Occupational Health and Hygiene Management Procedure

Purpose

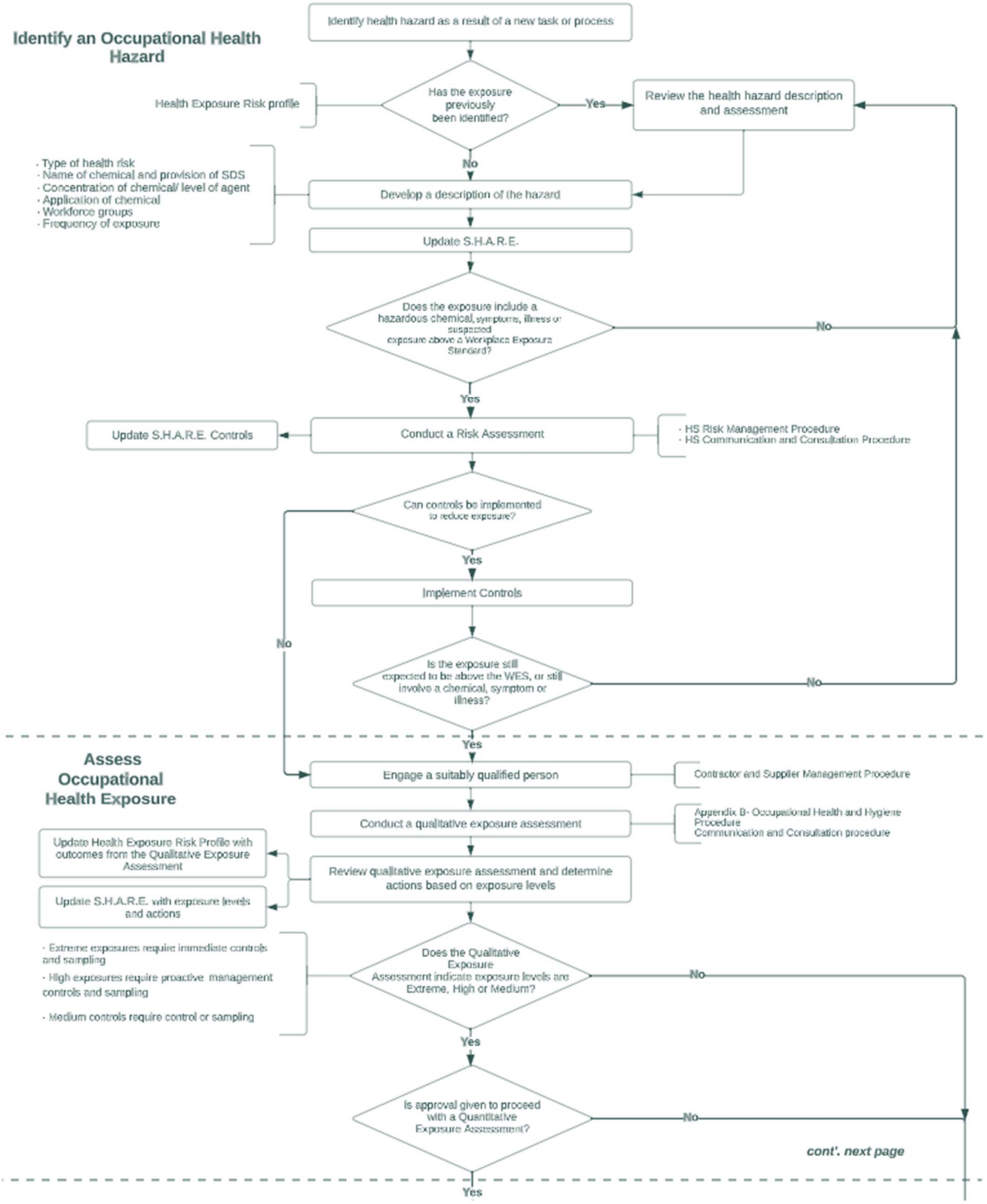
The purpose of this Procedure is to identify, evaluate, control and periodically monitor all occupational health and hygiene hazards which have potential to cause illness or injury due to exposure. The management of chemical, physical and biological hazards in the workplace is conducted to create and maintain a safe and healthy work environment.

Scope

This Procedure applies to the management of occupational health and hygiene for all Queensland Hydro employees, and visitors to Queensland Hydro sites.

