

REVIEW OF DAM SAFETY CONDITIONS IN DEVELOPMENT PERMIT No. 176904 - REPORTING REQUIREMENTS

Background Information on the Development Permit:

- Initial development permit granted 31 October 2003
- There were 2 sets of changes made to the development permit however no change to dam safety conditions

Purpose of Table:

- The table lists the dam safety conditions only of the development permit and identifies which dam safety conditions have a ‘reporting’ requirement and the compliance with those conditions.

NOTE: Highlighted in **blue** indicates provided to Commission but not uploaded to portal. Highlighted in **green** is uploaded to portal.

DEVELOPMENT PERMIT No. 176904 – DAM SAFETY CONDITIONS

Condition	Reporting Requirement	Submitted to Department
<p>Condition DS 1 – Documentation</p> <p>1. Any documentation prepared in order to comply with these conditions must be stored securely until such time as the dam is decommissioned.</p> <p>2. The documentation must be made available for inspection by the Chief Executive, Department of Natural Resources and Mines, within 7 days of a written request for access being received by the dam owner.</p> <p>3. On change of ownership of the dam, all documentation prepared in compliance with these conditions must be transferred to the new owner.</p>	<p>Nil reporting required</p>	<p>Not applicable</p>
<p>Condition DS 2 - Incidents and Failures</p> <p>1. The dam owner must report in writing all incidents and failures (as defined in the Queensland Dam Safety Management Guidelines - February 2002) to the Chief Executive, Department of Natural Resources and Mines, within 7 days of becoming aware of the incident or failure.</p>	<p>Report in writing all “incidents and failures” within 7 days of becoming aware of the incident or failure</p>	<p>Incident - Displacement of a number of left abutment pre-cast face panels was reported by Burnett Dam Alliance in October 2005.</p> <p>Documents provided by Burnett Dam Alliance: Submission Initial Report and Remedial Works report, Incident –</p>

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<p>2. The dam owner must advise the Chief Executive, Department of Natural Resources and Mines of any proposed remedial actions in writing within one month of the incident or failure.</p>	<p>Advise of any proposed remedial actions in writing within one month of the "incident or failure"</p>	<p>displacement of face panels, Incident face panels 2 and 1997 Burnett river Dam Remedial Works to Upstream Drains November 2005</p> <p>Commission references –</p> <ul style="list-style-type: none"> • DNR.020.002.0001 & SUN.016.010.0468 • DNR.020.002.0080 • DNR.020.002.0091
<p>Condition DS 3 - Design Report</p> <p>1. The Stage 1 Design Report for the dam has been taken to consist of:</p> <ul style="list-style-type: none"> · "Burnett River Dam Alliance, Volume 2A: Respondent's Proposed Design" · "Burnett River Dam Alliance. Volume 2C: Respondent's Proposed Design: Drawings" · Burnett River Dam - NTAR No 30 (fax transmittal - response to additional information request). <p>2. The dam owner must update the design report in accordance with this condition and the Queensland Dam Safety Management Guidelines - February 2002.</p> <p>3. The Design Report must be updated in the following stages and address the matters as outlined for each stage:-</p> <p>Stage 2</p> <p>1. An update of the Stage 1 Report must be submitted to the Chief Executive, Department of Natural Resources and Mines prior to "placement of RCC in the primary spillway area".</p> <p>2. In addition to the information provided in the Stage 1 report, the Stage 2 report must include, but not be limited to: - Details of flood hydrology used in the final design A comprehensive Hazard Category Assessment. This assessment must indicate clearly the Hazard Category adopted, and the reasoning behind such a conclusion.</p>	<p>Nil reporting required for stage 1</p> <p>An update of the Stage 1 Report must be submitted prior to "placement of RCC in the primary spillway area".</p>	<p>Stage 2 Design Report (10 volumes) and Specification (2 volumes) dated 1 July 2004 and received 5 July 2004.</p> <p><i>Note: The highlighted (yellow) requirement was to be provided subsequently. The department does not hold this document.</i></p>

