

# Groundwater Standard

AGL-HSE-STD-008.2

## 1. Scope and Applicability of Standard

This Standard applies to and must be adhered to during all stages of activities and works (including planning, development, construction, operation, maintenance and decommissioning) that are, or will be, carried out in respect of AGL sites that are owned, occupied, operated, managed or controlled by an AGL Entity or third party appointed by an AGL entity unless stated otherwise in the contract.

If there is any doubt about the applicability of this Standard, contact the HSE team in the first instance. Definitions of terms used in this Standard are set out in section 3.

## 2. Requirements

### 2.1 Planning

STD Ref No.	Minimum Controls
2.1.1	<p>Planning for works that may have actual or potential impact on groundwater must:</p> <ul style="list-style-type: none"> <li>involve the AGL Environmental Representative and other subject matter experts where required; or</li> <li>review groundwater contamination or protection zones (maps), relevant groundwater studies, reports and codes of practice where identified as a potential risk; or</li> <li>review relevant legal requirements that apply to the site and activity;</li> <li>determine if existing or new regulatory, planning or other approvals apply; and</li> <li>determine if an internal permit to work (e.g. Ground and Vegetation Disturbance Approval Procedure) is required.</li> </ul>
2.1.2	<p>The site approach to applying the AGL Health, Safety and Environmental Management System (<b>HSEMS</b>) to activities with respect to groundwater is to be documented in the site Environmental Management Plan (<b>EMP</b>).</p> <p>A specific Groundwater Management Plan (or similar) is to be developed where:</p> <ul style="list-style-type: none"> <li>required by legislation; or</li> <li>the potential for offsite groundwater impacts has been identified; or</li> <li>the potential for regulatory or approval breaches have been identified.</li> </ul>
2.1.3	<p>Before works commence:</p> <ul style="list-style-type: none"> <li>all approvals, including licenses and internal permits to work, must be obtained; and</li> </ul>

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	<ul style="list-style-type: none"> <li>measures must be taken to ensure that all approval requirements, including monitoring and reporting, will be adhered to during the carrying out of the works.</li> </ul>
2.1.4	<p>If a regulatory authority issues an order or notice related to the management of groundwater, all timeframes and requirements must be complied with.</p> <p>If there is any doubt as to the regulator's authority or ability to require the relevant information or actions to be carried out, contact AGL Legal.</p>
2.1.5	Review available spatial data (Geographical Information Systems) information.

## 2.2 Risk Management

STD Ref No.	Minimum Controls
2.2.1	In accordance with AGL's Fully Integrated Risk Management ( <b>FIRM</b> ) process, actual and potential groundwater risks must be identified and documented before works commence and controls to mitigate those risks must be implemented. Control measures are to be aligned with legislative, contractual and approval requirements, and the requirements of this Standard.
2.2.2	<p>Where activities that may impact groundwater cannot be avoided, they must be managed in accordance with the following management hierarchy where practicable:</p> <ul style="list-style-type: none"> <li>minimize the extent of disturbance or activity; and</li> <li>manage impacts in accordance with relevant guidelines prescribed by the regulatory authority, site EMP and other relevant plans.</li> </ul>

## 2.3 Groundwater Extracted for Supply and Use

STD Ref No.	Minimum Controls
2.3.1	<p>Bore construction must be carried out by a bore driller with a valid driller licence. The driller licence must:</p> <ul style="list-style-type: none"> <li>be issued by the relevant regulatory authority, and</li> <li>applicable to the class of work (as defined by applicable legislation) and the drilling method to be used.</li> </ul>
2.3.2	Bore information (e.g. bore location, bore depth and water quality), must be documented and provided to the relevant regulatory authority as prescribed by licence conditions and legislation.
2.3.3	Extracted groundwater must comply with the water use minimum controls stated in the Surface Water Standard (AGL-HSE-STD-008.3).

## 2.4 Groundwater Extracted for Purposes Other than Supply

STD Ref No.	Minimum Controls
2.4.1	Where required by legislation, the relevant regulatory authority is to be notified prior to commencing pumping produced water, naturally poor quality or contaminated groundwater to the surface.
2.4.2	Where groundwater treatment is necessary prior to discharge, the required level of treatment must consider: <ul style="list-style-type: none"> <li>receiving environment condition including nature, beneficial use(s), assimilative capacity and presence of sensitive receptors or habitats;</li> <li>discharge license conditions; and</li> <li>available best or leading practices in industry.</li> </ul>
2.4.3	Produced water, naturally poor quality or contaminated groundwater pumped to the surface must be managed in accordance with approvals and the wastewater management minimum controls stated in the Surface Water Standard (AGL-HSE-STD-008.3).

