



Annual Audit Compliance Report Form

Environmental Protection Act 1986, Part V

Section A – Licence Details			
Licence number:	L9420/2020/1	Licence file number:	DER2020/000039
Licence holder:	Tellus Holdings Ltd		
Trading as:	Tellus Holdings Ltd		
ACN:	138 119 829		
Registered address:	Suite 2, level 10, 151 Castlereagh Street SYDNEY NSW 2000		
Reporting period:	01/07/2020 to 31/06/2021		

Section B – Statement of Compliance with Licence Conditions
Did you comply with all of your licence conditions during the reporting period? (please tick the appropriate box)
<input type="checkbox"/> Yes – please complete: <ul style="list-style-type: none">• section C;• section D if required; and• sign the declaration in Section F.
<input checked="" type="checkbox"/> No – please complete: <ul style="list-style-type: none">• section C;• section D if required;• section E; and• sign the declaration at Section F.

Section C – Statement of Actual Production	
Provide the actual production quantity for this reporting period. Supporting documentation is to be attached.	
Prescribed Premises Category	Actual Production Quantity
Category 61: Liquid Waste Facility Category 61A: Solid Waste Facility Category 65: Class IV secure landfill site Category 66: Class V intractable landfill site	Total waste received – 5715 t Treated liquid waste disposed to cell - 632 t

Section D – Statement of Actual Part 2 Waste Discharge Quantity	
Provide the actual Part 2 waste discharge quantity for this reporting period. Supporting documentation is to be attached.	
Prescribed Premises Category	Actual Part 2 Waste Discharge Quantity
Not applicable	

Section E – Details of Non-Compliance with Licence Condition

Please use a separate page for each condition with which the licence holder was non-compliant at a time during the reporting period.

Condition no:	7	Date(s) of non-compliance:	23/3/21 – 21/04/21
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Details of non-compliance:

Between 23 March and 21 April 2021, Tellus emptied power poles from 12 half-height sea-containers into the Facility’s approved East Yard (Solids) Storage Area for temporary storage. The power poles were placed on a compacted kaolinised granite pad approximately half a metre thick and bunded on all sides, designed to contain any precipitation that might occur. The waste was stored for a period of 21 days before being permanently placed into Cell 1. Tellus’ proposed temporary coverage solution (which had previously worked in compliance with the requirement) was unable to be implemented for safety reasons (staff were unable to safely access the pile to place the proposed covers). Refer to Photograph below showing the uncovered poles (non-compliant) next to fully enclosed pile (compliant).



What was the actual (or suspected) environmental impact of the non-compliance?

NOTE – please attach maps or diagrams to provide insight into the precise location of where the non-compliance took place.

It is believed that there was zero environmental impact.

The decision to remove poles from containers at the Facility was after an assessment of the risk to the environment posed by the poles, finding the risk to the environment to be minimal, particularly given the controls of the pad and bunding in an approved engineered storage area.

The tail-end of cyclone Seroja came through the Goldfields region, resulting in approximately 7mm of recorded rain at the Facility. There was no emission or discharge from the power poles temporary storage as rainfall was captured in the kaolinised granite bund (the temporary storage bund was observed by site staff to be barely damp following the light rain event).

Cause (or suspected cause) of non-compliance:	
<p>The reason for removing the power poles from the sea-containers was supply chain issues: an Australia-wide shortage of sea containers, a knock-on effect of the global COVID-19 pandemic, prevented the client from obtaining containers for power poles at their end. Hence the need for Tellus to return containers that were already at the Facility.</p>	
Action taken to mitigate any adverse effects of non-compliance and prevent recurrence of the non-compliance:	
<p>Tellus has identified that better planning and risk assessment is required when managing change. We are undertaking a full investigation, including reviewing and revising Tellus' change management procedure and a forum with all involved parties. Going forward, Tellus may liaise with DWER to identify alternative practical methods for storing bulky low-risk solid items above-ground prior to permanent disposal in the cell.</p>	
Was this non-compliance previously reported to DWER?	
<input checked="" type="checkbox"/> Yes, and	
<input checked="" type="checkbox"/> Reported to DWER verbally	Date: 30/04/2021
<input checked="" type="checkbox"/> Reported to DWER in writing	Date: 30/04/2021

Section E – Details of Non-Compliance with Licence Condition

Please use a separate page for each condition with which the licence holder was non-compliant at a time during the reporting period.

