



Mapping Exercise

Engineering Supervisor

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Introduction

This document has been produced to examine how statements within the National Occupational Standards (NOS) can be used to develop the content that could form a common training standard for engineering supervisors across the UK mining sector. The following standards have been considered as part of developing this approach.

Module Title	Original NOS Reference	UK Standards Reference
Oversee the Managers Scheme	MT1	PROMT1
Identify Health and Safety Risks in Mines	MT2	PROMT2
Contribute to Improving Health and Safety in the Mine	MT3	PROMT3
Implementing Engineering Activities	MT5	PROMT5
Resolving Engineering Problems	MT6	PROMT6
Monitoring Engineering Activities	MT7	PROMT7

The tables contained within this document have aimed to:

1. Use the knowledge statements from the NOS to inform a wider content for any training programme.
2. Use the performance statements to start to inform a structured approach to assessment.

The requirements for an Engineering Supervisor are common across the mechanical and electrical disciplines within the National Occupational Standards.

Once the content of this document has been agreed by the sector it is suggested that:

1. A structured portfolio is developed that covers the knowledge elements.
2. A structured skills development programme is developed that covers the key performance statements (this would likely require that the potential supervisor is provided with opportunity to shadow competent supervisors and spend time with specialist departments, to provide as broad an understanding of the mining operation as possible).
3. A structured assessment is constructed around a typical working day, and the arrangements in the event of an emergency.

Disclaimer

The **Mining Qualification Committee** (MQC) has developed and reviewed the training and assessment material.

MPQC have provided the accreditation for the training and assessment material.

MAUK have published the training and assessment material and provided access for the underground mining sector.

It remains the responsibility of the **mine operator** to verify the training and assessment material is suitable for their circumstances and application.

Knowledge Sections

PROMT1 – Oversee the Managers Scheme

Common Elements		
PROMT1 – Oversee the Managers Scheme		
Knowledge Statement		Elements
K1	The legislative framework (Acts, Regulations, Approved Codes of Practice, Guidance).	Understands the requirements of the Health and Safety at Work Act 1974 for having a scheme to have maintenance of plant and equipment to ensure that they are safe and without risks (as far is as practicable) (Section 2).
		Understands the Health and Safety at Work Act 1974 and the requirements to ensure that people have adequate information, instruction, and training (Section 2).
		Understands the requirements of the Health and Safety at Work Act 1974 to adequately maintain any place of work under the employer's control in a condition which is free for risks to safety and health (Section 2).
		Outline the requirements of Section 3 of the Health and Safety at Work Act 1974 and the requirement to conduct their business in a way that does not impact persons not employed.
		Identify the key requirements under the Provision and Use of Work Equipment Regulation 1998 in relation to have a scheme of maintenance (Regulation 5).
		Identify the key requirements under the Provision and Use of Work Equipment Regulation 1998 in relation to maintenance operations (Regulation 22).
		Understands the requirements of Reporting of Injuries, Diseases and Dangerous Occurrence Regulations 2013.
K2	Legislation in relation to mine maintenance activities.	Outline the requirements of Regulation 15 of the Mines Regulations 2014.
		When considering the development of a written scheme of maintenance outline the key considerations, as a minimum this should consider: • Potential failure modes. • Potential consequences to health and safety in the event of equipment failure. • Failure rate data. • Duty. • Working environment. • Recording and rectification of defects including written reports.

		• Industry standards. • Specific legislative requirements. For each of the above, outline why these factors should be considered and provide examples on where they apply. Under the Mines Regulations 2014, outline the requirements (Regulation 68) to keep records and how your organisation meets that requirement
K3	The management and administration control structure and its purpose.	Outline the requirements of Regulation 10 of the Mines Regulations 2014, when it comes to having a management structure in place. Outline how the management structure relates to the role of engineering supervisor at your mine. Define some of the key responsibilities that you have as an engineering supervisor at your mine.
K4	The statutory duties, role, and responsibilities of management.	Outline the key principles of Guidance Note 40 of the Mines Regulations 2014, and how these are applied at your mine. Outline the key principles of Guidance Note 41 of the Mines Regulations 2014, and how these are applied at your mine. You should identify the role of the engineering supervisor in the design, operation, and maintenance of mechanical and electrical plant Outline the key principles of Guidance Note 88 of the Mines Regulations 2014, and how these are applied at your mine. You should understand how this is achieved in your organisation.
K5	Actions arising from absence of the mine engineer.	When considering the management structure at your mine, who takes responsibility for overall engineering management in the absence of the senior engineer
K6	Personal statutory duties and responsibilities, and the limits of that responsibility.	See K3 of PROMT1 See K4 of PROMT1
K7	Responsibilities of mine employees.	Outline what the Health and Safety at Work Act 1974 says in relation to the duty of employees whilst at work.

K8	Duties and powers of mines inspectorate.	Outline what the Health and Safety at Work Act 1974 say in relation to the powers of Inspectors (section 20). Outline what the Health and Safety at Work Act 1974 say in relation to the issue of improvement and prohibition notices. (Sections 21 and 22.)
K9	Duties, powers, and responsibilities in the event of an emergency situation (e.g. fire, inrush, evacuation, mine rescue).	Outline the requirements of Regulation 53 of the Mines Regulations 2014, in relation to the duties of a mines operator in relation to escape and rescue. Outline the requirements of Regulation 54 of the Mines Regulations 2014, in relation to developing an escape and rescue plan Under your mine's emergency response plans, outline any responsibilities that the engineering supervisors and the engineering function have. Outline the key principles of Guidance Note 41 of the Mines Regulations 2014, and how these are applied at your mine under that plan.
K10	Statutory requirements for safely installing, commissioning, systematically inspecting, examining, testing and maintaining mine plant and equipment.	See K3 of PROMT1. See K4 of PROMT1.
K11	Penalties for non-compliance or breach of regulations.	
K12	Definitions of hazard, risk, accident, danger, accident rate, frequency, and severity.	Use the questions as the basis of what goes into the portfolio
K13	Recording procedures in relation to statutory requirements.	
K14	The written scheme for the systematic inspection, examination, testing, maintenance, and repair of plant and equipment, and those appointed to manage, supervise, and undertake those activities.	See K3 of PROMT1. See K4 of PROMT1. Outline how the commissioning, inspection, examination, testing, and maintenance requirements for individual items of plant and equipment are determined at your mine. Outline how commissioning of individual items of plant and equipment is carried out at your mine. Outline how the frequency of inspection, examination, testing, and maintenance requirements for individual items of plant and equipment are determined at your mine.

		Define how items of plant or equipment that are scheduled for inspection, examination, testing, and maintenance are issued to those responsible for carrying out the work.
		Define how items of plant or equipment that are scheduled for inspection, examination, testing, and maintenance are issued to those responsible for carrying out the work.
		Outline how the information from any inspection, examination, testing, and maintenance is recorded within the maintenance systems.
		Outline how any work/ corrective actions/ defects identified through any inspection, examination, testing, and maintenance is rescheduled and tracked to completion including a written report.
		Define how the asset maintenance system can be used to develop an overview of the cost of ownership, and how your organisation uses these facilities as part of the decision making and mine planning process.
K15	Personal statutory duties and responsibilities in relation to maintenance (e.g. liaison with management, production, and maintenance staff, reporting of defects, taking plant/ equipment out of use, arrangements for access for maintenance/ repair/ servicing).	Outline the requirements of the Mines Regulations 2014, regulation 15(1)(a) and (b) in relation to the duties of a mine's operator in relation to defects on plant and equipment.
K16	The range, type, purpose and frequency of examinations to be carried out.	See K14 of PROMT1 .
K17	Actions to be taken in the event of an examination identifying potential hazards requiring attention.	See K14 of PROMT1 .
K18	Planned preventative maintenance (time-based and condition-based) and curative (breakdown) maintenance; when these might be required, and any changes required facilitating these activities.	Identify what is meant by a time-based maintenance system.
		Give examples of where time-based maintenance is utilised at your mine, what sort of plant and equipment are scheduled using this method.
		Outline the advantages and disadvantages of a time-based maintenance system.
		What is meant by a condition-based maintenance system.
		Give examples of where condition-based maintenance is utilised at your mine, what types of measures are used to assess the

