DEPARTMENT OF MINES, MINERALS AND ENERGY
DIVISION OF MINERAL MINING

SURFACE FOREMAN'S CERTIFICATION

STUDY GUIDE

July 2012

This guide is intended to focus the student on the Laws and Regulations the Division considers most important to certified mine foreman in the performance of their day-to-day duties. It does not attempt to cover all the Laws and Regulations that the certified mine foreman may need to be knowledgeable of in all circumstances. A list of the Laws and Regulations, which are not specifically referenced in the study guide, can be found in the Appendix. The certified mine foreman should familiarize himself with all of the Mineral Mining Laws and Regulations and should refer to them, as necessary, to ensure their compliance.

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INTRODUCTION

This study guide was developed to assist applicants for the Department of Mines, Minerals & Energy (the Department) certification as "surface foreman – mineral mining", or "surface foreman – open pit". This guide is intended to provide the user with practical information related to how state mining laws and regulations are applied to various mineral mining activities. This guide is intended for use with copies of Mineral Mine Safety Laws of Virginia, Safety and Health Regulations for Mineral Mining, and a National Safety Council first aid training and certification provided by DMM to all applicants. DMME surface foreman examination questions will be based on the above referenced documents.

In addition to reviewing basic safety and environmental requirements, this guide also provides information related to how DMME-certified mine foremen can best carry out their duties and responsibilities. The mine foremanship section provides practical approaches and methods that may be employed to deal with many of the safety related issues that challenge mine supervisors. In addition, sample forms, which can be used to document various record keeping requirements, are included as a part of this guide.

The certified mine foreman plays a key role in the overall performance of the mine from the standpoint of both safety and production. The DMME-certified mine foreman assumes certain responsibilities to both the employer and mine employees by ensuring that daily production activities are carried out in a safe manner. When used in conjunction with State mining laws and regulations, this guide can serve as a practical reference as to how State mining laws and regulations are applied to areas and activities under the foreman's supervision.

Overall Objective: Familiarize participants with requirements of State mining laws and DMM safety and health regulations necessary to guide proper work practices and provide for a safe work environment at mineral mines.

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SECTION 1

FOREMANSHIP

<u>Specific Objective #1</u>: Review and discuss principles of effective foremanship, which can enhance the participants effectiveness as a DMME-certified mine foreman.

FOREMANSHIP

To be a successful certified mine foreman, you need to earn and maintain the respect of your employees, your fellow foremen and your supervisor. Respect comes as you build your reputation for getting the job done and doing it safely. With every decision you make, you have an opportunity to set the example by obeying the law and making safety your top priority.

There are a lot of things that must be done as a supervisor to get results and work effectively with people. This study guide will cover some of the basics of management that all foremen should be aware of as well as the laws and regulations that must be followed as a foreman.

How you manage your people and your responsibilities is up to you, your supervisor and your company's operating policies. This section is intended to be a guide, offering suggestions that will help you become a more effective certified mine foreman.

Most managers concern themselves with three primary elements of running a successful operation – safety, production, and costs. All of these are important, but it is the intent of this guide to focus primarily on safety. As you continue your career, you will find that the same good management that creates a safe operation will lead to a productive and low cost one as well.

Leadership and Supervision

Besides your knowledge of the requirements of the Laws and Regulations, the most important aspect of being a certified mine foreman is demonstrating your leadership and supervision skills. Most successful foremen use a five-part process to get results from their people. The five basic steps of good management consist of planning, making expectations clear, monitoring toward achievement of the objective, recognizing both good and poor performance, and carrying out the consequences of poor performance. In addition to managing your people, you should also develop a personal plan of action to guide yourself in carrying out your duties as a certified mine foreman. Your company may have its own set of guidelines for foremanship. If this is the case, you should obtain and read a copy of those guidelines to ensure that you are meeting your company's expectations as a foreman.

A. Dealing With Your Employees – Five Basic Steps:

1) Planning

Planning is the key to getting anything done. A plan is the backbone of accountability. It is the roadmap for achieving your goal. It is also the means by which you will measure progress toward your goal. When planning, you should think through the steps that will be necessary to reach your objective. Your objective may be solving a complex problem or simply trying to figure out the best way to approach someone about an unsafe act.

When formulating a plan, get the help of those that will be responsible for carrying it out. Their input will ensure their cooperation. When employees are encouraged to share their ideas it makes them aware of the important role they play in contributing toward the safety performance, production goals and profitability of the company. Normally, when employees recognize their

importance as individual parts of the company, they will work harder toward the common good of all.

To develop a plan, the first thing you want to do is ask yourself, "What are my objectives?" In trying to solve a problem, ask yourself what's causing the problem. Consider all your options and determine which is likely to have the most impact or be the most likely to work. Determine what roles each person will play and who will be held accountable for each part. Include specific targets that will allow you to monitor the progress being made. Your targets will also help remind you, and all involved, of what needs to be done to achieve the objective. A good plan should be understandable, complete, well thought out, and uncomplicated. Your plan will help prevent problems from occurring, and save time and money as you and your people work toward your objective.

2) Expectations

Every foreman has objectives or goals to work toward. Since these objectives normally cannot be accomplished without the help of others, you must learn how to ask others for help or, in the case of supervisors, give orders. In either case you must communicate what needs to be done with clear expectations. Expectations may consist of all sorts of things related to getting the job done. Examples of safety related expectations are topics covered in task training, safe work procedures discussed in a safety meeting, a review of the company's safety policy or just telling someone how to do the job safely.

Use your people according to their skills but don't hesitate to challenge them with improvement. Make your challenges manageable achievements. That is, when giving an assignment, make your expectations match that person's realistic capacity to handle the new assignment and, if necessary, give them smaller assignments that will allow them to reach your objective one step at a time. Not everyone can do the same thing or do it as well. Overlooking a person's realistic ability to handle an assignment may result in frustration and resentment, neither of which will help you attain your objective. To encourage cooperation when challenging them, do so in a way that shows faith in their ability to do the job.

Be fair in the way you assign work. Be careful not to overuse anyone on the crew. Don't take advantage of a good employee. Treating people fairly is one of the best ways to earn their respect and encourage cooperation.

When discussing your expectations, show how their achievement of the objectives will benefit them as well as you. Your chances of achieving your goals and objectives are better if your crew perceives the attainment of your goals as something that will also benefit them. They need to see what is in it for them. In other words, you and your crew must be able to share a common goal to get anything done. Everyone needs to feel that they are a part of the team before they commit themselves to its success.

Understanding is a major factor in achieving any objective. Without clear expectations, it is difficult to hold your people accountable. Take the time to explain the reason for what you want done and your people will do a better job at doing it. Knowing why the goal is important and seeing that you have faith in their ability to do the job will also encourage initiative and responsibility.

When pointing out problems with the way things are being done, be sure to show respect for your employee's abilities. Whenever discussing your expectations, always take that person's

experience and knowledge into account. Often time people resent being told how to do a job when they have already been doing it, whether right or wrong. In most cases they won't consider what they have been doing as wrong. Recognizing the experience and abilities of your employees makes them feel good about themselves and you. When they respect you they will respect your suggestions as well. By showing respect for their contribution to the crew or team you are also encouraging them to work for the common good as part of the team.

You will find that your crew will try to live up to your expectations no matter how high or low they are. The best way to ruin a person is not to expect anything from them.

3) Monitoring

You have to help your people reach your goals. You do that by monitoring. When you monitor you are checking on the progress being made toward your objectives and telling your people what is important at the same time.

Monitoring should be done frequently and enforced consistently. Monitoring can be done through job observation, periodic performance appraisals, checking for completion of reports (such as equipment pre-op checklists and hazard training documentation) and keeping your own reports (such as production or equipment maintenance reports). Being a good manager is getting the job done by priorities. All the expectations in the world are no good if you fail to monitor for their accomplishment. Many of us would agree that the best boss we have had was the one that made his objectives clear and held us accountable for our part in achieving them. He didn't try to do our job for us. Instead, he challenged us with assignments and held us accountable through regular monitoring. We knew what he expected and we got it done. Most people don't only want direction, they need direction.

Successful monitoring is not intended to catch people doing things that are wrong. If done properly, you shouldn't find people doing things wrong because they'll know what your expectations are and they'll know that you will be checking up on them. If you find your people doing things wrong, take the time to review your expectations and point out areas for improvement. An unwillingness to point out and discuss problems when they occur will send a sign to your people that you don't care about meeting your expectations and that you don't care about them. When your people are meeting your expectations, recognize what they are doing right. Failure to point out the good things that your employees and coworkers are doing may lead to resentment and lack of cooperation when you assign new expectations in the future.

When you become predictable in checking on your people, you have done a good job at monitoring. When you become predictable at monitoring your people, your people will become more responsible. Making people accept responsibility after you have made your expectations clear is what monitoring is all about. If they know you are going to check something, they will be more conscious of what they are doing and do a better job at it. Regular monitoring will create good habits in your employees and coworkers and that will make your job easier.

More plans fail due to lack of monitoring than for any other reason. This is one of the most important management tools you have. Even the best employees can slide back into old habits. They may not continue to put forth their best efforts if they no longer see that your objectives are important to you. The things you decide to follow up on will send signals to your crew. You need to "inspect what you expect".

4) Recognition

Recognition happens when you meet with your employees or coworkers to discuss the progress they are making toward your expectations. Recognition can be done through job-site conversations, employee meetings or such things as safety awards. In most cases, and especially when constructive criticism is necessary, recognition should be done privately one on one. The purpose of recognition is to let the employee or coworker know that your expectations are important to you. It is the key to improved performance.

Be up-front with your people. Don't let your people fail – level with them. Tell them what they have done well and what needs to be improved. If you don't, you will not get the message across. Ignoring problems will encourage poor behavior and lack of responsibility. Passing over achievements does not recognize improved performance. You must tell them when you see them failing to reinforce what needs to be done and you must tell them when they are doing a good job to help develop good habits.

Recognition should be done in a way that will help your people improve their job performance and encourage them to take initiative and responsibility in their job. Take the time to listen and give them the help or instruction they may need to improve their performance. Listening and making yourself available to work with your people shows a willingness to learn and helps build mutual respect.

Don't forget to follow-up on what you have set out to achieve. Recognition is the key to getting things done to meet your objectives. Your objectives, plans and targets are no good if they are not monitored and the progress toward them is not communicated through recognition to those responsible in achieving them. When you show recognition consistently, such as showing a low tolerance level for unsafe acts, your people will know what you expect and the likelihood of you reaching your objective will become easier.

5) Consequences

Dealing with consequences usually means the use of discipline to get people back on track. Consequences are important because they let people know you are serious.

When dealing with consequences, you must first make sure you are right. Before a problem gets to the point where discipline is necessary, you should determine whether or not you have done what you should be doing as a foreman. You cannot discipline an employee if you have not first taken the time to monitor and recognize the poor performance that is causing the problem. You have an obligation to try to work with the employee to achieve improved performance before you discipline.

If you have been working with the problem employee and things are still not improving, you should consider different ways to achieve what you want done. Maybe you are going about it the wrong way. Maybe you have assigned them a task beyond their capability.

Once you get to consequences, things are pretty cut and dry because the company has guidelines for discipline. You should follow your company's guidelines. Most companies handle consequences through written warnings before taking other disciplinary action.

When dealing with consequences, you should focus on the problem, not the person. Explain carefully where they went wrong and what should have been done. Don't jump to hasty

conclusions. Don't threaten anyone or put them down. This will encourage them to look for excuses – reasons why they can't do what they should be doing.

As a supervisor, it is natural that you want to be liked and thought highly of by all of your employees. However, when it comes to enforcing safety requirements, it is more important to put safety before the need to be "one of the guys". Enforcing safety requirements is not only an excellent way to show your employees that you care about them; it will also earn you respect. You may not be able to do everything, but you must ensure that your employees meet your safety expectations. Once you let something slip by because it is difficult or uncomfortable to enforce, you damage your credibility. You must be consistent. Your employees will test you.
If your people see that you are not consistent, they may lose respect for you and the safety requirements you are trying to enforce.

B. Concerning Yourself – Your Personal Guide to Success:

Leadership is the ability to influence behavior to get the job done.

The certified mine foreman often sets the example. The way to show a good example is to work safely. Always put safety in your plans, wear your personal protective equipment, and take the time to train your people to work safely, make your required safety inspections, correct unsafe acts consistently, listen to your employees concerns and see that unsafe conditions are corrected. In most cases you may not have a problem telling your people what is most important; you may have a problem demonstrating it. It is not enough to know safety; you need to practice it.

Being consistent is also very important. By consistently enforcing State and company safety requirements, you will achieve the best results from your employees. Your employees need to know where you stand on things. They want to know the rules – what is required of them. If you are inconsistent in enforcing these rules, your employees may become inconsistent in following them.

You earn respect by being good at what you are supposed to do – being a good certified mine foreman. Don't look for respect from your people by trying to be smarter than they are. More than likely they know more than you will ever know about what they do. Maintaining a safe work environment and ensuring safe work habits is the best way to build respect and trust in your people. When they trust you, instead of questioning you, they will work harder to work with you.

Don't try to solve all your problems at once or be good at everything you do. Nobody can do that. Work on one problem at a time. Try to be good at a few things and be consistent at those.

Keep up with your education. Obtain all the training that you can. Periodically reread the requirements of the State's mining laws and regulations.

What makes a good certified mine foreman? A good certified mine foreman should have a clear plan and objective, should let their people know what is expected of them, should follow up from time to time to let their people know what is important, should level with their people if they don't meet expectations, should help their people to help themselves, should listen to their people and their concerns, and be consistent, fair and honest in their actions and treatment of people.

Accident Prevention

Accident prevention is one of the most important responsibilities of the certified mine foreman. After all, the Mineral Mine Safety and Health Regulations require certified foremen to eliminate hazards or unsafe conditions before miners work in any areas and to ensure that all activities under their supervision are conducted in a safe manner. Starting with the requirements of the Regulations there are a number of ways that accidents should be and can be prevented.

A. Beginning of Shift Examinations and Work Area Examinations

Not only are these requirements of the laws and regulations, they just make good sense. Examinations done at the beginning of the shift give all involved an opportunity to detect and eliminate hazards that may be present in the work place prior to personnel starting work. As a certified mine foreman, you should make sure that all miners under your supervision are examining their active workings for unsafe conditions prior to starting work. Mobile equipment operators, stationary equipment operators, and all other miners are required to inspect their machinery or equipment, and work areas for hazards prior to starting work. These inspections are required before an idle piece of equipment or an inactive area is put into use during the shift. All hazards reported to you must be corrected or posted and barricaded before allowing anyone to work in the affected area. This often requires working closely with upper mine management, especially when you don't have the authority to eliminate the potential hazard yourself. When you don't have the authority to eliminate the hazard, you should direct your attention toward isolating the hazard with a barricade and warning sign, informing all affected miners of the hazards present, and informing the manager who has the authority to take corrective action so that corrections can be made as soon as possible.

B. Follow-up Examinations Made During the Shift

A good certified mine foreman must be on the look out for dangerous conditions or practices throughout their shift. In addition, whenever conditions or equipment are changed during the shift, the certified mine foreman should examine the area affected. The regulations are also specific in their requirement that the certified mine foreman examine all active work areas that may be affected by blasting after a shot has been put off. All personnel are also required to frequently examine their work areas for unsafe conditions throughout their shift.

C. Personal Protective Equipment

As a certified mine foreman, one way that you can help prevent accidents is to ensure that the proper personal protective equipment (PPE) is on hand and is being used by your fellow employees. Besides standard PPE equipment such as face shields, safety harnesses, hearing protection, and dust respirators, there are also things like lock-out and tag-out equipment, fire extinguishers, chock blocks, area lighting, and even warning sirens that you may now be responsible for providing for your crew. If this is the case, you should make yourself aware of what you are responsible for and make yourself a checklist so you can periodically check to make sure it is there. You may also want to delegate the maintenance of this equipment to those that regularly use it. In most cases, those who use the equipment and need it to protect their safety while on the job, will ensure that it is there and is well taken care of. Nevertheless, your follow-up in this area is important since the lack of proper, well maintained equipment may lead to an accident or having to shut down the job.

D. Training

Training should be foremost in the mind of every certified mine foreman whenever anyone is exposed to a new environment or situation. The safety of your employees, co-workers, contractors, and visitors should be first and foremost in your mind.

Training for mine personnel, contractors, and visitors will probably involve at least one of the following training requirements -- new miner training, newly employed experienced miner training, annual refresher training, task training, and hazard training. New miner training is typically given to new employees that do not have prior mine experience and, in Virginia, should include General Mineral Miner certification. Newly employed experienced miner training is given to experienced miners that are new to your operation. Annual refresher training is used for a number of purposes such as keeping mine employees current with changes in State and company safety regulations. Task training must be given to all new and reassigned employees to instruct them in the proper way to perform their new job and to make them aware of the hazards associated with it. Hazard training should be given to all mine visitors to make them aware of any potential hazards within their area of work or travel on the property.

Task training can be one of the most effective means of accident prevention if done properly. The certified mine foreman or a competent person he has selected should do this. Remember, a competent person is someone who has the experience and ability to do a job or task. Task training should include familiarization with the work area, a review of safe operating procedures for the equipment to be used, potential safety hazards associated with the job, and a review of company and State safety regulations pertaining to the job. The new operator's initial practice on the job should also be closely supervised until you are confident they have the ability to do the job safely.

One of the purposes of training is to make people aware of potential hazards before they expose themselves to them. Lack of knowledge and carelessness are the cause of most accidents. Training is an opportunity for you to share your experience with others. Good training in conjunction with proper documentation can also serve as a useful means of making persons accountable for their personal safety.

E. Safety Meetings

Safety meetings are one of the most basic means of communicating safety messages and safe work procedures with your employees and co-workers. These meetings are one of the best tools you have to get your people committed to safety and take responsibility for themselves. To make a safety meeting effective, take time to prepare, select a good place to hold the meeting, show sincere interest in the subject you are discussing, encourage participation from the crew, and don't get in a hurry – give the meeting enough time to be effective. A sincere safety attitude is essential during the meeting to effectively get the message across. The key to holding a good safety meeting is getting your people involved – discuss the topic and ask for suggestions in areas that may need improvement. If an employee makes a contribution during the meeting, you should follow-up on it. If you fail to do this, they will lose interest and commitment.

F. Dealing with Unsafe Acts

All employees under your supervision must be observed on a regular basis to ensure they are conducting their jobs in a safe manner. Besides experience, this requires a good working

knowledge of both State and company safety regulations. In addition to instructing the employees under your supervision in the regulations applicable to their work, you should regularly inspect for their compliance with those regulations and take appropriate actions whenever an unsafe act is observed. That usually means taking immediate steps to prevent it from reoccurring. This may be as simple as pointing it out to those involved and explaining how it could lead to an accident. It may require that additional training be set up or some disciplinary action be taken if the person(s) involved have a history of unsafe work habits. Consistently showing a zero tolerance level for unsafe acts will let your people know what you expect and make your job easier. Other tips for dealing with unsafe acts can be found in the Leadership and Supervision section of this guide.

G. Adopting the Buddy System

In the buddy system you either encourage or assign all persons on the mine site to adopt one or more buddies. Groups will normally occur naturally such as a loader operator and his truck drivers, but assignments may be necessary if any employees are left out. Each person is then asked to look out for their buddy and help refocus them when they begin to stray from good safety habits. Co-workers should also be encouraged to keep an eye out for their buddies if they don't appear to be fit for work due to a temporary physical or mental condition. In that case, they should also be encouraged to inform their supervisor since the affected employee may only be safe at home on that particular day. Everyone should be encouraged to thank their buddy, instead of fuss, when an unsafe act is pointed out or they are reminded to do something in a safer way. None of us likes to be told that we are doing something wrong, but when it's something that could get us hurt, we should be thankful that someone else cared enough to say something to us. Not only is the buddy system good from the perspective that everyone is looking out for someone else, but they are also being looked after as well.

H. Making Safety Analysis

Safety analyses or audits are invaluable tools in accident prevention if used properly. The safety analysis is an examination of the mine site designed to find and correct unsafe conditions and unsafe acts. Your company may already have policies and procedures for the performance of a safety analysis. Before starting off on your own, you may want to check with upper management to see if this is the case.

To be most effective, the analysis should be given adequate time to be completed and, most importantly, be given the priority it deserves. The analysis will allow all employees involved to look at their own work areas and the work areas of others in a different perspective. It also helps those employees to develop a practiced eye in finding unsafe conditions and acts. Most importantly, it shows all who participate the importance that management has assigned to safety and what they can contribute as an individual to the overall good of the group. This in turn will help encourage each individual to take responsibility for safety and make safety a habit.

I. Accident Investigations

As a certified mine foreman you may also be responsible for investigating and reporting accidents to individuals and property under your supervision. If the accident results in a serious personal injury or fatality, you or your supervisor will need to contact the Division of Mineral Mining by the quickest available means. An accident of this type also requires the scene of the accident to remain undisturbed until investigated by the Division. In other situations you may

only need to prepare and file an accident report. If this is the case, be sure to familiarize yourself with your company's policies and procedures regarding these reports. Besides a list of those individuals that were injured, include a description of what was taking place and the time, date and location of the accident. These reports may also contain pictures of the scene, the equipment involved, distance and size measurements, and the addresses and phone numbers of witnesses. When you make the investigation, gather all pertinent facts from an objective viewpoint and remember that the purpose of the investigation is not to point the finger of blame. Instead, accident investigations often help prevent the same type of incident from occurring again. Often, near misses go unreported within the company because those involved came out of the situation okay. If reported within the company, near misses can also provide an excellent training tool that may prevent the situation from reoccurring and possibly hurting someone the next time. Accident reports can be a useful training aid to show others how an unsafe act or unsafe condition led to someone else's injury. Seeing is believing, and an accurate account of someone else's accident can make a believer out of those with whom it is shared.

Handling Emergencies

Planning and preparation are the keys to properly handling emergencies. Requirements of the regulations and law address several issues concerning emergency preparedness. Some of these include the requirements to make pre-arrangements with the local fire departments and rescue squads for emergency assistance. Their phone numbers as well as those of the Division must also be posted near phones that are accessible to all mine employees. First aid kits and fire extinguishers need to be provided and maintained by people assigned those responsibilities. Practice drills must be held for fire fighting and are encouraged for all perceived emergencies to properly train and prepare your people in the event of an emergency.

The company you work for should have a mine emergency response plan. You should make yourself familiar with it since it may dictate your response to an emergency. The Division of Mineral Mining also publishes a Mine Rescue and Recovery Plan on an annual basis for use at all mines around the State. This plan has been developed to prepare Department of Mines, Minerals and Energy and mine personnel to effectively carry out their roles in the event of a mine emergency. The plan includes a mine emergency notification sheet that must be posted at a prominent location at the mine. The success of any rescue and recovery operation is greatly influenced by prompt and accurate reporting of the incident. Messages should never be left on an answering machine when reporting mine accidents or emergencies. If your mine inspector cannot be reached, you must contact another inspector or the Division's main office.

As a foreman you should show leadership and stay calm when dealing with emergency situations. Following a well thought out emergency response plan, making the proper preparations, and having the right equipment on hand will enable you to deal with the situation in a calm and confident manner.

In any emergency situation, your first priority should be the safety of yourself and any other persons in the area. Never rush into a situation until you assess the safety for yourself and other rescuers. Knowing whether or not any of your people have any special medical conditions such as allergic reactions to bee stings, epilepsy or diabetes may enable you to respond to any problems they may be experiencing more quickly. Knowing whether or not any of your crewmembers are First Responders or EMTs could make the difference in being able to save the life of someone injured.

As soon as possible after discovery of an accident, someone on the mine site should contact and stay in touch with the fire department or rescue squad personnel. If there is any doubt that the emergency response personnel will be able to find the site of the accident, an escort should be posted at the mine's entrance.

The requirements of the laws and regulations also need to be met as far as record keeping and notification of the Division. Once your local emergency response crews are notified, you must also take immediate steps to contact your mine inspector or the Division office if the accident involves a fatality, serious personal injury, mine fire, or unplanned explosion. Those accidents, and any other reportable accident, must be documented on an appropriate accident report and submitted to the Division within a few days of the accident occurring. Good documentation can be very beneficial in preventing accidents from reoccurring.

Complaint Management

Complaints may include all sorts of things from safety issues to not being treated fairly. Supervisors represent the company to their employees and, as a result, they are often the ones that hear their complaints. This is one area where safety issues are usually the simplest issues to deal with. In most cases, they are cut and dry. Dealing with other complaints is often the worst part of many supervisors' jobs. In this section, a few tips will be shared that should help in dealing with this difficult part of the job.

To handle complaints effectively, you must first learn to deal with the complaint, not the complainant. When receiving a complaint, zero in on the problem, not the complainer. Don't let personal feelings get in the way of handling the problem fairly and in everyone's best interest.

Listen carefully and ask for suggestions. Repeat the problem back to the individual talking to you. If you are not clear as to the nature of the problem, ask questions and have them explain their position. Respond in a way that shows sympathy and understanding.

Carefully explain your or the company's position on whatever the problem may be. It is best to do this at the time of the complaint unless unsure of what that position may be. If in doubt, make arrangements for you and the complainer to meet with someone who knows.

When someone brings a complaint to you, show you care by taking action. Try to solve the problem and work out a solution right then if you can. If you cannot, set a specific time for follow-up. If you make a promise to get back to them later, do it by the time promised. Quick action is especially important with safety complaints. Not only should you want to protect your employee's safety, but you should also be aware that, if taken to the Division of Mineral Mining, the complaint will result in an investigation. The best place and time to address safety complaints are at the mine site as soon as they come to your attention.

If you cannot correct the problem leading to the complaint, document the reason why it wasn't corrected and any additional attempts you made to have it resolved. Get back in touch with the individual making the complaint and keep them posted on your progress to resolve the issue.

When dealing with complaints be sure to protect the privacy of the complainant. Don't make an issue public if not appropriate.