Document ID: HS-PRO-0031		**Title: Occupational Health and Hygiene Management Procedure**		
Author:	Kelly Palmer	Head of Health and Safety	**Version Date:**	August 2023
Approver:	Greg Tonks	EGM, Corporate	**Revision ID:**	B

Process Map


Identify an Occupational Health Hazard
Identify health hazard as a result of a new task or process
Health Exposure Risk profile
Has the exposure previously been identified?
Yes
Review the health hazard description and assessment
No
· Type of health risk
· Name of chemical and provision of SDS
· Concentration of chemical/ level of agent
· Application of chemical
· Workforce groups
· Frequency of exposure
Develop a description of the hazard
Update S.H.A.R.E.
Does the exposure include a hazardous chemical, symptoms, illness or suspected exposure above a Workplace Exposure Standard?
No
Yes
Update S.H.A.R.E. Controls
Conduct a Risk Assessment
· HS Risk Management Procedure
· HS Communication and Consultation Procedure
Can controls be implemented to reduce exposure?
Yes
Implement Controls
No
Is the exposure still expected to be above the WES, or still involve a chemical, symptom or illness?
No
Yes
Assess Occupational Health Exposure
Engage a suitably qualified person
Contractor and Supplier Management Procedure
Conduct a qualitative exposure assessment
Appendix B- Occupational Health and Hygiene Procedure
Communication and Consultation procedure
Update Health Exposure Risk Profile with outcomes from the Qualitative Exposure Assessment
Update S.H.A.R.E. with exposure levels and actions
Review qualitative exposure assessment and determine actions based on exposure levels
· Extreme exposures require immediate controls and sampling
· High exposures require proactive management controls and sampling
· Medium controls require control or sampling
Does the Qualitative Exposure Assessment indicate exposure levels are Extreme, High or Medium?
No
Yes
Is approval given to proceed with a Quantitative Exposure Assessment?
No
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Yes

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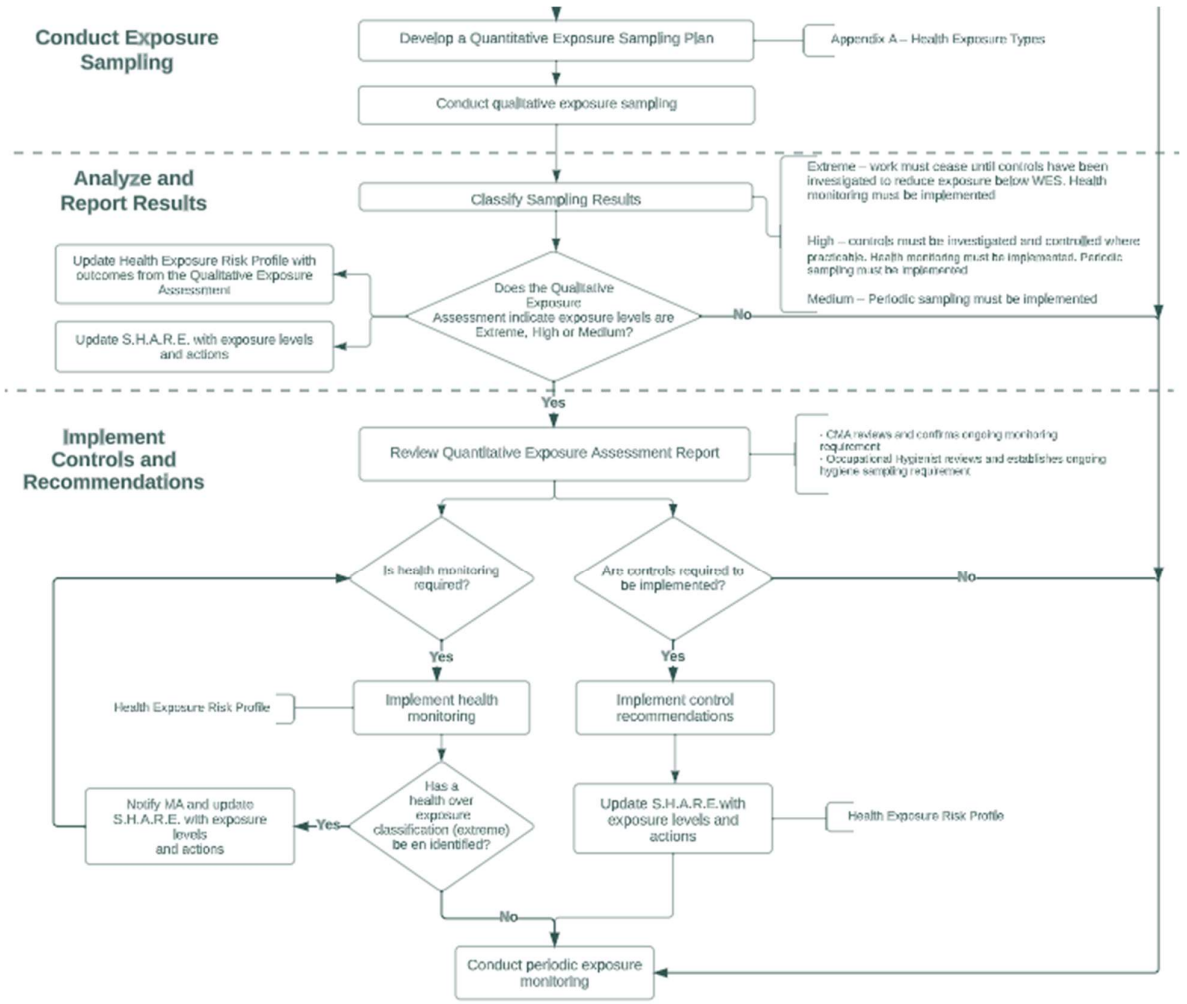

