



GLOSSARY

Absorbed dose	Quantity of energy imparted by ionizing radiation to unit mass of matter such as tissue. Unit gray, symbol Gy. 1 Gy = 1 joule per kilogram.
Activity	Attribute of an amount of a radionuclide. Describes the rate at which transformations occur in it. Unit becquerel, symbol Bq. 1 Bq = 1 transformation per second.
Anthropogenic	As an adjective - caused by humans. Anthropogenic radiation is radiation caused by human activity.
Aquifer	An underground layer of permeable rock, sediment or soil that yields water.
Becquerel (Bq)	See activity
Cell	An excavation or cut made beneath the ground for the purpose of encapsulating waste.
Chemical waste	See definition for 'controlled waste'.
Clean fill	Material that would have no harmful effects on the environment and which consists of rocks or soil arising from the excavation of undisturbed material.
Consequence	Includes cascade effects and impacts on the organisation's business and activities arising from environmental-related issues (e.g. regulatory fines, clean-up costs, and damaged reputation as well as enhanced reputation, continued licence to operate, and regulatory approvals).
Controlled waste	Any matter that is: (a) within the definition of waste in the National Environment Protection (Movement of Controlled Waste between States and Territories) Measure 1998 (NEPM) for the Movement of Controlled Waste between States and Territories (b) listed in Schedule 1 of the Environmental Protection (Controlled Waste) Regulations 2004.
Customer – kaolin	The buyer of Tellus' kaolin minerals.
Customer – waste	The owner of the waste. This may include a Waste Management Contractor company.



Proposed development envelope	Maximum area within which the disturbance footprint would be located.
Disposal/Permanent Isolation	Final stage in the management of the waste stream.
Dose	General term for quantity of ionizing radiation. See absorbed dose, equivalent dose, effective dose and collective effective dose. Frequently used for effective dose.
Dyke	Igneous rock that is often orientated vertically or steeply inclined to the bedding of pre-existing intruded rocks.
Ecological linkage	A series of (both contiguous and non-contiguous) patches of native vegetation which, by virtue of their proximity to each other, act as stepping stones of habitat which facilitate the maintenance of ecological processes and the movement of organisms within, and across, a landscape.
Effective dose	The quantity obtained by multiplying the equivalent dose to various tissues and organs by a weighting factor appropriate to each and summing the products. Unit sievert, symbol Sv. Frequently abbreviated to dose.
Electromagnetic radiation	Radiation that can be considered as a wave of electric and magnetic energy travelling through a vacuum or a material. Examples are gamma rays, x-rays, ultraviolet radiation, light, infrared radiation and radiofrequency radiation.
Encapsulation	The process of enclosing a waste within a secure container such as to render it acceptable for long-term permanent isolation.
Environmental aspect	Element of an organisation's activities, products or services that can interact with the environment.
Environmental impact	Any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation's activities, products or services.
Evaporation	Process of a substance in a liquid state changing to a gaseous state due to an increase in temperature and/or pressure.
Evapotranspiration	Process by which water is transferred from the land to the atmosphere by evaporation from the soil and other surfaces and by transpiration from plants.
Facility – Sandy Ridge	The Proposal is to develop a dual revenue business comprising an open cut kaolin mine that would produce up to 290,000 tonnes per annum (tpa) of ore, and up to 40,000 tpa of mostly ceramics for the Asian export market from an onsite



kaolin processing plant, and would use the voids resulting from mining for the secure storage, recovery of valuable materials and permanent isolation of up to 100,000 tpa of hazardous and intractable waste using a best practice safety case.

Flux	A vector quantity, describing the magnitude and direction of the flow of a substance or property.
Half-life	The time taken for the activity of a radionuclide to lose half its value by decay. Symbol $t_{1/2}$.
Hazard	Source of potential harm.
Hazardous waste	Component of the waste stream which by its characteristics poses 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).
High level waste	Has high levels of activity that generates significant quantities of heat by radioactive decay that needs to be considered in the design of a facility.
Hydraulic conductivity	The volume of liquid that flows through a unit area of porous medium for a unit hydraulic gradient normal to that area.
Hydrogeology	The study of subsurface water, including its physical and chemical properties, geological environment, its role in geologic processes, natural movement, recovery, contamination and utilisation.
Hydrology	The study of the waters of the Earth.
Indurated	Hardening of rocks by heat or baking; also, the hardening of sediments through cementation or compaction, or both, without the introduction of heat.
Infiltration	To pass into or through (a substance) by filtering or permeating.
Institutional control period	Following closure of the disposal facility, public access to, or alternative use of, the site shall be restricted for a predetermined period of time. See proposal description and/or National Health and Medical Research Council (NHMRC) 1992.
Intermediate level waste	Contains increased quantities of long-lived radionuclides and needs an increase in the containment and isolation barriers compared to low level radioactive waste. Intermediate level waste needs no provision for heat dissipation during storage



and disposal. Long-lived radionuclides such as alpha emitters would not decay to a level of activity during the time for which institutional controls can be relied upon.