Good communication gains respect. Encourage an open line of communication by asking that all problems be brought to your attention before being taken to upper management or a higher level of authority. Thank them for bringing their problems to you and encourage them to continue to do so with any related problems they may have. Remember, an employee's problems, which aren't addressed by you, may be taken to upper management or to the Division in the form of a complaint. Foremen that listen to their crew will have their crew listen to them.

SECTION 2

RESPONSIBILITIES OF A SURFACE FOREMAN

Specific Objective #2: Establish responsibilities and duties of a certified mine foreman required by State mining laws and safety regulations.

RESPONSIBILITIES AND DUTIES OF CERTIFIED MINE FOREMAN

Definitions

The following definitions are found in the **Mineral Mine Safety Laws of Virginia** and have specific meanings as used in the law and regulations as well as where they are referenced in this section. These definitions can be found in the Law, Section **45.1-161.292:2**.

Agent: means any person charged by the operator with responsibility for the operation of all or a part of a mine or the supervision of the miners in a mine.

Approved competent person: means a person designated by the Department as having the authority to function as a mine foreman even though the person has met the less than five years' (but more than two years) experience criteria. If an ACP has met all the criteria for a mine foreman certification other than the experience requirement, he may perform the duties of a mine foreman except the examination made at the beginning of each shift.

Authorized person: means a person assigned by the operator or agent to perform a specific type of duty or duties or to be at a specific location or locations in the mine who is task trained in accordance with requirements of the federal mine safety law.

Certified person: means a person holding a valid certificate from the DMME authorizing him to perform the task to which he is assigned.

Competent person: means a person having abilities and experience that fully qualify him to perform the duty to which he is assigned.

Experienced surface miner: means a person with more than six months of experience working at a surface mine or the surface area of an underground mine.

Federal mine safety law: means the Federal Mine Safety and Health Act of 1977, and regulations promulgated thereunder.

Independent contractor: means any person that contracts to perform services or construction at a mine.

Interested persons: means members of the Mine Safety Committee and other duly authorized representatives of the employees at a mine; federal Mine Safety and health Administration employees; mine inspectors; and, to the extent required by this chapter and Chapters 14.5 and 14.6, any other person.

Licensed operator: means the operator who has obtained the license for a particular mine under Section 45.1-161.292:30.

Mine fire: means an unplanned fire not extinguished within thirty minutes of discovery.

Mine foreman: means a person holding a valid certificate of qualification as a foreman issued by the DMME.

Mine inspector: means a public employee assigned by the Director to make mine inspections as required by this chapter and Chapters 14.5 and 14.6, and other applicable laws.

Miner: means any individual working in a mineral mine.

Mineral mine: means a surface mineral mine or an underground mineral mine.

Mineral Mine Safety Act: means this chapter and Chapters 14.5 and 14.6 of this title, and shall include any regulations promulgated thereunder, where applicable.

Operator: means any person who operates, controls or supervises a mine or any independent contractor performing services or construction at such mine.

Definitions found in the **Safety and Health Regulations for Mineral Mining**, Section **4 VAC 25-40-10**:

Company official: means a member of the company supervisory or technical staff.
Department: means the Department of Mines, Minerals, and Energy.
Director: means the Director of the Division of Mineral Mining.
Division: means the Division of Mineral Mining.
MSHA: means the Mine Safety and Health Administration

DMME Certification Categories

As a certified mine foreman, it is important to be familiar with Article 3 of the **Mineral Mine Safety Laws of Virginia** and Chapter 35 of the **Virginia Administrative Code** that relate to certification requirements and procedures for persons working at mineral mines. Chapter 35 (Certification Requirements for Mineral Miners is included in the **Safety and Health Regulations for Mineral Mining**.

Mineral mine safety law **(45.1-161.292:19)** designates the DMME to oversee certification carried out by the Division.

Section **45.1-161.292:19** of the mineral mine safety laws and section **4 VAC 25-40-40** of the safety and health regulations require that the following persons be certified by the DMME:

- surface foreman (quarry)
- surface foreman - open pit (not applicable to drilling and blasting activities)
- underground foreman
- surface blaster
- electrical repairman
- underground mining blaster
- general mineral miner
- state mine inspector

Certification by the DMME is valid for 5 years **(45.1-161.292:20)** for all categories except "general mineral miner" which shall remain valid indefinitely. Any certification issued by the DMME can be revoked (**45.1-161.292:26**) for just cause. Any person who has had their certification revoked may appeal that DMME decision in accordance with the Virginia Administrative Process Act. Certification requirements for each of the categories listed above can be found in Chapter 35 (Certification Requirements for Mineral Miners) contained in the safety and health regulations.

As stated above, all certifications, with the exception of the general mineral miner certification, are valid for 5 years and must be renewed through the DMME **(45.1-161.292:25)**. All persons holding a certification are notified at least 180 days prior to the expiration date of their certification. Renewal of certification can be achieved by one of two methods specified in regulation **4 VAC 25-35-40(C)**: (1) attend DMM foreman renewal course, or (2) successfully complete a foreman renewal examination on any changes in regulations or laws since their initial certification or the certification was last renewed. It should be noted that both options require persons to have worked as a foreman for at least 24 cumulative months during the past five years. Failure of an individual to renew a certification by the 5th anniversary of its issuance will result in the certification being declared invalid; revoking the right of that individual to function in his capacity as a certified person. Requirements for renewal of a certification are established by the DMME and administered by DMM. Documentation and fees are also established by the DMME **(4 VAC 25-35-40)**.

Certified mine foremen must maintain their first aid certification. The regulations require all certified mine foremen be trained in first aid and possess a valid first aid certification **(4 VAC 25-40-140).** Failure of an individual to keep a current first aid certificate may prohibit them from functioning as a certified mine foreman.

Certified persons must have ready access to documentation of their certification and be capable of producing this documentation to representatives of the DMM Director when required. Therefore, it is important to maintain your certification. Lost or destroyed certification cards must be replaced by the holder. This process can be accomplished by contacting the Division and establishing to the satisfaction of the DMM that the loss or destruction actually occurred and that the person seeking the replacement card is the certificate holder.

The DMME certification requirements for "foreman" **(45.1-161.292:29, 4 VAC 25-35-10** and **4 VAC 25-35-60)** include the following:

1. At least 5 years of mining experience with at least 1 year at a surface mineral mine; or equivalent work experience approved by the DMM. An applicant with a Bachelor's degree in mining engineering, mining technology, civil engineering, or civil engineering technology, or geology may be given 3 years experience credit. Applicants with an Associate's degree in mining technology or civil engineering technology may be given 2 years experience credit.

2. A valid first aid certificate or card acceptable to DMM.

Applicants must pass a written examination with a score of 85% or better **(4VAC 25-35-20)** on each section of the examination. If one or more sections is failed, the applicant must pay the examination fee and retake the failed section or sections within 90 days to continue the certification process. If a section is failed a second time, the applicant must pay the fee and retake the entire examination. If the examination is failed on the third try, the applicant must re-apply and pay the fee, and wait the longer of 90 days from the re-examination date or one year from the initial examination date before retaking the entire exam.

Individuals who have a valid certification from another state may be qualified to obtain certification in Virginia through reciprocity **(45.1-161.292:24 & 4 VAC 25-35-30)**. Applicants for reciprocity must submit all required documentation for review and approval by the DMME. This documentation must include copies of the certification, examination grades, and work experience records.

Foreman Certification

When *3 or more* persons are working at a mineral mine, a DMME-certified mine foreman must be employed **(45.1-161.292:29 and 4VAC 25-40-120)**, and a copy of the foreman's certificate must be kept on file at the mine office.

Independent contractors engaged in work related to extraction or processing at the mine must also employ a DMME-certified mine foreman or work under the supervision of a certified mine foreman provided by the mine operator; however, if the work is not related to extraction/processing, and they are restricted to a "demarcated" work area with no mining-related hazards away from mining activities, they may designate a "competent person" to carry out foreman responsibilities **(45.1.161.292:29.D).**

Duties, Responsibilities, and Consequences

Foreman Responsibilities

The certified mine foreman has the following responsibilities imposed by state mining laws and safety & health regulations:

1. Examine all work environments (active workings) where miners will be assigned to work at the beginning of each shift **(45.1-161.292:29.C and 4 VAC 25-40-130)** to ensure safe working conditions.

2. Ensure that all activities under their supervision are conducted in a safe manner in compliance with applicable laws and regulations adopted by the department **(4VAC 25-40-120).**

3. Ensure that conditions and work practices in their assigned area are in compliance with **Mineral Mine Safety Laws of Virginia and Safety and Health Regulations for Mineral Mining (4 VAC 25-40-120 and 4 VAC 25-40-130).**

Any hazardous or unsafe condition detected during the examination shall be corrected prior to miners starting work in the affected area; or the affected area shall be barricaded and posted with warning signs **(4 VAC 25-40-130).**

State mining laws and regulations also impose individual responsibility for compliance with miners **(45.1-161.292:6.B)** and the mine "operator" or their agent **(45.1-161.292:8).** Since most foremen have limited authority, their focus must be directed toward identification and elimination of potential hazards. If they do not have the authority required to eliminate the hazard, their actions should be directed toward isolating the hazard (barricade), posting warning signs, and informing affected miners and the appropriate manager of the situation so that corrective action can be taken.

Duties Imposed by Foreman Responsibilities

To fulfill the responsibilities of a certified mine foreman imposed by state mining laws and regulations, the certified mine foreman must carry out the following duties:

1. Conduct and document examination of work environments (active workings) at beginning of each shift; document any hazard detected, or reported to you by miners. If you lack the authority to correct the hazard, barricade the affected area, post warning signs, and document to whom (manager) and when you reported the hazard for corrective action. A record of the examination must be kept at the mine office for at least 1 year **(4 VAC 25-40-130)**.

2. Ensure that miners under your supervision are properly trained in accordance with the company's Mineral Mining Safety Training Plan **(45.1-161.292:73),** and that records of Task Training are kept at the mine office **(4 VAC 25-40-100)** for at least 2 years, or 60 days after termination of miner's employment.

3. Initiate appropriate action (training/disciplinary) for miners observed violating company safety rules or state mine safety regulations.

4. Ensure that independent contractors working in your area of supervision are made aware of company safety rules and certification/training requirements imposed by state mining laws and regulations.

5. Ensure that miners inspect their assigned equipment (mobile/stationary) prior to use each shift to assure safe operating condition **(4VAC 25-40-145)**; and that miners inspect their work area at the start of each shift and frequently thereafter to assure safe working conditions **(4VAC 25-40-460).**

Responsibilities Related to Issuance of Violations

When the mine inspector has reason to believe that a violation of the law or regulations has been committed at a mine it is his duty to issue a Notice of Violation. The notice will be issued directly to you where there is reasonable cause to believe that you were responsible for the violation, or it may be issued to the operating company, independent contractor, individual employee, or some or all of the above where they are found to be responsible or share responsibility for the violation. The notice will state the section of the laws or regulations that has been violated, corrective action to be taken, and a compliance date by which the corrective action must be completed. **(45-161.292:63.A)**

A copy of the Notice of Violation will either be presented to you or the licensed operator or to any independent contractor whose employees are affected by any hazards associated with the violation. **(45.1-161.292:63.B)** Also a second copy of the Notice of Violation along with the accompanying inspection report will be issued. This copy must be displayed at a prominent place on the mine site for the benefit of all employees to read. **(45.1.161.292:62)**

Where the recipient of the notice feels that the notice was not properly issued, he may address an appeal to the Department. This appeal is subject to the Administrative Process Act and affords the appellant the right to an informal conference, formal conference, and judicial review if needed to address the issues regarding the issuance of the violation. All appeals on Notices of Violations must be made within twenty days of issuance of the notices and the appeal must be made in writing to the Department **(45.1-161.292:63.D).** When an appeal has been granted by the Department, the compliance date for correcting the violation shall not begin until all appeals have been heard **(45.1-161.292:65).**

Notices of Violation, which are not being contested, must be complied with within the prescribed abatement period. At the end of the compliance period the mine inspector will revisit the site to re-inspect those areas of the operation affected by the notice. If corrective actions have been successfully completed the inspector will terminate the Notice of Violation and issue an inspection report and termination notice. As previously described, a copy of these documents must be displayed for miners to read **(45.1-161.292:63.C).**

Failure to comply a notice by the prescribed abatement date can result in the issuance of a Closure Order by the inspector. Closure Orders can be issued to remove all employees from the entire mine, portions of a mine, or forbid the use of stationary or mobile equipment affected by the order. No work can take place in areas or on equipment affected by a Closure Order with the exception of work performed to comply the order. Upon completion of corrective actions to

comply the order, the area or equipment cannot be reactivated until such time as the mine inspector has inspected the work performed and has terminated the Closure Order **(45.1-161.292:64.A & C).**

Closure Orders may also be issued for the following reasons: 1) a violation exists that creates an imminent danger to the life or health of persons on the mine; 2) to preserve the scene of a serious accident (serious personal injury or fatality); and 3) to stop operations at an unlicensed mineral mine **(45.1-161.292:64.A).** Unlike a Notice of Violation, a Closure Order can only be contested through a civil action taken before the circuit court of the city or county in which the mine is located; and the Closure Order remains in affect unless otherwise determined by the presiding court. The civil action must be made within 10 days of receipt of the order, or the order will stand **(45.1-161.292:64.D).** Any person willfully violating a Closure Order is subject to prosecution, and if found guilty, they can be charged with a Class 1 misdemeanor **(45.1-161.292:67).**

Consequences and Penalties

Failure to carry out your responsibilities and duties as a certified mine foreman can result in the revocation of certification by the DMME **(45.1-161.292:26).** This can result in interruption of production if the mine inspector finds it necessary to issue a Closure Order **(45.1-161.292:64)**; or may lead to prosecution by the Commonwealth Attorney or the Attorney General for willful violation of the law **(45.1-161.292:67).**

Persons who have had their certification revoked by the DMME may seek reinstatement as a certified person **(45.1-161.292:27)**. This process may be initiated no sooner than 3 months after the date of revocation. The individual must provide evidence to the satisfaction of the DMME that the cause for revocation has ceased to exist.

Responsibilities of Mine Operator or Operator's Agent (45.1-161.282:8/4 VAC 25-40-40)

The mine "operator" or manager/superintendent (agent) has overall responsibility for ensuring that the mine operates in compliance with state mining laws and safety/reclamation regulations. Specific responsibilities include the following:

1. Cooperate with the certified mine foreman in the discharge of their responsibilities and duties imposed by state mining laws and regulations **(45.1-161.292:8.A)** and ensure that adequate safety supplies are on hand at mine **(45.1-161.292:7)**.

2. Ensure that the mine operates in compliance with **Mineral Mine Safety Laws of Virginia** and **Safety and Health Regulations For Mineral Mining**, regardless of MSHA inspection status. Mines under MSHA inspection are not exempt from compliance with state mining laws and regulations **(45.1-161.292:8.B).**

3. Do not allow any person to work in an area of the mine in violation of a "Closure Order" issued by a DMM mine inspector **(45.1-161.292:8.D).**

4. Ensure that all miners (employees/contractors) are DMME-certified as required **(45.1-161.292:21).**

5. Ensure that blasting activities are conducted under the supervision of a DMME-certified blaster **(4 VAC 25-40-800.A),** and that electrical work is conducted under the supervision of a DMME-certified electrical repairman or licensed electrical contractor **(4 VAC 25-40-2015.B).**

6. Notify DMM at least 10 days prior to closing mine, or resuming mining activities after being inactive for at least 60 days **(45.1-161.292:36).**

7. Promptly report accidents involving "serious personal injury" or death to any person on mine property to DMM **(45.1-161.292:50 and 51)**.

8. Report all unplanned "mine fires", which take more than 30 minutes to extinguish upon discovery, to DMM by quickest available means **(45.1-161.292:50)**.

9. Report other accidents (medical treatment/lost-time) as they occur in writing to DMM on acceptable accident report forms, and keep copies of all accidents and occupational injuries for at least 5 years **(45.1-161.292:52 and 4 VAC 25-40-50)**.

10. Provide the mine inspector proper facilities for entering the mine and making examinations of records and furnish him with any data or information not of a confidential nature **(45.1-161.292:60.A).** No person shall deny the mine inspector access to the mine or to mine records or reports **(45.1-161.292:59)**.

11. Promptly clear the mine or portion of the mine upon the order of the mine inspector **(45.1-161.292:60.C)**.

12. Post DMM safety violation reporting procedures and mine inspector telephone numbers at mine **(45.1-161.292:70)**.

Responsibilities of Other Certified Persons

DMME certification requirements restrict certain tasks to properly trained and certified persons; the certified mine foreman cannot perform other tasks requiring certification such as supervising blasting or electrical work. It is important, however, that the certified mine foreman interact with other certified persons in the performance of their job.

Persons, other than foremen, who must be certified by the DMME **(45.1-161.292:19)** include the following:

Blasters who must be in direct charge of blasting activities at the "blast site". Coordination between the certified mine foreman and certified blaster is required to ensure that other persons and equipment are removed from the "blast site" *prior to start of loading*; and that the "blast area" (pit) is cleared prior to detonation of the shot. In addition, the certified blaster must ensure that the design, loading, detonation, and effects of blasting are in compliance with DMM Part 6 (Explosives) of the Safety and Health Regulations.

Electricians who must perform or supervise all electrical work **(4 VAC 25-40-2015)** to ensure compliance with Part 12 (Electricity) of the Safety and Health Regulations, and the National Electrical Code where applicable.

New Miners employed by the mining company, or independent contractors working at the mine, who are engaged in work related to extraction or processing such as stripping overburden, drilling, blasting, or crushing/processing. New miners must be certified **(45.1-161.292:28)** as "General Mineral Miner". Certification training **(4 VAC 25-35-120)** of new miners must include instruction in first aid, Mineral Mine Safety Laws of Virginia, and DMM Safety & Health Regulations.

The mine operator and independent contractor working at a mine must ensure that their employees are certified as "General Mineral Miner"; it is unlawful **(45.1-161.292:21)** for any mine operator, or agent of the operator, to permit any uncertified person to perform tasks requiring certification.

It is important to remember that any person wishing to work at a mine, including contract workers, must be at least eighteen years of age **(45.1-161.292:5)**. The law requires you, as the certified mine foreman to verify the age of persons where there is any doubt as to their being eighteen years old. This verification may either be a birth certificate or other documentary evidence, from the Registrar of Vital Statistics, or other authentic source.

As an agent of the mine operator, certified mine foremen must ensure that persons under their supervision are properly trained and certified for their assigned tasks **(4 VAC 25-40-100),** and that task training records are maintained at the mine office. They must also ensure that contractors who are hired to work at the mine are made aware of their obligation to comply with all applicable state mining laws and regulations, and that the contractor has been registered with DMM **(45.1-161.292:32.A.3)** and assigned a DMM contractor ID number for tracking information related to their work at mine sites.

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SECTION 3

OPERATIONAL SAFETY

<u>Specific Objective #3</u>: Recognize DMM operational safety requirements and the certified mine foreman's role in complying with State mining laws and regulations.

OPERATIONAL SAFETY

The following laws and regulations directly impact the safety of employees while they are performing their duties in the work place. It is the responsibility of the certified mine foreman to ensure that both he and those working under his supervision follow these laws and regulations.

In this section, laws and regulations have been divided into seven operational areas: 1) the pit or quarry, 2) the plant or processing area, 3) use of mobile equipment, 4) maintenance and repair, 5) electrical systems, 6) personal protection, and 7) explosives, blasting activities, and drilling.

Definitions

The following definitions found in the **Mineral Mine Safety Laws of Virginia** and the **Safety and Health Regulations for Mineral Mining** have specific meanings as used in the law and are found throughout the materials in this section.

Definitions found in the Laws, Section **45.1-161.292:2**:

Accident: means (i) a death of an individual at a mine; (ii) a serious personal injury; (iii) an entrapment of an individual for more than thirty minutes; … (vi) an unplanned mine fire not extinguished within thirty minutes of discovery; (vii) an unplanned ignition or explosion of a blasting agent or an explosive (premature detonation);…(ix) a rock out-burst (fall of ground) that causes withdrawal of miners or which disrupts regular mining activity for more than one hour; (x) an unstable condition at an impoundment or refuse pile which requires emergency action in order to prevent failure, or which causes individuals to evacuate an area;…and (xii) an event at a mine which causes death or bodily injury to an individual not at a mine at the time the event occurs.

Approved: means a device, apparatus, equipment, condition, method, course or practice approved in writing by the Director.

Hazardous condition: means conditions that are likely to cause death or serious personal injury to persons exposed to such conditions.

Imminent danger: means the existence of any condition or practice in a mine which could reasonably be expected to cause death or serious personal injury before such condition or practice can be abated.

Mine: means any underground mineral mine or surface mineral mine. Mines that are adjacent to each other and under the same management and which are administered as distinct units shall be considered as separate mines. A site shall not be a mine unless the mineral extracted or excavated there from is offered for sale or exchange, or used for any other commercial purposes.

Serious personal injury: means any injury which has a reasonable potential to cause death or any injury other than a sprain or strain which requires an admission to a hospital for twenty-four hours or more for medical treatment.

Surface mineral mine: means (i) the pit and other active and inactive areas of surface extraction of minerals; (ii) on-site mills, shops, load-out facilities, and related structures appurtenant to the excavation and processing of minerals; (iii) impoundments, retention dams, tailing ponds, and other areas appurtenant to the extraction of minerals from the site; (iv) on-site surface areas for the transportation and storage of minerals excavated at the site; (v) equipment, machinery, tools and other property used in or to be used in, the work of extracting minerals from the site; (vi) private ways and roads appurtenant to such area; and (vii) the areas used for surface-disturbing exploration (other than by drilling or

seismic testing) or preparation of a site for surface mineral extraction activities. A site shall commence being a surface mineral mine upon the beginning of any surface-disturbing exploration activities other than exploratory drilling or seismic testing, and shall cease to be a surface mineral mine upon completion of initial reclamation activities. The surface extraction of a mineral shall not constitute surface mineral mining unless (i) the mineral is extracted for its unique or intrinsic characteristics, or (ii) the mineral requires processing prior to its intended use.

Work area: means those areas of a mine in production or being prepared for production and those areas of the mine that may pose a danger to miners at such areas.

Definitions found in the Regulations, Section **4 VAC 25-40-10**:

Acceptable: means tested and found to be appropriate for a specific purpose by a nationally recognized agency.

Occupational injury: means any injury to a miner which occurs at a mine for which medical treatment is administered, or which results in death or loss of consciousness, inability to perform all job duties on any day after an injury, temporary assignment to other duties, or transfer to another job as specified in the 30 CFR Part 50.2.

Safety hazard: means any condition, function, or circumstance that may reasonably be expected to cause or assist an accident.

Suitable: means that which fits and has the qualities or qualifications to meet a given purpose, occasion, condition, function, or circumstance.

Pit or Quarry

A. Definitions

The following definitions found in the **Mineral Mine Safety Laws of Virginia** and the **Safety and Health Regulations for Mineral Mining** have specific meanings as used in the law and regulations pertaining to operational safety in the pit or quarry.

Definitions found in the Law, Section **45.1-161.292:2**:

Active workings: means any place in a mine where miners are normally required to work or travel.

Inactive mine: means a mine (i) at which…minerals have not been excavated or processed, or work, other than examinations by a certified person or emergency work to preserve the mine, has not been performed … at a surface mine for a period of sixty days, (ii) for which a valid license is in effect, and (iii) at which reclamation activities have not been completed.

Working face: means any place in a mine in which work of extracting minerals from their natural deposit in the earth is performed during the mining cycle.

Definitions found in the Regulations, Section **4 VAC 25-40-10**:

Abandoned workings: means deserted mine areas in which further work is not intended.

Angle of repose: means the maximum slope or angle at which material remains stable.

Blast area: means the area of the mine in which concussion or flying material can reasonably be expected to cause injury during detonation.

Blast site: means the 50-foot perimeter around boreholes being loaded, or 30 feet if demarcated by a barricade, and the 180° free-face area for a distance of at least four times the average depth of the boreholes being loaded.
Burden: means the distance in feet between rows of boreholes or between the open face and boreholes.
Face or bank: means the part of any mine where excavating is progressing or was last done.
Free-face: means the face area of a quarry bench to be blasted.
Flyrock: means any uncontrolled material generated by the effect of a blast that was hazardous to persons, or to property not owned or controlled by the operator.
Loaded: means containing explosives, blasting agents, or detonators.
Overburden: means material of any nature, consolidated or unconsolidated, that overlies a deposit of useful materials or ores that are to be mined.
Refuse: means mineral processing waste, tailings, silts, sediments, or slimes.
Scaling: means removal of insecure material from a face or highwall
Travelway: means a passage, walk or way regularly used and designated for persons to go from one place to another.
Wet drilling: means the continuous application of water through the control hole of hollow drill steel to the bottom of the drill hole.

B. Inspection Activities

In order to ensure the safety of all persons working in the pit or quarry, the certified mine foreman must perform the following activities at the beginning of each shift. He should also be aware that changing conditions within the pit or quarry during the shift might require that some of these activities be repeated when conditions dictate. All of these tasks or duties can be found in the regulations and are intended to provide for a safe work environment.

1. Activities: Duties or tasks to be performed specifically by the certified mine foreman at the beginning of each shift.

Examine the active workings at the beginning of each shift. The certified mine foreman will assure that any safety defects found during this examination are either corrected, or if they can not be immediately corrected, then he shall make sure all unsafe areas are barricaded and posted, or that the defective equipment is taken out of service until such hazards can be eliminated. **(4 VAC 25-40-130)**

Ensure that mobile and stationary equipment operators perform necessary inspections of their equipment prior to its use. These inspections must be done at the beginning of each shift, or when equipment is placed into service during the shift. The certified mine foreman will address any safety or health defects reported by the equipment operators and see that these defects are corrected prior to operation of the equipment. **(4 VAC 25-40-145)**

The certified mine foreman must inspect ground conditions as outlined in 4 VAC 25-40-130 at the beginning of each shift. He must also examine ground conditions after blasting operations have been completed to ensure that no unsafe conditions exist prior to resuming work in the area. **(4 VAC 25-40-450)**

2. Listed below are a series of questions regarding specific activities and conditions that are regulated by DMM that must be addressed by either the certified mine foreman or responsible miners during the beginning of shift examination or while conducting mining activities. Any safety defects found by the certified mine foreman or by the other

individuals performing work-place examinations must be reported to the certified mine foreman. Section **4 VAC 25-40-1980** of the regulations requires that all safety hazards must be corrected before work may be performed in any area. Any defect must either be immediately corrected or the area or structure must be barricaded and posted until such time as the hazard can be corrected. In the case of mobile or stationary equipment, it must be removed from service, locked-out and tagged until such time as it can be repaired. Any person observed working in violation of the regulations should be immediately notified to cease such activity and instructed in the safe method of conducting their work.