Occupational Health and Hygiene Management Procedure

Procedure

1 Identify an Occupational Health Hazard

Occupational hazards can be defined as a source of potential harm to health. The effects of a health hazard may result in acute and/or chronic health effects. Health hazards can be generally classified as:

- Physical hazards, which include noise, radiation and thermal (heat) environment;
- Chemical hazards, which include dust, fibres, welding fumes, solvents and some commercially purchased products;
- Biological hazards, which include legionella and mould issues; and
- Ergonomic hazards, which includes manual handling and vibration exposure.

Health hazards include exposure to:

- Process or waste materials;
- Construction materials;
- Maintenance materials;
- Workplace hazards (physical, biological); and
- Chemicals.

A health hazard exposure may be identified due to the introduction of new hazardous chemicals, new plant, new processes or changes to the way existing hazardous chemicals or plant are used.

Health hazards currently identified at Queensland Hydro are outlined in **Appendix A - Health Exposures Types** and managed in accordance with this procedure and the appropriate Health Management Guideline.

1.1 New Task or Process

When a new work practice is introduced, the tasks should be reviewed to identify if there are any potential hazards and/or appropriate controls currently in place.

Potential hazards may also be identified by a worker and/or Supervisor/Manager as part of normal work.

1.1.1 Develop a description of the health hazard

Conduct a review of the work environment, process and practices to develop a description of the health hazard exposure including:

- Type of health risk (e.g. chemical, noise, biological);
- Name of chemical and provision of Safety Data Sheet (if applicable);
- Concentration of chemical/ level of agent;
- Application of chemical;
- Workforce groups (Similar Exposure Groups) exposed/ area of hazard; and
- Frequency of exposure.

1.1.2 Update Event Management System

Record the health hazard in the Queensland Hydro Event Management (S.H.A.R.E) Hazard Module with the details of the hazard description. Determine if:

- The chemical contains ingredients are ‘hazardous’ as defined by Safe Work Australia (SWA) on approved Safety Data Sheet (SDS), or
- Any visible airborne contaminant is generated, or,
- Voices must be raised to communicate, or
- Potential exposure may be approaching or exceeding an exposure limit, or
- Systems or illness are presented, or
- If there are any concerns by the workers, or
- If there is any uncertainty about the exposure.

1.1.3 Conduct Risk Assessment

A risk assessment of the health hazard must be conducted to identify potential controls to reduce the exposure (considering the hierarchy of control); once identified controls should be added into S.H.A.R.E.

1.1.4 Implement controls

The controls identified in the risk assessment must be implemented to reduce exposure levels.

Monitoring of the controls is required to understand if the health exposure is still suspected to be above the Workplace Exposure Standard (WES) or still involves a hazardous chemical, symptom or illness.

2 Assess Occupational Health Exposure

A Qualitative Exposure Assessment must be conducted by an Occupational Hygienist or other suitable health professional to establish occupational hygiene exposures.

The potential risk to a person's health is determined by a judgement of the magnitude and frequency of exposure to the hazard, as well as the inherent capacity of the hazard to cause harm.

To qualitatively determine occupational health exposures, the following components are required to be determined:

- Determination of consequence (health impact) of identified health hazards;
- Judgement of the likelihood of exposure associated with identified hazard;
- Determination of the level of risk to health; and
- Identification of risk controls.

Exposures shall be *qualitatively* judged as Low, Medium, High or Extreme. The certainty of the assessment is determined to be Certain, Uncertain or Unknown in accordance with **Appendix B - Qualitative Exposure Risk Assessment.**

Where assessment is outside internal capability, a scope of work must be developed to engage a qualified health professional if:

- The chemical contains ingredients are still 'hazardous' as defined by Safe Work Australia (SWA) approved Safety Data Sheet (SDS);
- Exposure is suspected to be above an exposure limit;
- Symptoms or illness are still present; and
- There is concern from a worker.

