

Engineering Certificate

Company name:	Oz-Tac Engineering		
Project:	Panel Tank Verification		
Job Number:	OZT0181	Revision:	0
Date of Issue:	28 April 2022	Pages:	2
Date of Expiry:	<ul style="list-style-type: none"> On revision of listed standards or regulations, where the change effects the basis of performance. On modification or addition by others, where the change affects original compliance. 		
Prepared by:	James Bailie		

Scope of Works:	Engineering verification of the 0167-A000 Panel Tank Family
Exclusions of Works:	<p>The following are excluded from this certification:</p> <ul style="list-style-type: none"> Engineering verification of the functional capacity of any system that may be connected or mounting to the panel tank. Verification regards structural assessment of the tank only. Engineering verification of OEM fitted components not listed under the Scope of Section 1 (Pipes, control units, lifting beams, strapping lugs, chains/cables, etc.) – Their ability to satisfy operational requirements and verification is covered by the client and OEM respectively. Engineering verification of the structure on to which the tank structure will be anchored. The analysis assumes the tank structure will be positioned and anchored to a suitably rated flat surface. Analysis has been performed to the level of detail provided, it does not consider additional detail that has been omitted from the supplied engineering data listed below.
Applicable Regulation:	<ul style="list-style-type: none"> Work Health and Safety Act 2011 Queensland
Basis of analysis:	<p>The relevant sections of the following standards were used as a basis for the analysis of the above equipment:</p> <p><u>Australian Standards</u></p> <ul style="list-style-type: none"> AS/NZS 1170.0-2002: Structural design actions – General principles AS/NZS 1170.2-2011: Structural design actions – Part 2: Wind Actions AS/NZS 3678-2011: Structural steel – Hot-rolled plates, floorplates and slabs AS/NZS 3990-1993: Mechanical equipment – Steelwork AS/NZS 1163-2016: Cold-formed structural steel hollow sections <p><u>American Petroleum Institute Standard</u></p> <ul style="list-style-type: none"> API STD 620-12th Edition: Design and Construction of Large, Welded, Low-Pressure Storage Tanks
Engineering data:	<p>The following engineering data was used for analysis against the above standards:</p> <ul style="list-style-type: none"> Panel Tank Drawing: 0167-A000-Panel Tanks.pdf 3D Model of Panel Tank: 0167-A000-Panel Tanks.STEP
Conditions of Certification:	<p>This Engineering Certificate forms part of the certification document pack, which can be defined as follows:</p> <ul style="list-style-type: none"> OZT0181-C220421-PANEL TANK CERTIFICATE-REVO – <i>This Document</i> OZT0181-R220421-PANEL TANK VERIFICATION REPORT-REVO <p>All requirements, conditions and limitations stipulated in these documents are to be considered in parallel and only through compliance to all is the structure verified as fit for purpose.</p> <p><u>Operating Conditions:</u></p> <ul style="list-style-type: none"> Maximum Working Fill Capacity = 9045 kL of Water (Or fluid with a SG of 1.05 or less). This is the maximum allowable volume of fluid that can be stored in the bladder installed in the tank structure. The panel tank has been assessed for a design working life of 25 Years against the maximum wind and static loading defined on this certificate. Wind Loading Conditions: <ul style="list-style-type: none"> A maximum rated wind speed = 75.264 ms^{-1}. Operation under cyclonic conditions in Region “C” of Australia, as per Section 3.2 of AS1170.2-2011. Wind Direction multiplier (M_d) = 1, as per Section 3.3 of AS1170.2-2011. Terrain Height Multiplier ($M_{z,cat}$) = 0.99 for Terrain Category 1 (TC3), as per Section 4.2 of AS1170.2-2011. Shielding Multiplier (M_s) = 1, as per Section 4.3 of AS1170.2-2011.

- Topographic Multiplier (M_t) = 1, as per Section 4.4 of AS1170.2-2011.
- Aerodynamic Shape Factor (C_{fig}) = -0.44 for the cylindrical wall, as per Appendix C of AS1170.2-2011


Manufacturing and Maintenance requirements:

- The panel tank is to be manufactured in accordance with client specifications outlined under '0167-A000.pdf'
- All structural steel components (100x5 SHS and 100PFC) are to be manufactured from a minimum grade of AS 1163-C350 Steel.
- All steel plate components are to be manufactured from a minimum grade of AS 3678-300 Steel.
- All welds to comply with the requirements of the client defined weld procedure, which has been drafted in accordance with AS 1554 GP requirements.
- This equipment will undergo minimum annual inspection by a competent person to ensure suitability for continued safe service. Any indication of critical flaws or risks to continued service (damage, wear, corrosion...) shall be further investigated and made good before returning to service.

Compliance Statement:

The engineering works undertaken have been performed with due care and diligence.

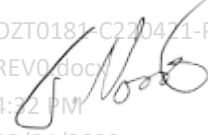
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James Bailie - Engineer
BEng (Mech)

Supervisors Statement:

The engineering works undertaken have been supervised with due care and diligence

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Joseph Norris – Director
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