Besides conducting beginning of shift examinations, mine personnel should examine their working area frequently during the day for unsafe conditions. Any unsafe condition found during these examinations should be reported to the designated certified mine foreman for immediate attention. (**4 VAC 25-40-460)**

Are miners, who must work alone in hazardous areas provided with some form of communication to summons assistance in the event of an emergency? This would apply to areas where the person cannot be seen or heard by other workers. **(4 VAC 25-40-150)**

Are areas where there is an inherent safety or health hazard barricaded or posted to identify the hazard? This would pertain to areas such as inactive portions of the quarry walls, unstable ground conditions associated with sediments, or any other safety hazard that does not require immediate corrective action and is not immediately obvious to persons who may enter the area **(4 VAC 25-40-260).**

Has the operator provided gates or fences to restrict access at all roads leading into the pit or quarry and have they been posted with warning signs? This would pertain to access roads, which are left unattended. **(4 VAC 25-40-290)**

Is pit or quarry development in accordance with the mining plan? Does the plan sufficiently detail how ground, wall, bench and bank stability will be maintained? Is the plan being followed? **(4 VAC 25-40-390)**

Has the rim of the pit or quarry been stripped of overburden and trees for a distance of at least 10 feet from the edge of the highwall and has the exposed face of overburden been sloped to the angle of repose prior to extraction of mineral? **(4 VAC 25-40-400)**

Are benches constructed and maintained at a sufficient width to allow for the safe passage and operation of the largest piece of equipment being used on them? Have safety berms been constructed and maintained along the edge of the benches and ramps to restrain this equipment? **(4 VAC 25-40-410 & 4 VAC 25-40-1410)**

Has loose material on walls, benches, or banks, which could be considered hazardous to personnel working in the pit, been removed before other work is performed in the area? Have hazardous areas been barricaded and posted with warning signs? Are these signs maintained until the hazard has been corrected? **(4 VAC 25-40-420 & 4 VAC 25-40-430)**

Where rock bolts are utilized for ground stabilization, are they installed in accordance with a plan submitted and approved by the Division? **(4 VAC 25-40-440)**

Do mobile equipment operators position their equipment a safe distance from walls, benches, or banks to avoid hazards from falling or sliding material? **(4 VAC 25-40-470)**

Are the haulroads sufficiently wetted down to control dust and do drills have functioning dust control devices? Are the drillers properly using these devices during drilling operations? **(4 VAC 25-40-740)**

Is water (ice or snow), debris or spilled material that could pose a safety hazard found on roadways, ramps and other areas where mobile equipment will be operating? If so, have actions been taken to remove the hazard? **(4 VAC 25-40-1530)**

Plant or Processing Area

A. Definitions

The following definitions found in the **Mineral Mine Safety Laws of Virginia** and the **Safety and Health Regulations for Mineral Mining**, have specific meanings as used in the law and regulations pertaining to operational safety in the plant or processing area.

Definitions found in Laws, Section **45.1-161.292:2**:

Travelway: means a passage, walk or way regularly used and designated for persons to go from one place to another.

Definitions found in Regulation, Section **4 VAC 25-40-10**:

Escapeway: means a passageway by which persons may leave if the ordinary exit is obstructed.
Flash point: means the minimum temperature at which sufficient vapor is released to form a flammable vapor-air mixture.
Potable: means fit for human consumption and, where required by the Code of Virginia, approved by the Virginia Department of Health.
Safety hazard: means any condition, function, or circumstance which may reasonably be expected to cause or assist an accident.
Substantial construction: means construction of such strength, material, and workmanship that the object will withstand all reasonable shock, wear, and usage to which it will be subjected.

B. Inspection Activities

In order to ensure the safety of all persons working in and around the plant or processing area of the mine, the certified mine foreman must perform the following checks and examinations at the beginning of each shift or before equipment is put into service during the shift. The foreman should always be aware of changing conditions in the work environment that may require him to repeat his examination of certain work areas or equipment. All of these tasks or duties can be found in the regulations and are intended to provide both the worker and others entering the area with a safe work environment.

1. Activities: Duties or tasks to be performed specifically by the certified mine foreman at the beginning of each shift.

The certified mine foreman must examine the work environment (active workings) at the beginning of each shift to ensure safe working conditions. This includes any areas where

employees may be exposed to mining hazards during their workday. Safety hazards that cannot be immediately corrected must be posted with warning signs and the area barricaded to restrict access until the hazard can be eliminated. **(4 VAC 25-40-130)**

It is the certified mine foreman's responsibility to make sure that mobile and stationary equipment operators conduct safety inspections on their equipment prior to it being put into service. The foreman must also ensure that the equipment operators report any defects that affect the safe operation of their equipment, and that such defects are corrected before the equipment is placed into service. **(4 VAC 25-40-145)** Section **4 VAC 25-40-1980** of the regulations requires that all safety hazards be corrected before work is performed in any area.

2. Listed below are a series of questions regarding specific items and conditions that are regulated by DMM that should be addressed either by the certified mine foreman or the responsible miner in their beginning of shift examinations or pre-start-up inspections. As stated previously, the certified mine foreman must be notified of any safety defects found on equipment or hazards identified in the work place. These defects or hazards must either be corrected prior to beginning work or the equipment must be taken out of service until such time as it can be repaired. Existing hazards must be corrected or the hazardous areas barricaded and posted until such time as the hazard can be eliminated. Unsafe actions of miners, observed by the foreman or noted by fellow workers, must be immediately addressed and corrected.

Are miners who must work alone in hazardous areas provided with some form of communication to summon assistance in the event of an emergency? This would involve those areas of the plant where the worker cannot be seen or heard by other workers.
(4 VAC 25-40-150)

Do all active work areas, equipment, and travelways have lighting at an intensity adequate to perform work in a safe manner? **(4 VAC 25-40-200)**

Is the plant area kept clean and orderly; and are employees provided with safe drinking water and sanitary toilet facilities? **(4 VAC 25-40-210, 220, 230)**

Are areas where there are inherent safety or health hazards, such as bins, hoppers, and silos (confined spaces), barricaded or posted to identify the hazard? This would also include areas having other safety hazards, which do not require immediate corrective action, but are not immediately obvious to personnel **(4 VAC 25-40-260)**

Are workers clear of machinery or equipment prior to its start up? Does machinery or equipment, which is not visible from the starting switch, have an audible start up warning device? **(4 VAC 25-40-310)**

Is an adequate procedure in place to prevent the unanticipated movement of machinery during maintenance or repair? Have employees, working with kinetic or hydraulic energy sources, been instructed in lockout, tag-out and tag signing procedures? **(4 VAC 25-40-350)**

Are both stationary and mobile equipment being maintained in accordance with manufacturer's specifications? **(4 VAC 25-40-360)**

Are stockpiles trimmed to the angle of repose to prevent hazards to personnel working on and around them? **(4 VAC 25-40-480)**

Have acceptable fire warning and emergency evacuation procedures been established for the processing plant? Are fire-fighting procedures in place and are employees who are assigned fire-fighting duties being properly trained and drills conducted at least every six months? **(4 VAC 25-40-500, 4 VAC 25-40-630 & 640)**

Are combustible materials such as dry grass, trash, etc. being kept at least 25 feet away from flammable and combustible liquid storage tanks? Are warning signs posted around the tanks? Are flammable and combustible materials stored in acceptable containers, such as spring loaded safety cans approved by National Fire Protection Association (NFPA)? Are storage buildings housing flammable and combustible materials well ventilated, kept clean and orderly, and are they posted with warning signs? Have storage buildings and storage areas been constructed and maintained to confine or contain an accidental spill? Do fuel lines have shut-off valves at their source and are they readily accessible and maintained in operating condition? **(4 VAC 25-40-510 & 4 VAC 25-40-520, 540 & 550)**

Are fire hazards, such as accumulated waste materials, being disposed of in the proper manner? **(4 VAC 25-40-570)**

Are employees instructed not to use or store solvents in areas near open flames, heat sources, or other ignition sources such as grinding wheels, welding equipment or electric switches? Have employees been instructed not to use flammable liquids such as gasoline or acetone as cleaning agents? **(4 VAC 25-40-560 & 580)**

Are battery charging areas well-ventilated and posted with warning signs prohibiting smoking or open flames within 25 feet? Have precautions been taken in welding or cutting areas to prevent sparking or other sources of ignition that could result in fires? Some measures that may be used to prevent fires include wetting down, or covering the area with non-combustible materials such as sand, stone, or earthen materials. **(4 VAC 25-40-590 & 620)**

Have devices used for warning and extinguishing fires been made available and are they strategically located in the plant? Are they suitable for the type and size of fire hazard that may be encountered, and are they maintained and inspected monthly? **(4 VAC 25-40-610)**

Are areas where miners work or congregate, such as surge tunnels, being inspected to ensure that two exits or escapeways are provided at each location? **(4 VAC 25-40-680)**

Are sources of dust from processing equipment being controlled by wet suppression or dry collection measures? **(4 VAC 25-40-740)**

Has safe access, such as railed walkways, stairways, etc., been provided to miners for all regularly used work locations? **(4 VAC 25-40-1810)**

Are elevated walkways, ramps, and stairways of substantial construction, and provided with handrails and toe boards where necessary? Are they properly maintained and are ladders located on the site also of substantial construction and maintained in good condition? **(4 VAC 25-40-1820 & 4 VAC 25-40-1830)**

Are all ladders, stairways, walkways and ramps free of spilled materials? Are slippery walkways provided with non-slip surfaces and handrails, and are railed walkways provided where persons must regularly walk alongside elevated conveyors? Also, are inclined-railed walkways

nonskid or are they provided with cleats, and are all walkways and travelways kept free of snow and ice during inclement weather? **(4 VAC 25-40-1880 & 1890, 1950 & 1960)**

Are fixed ladders anchored securely and installed and maintained to provide three inches or more of toe clearance and do they project at least three feet above landings; if not, do they have substantial handholds above the landings; and are they offset and have substantial railed landings at least every 30 feet unless back-guarded? **(4 VAC 25-40-1850, 1860 & 1990)**

Are fixed ladders constructed so as not to incline backwards, or if they do, have backguards been installed and are all fixed steep ladders (70° to 90° from the horizontal) 30 feet or more in length, provided with backguards, cages, or equivalent protection? Is this protection provided from a point not more than seven feet above the bottom of the ladder? **(4 VAC 25-40-1970 & 2000)**

Is seven feet of clearance maintained above travelways, or has adequate warning been provided to make persons aware of the impaired clearance? **(4 VAC 25-40-1900)**

Where openings are located above, below or near a travelway through which a person or material may fall, do railings, barriers, or covers protect them, or if not practical, are sufficient warning signals present to warn of the danger? **(4 VAC 25-40-1920)**

When using scaffolds and work platforms, are they of substantial construction: are they provided with handrails; are floorboards laid properly and when necessary are toe boards present; do workers observe weight limitations; and are the structures properly maintained? **(4 VAC 25-40-2010)**

Are materials stored and stacked in a manner that prevents trips or falls by personnel and hazards associated with falling material? This would include the storage of supplies, warehoused parts and other items used in the mining process, as well as the storage of mine products. **(4 VAC 25-40-2540)**

Are workers who must enter bins, hoppers, silos, tanks, surge, or storage piles provided with a safety harness and an attended lifeline? Have these workers been properly instructed in the hazards of working in a confined space? Have they been instructed not to enter these areas until the supply and discharge of materials has ceased and the equipment has been locked-out? Have they been instructed to keep-out of areas where there is a potential for entrapment by caving or sliding material? **(4 VAC 25-40-2550)**

Are hazardous materials being stored in a manner to minimize the danger of accidental liberation of the material; and are these materials being stored in suitable, labeled containers? Material Safety Data Sheet references should be used as a guide for the proper storage, handling and use of hazardous materials. **(4 VAC 25-40-2560 & 2570)**

Have provisions been made to store reactive materials (substances that react violently or release dangerous fumes when mixed) in such a way as to prevent accidental contact of these materials with each other? **(4 VAC 25-40-2630)**

Are suitable hitches and slings available for hoisting? Are tag lines being used where guidance of loads is required? Are persons properly instructed to stay clear of suspended loads? **(4 VAC 25-40-2580, 2590, & 2600)**

Are guards designed and installed over accessible moving parts on machinery and equipment (other than conveyor drives and pulleys) that are within a 7-foot reach, to prevent accidental contact of persons with the moving parts? **(4 VAC 25-40-2680)**

Are conveyor drives, head, tail, take-up and drive pulleys, that are within a 7-foot reach, guarded to prevent *any access* to the moving parts? **(4 VAC 25-40-2700.A)**

Are guards designed and installed over conveyor impact idlers located under skirt boards to prevent accidental contact; and are open conveyor idlers provided with guards, handrails, or stop cords to prevent persons from accidentally coming into contact with a moving belt? If stop cords are used along conveyor walkways, do they extend along the full length of the conveyor? **(4 VAC 25-40-2700.B & 2720)**

In areas where slippage on unattended conveyor belts might result in fire, are the conveyors equipped with automatic slippage detection and stoppage devices? **(4 VAC 25-40-650)**

Are overhead belts guarded to prevent a hazard to persons below them from whipping action due to a broken belt? **(4 VAC 25-40-2690)**

Are guards provided at openings where conveyors pass through walls or floors? **(4 VAC 25-40-2710)**

Are equipment guards kept in place except when necessary to test equipment, and are guards of sufficient strength and properly maintained for their specific purpose? (**4 VAC 25-40-2740)** Have guards been installed on all moving parts of equipment within 7 feet reach of walkways, travelways, and working areas. **(4 VAC 25-40-2750)**

Are guards or shields provided where flying or falling materials present a hazard to persons working in the area? **(4 VAC 25-40-2760)**

Mobile Equipment

A. Definitions

The following definitions found in the **Safety and Health Regulations for Mineral Mining** have specific meanings as used in the regulations pertaining to operational safety involving mobile equipment.

Definitions found in the Regulations, Section **4 VAC 25-40-10**:

Heavy-duty mobile equipment: means any equipment used for loading, hauling, or grading and not normally intended for highway use.

Rollover protection: means a framework, safety canopy or similar protection for the operator when equipment overturns and which is acceptable for use on that particular type of equipment.

B. Inspection Activities

In order to ensure the safety of all persons operating mobile equipment, the certified mine foreman must ensure that the equipment operators perform their pre-operational inspections. He

should also make sure that any safety defects found during the operator's inspection are corrected before the mobile equipment is placed into service. In cases where the defect could be considered a substantial safety hazard and it cannot be corrected immediately, the foreman should ensure that the equipment is tagged-out and locked-out if possible, and that it not be used until necessary repairs are made.

Activities: Duties or tasks to be performed at the beginning of each shift.

Have the mobile equipment operators inspected their equipment prior to use and reported any safety defects to the certified mine foreman and have all safety defects been corrected before the mobile equipment is placed into service? **(4 VAC 25-40-145)**

Are the operators of non-diesel powered equipment shutting-off their engines prior to refueling? **(4 VAC 25-40-600)**

Are fire extinguishers located on mobile equipment and other self-propelled equipment where there is a possibility of a fire impeding the escape of the operator from the equipment? **(4 VAC 25-40-670.A)**

Are the operators properly checking their service brakes to determine if they are capable of stopping and holding when the unit is loaded and on the maximum grade that it travels? **(4 VAC 25-40-1320)**

Do all of the mobile equipment have suitable emergency brakes? Are the brakes separate and independent of the service brakes? **(4 VAC 25-40-1330)**

Have all the mobile equipment operators and other persons working around this equipment been made familiar with the signal system used for start up of the equipment, and is the system being used to keep persons in the clear during start-up procedures? **(4 VAC 25-40-1340)**

Are mobile equipment cabs: 1) maintained to provide adequate visibility, 2) provided with windows constructed of safety glass and maintained in good condition, 3) equipped with acceptable rollover protection and seat belts, and 4) free of extraneous material in the cab? Note: rollover protection and seat belts must be provided on heavy duty mobile equipment manufactured after June 30, 1969. **(4 VAC 25-40-1350, 1360, 1370 & 1380**)

Are speed limits posted on the mine site and are they being enforced? Are these limits consistent with roadway conditions and with the types of equipment being used? Are other traffic rules, such as stop and yield signs, posted and obeyed? **(4 VAC 25-40-1390 & 1540)** Are dust control measures, such as water trucks, used to control dust and maintain safe visibility; and are berms, capable of stopping and holding the largest vehicle used in the area, constructed and maintained on all elevated roadways? **(4 VAC 25-40-1400 & 1410**)

Have mobile equipment operators been instructed to operate their equipment under power at all times and to maintain full control of their equipment while in motion; and are they aware of the proper towing procedures including the uses of tow bars and safety chains when moving heavy equipment not under its own power? **(4 VAC 25-40-1420, 1430, & 1670)**

Is mobile equipment operated in such a way to prevent exposure of cabs to falling material hazards, (ex. buckets, loading booms or suspended loads), or has it been established that

the cabs of this equipment are designed and constructed to protect the driver from the falling materials? **(4 VAC 25-40-1440)**

Are workers restricted from being transported outside of the cabs of mobile equipment or in their beds? If workers must be transported in the beds of mobile equipment, do the beds have special provisions for their safety such as seats and seatbelts? **(4 VAC 25-40-1460)**

While traveling between work areas, is equipment, such as beds of trucks, buckets, booms, and masts, secured in a travel position? **(4 VAC 25-40-1470)**

Do loader, excavator, and motor-grader operators secure their equipment in a lowered position when not in use? **(4 VAC 25-40-1480)**

When left unattended, is mobile equipment properly secured with the brakes set? When parked on a grade, are the wheels turned into the bank, blocked, or if applicable, is the bucket or blade lowered to the ground to prevent motion? **(4 VAC 25-40-1510)**

Is all heavy-duty mobile equipment provided with horns, and do those pieces of mobile equipment with an obstructed view to the rear have automatic backup alarms?
(4 VAC 25-40-1570 & 1580)

Is heavy duty mobile equipment properly equipped for extreme weather conditions in your locality? Does it require a heater and/or air conditioner to meet state regulations? Is this equipment being properly maintained and functioning normally? **(4 VAC 25-40-1550)**

Do your employees notify mobile equipment operators of their intention to get on or off of their heavy duty mobile equipment, and do all employees know that they should not get on or off of a piece of equipment while it is moving? **(4 VAC 25-40-1450 &1560)**

Do employees know to remain clear of mobile equipment in operation and avoid working or passing under the bucket or boom of any equipment while it is in operation? **(4 VAC 25-40-1600)**

Have employees designated as truck spotters been instructed to remain in the clear while trucks are backing into dumping position and dumping, and are they provided with lights during nighttime operations? **(4 VAC 25-40-1640)**

Is adequate protection provided at dumping locations where persons may be exposed to falling material? **(4 VAC 25-40-1800)**

Are berms or bumper blocks of sufficient size provided and maintained at dumping locations to prevent over-travel and overturning of equipment? **(4 VAC 25-40-1620)**

Where clearance for mobile equipment is restricted within an area, is the area provided with warning devices and is the area conspicuously marked? **(4 VAC 25-40-1650)**

Do persons deflate tires on mobile equipment before they begin repairs on them and do they use cages or restraints on wheel locking rims to prevent unsafe conditions during tire inflation? **(4 VAC 25-40-1660)**

Are workers restricted from working on or from the bucket of front-end loaders or other equipment in a raised position unless it is specifically designed to lift persons? Is equipment specifically designed for lifting workers, such as man-lifts or bucket trucks, available when needed to work from an elevated position? **(4 VAC 25-40-1680)**

Have workers been trained in the proper procedures to follow to ensure that mobile equipment is tagged-out, and blocked against motion prior to workers beginning repairs or maintenance? The only exception to these procedures is when the equipment must be under power and unblocked to make adjustments. **(4 VAC 25-40-1685)**

Is a minimum of 10 feet of clearance being provided between equipment and energized power lines? Are lines that can not meet this 10-foot minimum clearance criteria being de-energized or are warning signs posted when or where equipment must pass under these lines? **(4 VAC 25-40-2500)**

Have forklift drivers been instructed to move equipment with the forks in the lowered position and do they descend grades with the load facing up hill?**(4 VAC 25-40-2670)**

Maintenance and Repair

Maintenance and repair is a continuous activity on any mine site. It generally involves more than those persons specifically assigned to these duties, such as mechanics, welders, or electricians. Every employee from the superintendent on down to the mine laborer will most likely perform some maintenance or repair function each day. It is the responsibility of the certified mine foreman to ensure that everyone performing this work is aware of the inherent dangers and ensure that all applicable safety regulations are followed.

Has machinery been equipped with extended fittings for lubrication, or is the machinery de-energized and blocked from motion prior to lubrication where a hazard exists? **(4 VAC 25-40-340 & 350)**

Have welders and other personnel who cut, heat or weld on pipes or containers used for flammable or combustible materials been properly instructed in the safe method to perform this work? Are the vessels drained, thoroughly cleaned and ventilated, and filled with inert material prior to performing any of this work? **(4 VAC 25-40-660)**

Have provisions been made to store oxygen cylinders away from oil and grease, and are both oxygen and acetylene tanks stored with their valves closed? Are all compressed gases safely secured in an upright position? **(4 VAC 25-40-1220, 1240 & 1250)**

Are gauges and regulators used with oxygen and acetylene kept clean and free of oil and grease, and have provisions been made to protect the valves and gauges on all compressed gas cylinders from falling material? Are gauges provided with reverse flow check valves? **(4 VAC 25-40-1230, 1260 & 1270)**

Are welding operations located in shielded areas with ventilation adequate enough to remove hazardous gases? **(4 VAC 25-40-1290)**

Are the grinding wheels operated within the manufacturer's specifications, and are they provided with peripheral hoods, properly set adjustable tool rests, and safety washers? **(4 VAC**

25-40-370 & 380) Are employees wearing face shields or goggles while operating grinding wheels? **(4 VAC 25-40-1790)**

Are pressure vessels, such as air compressor tanks, being maintained in accordance with Department of Labor and Industry regulations and the manufacturer's recommendations? **(4 VAC 25-40-1100)**

Are the automatic temperature activated shutoff mechanisms on air compressors set for 400°F or are they fitted with fusible plugs installed in the discharge lines? If fusible plugs are used, are they rated to melt at 50° less than the flash points of the lubricating oils? **(4 VAC 25-40-1110)**

Are your compressor and compressed air receivers fitted with automatic pressure release valves, pressure gauges, and drain valves; and were the compressor air intakes installed to ensure that only clean, uncontaminated air enters the compressor? **(4 VAC 25-40-1120 & 1130)**

Are trained employees inspecting pressure vessels on a daily basis and performing necessary maintenance, such as draining moisture, oil or carbon buildup, in accordance with manufacture recommendations? Are the vessels being lubricated as prescribed by the manufacturer; and are safety devices being inspected at the required frequency? **(4 VAC 25-40-1140, 1160 & 1180)**

Are the compressors as well as the compressor discharge pipes being properly maintained? Are the discharge pipes periodically cleaned and the compressors operated and lubricated according to the manufacturer's recommendations? **(4 VAC 25-40-1150, 1160 & 1170)**

When maintenance or repairs on the pressurized portions of the compressed air system is necessary, is the pressure released prior to beginning work? **(4 VAC 25-40-1190)**

Are all connections on high-pressure hose lines, **¾-inch** inside diameter or greater, provided with suitable safety devices or safety chains where they attach to the compressor, machine or other hoses? **(4 VAC 25-40-1210)**

Are portable straight ladders provided with non-slip bases and are they properly positioned against a solid backing, and do they have secure footing? **(4 VAC 25-40-1840)** Are wooden parts of ladders kept unpainted to allow for proper inspection for rot and decay? **(4 VAC 25-40-1870)**

Electrical Systems

A. Definitions

The following definitions found in the **Mineral Mine Safety Laws of Virginia** and the **Safety and Health Regulations for Mineral Mining** have specific meanings as used in the law and regulations pertaining to operational safety when dealing with electrical circuits and equipment.

Definitions found in the Laws, Section **45.1-161.292:2**:

Armored cable: means a cable provided with a wrapping of metal, plastic or other approved material.
Cable: means a stranded conductor (single-conductor cable) or a combination of conductors insulated from one another (multiple-conductor cable).
Circuit: means a conducting part or a system of conducting parts through which an electric current is intended to flow.
Circuit breaker: means a device for interrupting a circuit between separable contacts under normal or abnormal conditions.
Fuse: means an over current protective device with a circuit-opening fusible member directly heated and destroyed by the passage of over current through it.
Ground: means a conducting connection between an electric circuit or equipment and earth or to some conducting body which serves in place of earth.
Grounded: means connected to earth or to some connecting body, which serves in place of the earth.
Substation: means an electrical installation containing generating or power-conversion equipment and associated electric equipment and parts, such as switchboards, switches, wiring, fuses, circuit breakers, compensators and transformers.

Definitions found in the Regulations, Section **4 VAC 25-40-10**:

Distribution box: means an apparatus with an enclosure through which an electric circuit is carried to one or more cables from a single incoming feed line, each cable circuit being connected through individual over current protective device.
Major electrical installation: means an assemblage of stationary electrical equipment for the generation, transmission, distribution, or conversion of electrical power.
Switch: means a device used to complete or disconnect an electrical circuit.