2.1.1 Conduct Qualitative Exposure Assessment

A Health hazard risk and exposure judgment must be made in in accordance with **Appendix B - Qualitative Exposure Risk Assessment.**

Consultation with employees is required in order to establish the correct information and conduct the Qualitative Exposure Assessment. Refer to the **Queensland Hydro Communication and Consultation Procedure (HS-PRO-0002)**

The Qualitative Exposure Risk Assessment is reviewed to understand the judgements, exposure levels and recommendations to be implemented.

Once the exposure levels have been determined, the Queensland Hydro Health Exposure Risk Profile needs to be updated;

Once the exposure levels have been determined, S.H.A.R.E must be updated with exposure levels and actions.

Based on a review of the Qualitative Exposure Assessment Report a recommendation should be made to the Head of HS on whether to conduct Quantitative Exposure Sampling.

2.1.2 Conduct Exposure Sampling

The goal of exposure sampling is to evaluate where adverse health effects to the workforce are occurring, assist in implementing controls (to reduce exposure) and identify health monitoring requirements (to monitor worker health).

For personal exposure sampling, equipment is placed on an individual to evaluate the amount of exposure to a certain agent over an entire working shift.

Sampling requires specialised equipment which must be used strictly in accordance with work instructions based on legislative requirements. Specific training in these techniques and checks for competency are required for individuals to conduct this work.

Quantitative Exposure Sampling is conducted as either:

- Baseline sampling, which initially characterises the exposure by taking a minimum valid number of samples; and
- Periodic sampling, which identifies any changes which have occurred to exposures over time by periodic sampling, conducted on an ongoing regular basis. The frequency is determined by the level of risk determined by the sampling results in **Appendix C – Quantitative Exposure Assessment**.

All results from occupational hygiene sampling must be verified by statistical analysis and interpretation by a specialist in occupational hygiene.

Sampling results are based on an estimated mean (average) which incorporates a measure of probability. The Upper Confidence Limit of the estimated mean (UCL1,95%) of a sample data set is compared to the WES to determine compliance. This shows a 95% confidence that the 'true' mean of the sampling has been established.

Sampling results must be compared to current Exposure Standards located in the appropriate Occupational Health Management Guidelines outlined in Appendix A - Health Exposure Types.

WES are based on an 8-hour day, 5 day working week. Where longer shift arrangements are in place, WES may need to be adjusted to ensure that employees are afforded an equivalent level of protection, to consider longer periods of exposure and reduced recovery periods.

3 Develop a Quantitative Exposure Sampling Plan

An Occupational Hygiene Sampling Plan shall be developed, based upon the outcomes of the Qualitative Exposure Assessment.

The Quantitative Exposure Sampling Plan should be a collaboration between the Occupational Hygienist and the Queensland Hydro Health and Wellbeing Manager and signed off before sampling begins.

The Quantitative Exposure Sampling Plan must include the:

- Type of sampling required;
- Number of samples required;
- Work groups (Similar Exposure Groups) to be sampled; and
- Type of laboratory analysis required.

3.1 Conduct Quantitative Exposure Sampling

Sampling shall be conducted in accordance with management guidelines as outlined for each agent in Appendix A - Health Exposure Types.

4 Analyse and Report Results

Sampling results must be analysed by an Occupational Hygienist and provided in the form of a report. The Report shall:

- Include sampling results validated by statistical analysis;
- Include sampling results which are normalised (to 8-hour exposure standards) and adjusted (for extended workdays);
- Compare sampling results to appropriate compliance and internal exposure standards;
- Include sampling results defined in accordance with Appendix C – Quantitative Exposure Assessment;
- Recommend an ongoing Occupational Hygiene Annual Sampling Plan (if required);
- Recommend controls, including appropriate Personal Protective Equipment (PPE); and

- Be provided in a timely fashion.

Validated exposure results shall be compared to the appropriate WES. The WES for each health hazard are outlined in the appropriate Health Management Guideline in accordance with **Appendix A – Health Exposure Types.**

'Action levels' determine the level at which controls should be investigated and implemented. Queensland Hydro action levels are defined as at or above 50% of a WES.

All original and electronic records of occupational health and hygiene sampling must be retained in accordance with Queensland Hydro's Privacy Standard.

A copy of the Feedback Sampling Reports shall be issued to individuals who have taken part in exposure sampling.

5 Classify Sampling Results

Sampling results are validated by descriptive statistical analysis. Statistical results should be presented in an easy-to-read format with explanations of each analysis.

Normalisation of results which are taken from shifts > 8hrs may be needed to be required to compare results to 8 hour WES.

Adjustment of results which are taken from shifts > 8hrs may be required to correct for longer periods of exposure and reduced recovery periods.

Sampling results are classified in accordance with Appendix C – Quantitative Exposure Assessment.