Condition no:	15	Date(s) of non-compliance:	25/08/2021
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Details of non-compliance:

Fourteen deliveries of PFAS contaminated liquid were received at the Sandy Ridge facility between the 17 May and 10 June 2021. This material is being progressively treated through the Waste Immobilisation Plant (WIP) to solidify and immobilise the liquid waste so that no leachate will be generated. Condition 15 of the licence specifies that PFAS liquid waste shall be stabilised and solidified to meet a uniaxial compressive strength (UCS) of 0.5 MPa, a free liquid limit of <0.1% and a maximum PFAS concentration of 50 mg/kg.

An internal audit identified that results from analysis of the treated material indicate full compliance with the free liquid limit; however, records indicate that the UCS of 0.5 MPa was not consistently achieved prior to placement in the cell. Post-immobilisation verification sampling of batches 6, 7, 8, 17, 18 & 19 indicated 0.5 MPa UCS was achieved after (not prior to, as is required by Table 4 of L9240) the batch being disposed in Cell 1, as in the table below.

Treatment No.	Sample No.	Container	Date Of Sample	Date of Test	Time	Age	OPC %	Clay %	Waste %	USC (KN)	USC (MPa)	Pass/Fail (>0.5MPa)	Production (t)
6	19	CKTU1157023	22/05/2021	23/05/2021	9:00AM	24 Hours	5%	81%	14%	1.95	0.23	Fail	48.27
	20	CKTU1157023	22/05/2021	24/05/2021	9:00AM	48 Hours	5%	81%	14%	3.89	0.44	Fail	
7	21	CKTU1157023	22/05/2021	23/05/2021	10:05AM	24 Hours	5%	81%	14%	1.85	0.21	Fail	48.27
	22	CKTU1157023	22/05/2021	24/05/2021	10:05AM	48 Hours	5%	81%	14%	3.55	0.41	Fail	
8	23	CKTU1157023	23/05/2021	25/05/2021	4:00PM	48 Hours	5%	81%	14%	3.80	0.43	Fail	11.7
	24	CKTU1157023	23/05/2021	26/05/2021	4:00PM	72 Hours	5%	81%	14%	4.21	0.49	Fail	
17	41	CKTU1157527	31/05/2021	3/06/2021	8:36AM	72 Hrs	5%	81%	14%	2.79	0.32	Fail	47.66
18	42	CKTU1157527	31/05/2021	3/06/2021	11:00AM	72Hrs	5%	81%	14%	2.57	0.30	Fail	47.66
19	43	CKTU1157527	3/06/2021	5/06/2021	9:00AM	48Hrs	5%	81%	14%	3.88	0.45	Fail	23.95
	44	CKTU1157527	3/06/2021	6/06/2021	9:00AM	72Hrs	5%	81%	14%	4.19	0.48	Fail	
													131.58

What was the actual (or suspected) environmental impact of the non-compliance?

NOTE – please attach maps or diagrams to provide insight into the precise location of where the non-compliance took place.

It is believed that there is no environmental impact because all treated material is contained within the cell, had passed the free liquid test, and has subsequently set to become a hard solid, based on both observation and extrapolated data.

Cause (or suspected cause) of non-compliance:

The concept of testing waste disposal materials for a compressive strength is novel in the waste industry and to Tellus' knowledge is not done at any other facility in Australia. Use of this technique is still being refined, and the UCS strength is being found to vary significantly with time. This is directly related to the hydration rate of Portland Cement, which typically takes at least 21 days (depending on curing conditions) to achieve full strength (Figure 1). Tellus' analyses have been conducted at much shorter time periods (2 - 4 days), with the aim of identifying an 'early cure' UCS value which is of use when assessing the performance of a batch that is to be placed in the cell, without having to wait 21 – 28 days for a long-term result. Long-term (54 days) tests show the same recipes achieve a maximum strength of 1.2 – 1.23 MPa, which is believed to be 'full strength' for this particular recipe. The results from failed batches are all on similar strength vs time curves as other samples and a typical 'air cured' and 'wet-cured' concrete. Note that the typical concrete curves are offset on the UCS scale and are only used to illustrate hydration (or reaction) rates.