		condition of the plant and equipment to determine the maintenance requirements.
		Outline the advantages and disadvantages of a condition-based maintenance system.
		Outline the other types of maintenance systems that may be used at your mine, outline the advantages/ disadvantages of each.
		Outline how your maintenance system deals with the different approaches to maintenance scheduling to ensure that you have a scheme that complies with the requirements of the regulations.
K19	Procedures for the establishment of plant safety (e.g. permits to work, lock-off/ isolation systems).	Established from the knowledge statement.
		Outline the requirements of Regulation 13 of the Mines Regulations 2014 and how this is affected at your mine.
K20	Recording/ reporting procedures in relation to maintenance of plant/ equipment/ machinery and defects.	See K14 of PROMT1 .
K21	Basic procedures for carrying out health and safety risk assessment.	Outline the principle of Regulation 3 of the Management of Health and Safety at Work Regulations 1999.
		Define your organisational process for carrying out a risk assessment.
		Outline how that risk assessment is used to develop controls and how those controls are carried out in the method statements.
		Outline how the hierarchy of control should be applied according to the Management of Health and Safety at work Regulation 1999.
K22	Identification and safe use of inspection/ examination/ testing equipment.	Identify any requirements within your organisations for the inspection and calibration of equipment used for the inspection, examination, and testing of equipment.
K23	Acceptable standards of engineering aspects.	Outline the types of maintenance activities and equipment involved which could be conducted at a mine that may impact the safety of the mine or those that work in the mine.
		Outline what the Mines Regulations 2014 require to be done if the planned maintenance activities will restrict egress or limit the number of exits available from the mine/ place of work.

		Define the process/ procedure used by your organisation to limit the impact of planned maintenance activities on the safety of the mine or the person in the mine.
K24	Technical activities that may impact on the activities or safety of the mine.	See K23 of PROMT1 .
K25	Actions to be taken in the event of identifying an aspect of the condition.	N/A

PROMT2 (SUM02) – Identifying Health and Safety Hazards in Mines

Common Elements		
PROMT2 (SUM02) – Identify Health and Safety Hazards in Mines		
Knowledge Statement		Elements
K1	Definitions of hazard, risk, accident, danger, accident rate, frequency, and severity.	Understands the principles of risk management.
		Understands the hierarchy of controls.
		Knows the key definitions.
		Understands how the mine monitors and records accidents.
		Understands how the mine records and displays data associated with accidents.
		Understands how the mine differentiates between all accidents, lost time accidents, and high potential events.
		Understands the difference between major hazard injury precursor events (near misses) and incidents against non-major hazard accidents.
		Understanding of principles of HSG 65 Managing for Health and Safety.
K2	Workplace monitoring and hazard identification methods (e.g., formal, and informal health and safety inspections, surveys, and audits).	Understands classification of hazards within the mine environment.
		Understands the use of various risk assessment techniques (major hazard assessment (bow tie), risk assessment, point of work risk assessment).
		Understands the use of Safety Performance Indicators (SPI's).
		Understands the method of carrying out workplace safety inspections.
K3	Key basic features for carrying out health and safety risk assessment.	See K1 of PROMT2 for some elements.
		Identifying the hazards present in the workplace.
		Understands the application of a scoring system to categorise risk.
		Understands the use of controls to reduce the risk, and application of a scoring system (i.e., a risk matrix) to categorise residual risk.
K4	Key aspects of legislation applicable to the role of the supervisor in the workplace.	Understanding of the Health and Safety at Work Act.
		Understanding of the Management Regulations.
		Understanding of the Mines Regulations.
		Understanding of Control of Substances Hazardous to Health.

		Understanding of Reporting of Injuries, Disease and Dangerous Occurrence Regulations.
		Understands the Personal Protective Equipment Regulations.
		Understands the Provision and Use of Work Equipment Regulations.
		Understands the Lifting Operations and Lifting Equipment Regulations.
		Understands The Electricity at Work Regulations.
K5	The benefits of participation of persons at work.	How to interact with people (teams) on matters of health and safety.
		How to effectively record feedback provided by people (teams).
		Getting buy in, the management of change in the workplace.
K6	Requirements of the Health and Safety Document with regard to Risk Assessment.	
		The requirement to assess the risk that people might be exposed to at the mine.
		Consideration of the design, commissioning, use, and maintenance of equipment.
		The requirements for ongoing consideration to ensure that the controls/ document remain relevant.
		The makeup of the health and safety document at the mine operation.
		Access to the health and safety document at the mine operation.
K7	In house information in relation to internal accidents, incidents, near misses, and cases of occupational illness.	
		See statements in K1 of PROMT2 .
		How health and safety information is recorded, displayed, and communicated on site.
		How health and safety information is used on site at the mine to inform decisions.
K8	Basic knowledge of the main types of occupational health risk – chemical (toxic, corrosive, dermatitis), physical (noise, dust, temperature, light, vibration, and repetitive strain), and ergonomic.	
		See K4 of PROMT2 for information relating to control of hazards (regulations).
		Understanding of the processes that may introduce occupational health risk into the workplace.
		Understands how these risks are assessed and the controls that have been put in place to reduce the occupational health risks.
K9	How the incorporation of commonly used protective devices and correct	See K6 of PROMT2 for elements.
		See K8 of PROMT2 for elements.

	plant maintenance contribute to the reduction in risks.	Why the managers scheme for maintenance at the mine is in place, and the principles of its operation.
K10	Safe working practices for yourself and those working under your direction and control to include all systems, procedures, equipment, and materials in use.	See K1 of PROMT2 for elements.
		See K4 of PROMT2 for elements.
		See K5 of PROMT2 for elements.
		The use of standard operating procedures and safe systems of work as a means of controlling the risk in the workplace.
		Where to find and locate standard operating procedures and safe systems of work.
		The process for reviewing, updating, or changing standard operating procedures and safe systems of work.
		The process that is used within your organisation to communicate the operating standards.
		How you would ensure that persons under your control are working to the operational procedures, and any formal process that your organisation has in place to record the outcomes from such reviews.
K11	Scope and responsibility for dealing with hazards.	Understands what must be done if a hazard is encountered during inspection or routine work activity.
		Understands the limitations of what can be achieved without reviewing the standard approach to managing workplace hazards, and the process for escalation.
		Understands how the area affected by the hazard identified might be made safe ahead of remedial activities being completed.
		Understands how to report works completed and works outstanding in relation to dealing with hazards.
		Understands how to escalate the situation discovered up the management chain.
K12	Your own limitations relating to hazards and risk and awareness of the structure for reporting.	See K11 of PROMT2 for elements.
		Understands that they cannot use risk assessment as a means of justifying changes to the standard operating procedures.
		Change process?
		Understands the organisations management of change procedure.
K13	Health and safety induction schemes.	Understands the key elements required at your organisation in order to enter the work

		environment (application to visitors/ contractors/ employees).
K14	Communication, involvement, and motivation in relation to hazards and risks.	See K5 of PROMT2 for elements.
		Understands the need to engage with the team in order to verify understanding and gain buy in to the standard operating procedures, and other rules.
K15	Interview and questioning techniques.	Understands the principles of preparation for interviewing and questioning.
		Understands the principles of open and closed questioning techniques as part of interviewing and questioning.
		Understands and displays empathy whilst interviewing.
K16	The organisations record keeping requirements.	Understands the requirements to maintain records relating to health-related issues.
		Understands the requirement to record and document risk assessments.
		Understands the requirement to document and record findings of maintenance activities.
		Understands the requirement for documenting and recording information found during mine inspection/ mine supervision activities.
		Understands the requirement to investigate and record findings from incidents, accidents, and significant near misses.