B. Inspection Activities

Certified mine foreman working in processing, bagging or other areas of the mine where electrical systems are located should be aware of the following laws and regulations which specifically pertain to installation, maintenance and use of electrical circuits and equipment. The certified mine foreman should be aware of the duties and authority assigned to the certified or licensed electrician in matters related to electrical installations and equipment.

The certified mine foreman must remember that all work on electrical systems must be performed in accordance with the National Electrical Code and Part XII of the Safety and Health Regulations for Mineral Mining and that the work must be done under the supervision of either a certified electrical repairman or other appropriately licensed electrical repairman. **(4 VAC 25-40-2015)**

The certified mine foreman should be familiar with the following electrical requirements. It is his responsibility to ensure either through his own personal examination, through pre-start-up inspections made by assigned employees, or through his observations of workers during the workday that these regulations are being complied with.

Are employees familiar with the DMM regulations pertaining to de-energizing of electrical equipment and power circuits? Have they been provided with lock-out/tag-out devices, and are these procedures and devices being properly utilized? **(4 VAC 25-40-2140 & 2150)**

Are principle power switches labeled for identification and are dry wooden platforms, insulated mats or other electrically non-conductive materials located at switchboards and power control switches where shock hazards exist? **(4 VAC 25-40-2160 & 2180)**

Is at least three feet of clearance provided around all parts of stationary electric equipment or switchgear where access or travel is necessary? **(4 VAC 25-40-2170)**

Have major electrical installations been properly posted and are only authorized persons allowed to enter these areas? **(4 VAC 25-40-2190 & 2200)**

Are electrical connections and resistor grids, which are difficult to insulate, either guarded or protected by location? **(4 VAC 25-40-2210)**

Are inspection and cover plates on electrical equipment and junction boxes kept in place at all times, except during testing or repair? **(4 VAC 25-40-2290)**

Are portable extension lights or other lighting, which may cause a shock or burn hazard, properly guarded? Are lamp sockets waterproof, where they are exposed to weather? **(4 VAC 25-40-2310 & 2320)**

Have employees been instructed to remove themselves from areas in the vicinity of electrically powered shovels or other such equipment during electrical storms? **(4 VAC 25-40-2420)**

Are transformers either totally enclosed, placed at least eight feet above the ground, installed in a transformer house, or surrounded by a substantial fence at least six feet high and at least three feet from any energized parts, casings, or wiring; and are these enclosures kept locked against unauthorized entry? **(4 VAC 25-40-2460 & 2470)**

C. Duties Requiring Certified Electrician

Compliance with the following regulations is normally within the certified electrical repairman's area of responsibilities. It is up to the operator, the certified mine foreman, the certified electrical repairman and those persons under the certified electricians supervision to see that the electrical systems meet these regulations.

Have provisions been made to ensure that only competent persons inspect electrical circuits and equipment and are these tasks being done as often as necessary to ensure safe operation? **(4 VAC 25-40-2270)**

Ensure that circuits are protected against excessive overloads or short-circuiting by the installation of fuses or circuit breakers of the correct type and capacity and power wires and cables are of adequate current carrying capacity and are protected from mechanical injury. The certified mine foreman should assist in making sure that actions of other workers do not compromise the mechanical integrity of electrical cables and wires. **(4 VAC 25-40-2020 & 2050)**

Provide electrical circuits with distribution boxes and disconnect switches; ensure that electrical equipment and circuits are provided with acceptably designed switches that are safe and of the proper capacity; and they are properly constructed and installed. **(4 VAC 25-40-2030, 2070 & 2380)**

Ensure that splices in power cables are: 1) mechanically strong with adequate electrical conductivity; 2) effectively insulated and sealed to exclude moisture, and 3) provided with mechanical protection and electrical conductivity as near as possible to that of the original cable. **(4 VAC 25-40-2120)**

Ensure that operating controls are installed so that they can be operated without danger of contact with energized conductors. **(4 VAC 25-40-2370)**

Ensure that fuses are not removed or replaced by hand in an energized circuit; and that special tools and techniques are employed to remove fuses from energized circuits. Provide fuse tongs or hot line tools for the removal and replacement of fuses in electrical circuits. **(4 VAC 25-40-2330 & 2340)**

Ensure that all metal enclosed, electrically operated circuits or equipment are grounded back to the on-site source from which the electric circuit originated and the source is effectively connected to the earth or provided with equivalent protection. Metal fencing and metal buildings enclosing transformers and switchgear must also be grounded, as well as frame grounding or equivalent protection for mobile equipment powered through trailing cables. **(4 VAC 25-40-2220, 2230)**

A certified electrical repairman or licensed electrician must conduct an annual test of the all grounding systems for continuity and resistance. These tests must also be performed immediately after new installations, repairs, and modifications to the electrical grounding system. A record of the resistance measurements for each equipment ground conductor, grounding electrode conductor, and earth around the grounding electrode must be made and the most recent test result kept for review by the mine inspector. **(4 VAC 25-40-2250)**

Ensure that overhead power lines are installed and maintained as specified by the National Electrical Code and prevent the installation of telephone or signal wires on the same cross-arm with power conductors. Where both are supported on the same poles, their installation must meet the specifications of the National Electrical Code. **(4 VAC 25-40-2400 & 2410)**

Personal Protection

Use of personal protection equipment is everyone's responsibility. It is important for the certified mine foreman to ensure that federal, state, and company rules and regulations on the appropriate use of personal protection equipment are followed at all times. It should be the responsibility of the certified mine foreman not only to make sure that such equipment is available and used, but that it is also used properly. This should include the training of employees in the proper use of specialized equipment, such as harnesses, or training of employees to perform specific tasks in a safer way.

Have plans been developed at your mine site for emergency medical assistance and transportation in case of injury to an employee? **(4 VAC 25-40-160)** Are emergency telephone numbers, such as fire, rescue, state and federal mine officials posted at appropriate telephones at the mine? **(4 VAC 25-40-170)** Does the mine have an approved communication system capable of obtaining assistance in the event of an emergency, and is it properly maintained? **(4 VAC 25-40-180)**

Have employees with firefighting responsibilities been properly trained, and do they complete practice drills at least every six months? **(4 VAC 25-40-630)**

Are fires extinguishers within 100 feet of equipment where the effects of fire might impede the escape of other workers in the area? **(4 VAC 25-40-670.B)**

Have all employees been properly task trained prior to beginning their work assignments? **(4 VAC 25-40-100)**

Are inexperienced employees, those with less than six months of mining experience, assigned to work with an experienced miner? **(4 VAC 25-40-110)**

Are all workers on the mine site working in compliance with applicable state safety and health regulations? **(4 VAC 25-40-190)**

Are you aware of alcohol or illegal drugs being used on the mine site? If so, have actions been taken to stop this practice? Are prescription or "over the counter" drugs, which may impair the users ability to work safely, being used at the mine? What actions have been taken to assure the safety of persons using these drugs and persons working around them? **(4 VAC 25-40-250)**

Is horseplay banned from the mine site? **(4 VAC 25-40-280)**

Do employees use machinery and equipment for its intended purpose? Are employees provided with the proper equipment to do their job? **(4 VAC 25-40-330)**

Is smoking or using open flames restricted within 25 feet of areas containing flammable or combustible liquids? **(4 VAC 25-40-490)**

Is hearing protection equipment provided to equipment operators and other employees who are exposed to excessive noise levels, and are they using it? **(4 VAC 25-40-770)**

Have workers been instructed not to direct compressed air at others unless a diffuser has been installed on the device and the air pressure restricted to no more than 30 psi? **(4 VAC 25-40-1200)**

Have provisions been made to have adequate first aid materials at all work areas? **(4 VAC 25-40-1690)**

Are life jackets available and used where there is a possibility of persons falling into water? **(4 VAC 25-40-1700)**

Do all persons on the mine site have and wear appropriate personal protection equipment including: 1) hard hats where there is a danger of falling objects, 2) steel toed shoes where foot hazard exists, and 3) safety glasses or goggles where there is a possibility of injury to unprotected eyes? **(4 VAC 25-40-1710, 1720, & 1730)**

Are safety harnesses and lifelines available and used where there is a danger of falling? **(4 VAC 25-40-1740)**

Is protective clothing and appropriate personal protection equipment provided and used by persons using welding or cutting equipment and for persons working with molten metal? **(4 VAC 25-40-1750)**

Is the wearing of loose fitting clothing or gloves prohibited where there is a possibility of them becoming caught in moving parts of machinery or equipment? **(4 VAC 25-40-1760)**

Do employees use protective gloves when handling materials that may cause injury? **(4 VAC 25-40-1770)**

Is the wearing of finger rings by employees prohibited when they must operate or work on equipment or tools? **(4 VAC 25-40-1780)**

Do all employees working during periods of darkness have reflective materials, such as reflective tape, worn on their clothing or hard hats? **(4 VAC 25-40-1785)**

Have employees been instructed in the proper way to climb and descend a ladder? Do they keep their hands free for climbing or descending ladders? **(4 VAC 25-40-1910)**

Are handheld electric tools limited to a maximum voltage of 130 volts? **(4 VAC 25-40-2300)**

Have employees who work or travel near bare electrical power conductors been instructed to carry tools and supplies in their hands rather than on their shoulders? **(4 VAC 25-40-2430)**

Is water or some other neutralizing agent available where corrosive chemicals or other harmful substances are stored, handled or used? **(4 VAC 25-40-2520)**

Are appropriate protective clothing, respiratory protection, gloves, and goggles available and used by persons working with chemical substances that are corrosive, flammable, reactive, or toxic? **(4 VAC 25-40-2530)**

Have workers been instructed not to allow materials to be dropped from excessive height unless a drop zone has been established and has been guarded or sufficient warning has been given? **(4 VAC 25-40-2610)**

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SECTION 4

RECLAMATION LAWS AND REGULATIONS

Specific Objective #4: Identify DMM reclamation requirements established by regulation, or in the DMM-approved operations/reclamation plan.

RECLAMATION LAWS AND REGULATIONS

DMM's Mineral Mine Reclamation Laws of Virginia and Virginia's Reclamation Regulations for Mineral Mining establish environmental requirements that mine operators must meet to minimize environmental impacts on land and water resources. Failure to comply with these laws and regulations can result in Special Order or Notice of Non-Compliance violations being issued. In some instances, reclamation requirements enhance both safety and environmental concerns for miners and the public. Managers and certified mine foremen should be familiar with environmental requirements established by the DMM-approved operations/ reclamation plan for their specific mine site.

The Virginia Department of Mines, Minerals and Energy's (DMME) Division of Mineral Mining (DMM) created a Mineral Mine Operator's Manual to help mine operators meet the performance standards of laws and regulations, communicate agency procedures, and assist in completing forms and records. The Mineral Mine Operator's Manual is a non-regulatory guidance document that may be obtained from the division or downloaded from DMM's website (http://www.dmme.virginia.gov/DMM/divisionmeralmining.shtml).

A typical **"Permit/License Application"** (DMM Form 101) will stipulate slope requirements of pit banks, location/design criteria for dams/ponds, sediment control methods, seedbed preparation, establishing vegetation, types of mobile/stationary equipment to be used, disposal methods for wastes oil, chemicals, tires, and other types of waste materials. The plan also describes where overburden will be temporarily stored and the method of final disposal.

Definitions

The following definitions found in the Reclamation Laws, Regulations, or Mineral Mine Operator's Manual have specific meanings pertaining to operations, drainage, and reclamation.

Check dam: a small barrier installed across a natural or constructed drainage way to retard water flow and catch sediment (Figures 1 and 2).

Disturbed Land: the areas from which overburden has been removed in any mining operation, plus the area covered by the spoil and refuse, plus any areas used in such mining operation including land use for processing, stockpiling, and settling ponds.

Diversion Ditch: a ditch designed and installed to change the course of ground or surface water.

Filter Strip: a protective strip of vegetation between disturbed areas and streams that retards the flow of runoff water and causes deposition of transported material.

Initial Reclamation: the mine safety license may be released by DMM if initial reclamation work is completed but the vegetation has not become well established. The reclamation portion of the permit will remain in effect.

Mineral: clay, stone, sand, gravel, metalliferous and nonmetalliferous ores and any other solid material or substance of commercial value excavated in solid form from natural deposits on or in the earth, exclusive of coal and those minerals which occur naturally in liquid or gaseous form.

Mining Operation: any area included in an approved plan of operation.

Overburden: all of the earth and other material which lie above a natural deposit of minerals, ores, rock or other matter, and also other materials after removal from their natural deposit in the process of mining.

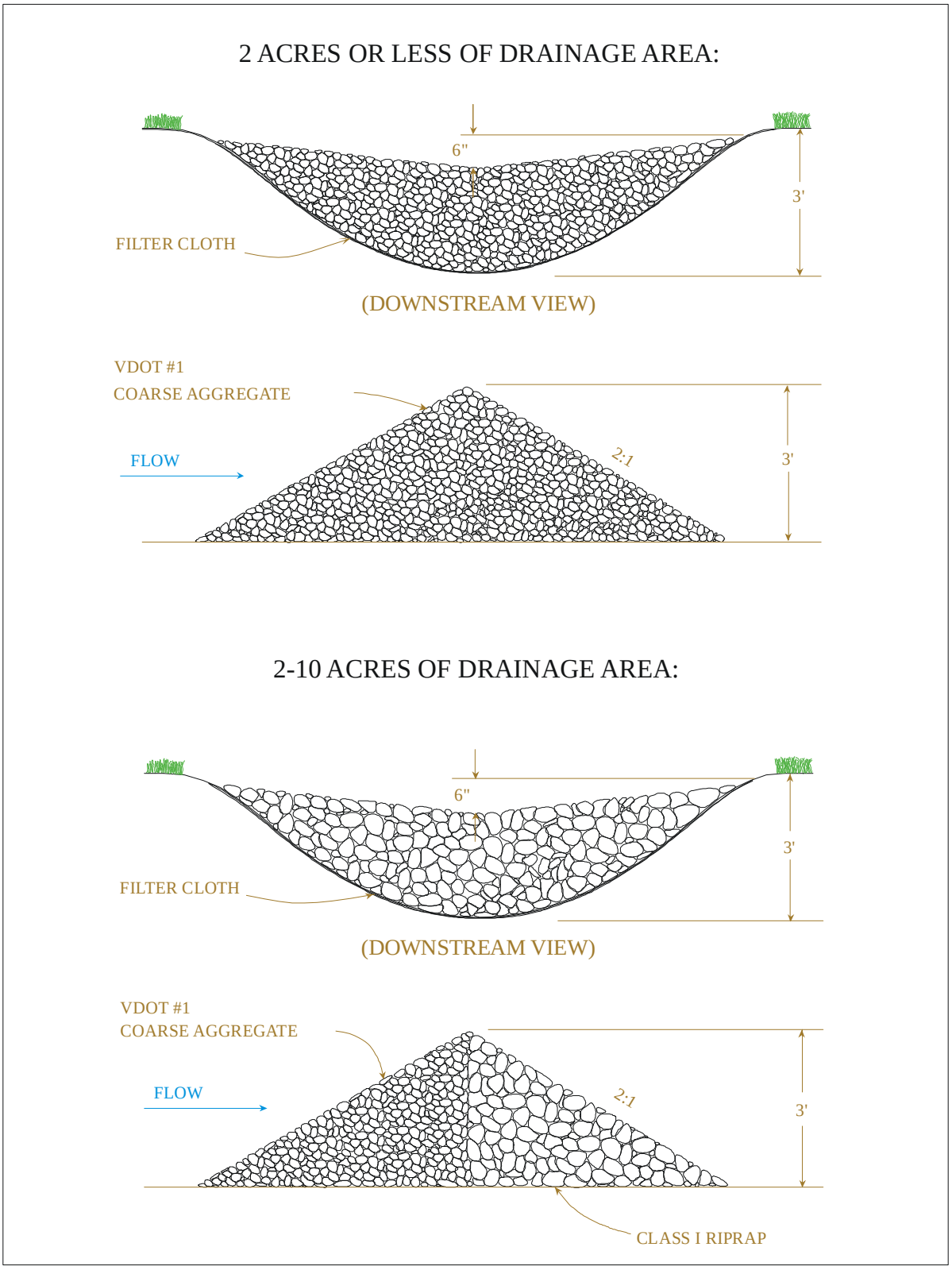

FIGURE 1. Design Specifications for a Rock Check Dam
Source: *Virginia Erosion and Sediment Control Handbook, Plate 3.20-1 (modified).*

FIGURE 2. Example of a rock check dam

Reclamation: the restoration or conversion of disturbed land to a stable condition which minimizes or prevents adverse disruption and the injurious effects thereof and presents an opportunity for further productive use if such use is reasonable.

Refuse: all waste soil, rock, mineral tailings, slime and other material directly connected with the mine, cleaning and preparation of substances mined including all waste material deposited in the permit area from other sources.

Silt fence: a temporary sediment barrier consisting of a synthetic filter fabric stretched across and attached to supporting posts and entrenched. Not for use for extended periods of time. (Figure 3).

Spoil: any overburden or other material removed from its natural state in the process of mining.

Straw Bale Barrier: a temporary sediment barrier consisting of a row of anchored straw bales. Not for use for extended periods of time. (Figure 4)

Stone-Lined Waterways: a permanent designed waterway, shaped and lined with stone to convey storm water runoff. (Figure 5)

Temporary Sediment Trap: a temporary ponding area formed by constructing an earthen embankment with a stone outlet. (Figures 6 and 7)

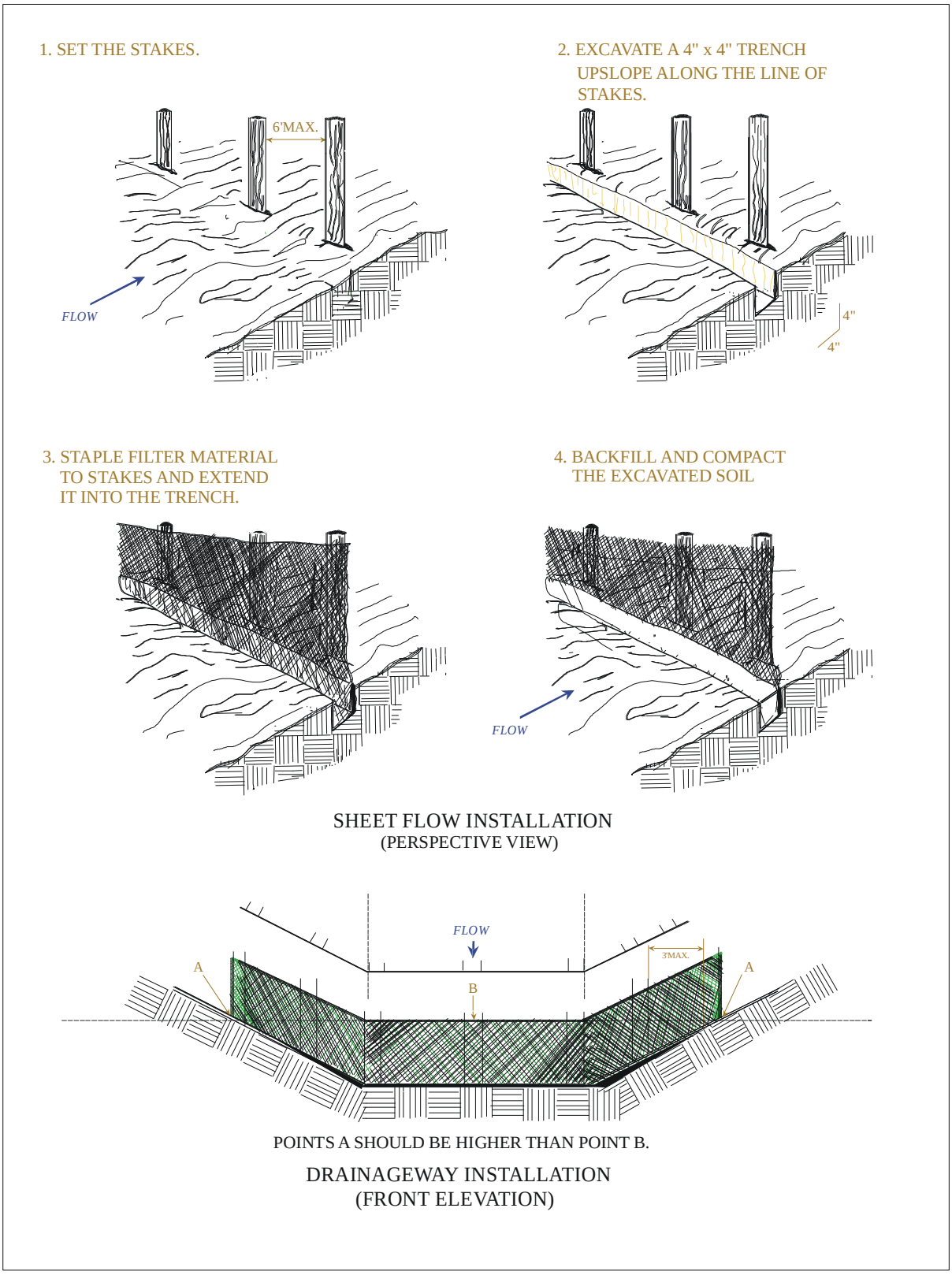

FIGURE 3. Construction of a Silt Fence

Source: Sherwood and Wyant (****), *Installation of Straw and Fabric Filter Barriers for Sediment Control*.

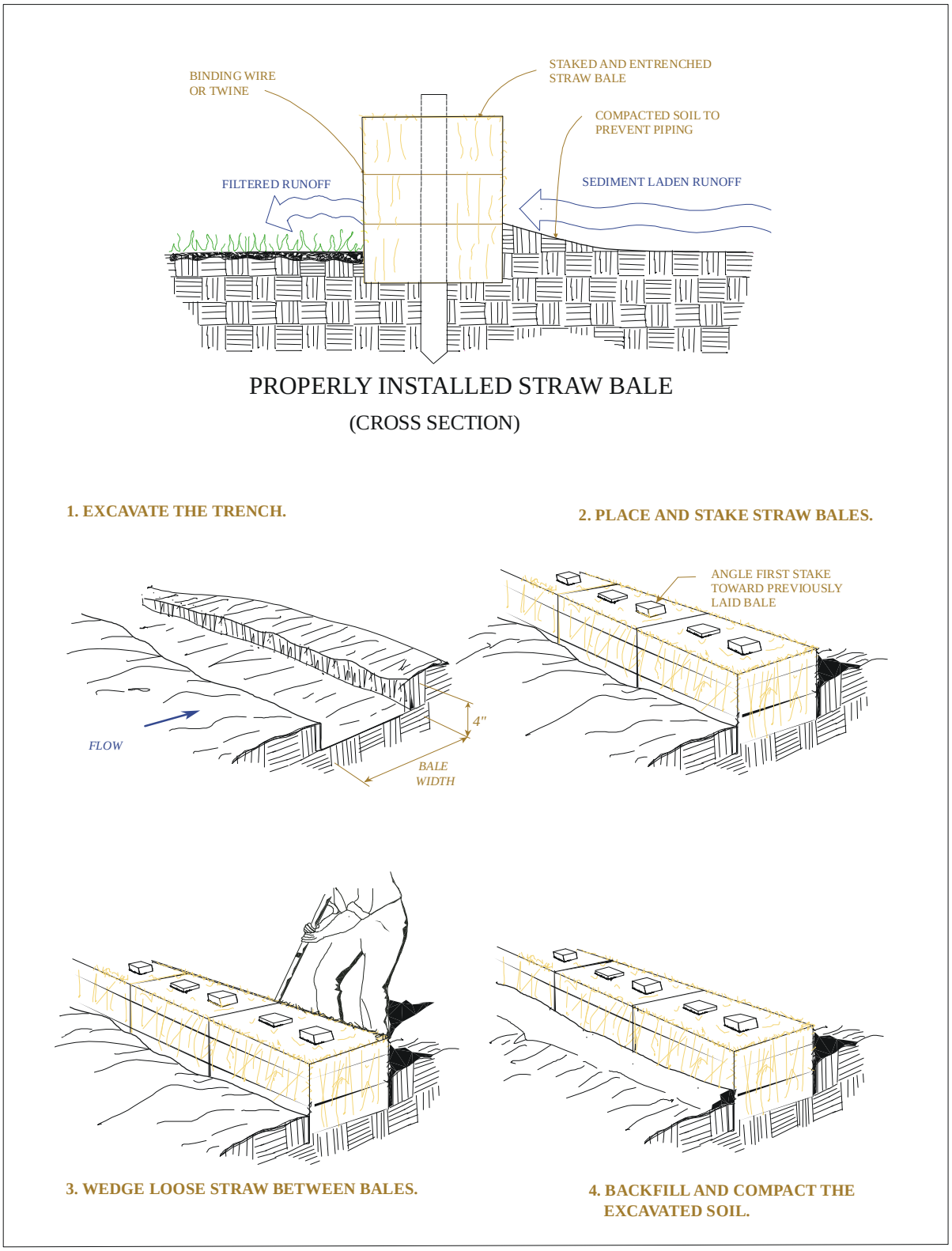

FIGURE 4. Construction of a Straw Bale Barrier

Source: *Virginia Erosion and Sediment Control Handbook, Plate 3.04-1 (modified).*