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<p>Results of any additional hydraulic model studies since the Stage 1 investigations.</p> <p>Results of foundation and other investigations carried out since the investigation and preliminary design phase.</p> <p>Foundation treatment in relation to seepage control including the grouting method and arrangement proposed including acceptance criteria.</p> <p>Method of monitoring uplift in the foundation during grouting operations.</p> <p>A clear statement of the reasoning for founding on any rock layer that may overly an alluvium layer. (eg the basalt layer on the right abutment). Results of stability and deformation calculations will also be required as part of the documentation.</p> <p>Derivation of loads, load combinations, allowable stresses etc. used in the analyses, (including seismic loads).</p> <p>Properties of construction materials.</p> <p>Embankment design and stability analyses.</p> <p>Design analyses of all structural components.</p> <p>Design modifications necessary as a result of any information obtained since Stage 1.</p> <p>Constraints on the operation of the dam, in particular, the operation of cone dispersion valves and radial gates in relation to the tailwater levels.</p> <p>Details of any special requirements or provisions made for roller compacted concrete (eg waterproofing via membranes, erosion, and seepage protection).</p> <p>Details of spillway capacities and assessment of the potential for cavitation. Where it is considered the spillway will be subjected to cavitation under certain flow conditions, the owner will provide sufficient information to confirm the structure will not be at risk of significant damage or failure.</p> <p>Details of outlets including discharge capacities. Details of maximum flow rates through the outlet works and methodology used to manage the flow through the outlet works with consideration to cavitation, vibration and other potentially damaging influences.</p> <p>Details of erosion protection (including downstream of the structure).</p> <p>A report by a qualified Operations and Maintenance Engineer as to the adequacy of the design from an ongoing operations viewpoint.</p> <p>Complete set of construction drawings and specifications.</p> <p>Stage 3</p> <p>1. An update of the Stage 2 Report for Final Design Report presentation must be prepared and a copy forwarded to the Chief Executive,</p>	<p>An update of the Stage 2 Report for Final Design Report presentation must</p>	<p>Final Design Report received with 'as constructed' documentation for Dam Safety Condition 6 December 2005.</p>

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<p>Department of Natural Resources and Mines on or within three (3) months of "practical completion of construction".</p> <p>2. In addition to the information provided in the Stage 2 report, the Final Design report must include, but not be limited to, the following: - Results of foundation grouting and other investigations carried out during the construction phase. Properties of construction materials used. Results of strength tests on all "in place" concrete products Design modifications necessary as a result of information obtained during the construction phase. Any additional information gathered, affecting the design and construction of the dam, since creation of the Stage 2 report. Compliance with construction specifications. Final Instrumentation arrangement for the dam. Finalisation and editorial changes. Details of the as-constructed dam. Complete and final set of "as constructed" drawings and specifications. Any other issues relevant to the project.</p>	<p>be prepared and a copy forwarded on or within three (3) months of "practical completion of construction".</p>	<p>Commission references –</p> <ul style="list-style-type: none"> • DNR.003.8304 • DNR.003.8385 • DNR.004.4559 • DNR.005.7379 • DNR.005.7630 • DNR.005.8315 • DNR.005.8493 • DNR.005.8833 • DNR.006.0001 • DNR.006.0395 • DNR.006.0653 • DNR.006.0762 • DNR.006.0979 • DNR.020.021.6633 • DNR.020.021.6884