Quantitative exposure assessment classified result in the following action:

- **Extreme:** Work must cease until controls have been investigated to reduce exposure below the Exposure Standard. Health monitoring must be implemented. Periodic sampling must be implemented.
- **High:** Controls must be investigated and controlled where practicable. Health monitoring must be implemented. Periodic sampling must be implemented.
- **Medium:** Periodic sampling must be implemented.

Feedback must be provided to individuals who participated in the sampling.

If the Quantitative Exposure Assessment indicates an exposure level of Extreme, High or Medium, a review of the recommendations should be conducted by the Queensland Hydro Medical Advisor. If the exposure level is Low, a 5 yearly review cycle should be implemented.

The Queensland Hydro Health Exposure Risk Profile and S.H.A.R.E must be updated to reflect the exposure outcomes and levels from the Quantitative Exposure Assessment.

6 Implement Controls and Recommendations

Based on the classification of worker exposure (Extreme, High, Medium or Low), controls and health assessments must be identified and implemented to reduce the health impact for workers.

6.1 Controls

Where health exposures are evaluated as Extreme or High (above 50% of the WES of an agent), controls must be investigated and implemented. Where exposures are evaluated as Medium, controls should be considered if possible. Exposures evaluated as Low dont require any further action regarding controls.

6.2 Health Monitoring

Health monitoring is a regulated requirement for specific chemicals and agents, where exposure to workers is considered Extreme or High'. Refer to **Appendix D – Type and Frequency of Health Monitoring.**

Health monitoring must be provided if:

- A worker is over exposed;
- A worker is using, handling, generating or storing hazardous chemicals; and
- The work is ongoing, and
- There is a significant risk to the worker's health because of exposure.

If over-exposure to a hazardous agent has occurred consultation with the Queensland Hydro Medical Advisor will be required.

Queensland Hydro have defined significant exposure at or above 50% of the WES.

Health monitoring shall be conducted under the supervision of the Queensland Hydro Medical Advisor with experience in health monitoring and all results relating to worker health monitoring will be maintained by an independent 3rd party. Results will only be available to the worker who is the subject of the report and the Queensland Hydro Medical Advisor and only used to provide direction in relation to exposures in accordance with Queensland Hydro's Privacy Standard.

6.3 Ongoing Periodic Quantitative Exposure Assessment (sampling)

Periodic Quantitative Exposure Assessment (sampling) should be ongoing to confirm and validate worker health exposure classifications. Ongoing sampling is also conducted to assess the impact of any implemented controls.

6.3.1 Review Quantitative Exposure Assessment Report

A determination is required by the Queensland Hydro Medical Advisor on whether health monitoring is required.

Health monitoring is used to identify changes in worker health status because of exposure to certain substances.

Health monitoring includes such testing as:

- Audiometry;
- Health questionnaire;
- Spirometry; and
- Biological sampling.

Hazardous agents for which health monitoring is required are determined by Safe Work Australia and include:

- Asbestos;
- A scheduled chemical, including lead (inorganic;)
- Any other hazardous chemical for which there is a valid test method for detecting health effects or exposure; and
- Noise exposure.

Workplace related hazards with potential for acute and/or chronic illness or injury are identified and assessed by Queensland Hydro.

Queensland Hydro uses health monitoring to identify early changes that may be indicative of an adverse health effect associated with exposure to certain substances.

Health monitoring shall not be used as a substitute for using effective control measures to eliminate or minimise risks to health.

Where it has been identified that health monitoring is required, Queensland Hydro will conduct baseline and periodic monitoring where appropriate. Baseline health monitoring is to be conducted prior to the worker starting at Queensland Hydro, to establish a baseline from which changes can be detected. The frequency of ongoing monitoring varies with each hazardous chemical or health hazard and the individuals who may be exposed. This should be decided in consultation with the Queensland Hydro Medical Advisor.

6.4 Implement Health Monitoring

Health monitoring is required for specific chemicals or agents at 'significant' exposure risk only.

Queensland Hydro will ensure that the health monitoring process is overseen by the Queensland Hydro Medical Advisor familiar with Queensland Hydro's operations and adequately trained in the appropriate medical examinations, tests and their interpretation.

The exposures evaluated in the Sampling Report shall be compared to those outlined in Appendix C - Quantitative Exposure Assessment to identify if health monitoring is required.

Queensland Hydro will obtain and record health monitoring reports from the registered medical practitioner who carried out the health monitoring. The Health Monitoring Report will only contain information relating to health monitoring for the hazardous chemical being used.