## 2.5 Discharge to Groundwater

STD Ref No.	Minimum Controls
2.5.1	If discharge to groundwater is to be considered as a disposal option, prior to discharge: <ul style="list-style-type: none"> <li>a risk assessment must be carried out in accordance with AGL's FIRM requirements;</li> <li>all approvals must be in place; and</li> <li>control measures must be implemented to ensure compliance with all approval, regulatory and legislative requirements.</li> </ul>
2.5.2	Groundwater quality objectives must not be exceeded at or beyond the boundaries of the attenuation zone as designated by the relevant regulatory authority. Impacts from the discharge to groundwater must be monitored and reported to the relevant regulatory authority.

## 2.6 Monitoring and Improvement

STD Ref No.	Minimum Controls
2.6.1	The effectiveness of controls must be monitored through inspections and assurance activities at a frequency that is consistent with the level of risk.
2.6.2	If a Non-Aqueous Phase Liquid ( <b>NAPL</b> ) is present in an aquifer, it must be removed unless exempted by the regulatory authority.

2.6.3	Sampling and measurement equipment must be calibrated, inspected, tested, and maintained, in accordance with discharge licences, approvals and other relevant regulatory and Australian Standard (AS/NZS) requirements.
2.6.4	Accredited environmental laboratory services (i.e. certified by National Association of Testing Authorities ( <b>NATA</b> ) or equivalent accreditation bodies) must be used for analysis of groundwater samples.
2.6.5	Data Quality Assurance (QA) and Quality Control (QC) procedures must be implemented for conducting sampling and analysis of groundwater samples.
2.6.6	Upload all available relevant spatial data (Geographical Information Systems) information to site databases .

## 2.7 Training and Competency

STD Ref No.	Minimum Controls
2.7.1	Groundwater requirements (including monitoring, reporting and regulatory requirements), risks and controls must be communicated to employees, contractors and third parties (such as suppliers or visitors) through site inductions, toolbox talks and contractual documentation relevant to their scope of work.
2.7.2	A suitably qualified groundwater professional must be engaged where prescribed by legislation or where specialist expertise is not available in-house to: <ul style="list-style-type: none"> <li>• assist with and/or undertake groundwater monitoring programs and assessments;</li> <li>• prepare specialist groundwater reports and plans;</li> <li>• manage clean up and remediation of groundwater; or</li> <li>• support AGL to obtain the necessary approvals to manage groundwater related works and impacts as well as implement the requirements of such approvals.</li> </ul>

## 2.8 Incidents

STD Ref No.	Minimum Controls
2.8.1	The site Emergency Response Plan must include management of significant environmental incidents resulting in groundwater contamination (i.e. major releases, spills, leaks or loss of containment) where identified as a potential risk.
2.8.2	Where breaches or non-compliances are identified, corrective actions must be implemented within a timeframe commensurate with the risk.
2.8.3	Hazards, near misses and incidents resulting in potential or actual contamination of groundwater must be reported and investigated in accordance with the AGL HSE Incident, Near Miss and Hazard Management Standard (AGL-HSE-STD-011.1).

2.8.4	<p>Incidents that result in:</p> <ul style="list-style-type: none"> <li>contamination of groundwater; or</li> <li>exceedance of criteria or other breaches defined by licences, approvals or statutory provisions,</li> </ul> <p>must be reported to the regulatory authority, in accordance with the requirements under applicable legislation, the site EMP and other relevant plans.</p> <p>If there is any doubt as to notification requirements to the regulator, contact the Environmental Representative and AGL Legal.</p>
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### 3. Definitions

Term	Definition
AGL Entity	Any AGL entity within the AGL Group, including AGL Energy Limited and any subsidiary, associated Company or related Body Corporate (as defined in the <i>Corporations Act 2001</i> (Cth), including all controlled or managed entities.
Environmental Representative	The person that has been assigned responsibility for environmental management of the facility, location or site.
Groundwater	Water that exists underground in saturated zones beneath the land surface. Rock or unconsolidated deposits that can yield a usable quantity of groundwater is an aquifer.
NAPL	Non-aqueous phase liquids, or NAPLs, are organic liquid contaminants (hydrocarbons) characterized by their relative immiscibility (inability to combine or mix) with water.

### 4. Supporting Documents

The following AGL documents may also apply to groundwater works and should be reviewed.

Document	Description
AGL-HSE-STD-004.2	Permit to Work Standard
AGL-HSE-STD-008.1	Land Standard
AGL-HSE-STD-8.3	Surface Water Standard
AGL-HSE-STD-011.1	HSE Incident Near Miss and Hazard Management Standard
AGLM-HSE-PRO-008.01	Ground and Vegetation Disturbance Approval Procedure
-	AGL Risk Management & Assessment Standard

## 5. Document Control

Version	Reviewed by	Approved by	Date approved	Next Review
4.0	Head of HSE Systems, Reporting and Governance & Head of Environment	General Manager, HSE	02/05/2025	02/05/2028