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<p>Condition DS 4 - Design and Construction</p> <p>1. The dam is to be designed and constructed to comply with the Queensland Dam Safety Management Guidelines.</p> <p>2. Construction of any temporary works must be carried out in accordance with current engineering practice and standards.</p> <p>3. The dam must be constructed generally as per the drawings contained in "Burnett River Dam Alliance, Volume 2C: Respondent's Proposed Design: Drawings" prepared by TEAM1 (SMEC, HYDRO TAS, WALTER, & MACMAHON). The principal drawings referred to include:</p> <ul style="list-style-type: none"> TEAM1-201 General Arrangement TEAM1-205 Longitudinal Section TEAM1-207 to 214 Typical Cross Sections TEAM1-224, 227, 228 Primary Spillway Details TEAM1-225 Secondary Spillway & Left Abutment Details TEAM1-230, 231 Foundation Grouting TEAM1-234, 235 Spillway Wingwalls TEAM1-303 to 305 Outlet Works TEAM1-238, 239 Instrumentation Construction Specifications 	<p>Nil reporting required</p>	<p>Not applicable</p> <p><i>For noting:</i></p> <p><i>TEAM1-205 appears to be a typographical error in the condition. The correct drawing is TEAM1 - 215 Longitudinal Section. The correct drawings attached to the DP approved by DNRM.</i></p>
<p>Condition DS 5 - Data Book</p> <p>1. The dam owner must prepare a Data Book in accordance with this condition and the Queensland Dam Safety Management Guidelines - February 2002.</p> <p>2. The Data Book must be prepared on or within three (3) calendar months of "practical completion of construction".</p> <p>3. The Data Book must include all information as is required in the Queensland Dam Safety Management Guidelines - February 2002 including:</p> <ul style="list-style-type: none"> • All pertinent records and history relating to the dam. • Documentation of investigation, design, construction, operation, maintenance, surveillance, monitoring measurements and any remedial action taken during construction and subsequent operation of the dam. 	<p>Nil reporting required</p>	<p>Not applicable</p>

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<ul style="list-style-type: none"> • Known deficiencies such as seepage, cracking. <p>3. The Data Book must be updated in accordance with the Queensland Dam Safety Management Guidelines - February 2002.</p>		
<p>Condition DS 6 - As Constructed Documentation</p> <p>1. The dam owner must develop as constructed documentation in accordance with this condition and the Queensland Dam Safety Management Guidelines - February 2002.</p> <p>2. The owner must provide one copy of the as constructed documentation to the Chief Executive, Department of Natural Resources and Mines, on or within three (3) calendar months of "practical completion of construction".</p> <p>3. The as constructed documentation must include:</p> <ol style="list-style-type: none"> a) A record of any decisions to adapt the nominated design to suit actual field conditions. b) As constructed drawings indicating the actual lines, levels and dimensions to which the structure was built. c) A description of the construction processes. d) Foundation surface mapping. e) Material test results. f) Systematically compiled and comprehensive photographs and videos of the construction, with particular coverage of significant events which include:- <ul style="list-style-type: none"> · foundation treatment · material preparation and placement · cut-offs · core material · joint preparation g) Initial instrumentation data. h) Construction inspection reports. i) Certification by a registered professional engineer under the Professional Engineers Act 2002 (RPEQ) that the works have been 	<p>The owner must provide one copy of the as constructed documentation on or within three (3) calendar months of "practical completion of construction".</p>	<p>A number of boxes of documentation and CDs received 6 December 2005 – in accordance with a checklist and signed off by David Ryan, Principal Engineer, Dam Safety</p> <p>Commission references-</p> <ul style="list-style-type: none"> • DNR.005.0584 - PIN 0672 • DNR.005.0584 – PIN 0673 • DNR.020.002.0001 & SUN.016.010.0468