PROMT3 (SUM05) – Contribute to Maintaining and Improving Health and Safety in the Mine

Common Elements		
PROMT3 (SUM05) – Contribute to Maintaining and Improving Health and Safety in the Mine		
Knowledge Statement		Elements
K1	The benefits to individuals and the organisation for improved health and safety and environmental performance.	Understands the personal impact that incidents, accidents, and long-term health issues can have on an individual and their family.
		Understands that the workforce perceives the way that management and supervision care about health, safety, and environmental impact.
		Understands that people feeling safe in the workplace means that they will positively promote the business, and that staff are likely to stay at that organisation.
K2	The consequences of failing to maintain/ improve health, safety, and environmental performance.	Understands the personal impact that incidents, accidents, and long-term health issues can have on an individual and their family.
		Understands that there are significant costs, both short and long term associated with a failure to manage the health and safety of those employed (or those affected).
		Understands the impact of the regulator becoming involved in the investigation of breaches of health, safety, and environmental legislation.
		Understands how ongoing or repeat issues can negatively influence the reputation of the business.
		Understands that there is reputational risk with a failure to manage health and safety.
K3	The benefits of participation of persons at work.	K5 of PROMT2 covers the benefits of participation of those at work.
K4	How to communicate effectively.	K14 of PROMT2 covers communication, involvement, and motivation to reduce risk.
K5	How to identify and use effective opportunities to promote awareness, understanding of, and	Understands the need to advocate for safe working practices.
		Understands the potential long term health impacts that may exist if elements of the

	enthusiasm for health, safety, and environmental issues.	work process are not adequately managed and controlled.
		Understands the need to ensure that others are provided with the information that supports the development of a positive safety culture.
K6	Sources of supporting information, resources, and materials.	Knows where to find information at the mine that underpins the procedures and process that are in place.
		Knows where to get statistical information relating the performance of the mine in key areas relating to health, safety, and the environment.
K7	Operational instructions, rules, procedures, and schemes in relation to the mine.	Understands where to find the rules and operating procedure relating to their place of work.
		Understands the importance of communicating these effectively with the workforce.
		Understands how to review, evaluate, and provide constructive feedback on the rules and procedures.
		Understands the process to be followed if the rules and procedures in place are not effective in controlling the risks relating to health, safety, and the environment.
K8	Organisational procedures for the prevention of/ responding to hazards.	Understands the importance of communicating these effectively with the workforce.
		Understands how to review, evaluate, and provide constructive feedback on the rules and procedures.
		Understands the process to be followed if the rules and procedures in place are not effective in controlling the risks relating to health, safety, and the environment.
K9	The organisational procedure for implementing improvements.	Understands how to review, evaluate, and provide constructive feedback on the rules and procedures.
K10	The organisations reporting and record keeping requirement.	Understands the information that needs to be recorded within their area of responsibility.
		Understands the information that the organisation records and why.

K11	The organisations procedure for publicising health, safety, and environmental matters.	Understands how statistics for health, safety, and environmental performance are generated.
		Understands how the safety performance indicators associated with the effective management of major mining hazards are produced.
		Understands how to interpret and cascade the information in an informative way.
		Understands where relevant information is published, and where to direct people to go to get any information that they require.
K12	The organisations achievements in health and safety management.	Understands how to interpret and cascade the information in an informative way.
		Understands how to accentuate the organisations achievements and the team's part in those achievements.
K13	Use, operation, and application of various personal protective equipment and maintenance schemes for personal protective equipment.	Understands where PPE/ RPE sits with the hierarchy of controls.
		Understands how to identify the need to utilise PPE/ RPE as part of any operational controls.
		Understands the need for maintenance of key pieces of PPE/ RPE (work clothes, respiratory equipment, personal gas detectors, escape sets etc.).
K14	Availability and use of mine plans.	Understands the mine plans that must be made available statutorily.
		Understands the symbols that are used on a mine plan.
		Understands where the various mine plans are located.
		Understands how mine plans are used as part of planning and managing the mining process.
		Understands their role in the effective use of mine plans.
K15	Details of operational activities and associated hazards and risk.	Understands the mining process within their area of responsibility.
		Understands the general hazards that exist within their area of responsibility.
		Understands the major mining hazards that are present within their area of responsibility.

		Understands the health hazards that are present within their area of responsibility (indigenous and imported).
		Understands the principles of risk management through the application of controls and procedures for general, major, and health related hazards.
K16	How to identify hazards and risks.	K2 in PROMT2 covers workplace monitoring and hazard identification.
		K12 of PROMT1 (definitions).
		K21 of PROMT1 (process).
K17	Practical aspects of risk control.	K3 in PROMT2 covers the basic function of risk assessment.
		K3 in PROMR03 covers the monitoring and control of major hazards (see if we include).
K18	Health and safety efficiency in terms of the parts of the process under your control.	Understands how the area under their control is working effectively (use of safety performance indicators).
		Understands how their area of the mine contributes to the organisational performance indicators.
K19	How to interpret patterns and trends relating to occurrences in the workplace.	Covered within K11 and K12 of PROMT3 .
K20	Workplace health, safety, and environmental performance and identified improvement needs.	Partially covered within K11 and K12 of PROMT3 .
		Understands how the information may be used to give targeted interventions within the mine or various places of work.
		Understands how the information may be used as a catalyst to review operating procedures, equipment (including PPE).
K21	Examples of best practice and best available techniques.	Understands how health and safety trends may allow best practice to be identified and spread.
		Can provide examples of where best practice has been identified and cascaded within the organisation.
K22	Legislative framework for workplace health and safety (Act, Regulations, Codes of Practice, Guidance).	This area has been covered within PROMT1 and PROMT2 .

K23	Key aspects of current health, safety, and environmental legislation acceptable to the workplace under your supervision.	This area has been covered within PROMT2.
K24	Nature and frequency of statutory exams.	This area has been covered within PROMT1.

PROMT5 – Implementing Engineering Activities

Common Elements		
PROMT5 – Implementing Engineering Activities		
Knowledge Statement		Elements
K1	How to access information on health and safety regulations and guidelines relating to the engineering activities to be implemented.	Can identify where key information, legislation, and guidance can be located on site (or using other resources) relating to engineering activities.
		Can identify where organisational procedures and control can be located on site which relate to engineering activities.
K2	The implications of not taking account of legislation, regulations, standards, and guidelines when implementing the engineering processes.	Understands how a failure to take account of regulations and recognised standards, may have consequences for the organisations and individual leading to official enforcement from the regulator.
		Can outline the implications of failing to follow recognised organisational procedures when planning and implementing engineering activities at your site.
		Can identify the organisational procedure to manage change, where the existing procedure is not suitable for the engineering activity being planned.
K3	The personal protective equipment (PPE) that is required for the work area and process being implemented.	Can provide examples where PPE/ RPE would form part of the hierarchy of controls when planning and carrying out engineering activities at your site.
		Can identify the implications of not using PPE/ RPE as one of the preventive barriers when implementing the work activities (above).
K4	How to obtain information on the engineering requirements, and the type of information that is available (such as customer requirements and instructions, quality control requirements, product specification, manufacturing methods).	See K1 of PROMT5 Implementing Engineering Activities.
		Identify your organisational procedure for obtaining spares and components that meet the required specification.
		Identify how your organisations accesses manufacturers maintenance instructions, and how these are updated and kept current within your organisation.
		Identify the organisational process used to ensure that planned engineering work

