this locality.

[4] Environmental aspect is defined by EPA (2015) as an element of an activity, product or service of a proposal that can interact with the environment.
[5] Impact is defined by EPA (2015) as any change to the environment, whether adverse or beneficial, wholly or partially resulting from the aspects of a proposal.

FACTOR	ENVIRONMENTAL ASPECT[4]	INHERENT IMPACTS[5]	RECEIVING ENVIRONMENT	MITIGATION MEASURES	RESIDUAL IMPACTS	MEETS EPA'S OBJECTIVE?	ASSUMPTIONS
				the natural surface as possible with an engineered cap to shed water.	safety purposes.		Mining will be conducted in accordance with the approved mine plan.
Subterranean Fauna	No karst geology within the development envelope so very unlikely subterranean fauna is present or will be affected by the Proposal. Therefore the EPA's objective will be met.						
Terrestrial Environmental Quality	Kaolin mined pits and engineered closed cells in the clay strata.	Waste storage and isolation of hazardous and intractable wastes in an arid near surface geological repository could potentially contaminate the site.	Geology and soils comprising topsoil, silcrete, laterite and kaolinite down to approximately 30m depth within waste storage and isolation pits.	Multiple barrier layers will be in place during transport, storage and backfill operations as described in safety case - Section 2.2. Engineered pits will be covered by a domed compacted kaolin cap so any surface water or rainfall is shed from the structure. Topsoil will be replaced and revegetated with species of local provenance. Surface monitoring of	Storage / isolation cells (37.2 ha) to be permanently altered (i.e. sterilisation of this land) during the institutional period. After the institutional control period the land is returned to its current status, but with appropriate intergeneratio nal markings to indicate the previous use of the site.	Meets the EPA's objective	For the reasons outlined in Section 3 the site is suitable for a combined kaolin mine and an arid near surface geological repository.

FACTOR	ENVIRONMENTAL ASPECT[4]	INHERENT IMPACTS[5]	RECEIVING ENVIRONMENT	MITIGATION MEASURES	RESIDUAL IMPACTS	MEETS EPA'S OBJECTIVE?	ASSUMPTIONS
				rehabilitated pits will be conducted to identify any signs of surface subsidence. Installation and monitoring of groundwater monitoring bores. Waste will be temporarily isolated in the safety of the natural barriers formed by the extensive geological bed until feasible resource recovery technology is available, or waste will be permanently isolated.			
Terrestrial Fauna	Land clearing activities. Erection of fences. Infrastructure Development.	Clearing for mining will reduce available fauna habitat, however the impact	Limited number of conservation significant species may transit the site (Malleefowl *Leipoa ocellata*	Litter/waste disposed of appropriately. Fences to exclude fauna from operations.	Species, population, and assemblage level of Malleefowl and Chuditch	Meets the EPA's objective	Conservation significant fauna unlikely to be significantly impacted by the Proposal.

FACTOR	ENVIRONMENTAL ASPECT[4]	INHERENT IMPACTS[5]	RECEIVING ENVIRONMENT	MITIGATION MEASURES	RESIDUAL IMPACTS	MEETS EPA'S OBJECTIVE?	ASSUMPTIONS
	Kaolin open cut mining with complementary waste storage and isolation in the clay strata.	expected to be minimal as habitat types in the disturbance area are well represented outside the footprint. Habitat loss/ fragmentation.	and Chuditch *Dasyurus geoffroii*) (Appendix 3). Once cleared no fauna habitat will exist in disturbed areas, therefore the site is unlikely to be of value to conservation significant fauna.	Rehabilitation completed on waste storage and isolation pits.	unlikely to be affected by the Proposal.		
Hydrological Processes	No significant water deposits have been found at the silcrete/clay interface or at the clay/basement interface within the vicinity of the site therefore hydrological processes will not be affected by the Proposal and the EPA's objective will be met.						
Inland Waters Environmental Quality	Kaolin open cut mining with complementary waste storage and isolation in the clay strata. Abstraction of water for use in kaolin processing plant.	Failure of capping covering engineered storage cells could have the potential to contaminate local aquifer or inland waters. Adverse effects on the surrounding environment of water source	No aquifer or inland waters in the development envelope. Surrounding environment of water source.	Hydrogeological assessment of volumes that can sustainably be abstracted from water source. Monitoring of abstraction volumes.	No residual impacts are expected to inland waters within the development envelope. Residual impacts on the surrounding environment of water source are unknown at this stage (note: water	Meets the EPA's objective	Several options are being considered for water sources. A hydrogeological assessment will be undertaken of the chosen water source in accordance with Department of Water guidance and consultation with the Department. It is expected that any abstraction and discharge of water will be compliant under the licence conditions administered by the Department of Water.

FACTOR	ENVIRONMENTAL ASPECT[4]	INHERENT IMPACTS[5]	RECEIVING ENVIRONMENT	MITIGATION MEASURES	RESIDUAL IMPACTS	MEETS EPA'S OBJECTIVE?	ASSUMPTIONS
		(note: water source yet to be determined).			source yet to be determined).		
Air Quality (Dust) and Atmospheric Gases	Generation of dust from blasting and road traffic. Gaseous emissions from earthworks activities.	Dust from mining may adversely affect vegetation in close proximity. Small contribution to the greenhouse effect (power generation, mining machinery).	The atmosphere. As the site is remote (approx. 75km from the nearest town, 52km from the nearest mining camp) no residents are within the vicinity.	Dust suppression by water cart along trafficable roads and in pit(s). Progressive rehabilitation to minimise exposed areas. Hybrid solar / LNG power station. Solar to offset fossil fuel power.	Small reduction in localised air quality (dust) and small contribution to the greenhouse effect	Meets the EPA's objective	Dust will be managed as per best practice Dust Management Plan – component of the site Environmental Management Plan. A reduction in air quality is unlikely to impact human health or amenity given the site is remote and has no residences in the vicinity. Isolation of stored hydrocarbons (storage customers) will have a positive greenhouse gas abatement impact. Tellus has applied to Office of the Clean Energy Regulator for registration of the Project under the *Carbon Credits (Carbon Farming Initiative) Act 2011* (CFI Act)
Amenity (visual)	Visual aspects considered to reduce visual impact on landscape. Mine infrastructure, blasting Transport of kaolinite out of the mine.	Workers may temporarily be subject to a change to amenity.	Workers associated with the mine. As the site is remote (approx. 75km from the nearest town, 52km from the nearest mining camp) no	Areas to be mined are of low relief (flat, gently undulating country) minimising impact on the visual landscape as viewed by adjacent lands.	None.	Meets the EPA's objective	People not associated with the mine are unlikely to be affected by the Proposal.

FACTOR	ENVIRONMENTAL ASPECT[4]	INHERENT IMPACTS[5]	RECEIVING ENVIRONMENT	MITIGATION MEASURES	RESIDUAL IMPACTS	MEETS EPA'S OBJECTIVE?	ASSUMPTIONS
	Transport of waste materials into the mine.		residents are within the vicinity.	Operating procedures for blasting and transport of materials will be prepared and implemented.			
Heritage and Native Title	A search of the Aboriginal Heritage Inquiry System (DAA, 2015) indicates no registered heritage sites or other heritage places are located within exploration tenement E16/440. No native title claims exist. Therefore heritage values will not be affected by the Proposal and the EPA's objective will be met. If additional sites are identified, they will be reported in accordance with the provisions of the *Aboriginal Heritage Act 1972* and disturbance will only occur after s18 permit has been granted.						
Human Health	Kaolin mining and complementary storage and isolation of wastes.	Potential health impact.	Workers at the mine site.	Strict waste Acceptance Criteria Protocol Environmental Management Plan Emergency Management Plan Materials Monitoring Plan Radiation Management Plan These will address operational aspects of waste and radiation	Implementing best practice in accordance with international and national codes and standards is unlikely to result in any residual impacts.	Meets the EPA's objective	Given the strict controls that will be employed it is unlikely human health will be adversely affected. Tellus' Storage and Isolation Safety Case (SISC) considers the safety of: • the *transport* to a geological storage and isolation facility (GSIF) • the *construction and operation* of the facility • the safety of the facility in the very *long term* after it has been sealed and closed. Tellus' safety case uses best practice examples developed around the world for the safe storage and

FACTOR	ENVIRONMENTAL ASPECT[4]	INHERENT IMPACTS[5]	RECEIVING ENVIRONMENT	MITIGATION MEASURES	RESIDUAL IMPACTS	MEETS EPA'S OBJECTIVE?	ASSUMPTIONS
				protection safety. Strict environmental controls consistent with international standards and national codes for the management of waste will be implemented. Institutional control period.			isolation of various types of wastes based on *strict acceptance criteria*, and for the construction in geological settings that are *internationally recognised* as suitable. Tellus' operation and long term safety case is underpinned by utilizing a combination of engineered and natural barriers, known as a *multi-barrier system*, which provides *long term containment and isolation* of the wastes. Tellus plans to store *like with like materials*, so as to create opportunities for the future long term, temporary storage, treatment and recovery of valuable materials or permanent isolation of hazardous waste.
Offsets	No offset is being offered. The Proposal has positive environmental, economic and social benefits to Western Australia (Refer to Section 1.3.6).						
Rehabilitation and Decommissioning	Ensuring post mining landform is safe and stable. Failure of the multi barrier system which does not provide long term containment and isolation of the wastes.	Exposure of people and the environment to wastes, which may lead to health or environmental issues.	Surrounding geology, soils and workers.	Multi barrier Safety Case and Mine Closure Plan developed and implemented. **During operations:** Engineered caps will be keyed into the kaolin on each	No further use of the engineered isolation cells for any other activities (i.e. sterilisation of this land) during the institutional period.	Meets the EPA's objective	Best practice dictates that a site should rely on not one, but several or "multiple" engineered and natural barriers as part of the safety case. Approved multi barrier safety case and mine closure plan will ensure the EPA's objective is met. Refer to Tellus' Storage and Isolation Safety Case (SISC) definition above in sections:

FACTOR	ENVIRONMENTAL ASPECT[4]	INHERENT IMPACTS[5]	RECEIVING ENVIRONMENT	MITIGATION MEASURES	RESIDUAL IMPACTS	MEETS EPA'S OBJECTIVE?	ASSUMPTIONS
				engineered isolation cell. **Post-mine management:** Implementation of approved mine closure plan. **Long-term management:** Monitoring in accordance with approved mine closure plan. Institutional control period.	After the institutional control period the land is returned to its current status, but with appropriate intergeneratio nal markings to indicate the previous use of the site.		2.2 WASTE MANAGEMENT AND THE SAFETY CASE and 3 ENVIRONMENTAL SUITABILITY FOR ARID NEAR SURFACE GEOLOGICAL REPOSITORY

5.2 KEY ENVIRONMENTAL FACTORS

The key environmental factors for the Proposal are considered to be:

- Terrestrial Environmental Quality.
- Inland Waters Environmental Quality.
- Human Health.