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<p>constructed in compliance with all appropriate engineering standards including signed statements from the dam designer that principal components of construction have been inspected and approved. Such components shall include:</p> <ul style="list-style-type: none"> · Dam foundation and foundation treatment. · Test results of the concrete used in construction. · Adequacy of any joints and waterstops in the concrete. · Structural adequacy of all principal elements. 		
<p>Condition DS 7 - Standing Operating Procedures</p> <p>1. The dam owner must develop Standing Operating Procedures (SOP) in accordance with this condition and the Queensland Dam Safety Management Guidelines - February 2002. The SOP must include the following activities:</p> <ul style="list-style-type: none"> · Personnel Training and Procedural Issues <ul style="list-style-type: none"> a. Operator Training. b. Documentation Control and Review. c. Setting of Normal Operation Criteria. · Emergency Action and Incident Reporting <ul style="list-style-type: none"> a. Accident and Incident Reports. b. Review of EAP including Verification of Emergency Contact Details. c. Communication procedures and procedures covering loss of Communication during an Emergency Event. · Critical Operating Procedures <ul style="list-style-type: none"> a. Inspection, testing and maintenance of critical mechanical and electrical equipment. b. Notification of environmental or spillway discharge. c. Water Level monitoring procedures. d. Communication security and failsafe procedures. e. Bulkhead gate installation and removal, penstock drainage, trash screen removal and installation. f. Confined Space Access. · Monitoring and Surveillance <ul style="list-style-type: none"> a. Water level monitoring procedures and the monitoring of inflow events. b. Owners routine dam safety inspection including checklists and reporting requirements. c. Inspection, testing and maintenance of all mechanical and electrical equipment. 	<p>The dam owner must submit a copy of the Standard Operating Procedures on or within three (3) months of "practical completion of construction".</p> <p>The dam owner must submit a copy of any changed SOP within three (3) months after June 1st of each calendar year</p>	<p>SOP received with the 'as constructed documentation' as submitted in compliance with Dam Safety Condition 6 on 6 December 2005.</p> <p>Commission references-</p> <ul style="list-style-type: none"> • DNR.005.0584 – PIN 0673

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<ul style="list-style-type: none"> d. Dam Safety Annual inspections. e. Dam Safety five (5) yearly comprehensive inspection. f. Inspection during and after flood or seismic events. <ul style="list-style-type: none"> - Maintenance of a Dam Log Book <ul style="list-style-type: none"> a. Equipment testing. b. Planned and unplanned maintenance. c. Testing of gate functions. d. Environmental and flood discharge with respective reservoir levels. e. Incident details. <p>2. The dam owner must submit a copy of the Standard Operating Procedures to the Chief Executive, Department of Natural Resources and Mines on or within three (3) months of "practical completion of construction".</p> <p>3. The dam must be operated in accordance with the SOP.</p> <p>4. The dam owner must ensure the SOP documents are reviewed by June 1st of each calendar year.</p> <p>5. The dam owner must submit a copy of any changed SOP to the Chief Executive, Department of Natural Resources and Mines within three (3) months after June 1st of each calendar year.</p>		
<p>Condition DS 8 - Detailed Operation and Maintenance Manuals</p> <p>1. The dam owner must prepare Detailed Operation and Maintenance Manuals in accordance with the Queensland Dam Safety Management Guidelines - February 2002.</p> <p>2. The Operation and Maintenance Manuals must be prepared and finalised three (3) months following the date of "practical completion of construction". Draft versions of these manuals must be prepared before "practical completion of construction".</p> <p>3. The dam must be operated and maintained in accordance with the Detailed Operation and Maintenance Manuals.</p> <p>4. The dam owner must ensure the Detailed Operation and Maintenance Manuals are reviewed by June 1st of each calendar year.</p>	<p>Nil reporting required</p>	<p>Not applicable</p>

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<p>Condition DS 9 - Special Inspections</p> <p>1. When directed by the Chief Executive, Department of Natural Resources and Mines, a Special Inspection must be carried out at the cost of the dam owner and a report must be prepared in accordance with the Queensland Dam Safety Management Guidelines - February 2002.</p> <p>2. The dam owner must provide one copy of the Special Inspection Report to the Chief Executive, Department of Natural Resources and Mines within one (1) month of completion of inspection.</p>	<p>Nil reporting requirement as there has been no direction issued for special inspection</p>	<p>Not applicable</p>
<p>Condition DS 10 - Annual Periodic Inspections</p> <p>1. The dam owner must undertake an annual (periodic) inspection of the dam in accordance with the Queensland Dam Safety Management Guideline - February 2002 on or before June 1st of each calendar year.</p> <p>2. The owner must produce a written record of these annual inspections which will be incorporated into the Comprehensive Inspection Report.</p> <p>3. In addition to the items listed in the Queensland Dam Safety Management Guideline – February 2002, the Annual Periodic Inspection Reports must address the following:</p> <ul style="list-style-type: none"> · Evidence of any concrete cracking, spalling, or other identified deficiency. · Evidence of any leakage through the structure. · Test operation of all equipment. · Evaluation of all surveillance data. · Any other issues the inspecting engineer considers appropriate. 	<p>Nil reporting requirement</p>	<p>Not applicable</p>
<p>Condition DS 11 - Comprehensive Inspections</p> <p>1. The dam owner must carry out a comprehensive inspection of the dam in accordance with the Queensland Dam Safety Management Guidelines - February</p>	<p>A Comprehensive Inspection Report detailing the findings of</p>	<p>Initial Inspection Report received 12 December 2005 and subsequent reports received March 2011 and</p>

