

# Code of environmental compliance

## Environmental authorities for high hazard dams containing hazardous waste

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*This code of environmental compliance (code) contains the standard environmental conditions approved by the Minister, under section 549(2) of the Environmental Protection Act 1994.*

# Code of environmental compliance for Environmental Authorities for High Hazard Dams Containing Hazardous Waste

Version 0

Note: A reference in this document to Environmental Protection Agency (EPA) should be read as a reference to the Department of Environment and Heritage Protection.

# **Code of Environmental Compliance for Environmental Authorities for High Hazard Dams Containing Hazardous Waste**

## **Introduction**

1. The Minister, pursuant to section 549, of the *Environmental Protection Act 1994* has approved the standard environmental conditions contained in this Code of Environmental Compliance for Environmental Authorities for High Hazard Dams Containing Hazardous Waste.

## **Application**

2. This Code applies to environmental authorities for high hazard dams containing hazardous waste.

## **Conditions**

3. The standard environmental conditions contained in column 1 must be complied with.

## **Supporting Information**

4. The EPA has prepared non-mandatory guidelines that detail the steps that can be taken to comply with the standard environmental conditions in column 1. However, operators can take different approaches to achieving compliance with the standard environmental conditions stated in this Code. These guidelines are contained in column 2.

## **Other Obligations and Laws**

5. In addition to the standard environmental conditions of this Code, the *Environmental Protection Act 1994* imposes an obligation to take all reasonable and practicable measures to prevent or minimise environmental harm ('the general environmental duty').

The requirements of this Code are in addition to other requirements of the *Environmental Protection Act 1994*. Further, this Code does not negate any lawful requirements under Commonwealth, State or local government plans, standards, agreements or legislation. It is the responsibility of the person carrying out the activity to ensure compliance with all relevant laws.

<p style="text-align: center;"><b>Standard Environmental Conditions</b></p> <p style="text-align: center;"><i>The holder of the environmental authority for the dam must comply with the conditions in this column.</i></p>	<p style="text-align: center;"><b>Environmental Guidelines</b></p> <p style="text-align: center;"><i>The following Guidelines provide guidance on how to comply with the corresponding standard environmental condition.</i></p>
<p><b>1. General Obligation</b></p> <p>The holder of the environmental authority for the dam must design, construct, alter, repair, maintain and operate any dam containing hazardous waste in the location specified in the relevant environmental authority, and take all reasonable and practicable measures to minimise the risk to the environment.</p>	<p><b>1.1 Notes</b></p> <p><b>1.1.1</b> Examples of dams containing hazardous waste are tailings dams or process water dams.</p>
<p><b>2. Preparing and Certifying Design Plans</b></p> <p>Before construction of a dam containing hazardous waste, a person suitably qualified and experienced in dam engineering must:</p> <ul style="list-style-type: none"> <li>(a) prepare design plans which design the dam to an appropriate engineering standard; and</li> <li>(b) certify that the design plans meet an appropriate engineering standard and are consistent with the dam conditions in the environmental authority.</li> </ul>	<p><b>2.1 Design Plans</b></p> <p><b>2.1.1</b> Some of the factors that a person should consider in designing the dam to an appropriate engineering standard include:</p> <ul style="list-style-type: none"> <li>• dams designed and located to have the smallest practical catchment;</li> <li>• dams should be designed to accept waste inputs for the operational year and inputs from the critical wet season;</li> <li>• the spillway should be designed and maintained to withstand the peak flow from the critical design storm (the critical design storm has a duration that produces the peak discharge for the catchment);</li> <li>• the gradients of earth embankment batters should be stable;</li> <li>• where the foundation material differs from the embankment fill material, the batters should be</li> </ul>

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	<p>chosen conservatively to be consistent with the weaker material classification;</p> <ul style="list-style-type: none"> <li>• the dam design should provide adequate measures to minimise seepage through the dam wall and to groundwater;</li> <li>• the dam design should prevent any erosion of the downstream face of the dam and spillway to avoid surface scour which may lead to failure of the wall;</li> <li>• the contents of the ANCOLD Guidelines and Tailings Dam Design Construction and Operation October 1999; and</li> <li>• the contents of Department of Mines and Energy, Technical Guidelines for Environmental Management of Exploration and Mining in Queensland, January 1995.</li> </ul>
<p><b>3. Submitting Certified Design Plans</b></p> <p>Before construction of a dam containing hazardous waste, the holder of the environmental authority for the dam must submit the certified design plans to the administering authority.</p>	
<p><b>4. Commencing Construction</b></p> <p>If the holder of the environmental authority for the dam has:</p> <ol style="list-style-type: none"> <li>(a) received a letter acknowledging receipt of the design plans from the administering authority; and</li> <li>(b) not received any further</li> </ol>	<p><b>4.1 Date for Commencing Construction</b></p> <p><b>4.1.1</b> The letter of acknowledgement from the administering authority will state a date from which the operator may commence construction of the dam if they have not heard from the administering authority within 28 days. In other words,</p>