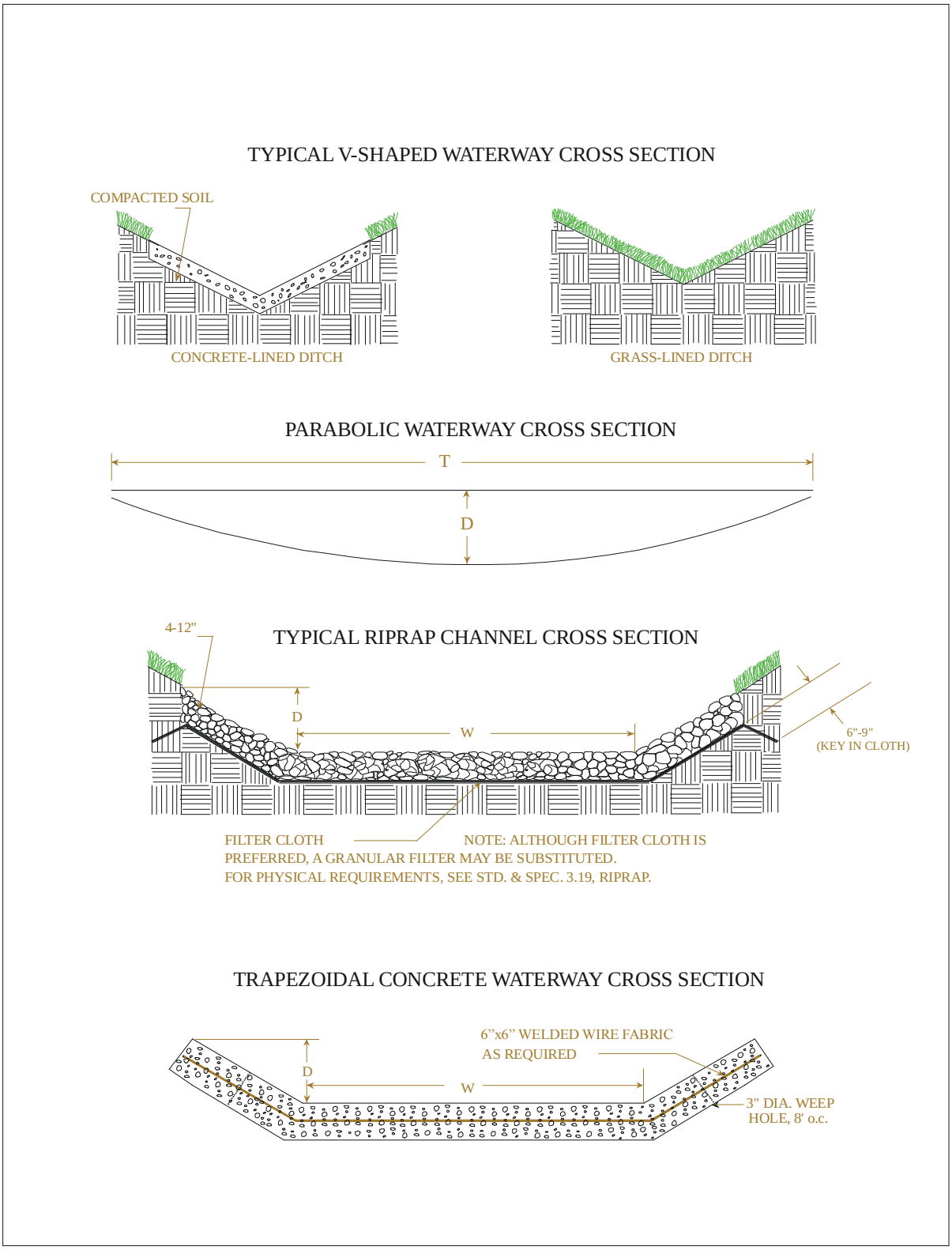

FIGURE 5. Typical Waterway Design Cross Sections
Source: *Virginia Erosion and Sediment Control Handbook, Plate 3.17-1 (modified)*

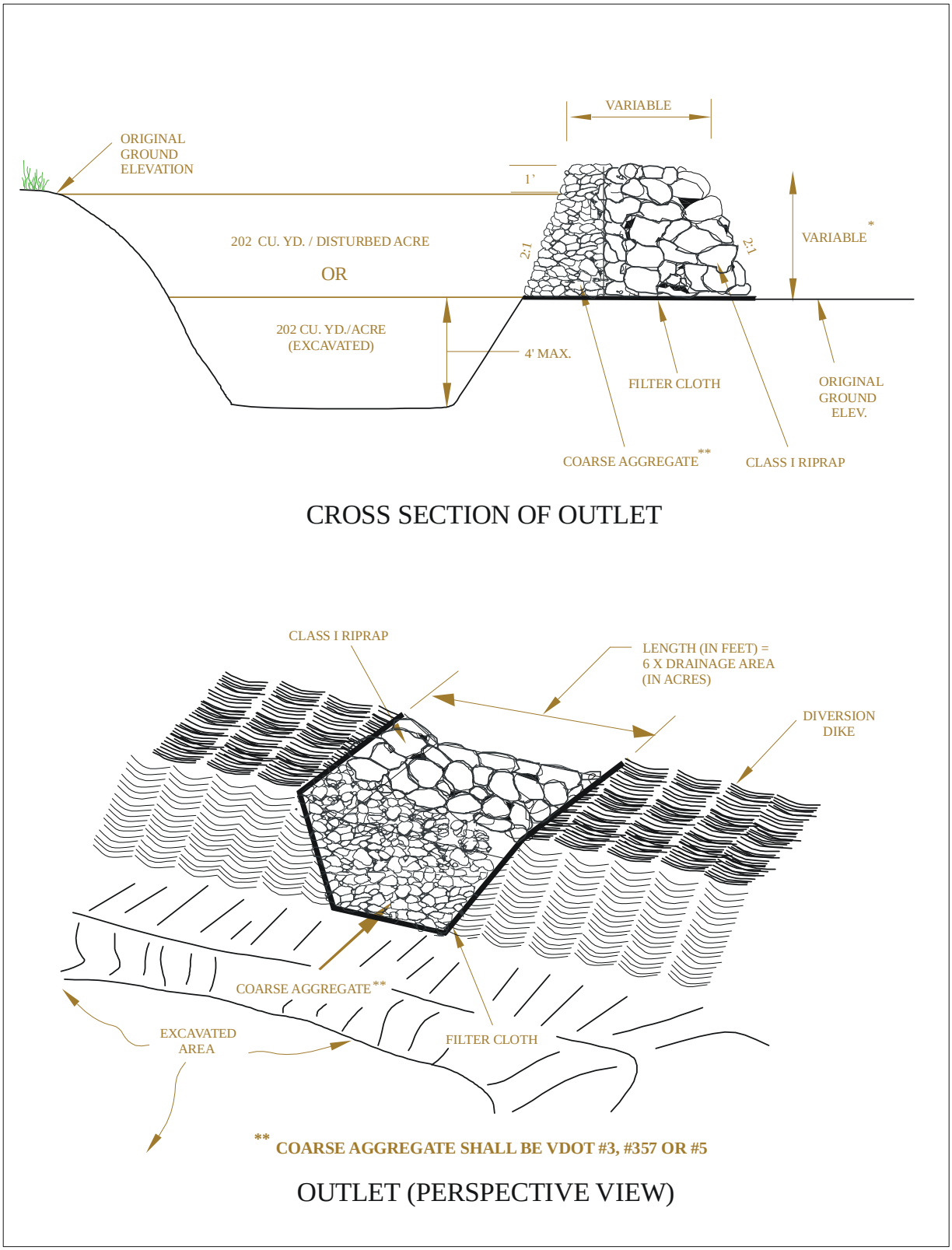

FIGURE 6. Design Specifications for Temporary Sediment Trap

Source: *Virginia Erosion and Sediment Control Handbook, Plate 3.13-2 (modified)*

FIGURE 7. Example of temporary sediment trap

Temporary Slope Drain: a flexible tubing or rigid pipe to temporarily conduct concentrated storm water runoff down the face of a cut or fill slope without causing erosion on or below the slope. (Figure 8)

Permitting

Mining Permit

Every mining company has to obtain a mining permit from the Department of Mines, Minerals and Energy for every individual property they are currently mining. A mine license must also be obtained at the same time prior to the commencement of mining operations. **(45.1-161.292:30.A)** The Division of Mineral Mining reviews, approves and enforces these permits/licenses. The environmental requirements associated with this permit are separated from the safety requirements by law. The laws and regulations governing the environmental requirements are found in the Mineral Mine Reclamation Laws of Virginia and Virginia's Reclamation Regulations for Mineral Mining. Every mining company should have a copy of these in their files as well as a copy of the mining permit. The certified mine foreman should know the contents of the mining permit because it influences day-to-day operations and failure to conform to the specified measures may result in expensive corrective activities as well as the company being subjected to enforcement action.

FIGURE 8. Example of temporary slope drain

Operation Plan

The operation plan is a vital part of every state mining permit. It spells out in detail the actions the mining company must take to ensure the orderly extraction of the mineral resource and to eliminate adverse environmental effects that uncontrolled mining often produces. The Operation Plan addresses the following items:

- **Mining Method** The extraction method including the equipment to be used, the proposed depth of excavation, heights of highwalls, bench widths and/or slopes of proposed cuts and fills should be included in the mine operations plan. The **Safety and Health Regulations for Mineral Mining** require the mine operator to use a mining method that will ensure ground, wall and bench stability. **(4 VAC 25-40-390)** Rims of open pits must be stripped back of loose, unconsolidated material and trees for at least 10 feet and unconsolidated material above the wall needs to be sloped back to the angle of repose. **(4 VAC 25-40-400)** Highwalls should be limited to a height that is safe to scale with the equipment the operator proposes to use at the mine. **(4 VAC 25-40-420)** Benches must be wide enough for the safe passage and operation of the equipment proposed for use. **(4 VAC 25-40-410)**

- **Reclamation** The reclamation laws and regulations require that all reclamation work, such as grading, liming, fertilizing and seeding, be done continuously along with the mineral production work being carried out on the mine property. This ensures restoration of the land

to a useful condition, prevents siltation of streams and helps control undesirable effects of dust and noise. A plan for simultaneous reclamation needs to be included in every operation plan. The Operation Plan lists the amounts of seed and species to be planted. Amounts of lime and fertilizer are determined from soil tests conducted just before the planting work begins.

- **Road Entrance** All highways and public roads need to be protected from mud and debris that may accumulate and present a traffic hazard. A copy of an approved commercial entrance permit from the Virginia Department of Transportation should be a part of the operation plan. The entrance must be maintained to provide adequate sight distance both up and down the highway. Any obstructing trees or brush must be removed that would limit visibility in any way. During periods of heavy rain, the entrance should be inspected periodically throughout the day to avoid hazardous conditions from developing. Effective use of stone, asphalt, or other types of paving is required to stabilize the road entrance. Gates and warning signs also need to be provided to prevent access to unattended mine roads. **(4 VAC 25-40-290)**

- **Haul Road** An all-weather surface needs to be maintained with asphalt, concrete, stone or sand and gravel. Establishing a stable haul road surface will control the deposition of mud on the highway. The operation plan should note how dust will be controlled so as not to drift onto nearby residences or limit visibility of equipment operators. **(4 VAC 25-40-1400)** The frequent application of water as a dust control measure is necessary when the road surface becomes dry. **(4 VAC 25-40-740)** Grading of the road should be done as needed to maintain a smooth surface and thereby reduce traffic hazards. Culverts no less that 12 inches in diameter are to be located where needed for erosion control. Roadside ditches must be periodically cleaned out to provide for adequate drainage. It is often necessary to re-seed or riprap portions of the ditch banks to stabilize the soil. Filter strips or sediment traps are to be properly maintained to assure sediment from road drainage is not reaching nearby streams or other bodies of water. Water drainage from the road system must not transport sediment into the nearby streams. The operation plan may contain designs for road and ditch construction.

- **Drainage Plan** A detailed drainage plan is included in every permit. It describes how the streams and properties in the area will be protected from mine runoff. Drainage control structures are to be installed prior to the beginning of mining or any land disturbing activity. Sediment control structures are to be cleaned out before they become half full. Sediment traps and basins are sized according to the area they drain. Specific designs are included in the drainage plan. Any reduction of the size of the structures will reduce their effectiveness. New structures should not be constructed without an amendment being approved by the Division (see amendment section below). All water and silt retaining dams need to be designed, constructed and abandoned in accordance with the mining operations approved plan. **(Also see 4 VAC 25-40-270)** The areas around these structures are to be stabilized with vegetation or rip rap. It is important that the drainage system be inspected periodically to ensure proper maintenance. Ditches and berms that direct runoff into basins must also be properly maintained. The use of silt fences is considered to be a temporary measure and is only allowed until adequate vegetation can be established. In areas where it is impractical to establish vegetation, riprap or clean broken concrete may be used for stabilization.

- **Maps** A permit map is a part of every operation plan. It is updated frequently to show changes that have occurred due to the progression of mining. It shows the drainage patterns and the location of topsoil stockpiles, screening berms, sediment control structures, roads, nearby homes, property lines, areas disturbed and areas reclaimed. The map legend lists the

acreage under permit, acreage disturbed and acreage reclaimed. It is important that the certified mine foreman know the location of the property lines and streams since there are established limits as to how close the mining work may extend to these. Any infringement within these established limits may result in costly restoration work.

- **Amendments** Any change to the operation plan requires that an amendment be submitted by the operator and approved by the Division <u>before</u> the work takes place. This includes the following:

  1) Change in location of topsoil storage piles, screening berms, or access roads.
  2) Installation or modification of any sediment control basin or trap. Change in drainage pattern.
  3) Increase in acreage of disturbed area or permitted area. A sizable area may be permitted but only a portion need be listed as disturbed.
  4) Change in any reclamation activity, such as seed rates, seed species, and degree of slope on banks.
  5) Removal of topsoil from permit area. *A plan must be approved by the Division* before any topsoil may be removed.
  6) Material brought onto the permit area from outside locations. Any inert materials, such as topsoil, rock, brick, and broken concrete that are brought onto the site must first have an approved amendment showing where it will be placed, how long it will be stored (if temporary), amount of material (tons, cubic yards), and how drainage from the material will be diverted and controlled A sketch is usually attached to the amendment application. Some types of organic materials, such as tree stumps and lumber, will require a Department of Waste Management permit in addition to an amendment from the Division. Any burning activity to eliminate materials will also require a permit from DEQ and possibly from other agencies as well. Before materials that are generated on the site can be landfilled, an amendment is needed to describe how they will be buried and a map is needed to show the disposal location. The final reclamation of the disposal site must be described. Any unauthorized debris dumped on the site must be removed to an approved landfill as soon as possible.
  7) Prior to modifying the flow of natural streams, the Division must first approve an amendment. Surface blasting shall be prohibited if the blasting may change the course or channel of any stream without a variance issued by the Director. **(4 VAC 25-40-870)**

- **Water Quality** The pH of all water discharged from the site must be between 6.0 and 9.0. With prior approval, chemicals may be injected into the discharge to bring the water pH into compliance. If this is not possible, all water drainage must then be contained on site.

- **Critical Areas** Problem areas, such as those with steep slopes, easily eroded material, hostile growing conditions, concentration of drainage, or other situations where re-vegetation or stabilization will be potentially difficult are considered critical areas. Riprap shall be used for the control of erosion on those areas where it is impractical to establish vegetation. Placing of rock riprap shall be in accordance with drainage standards and the approved Operation/Reclamation Plan.

- **Screening Berms** Mining operations must be screened from public view when required. This is usually accomplished by constructing earthen berms, which are immediately seeded following construction. Temporary erosion control, consisting of straw bale barriers or silt fence, is required until the vegetation becomes well established. As mining progresses, the

berms will normally be extended. The certified mine foreman supervising this work should know what areas have been approved for placement of the screening berms. The regulations stipulate that no slope shall extend closer than 25 feet to any property line.

- **Mine Wastes** When mine wastes are generated, the operation plan needs to include a plan for its disposal. This plan must include a disposal method, disposal location and method of drainage control. Other information may also be required by the Division prior to plan approval. **(4 VAC 25-40-270.C)**

- **Post Mining Land Use** The Operation Plan specifies to what use the land will be converted after all mining is completed. All restoration work conducted while mining should be guided with this objective in mind. The post mining land use may be amended with the approval of the Division at any time.

  The creation of ponds and lakes is a desirable land use. Ponds must be at least four feet in depth and all banks sloped and stabilized. If wetlands are developed as a result of the mining operation, the landowner must agree in writing with the conversion of the property to a permanent wetland condition. Designs for the final water impoundments are found in the operation plan.

- **Bond** Bond is required on all areas disturbed by mining as well as those areas designated to be disturbed during the next 12 months. The amount of bond required can be reduced by establishing permanent vegetation on areas where mining is complete and pursuing bond release. Disturbing land outside the bonded area will result in issuance of a special order to increase the bond posted with the Division. The area under bond is shown on the permit map as disturbed acreage. Bond is used to assure reclamation in the event the mining company is unable to perform the reclamation requirements as specified in the operation plan.

- **Permit Sign** The operation plan contains plans for construction and placement of the permit sign. The permit sign needs to show the company name and permit number. In the event the sign is seriously damaged or destroyed, a new one must be posted.

Permit Renewal

All permits/licenses are renewed annually. The mine operator must report acreage graded and seeded during the past year. Amounts of lime, fertilizer, mulch, and seed must be reported. The species of grass, plants and trees planted must also be recorded. License and permit fees are also paid at this time. **(45.1-161.292:30.B)**

Enforcement

Complaints

Any person may file a complaint regarding the operation of any mine. Complaints can be minimized by constant attention given to such concerns as off-site drainage, erosion onto nearby properties, uncontrolled dust and noise, mud and debris on the highway at the mine entrance, encroaching into established set-back limits, failure to re-vegetate disturbed land and maintaining an effective visual screen of the mine.

Repeated complaints over an extended period of time will often result in local authorities becoming involved in the mine operation. This can adversely affect future zoning issues. If the

mine operator becomes involved in public relations matters, his performance in regards to compliance with environmental regulations is often an important factor. The certified mine foreman can be of considerable assistance in these instances.

Landowner Rights

The mining regulations require that no slope shall extend closer than 25 feet to another property line without written consent of the adjoining landowner. In addition to stockpiles and screening berms, this also applies to slopes created by excavations of the mineral deposit. If mining extends within five feet of another property owner without written consent, the mine operator may be subject to a $500 fine payable to the adjacent landowner. **(45.1-161.311:1)** Limited access rights of landowners who own properties adjacent to lands being mined are found in the **Mineral Mine Safety Laws of Virginia**. **(45.1-161.311:2)**

Violations

The operator is notified of violations by the issuance of Special Orders. The Special Order will be given a compliance date to give the operator ample time to correct the violation. Extensions to the compliance date and modifications of the order may be granted at the discretion of the Division. The mine operator may appeal a Special Order by submitting a request by certified mail to the Division within 30 days of the issuance of the order.

If the violation is not corrected within the compliance period, a Notice of Non-Compliance may be issued. The notice will be given a compliance period to give the operator ample time to correct the violation. If the operator is unable or unwilling to correct the violation, the permit may be terminated, all bond forfeited, and final reclamation ordered. The mine operator may file an appeal to the Division within 30 days.

Any violation of any provision of the reclamation laws shall be a misdemeanor punishable by a maximum fine of $1,000.

Reclamation

Initial Reclamation

One of the basic requirements of mineral mining law requires that reclamation work be done continuously along with the mineral production work being carried out on the mine property. This ensures restoration of the land to a useful condition, prevents siltation of streams and helps control undesirable effects of dust and noise. Initial reclamation is considered to be complete if the following conditions are met:

1. Completion of final grading on all land disturbed by mining. The drainage pattern may be established by use of berms and ditches.
2. All disturbed areas are limed, fertilized, seeded and mulched in accordance with the approved reclamation plan. This includes haul roads that are to be eliminated.
3. Removal of all structures, power lines, debris and other items not listed for retention in the reclamation plan.
4. Installation of all permanent drainage structures as provided in the drainage plan.
5. If any wetlands have been created, a letter from the landowner is needed that authorizes wetland development.

6. Riprap or other DMM approved materials are to be installed on all critical areas where it is not practical to establish vegetation.

Unwanted Vegetation

There are several locations on most mine sites where vegetation is not desirable. Areas surrounding explosive magazines and buildings for storage of blasting agents shall be kept clear of combustible materials for a distance of at least 50 feet. This includes all vegetation except for live trees over 10 feet in height. **(4 VAC 25-40-780.G)** Areas surrounding flammable and combustible liquid storage tanks need to be kept free of combustible materials, including dry or dead vegetation, for at least 25 feet in all directions. **(4 VAC 25-40-510)** Areas surrounding mine openings and fan installations shall be kept free from grass, weeds, underbrush and other combustible materials for a safe distance in all directions. **(4 VAC 25-40-700)** Grass, brush, and weeds should also be cleared for a safe distance from any major electrical installations to reduce the hazard of a fire.

Temporary Cessation or Final Reclamation

At mining operations where no mineral has been removed or there has been no disturbance for a period of 12 months, DMM may declare the operation complete and require final reclamation. At the option of the operator and with written approval from the DMM, an operation may remain under permit for an extended period of time if disturbed areas are stabilized to prevent erosion, all drainage structures are well maintained and vegetation is established. Upon temporary cessation or abandonment of a mine, the operator shall effectively close or fence all access roads and hazardous areas. Warning signs shall also be posted. **(4 VAC 25-40-300)**

Impoundments

Water and Silt Impoundments

Chapter 18.1, sections 45.1-225.1 and 45.1-225.2 of the **Mineral Mine Safety Laws of Virginia** set standards that apply to large water impoundments constructed as a part of the mining operation. On and after July 01, 1974, new water or silt retaining dams, or mine refuse piles, or the modification of existing mine water, silt or refuse retaining dams shall be designed and constructed by, or under the direction of, ***a qualified engineer***[1]. Those dams that qualify under this section of the law are those that:

1. Are designed to impound water ***or silt*** to a height of five feet or more above the lowest natural ground level within the impoundment area; and
2. Have a storage volume of fifty acre-feet or more (Figure 9a); or
3. Those designed to impound water or silt to a height of twenty feet or more, regardless of storage volume. (Figure 9b)

Water and silt retaining dams or mine refuse piles, designs, construction specifications, and other related data, including final abandonment plans, shall be approved and certified by the qualified engineer and by the licensed operator or his agent. The designs, construction specifications, and other related data need to be submitted for approval to the Division of Mineral Mining (DMM).

[1] Qualified Engineer – An engineer with the required certification and experience to design impoundment structures.

All water and silt retaining dams or mine refuse piles that qualify under this standard shall be examined ***daily*** for visible structural weakness, volume overload and other hazards by a ***qualified person*** designated by the licensed operator. When rising water and silt reaches eighty percent by volume of the safe design capacity of the dam, such examination shall be made more often as required by DMM. More frequent examinations must be made during periods of rainfall that could create flooding conditions.

Records of the dam inspection shall be kept and certified by the licensed operator or his agent. These records shall be kept at the mine office or some other location on site.

The licensed operator of each mineral mine on which a water or silt retaining dam is located shall adopt an inspection and emergency action plan for carrying out the requirements stipulated in the mine safety law. The plan shall include the following items and be submitted for approval to DMM.

1. A schedule and procedures for inspection of the retaining dam by a qualified person;
2. Procedures for evaluating potentially hazardous conditions;
3. Procedures for removing all persons from the area which may reasonably be expected to be affected by the potentially hazardous conditions;
4. Procedures for eliminating the potentially hazardous conditions;
5. Procedures for notifying the Division of Mineral Mining; and
6. Any additional information required by the Division of Mineral Mining.

Before making any changes or modifications in the approved inspection/emergency action plan, the licensed operator shall obtain approval of such changes or modification from the Division of Mineral Mining.

When a potentially hazardous condition exists, the operator shall initiate procedures to:

1. Remove all persons from the area which may reasonably be expected to be affected by the potentially hazardous condition;
2. Eliminate the potentially hazardous condition; and
3. Notify the Division of Mineral Mining.

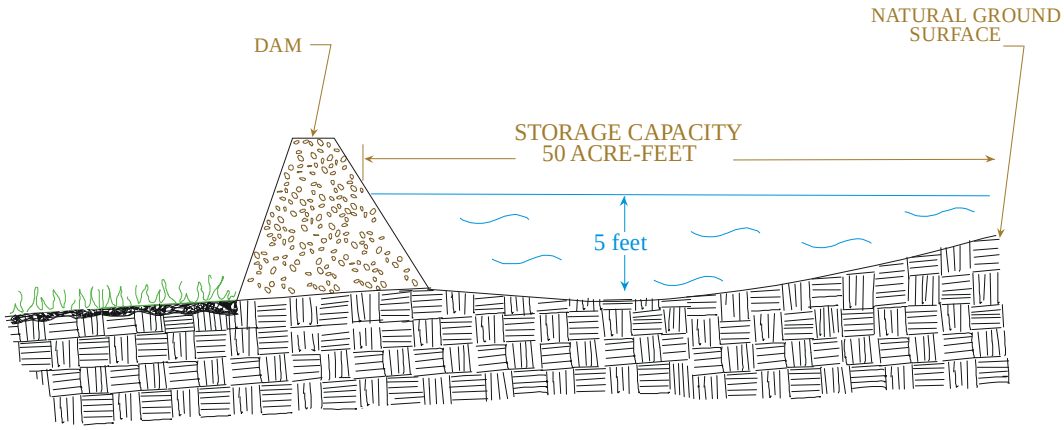

Figure 9A. Impounded water or silt 5feet or higher above lowest natural ground surface, and, storage capacity greater than or equal to 50 acre-feet.

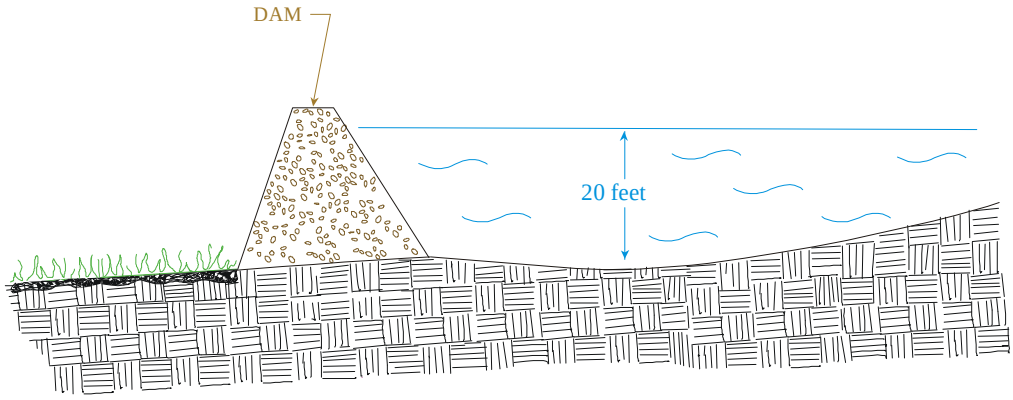

Figure 9B. Impounded water or silt 20 feet or higher above lowest natural ground surface.