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<p>2002, on "practical completion of the dam" and on or before every fifth anniversary thereafter.</p> <p>2. A Comprehensive Inspection Report detailing the findings of the comprehensive inspection in accordance with the Queensland Dam Safety Management Guidelines - February 2002 must be submitted to Chief Executive, Department of Natural Resources and Mines, within three (3) months after completion of the comprehensive inspection.</p>	<p>the comprehensive inspection must be submitted within three (3) months after completion of the comprehensive inspection.</p>	<p>November 2018</p> <p>Commission references-</p> <ul style="list-style-type: none"> • DNR.020.011.0001 • DNR.020.011.0034 • DNR.020.011.0318
<p>Condition DS 12 - Safety Review</p> <p>1. The dam owner must carry out a Safety Review in accordance with the Queensland Dam Safety Management Guidelines - February 2002 by 1st June 2023.</p> <p>2. The dam owner must prepare a Safety Review Report and provide one copy of the Safety Review Report to the Chief Executive, Department of Natural Resources and Mines within 3 months of completing the review.</p> <p>3. Further Safety Reviews are to be carried out at 20 year intervals.</p>	<p>The dam owner must prepare a Safety Review Report and provide one copy of the Safety Review Report within 3 months of completing the review – (that is, within 3 months of 1 June 2023)</p>	<p>Dam owner has provided a report on a safety review undertaken in 2014 and a revised report in 2016</p> <p>Commission references-</p> <ul style="list-style-type: none"> • DNR.020.012.0001 • DNR.020.012.1359 • DNR.020.012.3848 • DNR.020.012.3969 • DNR.020.012.3972 • DNR.020.012.3978 • DNR.020.012.4038 • DNR.020.012.4084 • DNR.020.012.4131 • DNR.020.012.4312 • DNR.020.012.4384 • DNR.020.012.4386 • DNR.020.012.4392 • DNR.020.012.4400 • DNR.020.012.4406 • DNR.020.012.4430 • DNR.020.012.4446 • DNR.020.012.4451 • DNR.020.012.4455 • DNR.020.012.4646 • DNR.020.012.5160 • DNR.020.012.5165 • DNR.020.012.5181 • DNR.020.012.5183 • DNR.020.012.5258 • DNR.020.012.5265

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		<ul style="list-style-type: none"> • DNR.020.012.5311 • DNR.020.012.5501 • DNR.020.012.5530 • DNR.020.012.5545 • DNR.020.012.5555 • DNR.020.012.5587 • DNR.020.012.6538
<p>Condition DS 13 - Emergency Action Plans and Event Reports</p> <p>1. The dam owner must prepare and maintain an Emergency Action Plan (EAP) in accordance with this condition and the requirements of the Queensland Dam Safety Management Guidelines - February 2002.</p> <p>2. Where the reservoir headwaters are such that inundation of upstream dwellings is likely, such dwellings must be considered in the preparation of any Emergency Action Plan.</p> <p>3. The EAP for the site is to cover the potential failure of any temporary works, the partially complete structure and the completed structure with regard to population at risk either upstream or downstream. The EAP is to be progressively updated as construction proceeds and must:</p> <ul style="list-style-type: none"> · Determine and identify those conditions that could forewarn of an emergency and specify the actions to be taken and by whom. · Identify all jurisdictions, agencies and individuals who could be involved in the Emergency Action Plan (for example, local governments, the Queensland Police Service, State Emergency Service and downstream residents). · Identify primary and secondary communication systems, both internal (between persons at the dam) and external (between dam personnel and outside entities). · Identify all resources, special tools, equipment, keys and where they can be located if required in an emergency. · List and prioritise all persons and entities involved (including contact details) in the notification process and the roles and responsibilities assigned to them (eg. a flow chart may be used). · Be disseminated to those who have responsibilities under the EAP. 	<p>The dam owner must provide a copy of the EAP at the following times:-</p> <ul style="list-style-type: none"> · During the construction period: - prior to "Placement of RCC in the primary spillway" area. · Post construction period:- on "practical completion of construction". <p>If the Emergency Action Plan is changed, the dam owner must provide one copy of the changed Emergency</p>	<p>Initial EAP received 15 June 2004.</p> <p>EAP received 6 January 2006 from Sunwater (as new owner)</p> <p>Copy of Changed EAP submitted 3 August 2004.</p> <p>Commission references-</p> <ul style="list-style-type: none"> • DNR.020.013.0001