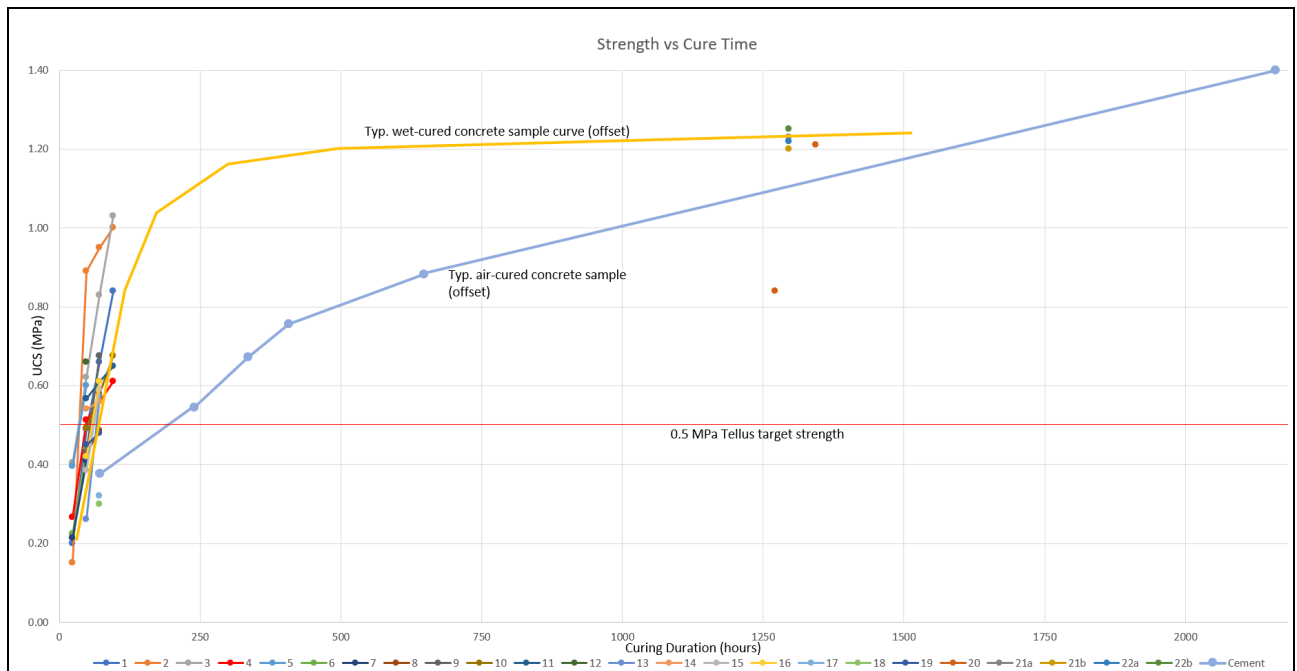


Figure 1. Concrete mixture strength with time

The licence condition does not specify a time period for attaining the specifications, and Tellus has no reason to expect that those batches (treated to the same recipe) would not achieve 0.5 MPa after 7 – 10 days of curing.

Action taken to mitigate any adverse effects of non-compliance and prevent recurrence of the non-compliance:

There are not believed to be any adverse effects of non-compliance at the test durations used. Evidence suggests that curing at the failed sample durations is incomplete and the 0.5 MPa is safely achieved at longer curing times.

Further work is ongoing to further understand the curing rate curve. Sampling variability and test method repeatability are other elements of this novel process which are still to be determined. The key waste immobilisation factor in Tellus' opinion is the free liquid test under a static load, which all batches have passed. The in-cell placed and cured immobilised material is noticeably harder and stronger than other dry solid wastes placed in the cell.

The 0.5 MPa target figure is based upon a sample of immobilised waste being placed at a cell depth of 30m and the resultant static load of other wastes and the cell cap placed above it. These loads can only exist after the cell is capped, which for cell 1 is expected to be at least 12 months into the future. In the meantime, only a fraction of the 0.5 MPa static load exists on the material.

Was this non-compliance previously reported to DWER?

No. This report is the first notification to DWER. Yes, and

Reported to DWER verbally

Date:

Reported to DWER in writing

Date:



Section E – Details of Non-Compliance with Licence Condition

Please use a separate page for each condition with which the licence holder was non-compliant at a time during the reporting period.

Condition no:	16	Date(s) of non-compliance:	25/08/2021
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Details of non-compliance:

Condition 16 b) of the licence specifies that the Licence Holder must prepare and document the waste immobilisation and treatment process(es) and the quality assurance/quality control procedures to be applied to each liquid waste stream. Trials were undertaken to prepare for the PFAS liquid waste immobilisation and treatment, and generic procedures had been established, for example, Chemical Treatment of Liquid Waste (SR-08.800) and Waste Sampling (SR-08.219); however, an internal audit identified that there was no consolidated documented process or procedures specific to PFAS liquid waste stream. Documented procedures are in place for sampling and testing in their own right and which are applicable to the equipment used in the immobilisation plant and geotechnical laboratory. The non-compliance arises from a lack of a single document specific to each waste stream requiring immobilisation which references other stand-alone procedures (sampling, testing, etc) and the pass / fail targets applicable, which themselves are flagged as 'pass/fail' by conditional formatting rules applied in the assay results spreadsheet.

