

Audit guidance – Mining accommodation

This factsheet has been developed by the Department for Health & Ageing (DHA) to provide assistance to approved Level 2 auditors when auditing mining accommodation drinking water supplies under the *Safe Drinking Water Act 2011* (the Act) and *Safe Drinking Water Regulations 2012* (the Regulations). This fact sheet should be referred to when completing the “Safe Drinking Water Act 2011 Audit / Inspection Report”.

Introduction

Audits are to be performed by persons approved under Section 15 of the Act as Level 2 auditors. Under section 20 (1) of the Act drinking water providers are subject to audit or inspection every 1 to 2 years depending on the size and complexity of the scheme and the vulnerability of the population supplied. Mining accommodation drinking water supplies are subject to audit once every two years. The scheme for audits and inspections was published in the Government Gazette and is also available on the Safe Drinking Water Act website.

Please note that under the Act the process for audit and inspection is the same. Review of the risk management plan and related procedures and records must be undertaken as required by the Act. Inspections are expected to be less comprehensive than audits.

Duties of an Auditor / Inspector

Under section 21 of the Act and Section 10 of the Regulations an auditor has the following duties:

- To determine whether the drinking water provider has complied with the requirements of part 3 of the Act relating to risk management plans
- To carry out follow up audits if necessary
- To report on the outcome of the audit
- To make recommendations as to changes to any component of the RMP and the reasons for such recommendations
- To make recommendations as to any other matters that require improvement or remedial action or are otherwise of concern to the auditor
- To determine whether any remedial action has been taken by the drinking water provider in relation to circumstances of non-compliance



The Audit

The following section provides explanatory notes for each question within the *Safe Drinking Water Act 2011 Audit / Inspection Report*.

Implementation and Review of Risk Management Plans (RMPs)

1. Is there evidence that a drinking water RMP has been implemented?

Under Section 12 of the Act a drinking water provider must prepare and implement a risk management plan. Complex supplies, including mining accommodation, must develop a custom RMP.

2. Has a standard RMP been adopted?

This question is not applicable for mining sites with reverse osmosis treatment. Standard risk management plans have been developed by DHA for small, simple supplies only.

3. Has the RMP been revised where revision was found to be required as a result of internal review or the previous audit / inspection?

Under section 21 of the Act, auditors are required to identify any deficiencies in the RMP. Under section 12 (1) of the Act the drinking water provider must revise any aspect of the RMP that requires revision.

RMP Content

4. Are all sections of the RMP complete?

Under section 13 (1) of the Act a risk management plan should include:

- a detailed description of the system of supply
- Identified risks that have the potential to impact on the quality of water provided
- An assessment of the identified risks
- Preventative measures adopted to manage the risks
- A monitoring program outlining testing and monitoring requirements to maintain and verify a safe drinking water supply
 - In the standard RMP this is split into 2 sections- operational monitoring and verification monitoring
- Incident identification, notification and response procedures
- Maintenance schedules for the drinking water supply

5. Is the level of detail adequate for the size and complexity of the supply?

Drinking water supplies at mining sites generally supply 10's to 1000's of people. Due to the high salinity of ground water in outback South Australia, treatment generally consists of reverse osmosis followed by some form of disinfection - generally chlorination, UV disinfection or both.

Questions to consider include:

- Is the description of the entire system complete and accurate?
- Have all hazards and risks that have the potential to impact on drinking water quality been identified? Potential hazards may include:
 - Livestock entry to bore protection zone
 - Leakage from sewage collection system
 - Toxic chemicals leaching into groundwater

- Poorly maintained tank (if present)
- Refer to the standard RMP for small bore water supplies for general bore water related hazards
- Is the monitoring and testing plan adequate? E.g.
 - For operational monitoring all preventative measures should have measurable or observable criteria to confirm they are functional. E.g;
 - Continuous or daily measurement of post RO conductivity to confirm reverse osmosis treatment is working
 - Monthly visual inspection of the bore protection zone to confirm area is restricted and free from hazards
 - Weekly measurement of residual chlorine at point of use to confirm effective chlorination and protection from recontamination
 - The required monitoring frequency for operational criteria is dependent on the importance of the barrier in maintaining safe drinking water and the likelihood of fault. E.g. conductivity of post RO effluent is measured at least daily whereas the integrity of storage tanks may be inspected every 6 months.
 - Refer to the standard RMP for small bore water supplies for general bore water related operational monitoring
 - Verification monitoring for *E. coli* should be undertaken at least every 3 months. Chemical monitoring should be undertaken at least every 2 years. Refer to the DHA issued approval letter for the approved verification monitoring frequencies.

6. Is there evidence a hazard identification and risk assessment process has been carried out?

General hazards associated with bore water supplies have been identified in the standard RMP. Additional hazards present at mining sites will be site specific. There should be evidence that a thorough risk assessment process has been undertaken.