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<p>4. The dam owner must provide a copy of the EAP to the Chief Executive, Department of Natural Resources and Mines at the following times:-</p> <ul style="list-style-type: none"> · During the construction period: - prior to "Placement of RCC in the primary spillway" area. · Post construction period:- on "practical completion of construction". <p>5. The EAP must be reviewed:-</p> <ul style="list-style-type: none"> · During the construction period:- At six monthly intervals from the time of placement of RCC in the primary spillway area or whenever details (eg. contact details) within the EAP are required to be amended. · Post construction period:- At least every five years, with the contact details contained within the EAP to be reviewed prior to June 1st of each calendar year. <p>6. If the Emergency Action Plan is changed, the dam owner must provide one copy of the changed Emergency Action Plan to the Chief Executive, Department of Natural Resources and Mines within 30 days of the changes being made.</p> <p>7. The dam owner must ensure that in addition to the copy provided to the Chief Executive, Department of Natural Resources and Mines, current versions of the Emergency Action Plan are provided to the following parties : -</p> <ul style="list-style-type: none"> · Biggenden Shire Council. · Bundaberg Counter Disaster Coordination Committee. · Any additional group with responsibilities under the Emergency Action Plan. <p>8. In all emergencies, the dam owner must respond in accordance with the Emergency Action Plan.</p> <p>9. In the event of an emergency, the dam owner must notify the Chief Executive, Department of Natural Resources and Mines within 48 hours. The notification shall include a brief description of the event and the time of activation of the Emergency Action Plan.</p> <p>10. Within 28 days of the event the dam owner must prepare an Emergency Event Report and provide a copy of the report to the Chief Executive, Department of Natural Resources and Mines.</p> <p>The Emergency Event Report must contain:</p> <ul style="list-style-type: none"> · A description of the event. · Instrumentation readings (where appropriate). · Description of any observed damage. 	<p>Action Plan within 30 days of the changes being made.</p> <p>In the event of an emergency, the dam owner must notify within 48 hours</p> <p>Within 28 days of the event the dam owner must prepare an Emergency Event Report and provide a copy of the report.</p>	<p><i>Note: The definition of 'emergency' as referred to in para (9) is defined in Queensland Dam Safety Management Guidelines – page 48</i></p> <p>No emergency events within construction period or immediately following years</p>

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<ul style="list-style-type: none"> · Photographs. · Details of communication and actions which took place during the emergency. · Comment on the adequacy of the EAP and any changes proposed. 		
<p>Condition DS 14 – Decommissioning</p> <p>1. The dam must not be taken out of service (decommissioned) except in accordance with a Decommissioning Plan accepted by the Chief Executive, Department of Natural Resources and Mines.</p> <p>2. The Decommissioning Plan must indicate how the dam is to be rendered safe in the long term and how the contents are to be drained in a controlled and safe manner.</p>	<p>To submit, and have accepted, a Decommissioning Plan before dam is taken out of service</p>	<p>Not applicable at this point in time</p>