		activities are completed to the correct standard.
K5	How to access and use the appropriate information and documentation systems.	See K1 of PROMT5 Implementing engineering Activities.
K6	The engineering methods and procedures that could be used for different types of engineering activity.	
K7	How to identify conditions that are suitable, and those not suitable, for different types of engineering activities.	See PROMR03 – Major Mining Hazards. See PROMT2 – Identifying Health and Safety Hazards in Mines.
K8	How and where to obtain details of the engineering activities being undertaken.	Identify how you obtain information on the engineering activities being undertaken at your mine. Outline how your organisation coordinates engineering work activities to avoid conflict or unplanned situation occurring.
K9	The types of data that you will require to implement the engineering activity (such as the activities to be carried out, the sequence in which they must be carried out, timescales, resource requirements, health, and safety issues).	Outline how when planning engineering work activities, you would look to indicate: 1. The approximate timelines that would be used for different projects at your mine to ensure the availability of the necessary resources. 2. The approximate planning timescales required for a range of engineering activities, consider a range of jobs from small (minimal impact) to significant infrastructure projects. 3. The type and quantity of spares and other engineering resource that may be required to undertake the tasks. 4. The total people resource required to perform the task. How the people resource and skills are scheduled to ensure that they are available to complete the planned engineering activities. 5. The timescale being allowed for the completion of the planned activity. 6. That any matters relating to health and safety are coordinated (for example isolations, permits). 7. The process for tracking progress against the agreed implementation plan. 8. The process that you may use should the planned activity fall behind the

		planned schedule, and change be required. 9. The process that you might use if there were not adequate equipment available to complete the planned activity, to ensure that it does not impact the safe efficient operation of the mine. 10. The arrangements for reinstatement following the planned activities, commissioning or recommissioning, functional testing, and ensuring these have been completed to the appropriate standards/ quality. Identify how work activities that have concurrent tasks are scheduled to avoid unnecessary, unplanned, or potentially unsafe interactions. Where changes are made to the project plan, identify who should be informed of these changes and why this may be important to the safe efficient operation of the mine.
K10	How to extract information from drawings, documents, and related specifications (to include symbols and conventions to appropriate BS and ISO standards and, where applicable, BS 7671/IEE wiring regulations), in relation to work being planned.	See K1 of PROMT5 Implementing engineering Activities. See K4 of PROMT5 Implementing engineering Activities. Identify how you might use information from schematics and other drawings to support planned engineering activities. Identify some of the standards that you might reference when looking at planning engineering activities (for example British standards, ISO Standards etc.).
K11	The materials, formats, codes, and conventions that are used in the drawings and plans.	
K12	The factors to be taken into account when implementing the engineering activity, especially those covering working conditions and safety.	See K9 of PROMT5 Implementing Engineering Activities.
K13	The main types of resource involved with different types of engineering activity, and the typical timescales for providing them.	See K9 of PROMT5 Implementing Engineering Activities.
K14	How to verify that resources are suitable and are available within or to the organisation.	Identify the process that your organisation uses to ensure that the people being used to perform engineering activities are competent and authorised to do so.

		Identify how your organisation identifies and maintains the necessary competencies at the mine.
		When using outside contractors to perform engineering activities outline how: 1. The required competencies are identified. 2. How the contract companies are vetted and onboarded to ensure that they have the appropriate competencies. 3. The typical time requirements to complete this assessment for short duration and long duration projects. 4. How individual contractors are authorised at the site to undertake tasks.
K15	The timescales for carrying out specific engineering activities, and why they must be adhered too.	See K9 of PROMT5 Implementing Engineering Activities.
K16	The use of the engineering plans and instruction (to include working instructions), along with their purpose and content.	See K1 of PROMT5 Implementing Engineering Activities.
		See K2 of PROMT5 Implementing Engineering Activities.
		See K9 of PROMT5 Implementing Engineering Activities.
K17	The procedures for changing the plans to take account of changing circumstances or improvements in the process.	See K9 (PROMT5) Implementing Engineering Activities
K18	How to present observations and recommendations in the appropriate formats.	Identify how your organisation would identify any follow up action following planned engineering activities.
		Identify how your organisation would identify and record defects following any planned engineering activities.
		Identify how your organisation would review the effectiveness of any planned engineering activity to ensure that it is delivering the performance required. Define how this information might be presented.
K19	The importance of maintaining records; what needs to be recorded and where records are kept.	See K16 of PROMT2 – Identify Health and Safety Hazards in Mines.
		See K18 of PROMT5 Implementing Engineering Activities.

K20	The quality assurance systems that are being used.	See K4 of PROMT5 Implementing Engineering Activities.
		See K9 of PROMT5 Implementing Engineering Activities.
K21	The engineering support systems that are available.	Outline the structure within the engineering function at your organisation, and how issues are escalated to ensure that you are supported when planning and executing engineering activities.
		Understands how external assistance can be sought, specialist companies, and contractors.
K22	Why contingency plans need to be drawn up.	See K9 of PROMT5 Implementing Engineering Activities.
K23	Whom to inform about changes to the plans.	See K9 of PROMT5 Implementing Engineering Activities.
		Who should be informed of changes to any planned engineering activities?
K24	The different ways of presenting information to different people.	Use the knowledge statement, self-explanatory.
		Explain the sites Behavioural Standards.
K25	The importance of providing the right information at the right time.	Outline why it is important to present the right information at the right time, and what are the implications for the organisation if this is not done effectively.
K26	The roles and responsibilities of key personnel associated with the engineering activity.	Within your organisation identify the persons that may be involved in planning an engineering activity.
		How does the size/ complexity/ safety implications of the planned engineering activity influence who might be involved.
		Of the persons identified, briefly outline their particular role and responsibilities.
K27	Problems that can occur during the implementation of the engineering activity, and how these problems can be rectified.	See K9 of PROMT5 Implementing Engineering Activities.
		Outline any problems that may occur when carrying out planned engineering activities.
		Define how planned engineering activities are monitored to identify emerging issues within your organisation.
		Briefly outline the types of corrective actions that may be taken to rectify any issues with planned engineering activities.

		Escalation procedures.
K28	The extent of your own authority, and to whom you should report in the event of problems that you cannot resolve.	See K23 of PROMT5 Implementing Engineering Activities.
		See K26 of PROMT5 Implementing Engineering Activities.
		Define the typical roles and responsibilities of an engineering supervisor within your own organisations.
		Understands the limit of their own responsibility.
K29	The sources of technical expertise if you have problems that you cannot resolve.	See K21 of PROMT5 Implementing Engineering Activities.
		See K23 of PROMT5 Implementing Engineering Activities.
		Identify potential sources of technical expertise outside of your organisation that can assist you in solving issues.

PROMT6 – Resolving Engineering Problems

Common Elements		
PROMT6 – Resolving Engineering Problems		
Knowledge Statement		Elements
K1	How to access information on health and safety regulations and guidelines relating to the engineering activities or work area in which the problem exists.	See K1 of PROMT5 Implementing Engineering Activities.
K2	The implications of not taking account of legislation, regulations, standards, and guidelines when determining solutions to engineering problems.	See K2 of PROMT5 Implementing Engineering Activities.
K3	How to obtain information on the engineering requirements, and the type of information that is available (such as customer requirements and instructions, quality control requirements, product specification, manufacturing methods).	See K4 of PROMT5 Implementing Engineering Activities.
K4	How to access and use the appropriate information and documentation systems.	See K5 of PROMT5 Implementing Engineering Activities.
K5	How to obtain and interpret drawings, charts, specifications, manufacturer's manuals, history/ maintenance reports and other documents needed in the problem-solving process.	Outline where information relevant to the equipment being used is stored in your organisation.
		Outline any specific procedures or authorisations required by your organisations to access the information.
K6	The company engineering operation procedures for the area where the problem exists.	Use the knowledge statement, self-explanatory.
K7	The business need for problem identification and removal.	Use the knowledge statement, self-explanatory.
K8	The effects of engineering problems on associated activities.	Outline the implication of engineering issues and problems on associated activities (within your answer you should consider any issues related to health/ safety/ operational performance/ operational efficiency).
K9	The communication techniques used to obtain information.	Use the knowledge statement, self-explanatory.

