# Surface atmospheric contaminant management audit Site: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# Date conducted:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| 1 Ventilation Management Plan |
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| **Point** | **Standard** | **Standard met** | **Comments** |
| 1.1 | The principal employer has developed and implemented a ventilation management plan. |  |  |
| 1.2 | The ventilation management plan identifies the atmospheric contaminants present. |  |  |
| 1.3 | The ventilation management plan identifies the contaminant control methods for each atmospheric contaminant present. |  |  |
| 1.4 | The ventilation management plan includes the appropriate PPE to be worn for each atmospheric contaminant where peak or STEL exposures are likely. |  |  |
| 1.5 | The ventilation management plan requires that exposure assessment results are reported to all relevant personnel in an effective, timely and documented manner. |  |  |
| 1.6 | The ventilation management plan includes a programme for the monitoring and assessment of the atmospheric contaminant exposure of significantly exposed employees on a routine basis. |  |  |
| 1.7 | The ventilation management plan includes a system for the identification, reporting, rectification and employee notification requirements of all ventilation and atmospheric contaminant defects. |  |  |

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| 2 Ventilation Personnel |
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| **Point** | **Standard** | **Standard met** | **Comments** |
| 2.1 | The manager has appointed a surface ventilation officer or the mine is exempt by written directive issued by the district inspector. |  |  |
| 2.2 | The district inspector was notified in writing of the appointment. |  |  |
| 2.3 | The surface ventilation officer is appropriately trained and qualified. |  |  |
| 2.4 | The surface ventilation officer has the authority in consultation with management to close down operations in areas where dangerous atmospheric contaminant levels are identified. |  |  |
| 2.5 | Ventilation technicians undertaking measurements of air and atmospheric contaminants are adequately trained. |  |  |
| 2.6 | Mine supervisors, employees and contractors receive basic training in atmospheric contaminant control, suppression and respiratory protection requirements. |  |  |
| 2.7 | Where gas monitoring equipment is installed, mine supervisors, employees and contractors receive training in the identification, control, awareness of alarms and PPE requirements for normal and emergency situations. |  |  |

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| 3 Measuring Equipment |
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| **Point** | **Standard** | **Standard met** | **Comments** |
| 3.1 | The mine has ventilation instrumentation in house, or provided by an external provider, to conduct the required air pressure and flow measurements. |  |  |
| 3.2 | The mine has measuring equipment in house, or provided by an external provider, to measure the atmospheric contaminants anticipated to occur. |  |  |
| 3.3 | The mine has equipment to measure the levels of oxygen and gases where any toxic, asphyxiant or explosive gases are anticipated to occur. |  |  |
| 3.4 | All measuring equipment is calibrated and maintained to manufacturers’ specifications. |  |  |
| 3.5 | When ventilation or gas measuring equipment is sent for calibration or repair, alternative equipment is made available. |  |  |
| 3.6 | A record is kept of each item of calibrated equipment that includes the latest date of calibration, the calibration factors and the next due date. |  |  |
| 3.7 | A procedure exists to ensure that where indicator tubes are used, the tubes are stored as recommended by the manufacturer and the use-by-date has not expired. |  |  |

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| 4 Ventilation Record Keeping |
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| **Point** | **Standard** | **Standard met** | **Comments** |
| 4.1 | The surface ventilation officer has a copy of the latest Mines Safety and Inspection Act 1994, the Mines Safety and Inspection Regulations1995 and amendments. |  |  |
| 4.2 | A copy of the current National Exposure Standards NOHSC: 1003 is available. |  |  |
| 4.3 | The surface ventilation officer has access to the latest applicable Australian Standards. |  |  |
| 4.4 | The surface ventilation officer has access to the latest version of the Australia Safety and Compensation Council (ASCC) “Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres”. |  |  |
| 4.5 | A ventilation log book has been established. |  |  |
| 4.6 | The records indicate that inspections occur at regular intervals for the presence and control of atmospheric contaminants in workplaces. |  |  |
| 4.7 | The records indicate the Contam quarterly sampling quota is carried out and reported in accordance with the statutory requirements. |  |  |
| 4.8 | The records indicate that the monitoring and assessment of the contaminant exposure of significantly exposed employees occurs on a routine basis. |  |  |
| 4.9 | Sampling and personal exposure assessment results are reported to all relevant personnel in an effective, timely and documented manner. |  |  |
| 4.10 | Contaminant sampling results taken over the last year to evaluate operator exposure are all below the exposure standard for both normal and extended shifts. |  |  |
| 4.11 | Sampling for respirable dust is carried out in accordance with the required method. |  |  |
| 4.12 | Sampling for organic vapours is carried out in accordance with the required method. |  |  |
| 4.13 | Sampling for inhalable dust is carried out in accordance with the required method. |  |  |
| 4.14 | Sampling for asbestos fibres is carried out in accordance with the required method. |  |  |
| 4.15 | The records include reports on the means and effectiveness of all dust suppression and collection equipment. |  |  |
| 4.16 | The records include reports on the means and effectiveness of all fume hoods and fume extraction equipment. |  |  |
| 4.17 | Ventilation and contaminant measurements are documented and retained. |  |  |
| 4.18 | Each entry in the ventilation record book is dated, signed and kept in area chronological order. |  |  |
| 4.19 | There is a procedure for the reporting and rectification of ventilation and contaminant issues. |  |  |