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<p>correspondence from the administering authority within 28 days of the receipt date stated in the letter of acknowledgment, they may commence construction of the dam containing hazardous waste in accordance with the certified design plans.</p>	<p>the operator will usually be able to commence construction after 28 days of the administering authority receiving the design plans.</p> <p><b>4.1.2</b> The administering authority will send out a letter of acknowledgement within a maximum period of 5 business days.</p>
<p><b>5. Completion of Construction</b></p> <p>When the construction of the dam containing hazardous waste is complete, the holder of the environmental authority must:</p> <ul style="list-style-type: none"> <li>(a) obtain certification from a person suitably qualified and experienced in dam construction that the construction of the dam is either in accordance with or generally in accordance with the certified design plans; and</li> <li>(b) submit the construction certification to the administering authority.</li> </ul>	<p><b>5.1 Minor Variation of Design Plans</b></p> <p><b>5.1.1</b> If the person certifying the construction of the dam is required to make a minor modification of the dam design during its construction, they should contact the person who certified the design plans and obtain their agreement to the modifications. They should obtain this agreement before certifying that the construction of the dam is generally in accordance with the certified design plans.</p> <p><b>5.1.2</b> If the design of the dam has been modified during construction, the person certifying the construction of the dam must include in their certification:</p> <ul style="list-style-type: none"> <li>(a) written agreement of the modification by the person who certified the design of the dam; and</li> <li>(b) details of the modification.</li> </ul>
<p><b>6. Preparing and Certifying</b></p>	<p><b>6.1 Operational Plans</b></p>

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<p><b>Operational Plans</b></p> <p>Before operating a dam containing hazardous waste (other than on a mining tenure), a person suitably qualified and experienced in dam engineering must:</p> <ul style="list-style-type: none"> <li>(a) prepare an operational plan; and</li> <li>(b) certify the operational plan.</li> </ul>	<p><b>6.1.1</b> Operational plans outline the detail of how the holder of the environmental authority for the dam proposes to operate the dam. In the case of mining activities, a Plan of Operations contains information, which would otherwise be contained in an operational plan. In this situation, it is not necessary to prepare another document, the Plan of Operations can be submitted to the administering authority.</p> <p><b>6.1.2</b> An example of the type of information that may be included in an operational plan is that a suitably qualified and experienced person in dam engineering shall inspect all dams containing hazardous waste at least once a year in October.</p> <p><b>6.1.3</b> The information sheet relating to the preparation of Plan of Operations contains more information about these documents.</p>
<p><b>7. Commencing Operation</b></p> <p>Before operating a dam containing hazardous waste (other than on a mining tenure), the holder of the environmental authority for the dam must submit to the administering authority the:</p> <ul style="list-style-type: none"> <li>(a) operational plan;</li> <li>(b) certification of the operational plan; and</li> <li>(c) certification that the construction of the dam was in accordance with the certified design plans.</li> </ul>	

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<p><b>8. Compliance with Plans</b></p> <p>The holder of the environmental authority must construct and operate the dam in accordance with the certified:</p> <ul style="list-style-type: none"> <li>(a) design plans;</li> <li>(b) operational plans; and</li> <li>(c) conditions contained in the environmental authority,</li> </ul> <p>in order to prevent or minimise environmental harm.</p>	
<p><b>9. Definitions</b></p> <p>‘<b>construction</b>’ includes building a new dam and modifying or lifting an existing dam.</p> <p>‘<b>hazardous waste</b>’ means any substance, whether liquid, solid or gaseous, derived by or resulting from, the processing of minerals that tends to destroy life or impair or endanger health.</p> <p>‘<b>dam</b>’ means:</p> <ul style="list-style-type: none"> <li>(a) a containment or proposed containment whether permanent or temporary; and</li> <li>(b) which does, would or could contain, divert or control flowable substances; and</li> <li>(c) but does not include a fabricated or manufactured tank or container designed to a recognised standard.</li> </ul> <p>‘<b>suitably qualified and experienced person</b>’ means a person who is a</p>	

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<p>Registered Professional Engineer of Queensland under the provisions of the <i>Professional Engineers Act 1988</i> or a Corporate Member of the Institution of Engineers Australia or holds equivalent professional qualifications and has the following:</p> <p>(a) knowledge of engineering principles related to the structures, geomechanics, hydrology, hydraulics, chemistry and environmental impact of dams; and</p> <p>(b) at least a total of five years of suitable experience and demonstrated expertise in at least four of the following areas:</p> <ul style="list-style-type: none"> <li>• investigation, design or construction of dams;</li> <li>• operation and maintenance of dams;</li> <li>• geomechanics with particular emphasis stability, geology and geochemistry;</li> <li>• hydrology with particular reference to flooding, estimation of extreme storms, water management or meteorology;</li> <li>• hydraulics with particular reference to sediment transport and deposition, erosion control, beach processes; and</li> <li>• hydrogeology with particular reference to seepage, groundwater,</li> <li>• solute transport processes and monitoring thereof; and</li> <li>• dam safety.</li> </ul>	