K10	The principles of effective problem solving, the main problem-solving methods and techniques in use, and how to apply them.	Outline the importance of identifying and defining the problem as part of any approach to problem solving.
		Identify how you would articulate and communicate the problem to ensure that the right people within your organisation are informed, and why involving the right people is important.
		Identify the importance of gathering and verifying the right data/ information as part of the problem solving, and how you might achieve that.
		Identify the various sources of information that you could use to help inform the process for solving the problem.
		Identify the various approaches to problem solving and how these might be applied (for example, six thinking hats, problem definition process, five whys, fishbone analysis, SWOT analysis or other techniques used by your organisation).
K11	The benefits of adopting a formalised problem-solving process.	See K10 of PROMT6 Resolving Engineering Problems.
		Use the knowledge statement, self-explanatory.
K12	How to involve the user/ customer in the problem-solving process.	See K10 of PROMT6 Resolving Engineering Problems.
K13	The importance of collecting as much relevant information as possible, and of collating such information in a way which facilitates decision making, and the methods to achieve this.	See K10 of PROMT6 Resolving Engineering Problems.
K14	Action planning (to include risk analysis, testing decisions, determining timescales, and protecting the user/ customer).	Once you have identified the problem, outline the approach to verifying the problem, this may include techniques for testing.
		Once the problem has been verified, outline how you would estimate and track a timeline to rectification.
K15	The importance of analysing problems from a variety of perspectives.	See K10 of PROMT6 Resolving Engineering Problems.
		Outline why it may be important to consider and analyse the problem from a number of perspectives.

K16	How to define and verify the root cause of a problem.	See K10 of PROMT6 Resolving Engineering Problems.
		See K14 of PROMT6 Resolving Engineering Problems.
K17	The importance of involving a range of relevant people in generating possible solutions.	See K10 of PROMT6 Resolving Engineering Problems.
K18	The importance of developing a range of possible options in solving problems.	Outline why it might be important to consider different approaches to rectifying the problem, what are the factors that may influence the approach that is chosen (for example, the need to move the equipment to a safe position, operational influences etc.).
		Understand the implications on any rescue arrangements until the problem is resolved and any actions that may be needed to put in place, such as restrictions on entry into the mine or part of the mine.
K19	The factors to be taken into account when resolving problems and determining suitable solutions (especially those covering working conditions and safety).	See K18 .
		Outline the type of health/ safety implications that may influence the approach that you take to rectifying a problem.
		Identify various conditions within the workplace may influence the approach that you take to resolving and rectifying a problem.
K20	The methods and techniques for evaluating information.	See K10 of PROMT6 Resolving Engineering Problems.
K21	How to present possible solutions in a way which helps relevant people to reach an informed and realistic judgement.	Having analysed a problem, outline how you might present a problem to allow those involved to reach a consensus on the approach to be taken to resolve the issue.
K22	How to determine and select permanent corrective actions (to include decision making, assessing the criteria, and determining the risks, costs, and generating alternatives).	Use the knowledge statement, self-explanatory.
K23	The process used in the organisation to validate the solution to the engineering problem.	Outline the approach taken by your organisation to evaluate and verify the solution to any engineering problem before implementing a solution.

		Define why it may be important that the solution is evaluated and verified prior to implementation (for example, safety implications, cost implications, suitability of the solution to operational performance, suitability of the solution to customer satisfaction).		
K24	How to prevent recurrence of the problems (to include proposed changes to management systems, operating systems and procedures, and identification of opportunities for improvements).	How does your organisation identify where it is getting a recurring issue with various plant, equipment, or process? Where recurring issues are identified, outline how the approach to problem solving may vary within your organisation. Use elements from the knowledge statement, self-explanatory.		
K25	The importance of customer care and satisfaction.	Use the knowledge statement, self-explanatory		
K26	The importance of maintaining records of the problem-solving activities; what needs to be recorded, and where records are kept.	See K16 of PROMT2 – Identify Health and Safety Hazards in Mines. See K19 of PROMT5 Implementing Engineering Activities.		
K27	The company procedures that apply to the rectification of problems.	Outline any organisational procedures that must be followed when rectifying an engineering problem. Define the process that should be followed if there is a need to vary from the company procedure that relates to the rectification of engineering problems.		
K28	The company reporting procedures, documentation, and their application.	Use the knowledge statement, self-explanatory.		
K29	The different ways in which the solutions can be reported back.	Use the knowledge statement, self-explanatory.		
K30	Whom to inform of actions taken, and by what means.	Use the knowledge statement, self-explanatory.		
K31	The extent of your own responsibility, and to whom you should report if you have problems that you cannot resolve.	See K23 of PROMT5 Implementing Engineering Activities. See K26 of PROMT5 Implementing Engineering Activities.		

		See K28 of PROMT5 Implementing Engineering Activities.
K32	The sources of technical expertise if you have problems that you cannot resolve.	See K21 of PROMT5 Implementing Engineering Activities.
		See K23 of PROMT5 Implementing Engineering Activities.
		See K29 of PROMT5 Implementing Engineering Activities.

PROMT7 – Monitoring Engineering Activities

Common Elements		
PROMT7 – Monitoring Engineering Activities		
	Knowledge Statement	Elements
K1	How to access information on health and safety regulations and guidelines relating to the engineering activities to be monitored.	See K1 of PROMT5 Implementing Engineering Activities.
K2	The specific regulations and guidelines that are relevant to the activities being monitored.	NA? Agree already covered PROMT2 (SUM02) – Identifying Health and Safety Hazards in Mines.
K3	The specific safety precautions to be taken when carrying out the monitoring and associated activities.	NA?
K4	The personal protective equipment (PPE) to be worn in the specific work area, and where this can be obtained.	See K3 of PROMT5 Implementing Engineering Activities.
K5	The implications of not taking account of legislation, regulations, standards, and guidelines carrying out the monitoring activities.	See K2 of PROMT5 Implementing Engineering Activities.
K6	The organisational procedures for determining when monitoring should occur, and how it should be undertaken.	Outline the various reasons that it may be necessary to monitor engineering activities. Outline the type of information that you may be able to develop by reviewing and monitoring engineering activities. Outline how monitoring can improve the way the process undertaken can be improved.
K7	The monitoring methods and procedures that should be used for the types of engineering activity within your area of responsibility.	Outline the various types of monitoring and monitoring techniques that your organisation uses for a range of engineering activities. Define the advantages and limitations of some of the monitoring activities and monitoring techniques used by your organisation.
K8	The potential variations from plans and schedules that might occur during monitoring.	NA?
K9	The processes and specifications of the activity being monitored.	Outline where you would obtain information that relates to the normal running and operational characteristics of the engineering activity to be monitored.

		Define how the monitoring equipment is set up and calibrated to ensure that it is able to accurately record and display information relative to the engineering activity being monitored.
K10	The quality assurance systems that are being used.	Define the process that is used by your organisation to validate any information as part of any decision-making process.
		Outline why the validation process is important, and the implications of basing decision on inaccurate or faulty data.
K11	The types of problem that could occur within the monitoring process, and the organisational methods and procedures for resolving them.	Use the knowledge statement, self-explanatory.
K12	The importance of solving problems quickly.	Use the knowledge statement, self-explanatory.
K13	How to check the outputs of the monitoring process against the specific inputs.	See K10 of PROMT7 Monitoring Engineering Activities.
K14	The procedures for obtaining information on resources.	See K9 of PROMT5 Implementing Engineering Activities.
		See K12 of PROMT5 Implementing Engineering Activities.
K15	How to assess the need for resources.	NA?
K16	How to verify that resources are suitable and are available within or to the organisation.	See K14 of PROMT5 Implementing Engineering Activities.
K17	The importance of maintaining records of the monitoring activities.	See K16 of PROMT2 – Identify Health and Safety Hazards in Mines.
		See K19 of PROMT5 Implementing Engineering Activities.
K18	The types of information to be recorded, and the amount of detail that is required.	Outline the type of information to be recorded following any engineering monitoring activities.
		Use the knowledge statement, self-explanatory.