A copy of the Health Monitoring Report will be provided to the:

- Worker (at all times);
- Regulator (Workplace Health and Safety Queensland) if the report contains:
  - Any advice that test results indicate that the worker may have contracted a disease, injury or illness as a result of carrying out work with the hazardous chemical at a Queensland Hydro managed or controlled site; OR
  - Recommendation that Queensland Hydro take remedial measures, including whether the worker can continue to carry out the work using, handling, generating or storing hazardous chemicals that triggered the requirement for health monitoring.

If an overexposure (classification of Extreme) is identified as a result of health monitoring, the Queensland Hydro Medical Advisor must be notified, and S.H.A.R.E updated.

Discuss the outcomes identified from the Health Monitoring Report with the Queensland Hydro Medical Advisor and update the exposure levels in S.H.A.R.E with the actions identified by the Medical Advisor. The Medical Advisor may make recommendations to continue health monitoring.

Exposures that are determined to be either Extreme, High or Medium require controls to be identified to reduce exposure as low as practicable.

Controls should be investigated and implemented by a group consisting of the appropriate HS professionals and workforce representatives.

Exposure reduction must use the hierarchy of controls.

6.5 Ongoing Sampling.

Changes to controls should be updated in any documentation which refers to work which result in these exposures, including Safe Work Instructions and SWMS

Implementation of controls shall be recorded in S.H.A.R.E.

6.6 Implement Control Recommendations.

Exposures that are determined to be Extreme require immediate control to reduce exposure prior to work recommencing. Extreme exposures also require ongoing sampling after controls are implemented to ensure there is a reduction in the exposure levels.

High results require controls to be identified and implemented and ongoing sampling to monitor control effectiveness.

Medium results require ongoing sampling to monitor exposure levels.

Controls should be investigated and implemented by a group consisting of the appropriate HS professionals and workforce representatives.

Exposure reduction processes must reflect the hierarchy of controls.

Controls can be evaluated via ongoing sampling.

Responsibilities

Who	What
Executive General Managers	• Ensure monitoring and review of controls is undertaken as per the requirements of this Procedure; and • Communicate information regarding safety hazards and risk management arrangements, and controls.
Managers	• Ensure employees are appropriately trained in the requirements of this Procedure; • Ensure hazards are reported using approved processes as soon as practicable; and • Ensure risk associated with health hazards, in their area of responsibility are identified, assessed and managed as required. • Ensure procedures and work instructions contain information about identified hazards and specific controls.
Employees	• Report all hazards and risk to their supervisor and enter them into S.H.A.R.E ; and • Participate in risk assessments and comply with Queensland Hydro's identified controls.
Health and Wellbeing Manager	• Liaise between specialist occupational health professionals (Queensland Hydro Medical Advisor, Occupational Hygienist); • Ensure occupational health documentation is updated; • Conduct/coordinate personal exposure sampling using competent individuals with sufficient training in sampling techniques; and • Conduct/coordinate health monitoring using competent individuals with sufficient training in sampling techniques.
Occupational Hygienist	• Upon request from Queensland Hydro, provides specialist knowledge in the identification, evaluation and control of occupational health hazards.
Queensland Hydro Medical Advisor	• Upon request from Queensland Hydro provides specialist knowledge in Occupational Medicine to issue advice on all aspects of medical and health management.

Defined Terms

Terms	Definition
Action Level	Queensland Hydro internal standards include an action level at 50% of the exposure standard. Action includes the investigation and implementation of controls as far as practicable.
Safety Data Sheet (SDS)	A Safety Data Sheet (SDS), previously called a material safety data sheet (MSDS), provides information about a chemical. This information Includes the product name, chemical and physical properties, health hazards, safe use, and other important information (see Chapter 7 of the Work Health and Safety Regulation).
Qualitative Exposure Assessment	Judgement of the potential risk to a person's health determined by the magnitude and frequency of exposure to the hazard and the inherent capacity of the hazard to cause harm.

Terms	Definition
Quantitative Exposure Assessment	The use of exposure sampling to evaluate personal exposures to assist in determining potential for adverse health effects to the workforce
Sampling Plan	A document developed by an Occupational Hygienist in consultation with the Health and Wellbeing Manager, based on the outcomes of the Qualitative Exposure Assessment and includes the: • Type of sampling required; • Number of samples required; • Work Groups or SEGs to be sampled; and • Type of laboratory analysis required.
Similar Exposure Groups (SEG)	Worker groups who have similar work responsibilities so reasonably expected to be exposed to the same range of hazards.
Occupational Hygienist	An individual with the appropriate qualifications in the identification, evaluation and control of occupational health hazards.
Workplace Exposure Standard/ Exposure Standard	Maximum upper limit of a workplace health hazard prescribed by legislation. While an exposure standard determines the level at which adverse health effects or discomfort to nearly all workers, it is not a dividing line between a healthy and an unhealthy work environment.

