



The Chandler Proposal - Waste acceptance criteria

What does Waste Acceptance Criteria mean?

Waste Acceptance Criteria (WAC) are a set of strict rules that only allow licensed waste types to be accepted at the Apirnta and Chandler Facilities.

All wastes would be licensed and regulated under the NT *Waste Management Pollution Control Act* and Regulations.

Why is it important to have a WAC?

WAC will help achieve safe operation for workers, members of the public and long term environmental protection. The WAC have been developed following internationally recognised best practice and set out waste characteristics that would not be suitable for storage or disposal in a geological repository (the proposed Chandler Facility).

What does the WAC exclude?

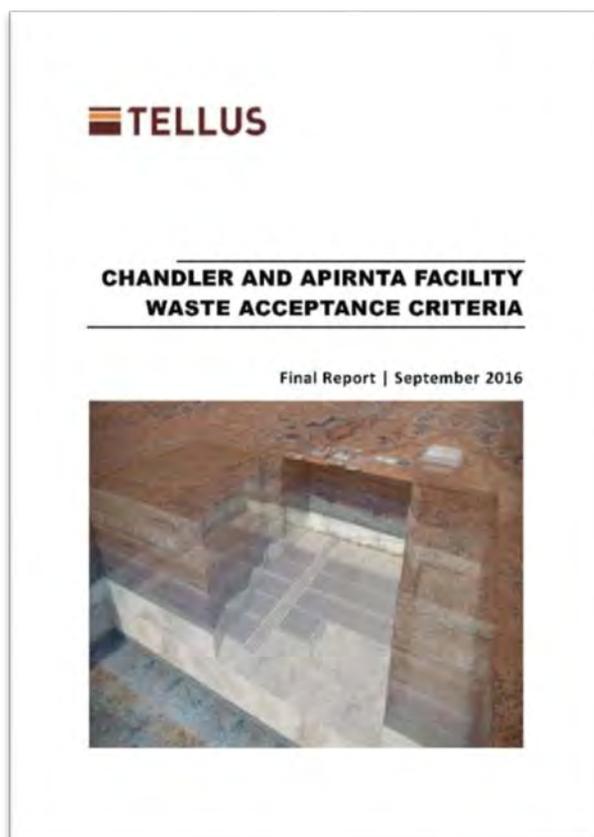
Wastes that are gases, highly corrosive, highly oxidising, infectious or uncertified would not be accepted under any circumstances.

Tellus will not accept nuclear waste or waste that comes from uranium mining.

What does the WAC include but only with pre-treatment?

Wastes that are liquids or sludges, explosive, flammable liquids or solids, self-combusting, generate a gas-air mixture that is toxic or explosive, biodegradable, tyres, could release free liquid or react with the host geology would not normally be accepted.

However, they may be accepted if they can be stabilised, solidified or modified in such a way that they would not affect the operational or post closure safety of the proposed Chandler Facility.



Waste Acceptance Criteria have been developed for the proposed Apirnta Facility and Chandler Facility



What is NORM?

NORM means Naturally Occurring Radioactive Material which contains radionuclides which come from the natural environment.

Would NORM waste be accepted?

Yes, but only to Exempt Levels as defined by the Commonwealth Regulatory body ARPANSA. These levels are very low and would exclude many wastes.

What radioactive waste would not be accepted?

Wastes that are not NORM and/or have activity levels greater than Exempt Level will not be accepted. Uranium mining waste or nuclear waste will not be accepted.

Is there a risk to people?

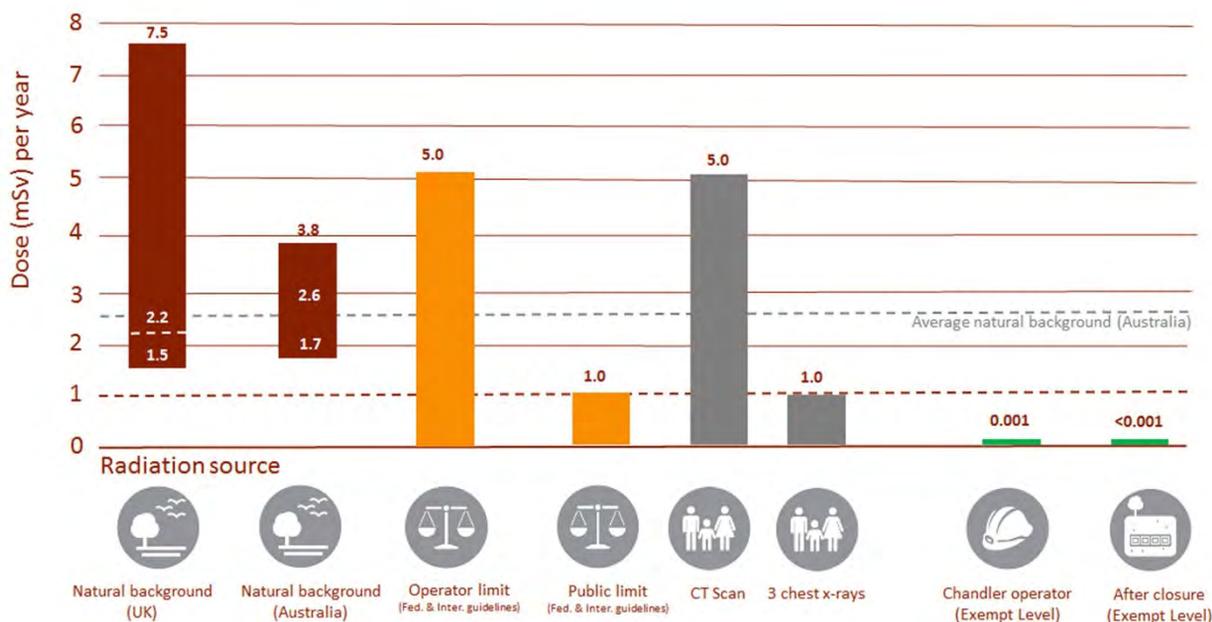
A worker at the proposed Chandler Facility working with Exempt Level NORM would receive (at maximum) an annual dose which is less than 0.04% of the dose that an average Australian receives in a year.