K19	Where records are kept, and the procedure for obtaining them.	Outline where information and records relating to engineering activities are kept within your organisation.
		Outline any procedures, permissions, or process within your organisations in order to access or amend information relating to engineering activities.
K20	The importance of ensuring that any records that you use are correctly updated and returned to the appropriate location.	See K19 of PROMT7 Monitoring Engineering Activities.
K21	The importance of customer care and satisfaction.	NA?
K22	The different ways of presenting information to different people.	See K29 of PROMT7 Resolving Engineering Activities.
K23	The organisational reporting processes and lines of communication.	See K24 of PROMT5 Implementing Engineering Activities.
K24	The extent of your own responsibility, and to whom you should report if you have problems that you cannot resolve.	See K23 of PROMT5 Implementing Engineering Activities.
		See K26 of PROMT5 Implementing Engineering Activities.
		See K28 of PROMT5 Implementing Engineering Activities.
K25	The sources of technical expertise if you have problems that you cannot resolve.	See K21 of PROMT5 Implementing Engineering Activities.
		See K23 of PROMT5 Implementing Engineering Activities.
		See K29 of PROMT5 Implementing Engineering Activities.

Other Consideration

This module has been partially included with the portfolio structure.

PROMR03 (SUM03) – Control of Major Mining Hazards

Common Elements		
PROMR03 (SUM03) – Control of Major Mining Hazards		
Knowledge Statement		Elements
K1	An appreciation of the main principles of health and safety, and environmental legislation, and regulations relevant to mines.	See K4 in PRMOMT2 .
		Understands Part 3 (Control of Major Mining Hazards) of the Mine Regulations.
K2	The major mining hazards in your area of responsibility.	Can identify the major mining and other significant hazards that could be present in their normal area of responsibility.
		Can identify the major mining and other significant hazards in other areas of the mine in which they may be expected to inspect or supervise.
K3	The procedure to monitor and control major mining hazards.	Understands how the major mining and other significant hazards that might be present in the mine are assessed.
		Understands how the major mining and other significant hazards are monitored.
		Understands how the preventative and mitigating controls (for example engineering controls and standard operating procedures) are developed to control and mitigate the major mining hazards.
		Understands how safety performance indicators may be used to review and evaluate the effectiveness of the preventative and mitigating controls of major mining and other significant hazards.
K4	Sources of information on major hazards/ hazardous substances, and how to use them.	See K3 of PROMR03 Control of Major Mining Hazards.
		Understands the requirement to generate/ use specialist reports/ assessments.
		Understands the use of manufactures information.
		Understands where to locate and how to use information relating to the use of hazardous substances.

		Understands that there are guidance documents produced to support the mine operator with the application of best practice.
		Understands the standing of those guidance documents in law.
K5	Working knowledge of approved codes of practice and guidance for controlling major mining hazards and working safely in mines.	See K4 of PROMR03 Control of Major Mining Hazards.
		Identify codes of practice, industry guidance, and British Standards that relate to major hazards in your area of responsibility.
K6	Awareness of how emergency situations can occur in mines due to major hazards arising.	See K2 of PROMR03 Control of Major Mining Hazards.
		Identify how major hazards may, if not suitably assessed and controlled, escalate to multiple casualty/ multiple fatality and serious business impact events.
		How the emergency procedures are developed to take cognisance of escalation potential.
K7	The importance of compliance with manufactures instructions relating to the use of equipment and tools provided for hazard/ environmental/ monitoring and ventilation.	Understands the requirements around the Provision and Use of Work Equipment (PUWER).
		Understands that manufactures instructions may place limitations on equipment that may make it unsuitable for use in that environment.
K8	Procedures to check that tools and equipment are fit for purpose.	Arrangements for ensuring that the equipment provided is of the correct standard and type for tasks performed in your area of responsibility.
		The importance of pre-use checks prior to issues or use.
K9	Procedures to check that tools and equipment are fit for purpose.	See K8 of PROMR03 Control of Major Mining Hazards.
K10	The safe and proper use of monitoring/ control equipment.	Can identify where monitoring systems are in their area of responsibility.
		The type of information that the monitoring system can generate.
		The limitations of the system.

		How the system is reviewed and calibrated to ensure that the correct information is displayed.
		Any alarm/ action levels and the response required from the standard operating procedures.
K11	Limits of personal responsibility.	See K23 of PROMT5 Implementing Engineering Activities.
		See K26 of PROMT5 Implementing Engineering Activities.
		See K28 of PROMT5 Implementing Engineering Activities.
		See K24 of PROMT7 Monitoring Engineering Activities.
		Understands when it is necessary to take advice as part of the decision-making process.
		The organisational procedure for escalating issues and concerns that fall outside of the limits of your responsibilities.
K12	The importance of effective communication.	See K14 of PROMT2 (Identifying Health and Safety Hazards in Mines) covers communication, involvement, and motivation to reduce risk.
K13	Communications systems/ procedures in your area of responsibility.	Knows about the systems that are provided to support verbal communication in the workplace.
		Knows about the systems that are in place to support the provision of written reports and other information in the workplace.
		Knows how information from the remote monitoring systems is sent to other locations at the mine and how this information might be used.
K14	Personal responsibilities/ duties of others.	Understands the management, engineering, and other structures at the mine.
		Understands the responsibilities/ duties of the key individuals within those structures.
K15	The importance and advantages of effective teamwork.	Understands that people have different roles to play within an organisation.
		Understands how those roles work together to deliver the safety, environmental, and performance objectives of the mine.
		Understands the role that they play within the structure.

		Understands the need to work effectively, openly, and honestly to meet the safety, environmental, and operational controls for the business.
K16	The dangers of working in isolation.	Understands their own limitations (see K11 and K12 within PROMT2 Identifying Health and Safety Hazards in Mines).
		Understands how they fit within the operational structure of the mine.
K17	The normal constituents of the air we breathe.	Understands the normal constituents (oxygen/ nitrogen and other gasses) that make up normal mine air.
K18	The effect that a sharp rise or fall on the barometer will have on the behaviour of gas below ground.	Understands the principles of high and low pressure on a barometer.
		Understands how the change in barometric pressure may manifest itself within the mine.
		Understands how gasses may accumulate, especially in areas where ventilation has been reduced/ stopped.
		Understands how gasses may accumulate, in areas where there are anticline and synclines within the mine roadways.
K19	Recording procedures to meet statutory/ operational requirements.	The statutory requirement to periodically record ventilation measurements in a mine (Mines Regulations 2014).
		How a handheld gas monitor works, the alarm level, and limitations.
		How and where to test using a personal gas monitor.
		Any actions that must be taken statutorily dependant on the readings obtained from the personal gas monitor (Mines Regulations/ COSHH/ EH40).
		If different to the above, any actions that must be taken operationally on the readings obtained from the personal gas monitor.
K20	How rises and falls in air temperature will affect the physical/ atmospheric working conditions below ground (heat/ humidity/ condensation/ saturation).	Understands the factors that influence the generation of heat underground (strata temperature, adiabatic compression of air, the introduction of equipment, the introduction of people).
		Understands how the increase in temperature may allow the humidity to

		increase, and how water in the mine environment may impact this.
		Understands the physiological impacts of heat and humidity on persons working in the mine.
K21	The gasses indigenous/ imported to a mine that may have an adverse effect on humans.	Understands the type of gasses that might normally be present within the mine environment.
		Understands how the mining operation may impact the generation of gasses which are considered indigenous to the mine environment.
		Understands how the mining process (for example the use of explosives/ exhaust emissions/ burning and welding) may lead to the generation of gasses not normally present in the mine environment.
K22	For such gasses encountered whether they are toxic, suffocating, and/ or explosive.	See K21 of PROMR03 (Control of Major Mining Hazards) for details of gases identified.
		Understands the properties of those gasses.
K23	For each gas encountered in your area of responsibility their physiological effect on humans.	See K21 of PROMR03 (Control of Major Mining Hazards) for details of gases identified.
		Understands the physiological effects of those gasses on humans.
K24	The dusts/ hazardous substances indigenous or imported to a mine that may have an adverse effect on humans.	Understands the type of dust or other hazardous substances that might normally be present within the mine environment.
		Understands how the mining operation may impact the generation of dust or other hazardous substances which are considered indigenous to the mine environment.
		Understands how the mining process may lead to the generation of dust and other hazardous substances not normally present in the mine environment.
K25	For such dusts/ hazardous substances encountered whether they are explosive, carcinogenic, harmful, irritant, corrosive, or toxic.	See K24 of PROMR03 (Control of Major Mining Hazards) for details of dusts/ hazardous substances identified.
		Understands the properties of those dusts/ hazardous substances.