Intractable waste	Waste which is a management problem by virtue of its toxicity or chemical or physical characteristics, which makes it difficult to dispose of or treat safely, and is not suitable for disposal in Class I, II, III and IV landfill facilities.
Kaolinite	Kaolinite is a clay mineral, and part of the group of industrial minerals with the chemical composition $\text{Al}_2\text{Si}_2\text{O}_5(\text{OH})_4$. Kaolinite is also known as kaolin or China clay. Kaolinite has a low shrink–swell capacity, low permeability and a low cation exchange capacity, which makes it suitable for waste encapsulation. It is a soft, earthy, usually white mineral. Kaolin is also widely used in the paper, ceramics, paint, plastic and fibreglass industries.
Leachability	The state of being leachable.
Leachable	Capable of being removed from a substance by a percolating liquid.
Leachate	Any liquid that in the course of passing through matter, extracts soluble or suspended solids, or any other component of the material through which it has passed.
Legacy waste	Waste physically accepted onto the premises of a waste diversion facility before 1 July 2012 that would otherwise have entered landfill.
Likelihood	The chance of something happening, whether defined, measured or determined objectively or subjectively, qualitatively or quantitatively, and described using general terms or mathematically.
Low level radioactive waste	May include short-lived radionuclides at higher levels of activity concentration, and also long-lived radionuclides, but only at relatively low levels of activity concentration. LLW covers a very wide range of radioactive waste, from waste that does not require any shielding for handling or transportation up to activity levels that require more robust containment and isolation periods of up to a few hundred years. LLW is generated in industry, hospitals and nuclear facilities and comprises contaminated laboratory items such as paper, clothing, plastic and glassware, soil, smoke detectors, medicinal and industrial materials.
Macropore	Any pore sufficiently wide enough to allow water to flow unimpeded by capillary action.



Mining spoil/overburden	The material that lies above an area that lends itself to economical exploitation, such as the rock, soil and ecosystem that lies above an ore body.
Natural uranium	Uranium as it occurs in nature, having an atomic weight of approximately 238, and containing minute quantities of Uranium-234 (about 0.7%), Uranium-235 and 99.3% Uranium-238.
Nuclear action	Means any of the following: (a) establishing or significantly modifying a nuclear installation (b) transporting spent nuclear fuel or radioactive waste products arising from reprocessing (c) establishing or significantly modifying a facility for storing radioactive waste products arising from reprocessing (d) mining or milling uranium ore (e) establishing or significantly modifying a large-scale disposal facility for radioactive waste (f) de-commissioning or rehabilitating any facility or area in which an activity described in paragraphs (a), (b), (c), (d) or (e) has been undertaken (g) any other action prescribed by the regulations.
Nuclear material	Depleted uranium, enriched uranium, low enriched uranium, highly enriched uranium, Uranium-233 or plutonium (defined in the PER body). Does not include natural uranium and thorium.
Nuclear waste	Nuclear waste means material: a) that is or contains a radioactive substance; and b) that: a. is a waste of a nuclear plant b. results from the testing, use or decommissioning of nuclear weapons.
Pegmatite	Intrusive felsic igneous rocks that form during the final stage of a magma's crystallisation. They are extreme because they contain exceptionally large crystals and they sometimes contain minerals that are rarely found in other types of rocks.
Permeability	The ease with which a porous medium can transmit water or other fluids.
Phenocrysts	Mineral crystals in an igneous rock that stand out because of their large size.
Pit	An excavation or cut made at the surface of the ground for the purpose of extracting ore and which is open to the surface for the duration of the mine's life.