The key integrating factor for the Proposal is

- Rehabilitation and Decommissioning.

These factors are summarised in Part B of the section 38 referral form.

6 CONCLUSION

Tellus Holdings Ltd (Tellus) is an infrastructure project development company with a proposed dual revenue business model of mining kaolin and operating an arid near surface geological repository at Sandy Ridge. The Sandy Ridge Project is located approximately 75 kilometres (km) north-east of Koolyanobbing Western Australia. The site is remote, and is located over 50 km from the nearest population centre (temporary mining camp).

Tellus is planning to develop a 25 year minimum kaolin open cut and underground mine based on average production rates of 80,000 tpa ore. Kaolin will be processed on site and an average of 27,000 tpa of kaolin clay will be sold mostly into Asia. The proposed commodity business involves exporting the kaolin to Asia where it will be used in the ceramics, paint and fibre glass industries.

Tellus intends adding value by using the voids resulting from mining for the secure storage and isolation of an average of 66,000 tpa intractable and hazardous waste in the low permeability clay strata.

The storage and isolation business, with its proposed safety case of multiple engineered and geological barriers can uniquely provide maximum safety to people and the environment. Engineered and geological multi barriers, combined with world class operational controls make for a 'world best practice' safety case as waste is completely isolated from the biosphere. Best practice dictates that a site should rely on not one, but several or "multiple" barriers as part of the safety case. Tellus' proposed complementary storage business involves storing 'like with like' waste generated from the mining, oil and gas, manufacturing and agriculture industries. Tellus believes that intractable and hazardous waste should be seen as a valuable resource and by storing 'like with like', treatment, recycle and recovery opportunities should be introduced when the resource recovery technology is available, and the volumes and economics justifies a recycle or recovery event improving overall product stewardship.

Hazardous and intractable waste is often stored for long periods in unsafe or non-secure locations. It is also likely that some wastes may be disposed of in an inappropriate or illegal manner. This Proposal has the potential to provide a solution which will enable the cost effective removal of environmental hazards from across Australia and create.

The benefits of the Proposal to Western Australia are:

1. Direct creation of jobs during construction and operation phases and indirect contribution to job creation and economic stimulation of the local Goldfields community.

   Based on scoping study (front end loading - FEL 1) assumptions:
   - 40-90 construction jobs, 18 direct Tellus jobs (excludes O&M contractors), 54 indirect jobs could expand and diversify local job opportunities in Goldfields region
   - $62 million (M) build and $27M annual opex cost could boost and diversify local economy.

2. Generation of revenue to the State through royalties and taxes.

   - $474 million over 25 year term could support other parts of the economy.

3. Removal of environmental hazards by providing a cost effective option for the storage and isolation of hazardous and intractable waste which is often stored for long periods in unsafe or non-secure locations.

When operating, the facility will also provide a reliable long term utility support service to other mining, oil and gas and manufacturing industry sectors that look for best practice solutions and service providers before locating or expanding their operations. The facility could also attract new kaolin and recycle and recovery spin off industries to WA.

The Proposal will provide a direct economic benefit to the Goldfields region at a time where the mining industry is at a low ebb. Environmental storage business is a growth business and countercyclical to mining. Additionally there will be benefit in working with the indigenous community to provide opportunities for training and long term employment and business opportunities.

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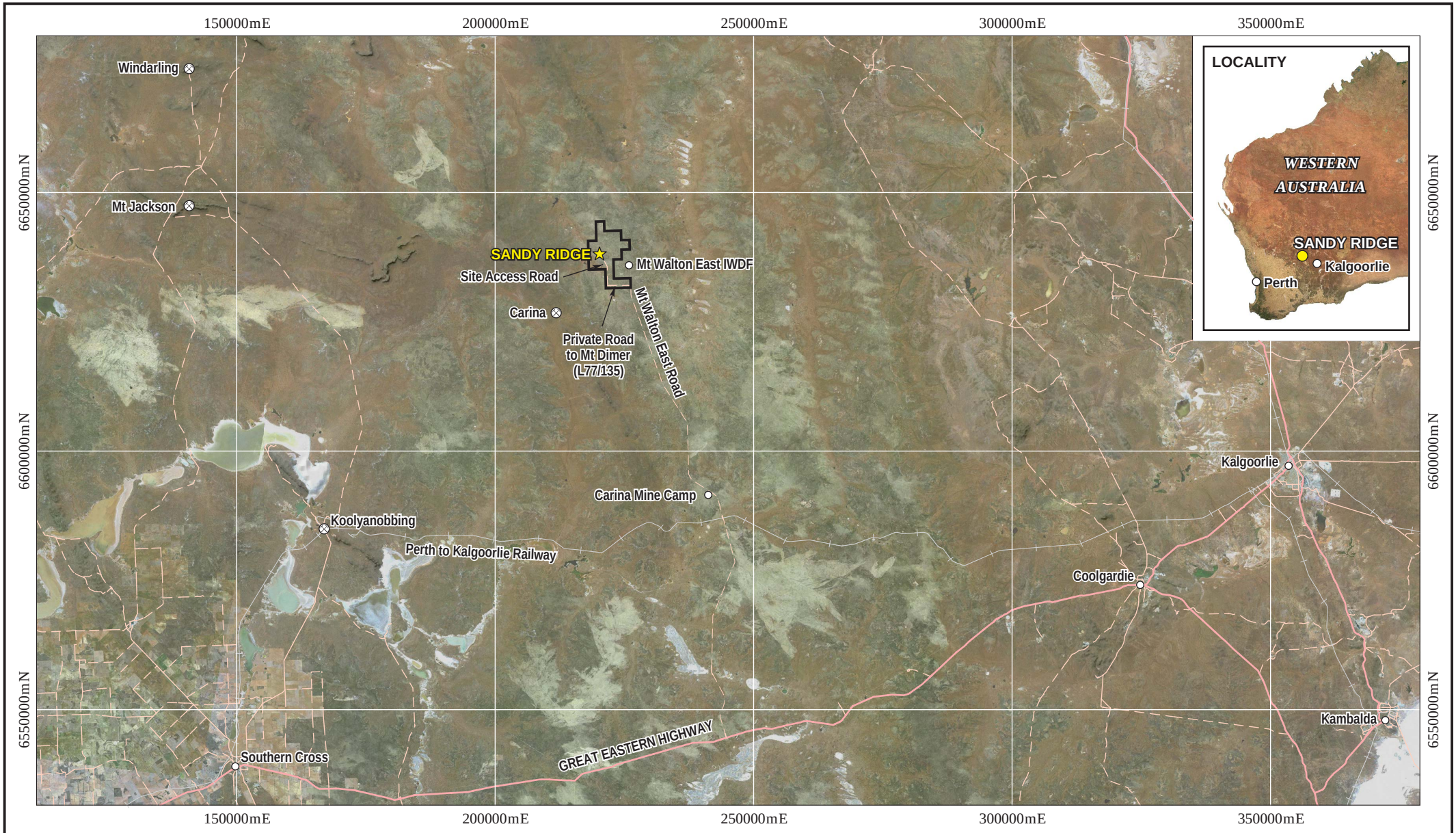
FIGURES



Legend:
- Iron Ore Mine
- Tellus Exploration Tenement
- Rail
- Major Road
- Minor Road

Client: TELLUS

0 20km
Scale 1:1,000,000
MGA94 (Zone 51)
CAD Ref: g2294F001.dgn
Date: Feb 2015 | Rev: B | A4