K26	For such dusts/ hazardous substances encountered in your area of responsibility, their physiological effects on humans.	See K24 of PROMR03 (Control of Major Mining Hazards) for details of dusts/ hazardous substances identified.
		Understands the physiological effects of those dusts/ hazardous substances on humans.
		Understands the longer-term physiological effects of continued exposure those dusts/ hazardous substances have on humans.
K27	When and where monitoring/ testing, and measurements are carried out.	See K19 and K21 of PROMR03 (Control of Major Mining Hazards) for details of gasses identified and the requirement for testing.
		See K24 of PROMR03 (Control of Major Mining Hazards) for details of dusts/ hazardous substances identified.
		Identify the monitoring regime that is in place in your area of responsibility to identify the levels of dust or hazardous substances identified in K24 .
		Identify any occupational exposure limits identified within COSHH/ EH40 (or other legislative standards) and any operating procedures.
		In the context of major mining hazards, identify any other monitoring that is carried out to ensure that controls implemented remain effective.
K28	Ground movement/ changes in strata conditions can affect the integrity of the mine/ area, and corrective/ remedial and reporting procedures to be followed.	See K27 of PROMR03 (Control of Major Mining Hazards) for details of other measurements taken.
		Understands the maximum levels of permissible movement or deterioration identified within the operating procedures.
		Understands why limits on movement or deterioration are set.
		Understands the impact on ground control if the maximum levels of movement or deterioration are exceeded.
		Understands the corrective actions that should be taken if levels of permissible movement or deterioration are exceeded.
		How you should identify that the strata conditions have changed.
		Understands the importance of recognising a change in strata conditions.
		Understands any actions that need to be taken if strata conditions are recognised to have changed.
		Understands the requirement to report change, and the actions that have been taken.

		Understands the requirement to report any outstanding actions.
		Understands arrangements for monitoring limits of extraction.
		Understands arrangements for verifying the ground control measures are installed and perform to the defined standards.
K29	Personal Protective Equipment (PPE) for the work area, its correct use, and maintenance.	Understands the need for PPE/ RPE within your area of responsibility.
		Understands the requirements for use and maintenance of PPE/ RPE.
K30	Reporting/ recording/ rectification procedures for faulty equipment/ systems.	Understands the requirement to identify and report faulty equipment/ procedures/ systems.
		Understands how the equipment is taken out of use until any defects have been rectified.
		Understands how the request for repair is generated.
		Understands the need to keep accurate reports of any repairs completed, and where that information is held at the mine.
K31	Methods used to measure airflow and corrective actions to be taken if it falls below the required standard.	Understands the principles of pressure and resistance and how that impacts the quantity of air flowing in the mine.
		Understands how the cross-sectional area of the roadway will impact the velocity of air flowing in that roadway.
		Understands the relationship between quantity, velocity, and area.
		Understands the minimum quantity of airflow that should be present within the working area.
		Understands how mine ventilation is delivered to the working area.
		Understands the actions that they should take if it falls below the minimum standards (for example check that the air outbye has not been short circuited).
K32	The monitoring equipment for detecting the inception of spontaneous combustion or fire (recognise that the spontaneous combustion element is applicable to mines of coal only).	Understands the gases that are given off by a spontaneous combustion or fire in the early stages of generation.
		How these gasses may be detected (various techniques).
		How thermal image capabilities may be used to assist in locating the early stages of a spontaneous combustion or fire.

K33	Actions to be taken by personnel exposed to atmospheric conditions, gasses/ dusts/ hazardous substances in excess of the prescribed limits (including reports).	See K22 and K23 of PROMR03 (Control of Major Mining Hazards) for the gasses and limits identified. See K25 and K26 of PROMR03 (Control of Major Mining Hazards) for the dusts and hazardous substances identified. Understands the actions required if any of the occupational exposure limits are breached.
K34	Procedures for the installation of additional ventilation equipment to dilute/ remove accumulations of gasses, including where required the requirements for degassing.	Understands the operation exposure limits (K22 and K23). Understands organisational and regulatory requirement for the isolation of energy sources and removal of people. Understands the arrangements for setting up hurdles to get the ventilation to flow where required. Understands the need to manage the airflow to steadily dilute the gasses or remove layering. Understands how to position instruments to monitor the impact of the change on the ventilation system. Understands the authority that is required to make any changes to the ventilation system. If auxiliary ventilation systems are to be installed, there is an understanding of any survey required prior to and following the installation. If an auxiliary ventilation system is to be used for the purpose of removing gasses, then there is an understanding of how the process is managed and controlled. Understands the information that would be reported on progress, completion, and the reinstatement of the normal ventilation system.
K35	Procedure to notify personnel of changes in mine layout and operating conditions.	Understands how the teams are updated of changes. Understands how as supervisor they contribute to that process. Understands how changes to the mine layout may impact escape routes, and the requirement to familiarise the team with those changes.

K36	How to interpret readings taken against statutory/ company pre-set actions levels.	<i>Covered within the relevant sections on gasses/ dusts/ hazardous materials/ ground movement/ ventilation.</i>
K37	How to identify trends and levels that require action.	<i>Covered within the relevant sections on gasses/ dusts/ hazardous materials/ ground movement/ ventilation.</i>
K38	When actions should be taken to notify and protect others and the procedures to be followed.	<i>Covered within the relevant sections on gasses/ dusts/ hazardous materials/ ground movement/ ventilation.</i>
K39	Reporting/ recording procedures according to regulatory/ operational requirements.	<i>Covered within the relevant sections on gasses/ dusts/ hazardous materials/ ground movement/ ventilation.</i>

Assessment Plan

PROMT1 – Oversee the Manager’s Scheme

Common Elements		
PROMT1 – Oversee the Manager’s Scheme		
Performance Statement		Elements
P1	Access information from the current written maintenance scheme.	Develop as part of the portfolio practical elements.
P2	Obtain relevant information from management/ previous shift.	Develop as part of the portfolio practical elements.
P3	Plan and prioritise maintenance activities.	Develop as part of the portfolio practical elements.
P4	Allocate duties to personnel.	Develop as part of the portfolio practical elements.
P5	Ensure personnel are allocated duties for which they are appointed/ authorised.	Develop as part of the portfolio practical elements.
P6	Prepare written schemes of work.	Develop as part of the portfolio practical elements.
P7	Check personnel carry out duties in prescribed manner.	Develop as part of the portfolio practical elements.
P8	Oversee the safe installation and commissioning of plant and equipment.	Develop as part of the portfolio practical elements.
P9	Carry out the scheme for systematic inspection, examination, testing and maintenance.	Develop as part of the portfolio practical elements.
P10	Complete records/ reports in relation to statutory duties according to organisational procedures.	Develop as part of the portfolio practical elements.
P11	Communicate to management according to regulatory requirements and organisational procedures.	Develop as part of the portfolio practical elements.

P12	Communicate appropriately to mine engineer/ other mine employees/ following shift/s.	Develop as part of the portfolio practical elements.
P13	Investigate accidents and/ or incidents.	Develop as part of the portfolio practical elements.
P14	Assist in the planning of longer-term maintenance or projects.	Develop as part of the portfolio practical elements.
P15	Carry out audits.	Develop as part of the portfolio practical elements.