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| 5 Atmospheric Contaminant Control |
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| **Point** | **Standard** | **Standard met** | **Comments** |
| 5.1 | Each dust suppression system is operated and maintained in an effective operating condition. |  |  |
| 5.2 | Each dust extraction system is operated and maintained in an effective operating condition. |  |  |
| 5.3 | Each dust enclosure system is operated and maintained in an effective operating condition. |  |  |
| 5.4 | Each contaminant extraction system is operated and maintained in an effective operating condition. |  |  |
| 5.5 | All hoods and appliances fitted to vessels used for the chemical treatment of minerals or mineral substances are operated and maintained in an effective operating condition. |  |  |
| 5.6 | All hoods and appliances fitted to capture hot gases from smelting operations are operated and maintained in an effective operating condition. |  |  |
| 5.7 | Where hoods and appliances are installed to remove atmospheric contaminants the discharge outlet is at a sufficient height to avoid contamination of other workplaces. |  |  |

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| 6 Dust Management |
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| **Point** | **Standard** | **Standard met** | **Comments** |
| 6.1 | Exploration and mine production drilling equipment is fitted with dust control devices which effectively control the emission of dust at each source during drilling operations. |  |  |
| 6.2 | Precautions are taken to protect samplers from exposure to dust during drilling and sampling operations. |  |  |
| 6.3 | The emission of dust is effectively controlled during truck loading operations. |  |  |
| 6.4 | The emission of dust is effectively controlled along each open pit road and vehicle operating area. |  |  |
| 6.5 | The emission of dust is effectively controlled during dumping operations. |  |  |
| 6.6 | The emission of dust is effectively controlled at all stockpile areas, stockpile stacking operations, stockpile tunnels and material reclaim operations. |  |  |
| 6.7 | The emission of dust is effectively controlled at all crushing and screening plant. |  |  |
| 6.8 | Spillage and dust build up around the crushing and screening plant and on equipment surfaces is kept under control. |  |  |
| 6.9 | The emission of dust is effectively controlled along all conveying equipment. |  |  |
| 6.10 | Spillage and dust build up around the conveyors and on equipment surfaces is kept under control. |  |  |
| 6.11 | The emission of dust is effectively controlled within all process operations. |  |  |
| 6.12 | Spillage and dust build up around plant and on equipment surfaces is kept under control. |  |  |
| 6.13 | The emission of dust is effectively controlled within sample preparation and analysis areas. |  |  |
| 6.14 | Spillage and dust build up in the sample preparation area and on equipment surfaces is kept under control. |  |  |
| 6.15 | The air pressure in hand held airguns used for cleaning is adequately reduced to prevent excessive dust generation. |  |  |
| 6.16 | Compressed air for cleaning is used carefully within the dust capture enclosure so as not to generate dust in the workplace. |  |  |
| 6.17 | Observe operator using airgun to clean off dust during sample handling. Is dust being extracted at source? Is dust escaping into the workplace? Refer to MSIR 4.12(2). |  |  |
| 6.18 | Compressed air is not used for cleaning the body or clothing of employees. |  |  |
| 6.19 | The emission of dust is effectively controlled within product bagging and packaging areas. |  |  |
| 6.20 | Spillage and dust build up in the bagging and packaging area and on equipment surfaces is kept under control. |  |  |
| 6.21 | The emission of dust is effectively controlled at truck loading and unloading areas. |  |  |
| 6.22 | Spillage and dust build up in the truck loading and unloading areas and on equipment surfaces is kept under control. |  |  |
| 6.23 | The emission of dust is effectively controlled at train loading and unloading areas. |  |  |
| 6.24 | Spillage and dust build up in the train loading and unloading areas and on equipment surfaces is kept under control. |  |  |
| 6.25 | The emission of dust is effectively controlled at road train loading and unloading areas. |  |  |
| 6.26 | Spillage and dust build up in the road train loading and unloading areas and on equipment surfaces is kept under control. |  |  |
| 6.27 | The emission of dust is effectively controlled at ship loading and unloading operations. |  |  |
| 6.28 | Spillage and dust build up in the ship loading and unloading operations and on equipment surfaces is kept under control. |  |  |
| 6.29 | Spillage and dust build up on all internal building structures is kept under control. |  |  |
| 6.30 | Measures are taken to minimise dust pick up during strong winds. |  |  |
| 6.31 | Water of acceptable quality is used for dust suppression. |  |  |