What procedures would be undertaken during waste acceptance?

Waste would have to pass through three stages of testing as part of the waste acceptance procedure to characterise the waste and confirm it is suitable for the facility.

Testing would ensure that any hazardous characteristics are identified and that unacceptable wastes are excluded.

This would be done before waste could be received for temporary storage at the Apirnta Facility or for storage or permanent isolation at the Chandler Facility.



NORM to Exempt (EW) Level. According to ARPANSA *Radiation Protection Series No. 20* Exempt materials contains such small concentrations of radionuclides that it does not require provisions for radiation protection irrespective of whether the waste is disposed of in conventional landfills or recycled.

Such material is exempt from regulatory control and does not require any further consideration from a regulatory control perspective.

Radioactive waste containing naturally occurring radionuclides arise from the extraction and/or processing of other materials that happen to be rich in naturally occurring radioactive materials; these materials include for example phosphate minerals (fertilizer), mineral sands, some gold bearing rocks, coal, and hydrocarbons.

CHANDLER PROPOSAL– SAFETY CASE AND WASTE ACCEPTANCE CRITERIA

INDUSTRY WASTE SOURCE		BEST PRACTICE SAFETY CASE	
✓	Mining and Oil and gas	✓	Certified Management System
✓	Utilities (power supply, water supply, waste collection, treatment and disposal services)	✓	Regulated packaging and transport systems
✓	Manufacturing (heavy industry, chemical industry, equipment and machinery)	✓	Strict waste characterisation and acceptance criteria
✓	Agriculture, forestry and fisheries	✓	Multiple man-made barriers ('engineered barrier')
✓	State Emergency Service (man made or natural disasters)	✓	Thick 500 million year old, dry salt bed ('geological barrier')

TYPICAL CONTAINER TYPES



Hazardous waste accepted and not accepted at the proposed Chandler Facility

Type of hazardous chemical wastes	Accepted on-site for surface storage	Accepted in underground voids
Chemical wastes subject to meeting the characteristics criteria below	✓	✓
Liquid and sludges	✓	✓ ¹
Explosive wastes	✓	✗ ²
Flammable liquids or solids	✓	✗ ²
Self-combusting wastes or wastes that can generate a gas-air mixture which is toxic or explosive	✓	✗ ²
Highly corrosive or oxidizing	✓	✗ ²
Gases	✗	✗
Clinical waste (infectious hospital waste and body parts)	✗	✗
Municipal solid waste (putrescible household and commercial waste)	✗	✗
Putrescible waste (household rubbish that can rot)	✗	✗
Uncertified waste (which cannot be identified)	✗	✗
Reacts with the repository geology (such as dissolving it or producing a gas)	✗	✗
Naturally Occurring Radioactive Material (NORM) up to Exempt level ³ (Includes fertiliser and minerals sands, but excludes uranium mining waste)	✓	✓
Low level radioactive waste (e.g. smoke detectors, exit signs, industrial gauges and medical isotopes)	✗	✗
Intermediate level radioactive waste (e.g. reprocessed spent nuclear fuel and components with high levels of radioactivity)	✗	✗
High level radioactive waste (e.g. from power generation and defense use)	✗	✗

Note: ✓ = accepted, ✗ = not accepted, ✓

✓¹ = normally excluded but could be used in hydraulic backfill processing

✗² = Normally excluded unless modified before /during disposal so the operational post closure safety of the cell and facility is not compromised

³. Exemption activity levels defined as per *The National Directory for Radiation Protection, February 2014 (RPS 6)*.



email info@tellusholdings.com

www.TellusHoldings.com

TELLUS