Aurora environmental

Author: C. Dorrington | AE Ref: THO2014-003
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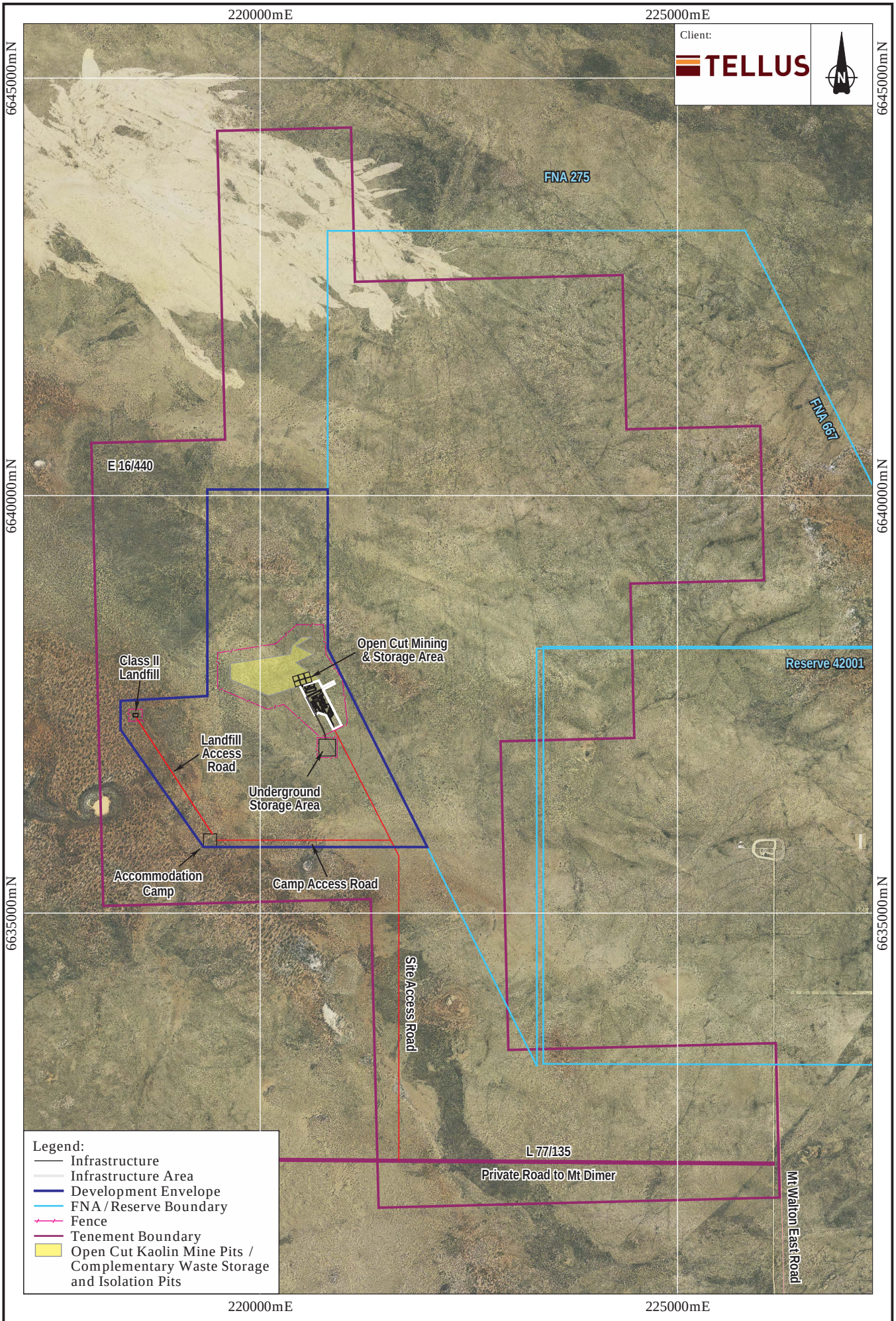
Sandy Ridge Kaolin Mine Project

Regional Location

Figure: 1



0 1km

Scale 1:60,000
MGA94 (Zone 51)

CAD Ref: g2294F002.dgn

Date: Apr 2015 | Rev: B | A4

Aurora environmental

Author: C. Dorrington | AE Ref: THO2014-003

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Sandy Ridge Project

Development Envelope

Figure: **2**

220400mE 220600mE 220800mE

66372600mN

66372400mN

66372200mN

66372000mN

E 16/440

Rehabilitation Cell

Class IV Storage / Isolation Cell

Open Cut Kaolin Mine Pit

Rehabilitation Cell

Class V Storage / Isolation Cell

Open Cut Kaolin Mine Pit

Explosives Magazine

Laterite Stockpile

Sand Stockpile

Ablution / De-Con Unit

Silcrete Stockpile

Plant Tails

Ore Stockpiles

Dust Extraction

Laboratory

Kaolin Store

Power Station

MCC

Yard

Fuel Storage

Dangerous Goods Storage Building

Water Tanks

Cribs

Waste Transfer Area

Ablutions

Administration

Turkeys Nest

Sewage Plant

Wash Down Tanks

Wash Down Area

Weighbridge

Internal Road to Underground Storage Area

Site Access Road

Legend:
- Infrastructure
- Fence
- Kaolin Resource

220400mE 220600mE 220800mE

Notes:
.

Client: TELLUS

0 30m
Scale 1:2,000
MGA94 (Zone 51)
CAD Ref: g2294F003.dgn
Date: Apr 2015 | Rev: B | A3

Aurora environmental
Author: C. Dorrington | AE Ref: THO2014-003
Drawn: CAD Resources ~ www.cadresources.com.au
Tel: (08) 9246 3242 ~ Fax: (08) 9246 3202

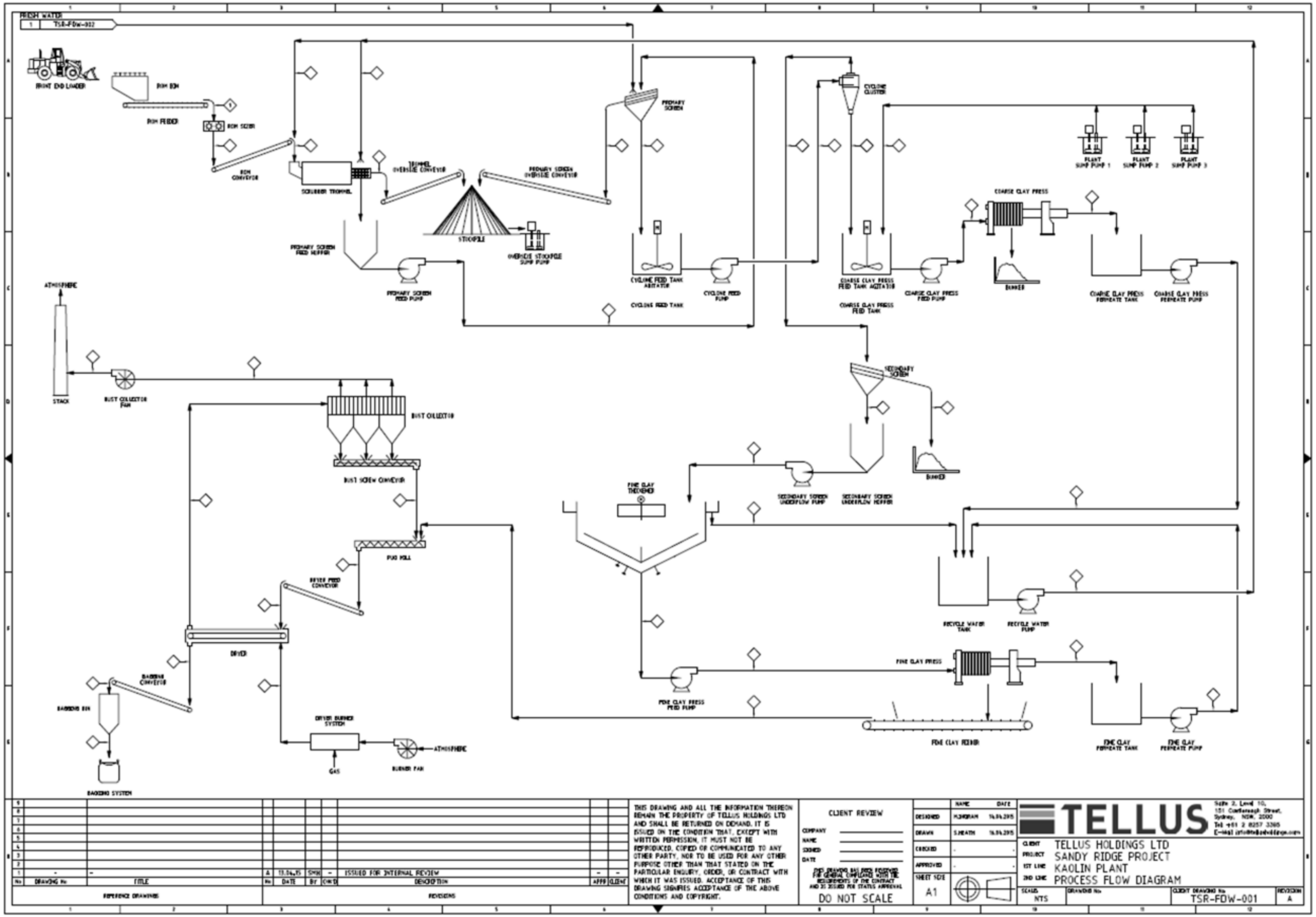
Sandy Ridge Project

Conceptual Infrastructure Layout

Figure: **3**

APPENDIX 1

Conceptual Kaolin Process Flow Diagrams


FRESH WATER
TSR-FDW-002
FRONT END LOADER
ROM BIN
ROM FEEDER
ROM SIZER
ROM CONVEYOR
SCRUBBER TROMMEL
TROMMEL OVERSIZE CONVEYOR
PRIMARY SCREEN OVERSIZE CONVEYOR
STOCKPILE
OVERSIZE STOCKPILE SUMP PUMP
PRIMARY SCREEN FEED HOPPER
PRIMARY SCREEN FEED PUMP
PRIMARY SCREEN
CYCLONE FEED TANK AGITATOR
CYCLONE FEED TANK
CYCLONE FEED PUMP
CYCLONE CLUSTER
PLANT SUMP PUMP 1
PLANT SUMP PUMP 2
PLANT SUMP PUMP 3
COARSE CLAY PRESS
COARSE CLAY PRESS FEED TANK AGITATOR
COARSE CLAY PRESS FEED TANK
COARSE CLAY PRESS FEED PUMP
BUNKER
COARSE CLAY PRESS FILTRATE TANK
COARSE CLAY PRESS FILTRATE PUMP
ATMOSPHERE
STACK
DUST COLLECTOR FAN
DUST COLLECTOR
DUST SCREW CONVEYOR
SECONDARY SCREEN
SECONDARY SCREEN UNDERFLOW PUMP
SECONDARY SCREEN UNDERFLOW HOPPER
BUNKER
FINE CLAY THICKENER
PUG MILL
DRYER FEED CONVEYOR
DRYER
BAGGING CONVEYOR
BAGGING BIN
BAGGING SYSTEM
DRYER BURNER SYSTEM
GAS
BURNER FAN
ATMOSPHERE
RECYCLE WATER TANK
RECYCLE WATER PUMP
FINE CLAY PRESS
FINE CLAY PRESS FEED PUMP
FINE CLAY FEEDER
FINE CLAY FILTRATE TANK
FINE CLAY FILTRATE PUMP
A 13.04.15 SMH - ISSUED FOR INTERNAL REVIEW
No DATE BY CHKD DESCRIPTION APPD CLIENT
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Suite 2, Level 10, 151 Castlereagh Street, Sydney, NSW, 2000
CLIENT TELLUS HOLDINGS LTD
PROJECT SANDY RIDGE PROJECT
1ST LINE KAOLIN PLANT
2ND LINE PROCESS FLOW DIAGRAM
SCALE NTS
DRAWING No
CLIENT DRAWING No TSR-FDW-001
REVISION A

APPENDIX 2

Referral of a Proposal under s38 of the EP Act EAG No.16 (EPA, 2015)

Environmental Assessment Guidelines

EAG 16

Environmental Assessment Guideline for Referral of a proposal under s38 of the *Environmental Protection Act 1986*

January 2015

Environmental Protection Authority

Western Australia

Foreword

Many proposals in Western Australia can have an effect on the environment and one of the roles of the Environmental Protection Authority (EPA) is to assess those proposals that may have a significant effect on the environment. In considering proposals that are referred to it, the EPA must make decisions about which proposals to assess, the appropriate level of assessment, and the key environmental factors that should be considered through the assessment process. The provision of good information in the referral process is required to enable the EPA to make these determinations.