Plutonium	A radioactive element with atomic number 94 and symbol Pu.
Porosity	The ration, expressed as a percentage, of the volume of the pores or interstices of a substance, as a rock or rock stratum, to the total volume of the mass.
Priority species	Possibly threatened species that do not meet the survey criteria, or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened flora or fauna.
The Proposal	A project, plan, program, policy, operation, undertaking or development or change in land use, or amendment of any of the foregoing, but does not include a scheme.
Radiation	The process of emitting energy as waves or particles. The energy thus radiated. Frequently used for ionizing radiation except when it is necessary to avoid confusion with non-ionizing radiation
Radioactive	Possessing the property of radioactivity.
Radioactive substance	Any substance, whether natural or artificial, and whether in the form of a solid, a liquid, a gas, or a vapour, or any compound or mixture, including any article that has been manufactured or subjected to any artificial treatment or process, which consists of or contains more than the maximum prescribed concentration of any radioactive element, whether natural or artificial.
Radioactive waste	Useless material containing radionuclides. Categorised in according to activity (and other criteria such as half-life) as exempt, low level, intermediate level and high level waste.
Radionuclide	An unstable nuclide that emits ionizing radiation.
Register	Tellus' register of Transport Contractors who are approved for transport of hazardous wastes to the Sandy Ridge site.
Risk	The effect of uncertainty on objectives.
Risk source	A tangible or intangible element that alone or in combination has the intrinsic potential to give rise to risk.
Saline	Water that contains a significant concentration of dissolved salts (mainly sodium chloride).



Saprolite	A weathering product produced by chemical weathering of crystalline rock (e.g. granite).
Sensitive receptor	Can be a natural feature, such as a water source, a rare, threatened or endangered flora or fauna. It can also be a human feature such as a school or a hospital.
Sievert (Sv)	The SI unit of dose equivalent (the biological effect of ionizing radiation), equal to an effective dose of a joule of energy per kilogram of recipient mass.
Silcrete	An indurated duricrust (hard layer) formed when surface materials are cemented by precipitated silica.
Subsidence	The downward vertical movement of the surface.
Thorium (natural)	A radioactive element with atomic number 90 and symbol Th. Naturally occurring thorium consists only of the fertile isotope thorium 232.
Threatened species	A species listed as extinct in the wild, critically endangered, endangered or vulnerable under either the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act) or the <i>Wildlife Conservation Act 1950</i> (WC Act).
Transport contractor	A commercial freight service company. The Transport Contractor includes the principal company, all vehicles and operators and independent subcontractors.
Type 1 inert waste	Non-hazardous, non-biodegradable (half-life greater than two years) wastes containing contaminant concentrations less than Class I landfill acceptance criteria but excluding paper and cardboard (paper and cardboard are biodegradable materials and are therefore considered as putrescible waste), and materials that require treatment to render them inert (e.g. peat, acid sulfate soils).
Type 1 special waste	Waste which includes asbestos and asbestos cement products.
Type 2 inert waste	Waste consisting of stable non-biodegradable organic materials such as tyres and plastics which require special management to reduce the potential for fires.
Type 2 special waste	Waste consisting of certain types of biomedical waste which are regarded as hazardous but which, with the use of specific management techniques, may be disposed of safely within specified classes of landfill.



Ultraviolet radiation	Electromagnetic radiation found between x-rays and light in the electromagnetic spectrum. Has subregions UVA, UVB, UVC
UV radiation	See ultraviolet radiation
Very low level waste	Does not need a high level of containment and isolation. Concentrations of longer-lived radionuclides in very low level waste are generally very limited. Typical waste in this class includes soil and rubble with low activity concentration levels. Substantial amounts of waste arise from the operation of medical, industrial or research facilities with activity concentration levels in the region of or slightly above the levels specified for the exemption of material from regulatory control. Other such waste, containing naturally occurring radionuclides, may originate from the mining or processing of ores and minerals.
Very short lived waste	Waste with a very short half-life. This is mainly hospital waste, containing very-short-lived radionuclides (i.e. with half-lives that are less than 100 days), used for diagnostic or therapeutic purposes. Because of their very short half-lives, this waste is stored temporarily, for a period ranging from several days to several months and long enough for their radioactivity to decay. It is then disposed of as conventional waste.
Vug	A small cavity in a rock or vein, often with a mineral lining of different composition from that of the surrounding rock.
Waste management	The control of waste from creation to disposal.
Wavelength	The distance between successive crests of an electromagnetic wave passing through a given material. Unit metre, symbol m.
X-ray	A discrete quantity of electromagnetic energy without mass or charge. Emitted by an x-ray machine.