7. Is there evidence that preventative measures have been established and are in operation to manage all risks?

Preventative measure are established and undertaken to manage risks. Refer to the RMP to ensure preventative measures have been identified. Copies of monitoring records should be sighted to ensure preventative measures are operating. Examples include:

- A 50m protection zone is maintained around the bore
- The bore head is sealed and protected from surface water ingress
- Post RO conductivity (as TDS) is consistently <500 mg/L or as per RMP



Records Management

8. Is there evidence all operational monitoring has been performed?

Evidence of operational monitoring should be in the form of records and results of monitoring. This should be undertaken at a frequency as outlined in the RMP. Records must be kept for 5 years.

9. Is there evidence all verification monitoring has been performed?

For mining drinking water supplies verification monitoring for *E. coli* should be undertaken at least every 3 months. Chemical monitoring should be undertaken at least every 2 years. The frequency of monitoring should appear in the RMP. The frequency should be confirmed by viewing the DHA approved testing frequency as outlined in the drinking water provider's approval letter. Under Section 9 (5) of the Regulations, *E. coli* and chemical monitoring results must be kept for 5 years.

Under Section 9(4)(b)(ii) of the Regulations, results of testing must be furnished to the Department within 21 days after the completion of the audit. For regulated care premises a copy of testing results must be attached to the submitted audit report. For other premises, the results table on page 5 of the audit/inspection report can be filled in as an alternative to attaching copies of results.

Under Section 25 of the Act and Section 13 of the Regulations testing must have been undertaken by a DHA approved laboratory or a NATA accredited laboratory.

10. Are records maintained for corrective actions taken where preventative measures have failed?

Corrective actions must be outlined for failures in preventative measures. For example if during routine monitoring livestock was found grazing around the bore, the corrective action should be to remove the livestock and prevent future access. All records of where corrective actions have been implemented for failures in preventative measures that are "non-incidents" should be available to view.

11. Have any incidents or *E. coli* or chemical exceedances occurred within the audit period and were they reported to DHA?

Under section 13 of the Act all RMPs must include an incident identification and notification protocol. The incident identification and notification protocol outlines events that if occur would constitute a potential risk to health and require remedial action and notification of the DHA. Detection of any *E. coli* or health related chemicals at levels above guideline values (an exceedance) at the point of use constitutes an incident and must be reported to DHA. Refer to the incident identification and notification protocol within the RMP for supply specific incident notification requirements.

12. Is there evidence that remedial action was taken?

Are records available outlining the remedial action taken? Did follow up sampling indicate the risk was managed? For a microbiological incident (*E. coli* detection) remedial action would include chlorinating the tank (if present) in addition to identifying and correcting the reason for the exceedance (i.e. removal of cows grazing around bore).

13. If applicable, has the RMP been updated to prevent future incidents?

Under section 12 of the Act the drinking water provider must revise any aspect of the RMP that requires revision. If on review the RMP requires updating in order to manage newly identified risks and prevent future exceedances this should be undertaken.



Visual Inspection

14. Perform an inspection of the drinking water system from catchment to tap. Is the system operating in accordance with the RMP?

Under section 21 of the Act the auditor must determine whether the drinking water provider has complied with the RMP. This includes ensuring that the drinking water system is being maintained and that identified risks have been managed in accordance with the RMP. During the inspection you should visually confirm this. Visual inspection includes ensuring that:

- The schematic is representative of the actual system
- The bore protection zone is free from any potential sources of contamination
- The bore head is water-tight and protected from surface water flows
- Any treatment including disinfection is operational and well maintained.

If visual inspection identifies any deficiencies in compliance with the RMP the drinking water provider must take action to remedy this. The auditor must then under Section 21 of the Act carry out a follow up audit to confirm that action has been taken.

Under no circumstances should you put yourself under any danger during the visual inspection.

Recommendations

Using the information and answers to the checklist questions have any non-compliances in the RMP been identified? These should be listed and described in the recommendations table on page 4 of the audit report. Non-compliances must be followed up by a date made in consultation with the drinking water provider and the DHA Water Quality Unit.

Reporting requirements

Section 10 of the Regulations requires the report to be provided to DHA within 21 days after the completion of the audit. Additional information may be requested by DHA as required. The audit form can be mailed via the address below or emailed to waterquality@health.sa.gov.au. A copy of the audit report as provided to DHA must also be provided to the drinking water provider under section 22 (6) of the Act.

Water Quality Unit
Department for Health and Ageing
PO Box 6, Rundle Mall
ADELAIDE SA 5000

If as a result of this audit, you are concerned that the drinking water may be unsafe, you must report your concerns immediately to DHA on 8226 7100 during business hours or 1300 558 657 outside of business hours. This is a requirement under section 22 (4) of the Act.