This guideline provides information on the referral of proposals under section 38 of the *Environmental Protection Act 1986*. Its purpose is to provide guidance on the process of referral and the information required for a referral to be considered valid and for the EPA to make its decision on whether or not to assess the proposal and, if so, the level of assessment that will apply. It describes how a proponent, decision-making authority and third party referrer should complete the EPA's section 38 referral form. The referral form can be found on the EPA's website, www.epa.wa.gov.au.

The EPA encourages proponents, decision-making authorities and third parties to adopt the approach outlined in this guideline, and requires all referrals to be made using the referral form. This will help achieve a clear, robust and timely environmental impact assessment.

I am pleased to release this document.

Dr Paul Vogel

CHAIRMAN
ENVIRONMENTAL PROTECTION AUTHORITY

Contents

1 Purpose and scope

The referral of a proposal[1] for consideration by the Environmental Protection Authority (EPA) is the first formal step in the environmental impact assessment (EIA) process. Section 38 of the *Environmental Protection Act 1986* (EP Act) makes provision for the referral to the EPA of proposals by a proponent, a decision-making authority (DMA), or any other person (referred to as a third party referrer).

The EPA requires sufficient information to be provided by a referrer to determine if the proposal is likely to have a significant impact on the environment and, if so, the level of assessment to apply to the proposal. The EPA has developed a referral form to ensure all essential information is provided to make a determination on a proposal. The referral form should be used for the referral of significant proposals, strategic proposals, derived proposals and proposals under an assessed scheme. Without sufficient information, the EPA will seek further information from the proponent, government agencies or any other source that the EPA thinks necessary, which may suspend the referral process.

The purpose of this Environmental Assessment Guideline (EAG) is to provide guidance on the process and information requirements of referring a proposal under s38 of the EP Act, using the referral form developed by the EPA.

2 Legislative and policy context

The EPA's *Environmental Impact Assessment (Part IV Divisions 1 and 2) Administrative Procedures 2012* (Administrative Procedures) provides additional information on the referral process under section 38 of the EP Act, including the form, content and timing of the referral process.

An action referred to the Commonwealth under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and determined to be a controlled action under that Act may be assessed under the bilateral agreement between the Commonwealth of Australia and the State of Western Australia under section 45 of the EPBC Act relating to EIA. Refer to Section 6 of this guideline for further information on this process, as it relates to the EPA's referral process.

Figure 1 outlines where this guideline is positioned within the EIA process and how it relates to other EPA guidance material. As represented in Figure 1, this EAG should be used in combination with the following EAGs:

- *Defining the key characteristics of a proposal* (EAG 1)
- *Timelines for environmental impact assessment of proposals* (EAG 6)
- *Environmental factors and objectives* (EAG 8)
- *Application of a significant framework in the EIA process* (EAG 9)
- *Assessment on Proponent Information (Category A)* (EAG 14)

This guideline should also be used in conjunction with the Administrative Procedures mentioned above.

[1] *Proposal* as defined by section 3 of the EP Act means a project, plan, programme, policy, operation, undertaking or development or change in land use, or amendment of any of the foregoing, but does not include scheme.

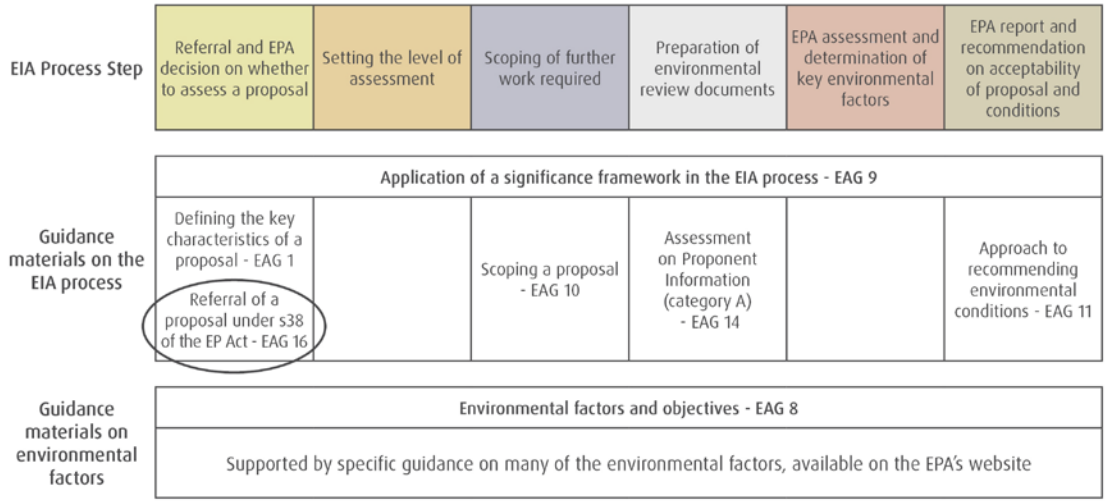


Figure 1 Relationship between the EIA process, this guideline (EAG 16) and other EPA guidance.

3 General guidance on referrals

Section 38 of the EP Act makes provision for the referral of a proposal to the EPA in several ways.

- Any person may refer a significant proposal.
- A proponent may refer a significant proposal, a proposal under an assessed scheme, or a strategic proposal.
- A DMA must refer a significant proposal.
- A responsible authority may refer a proposal under an assessed scheme (refer to Section 5.2.2 of this guideline).
- The Minister may refer a significant proposal and a proposal of public concern, which if implemented, will have a likely impact to the environment.
- The EPA can require a proponent or a decision-making authority to refer a significant proposal, a proposal under an assessed scheme or a proposal of a prescribed class.

In considering whether a proposal is a "significant proposal" that should be referred to the EPA, a referrer should be guided by EAG 8 and EAG 9. Where a proposal is clearly likely to meet the EPA's objectives it does not need to be referred to the EPA. If there is any uncertainty a referrer should discuss the proposal with the Office of the Environmental Protection Authority (OEPA). Proponents, DMAs and third parties are encouraged to seek pre-referral guidance from the OEPA.

Referrals under section 38 of the EP Act are published on the EPA's website for seven days, providing an opportunity for the public to comment on whether or not the proposal should be assessed and the appropriate level of assessment.

4 Completing the referral form

The referral form outlines the referral requirements (covered in Section 5 of this guideline), includes a declaration for each type of referrer and then has two parts, Part A and Part B. These are explained in more detail in this section.

4.1 Referrer Declaration

The referrer is required to complete the Declaration at the beginning of the referral form. If the referrer is a proponent, the signatory, if not the chief executive officer, should provide evidence of authority to act on behalf of the proponent in relation to the proposal and its assessment. It is not acceptable, for example, for a referral form to be signed by a junior officer.

4.2 Part A: Proponent and proposal information

All relevant information fields in Part A must be completed by the proponent or DMA for the form to be treated as a referral. Third party referrers are only expected to fill in the fields for which they have information.

4.2.1 Proposal and proponent information

Part A Section 1 of the referral form requires information about the proponent and the proposal and may include confidential information.

4.2.1.1 Proponent information

If the proponent is a joint venture, the parties to the joint venture must be listed.

The form makes a distinction between key proponent contact and consultant contact.

4.2.1.2 Strategic / derived proposals

The proponent is required to indicate in the referral form if the proposal is a strategic proposal or if they are seeking a declaration that the proposal is a derived proposal.

If a proponent is seeking a derived proposal the following information must be provided in the referral form and/or the supplementary referral report.

1. Whether the derived proposal was identified in the associated strategic proposal.
2. Whether the Ministerial Statement relating to the strategic proposal provided that the derived proposal may be implemented.
3. Information that demonstrates that any environmental issues raised by the derived proposal were assessed when the strategic proposal was assessed.
4. Whether there has been any new or additional information available since the strategic proposal was assessed in relation to the environmental issues raised by the derived proposal.
5. Whether there has been any change to the relevant environmental factors raised by the derived proposal since the strategic proposal was assessed.

4.2.1.3 Location

When defining the proposal the referrer should be guided by EAG 1. Proposal location information is required to accompany the referral in two formats:

(a) Hard copy or electronic map(s) as an attachment to the form, identifying:

- street address, lot number, the suburb and nearest road intersection; or
- for remote localities – the nearest town, together with distance and direction from that town to the proposal site.

The types of maps and figures which may need to be provided (depending on the nature of the proposal) include maps showing the regional location and context of the proposal and figures illustrating the proposal elements.

(b) Electronic spatial data – GIS or CAD on CD or flash drive, as an attachment to the referral, geo-referenced and conforming to the following parameters:

- GIS: Polygons representing all activities referred under the proposal, attributed with name of the activity;
- CAD: Simple closed polygons representing all activities referred under the proposal. All polygons labelled with name of the activity inside each respective polygon;
- datum: GDA94;
- projection: Geographic (latitude/longitude) or Map Grid of Australia (MGA); and
- format: ESRI geodatabase (GDB) or shapefile (SHP), MapInfo Interchange Format (MID/MIF), Microstation (DGN), AutoCAD (DWG,DXF). ESRI formats preferred.