References

Document code	Document title
HS-GUI-0004	Queensland Hydro Airborne Contaminants Health Management Guideline
HS-PRO-0015	Queensland Hydro Hazardous Substances Procedure
HS-PRO-0010	Queensland Hydro Hazardous Manual Tasks Procedure
HS-STD-0010	Queensland Hydro Health and Hygiene Standard
HS-PRO-0011	Queensland Hydro Heat Stress Procedure
HS-PRO-0002	Queensland Hydro Communication and Consultation Procedure
HS-PRO-0007	Queensland Hydro Health and Safety Risk Management Procedure
	Queensland Hydro's Privacy Policy
HS-PRO-0001	Queensland Hydro Personal Protective Equipment (PPE) Management Procedure
HS-GUI-0009	Queensland Hydro Biological Health Management Guideline

Appendix A - Health Exposure Types

Table 1 - Health Exposure Types

Hazard Type	Hazard	Compliance	Queensland Hydro Management Document
Physical	Noise	Work Health and Safety Act & Regulations 2011 (Qld) Qld Code of Practice	Noise Health Management Guideline
	Vibration (Hand Arm/Whole Body)	EU 2002/44/EC Directive	Hazardous Manual Tasks Procedure
	Heat Stress		Heat Stress Procedure
	Lighting	Australian Standard 1680	Lighting Health Management Guideline
	Radiation	Radiation Safety Act 1999 (Qld)	
Chemical	Hazardous Chemicals	Work Health and Safety Act & Regulations 2011 (Qld) Safe Work Australia Global Harmonised System (GHS)	Hazardous Substance Management Procedure Airborne Contaminants Health Management Guideline
Biological	Waterborne Contaminants	Australian Drinking Water Guidelines	Biological Health Management Guideline
	Mould		
Ergonomic	Muscular Skeletal	QLD WHS Act and Regulations 2011	Hazardous Manual Tasks Procedure

Appendix B - Qualitative Exposure Risk Assessment

(Adapted from the Australian Institute of Occupational Hygienists (AIOH) Document Simplified Occupational Risk Management Strategies)

Health impacts may be characterised by inherent capacity of a health hazard agent to cause harm to a person. A particular hazard may have more than one consequence and some agents work in an additive or synergistic fashion with other agents.

The consequence of health hazards agents may need investigation by a specialist in Occupational Hygiene.

Table 2 - Consequence Scale

Rating	Consequence	Description
5	Extreme	Can cause multiple fatalities or significant irreversible effects.
4	Major	Can cause a single fatality or irreversible health effects or disabling illness one of more persons.
3	Moderate	Can cause severe, reversible health effects of concern.
2	Minor	Can cause reversible health effects.
1	Insignificant	Can cause reversible health effects of little concern.

The likelihood of exposure is a measure of the probability of exposure to a health hazard agent which would lead to the health consequence inherent to that agent.

Likelihood is determined by the frequency and duration or exposure and/or the concentration (or level) of the health hazard agent.

The concentration (or level) of health hazard agent can be determined quantitatively by conducting exposure monitoring. If quantitative results are unknown, qualitative likelihood definitions can be used.

Table 3 - Likelihood Scale

Likelihood Rating	Description
A – Almost Certain	Regular contact with the potential hazard at very high levels.
B – Likely	Periodic contact with the potential hazard at very high levels or regular contact with the potential hazard at high levels.
C – Possible	Periodic contact with the potential hazard at high levels or regular contact with the potential hazard at moderate levels.
D – Unlikely	Periodic contact with the potential hazard at moderate levels or regular contact with the potential hazard at low levels.
E – Rare	Periodic contact with the potential hazard at low levels.

An overall health risk rating for exposure is determined by a matrix using the Consequence of exposure rating and the Likelihood of exposure rating, as evaluated above.

The Health Risk Rating of an exposure determines the prioritisation of control implementation and exposure monitoring. The resulting action required is detailed in an Action Plan.

The risk assessment process should be repeated at intervals of no more than 5 years, or when a change occurs to the hazard or process.

Health Risk Ratings which are determined for all worker exposures should be entered into the Queensland Hydro S.H.A.R.E System.

The Health Risk Rating of an exposure determines any ongoing action required to reduce or manage the exposure. The control actions required are determined by the Health Risk Rating and the level of uncertainty of the assessment as determined in Table 4 below. Assessments based on monitoring data will be more certain than those based on discussions or observations.