FIGURE 9. Criteria for Chapter 18.1 Water and Silt Retaining Dam
Source: *Mineral Mine Safety Laws of Virginia*

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SECTION 5

SAFETY TRAINING

Specific Objective #5: Establish the certified mine foreman's role in mine safety training required by DMM and MSHA.

SAFETY TRAINING – THE FOREMAN'S ROLE

The Basics on Training

- **The Importance of Good Safety Training**

  What employees don't know about working safely may not only hurt them, it may kill them. That's why effective safety training is so important. Every employee that you will supervise must be thoroughly trained in what they need to know to work safely. They need to know the hazards of their work, safe job procedures, and the Company's rules and DMM's regulations that govern their work.

- **Foreman's Responsibility for Training**

  The main responsibility for employee safety training lies with the operator. However, the supervisor has the greatest opportunity to do the training because training and learning is mainly done on the job. Training is one of the most important functions of a supervisor. You can be a more effective supervisor if you learn how to train your assigned employees.

- **Major Types of Safety Training**

  1. **Training of New Persons -** this training applies to new miners with no previous experience, as well as newly employed experienced miners starting work at your mining operation.

     These individuals need walk-around, show-around type orientation related to the operation, and more specifically, their work areas, jobs, and equipment. Emphasis should be placed on hazard recognition and avoidance, applicable company rules, state and federal health and safety laws and regulations, workplace examinations, and equipment inspection responsibilities, etc.

  2. **Task Training for New/Reassigned Personnel or Infrequently Done Jobs** (or new tasks/duties that may be part of a job) - employees who have just moved into an occupation in which they have never worked or an occupation which they infrequently perform should be given an occupation safety orientation on their first day of work in the new occupation.

     Pre-Job Safety Instructions should be given when you assign an employee to do a hazardous job that they do infrequently. The idea is to remind them of the major hazards and precautions. Consider possibilities such as serious potential for accidents, known hazardous conditions, likely unsafe practices, pre-job examinations or inspections, required protective equipment, precautions to protect others, and lock-out/tag-out requirements where applicable.

  3. **Direct (Continuing) Training Contacts -** Employee safety training does not stop with occupation orientations and initial job instructions. Training must be a continuing effort. Employees need to be reminded on a regular basis about such things as work hazards, safety rules and regulations, and safe job procedures. In short, they need frequent planned safety training contacts to discuss selected safety topics. Such contacts help

shape their attitudes about working safely and serve to heighten their consciousness about hazards and safe work practices.

4. **Hazard Training** – Hazard training should be provided to service or maintenance workers or other visitors who might come onto the work site or have short-term exposure in a particular work area. This training is used to point out types of hazards and orient personnel unfamiliar with the site. Traffic patterns, warning signs/signals, special site rules, and electrical or ground control considerations are all examples of items that should be addressed in this type of training.

- **Observation of Personnel is the Check and Balance on Training**

A safety observation is basically nothing more than observing employees do their jobs to determine whether or not they are working safely and in compliance with safe job procedures and safety rules and regulations. Such observations are an essential part of accident prevention. Observations are the best way for supervisors to learn how their assigned employees work with respect to safety considerations. Unless unsafe practices are detected by observation, accidents will occur. All employees should receive planned observations periodically, all the more so if they are involved in hazardous type work. Employees that might need special attention are: Inexperienced Employees, Newly Trained Employees, Frequent Accident Employees, Known Chance Takers, and Safety Problem Employees. The more experienced employee who may have developed some unsafe work habits also needs to be observed periodically.

Virginia Requirements on Miner Training

Mineral Mining Safety Laws of Virginia and the **Division of Mineral Mining's (DMM's) Safety and Health Regulations for Mineral Mining** address several requirements and related issues in the area of miner training. As a prospective surface foreman, all these training issues and associated considerations are very important. Foremen take on leadership and oversight functions that make training a necessary priority.

- **What are the Safety Training Program Requirements for Mineral Mining Operations in the State of Virginia?**

Article 9 - Section **45.1-161.292:73** of the **Virginia Mineral Mine Safety Act** establishes requirements that the *"Operator"** have a plan containing training programs for New Miners, Newly Employed Experienced Miners, Training of Miners for New Tasks, Annual Refresher Training and Hazard Training. This section also requires that such plan be available for review by the Director upon request.

***"Operator"** is defined in Va. Mineral Mine Law as any person who operates, controls, or supervises a mine or any independent contractor performing services or construction at such mine.

- **What is a Mineral Mining Safety Training Plan?**

Training plans lay out how miners will be trained and the specifics of how a mine will comply with training requirements. Plans can be simple outlines that list only what, when, and how training will be accomplished in the different categories. Plans can also be very detailed

versions that specify subjects to be taught, teaching methods, course materials to be used, time frames necessary for subjects, and the evaluation methods that will be used to determine a trainee's successful completion. Whether or not mine operators or independent contractors need to comply with Virginia Division of Mineral Mining (DMM) requirements only, or if they want plans to meet both state and federal Mine Safety and Health Administration (MSHA) required standards determine, to a large extent, the amount of detail that may be necessary in the plan. Training plans definitely need to cover all health and safety considerations (and problems) specific to the mine. Plans define obligations of the mine operator or mine contractors to provide training and can (and often do) assign duties and responsibilities to foremen for instruction of personnel and documentation of training done.

- **Do State and Federal Requirements on Training Programs Differ?**

State requirements in the different training program categories (new miner, newly-employed experienced miner, annual refresher training, task training and hazard training) are generally consistent with training required by federal law, so plans that cover these training categories can meet both DMM and MSHA standards. However, General Mineral Miner training (which consists of an overview of state law and regulations) as well as other areas of DMM regulations are specific to state training requirements. ***(A sample-training plan with suggested format and content are included in this section for reference and to assist Virginia mineral mine operators in the development and implementation of their safety training programs)***

- **What are the Required Training Program Categories and What do they Cover?**

Let's examine the required program categories of safety training, what they are intended to address, and most importantly, what the certified mine foreman's role could involve as far as instructing and documenting part or all of the training.

1. **NEW MINER / GENERAL MINERAL MINER** – Training that is intended to be a comprehensive orientation for "inexperienced miners" that covers a variety of operational and health and safety subject areas. State mining law or regulations do not address specific subject content for New Miner training programs other than requirements for General Mineral Miner (GMM) **(45.1-161.292.28 and 4 VAC 25-35-120)** and Task Training **(4 VAC 25-40-100)**. This affords wide-ranging flexibility with regard to topics that may be included in New Miner training as far as DMM is concerned. Mining Operations or Contractors that are subject to DMM requirements only may be able to scale back on general topic areas and focus more on site specifics and practical show-around aspects, dependent on the site size, complexity, and work project involved.

   However, operations subject to MSHA inspections are under federal requirements to provide New Miner training consisting of a number of specific subjects including 1) introduction to the work environment, 2) emergency procedures applicable to mine(s), 3) rules and procedures for reporting hazards, 4) first aid methods 5) health and safety aspects and safe work procedures specific to tasks assigned, 6) miners rights and responsibilities, and 7) use and care of respirators, and other MSHA subjects per 30 CFR Parts 46 or 48.*****

   Both the State and MSHA have certain training requirements (subjects) that must be covered prior to persons assuming work duties.

New Miner Training is generally accomplished through classroom training segments in addition to the foreman (or other trainer) handling site-specific work environment instruction, hazard recognition and avoidance, and task training /health and safety aspects relating to the job.

As a certified mine foreman, you should be aware that there are additional and quite involved training and record keeping requirements imposed by the Mine Safety and Health Administration that may need to be complied with, where applicable. However, because this is a Virginia certification guide, emphasis here will only focus on State requirements.

General Mineral Miner (GMM) Training Requirements **(45.1-161.292:28)** – Every person starting work in a mineral mine after the date of January 1, 1997, shall hold a general mineral miner certificate issued by the Board of Mineral Mining Examiners (BMME) (generally prior to July 1, 2012) or the DMME (on or after July 1, 2012). Any person who has worked in a mineral mine in Virginia prior to that date, may, but shall not be required to, hold a general mineral miner certificate. Each applicant for a general mineral miner certificate shall prove to the DMME that he has knowledge of first aid practices and has a general working knowledge of the provisions of the Virginia Mineral Mine Safety Act and applicable regulations pertaining to mineral mining health and safety.

Note: ***GMM training is required to be instructed by a certified mine foreman,an MSHA certified instructor, or a DMM approved instructor, so this is an area that a certified mine foreman will probably have to deal with directly. Refer to the General Mineral Miner section (4 VAC 25-35-120) of the Certification Requirements for Mineral Miners for details on training, the complete GMM application and certification process, and record keeping requirements.***

2. **NEWLY- EMPLOYED EXPERIENCED MINER** – This training is intended to orient an experienced miner to a mining operation at which he has not previously worked. Topics typically cover such areas as the specifics of the work environment, hazard recognition and avoidance, a review of company safety policy, familiarization with communication and emergency procedures, etc. This training for an experienced miner is usually handled on-the-job during the first day of employment and is well suited to being handled by the foreman. In Virginia, newly employed experienced persons may be required to have GMM training as well, if their previous mining experience was gained in another state. ***(Review the Sample Training Plan (following) for additional details on training in this category)***

3. **TASK TRAINING** – This training is intended to orient a new or reassigned miner to new jobs or job tasks and duties prior to their being assigned and actually performing the work. This training typically would include instruction on job steps, operating procedures, company rules and applicable DMM regulation requirements, as well as other health and safety aspects of the job, tasks or duties. Other task training may involve changes in equipment or job procedures.

DMM's Mineral Mining Safety and Health Regulations also cover several additional training considerations that apply to New Miner, Newly-Employed Experienced Miner, and Task Training. These requirements should be incorporated (specifically addressed) as part of the preceding training categories.

Employee Training Requirements **(4VAC 25-40-100)** - this section of DMM's Safety and Health Regulations states "New or reassigned employees shall be trained in state and company safety regulations and be task trained prior to being assigned a task or duty. Records shall be kept in writing at the mine site for 2 years or 60 days after termination of employment."

Inexperienced Employees **(4VAC 25-40-110)** - this section of DMM's Safety and Health Regulations states " Employees with less than six months of mining experience shall work with or under the direction of an experienced miner."

Inspection of mobile and stationary equipment **(4 VAC 25-40-145)** - this section of DMM's Health Regulations states "Mobile and stationary equipment that is to be used during a shift shall be inspected by the equipment operator. Equipment safety defects shall be reported to the certified mine foreman. Defects that affect the safety and health of persons shall be corrected before the equipment is used."

Compliance with Regulations **(4VAC 25-40-190)** - this section of DMM's Safety and Health Regulations states "Miners shall comply with all state safety and health regulations applicable to their tasks or duties."

Examination for unsafe conditions **(4VAC 25-40-460)** - this section of DMM's Safety and Health Regulations states "All personnel shall examine their active workings for unsafe conditions prior to starting work and frequently thereafter. Any unsafe condition found shall be corrected or reported to the designated certified mine foreman."

4. **HAZARD TRAINING** – This training is intended to acquaint and inform individuals of potential dangers or hazardous conditions related to the areas where they might work or travel at the mining operation. Typically this training applies to short term maintenance or service workers, including delivery persons, technicians, students, visitors, etc. who are not involved in the production or processing work. This training should include show-around, applicable emergency information and procedures, and safety standards with which these personnel should be familiarized and comply.

5. **ANNUAL REFRESHER TRAINING** – This training requirement addresses structured safety training updates (on an annual basis) for all mining personnel and extraction and processing contractors. This training is usually conducted in a classroom type environment where instructors have prepared formal mine-specific safety presentations and materials, accident information and injury data from the job site, mine plans, etc. This training is often handled in segments, provided periodically. ***(If you need to meet MSHA requirements, in addition to DMM's, you will want to refer to 30 CFR – Part 46 or 48. Also, review the sample training plans {following} for additional details on the Annual Refresher training category.***

- **Can You Show Me an Example Training Plan Outlining the Required Training Program?**

An example follows; just remember that the topics need to be site specific and developed for your operation.

DMM/MSHA TRAINING PLAN
FOR
TRAINING AND RETRAINING OF MINERS

AN EXAMPLE PLAN

(Designed to Comply with MSHA PART 46 and Virginia Mineral Mining Laws and Regulations)

An example follows, just remember that the topics need to be site specific and developed for your operation.

Company: _____

Mine or Independent Contractor Name: _____

MSHA ID#: _____

Virginia Permit or Contractor #: _____

Mailing Address: _____

_____

_____

PERSON RESPONSIBLE FOR HEALTH & SAFETY TRAINING

Name: _____ **Title:** _____ **Phone #:** _____

PERSONS OR ORGANIZATIONS PROVIDING TRAINING:

_____

_____

_____

_____

SUBJECT AREAS COMPETENT TO INSTRUCT:

_____

_____

_____

_____

DMM/MSHA TRAINING PLAN
FOR
TRAINING AND RETRAINING OF MINERS

AN EXAMPLE PLAN

(Designed to Comply with MSHA PART 46 and Virginia Mineral Mining Laws and Regulations)

PERSONS OR ORGANIZATIONS PROVIDING TRAINING:	***SUBJECT AREAS COMPETENT TO INSTRUCT:***

DMM/MSHA EXAMPLE TRAINING PLAN

PROGRAM OF INSTRUCTION: NEW MINER

Approx time	SUBJECT	OBJECTIVES	INSTRUCTION METHODS	COURSE MATERIALS	EVALUATION METHODS	INSTRUCTOR
48 hrs.	VA General Mineral Miner Certification Training • Review Mineral Mine Laws • Overview of DMM H&S Regs. • 1st Aid intro/overview	New miner will demonstrate basic knowledge of VA Mineral Mine Law, Heath & Safety regs, and Into. First Aid methods	Lecture Discussion Demonstration	DMM General Mineral Miner Course Guide & A-V materials Current VA MM Safety Laws (copy to each participant) DMM H&S Regs MSHA First Aid Booklet #3	Written Exam or Demonstration of skills	VA Certified Mineral Mine Foreman or MSHA Approved Instructor (per DMM reqrmts.)
	Review Emergency Procedures applicable to mine (to include): • Medical • Firewarning/Firefighting • Escape / Emergency Evacuation	New Miner will explain and demonstrate knowledge with regard to obtaining medical assistance, fire response, and other emergencies	Discussion and Demonstration	DMM regulations Co. Procedures &/or Action Plans Fire Extinguisher	Oral Response	Competent Person
	Rules and Procedures for Reporting Hazards	New miner will explain how to get hazardous situations addressed and what to do if corrective actions are not taken	Lecture Discussion	VA Regulations and Co. Procedures MSHA Guidelines	Oral Response	Competent Person
42 hrs.	Introduction to work environment (mine tour)	New miner will recognize potential hazards and demonstrate a knowledge of active areas of mine	Walk-around tour and Observation of Mining Methods Lecture Discussion	Mine Permit Map Posted signs Company safety rules	Oral Response	Competent Person
42 hrs.	Recognition and Avoidance of Electrical and other hazards at mine site	New miner will recognize potential hazards in mine work environment	Walk around Discussion Hands-on demonstration	Lock-out devices On-site equipment	Demonstrate knowledge of hazards by oral response	Competent Person

4 *These courses must be completed prior to New Miner beginning work*

T *These courses may be completed up to 60 days after new miner assuming job*

DMM/MSHA EXAMPLE TRAINING PLAN

PROGRAM OF INSTRUCTION: NEW MINER

Approx time	SUBJECT	OBJECTIVES	INSTRUCTION METHODS	COURSE MATERIALS	EVALUATION METHODS	INSTRUCTOR
430 mins.	Miner's Rights and Responsibilities Authority & responsibilities of supervisors and miner's representatives	New miner will be able to explain MSHA's and miner's responsibilities & roles in mine safety and their rights under Federal Mine Health & Safety Act	Lecture Discussion	MSHA Miner's Rights booklet Company Organization and Mgmt. Chain	Oral Response	Competent Person
T1 hr.	Use, care, and maintenance of respirators	New miner will demonstrate appropriate use, care, and maintenance of applicable respiratory protective equip.	Lecture Demonstration Discussion	Manufacturer's instructions	Oral Response Demonstration	Competent Person
T4 hrs. (in addit. to intro in Va. GMM)	First Aid methods	New miner will be provided in-depth instruction on first aid response and methods	Lecture Demonstration Hands-on practice	MSHA First Aid Booklet #3 or comparable course	Oral Response Participant demonstration	Competent Person
46.5 hrs.	Health and Safety Aspects and Safe Work Procedures specific to task(s) assigned Closely Observed Practice of Task Assignments	New miner will be able to identify and explain safety and health considerations and safe procedures related to assigned tasks New miner will demonstrate ability to perform task(s) safely with discussion /feedback on both operational procedures and health and safety aspects	Lecture Discussion On job training with practice, observation, correction	Applicable State & Fed. Regs. Job Procedures MSDS's (where applicable) Job Procedures Operating Machinery or Equipment Operating Manuals	Oral Response Observation Oral Response Demonstration	Competent Person Competent Person

4 *These courses must be completed prior to New Miner beginning work*

T *These courses may be completed up to 60 days after new miner assuming job*

DMM/MSHA EXAMPLE TRAINING PLAN

PROGRAM OF INSTRUCTION: NEWLY HIRED EXPERIENCED MINER

Approx time	SUBJECT	OBJECTIVES	INSTRUCTION METHODS	COURSE MATERIALS	EVALUATION METHODS	INSTRUCTOR
41-2 hrs.	Introduction to Work Environment	Newly hired experienced miner will recognize potential hazards and demonstrate a knowledge of active areas of mine	Walk-around tour & Observation of Mining Methods Lecture Discussion	Mine Permit Map Posted Signs Company Safety Rules	Oral Response	Competent Person
41-2 hrs.	Recognition and Avoidance of Electrical and Other Hazards at the Mine	New miner will recognize and demonstrate knowledge of potential hazards in mine work environment	Walk-around tour & Observation Discussion and Hands-on Demonstration	Lock-out devices On-site Equipment Actual Work Environment	Demonstrate knowledge of hazards by oral responses	Competent Person
41/2 –1 hr.	Review Emergency Procedures applicable to mine (to include): • Medical • Firewarning/Firefighting • Escape / Emergency Evacuation	New Miner will explain and demonstrate knowledge with regard to obtaining medical assistance, fire response, and other emergencies	Discussion and Demonstration	DMM Regulations Co. Procedures and/or Action Plans Fire Extinguisher	Oral Response Demonstration	Competent Person
41 hr.	Health & Safety Aspects of Assigned Task(s)	Newly hired experienced miner will be able to explain safe work procedures and H&S hazards of assigned tasks	Lecture Demonstration Practice under close supervision	Mfgr.'s Operating instructions, guides, and handouts State & Fed. Regs. Applicable	Oral Response Observation Demonstration	Competent Person
430 mins.	Miner's Rights and Responsibilities Authority & Responsibility of Supervisors and Miners Representative	Newly hired experienced miner will be able to explain MSHA's and Miner's responsibilities & roles in mine safety and their rights under Fed. Mine Health & Safety Act	Lecture Discussion	MSHA Miner's Rights Booklet	Oral Response	Competent Person

4 *These courses must be completed prior to New Miner beginning work*

T *These courses may be completed up to 60 days after new miner assuming job*

DMM/MSHA EXAMPLE TRAINING PLAN

PROGRAM OF INSTRUCTION: NEWLY HIRED EXPERIENCED MINER

Approx time	SUBJECT	OBJECTIVES	INSTRUCTION METHODS	COURSE MATERIALS	EVALUATION METHODS	INSTRUCTOR
430 mins.	Rules and procedure for reporting hazards	Newly hired experience miners will explain how to get hazardous situations addressed and what to do if corrective actions are not taken	Lecture Discussion	VA Regulations and Co. Procedures MSHA Guidelines	Oral Response	Competent Person
T30 mins.	Use, Care, and Maintenance of Respirators in use at mine	Newly hired experienced miners will demonstrate appropriate use, care and maintenance of applicable respiratory protective equip.	Lecture Demonstration Discussion	Manufacturer's instruction	Oral Response Demonstration	Competent Person

4 *These courses must be completed prior to New Miner beginning work*

T *These courses may be completed up to 60 days after new miner assuming job*

DMM/MSHA EXAMPLE TRAINING PLAN

PROGRAM OF INSTRUCTION: TASK TRAINING (per DMM4 VAC 25-40-100 and MSHA Pt. 46.7)

Approx time	SUBJECT	OBJECTIVES	INSTRUCTION METHODS	COURSE MATERIALS	EVALUATION METHODS	INSTRUCTOR
4 ½ -1 hr.	Overview of DMM and Co. Safety Regulations applicable to assigned tasks	Employee will be able to identify and explain regulations/rules applicable to assigned tasks	Discussion	DMM Hlth. & Safety Regs. Company Safety Rules Job Procedure Outlines	Oral response	Competent person
4½ -1 hr.	Health and Safety Aspects and Safe Work Procedures Specific to Task Assigned	Employee will recognize and be able to explain safety and health considerations and safe procedures related to assigned task	Discussion	Job Procedure Outlines MSDS's where applicable	Oral Response	Competent Person
1 hr. – 5 days	Closely Observed Practice *	Employee will demonstrate ability to perform task safely with discussion/feedback on both operational procedures and health & safety aspects	On-the-job training Discussion Observation Practice	Job Procedure Outlines Job Steps Lists Machinery or Equipment Operating Manuals	Observation Oral Response Demonstration	Competent Person

4 These subjects must be covered prior to miner performing new task

***** Close observation means that competent person is in immediate vicinity of the miner (trainee) and is watching their actions to assure that they are performing the task in a safe and healthful manner

(See Example Lesson Plans for Task Training – Following this plan)

DMM/MSHA EXAMPLE TRAINING PLAN

PROGRAM OF INSTRUCTION: ANNUAL REFRESHER TRAINING
(participants to receive 8 hrs training at 12 month intervals)

Continues on next page

Approx Time	SUBJECT	OBJECTIVES	INSTRUCTION METHODS	COURSE MATERIALS	EVALUATION METHODS	INSTRUCTOR
15-30 mins.	Changes at the Mine within Past 12 Months Affecting Health and Safety	Participants will be made aware of changes that could impact miner's health and safety	Lecture Discussion Demonstration	Handouts and/or A-V slides	Oral Response	Competent Person
2-3 hrs.	First Aid Review	Participants will perform scene size-up, surveys, and ABC skills relative to First Aid	Lecture Discussion Demonstration	MSHA First Aid Booklet A-V Supplements	Demonstration of proficiency	Competent Person
½-1hr.	Review of Mine Emergency Response Plan (Medical, Fire, Spill, etc.)	Participants will identify correct procedures to follow in event of Emergencies	Discussion Role Play Scenarios	Company Plans Scenario Problems	Oral Response	Competent Person
1½-2 hrs.	Accident Prevention Topics • Pre-Operational Checks • Work Place Examinations	Participants will be provided Accident Prevention information and safety procedures	Lecture Discussion Practical Demonstration	Handout Materials on Subjects Info from 30 CFR /DMM H&S Regs. and Operator's Record Bk.	Oral Response Practical Demonstration	Competent Person
30-45 mins.	Traffic Patterns and Controls	Participants will review and identify traffic patterns and right-of-way specifics on mine haul roads	Discussion Practical demonstration	Permit Map Handout materials on subject A-V slides	Oral Response	Competent Person

DMM/MSHA EXAMPLE TRAINING PLAN

PROGRAM OF INSTRUCTION: ANNUAL REFRESHER TRAINING
(participants to receive 8 hrs training at 12 month intervals)

Approx Time	SUBJECT	OBJECTIVES	INSTRUCTION METHODS	COURSE MATERIALS	EVALUATION METHODS	INSTRUCTOR
½ -1 hr.	Ground Control and Conditions	Participant will review and identify potential Ground Control hazards and control measures	Discussion Visual Demonstrations	MSHA Trng. module DMM Safety Regs. A-V supplements	Oral response	Competent Person
1–2 hrs.	Mobile Equipment and Haulage Safety	Participant will review and identify potential hazards and safety measures on subject	Discussion Visual Demonstrations	Acc. Case Reviews DMM Safety Regs. MSHA training module A-V Supplements	Oral Response Group discussion participation	Competent Person
½ -1 hr.	Safety Issues in Maintenance and Repair Work	Participant will review and recognize safe/unsafe procedures relating to subject	Discussion Visual Demonstrations	Acc. Case Reviews Manufacturers Materials A-V Supplements	Oral Response Group discussion participation	Competent Person
½ -1hr.	Health/Personal Protective Equipment	Participant will review possible health hazards in mineral mining and appropriate PPE	Discussion Visual Demonstration Practical Hands-on methods	MSHA training module DMM Safety Regs A-V Supplements Mine Plans/procedures	Oral Response Demonstrate use of PPE	Competent Person
45mins. - 1 hr. (where applies)	Blasting Safety	Participants will review blasting procedures, safety signals, and precautionary measures	Discussion Visual Demonstration	MSHA training module Mine plans/procedures DMM Safety Regs. A-V Supplements	Oral Response	Competent Person

DMM/MSHA EXAMPLE TRAINING PLAN

PROGRAM OF INSTRUCTION: HAZARD AWARENESS TRAINING

Approx time	TRAINING APPLICABLE TO:	OBJECTIVES	INSTRUCTION METHODS	TRAINING MATERIALS	EVALUATION METHODS	INSTRUCTOR
5 mins.-1 hr.	Persons* who could be exposed to hazards at mine in areas where they may be required to work or travel (Excludes mining company employees who regularly work at the mine)	Visitors, Contract Workers and others coming on mine site will be informed of the specific hazards associated with the areas of the mine to which they are exposed	Inform and Explain specific potential hazards that may be encountered	Handout Materials with Descriptive Narrative, Diagrams, etc. Signs Checklists	Oral Response	Competent person

*Persons who will typically require Hazard Awareness Training include office personnel or other staff personnel, vendors, scientific workers, delivery workers, customers (including commercial truckers), construction workers, maintenance or service workers and other independent contractor employees who do not work at the mine for frequent or extended periods. Per MSHA Part 46 requirements, this training is to also be provided to miners / mining crews (such as drillers and blasters) who may move from one mine to another (while remaining employed by the same mining company or independent contractor).