4.2.1.4 Significance test and significant environmental factors

This section will help the EPA determine if the proposal is likely to have a significant impact on the environment, warranting a level of assessment to be set.

4.2.1.5 Confidential information

Under the EP Act, a proponent may request that the EPA maintain the confidentiality of certain information and not make it publicly available (section 39(3) of the EP Act). Any confidential information that the proponent considers necessary to submit as part of the referral should be clearly identified and submitted as an attachment to the referral in hard copy only.

4.2.2 Regulatory considerations

Part A Section 2 of the referral form seeks information relating to other approvals that have been sought or are required before the proposal may be implemented. This section also seeks information regarding the referral of the proposal to the Commonwealth Government under the EPBC Act and provides for the proponent to request the proposal to be assessed under the assessment bilateral agreement between the State of Western Australian and the Commonwealth (bilateral agreement). Refer to Section 6 of this guideline for more information.

4.3 Part B: Additional information on environmental factors

Part B seeks information about the anticipated environmental impacts of the proposal and the proposed management of those impacts. There are different levels of assessment (depending on the environmental significance of a proposal) that the EPA may assign to a referred proposal. The detail and level of information provided in a referral should be sufficient for the EPA to determine whether or not to assess the proposal and, if so, the level of assessment that should be applied.

To streamline referrals, only significant factors (refer to EAG 8) should be included in the referral. However in circumstances where there was some uncertainty on the level of significance of a particular factor it is recommended that a brief summary (no

longer than 1 – 2 paragraphs) is provided on the steps taken to determine why a factor was not considered to be significant.

Part B should be completed by a proponent in most cases, and may be completed by a DMA or third party should they wish to provide more information on the potential environmental impacts (in addition to that provided in Part A). Since the purpose of Part B is to determine the significance of the likely environmental impacts in accordance with the EPA's significance framework, anyone filling in Part B should refer closely to EAG 8 and EAG 9.

For proponents of strategic and derived proposals it is recommended that pre-referral discussions are held with the Office of the EPA to determine the structure and detail of information provided to the EPA for the referral. It is also recommended that proponents refer to *Environmental Protection Bulletin No. 17 Strategic and derived proposals*.

When completing Part B of the referral form, proponents referring a strategic proposal are encouraged to complete Questions 6 – 10 of Part B as they relate to the future proposal(s) identified in the strategic proposal.

Appendix A of this guide provides additional information to help identify environmental factors that may be relevant to a particular proposal and information to assist in completing Part B of the referral form for those factors. It should be noted that Appendix A is a brief guide and is not intended to be comprehensive. The EPA expects referrers to use their understanding of the particular proposal, along with published guidance from the EPA and other agencies, to provide an adequate evaluation of each environmental factor relevant to the proposal.

Where appropriate, maps, plans, survey reports and other relevant information should be included in the referral to better illustrate evaluation of the environmental factors relevant to the proposal. When survey reports are included, they should be adequately referenced in the referral form.

5 Referrer specific information requirements

This section outlines the referrer specific information requirements to be submitted in the proposal referral form.

It is important to note that for a proposal to be considered a valid referral it must be a "significant proposal". A significant proposal is one that, if implemented, is likely to have a significant effect on the environment. If there is not a "significant proposal" then there is not a valid referral. Only once a proposal has been determined as a valid referral can the EPA decide whether or not to assess the proposal and the level of assessment to assign to the proposal.

5.1 Referral by a proponent

Proponents are expected to complete all applicable sections of the form and provide GIS data to facilitate the EPA's consideration of the referral.

It is expected that a proponent will complete Part A and will address Part B of the form in some detail in an effort to demonstrate whether or not the EPA's objectives for environmental factors can be met.

If insufficient information is provided, the EPA will request more information and processing of the referral will be suspended until the information is provided or the EPA decides to make a precautionary determination on the available information. GIS

data is considered critical to informing the EPA's decision and record-keeping of referrals.

5.2 Referral by a DMA

Western Australian government departments and local government authorities will often be DMAs as defined under the EP Act and need to consider whether proposals brought to their attention are required to be referred to the EPA under section 38.

DMAs are provided with the following guidance in deciding when and how to make referrals to the EPA. DMAs should also familiarise themselves with the EPA's Guidance Statement 33 together with any Memorandum of Understanding (MOU) or Interagency Working Agreement (IWA) between the OEPA and the DMA. DMAs, in some cases, may be required to make a referral to the EPA if a trigger is identified in a MOU or IWA.

5.2.1 *Government departments and local government authorities*

Government departments and local government authorities are classified as DMAs for a specific proposal if their approval is required before it may be implemented. A DMA refers a proposal to the EPA in accordance with section 38(5) of the EP Act, which states that as soon as a DMA has notice of a proposal that, if implemented, is likely to have a significant effect on the environment, including a proposal under an assessed scheme, the DMA is to refer the proposal to the EPA. The EPA will then decide whether or not to assess the referred proposal and, if it is to be assessed, the level of assessment.

Under section 41 of the EP Act, where a DMA has referred a proposal to the EPA, the DMA may not make any decision that could have the effect of causing or allowing the proposal to be implemented until either:

(a) the DMA is informed that the EPA is not going to assess the proposal, and the 14 day appeal period has expired without an appeal being lodged, or any appeal has been determined; or

(b) if notice has been given that the proposal is to be assessed, the environmental assessment of the proposal is complete and the Minister for Environment has issued an authority in writing permitting implementation of the proposal.

If a DMA intends to refuse to grant approval for a proposal, then referral to the EPA is not required. However, if the DMA's decision is appealed, then referral of the proposal to the EPA may be required if implementation of the proposal may have a significant effect on the environment.

DMAs are encouraged to discuss potential referrals with the OEPA before referral.

5.2.2 *Referral of a proposal under an assessed scheme*

An assessed scheme, as defined in section 3 of the EP Act, is usually a planning scheme or planning scheme amendment that has been referred to the EPA and where a decision on whether or not to "assess" a scheme has been determined by the EPA. This relates to both regional schemes and town planning schemes.

The referral of a proposal under an assessed scheme may only be undertaken by the proponent (section 38(2) of the EP Act) or the Responsible Authority (section 48I of the EP Act). Third parties are not eligible to refer proposals under assessed schemes.

Section 48I of the EP Act requires that, when a proposal under an assessed scheme that appears likely, if implemented, to have a significant effect on the environment comes to the notice of a Responsible Authority, the Responsible Authority shall determine whether or not:

(a) the environmental issues raised by the proposal were assessed in the environmental assessment of the assessed scheme; and

(b) the proposal complies with the assessed scheme and any conditions to which the assessed scheme is subject.

If the proposal meets both of these criteria, the Responsible Authority need not refer the proposal to the EPA. However, if a proposal does not meet one or both of these criteria then the DMA must either refer the proposal to the EPA under section 38 of the EP Act or refuse to approve the subdivision or development on the land.

Under section 38(5c) and 38(5e) of the EP Act the EPA also can require the referral of a proposal under an assessed scheme if the proposal did not, during assessment, have sufficient scientific or technical information to enable it to assess the environmental issues raised by the proposal.

5.2.3 *Prescribed Premises under Part V of the EP Act*

Certain types of developments that involve activities/operations with the potential to result in pollution have been prescribed in regulations under the EP Act as requiring Registration and/or Works Approval and Licensing. These are referred to as 'Prescribed Premises'. Categories of prescribed premises are listed in the Environmental Protection Regulations 1987.

The Department of Environment Regulation (DER) is directly responsible for carrying out Registration, Works Approval and Licensing functions under Part V of the EP Act to ensure prescribed premises are constructed and operated in a manner to avoid pollution.

In considering an application, the DER will decide whether the development should be referred to the EPA under section 38(5) of the EP Act for a decision on whether or not the proposal should be subject to formal environmental impact assessment under Part IV of the EP Act.

5.2.4 *Clearing of native vegetation under Part V of the EP Act*

If a proposal involves clearing of native vegetation, the proponent may require a clearing permit from the DER, or the Department of Mines and Petroleum (DMP) (for mining-related activities), issued under Part V of the EP Act and in accordance with the Environmental Protection (Clearing of Native Vegetation) Regulations 2004.

In considering an application, the DER or DMP will refer the proposal to the EPA under section 38(5) of the EP Act if they consider the proposal is likely to have a significant impact on the environment.

5.3 Referral by a third party

Any person may refer a proposal where there is the likelihood that the proposal, if implemented, will cause a significant effect to the environment. These are known as third party referrals.

Third party referrals should provide sufficient information to clearly identify the proposal, proponent, proposed activity and location. The referral should also include the referrer's reasons (and any supporting documentation available) for considering

that the potential environmental impacts of the proposal would lead to a judgement that the proposal is a significant proposal as defined in the EP Act. The EPA will generally seek project definition information from the proponent and confirmation that a proposed development meets the definition of a proposal under the EP Act.

5.3.1 *Important considerations for third party referrals*

- Third parties should consider the significance of a proposal before referring it to the EPA and only refer significant proposals.
- Third parties are encouraged to consult EAG 8 and EAG 9 before submitting a referral.
- Third parties cannot refer a strategic proposal, derived proposal or a proposal under an assessed scheme to the EPA..

6 Assessments under the assessment bilateral agreement between the State and Commonwealth

Part A of the referral form includes a section regarding referrals under the Commonwealth EPBC Act and assessments under the assessment bilateral agreement between the State of Western Australia and the Commonwealth (bilateral agreement). An action referred to the Commonwealth under the EPBC Act and determined to be a controlled action under that Act may be assessed under the bilateral agreement.

If the EPA decides to assess a proposal referred to it under the EP Act, the EPA will assess the proposal under the bilateral agreement if (a) the proponent requests the EPA to do so; and (b) the timing of the referrals to the EPA and the Commonwealth align. Part A of the referral form provides for the proponent to request the proposal to be assessed under the bilateral agreement.