		Consequence				
Likelihood		1 Insignificant	2 Minor	3 Moderate	4 Major	5 Extreme
	A Almost Certain	11-Moderate	16-Significant	20-High	23-Critical	25-Critical
	B Likely	7-Moderate	12-Moderate	17-High	21-High	24-Critical
	C Possible	4-Low	8-Moderate	13-Significant	18-High	22-High
	D Unlikely	2-Low	5- Moderate	9-Moderate	14-Significant	19-High
	E Rare	1- Low	3-Low	6-Moderate	10-Moderate	15-Significant

Table 4 - Risk Score

Appendix C - Quantitative Exposure Assessment

Table 5 - Minimum sample numbers for statistical analysis of a workgroup or SEG (Leidel, Busch & Lynch (1977)

No of Workers	Samples to be Taken
≤6	6
7	7
8-9	8
10	9
11-12	10
13 -14	11
15 -17	12
18 -20	13
21 -24	14
25 -29	5
30 -37	16
38 -49	17
50	18
50+	22

Table 6 - Health Exposure Classification and Management (based on Grantham & Firth 2014)

Exposure Classification	Exposure Level	Control Actions
Extreme	Chemical: MVUE UCL 95% ≥ 100% WES Noise: LAeq,8h ≥ 85dB(A)	Conduct health monitoring. Immediately investigate and implement controls. 1 sample per month*.
High	Chemical: 50% WES ≤ UCL 95% < 100% WES Noise: 82 dB(A) ≤ LAeq,8hr < 85 dB(A)	Conduct health monitoring. Review control measures. 2 samples per year*.
Medium	Chemical: 10% WES ≤ UCL 95% < 50% WES Noise: 75 dB(A) ≤ LAeq,8hr < 82 dB(A)	Conduct risk assessment every 5 years or if process changes. 1 sample per year*.
Low	Chemical: UCL 95% < 10% WES Noise: LAeq,8hr < 75 dB(A)	Conduct risk assessment every 5 years or if process changes. No periodic sampling required.

*number of shifts/10 workers **ES:** Exposure Standard for each health exposure chemical or agent, as defined in Health Management Guidelines (**Appendix A**).

Appendix D - Type and Frequency of Health Monitoring

*** >0.5 TWA** = Extreme or High Exposure (Table 1) – Health Exposure Types

Hazardous Chemical	Type of Health Monitoring
Asbestos	• Demographic, medical and occupational history • Records of personal exposure • Standardised Respiratory symptom questionnaire • Physical examination (only if clinically necessary) • Standardized respiratory testing (baseline) **Frequency:** Baseline, every 1-2 years during the exposure work (respiratory questionnaire only unless concerns), termination of work with asbestos exposure. Consideration should be given for ongoing monitoring of those with high exposures as there is a long lag time between exposure and development of adverse health effects.
Crystalline silica (quartz)	• Demographic, medical and occupational history • Records of personal exposure • Standardised respiratory questionnaire to be completed • Standardised respiratory function test (for example, FEV1, FVC and FEV1/FVC) - based on medical advice, it is strongly recommended this be undertaken at an accredited respiratory function laboratory, and include a test of lung diffusing capacity • Chest X-ray full size PA view - ILO Standard X-ray is strongly recommended to allow for review by a B-reader to ensure proper detection and diagnosis of silicosis. **Frequency:** Baseline, annual monitoring, CXR every 5 years (minimum), termination of work with RCS Consideration should be given for ongoing monitoring of those with high exposures as there is a long lag time between exposure and development of adverse health effects.

<table>
<tr><th>Hazardous Agent</th><th>Type of Health Monitoring</th><th colspan="3">Frequency of Monitoring Notification of Overexposure</th></tr>
<tr><td rowspan="4">Noise</td><td rowspan="4">Hearing tests require a brief medical history of a person’s ears and any previous exposure to hazardous levels of occupational and non-work- related noise, and include:
Ear examination
Audiometric screening in accordance with AS/NZS 1269.4
Repeat of audiometric screening if a significant threshold shift is noted.</td><td>Exposure Risk Classification</td><td>Average Noise Exposure LAeq,8h</td><td>Frequency</td></tr>
<tr><td>Extreme</td><td>LAeq,8h > 100dB(A)</td><td>6-monthly</td></tr>
<tr><td>Extreme</td><td>85dB(A) ≤ LAeq,8h < 100dB(A)</td><td>Annually</td></tr>
<tr><td>High</td><td>82dB(A) ≤ LAeq,8h < 85 (A)</td><td>2 yearly</td></tr>
<tr><td>Radio Frequency Radiation</td><td>Questionnaire (pre-placement)
Medical assessment, eye if required (overexposure)</td><td colspan="3">Exposure risk in accordance with Table 3:</td></tr>
<tr><td></td><td></td><td colspan="3">Frequency: Pre-placement and over exposure.
Notification (Radiation Health Qld): Illness where radiation has been identified as a potential health exposure.</td></tr>
</table>