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| 7 Naturally Occuring Hazardous Gases |
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| **Point** | **Standard** | **Standard met** | **Comments** |
| 7.1 | A hazardous gas management plan has been developed and implemented. |  |  |
| 7.2 | The District Inspector of Mines is notified in writing of the precautions taken to monitor and control the presence of the hazardous gases. |  |  |
| 7.3 | Employees are notified of the precautions taken to monitor and control the formation and emission of the hazardous gases present. |  |  |
| 7.4 | Monitoring devices are installed which give a warning when the peak or STEL level of any hazardous gas is being approached. |  |  |
| 7.5 | There is a register of all hazardous substances used or produced at the mine. |  |  |

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| 8 Process Atmospheric Contaminants |
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| **Point** | **Standard** | **Standard met** | **Comments** |
| 8.1 | There is a register of all hazardous substances used or produced at the mine. |  |  |
| 8.2 | View register and determine it is readily available to all employees. Refer to MSIR 7.25. |  |  |
| 8.3 | There is a written procedure to minimise and control the level of each hazardous substance and associated airborne atmospheric contaminant released into the workplace. |  |  |
| 8.4 | The procedure for handling, usage and storage of hazardous substances is in accordance with the instructions contained in the Material Safety Data Sheets. |  |  |
| 8.5 | The method used to reduce exposure to each hazardous substance is in accordance with the recognised hierarchy of control. |  |  |
| 8.6 | The presence of a hazardous substance and associated atmospheric contaminant in an enclosed system is identified to all employees exposed to the risk. |  |  |
| 8.7 | Smoking is prohibited in all workplaces where organic or volatile solvents are used. |  |  |
| 8.8 | Smoking is prohibited in all workplaces where flammable vapours are present. |  |  |

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| 9 Asbestos |
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| **Point** | **Standard** | **Standard met** | **Comments** |
| 9.1 | Restrictions are placed on the use of asbestos and asbestos products. |  |  |
| 9.2 | There is a register of asbestos containing material on site. |  |  |
| 9.3 | A system is established to identify the presence of naturally occurring asbestos contamination. |  |  |
| 9.4 | An asbestos management plan has been developed and implemented. |  |  |
| 9.5 | The District Inspector of Mines is notified in writing of the presence of contaminant asbestos. |  |  |
| 9.6 | Asbestos removal work is carried out in accordance with the procedures specified in the Code of Practice for the Safe Removal of Asbestos (NOHSC:CP002-1988) published by the ASCC. |  |  |
| 9.7 | The District Inspector of Mines is notified in writing of the removal of asbestos prior to the work commencing. |  |  |
| 9.8 | Smoking is prohibited in all workplaces where the air is likely to contain asbestos. |  |  |

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| 10 Biological Monitoring |
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| **Point** | **Standard** | **Standard met** | **Comments** |
| 10.1 | Biological monitoring is undertaken where employees who are engaged in specified occupational exposure work are exposed to hazardous substances and there is a reasonable likelihood that accepted values might be exceeded. |  |  |
| 10.2 | There is an adequate health surveillance procedure in place for each specified occupational exposure work to regularly monitor those employees requiring biological monitoring. |  |  |
| 10.3 | The arrangement and cost of the biological monitoring is organised and borne by the employer. |  |  |
| 10.4 | Examine the method of payment. Interview employees. Refer to MSIR 3.30. |  |  |
| 10.5 | Where biological monitoring identifies employee exposure levels are near or above prescribed safe limits remedial action is taken. |  |  |