Site-specific Hazard Training is not required for any person who is accompanied at all times by an experienced miner who is familiar with hazards specific to the mine.

Mine (Production) Operators have primary responsibility for insuring that Hazard Awareness Training is provided to employees of independent contractors required to have such training. Production Operators must provide information to each independent contractor who employs persons at the mine on site-specific mine hazards. Independent contractors, in turn, will inform the production operator of any hazards that they may create in the performance of their work activities at the mine.

EXAMPLE
Task Training Lesson Plan

Task: Off Road Haul Truck Operator

Objective: Employee will demonstrate safe operating procedures for the assigned task

Training Materials: Copy of Company Safety Rules
Copy of DMM Health and Safety Regulations
Manufacturers Guidelines/Operating Procedures

Training Methods:

1) Review the following sections of company safety rules and DMM Regulations with employee assigned task:

Company Rules	DMM Health/Safety Regulations
-Personal protection -Ground Control -Fire Prevention and Control -Mobile Equipment, Transportation, and Traffic Safety -Electrical Hazards -General Safety Practices for all Work Areas	Provide overview of applicable regulations from Part 2 (General Safety Provisions), Part 3 (Ground Control), Part 4 (Fire Prevention and Control), Part 5 (Air Quality and Physical Agents), Part 6 (Explosives), Part 9 (Mobile Equipment), and Part 10 (Personal Protection).

2) Discuss/Demonstrate the following haul truck operator job responsibilities and duties and the hazards associated with operation:

   A. Performance of walk-around inspection and pre-operational checks
   B. Mounting/Dismounting truck
   C. Location and operation of gauges and controls
   D. Starting Procedures
   E. Safe Operation Basics
   F. Parking truck at end of shift
   G. Performance of maintenance and repairs on truck
   H. Loading trucks in pit and plant areas
   I. Travel to/from dump hopper, stockpile areas, or waste dump locations
   J. Dumping procedures

3) The remainder of the task training will be accomplished through the employee (trainee) practicing the operational steps while being closely observed by a competent haul truck operator experienced in performing the task. When the competent person and operation supervisor agree that the newly assigned employee has demonstrated proficiency in performing the task safely, the task-training program will be considered complete.

4) Complete the record of task training appropriately.

EXAMPLE
Task Training Lesson Plan

Task: Maintenance and Repair – Changing Screens

Objective: Employee will demonstrate knowledge, skills, abilities and safe procedures in performing assigned task

Training Materials: Copy of Company Safety Rules
Copy of DMM Health and Safety Regulations
Installation Guidelines/Job Procedures

Training Methods:

1) Review the following sections of company safety rules and DMM Regulations with employee assigned task:

Company Rules	DMM **Health/Safety Regulations**
-Personal protection -Lock out –Tag Out procedures -Fire Prevention and Control -Safety in Cutting/Welding -Mobile Equipment -General Safety Practices for all Work areas	-Review applicable regulations from Part 2 (4 VAC 25-40-145, 350 and 360), Part 4 (Fire Prevention and Control-cover relevant sects.), Part 9 (4 VAC 25-40-1680) Part 10 (4VAC 25-40-1740), Part 11 (Points on Ladders, where relevant), Part 12 (4 VAC 25-40-2140,2150,2450, and 2500), Part 13 (4VAC 25-40-2550, 2590, 2600, 2610, and 2580), Part 14 (4 VAC 25-40-2540).

2) Discuss/Demonstrate Job Responsibilities and Procedures and the Hazards Associated with Performing the Job:

   A. Lock-Out/Tag-Out
   B. Inspection of Work Area
   C. Obtaining and Using Appropriate Personal Protective Equipment (gloves, harness, etc.)
   D. Obtaining and Using Proper Tools
   E. Move New Screens into Place (back strain, crane use, suspended loads, etc.)
   F. Use Proper Procedure to Remove Old Screen (cutting torch safety, hand tool use, etc.)
   G. Remove Old Screen (back strain, crane use, suspended loads, etc.) properly
   H. Replace Any Guards That Were Removed

3) The remainder of the task training will be accomplished through the employee (trainee) practicing the task steps while being closely observed by a competent person experienced in performing the task. When the competent person and operation supervisor agree that the newly assigned employee has demonstrated proficiency in performing the task safely, the task-training program will be considered complete.

4) Complete record of task training appropriately.

SECTION 6

RECORD KEEPING

Specific Objective #6: Identify records that must be completed and maintained by certified foremen and mine operators.

RECORD KEEPING

Records are required to comply with the **Mineral Mine Safety Laws of Virginia** and the **Safety and Health Regulations for Mineral Mining**. Therefore, records are an integral part of your duties. As the certified mine foreman, you are specifically required by law and regulation to keep mine foreman beginning of shift examination records. In addition, you are responsible for ensuring that every mobile and stationary equipment operator performs an operational inspection prior to use each shift. These inspections do not require a written record under state law or regulation; however, as a certified foreman you may use checklists to verify compliance. The foreman may be required, by his employer, to keep other records. This section is intended to assist the foreman in meeting these obligations and to better understand the various record keeping requirements.

While record keeping is required, the format or forms used are at the option of the operator. The Division of Mineral Mining has created the following forms as example documents in an effort to assist in complying with this record keeping. You may choose to use these forms, modify the forms or use your own established company specific forms for record keeping.

As an agent of the operator, you should be familiar with various record keeping requirements for mineral mines. This section of the study guide emphasizes the most commonly used forms and the laws and regulations requiring them. Laws and regulations found at the top of each form are provided to assist you in functioning as a certified mine foreman.

Recordkeeping Forms:

Record Retention Chart

Inspection Forms

- Mobile Equipment Pre-Operational Safety Check List
- Stationary Equipment Operator's Daily Inspection Report
- Certified Mine Foreman Beginning of Shift Examinations

Accidents

- Accident Report

Training

- General Mineral Miner Requirements (summary)
- General Mineral Miner Training Record
- Verification of Training Completed for GMM Certification
- General Mineral Miner Exemption Record
- Individual Training Record
- Group Training Record
- Miner's Task Training Record
- Miner's Task Training - Surface Jobs Matrix
- Group Task Training Record

Contractor

- Contractor Identification Form

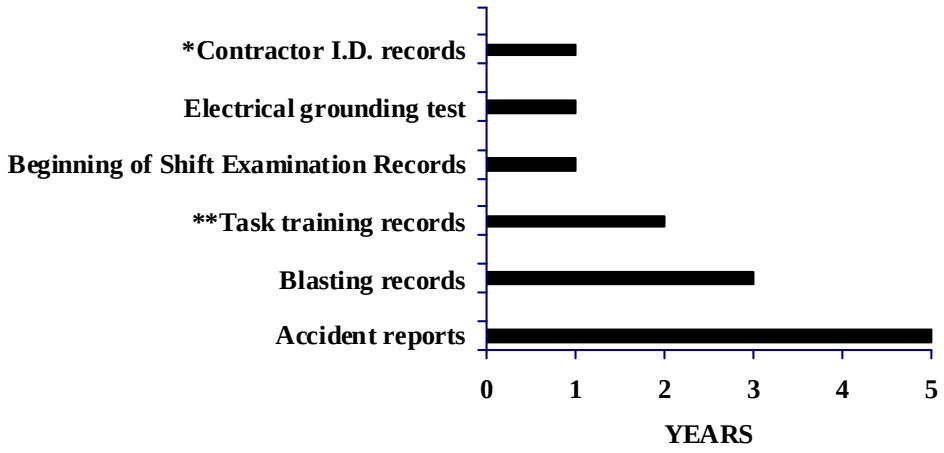
Electrical

- Electrical Testing –continuity testing
- Ground Conductor Circuit Evaluation – ground resistance evaluation

Blasting:

- Blasting Report Record

RECORD RETENTION CHART



Contractor I.D. records must be updated within 30 days of change in contractor status

****Task training records must be kept for 60 days after termination of employee***

MOBILE EQUIPMENT PRE-OPERATIONAL SAFETY CHECKLIST

Note: (fill out this sheet before starting shift)

DMM Safety and Health Regulation **4 VAC 25-40-145** requires mobile equipment that is to be used during a shift must be inspected by the equipment operator. Equipment safety defects shall be reported to the certified mine foreman. Defects that affect the safety or health of persons shall be corrected before the equipment is used.

EQUIPMENT OPERATOR_____ DATE_____

EQUIPMENT TYPE_____ UNIT_____

EQUIPMENT HRS._____ SHIFT NO._____

	OK	Repairs Made	Repairs Required	N/A
CODES	✔	O	X	—

Excessive oil or hydraulic leaks ____

Back Alarm _____

Brakes: Foot _____

Brakes: Parking _____

Fire Extinguisher _____

Lights _____

Horn (Electric) _____

Horn (Air) _____

Windshield _____

Glass: Windshield Wipers _____

Glass: Door _____

Grab-rails _____

Steps _____

Safety Guards _____

Mirrors _____

Seat Belts _____

Tires _____

Steering _____

Gauge & Warning Lights_____

Walk Around _____

Coolant _____

Check all fluid levels _____

Other: _____

_____

Remarks: (Visual inspection of machine for any other mechanical or safety defects)

_____

_____

_____

SIGNATURE:

Equipment Operator _____

Notified Certified Mine Foreman of Safety Defects ☐

(Company may designate categories, which would preclude the use of this equipment until repaired.)

STATIONARY EQUIPMENT OPERATOR'S DAILY INSPECTION REPORT

COMPANY _____ **PERMIT #** _____

DMM Safety & Health Regulation 4 VAC 25-40-145 requires stationary equipment operators to inspect their assigned equipment prior to use each shift to ensure safe operating condition. Safety defects which pose a hazard must be reported to the certified mine foreman for repair prior to use.

Equipment Operator_____ Date_____

Area of Mine: ___Pit ___Processing Plant ___Shop ___Other Time:_____

Description of Equipment or Processing Section:_____

(circle one)

Safe access (railed walkways) maintained to elevated work areas……Y N NA

Walkways and work platforms in safe condition and free of excessive material build-up, ice, or snow……Y N NA

Designated travelways on ground or over water in safe condition……Y N NA

All accessible (7') moving parts guarded to prevent accidental contact……Y N NA

Conveyor head/tail/drive pulleys guarded to prevent reaching (deliberate) over, under, or behind the guard and becoming caught in moving parts……Y N NA

Lighting adequate to illuminate work areas during hours of darkness……Y N NA

Electrical wiring and equipment in safe operating condition…… Y N NA

Suitable locks and tags available to lock-out/tag-out of equipment ……..Y N NA

Suitable fire extinguishers located nearby……..Y N NA

First aid kit located nearby……Y N NA

Safety harness & lifeline available for use when working beyond handrailing, or other places where there is a danger of falling…….. Y N NA

CERTIFIED MINE FOREMAN'S
BEGINNING OF SHIFT EXAMINATION REPORT
[required by Virginia Mining Laws & Regulations (4 VAC 25-40-130)]

Company: _____

Date:_____ Time:_____ Shift: _____

Area Examined:_____

Workplace Examination:

_____ Haulroad and ramp conditions, safety berms, traffic signs, etc.

_____ Highwall conditions, bank heights within reach of equipment or sloped to angle of repose

_____ Bench stability: height, width and slope

_____ Stockpile stability, ramp conditions, safety berms

_____ Emergency response and communication systems

_____ Safe access to all work areas

_____ Lighting, electrical distribution systems

_____ General work environment and past problem areas

_____ Other _____
_____

_____ **List the hazardous or unsafe conditions identified and the corrective actions taken. For those hazards/unsafe conditions not eliminated, barricade and post warning signs as required by 4VAC25-40-130):** _____
_____
_____
_____
_____

Certified mine foreman's Signature: _____ SF#: _____

Stationary and Mobile Equipment Inspection:

_____ Pre-operational inspections of stationary & mobile equipment completed by assigned operators.

Disposition of hazards detected or reported by miners to the certified mine foreman (4 VAC 25-40-145):
_____
_____
_____

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF MINES, MINERALS AND ENERGY
DIVISION OF MINERAL MINING
900 Natural Resources Drive, Ste. 400
Charlottesville, VA 22903
(434) 951-6310

ACCIDENT REPORT

Company/Mine Name_____

DMM Permit No._____ **MSHA ID** _____

Accident Date_____ **Time**_____ **Shift**_____

County_____ **Telephone No.**_____

Contractor Employee: ☐ **Yes** ☐ **No**

Contractor Name_____ **DMM Contractor No.** _____

Address_____ **Telephone No.**_____

Type: ☐ **Medical Treatment** ☐ **Serious Injury** ☐ **Fatality**

Name of Injured_____ **Age** _____

GMM Certification Number _____ **Date of Birth**_____

Regular Occupation_____ **Total Experience (yr/mo)**_____

Occupation at Time of Accident_____ **Experience (yr/mo)**_____

Location of Accident: ☐ **Mine/Pit** ☐ **Crushing/Processing** ☐ **Shop**

☐ **Load out/Stockpiles** **Other (specify)**_____

Type of Equipment Involved: ☐ **Mobile Equipment** ☐ **Mine Drill**

☐ **Crushing** ☐ **Screening** ☐ **Conveyors** ☐ **Bins/Hoppers**

☐ **Walkways/Platforms/Ladders** ☐ **Welding/Cutting** ☐ **Hand tools**

☐ **Other (specify)**_____

Body Part Injured: ☐ **Eyes** ☐ **Head** ☐ **Hand** ☐ **Arm** ☐ **Foot** ☐ **Leg**

☐ **Back** ☐ **Neck** ☐ **Chest** ☐ **Other (specify)**_____

Nature of Injury_____

Brief Description of Accident_____

_____

_____

Preventive Measures Taken_____

_____

Person Completing Form _____**Date Completed** _____

Title _____ **Phone Number** _____

GENERAL MINERAL MINER RECORDS

Mineral Mining Safety Laws of Virginia (Section 45.1-161.292:28) requires that miners who commenced work after January 1, 1997 shall be provided training and be certified as General Mineral Miners (GMM). A Verification of Training Form (BMME-4) accompanied by a class roster is to be used for submission to DMM (see pages 90 and 91 following).

The DMME's certification requirements for mineral miners (4 VAC 25-35-120.G) requires mine operators to maintain records for those miners required to obtain GMM certification and those that are exempt from GMM certification. For miners required to obtain GMM certification, the BMME-4 form (page 91) may serve as the required record or a record log may be used for this purpose. For miners exempt from GMM requirements, the information shown on the General Mineral Miner Exemption Form (page 92) must be kept on file.

GENERAL MINERAL MINER COURSE ATTENDANCE RECORD

This record may be used as the **GMM Course Roster**, **which is to be submitted** with the BMME-4 form and $10 fee when seeking certification for a new employee. The instructor simply completes the requested information and sends a copy of this record with the BMME-4 form and fee. This can be used cumulatively, so the employer or instructor can have a centralized record of all GMM courses conducted throughout the year.

NOTE: The last column should be used by the Instructor to record the GMM certificate number that is issued.

GMM TRAINING DATE(S)	INSTRUCTOR	INSTRUCTOR CERT.#	NAME (last, first, mi)	DATE OF BIRTH	LOCATION	GMM CERT # ISSUED

Division of Mineral Mining
Fontaine Research Park
900 Natural Resources Drive
Suite 400
Charlottesville, VA 22903
(434) 951-6310

Verification of Training Completed for General Mineral Miner (GMM) Certification

Type or print this form in ink and submit it to the **Department of Mines, Minerals & Energy** with a roster and $10 processing fee in the form of a check or money order made payable to the **Treasurer of Virginia**. Cash will be accepted if paid in person at the Division of Mineral Mining Office.

1. Full Name: _____ DMM # _____
2. Date of Birth: _____
3. Address: _____
   Street or P.O. Box City State Zip Code
4. Home Phone No.: ( ) _____ Date of Employment: _____
5. VA Mine Permit Number: _____ Mine Phone No.: ( ) _____
6. Employer Company Name: _____ Mine Name: _____
   Address: _____
   Street or P.O. Box City State Zip Code
7. Job title/description of job duties: _____
8. I received training in first aid, or I have attached a copy of my valid first aid card, and received Training in Virginia's mineral mining law and regulations on _____
   Date or Dates

I hereby certify that the above answers are true to the best of my knowledge and belief.

Signed: _____ Date: _____
Signature of applicant for certification

I hereby certify to the DMME that the training I provided to the applicant set forth above meets the requirements of Virginia Code § 45.1-161.292:28 B, 4 VAC 25-35-120 and the applicant has satisfactorily demonstrated to me the required knowledge of first aid practices, Mineral Mine Safety and Health Regulations, and the Mineral Mine Safety Laws of Virginia.

Name printed and signed: _____
Certified mine foreman, certified MSHA instructor, or instructor approved by DMM to provide training

#: _____ Cert. #: _____

Commonwealth Of Virginia Division Of Mineral Mining	
Name Of Miner	
Date of Birth	Date Of Certification
Classification:	
General Mineral Miner	Name Of Certified Instructor/Certified Forman
	Certification #

GENERAL MINERAL MINER EXEMPTION RECORD

A record of employees exempt from the general mineral miner training and certification requirement (persons who possess Virginia mineral mining experience prior to January 1, 1997) is required to be maintained.

NAME (last, first, mi)	ADDRESS	PHONE #	EMPLOYMENT DATE (WITH PRESENT COMPANY)	DATE BEGAN WORK IN VIRGINIA MINERAL MINES	EMPLOYEE INITIALS

INDIVIDUAL RECORD

Certificate of Training **U.S. Department of Labor**
Mine Safety and Health Administration

Approved: OMB Number 1219-0070, Expires March 31, 1995.

This certificate is required under Public Law 91-173 as amended by Public Law 95-164. Failure to comply may result in penalties and other sanctions as provided by sections 108 And 110, Public Law 91-173, as amended by Public Law 95-164.

► Issue Certificate Immediately Upon Completion of Training | Serial Number (for operator's use)

1. Print Full Name of Person Trained (first, middle, last)

2. Check Type of Approved Training Received:

ف Annual Refresher ف Newly employed, Experienced Miner ف Hazard Training ف Other (specify)

ف New Task (specify below) ف Newly Employed, Inexperienced Miner

Date	Task	Initials Instr / Studt	Date	Task	Initials Instr / Studt

3. Check Type of Operation and Related Industry:

A. ف Surface ف Construction ف Underground ف Shaft & Slope

B. ☐ Coal ☐ Metal ☐ Nonmetal

4. Date Training Requirements Complete

► If completed, go to Item 6, below. ف Check if not completed and go to Item 5, below.

5. Check Subjects Completed (use only for partially completed training):

ف Introduction to Work Environment
ف Hazard Recognition
ف H&S Aspects of Tasks Assigned
ف Statutory Rights of Miners
ف Self-Rescue & Respiratory Devices
ف Transport & Communication Systems
ف Roof/Ground Control & Ventilation
ف Mine Map; Escapeways; Emergency Evacuation; Barricading
ف Cleanup; Rock Dusting
ف Mandatory Health & Safety Standards
ف Authority & Responsibility of Supervisors & Miners' Representatives
ف Health
ف Electrical Hazards
ف First Aid
ف Mine Gases
ف Explosives
ف Prevention of Accidents
ف Other (specify)

6. False certification is punishable under section 110 (a) and (f) of the Federal Mine Safety & Health Act (P.L. 91-173 as amended by P.L. 95-164).

I certify that the above training has been completed (signature of person responsible for training)

7. Mine Name, ID, & Location of Training (If Institution, give name & address)

8. Date

I certify that I have completed the above training (Signature of person trained)

MSHA Form 5000-23, Oct 83 (Revised)

GROUP RECORD

CERTIFICATE OF TRAINING FOR NONMETAL MINES

COMPANY_____ **PERMIT #**_____

Check type of Approved Training Received:

_____ Newly Employed, Inexperienced Miner _____ Annual Refresher

_____ Newly Employed, Experienced Miner _____ Hazard Training

_____ New Task (Specify):_____ _____ Other (Specify):_____

DATE COMPLETED	PRINT NAME	SIGN NAME I verify the training has been completed

I certify the above training has been completed and given to each person who signed above:

Signature of Person Responsible for Training: _____ Date: _____

MINER'S TASK TRAINING RECORD

DMM Safety and Health Regulation 4 VAC 25-40-100 requires new or reassigned employees to be trained in state and company safety regulations and to be task trained prior to being assigned a task or duty. Records of training shall be kept in writing at the mine for two years or for 60 days after termination of employment.

NAME_____ **EMPLOYEE #**_____

JOB TITLE_____

CURRENTLY QUALIFIED As of 7/1/98

LIST TASKS/DUTIES	DEMONSTRATED PROFICIENCY	SUPERVISOR INITIAL	EMPLOYEE INITIAL

NEW ASSIGNMENT After 7/1/98

NEW OR REASSIGNED JOB OR TASK DUTY	DATE	TRAINER INITIAL	TRAINEE INITIAL

SURFACE JOBS

TASK/DUTIES	DOZER OPER.	FRONT END LOADER	HIGH WALL DRILLER	REPAIR-MAN	TRUCK DRIVER	LABORER	SHOT FIRER	WELDER	GRADER
Inspect conveyer									
Load railroad cars									
Load trucks		X			X				
Emergency maint. & repair	X	X	X		X			X	X
Test electrical Equipment				X				X	
Rough carpentry						X			
Maintenance drainage & water						X			
Operate plant controls									
Remove hang-up bins, etc.									
Use hand tools	X	X	X	X	X	X		X	
Equipment lockout								X	
Clean-up						X	X	X	X
Operates truck					X		X	X	
Maintenance of trucks & equip.				X	X		X	X	X
Fuel mobile equipment	X	X	X		X		X	X	X
Lubricate machinery	X	X	X		X	X	X	X	X
Install parts & equipment				X				X	X
Weld, braze, etc.				X				X	
Electrical repairs				X					
Operate mobile equipment	X	X	X			X	X	X	X
Blasting			X			X	X	X	
Pre-post oper. equip. check	X	X	X		X	X	X	X	

GROUP TASK TRAINING RECORD

	TASK 1	TASK 2	TASK3	TASK 4	TASK 5	TASK 6	TASK 7	TASK 8	TASK 9
NAME OF EMPLOYEE									

CONTRACTOR IDENTIFICATION FORM

Section 45.1-161.292:32 of the Mineral Mine Safety Laws of Virginia requires that the applicant for a mine license include information about contractors working at the mine and keep the information current by reporting any change within 30 days. This sheet may be attached to the License Renewal Application in response to Question 4.

Licensed Operator Information

COMPANY_____ **PERMIT #**_____

Location at mine where work is to be done _____
Date contractor began work on the mine_____
Date contractor information provided to Division of Mineral Mining in writing_____
Person who provided the information_____

Has production, worker and wage information been collected for reporting to Division of Mineral Mining on the Annual Tonnage Report at the end of the year? **This information must be reported on the annual report or the Mine License cannot be renewed.** The Production/Worker/Wage Information Collection Form can be used to collect the information from contractor(s).

_____ _____
SIGNATURE OF LICENSED MINE OPERATOR **DATE**

Contractor Information

Contractor's Trade Name _____
Business Address_____
Business Telephone Number _____ Contractor's MSHA Identification #_____
DMM Contractor #_____

Address of Record for Service of Citations and Other Documents_____
_____

List services to be provided to the mining company:
_____

Contractor person with responsibility for operating decisions:

Name	Address
_____	_____
_____	_____

Contractor person responsible for health and safety of employees:

Name	Address
_____	_____
_____	_____

ELECTRICAL TESTING

DMM Safety and Health Regulation 4 VAC 25-40-2250 requires mine operators to test continuity and resistance (R) of grounding systems immediately after installation, repair, or modification; and annually thereafter. **All work must be performed by, or under the supervision of a DMM-certified electrician or licensed electrical contractor**. A record of the resistance measured in each equipment ground conductor, grounding electrode conductor, and the earth around the grounding electrode (rod) shall be made, and the most recent test record shall be available upon request by the director or division mine inspector. All motor frames and circuits must be grounded back to the mine operator's ground rod at, or near, the on-site source of power from the power company transformer.

COMPANY_____ **PERMIT #**_____

NAME OF INDIVIDUAL CONDUCTING TEST(S) _____
DMME/BMME Certification #_____ Licensed Electrical Contractor #_____

Transformer ID and location _____

Ground Resistance Test

Instrument used_____ Method_____
Results of test_____ ohms (25 ohms max.)

Equipment Grounding Conductor Measurements

When performing continuity and resistance testing on motors/circuits that are supplied power from the transformer identified above, the resistance of the test lead lines being used should be deducted so that reported values reflect actual resistance of the equipment grounding circuit. **The resistance (ohms) measured in equipment grounding conductors connected between the grounding electrode (rod) and motor frames or equipment should not exceed one (1) ohm for safe operating conditions.** Circuit measurements exceeding one ohm must be evaluated and reported on the Ground Conductor Circuit Evaluation form indicating whether or not the increased ohms reading is acceptable for the size breaker or fuse being used.

MOTOR/CIRCUIT IDENTIFICATION	*OHMS

*LESS RESISTANCE OF TEST LINES USED _____OHMS

GROUND CONDUCTOR CIRCUIT EVALUATION

When evaluating equipment grounding conductor circuit readings that exceed one ohm, the ohms of the grounding conductor must be divided into the voltage-to-ground of the circuit in question. This would give the approximate current (amps) if a ground fault occurred, which can be compared to the size of breaker/fuse provided to ensure adequate tripping capacity.