PROMPT2 (SUM02) – Identifying Health and Safety Hazards in Mines

Common Elements		
PROMT2 (SUM02) – Identifying Health and Safety Hazards in Mines		
Performance Statement		Elements
P1	Identify hazards in the workplace and their existing controls.	Develop as part of the portfolio practical elements.
P2	Identify people who are at risk from hazards.	Develop as part of the portfolio practical elements.
P3	Assess the level of risk arising from the hazard.	Develop as part of the portfolio practical elements.
P4	Seek advice from managers or specialists in risk assessment when Appropriate.	Develop as part of the portfolio practical elements.
P5	Report hazards constituting a high risk immediately to the responsible person(s).	Develop as part of the portfolio practical elements.
P6	Deal with hazards which constitute a low risk in accordance with organisational and operational procedures.	Develop as part of the portfolio practical elements.
P7	Encourage suggestions from your subordinates for reducing risks to health and safety.	Develop as part of the portfolio practical elements.
P8	Give suggestions to control or reduce risks to health and safety to the responsible person(s).	Develop as part of the portfolio practical elements.
P9	Make recommendations for training where necessary.	Develop as part of the portfolio practical elements.
P10	Keep clear records conforming to company requirements.	Develop as part of the portfolio practical elements.

PROMT3 (SUM05) – Contribute to Maintaining and Improving Health and Safety in the Mine

Provide advice and support for maintaining and improving health, safety, and environmental performance.

Common Elements		
PROMT3 (SUM05) – Contribute to Maintaining and Improving Health and Safety in the Mine		
Performance Statement		Elements
P1	Present the benefits of continually maintaining/ improving health, safety, and environmental performance clearly, accurately, and in line with the organisation's policies.	Develop as part of the portfolio practical elements.
P2	Take opportunities to promote awareness and achievements in health, safety, and environmental matters using effective methods of communication.	Develop as part of the portfolio practical elements.
P3	Provide information on health, safety, and environmental achievements that is accurate and up to date.	Develop as part of the portfolio practical elements.
P4	Encourage individuals in the workplace to take an active role in the drive for maintaining/ improving health, safety, and environmental performance.	Develop as part of the portfolio practical elements.
P5	Encourage individuals to offer suggestions, ideas, and views on improvements to health, safety and environmental performance.	Develop as part of the portfolio practical elements.
P6	Enable individuals in the workplace to understand their health, safety and environmental responsibilities and help them to make an active contribution.	Develop as part of the portfolio practical elements.
P7	Give individuals the opportunity to seek clarification of any areas of concern.	Develop as part of the portfolio practical elements.

Identify Health and Safety Improvements

Common Elements		
PROMT3 (SUM05) – Contribute to Maintaining and Improving Health and Safety in the Mine		
Performance Statement		Elements
P8	Give accurate information about health and safety relating to the working environment to appropriate people.	Develop as part of the portfolio practical elements.
P9	Encourage suggestions to improve health and safety in the working environment from appropriate people.	Develop as part of the portfolio practical elements.
P10	Where it is not possible to act on a suggestion, promptly provide clear and relevant reasons to those concerned.	Develop as part of the portfolio practical elements.
P11	Evaluate suggestions taking into account all relevant information concerning the work activity.	Develop as part of the portfolio practical elements.
P12	Examine the working environment and assess opportunities for health and safety improvements.	Develop as part of the portfolio practical elements.
P13	Identify improvements to health and safety in the working environment taking into account all relevant factors that are consistent with the company health and safety policy, meet standards set by legal requirements and represent good practice.	Develop as part of the portfolio practical elements.
P14	Keep clear records that conform to company requirements.	Develop as part of the portfolio practical elements.

Recommend Changes to Improve Health and Safety

Common Elements		
PROMT3 (SUM05) – Contribute to Maintaining and Improving Health and Safety in the Mine		
Performance Statement		Elements
P15	Correctly identify factors within the workplace which may affect the health and safety improvement.	Develop as part of the portfolio practical elements.

P16	Confirm subordinates understanding of the health and safety improvement at appropriate intervals using effective methods of communication.	Develop as part of the portfolio practical elements.
P17	Encourage appropriate people to give their active support for the health and safety improvement.	Develop as part of the portfolio practical elements.
P18	Make a clear case for the proposed improvement and support your case with sound evidence.	Develop as part of the portfolio practical elements.
P19	Make suggestions for methods of implementation taking account of contributions and feedback from appropriate people.	Develop as part of the portfolio practical elements.
P20	Make suggestions for methods of implementation taking account of contributions and feedback from appropriate people.	Develop as part of the portfolio practical elements.
P21	Keep clear records that conform to company requirements.	Develop as part of the portfolio practical elements.

Support the Implementation and Evaluation of Health and Safety Improvements

Common Elements		
PROMT3 (SUM05) – Contribute to Maintaining and Improving Health and Safety in the Mine		
Performance Statement		Elements
P22	Effectively use the resources provided to enable the improvement to be implemented in the workplace.	Develop as part of the portfolio practical elements.
P23	Assist implementation of the health and safety improvement in line with agreed plans and in such a way that appropriate people are able to contribute to the process effectively.	Develop as part of the portfolio practical elements.
P24	Communicate implications of the improvement to those affected and confirm their understanding.	Develop as part of the portfolio practical elements.
P25	Monitor and evaluate progress of implementation of the improvement and make recommendations for corrective action if required.	Develop as part of the portfolio practical elements.
P26	Assist with assessment of the improvement after implementation	Develop as part of the portfolio practical elements.

	and compare the results against the original expectations.	
P27	Keep clear records that conform to company requirements.	Develop as part of the portfolio practical elements.

PROMT5 – Implementing Engineering Activities

Common Elements		
PROMT5 – Implementing Engineering Activities		
Performance Statement		Elements
P1	Confirm that conditions are suitable to implement engineering methods and procedures.	Develop as part of the portfolio practical elements.
P2	Provide clear and accurate instructions to all the relevant people.	Develop as part of the portfolio practical elements.
P3	Obtain accurate information on the activities being undertaken.	Develop as part of the portfolio practical elements.
P4	Ensure that quality assurance systems are correctly implemented.	Develop as part of the portfolio practical elements.
P5	Ensure that engineering support systems are operating correctly.	Develop as part of the portfolio practical elements.
P6	Control the use of resources to achieve the most effective results.	Develop as part of the portfolio practical elements.
P7	Identify opportunities to improve the engineering methods and procedures.	Develop as part of the portfolio practical elements.
P8	Ensure that the implementation of engineering methods and procedures complies with all relevant regulations and guidelines.	Develop as part of the portfolio practical elements.

PROMT6 – Resolving Engineering Problems

Common Elements		
PROMT6 – Resolving Engineering Problems		
Performance Statement		Elements
P1	Take prompt action to resolve engineering problems and keep all relevant people informed of progress.	Develop as part of the portfolio practical elements.
P2	Obtain all relevant information relating to the engineering problems.	Develop as part of the portfolio practical elements.
P3	Identify correctly the nature and extent of any engineering problems that arise.	Develop as part of the portfolio practical elements.
P4	Evaluate all realistic engineering solutions to solve engineering problems.	Develop as part of the portfolio practical elements.
P5	Identify the most effective engineering solution for solving engineering problems.	Develop as part of the portfolio practical elements.
P6	Ensure that engineering solutions are implemented correctly and promptly.	Develop as part of the portfolio practical elements.
P7	Ensure that solutions to engineering problems comply with all relevant regulations and guidelines.	Develop as part of the portfolio practical elements.

PROMT7 – Monitoring Engineering Activities

Common Elements		
PROMT7 – Monitoring Engineering Activities		
Knowledge Statement		Elements
P1	Monitor the engineering process at suitable opportunities.	Develop as part of the portfolio practical elements.
P2	Monitor the supply and use of resources to ensure they are effectively used.	Develop as part of the portfolio practical elements.
P3		Develop as part of the portfolio practical elements.

	Confirm that the materials being used during the engineering process comply with specifications.	
P4	Confirm that suitable engineering methods and procedures have been used.	Develop as part of the portfolio practical elements.
P5	Identify any variations from agreed plans and schedules.	Develop as part of the portfolio practical elements.
P6	Ensure that any problems with the engineering process are identified.	Develop as part of the portfolio practical elements.
P7	Ensure that the outputs of the engineering process comply with specifications.	Develop as part of the portfolio practical elements.
P8	Ensure that the engineering process complies with all relevant regulations and guidelines.	Develop as part of the portfolio practical elements.