The EPA's Assessment on Proponent Information Category A (API – Category A) and Public Environmental Review (PER) levels of assessment are within the scope of the bilateral agreement. .

For proposals assessed by the EPA under the bilateral agreement at the level of API – Category A, the proponent is required to release its draft MNES assessment documentation for public comment for at least 14 calendar days.[2] For proposals assessed at the level of PER, the usual public comment process applies, so there is no requirement for the proponent to undertake a separate public comment period as a part of the bilateral.

The OEPA has prepared specific guidance material on the assessment processes for the bilateral agreement. This guidance material includes information about the consultation options and requirements for proposals assessed at the API – Category A level of assessment. Proponents considering requesting an assessment under the bilateral agreement should refer to this guidance material, available on the EPA website.

If the proponent requests (in Part A of the referral form) that the proposal be assessed under the bilateral agreement, Part B should be completed in a manner that will facilitate this assessment by aligning the relevant matters of national environmental significance (MNES) with the EPA's environmental factors where

[2] Note: This 14-day public comment period only applies to the API-A proposals being assessed under the bilateral agreement. It does not apply to proposals (assessed at API-A) that are not being assessed under the bilateral agreement.

possible and sensible. For example, for impacts on fauna species that are listed as threatened under the EPBC Act, the relevant EPA environmental factor will be terrestrial fauna, subterranean fauna or marine fauna.

In undertaking assessments under the bilateral agreement, the EPA will have regard to relevant Commonwealth guidelines, policies and plans. Part B of the referral form should, as far as possible, identify relevant Commonwealth guidelines, policies and plans in addition to relevant State guidelines, policies and plans.

For more information or advice, please contact:

The Office of the Environmental Protection Authority

Locked Bag 10, East Perth WA 6892

Telephone: 6145 0800

Fax: 6145 0895

Email: info@epa.wa.gov.au

Website: www.epa.wa.gov.au

APPENDIX A: Additional Guidance for the completion of Part B of the referral form

The following table is a guide to assist in the completion of Part B of the referral form where the referrer is expected to fill in a separate table at Part B for each environmental factor relevant to the proposal. Third parties are not required to fill in Part B however may do so if the information is known.

The table provides examples of aspects, impacts, receiving environment, guidelines, policy and regulatory processes under each environment factor. These prompts are by no means comprehensive, but are provided to demonstrate some examples for each factor. The referrer is expected to use their detailed knowledge of the proposal when identifying the factors and completing the table for each factor relevant to the proposal. A hyperlink to major Environmental Protection Authority Guidance related to the environmental factor is provided in the column under “Guidelines and Policy”.

For the purposes of this document the following definitions apply.

Environmental aspect: an element of an activity, product or service of a proposal that can interact with the environment.

Impact: any change to the environment, whether adverse or beneficial, wholly or partially resulting from the aspects of a proposal.

Examples of environmental aspects	Examples of impacts	Receiving environment	Guidelines and policy	Regulatory processes
SEA				
BENTHIC COMMUNITIES AND HABITAT *To maintain the structure, function, diversity, distribution and viability of benthic communities and habitats at local and regional scales.*				
• Dredging • Dredge spoil disposal • Land reclamation • Construction of marine infrastructure • Excavation • Anchoring • Pipe-laying • Other activities likely to impact on an area of sensitive benthic communities.	• Removal of habitat • Disturbance of benthic communities by burial, scouring, shading or smothering • Habitat pollution through waste, oil or fuel spill, sediment suffocation.	For example: • benthic primary producers such as seagrasses corals or mangroves • other benthic habitats or communities (e.g. filter feeders) • areas of seabed which support or could support benthic primary producers or other benthic habitats or communities	Link: Refer to Major EPA Guidance related to environmental factors See also: GS 55 – *Implementing Best Practice in proposals submitted to the Environmental Impact Assessment process*	State *Fish Resources Management Act 1994* Federal *Environment Protection (Sea Dumping) Act 1981*
MARINE ENVIRONMENTAL QUALITY *To maintain the quality of water, sediment and biota so that the environmental values, both ecological and social, are protected.*				
• Activities that may cause discharge of toxicants, biostimulants or other stressors	• Disturbance of water quality, sediment quality and biota • Pollution of water, sediment or biota • Reduction in the ability to use the area recreationally • Disturbance to the marine ecology.	For example: • Areas within State waters with established environmental values and environmental quality objectives • Marine conservation reserves or areas recommended for reservation • Marine areas used extensively for recreation or for commercial fishing activities.	Link: Refer to Major EPA Guidance related to environmental factors See also: *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZECC & ARMCANZ, 2000) National Water Quality Management Strategy	State *Environmental Protection Act 1986 (Part V – Environmental Regulation)* *Conservation and Land Management Act 1984* *Fish Resources Management Act 1994* *Contaminated Sites Act 2003* and Contaminated Sites

Examples of environmental aspects	Examples of impacts	Receiving environment	Guidelines and policy	Regulatory processes
			State Water Quality Management Strategy	Regulations 2006 Federal *Environmental Protection (Sea Dumping) Act 1981* *Environment Protection and Biodiversity Conservation Act 1999*
MARINE FAUNA *To maintain the diversity, geographic distribution and viability of fauna at the species and population levels.*				
• Dredging • Marine seismic activity • Pile driving • Underwater blasting • Lighting • Shipping or boating • Ballast water discharge • Onshore disposal of acid sulfate soils.	• Removal of habitat • Disturbance of fauna • Habitat pollution through waste, oil or fuel spill, sediment suffocation • Introduction of invasive pest species translocated in dredging equipment • Direct injury or mortality to individuals i.e. propeller impact/boat strike • Increased predation by feral animals (i.e. sea turtle nests) • Conflict with fisheries and impacts on fish, their habitats and fisheries production.	For example: • proximity to bird or sea turtle rookeries, and nesting sites for penguins and migratory shorebirds • fisheries management areas • fauna migration routes (i.e. cetaceans, sea turtles) • marine parks and reserves.	Link: Refer to Major EPA Guidance related to environmental factors See also: EPBC Act Policy Statement 2.1 - *Interaction between offshore seismic exploration and whales: Industry* guidelines (Commonwealth)	State *Wildlife Conservation Act 1950* *Fish Resources Management Act 1994* Federal *Environment Protection Biodiversity Conservation Act 1999*

Examples of environmental aspects	Examples of impacts	Receiving environment	Guidelines and policy	Regulatory processes
COASTAL PROCESSES *To maintain the morphology of the subtidal, intertidal and supratidal zones and the local geophysical processes that shape them.*				
• Development occurring within 300 m of a coastal area • Setback of the development from the high tide level and from the primary dune • Alteration of existing sediment movement processes either towards or into water bodies from natural (or current) levels	• Altered tidal regimes to the local coastline • Loss of marine and coastal ecosystem • Ability to adapt to sea level risk due to restricted location.	For example: • nesting sites for marine reptiles, mammals, resident and migratory shorebirds, and sea birds • coastal vegetation including mangroves • unstable or mobile dunes • enclosed water bodies (such as bays, estuaries, lagoons and marshes) • significant landforms including beach ridge plain, cuspate headland, coastal dunes or karst.	Link: Refer to Major EPA Guidance related to environmental factors See also: State Planning Policy 2.6 – *State Coastal Planning Policy*	State *Environmental Protection Act 1986* (Part V – Works Approval and Licences)

Examples of environmental aspects	Examples of impacts	Receiving environment	Guidelines and policy	Regulatory processes
LAND				
FLORA AND VEGETATION *To maintain representation, diversity, viability and ecological function at the species, population and community level.*				
• Clearing of native vegetation • Ground water drawdown • Modification of surface and subsurface water flow.	• Spread of weeds • Increased fire risk • Increased disease risk (i.e. *Phytopthora*) • Loss of species and genetic diversity • Fragmentation of habitats • Degradation of remaining areas, parks or reserves within the region of the disturbance.	For example: • vegetation types, extent and quality • presence of threatened/priority flora or ecological communities • Bush Forever Sites (Swan Coastal Plain) • Water dependent vegetation Information expected to be provided: • recent flora surveys, NatureMap records • known occurrences of conservation significant flora or ecological communities.	Link: Refer to Major EPA Guidance related to environmental factors	State *Wildlife Conservation Act 1950* (permits to take) *Environmental Protection Act 1986* (Part V – clearing of native vegetation) Federal *Environment Protection Biodiversity Conservation Act 1999*
LANDFORMS *To maintain the variety, integrity, ecological functions and environmental values of landforms.*				
• Large scale excavation or fill activities.	• Removal of a specific landform/s • Modification of landform/s.	For example: • geology and land systems • historical and present land use • significant natural land features (i.e. caves, ranges etc.) • areas with unusual or important geomorphological or geological sites • areas with fossil or other records of identifiable past climates or environments	Link: Refer to Major EPA Guidance related to environmental factors	

Examples of environmental aspects	Examples of impacts	Receiving environment	Guidelines and policy	Regulatory processes
		• proximity to: o a declared World Heritage property o an area that is registered on the Register of the National Estate, because of its natural values o existing or proposed National Park or Nature Reserve		
SUBTERRANEAN FAUNA *To maintain representation, diversity, viability and ecological function at the species, population and assemblage level.*				
• Excavation • Groundwater drawdown and changes in water quality.	• Direct loss of individuals, species and habitat • Potential for species extinction • Loss of connectivity and cavity collapse • Increased salination and turbidity, humidity, nutrient starvation, contamination from hydrocarbons.	For example: • geology and water properties • connectivity of habitat • likelihood of presence of subterranean fauna. Information expected to be provided: • results of previous subterranean fauna surveys .	Link: Refer to Major EPA Guidance related to environmental factors	State *Environmental Protection Act 1986* (Part V – Works Approvals and Licences) *Wildlife Conservation Act 1950* (permits) Federal *Environment Protection Biodiversity Conservation Act 1999*
TERRESTRIAL ENVIRONMENTAL QUALITY *To maintain the quality of land and soils so that the environmental values, both ecological and social, are protected.*				
• Drainage/discharge of saline groundwater • Waste disposal (solid or liquid) • Establishment of tailings storage facilities.	• Contamination • Disturbance • Dust • Erosion	For example: • current environmental quality or rating • historical land use past for activities which may have caused soil or groundwater contamination • contaminated sites registration	Link: Refer to Major EPA Guidance related to environmental factors See also: CODE OF PRACTICE	*State* *Contaminated Sites Act 2003* *Environmental Protection Act 1986 (Part V – Works Approvals and Licences)*