What was the actual (or suspected) environmental impact of the non-compliance?

NOTE – please attach maps or diagrams to provide insight into the precise location of where the non-compliance took place.

This is an administrative non-compliance. It is believed that there is no environmental impact because all treated material is contained within the cell and has been adequately immobilised.

Cause (or suspected cause) of non-compliance:

The requirements of the licence to prepare and document procedures for each specific waste stream was not clearly understood by operational personnel.

Action taken to mitigate any adverse effects of non-compliance and prevent recurrence of the non-compliance:

The immobilisation process and QA/QC procedures for immobilising PFAS waste are being consolidated into a single documented procedure (our reference SR-08.811 Chemical Treatment of PFAS Waste) that addresses the requirements of Condition 16(b). Operational personnel will undergo competency-based training on the procedure.

Was this non-compliance previously reported to DWER?

No. This report is the first notification to DWER. Yes, and

Reported to DWER verbally

Date:

Reported to DWER in writing

Date:

Section E – Details of Non-Compliance with Licence Condition			
Please use a separate page for each condition with which the licence holder was non-compliant at a time during the reporting period.			
Condition no:	18	Date(s) of non-compliance:	25/08/2021
Details of non-compliance:			
<p>Condition 18 requires that the Licence Holder must ensure that where waste does not meet the specifications in Table 4 of the licence following processing in the Waste Isolation Plant (WIP), the waste is either reprocessed, or, stored in a Quarantined Storage Area or Container and removed to an appropriately authorised facility as soon as practicable.</p> <p>An internal audit identified that PFAS liquid waste processed through the WIP is placed in the Cell prior to verifying compliance with defined criteria. When results for the 0.5 MPa compaction density criteria were available indicating non-compliance, no further testing was undertaken to confirm compliance and material was left in-situ.</p>			
What was the actual (or suspected) environmental impact of the non-compliance?			
<p>NOTE – please attach maps or diagrams to provide insight into the precise location of where the non-compliance took place.</p>			
<p>It is believed that there is no environmental impact because all treated material is contained within Cell 1, and had passed the free liquids test.</p> <p>There is sufficient evidence supporting that the curing time before UCS testing was insufficient for the cement reaction to go to completion, and that the material would achieve full strength at some time greater than 7 days. There is no concern that the immobilised material would not reach its required strength given sufficient curing time. A static load greater than 0.5 MPa cannot be placed on the potentially non-compliant material until Cell 1 is full and capped, which is not expected to occur within the next 12 months.</p>			
Cause (or suspected cause) of non-compliance:			
<p>The WIP operates on a batch basis and operational process requirements necessitate that the treated material is placed in skips for handling purposes. As the material ‘sets’ with cement as part of the formulation, skips must be emptied before setting occurs and based on trial results indicating that required strength is achieved after several days of curing it was considered a lower risk option to place the material directly in the disposal cell prior to confirmation results being available, rather than store the material outside the cell and rehandle it after confirmation results were received.</p>			
Action taken to mitigate any adverse effects of non-compliance and prevent recurrence of the non-compliance:			
Sample curing times before UCS testing will be extended to allow for completion of the cement / water reaction.			
Was this non-compliance previously reported to DWER?			
<input checked="" type="checkbox"/> No. This report is the first notification to DWER. <input type="checkbox"/> Yes, and			
<input type="checkbox"/> Reported to DWER verbally		Date: / /	
<input type="checkbox"/> Reported to DWER in writing		Date: / /	

Section F – Declaration

I/We declare that the information in this Annual Audit Compliance Report is true and correct and is not false or misleading in a material particular¹. I/We consent to the Annual Audit Compliance Report being published on the Department of Water and Environmental Regulation’s (DWER) website.

Signature ² :		Signature:	
Name: (printed)		Name: (printed)	
Position:		Position:	
Date:		Date:	
Seal (if signing under seal):			

¹ It is an offence under section 112 of the *Environmental Protection Act 1986* for a person to give information on this form that to their knowledge is false or misleading in a material particular.

² AACRs can only be signed by the licence holder or an authorised person with the legal authority to sign on behalf of the licence holder.