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| 11 Thermal Comfort |
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| **Point** | **Standard** | **Standard met** | **Comments** |
| 11.1 | All production drilling equipment is fitted with a fully enclosed air conditioned cabin. |  |  |
| 11.2 | All mobile equipment is fitted with a fully enclosed air conditioned cabin. |  |  |
| 11.3 | Crusher and screening plant control cabins are equipped with a means of heating and cooling. |  |  |
| 11.4 | Process plant rooms and cabins are equipped with a means of heating and cooling. |  |  |
| 11.5 | The climate control equipment is working effectively in vehicle and fixed enclosed cabins. |  |  |
| 11.6 | Air conditioner filters are regularly checked and cleaned. |  |  |
| 11.7 | Vehicle and fixed enclosed rooms/cabins are effectively sealed to prevent the entry of contaminants. |  |  |
| 11.8 | Adequate ventilation air changes are provided to each enclosed operator control room and cabin. |  |  |
| 11.9 | The interior of each vehicle and fixed enclosed rooms / cabin is in a clean condition. |  |  |
| 11.10 | Stockpile tunnel temperatures and air velocities are monitored and controlled. |  |  |
| 11.11 | Where employees are required to work for extended periods exposed to the elements, safe systems of work have been developed. |  |  |
| 11.12 | Cooling towers, evaporative condensers, warm water systems or other plant or devices which promote the growth of micro organisms have sufficient controls to prevent the growth of those organisms. |  |  |
| 11.13 | Refrigeration Plants of a size greater than 100kW(R) have management procedures and are fitted with monitoring devices to detect and deal with the leakage of refrigerant. |  |  |

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| 12 Personal Protective Equipment |
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| **Point** | **Standard** | **Standard met** | **Comments** |
| 12.1 | A site wide risk assessment has established the tasks which require respiratory protection devices to be used. |  |  |
| 12.2 | There is a program to select the appropriate respiratory protection for a person. |  |  |
| 12.3 | Respiratory protection devices are freely available and employees are aware of where and how to obtain the correct device. |  |  |
| 12.4 | Employees are fit tested for the type of respirator issued to them. |  |  |
| 12.5 | Employees are required to be clean shaven where required to wear a half, full or disposable face piece respiratory protection equipment (RPE) |  |  |
| 12.6 | Employees are trained in the use of the respirator provided. |  |  |
| 12.7 | There is a maintenance program for non disposable respiratory protection. |  |  |
| 12.8 | Respirators are cleaned, maintained and stored as specified in the maintenance program. |  |  |

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| 13 Confined Spaces |
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| **Point** | **Standard** | **Standard met** | **Comments** |
| 13.1 | The confined space entry procedure requires atmospheric testing to be carried out prior to and during entry into the confined space where atmospheric contaminants are present or likely to be introduced into the confined space. |  |  |
| 13.2 | The permit to dig procedure requires atmospheric testing to be carried out prior to and during employee entry into a narrow surface excavation or trench where the presence of high specific gravity hazardous atmospheric contaminants in the ground is suspected or known. |  |  |

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| 14 Abrasive Blasting |
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| **Point** | **Standard** | **Standard met** | **Comments** |
| 14.1 | Abrasive blasting work is carried out in accordance with the WorkSafe Western Australian Commission code of practice for abrasive blasting. |  |  |
| 14.2 | Material used for abrasive blasting contains less than 5% silica by weight. |  |  |
| 14.3 | Material used for abrasive blasting contains less than 1% of any one of the following - arsenic, beryllium, lead, cadmium, nickel, antimony, cobalt, chromium or tin. |  |  |
| 14.4 | Material used for abrasive blasting contains no radioactive substance as defined in the Radiation Safety Act 1975. |  |  |
| 14.5 | Recycled dry abrasive blasting material is treated to remove respirable dust or other adverse material. |  |  |
| 14.6 | The person operating the abrasive blasting machine wears an airline respirator of the hood or helmet type and the appropriate PPE. |  |  |
| 14.7 | The air supply to the airline respirator is of acceptable breathable quality, pressure and temperature. |  |  |
| 14.8 | The abrasive blasting machine is fitted with an automatic cut-off device. |  |  |

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