Examples of environmental aspects	Examples of impacts	Receiving environment	Guidelines and policy	Regulatory processes
		(*Contaminated Sites Act 2003*) Information expected to be included: • results of any assessment for soil or groundwater contamination on the site	*Tailings storage facilities in Western Australia* (2013)	
TERRESTRIAL FAUNA *To maintain representation, diversity, viability and ecological function at the species, population and assemblage level.*				
• Land clearing activities • Construction of linear infrastructure • Erection of habitat barriers such as fences, drains, channels • Infrastructure development • Lighting in sensitive environments • Operation of heavy equipment • Waste disposal.	• Removal of fauna habitat • Direct and indirect loss of individuals, populations, species and habitat • Potential extinction of species (e.g. Short Range Endemics) • Fragmentation of remaining populations • Reduction of habitat • Increased predation or disease • Impacts of sound, vibration and light • Increased fire regimes.	For example: • conservation significant fauna • regional extent of the fauna habitats • mass aggregation (roosts) or colonies in or nearby to the development area • habitat suitable for Short Range Endemics. Information expected to be provided: • recent fauna surveys carried out over the area • NatureMap records for known of conservation significant fauna.	Link: Refer to Major EPA Guidance related to environmental factors	State *Wildlife Conservation Act* 1950 (permits) Federal *Environment Protection Biodiversity Conservation Act 1999*

Examples of environmental aspects	Examples of impacts	Receiving environment	Guidelines and policy	Regulatory processes
WATER				
HYDROLOGICAL PROCESSES *To maintain the hydrological regimes of groundwater and surface water so that existing and potential uses, including ecosystem maintenance, are protected.*				
• Groundwater abstraction or dewatering • Surface water abstraction • Filling of wetlands • Drainage of the land • Water requirements for construction and operation • Damming of waterways.	• Impacts to groundwater dependent ecosystems • Impacts to riparian zones • Sedimentation of waterways • Bank erosion • Flooding • Drying of wetlands.	For example: • groundwater systems supporting dependent ecosystems • waterways • proclaimed or proposed groundwater or surface water protection areas • other water users • connectivity of aquifers, groundwater and surface water.	Link: Refer to Major EPA Guidance related to environmental factors	State *Rights in Water and Irrigation Act 1914* Federal *Environment Protection Biodiversity Conservation Act 1999*

Examples of environmental aspects	Examples of impacts	Receiving environment	Guidelines and policy	Regulatory processes
INLAND WATERS ENVIRONMENTAL QUALITY *To maintain the quality of groundwater and surface water, sediment and biota so that the environmental values, both ecological and social, are protected.*				
• Groundwater injection • Development within 200 m or a waterway • Filling or excavation of a river, creek, wetland or estuary • Impoundment of a river, creek, wetland or estuary • Draining to a river, creek, wetland or estuary • Liquid effluent discharge to a watercourse or stormwater drainage • Solid waste disposal near a waterway or groundwater area.	• Pollution • Fish death • Eutrophication • Sedimentation of waterways • Drinking water contamination • Flooding.	For example: • proximity to rivers, creeks, wetlands or estuaries • existing or proposed Under Water Supply and Pollution Control areas • proximity to Public Drinking Water Supply Area (PDWSA) • Proximity to recreational water amenity; wildlife habitat that includes JAMBA/CAMBA or Ramsar Conservation wetlands; protected wetlands listed under an Environmental Protection Policy; conservation category wetlands or an Environmentally Sensitive Area (under section 51B of the EP Act). Information expected to be provided: • Analysis to demonstrate that State Water Quality Management Strategy or other appropriate standards will be able to be met.	Link: Refer to Major EPA Guidance related to environmental factors	State *Swan and Canning Rivers Management Act 2006* *Country Areas Water Supply Act 1947* Federal *Environment Protection Biodiversity Conservation Act 1999* International agreements Ramsar Convention on Wetlands (1971) JAMBA, CAMBA and ROKAMBA bilateral migratory bird agreements

Examples of environmental aspects	Examples of impacts	Receiving environment	Guidelines and policy	Regulatory processes
AIR				
AIR QUALITY AND ATMOSPHERIC GASES *To maintain air quality for the protection of the environment and human health and amenity, and to minimise the emission of greenhouse and other atmospheric gases through the application of best practice..*				
• Generation of off-site dust, odour or another pollutant that may affect the amenity of residents and other "sensitive premises" such as schools and hospitals • Substantial greenhouse gas emissions (greater than 100 000 tonnes per annum of carbon dioxide equivalent emissions) • Discharge of pollutants from such as gaseous emissions, dust or other pollutants to air • Proposed land uses that could require a buffer to sensitive land uses (e.g. residences).	• Suffocation of flora due to dust impacts • Health impacts on people and amenity for people.	For example: • Proximity to sensitive land uses (e.g. dwellings, schools etc.) Information expected to be provided: • Any modelling or analysis to demonstrate that air quality standards will be met, including consideration of cumulative impacts from other emission sources.	Link: Refer to Major EPA Guidance related to environmental factors See also: GS33 - *Environmental Guidance for Planning and Development* GS55 - *Implementing best practice in proposals submitted to the EIA process* State Planning Policy 4.1 - *State Industrial Buffer* (Amended) (Draft) State Planning Policy 4.3 - *Poultry Farms*	State *Environmental Protection Act 1986* (Part V – Works Approvals and Licences) Federal *National Greenhouse and Energy Reporting Act 2007*

Examples of environmental aspects	Examples of impacts	Receiving environment	Guidelines and policy	Regulatory processes
PEOPLE				
AMENITY *To ensure that impacts to amenity are reduced as low as reasonably practicable.*				
• Blasting • Impact piling • Construction likely to take place outside of the EP Noise Regulation hours • Substantial transport of materials • Proposed land uses that could require a buffer over adjoining land e.g. future residential use, due to noise, vibration, light, gases, odours etc. • Placement of sensitive land uses (e.g. dwellings, schools etc.) in an area likely to be affected by noise, vibration, light, gases, odours from industry, agriculture or infrastructure (e.g. landfill site).	• Significant off-site noise emissions • Reduction of amenity for existing residents or intended future residents.	For example: • proximity to sites of high public interest (e.g. a major recreation area or natural scenic feature) • proximity to sensitive land uses (e.g. dwellings, schools etc.) • proximity to other land uses that that may discharge a pollutant (for proposals with residential component) • historical land use which may have contaminated soil or groundwater (e.g. market garden or landfill) • known environmental concerns to public.	Link: Refer to Major EPA Guidance related to environmental factors See also: SPP 4.1 *State Industrial Buffer* (Amended) (Draft) SPP 4.3 *Poultry Farms* SPP 5.1 *Land Use Planning in the Vicinity of Perth Airport* SPP 5.4 *Road and Rail Transport Noise and Freight Considerations in Land Use Planning*	State *Environmental Protection Act 1986* (Part V – Works Approvals and Licences)

Examples of environmental aspects	Examples of impacts	Receiving environment	Guidelines and policy	Regulatory processes
HERITAGE *To ensure that historical and cultural associations and natural heritage are not adversely affected.*				
• Destruction of built environment • Demolition or vibration activities • Prevention or change in accessibility to a site • Change in cultural and heritage association • Those land activities described in schedule 1 of the Department of Aboriginal Affairs Due Diligence Guidelines.	• Disturbance to heritage or aboriginal heritage site • Removal of heritage site • Reduction in land access.	For example: • proximity to site of aboriginal importance or significance • previously granted consent to access • previous surveys or heritage studies carried out (previous aboriginal surveys should be submitted to the Department of Aboriginal Affairs) • Site listings (refer to Heritage Lists and Department of Aboriginal Affairs online Register) • list the site, the cultural association with Aboriginal people, the importance and significance or heritage importance • proximity of the site to the proposal • previous consents (or current application) under s 18 of the *Aboriginal Heritage Act 1972.*	Link: Refer to Major EPA Guidance related to environmental factors See also: GS33 - Environmental Guidance for Planning and Development GS49 – Assessment of development proposals in Shark Bay World Heritage Property DAA Aboriginal Heritage Due Diligence Guidelines DAA Heritage register of sites (i.e. star pickets, grave sites) Aboriginal Heritage Inquiry System World Heritage List National Heritage List Commonwealth Heritage List Register of National Estate Heritage Council of WA Local government heritage lists	State: *Aboriginal Heritage Act 1972*[1] Aboriginal Heritage Regulations 1974 Historical SPP3.5 *Heritage of Western Australia Act 1990* *Environment Protection and Biodiversity Act 1999*, *Maritime Archaeology Act 1973* *Conservation and Land Management Act 1984* *Environmental Protection Act 1986* Federal: *Historic Shipwrecks Act 1976* *Australian Heritage Council Act 2003* [1] In particular s5, s15 and s18. If surveys have been undertaken provide details of methods and provide copies of surveys to DAA (s15 may apply).

Examples of environmental aspects	Examples of impacts	Receiving environment	Guidelines and policy	Regulatory processes
HUMAN HEALTH *To ensure that human health is not adversely affected.*				
• Discharges and dust • Allowing public access to areas of contaminated sites • Allowing public access to potentially dangerous areas following decommissioning of the mine (e.g. swimming in pit lakes).	• Contamination of drinking water • Release of dust particulates or harmful emissions into environment • Noise emissions that exceed the assigned levels in the Environmental Protection (Noise) Regulations 1997.	For example: • nearby sensitive receptors which may be impacted, such as nearby residents and schools • resources utilised for public health such as drinking water supply or recreational areas	Link: Refer to Major EPA Guidance related to environmental factors See also: World Health Organisation Guidelines	State: Health Impact Assessment in Western Australia – Discussion Paper and Summary Document (2007). Department of Health *Health Act 1911* *Contaminated Sites Act 2003*
INTEGRATING FACTORS				
OFFSETS *To counterbalance any significant residual environmental impacts or uncertainty through the application of offsets.*				
• Land clearing • Groundwater drawdown • Disturbance of marine benthic habitat.	Offsets are used where there is a significant residual environmental impact to a specific factor that cannot be managed with the mitigation hierarchy.	All environments can be impacted. Includes both onsite and offsite impacts. Information expected to be included: • Outline the mitigation actions for each of the factors impacted (For an API, these need to be addressed in the referral) • Significant residual impacts that will remain after applying the mitigation hierarchy (including rehabilitation).	Link: Refer to Major EPA Guidance related to environmental factors WA Environmental Offsets Policy WA Environmental Offsets Guidelines	State: *Environmental Protection Act 1986* (Part IV and Part V)

Examples of environmental aspects	Examples of impacts	Receiving environment	Guidelines and policy	Regulatory processes
REHABILITATION AND DECOMMISSIONING *To ensure that premises are decommissioned and rehabilitated in an ecologically sustainable manner.*				
High risk elements of a mine closure that could cause irreparable damage to the environment or require many years of corrective actions to repair the impact Infrastructure that needs to be decommissioned Acid and metalliferous drainage; mine pit lakes; radioactivity; or dispersive materials	• Removal of habitat for conservation significant fauna • Removal of a wetland	For example: • Areas with an existing or intended conservation purpose (e.g. Parks and Wildlife-managed land) • Areas within or near human amenity or activity, agriculture or heritage sites • Maintenance and management of rehabilitated sites • Measures to avoid the formation of pit lakes post-closure An example where this Factor may not apply is a mining proposal on any Parks and Wildlife -managed land, where an agreement between the DMP and Parks and Wildlife will ensure that the land will be returned to a certain condition.	Link: Refer to Major EPA Guidance related to environmental factors	State: Refer to Section 2.1 of Mine Closure Guidelines

APPENDIX 3

EPBC Act Protected Matters Search Report

Australian Government

Department of the Environment

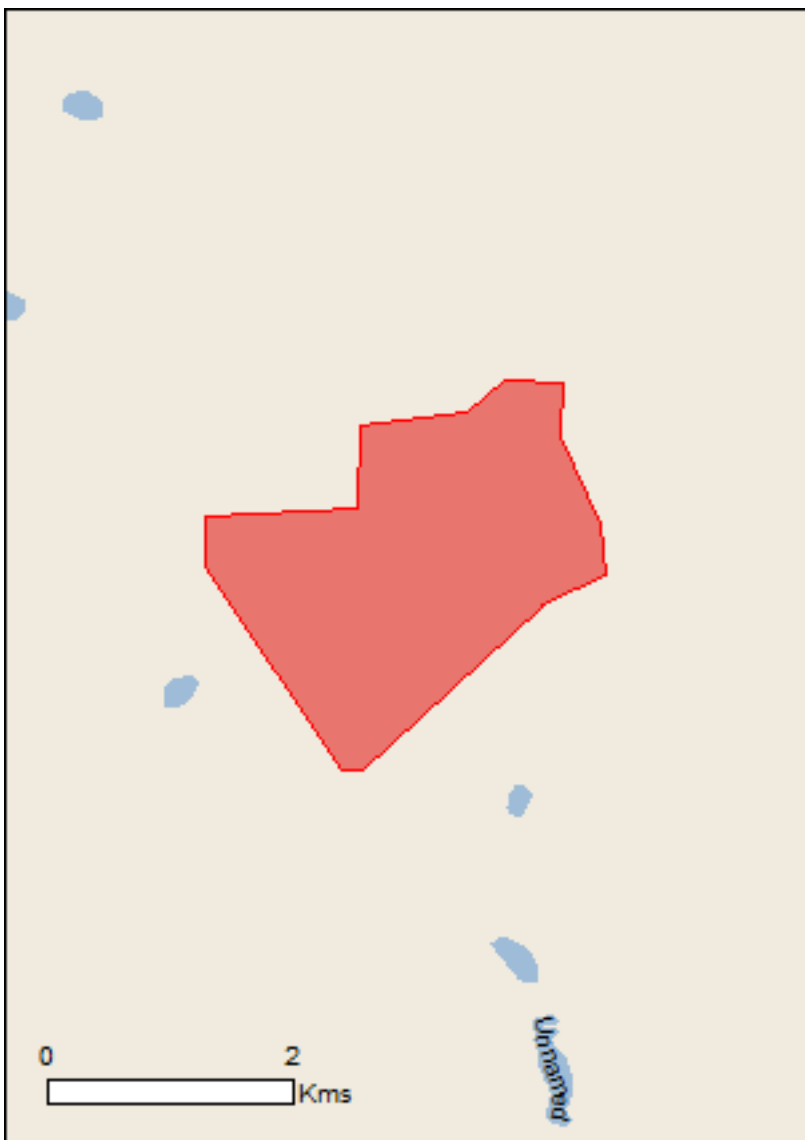
EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

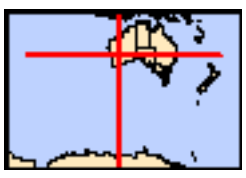
Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

Report created: 13/02/15 17:47:02



Coordinates

Buffer: 0.0Km



Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Areas:	None
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	4
Listed Migratory Species:	4

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place and the heritage values of a place on the Register of the National Estate.

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	4
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Commonwealth Reserves Marine	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

Place on the RNE:	None
State and Territory Reserves:	None
Regional Forest Agreements:	None
Invasive Species:	6
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Listed Threatened Species		[Resource Information]
Name	Status	Type of Presence
Birds		
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area
Mammals		
Dasyurus geoffroii Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat may occur within area
Plants		
Ricinocarpos brevis [82879]	Endangered	Species or species habitat likely to occur within area
Tetratheca paynterae Paynter's Tetratheca [66451]	Endangered	Species or species habitat may occur within area

Listed Migratory Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Migratory Wetlands Species		
Ardea alba Great Egret, White Egret [59541]		Species or species habitat likely to occur within area

Name	Threatened	Type of Presence
Ardea ibis		
Cattle Egret [59542]		Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Birds		
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba		
Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Ardea ibis		
Cattle Egret [59542]		Species or species habitat may occur within area
Merops ornatus		
Rainbow Bee-eater [670]		Species or species habitat may occur within area

Extra Information

Invasive Species	[Resource Information]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence

Name	Status	Type of Presence
Mammals		
Capra hircus Goat [2]		Species or species habitat likely to occur within area
Equus caballus Horse [5]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Carrichtera annua Ward's Weed [9511]		Species or species habitat likely to occur within area

Coordinates

-30.36682 120.09408,-30.36689 120.09399,-30.37729 120.08098,-30.37725 120.07934,
-30.36434 120.06939,-30.36125 120.06948,-30.36073 120.08055,-30.35553 120.0807,
-30.35466 120.08854,-30.35257 120.09135,-30.3527 120.09556,-30.35618 120.09546,
-30.36169 120.09844,-30.36488 120.09878,-30.36682 120.09408

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World Heritage and Register of National Estate properties, Wetlands of International Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under 'type of presence'. For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Department of Environment, Climate Change and Water, New South Wales
-Department of Sustainability and Environment, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment and Natural Resources, South Australia
-Parks and Wildlife Service NT, NT Dept of Natural Resources, Environment and the Arts
-Environmental and Resource Management, Queensland
-Department of Environment and Conservation, Western Australia
-Department of the Environment, Climate Change, Energy and Water
-Birds Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-SA Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Atherton and Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
-State Forests of NSW
-Geoscience Australia
-CSIRO
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact Us page.

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APPENDIX 4

Institutional Control Periods

Summary of Overseas Near-surface Disposal Facilities and the Institutional Control Periods Applied

The Nuclear Energy Agency (NEA) document *Low-Level Radioactive Waste Repository An Analysis of Costs* (1999) indicates 9 countries operate or planned to operate near-surface disposal facilities (Table A). NEA (1999) state that most countries have plans to apply institutional control periods after closure of near-surface disposal facilities and their durations range from 100 years to 300 years. The Institutional Control Period for operating near-surface disposal facilities around the world is listed in Table A.

TABLE A: INSTITUTIONAL CONTROL PERIODS AT NEAR-SURFACE FACILITIES

Country	Near-Surface Disposal Facility	Institutional Control Period
Australia	Mount Walton East Intractable Waste Disposal Facility, located 140 km northwest of Kalgoorlie, Western Australia.	103 years (1992 to 2095)
Belgium	No site selected at the time of publication.	Planned 200–300 years
Canada	No site selected at the time of publication.	Not established
Czech Republic	Dukovany, Richard and Bratrstvi facilities	300 years
France	L'Aube and La Manche Facilities.	300 years
Hungary	Puspokszilagy Facility	100 years
Japan	Rokkasho No 1 and Rokkasho No 2 Facilities	300 years
Spain	El Cabril Centralised Waste Disposal Facility	300 years
United Kingdom	National Low Level Waste Repository	100 years

Sources: NEA (1999), ENRESA (2009), LLW Repository Ltd (2011)

REFERENCES

ENRESA (2009) The El Cabril installations and their operation, available at: http://www.enresa.es/activities_and_projects/low_and_intermediate_wastes/el_cabril_installations_and_their_operation

LLW Repository Ltd (2011) The 2011 Environmental Safety Case Assessment of Long-term Radiological Impacts, available at: http://llwrsite.com/wp-content/uploads/2013/04/Assessment-of-Long-term-Radiological-Impacts.pdf

Nuclear Energy Agency (NEA) (1999) *Low-Level Radioactive Waste Repository An Analysis of Costs,* available at: https://www.oecd-nea.org/rwm/reports/1999/low-level-waste-repository-costs.pdf