EXAMPLE: 480/277 V wye system with 30 amp breaker and equipment grounding conductor resistance of 10 ohms. 277 divided by 10 equals 27.7 amps which would **not** trip the 30-amp breaker during a fault condition creating a hazardous condition. The fault current to breaker/fuse size ratio should be at least 5 to 1 (5 x 30 = 150 amps). The 5 to 1 ratio "rule of thumb" ensures effective protection.

Circuit ID_____

PERSON CONDUCTING TEST/EVALUATION _____

Circuit Calculations:

BLASTING REPORT RECORD

DMM Safety and Health Regulation 4 VAC 25-40-810 requires a detailed record of each blast be prepared by the certified blaster immediately after completion of each shot. The records must be kept at the mine office for 3 years.

COMPANY_____**PERMIT #**_____

Date_____ Time_____Weather_____

Blast Location_____ Bench No._____
Material Blasted_____ No. of Rows_____ Total No. of Boreholes_____
Borehole Diameter_____inches Depth of Boreholes_____feet Condition of Boreholes_____
Length of Stemming_____feet Type of Stemming_____
Burden_____feet Spacing_____feet
Distance (D) & Direction (Ds) to Nearest Inhabited Building (D)_____ (Ds)_____

Results of Seismic Test

Location_____

Vibration: L _____ in/sec _____ frequency
T _____ in/sec _____ frequency
V _____ in/sec _____ frequency
Airblast: _____ dBs _____max. allowed dBs

Lbs. Explosives Per Borehole_____ Total Lbs. Explosive Materials Used_____
No. of Holes/Delay Period (8ms)____ Max. Charge Weight Per Delay Period_____lbs.
Method Used to Determine Max. Charge Weight/Delay Period _____W/Ds Formulas
_____ N.A. Seismic Testing

Type & Amount of Explosive Materials Used

Manufacturer & Type of Explosive Material	Pounds of Explosive Material Used
_____	_____
_____	_____
_____	_____
_____	_____

Type Initiation System Used_____ Manufacturer_____

Number of Detonators & Delay Periods Used	Delay Period
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Shot Design (delay sequence & timing) and Profile of Front Line Boreholes

On back of this form diagram and specify initiation (timing) sequence, front-line borehole profiles, or any special conditions or precautionary measures used.

_____ _____

SIGNATURE OF CERTIFIED BLASTER IN CHARGE OF BLAST **CERTIFICATION #**

SECTION 7

EXPLOSIVES, BLASTING ACTIVITIES, AND DRILLING

Specific Objective #7: Recognize DMM operational safety requirements for blasting and drilling activities and the certified mine foreman's role in complying with State mining laws and regulations regarding blasting activities.

Explosives, Blasting Activities, and Drilling

(Note: This section is not required for Surface Foreman Open Pit (SFOP) certification)

A. Definitions

The following definitions found in the **Safety and Health Regulations for Mineral Mining** have specific meanings as used in the laws and regulations pertaining to operational safety when referring to explosives and blasting activities.

Burden: means the distance in feet between rows of boreholes or between the open face and boreholes.
Powder chest: means a substantial, nonconductive portable container equipped with a lid and used at blasting sites for explosives other than blasting agents.
Primer: means a cartridge or package of explosives, which contains a detonator or detonating cord.
Safety fuse: means a train of powder enclosed in cotton, jute yarn, and water-proofing compounds, which burns at a uniform rate, used for firing a cap containing the detonating compound which in turn sets off the explosive.
Scale distance: means the actual distance in feet divided by the square root of the maximum explosive weight in pounds that is detonated per delay period for delay intervals of eight milliseconds or greater; or the total weight of explosive in pounds that is detonated within an interval less than eight milliseconds.
Stemming: means that inert material placed in a borehole after the explosive charge for the purpose of confining the explosion gases in the borehole or that inert material used to separate the explosive charges in decked holes.

B. Inspection Activities

Certified mine foreman working in the quarry should be aware of the following laws and regulations, which pertain to the storage, transportation, and use of explosives in blasting activities. He should also be aware of the duties and authority provided to the certified blaster under the law and regulations, and to those areas where his and the certified blaster's responsibilities over-lap.

The ***certified mine foreman*** designated by the mine operator shall examine active workings for unsafe conditions at least at the beginning of the shift and ***after blasting***.
(4 VAC 25-40-450)

1. Magazines and Storage of Explosive Materials: (4 VAC 25-40-780)

Magazine construction:

- of substantial construction and constructed of noncombustible material or covered with fire-resistant material;
- reasonably bullet resistant;
- electrically bonded and grounded if constructed of metal;
- made of non-sparking material on the inside;
- provided with adequate screened ventilation openings near the floor and ceiling; and
- unheated.

Magazine location:

- detached structure
- located in accordance with the American Table of Distances;
- located away from power lines, fuel storage areas and other possible sources of fire; and
- located at least 300 feet away from underground mine openings, occupied buildings, public roads, or private roads not connected with the mine.

Magazine maintenance:

- kept locked securely when unattended;
- posted with suitable danger signs located such that a bullet passing through the sign will not strike the magazine;
- used exclusively for storage of explosives or detonators and blasting-related materials;
- kept clean and dry in the interior and in good repair; and
- smoking and open flames kept at least 50 feet from the magazine.

Explosive storage:

- detonators shall not be stored in the same magazine with explosives;
- accurate inventory logs shall be maintained on site;
- contents of magazines shall be removed to a safe location and guarded prior to making repairs on the magazine;
- explosives shall be:
  - arranged oldest to newest;
  - separated by brand and type;
  - stored top sides up; and
  - stacked in a stable manner not more than 8 feet high;
  - ammonium nitrate fuel oil (ANFO) blasting agents shall be physically separated from other explosives to prevent contamination;
  - damaged or deteriorated explosives and blasting agents shall be destroyed in a safe manner by ***a certified blaster***.

2. Transportation: (4 VAC 25-40-790)

Transportation Vehicle:

- must be in good mechanical condition;
- posted with warning signs;
- carry suitable fire extinguishers; and
- have a non-sparking cargo area equipped with sides and tailgate;

Operation of Transportation Vehicle:

- operated at safe speeds
- no extraneous materials may be allowed in the cargo area;
- operated by the minimum number of persons required to safely transport the explosives;
- the vehicle shall not be left unattended or taken into a shop or building while loaded with explosives;
- no smoking shall be allowed while transporting explosives; and
- explosives shall be transported in non-conductive, closed containers not to be stacked higher than the vehicle sides or tailgate.

3. Blasting Operations: (4 VAC 25-40-800)

Use of Explosives:

- a ***certified blaster*** shall be in direct charge of blasting activities;
- persons who assist the ***certified blaster in charge*** shall be under his direct supervision;
- flyrock incidents must be reported to DMM immediately and details noted in the blast record;
- boreholes shall not be drilled where there is the possibility of them intersecting a loaded or misfired hole **(4 VAC 25-40-980)**;
- no one shall smoke within 50 feet of explosives or detonators;

- the ***certified blaster in charge*** shall review the drill logs to determine specific downhole conditions prior to loading the shot;
- prior to bringing explosives and detonators to the blast site, the ***certified blaster in charge*** shall:
  - ◊ monitor weather conditions;
  - ◊ inspect the blast site for hazards;
  - ◊ inspect and clear the boreholes of obstructions; and
  - ◊ remove personnel and equipment, except those used in loading the shot, from the blast site;
- surface blasting shall only be conducted during daylight hours;
- blast warning signals shall be established and posted at the mine, and an audible warning signal shall be given prior to firing the blast;
- blasting shall be done from a safe location;
- all personnel shall be removed from the blast area prior to connecting the initiation device and firing the blast;
- a post blast examination of the blast area shall be made by the ***certified blaster in charge***; and
- no one shall return to the blasting area until the ***certified blaster in charge*** gives the "all clear"**.**

4. Record Keeping: (4 VAC 25-40-810)

The certified blaster in charge shall prepare a detailed record of each surface blast immediately. The record shall be maintained for three years and subject to inspection by the DMM mine inspectors. Records shall contain:

- name of company or contractor;
- location, date, and time of blast;
- name, signature, and certification number of the certified blaster in charge;
- type of material blasted;
- number of holes, and burden and spacing for each hole;
- drill logs of boreholes as required by 4 VAC 25-40-1095;
- types of explosives used;
- total amount of explosives used;
- maximum amount of explosives per delay period of eight milliseconds or greater;
- method of firing and type of circuit;
- direction and distance in feet to nearest dwelling house, public building, school, church, commercial or institutional building neither owned nor leased by the person conducting the blasting;
- weather conditions;
- height or length of stemming;
- whether mats or other protections were used;
- type of detonators used and timing of detonation for each detonator used;
- location of seismograph, if used; and
- seismograph records. **(4 VAC 25-40-910)**
- all anomalies or abnormalities occurring during the execution of the blast and actions taken to correct or address them.

5. Special Blasting Regulations:

Persons shall not enter the blasting area for at least 15 minutes after a misfire; the ***certified blaster*** shall be in charge of disposing of the misfire; and the blast area shall be guarded or barricaded and posted with warning signs until such time as the misfire is cleared. **(4 VAC 25-40-820)**

Prior to blasting near a mine haul road or public highway all traffic shall be stopped for a safe distance. **(4 VAC 25-40-830)**

When blasting within 300 feet of a private pipeline or electrical transmission line, advanced notice shall be given to the owner of the pipeline or transmission line by the ***certified blaster***. **(4 VAC 25-40-860)**

Ground vibration from blasts may be measured using the following techniques:

- the scaled distance formula if Ds, as calculated with the scaled distance formula is 90 or greater, then seismic monitoring is not required **(see 4 VAC 25-40-880)**;
- peak particle velocity measured by a seismograph at the nearest inhabited building not owned or leased by the operator; and
- alternative blasting level criteria utilizing the maximum peak particle velocity and blast vibration frequency obtained from seismograph records. **(4 VAC 25-40-880)**

Air overpressure (formerly referred to as air blast) limits shall not exceed 133 decibels (dB), as measured with a 2 Hz or lower flat response microphone, at any inhabited building not owned or leased by the operator. **(4 VAC 25-40-890)**

Each mine operator must prepare and maintain a plan to control the effects of blasting on areas adjacent to the operation. This is a new regulation that goes into effect July 2009. (**4 VAC 25-40-893)**

If necessary to prevent damage, the limits for ground vibration and air blast may be lowered by the DMM Director. **(4 VAC 25-40-895)**

Seismic testing and evaluation to determine compliance with blasting limitations shall:

- utilize an acceptable instrument;
- be conducted and analyzed by a qualified person; and
- be conducted whenever directed by the division.

Electronic detonation systems must be approved by the DMM director before use and used in accordance with the manufacturer's instructions. (NOTE: This regulation became effective July 2009.) **(4 VAC 25-40-925)**

6. Drilling:

Are the drillers inspecting their equipment and work areas for safety hazards prior to beginning work, and are they reporting defects and hazards to the certified mine foreman for corrective action? **(4 VAC 25-40-950 & 970)**

Are the drillers attending their drills while they are in operation? **(4VAC 25-40-990)**

Are receptacles or racks provided for drill steel and tools stored on the drills? **(4VAC 25-40-1000)**

Are proper techniques used when moving track or truck mounted drills? Are masts being lowered, are tools and other equipment properly secured in a safe location, and is the driller's helper in a safe and observable location during the move? **(4 VAC 25-40-1010)**

Have drillers and driller's helpers been instructed in proper procedures in the event of power failure on the drill? Are drill controls being placed in a neutral position until power is restored? **(4 VAC 25-40-1020)**

Do drillers refrain from holding or resting their hands on any rotating part of a drill and does their clothing fit closely enough to prevent them from being caught in moving parts of the drill? **(4 VAC 25-40-1030 & 1040)**

Are large boreholes covered or guarded to prevent trip and fall hazards? **(4 VAC 25-40-1050)**

Are drills safely located and secured prior to drilling of boulders in the pit area?
(4 VAC 25-40-1070)

Are drillers working in a safe manner? Have the following requirements been met:

- remove unconsolidated materials from the bench or wall above the drill;
- position the drill a safe distance from the edge of the bench or wall; and
- position drill controls away from wall. **(4 VAC 25-40-1080)**

Drillers must produce a detailed drill log as each borehole is being drilled. A signed copy must be provided to the mine operator and a copy included in the record of the blast. (NOTE: This regulation became effective July 2009.) **(4 VAC 25-40-1095)**

SECTION 8

FIRST AID TRAINING SUMMARY

FIRST AID TRAINING SUMMARY

- Always assess the scene of the accident first to ensure safety. Treat the victim where you find them, unless you must move them from a hazardous area prior to treatment or to give proper care.

- To determine which injuries must be treated first, conduct an "initial assessment" to check for responsiveness, normal breathing, and severe bleeding. **Always check for responsiveness and normal breathing first, and call 9-1-1 immediately for any unresponsive victim or threat to life.**

- **For a responsive adult,** ask for and obtain consent before you give care.

- **For unresponsive victim**, it must be determined quickly whether or not the victim is breathing normally. Gasping is not normal breathing.

- Check for breathing by looking at the victim's chest to see if it rises and falls, and listening for any sounds of breathing. REMEMBER, IF YOU FIND THE VICTIM IS NOT BREATHING NORMALLY, START CPR IMMEDIATELY. If an AED is available close by, get it or send for it and use it.

- Begin CPR with chest compressions. Put hands in correct position (center of chest) for chest compressions. Give 30 chest compressions at a rate of at least 100 per minute – steady and fast. Then open the airway by tilting the head and lifting the chin, give 2 breaths lasting one second each. If the breaths do not go in, reposition the head and try again. If the breaths still do not go in, check the mouth and remove any obstruction seen. Continue cycles of 30 compressions and 2 breaths. When giving compressions, keep fingers off chest and keep your elbows straight and your hands in contact with the chest at all times.

- Continue CPR until:
  - Victim revives/wakes up.
  - An AED is present and is ready to use.
  - Professional help arrives and takes over.
  - You are too exhausted to continue.

- If victim starts moving, check for normal breathing. If victim is breathing normally but still unresponsive, put the victim in the **HAINES recovery position** (**H**igh **A**rm **IN E**ndangered **S**pine) – extend victim's arm that is farther from you straight out above head (head rests on arm); other arm across chest and bend victim's nearer leg at knee; then carefully roll victim away from you by pushing on the victim's flexed knee and lifting your forearm while your hand stabilizes the victim's head and neck. In the recovery position, the victim's head should be supported by the raised arm. Continue to support the head and neck and position the victim's other hand palm-down with fingers under the armpit of the raised arm, and forearm flat on the surface at 90 degrees to the body. Bend both legs so the victim's position is stabilized. Next, monitor breathing and open the mouth to allow drainage. **Remember – use the recovery position for any unresponsive victim who is breathing.**

- If you think a person is **choking**, ask the person if he or she is choking. If the victim is coughing forcefully, encourage continued coughing to clear object. If the person cannot cough, speak or breathe, they need immediate help. Have someone call 9-1-1. Ask if you can help and then tell them you will do abdominal thrusts (the Heimlich maneuver).
  - Stand behind the victim with one leg forward between the victim's legs.
  - Reach around and locate the person's navel (belly button) with the finger from one hand.
  - Make a fist with the other hand and place the thumb side of the fist against the person's abdomen just above the navel.
  - Grab your fist with your other hand and thrust inward and upward into the victim's abdomen with quick jerks.
  - Continue abdominal thrusts until the victim expels the object or becomes unresponsive.

If the victim becomes unresponsive, lower the person to the ground, expose the chest and begin CPR (see above) with 30 chest compressions. Look inside the mouth each time you open the mouth to give breaths and remove any object seen. For a responsive pregnant woman or person you cannot get your arms around or cannot effectively give abdominal thrusts to, give chest thrusts from behind the victim. Avoid squeezing the ribs with your arms.

- **Heart attack** symptoms include:
    - Persistent discomfort, pain or pressure in chest
    - Pain that may spread to neck, jaw, shoulder or arm
    - Shortness of breath
    - Dizziness, lightheadedness or feeling of impending doom
    - Pale skin, sweating

  Victims having a heart attack may not have all these symptoms or signs. Symptoms that are more common in women include shortness of breath, indigestion, nausea or vomiting, and back or jaw pain. It is also important to note that victims of heart attack frequently deny having a heart attack.

  Call 9-1-1 for any victim with chest discomfort, even if the victim says it is not serious. Help the victim rest in a comfortable position. Loosen constricting clothing. Ask the person if he or she is taking heart medication and help obtain and give the medication, following the medication directions. Encourage the victim to chew 1 uncoated adult aspirin (or 2 low-dose baby aspirin) unless the victim is allergic to aspirin or cannot take aspirin for any other reason. Stay with the victim, be reassuring and calm, and don't let them drink or eat anything. Be ready to give CPR if needed.

- **Bleeding** from open wounds should be controlled by <u>direct pressure</u> using a sterile gauze dressing or cloth pad with firm pressure (for about 5 minutes) directed on the wound unless an impaled/embedded object is present. Never attempt to remove an impaled/embedded object. If bleeding is from a limb (arm/leg), elevation can be used in combination with direct pressure. If an impaled object is present, stabilize the object with bulky dressings and bandage around the object. Remember to put on medical exam gloves or keep a barrier (dressing/plastic bag) between you and the blood.

  If bleeding soaks through, put another dressing or cloth pad on top of the first dressing and keep applying pressure for another five minutes or more. Do not use an excessively large dressing, and put pressure only on the wound area that is bleeding, not over a large area. If needed, wrap a roller bandage around a limb to hold the dressings in place and apply pressure (known as a **pressure bandage**). Be careful to not cut off circulation to the limb.

  <u>A tourniquet should be used only as an extreme last resort</u> to control severe bleeding from severe injuries like amputation of a hand, arm, or leg. Once applied the tourniquet should not be loosened. The time that the tourniquet was applied on patient should be noted on the patient.

- Bandages should be applied to bleeding wounds to control bleeding and prevent infection; they must be checked periodically to ensure they are not restricting circulation. **With severe bleeding, always treat the victim for SHOCK.**

- If **internal bleeding** is suspected, call 9-1-1 and treat for shock. Signs and symptoms of internal bleeding include: tender, swollen, bruised or hard abdomen; blood vomited or coughed up or present in urine; cool, clammy skin that may be pale or bluish; thirst; confusion; or lightheadedness.

- **If shock** is suspected, treat for physical shock by monitoring breathing, keeping victim warm (with a coat or blanket), and having victim lie down on back and elevating feet (6"-12") if there is no head injury or painful leg/hip injury. Signs of shock include cool, clammy, or sweating skin; pale, bluish, or ashen in color; rapid, shallow breathing; anxiety, confusion, agitation, or restlessness; dizziness, light-headedness; thirst, vomiting, and nausea; changing levels of responsiveness.

- Once the primary survey and necessary treatment of life-threatening injuries have been completed, a secondary survey of the victim should be made to check for other injuries while you wait for assistance from local EMS.

- If a victim has been burned, remove the source of the burning and cool the area. First aid treatment for burns is directed towards excluding air from the burned area, and relieving pain, which can result in severe physical shock to the victim. Burned areas should not contact one another. **For large second degree burns and for third degree burns, call 9-1-1**.

- When treating thermal burns, cool the area with cold running water until the area is free from pain even after removal from water. Remove constricting clothing and jewelry. Protect the burn area with a loose, sterile (non-stick) dressing.

- General treatment for wet chemical burns (acid, etc.) is flushing with water. Dry chemical must be brushed/removed from skin prior to flushing with water. Continue flushing until help arrives.

- Victims of electrical burns should be checked for both entry and exit wound/burn areas. **Do not touch the victim until the area is safe. Unplug or turn off power.** Call 9-1-1. Care for the burn (stop the burning, cool the area, remove clothing and jewelry, cover the burn). Treat for Shock. Keep unresponsive victim in the Recovery Position and monitor breathing.

- Musculoskeletal injuries such as fractures/dislocations should be <u>supported</u> and <u>immobilized</u>. Use the **RICE** acronym for fractures, sprains, and dislocations. **R** – **Rest** the injured area. Support and do not move the injured area; **I** – Place **ice** or a cold pack on the injured area; **C** – **Compress** an injured extremity with an elastic roller bandage; **E** – **Elevate** an injured extremity.

- When moving/transporting injured victims, always support the head in line with rest of body.

- Mine operators must provide suitable first aid materials at all work areas of a mine; first aid kits should contain materials necessary to <u>protect the rescuer</u> (disposable mask/gloves), and to treat injured victims.

- <u>Certified foremen must possess valid first aid cards</u>, and emergency first aid procedures should be included in annual general mine safety training for all miners. Accidents involving serious personal injury or death to any person on mine property must be reported to DMM by the quickest available means, and the accident scene secured.

- Emergency telephone numbers for State mine inspectors, rescue squad, and fire department must be posted at mine sites to expedite reporting accidents, fires (requiring more than 30 minutes to extinguish), explosions, or other serious/dangerous situations. Having joint DMM/EMS/mine operators meetings at mine sites prior to an accident can expedite assistance and establish responsibilities required by state mining laws for all parties.

2010 Changes in First Aid, CPR, and AED

In October 2010, new Guidelines for CPR and Emergency Cardiovascular Care were published detailing how lay rescuers should perform some first aid and basic life support skills, based on scientific literature. Subsequently, first aid and CPR courses have changed in certain ways. The following tables summarize key changes.

2010 Changes in First Aid		
Care Technique	**Previous Recommendations**	**New Recommendations**
Cleaning a wound	Irrigate under running water for at least 5 minutes.	Clean wounds with large amounts of warm or room temperature water with or without soap until all foreign matter is washed away.
Controlling bleeding	Use manual direct pressure and pressure bandage to control bleeding.	Maintain manual pressure for a long time. Use elastic compression bandage to maintain pressure if manual pressure cannot be maintained continuously until help arrives. Use tourniquet only if direct pressure is not effective or possible, and only with proper training.
Thermal Burns	Cool the burn with cold water for at least 10 minutes or until the area is pain free even after removal from the water.	Cool burns with cold water (15 - 25˚ C) until the area is free of pain even after removal from the water.
Chemical Burns	Flush the area with running water for at least 30 minutes and apply nonstick dressing.	Continue to flush the area with copious running water until help arrives.
Shock	If no trauma, raise legs about 8 to 12 inches.	If no trauma, raise feet about 6 to 12 inches.
Potential Spine Injury	Use manual inline stabilization.	Maintain spinal motion restriction manually.
Musculoskeletal Injuries	Use RICE: - Rest - Ice - Compression - Elevate	Use RICE – cold is best provided with mixture of ice and water, or other cold methods, for 20 minutes (or 10 minutes if uncomfortable) with a barrier between the cold and the skin.
Asthma attack	Assist victim with using prescribed medication (inhaler).	If the victim is unable to administer inhaler without assistance, rescuer may administer prescribed medication if victim identifies the asthma attack and has a prescribed medication.
Anaphylaxis	Assist victim with epinephrine auto-injector.	If victim is unable to administer auto-injector, and if the rescuer is trained in its use and state law permits, administer the auto-injector for the victim.
Suspected heart attack	Call EMS and provide heart attack care for classic signs and symptoms of heart attack.	Call EMS and provide heart attack care for any victim with chest discomfort.
Hypothermia	Warm victim with blankets and other indirect methods; do not use active rewarming.	Warm victim with blankets and other indirect methods; use active rewarming if victim is far from care, such as placing victim near a heat source.
Heatstroke	Cool victim with water sponged or sprayed on the body or ice or cold packs around the body.	Cool victim by any means available, preferably through immersion to the chin in cold water.
Jellyfish stings	No guidelines.	Wash with vinegar for 30 seconds, then immerse in hot water for at least 20 minutes.
Poisoning	Call PCC for responsive victim; call EMS for unresponsive victim.	Call PCC for responsive victim; call EMS for unresponsive victim or any victim with signs of a life-threatening condition.
Poisonous snake bites	Previously only for coral snake bites, wrap entire extremity with snug elastic bandage.	For all poisonous snake bites, wrap entire extremity with snug elastic bandage.
Tooth knocked out	Place tooth in milk.	Clean would with saline solution or water; place tooth in milk (or clean water if milk is unavailable).

2010 Changes in Support (CPR, AED)		
Care Technique	**Previous Recommendations**	**New Recommendations**
Initial assessment	Check for responsiveness, then open the airway and check for normal breathing.	Check for responsiveness and simultaneously look for normal breathing.
CPR technique	Give 2 breaths before beginning chest compressions (ABC).	Begin CPR immediately with chest compressions (CAB).
Depth of compressions	1 1/2 to 2 inches in adult; 1/3 to 1/2 the depth of the chest in an infant or child.	At least 2 inches in an adult; at least 1/3 the depth of the chest in an infant (about 1 1/2 inches) or child (about 2 inches).
Rate of compressions	100 per minute	At least 100 per minute
AED for infants and children	Use AED with pediatric pads for child ages 1 to 8 years.	Use AED with pediatric pads for both infants and children up to age 8.

SECTION 9

APPENDIX

APPENDIX

LAWS AND REGULATIONS NOT FOUND IN THE SURFACE FOREMAN'S STUDY GUIDE

LAWS

Administration

45.1-161.1 Definitions.

Chief
Department
Director

45.1-161.2 Department continued appointment of Director.
45.1-161.3 Powers of Department
45.1-161.4 Powers and duties of Director.
45.1-161.5 Establishment of divisions; division heads.

45.1-161.6 Department to serve as lead agency for inspections undertaken subsequent to the issuance of a permit.

Mineral Mine Safety Act

Article 1:

45.1-161.292:2. Definitions

Abandoned area
Active areas
Blower fan
Booster fan
Cross entry
Experienced underground miner
Intake air
Main entry
Mineral
Panel entry
Permissible
Return air
Room entry
Underground mineral mine
Working place
Working section

45.1-161.292:3. Safety and health
45.1-161.292:4. Special safety rules.

Article 2:

All sections.

Article 3:

45.1-161.292:22.	Replacement of lost or destroyed certificates.

Article 4:

45.1-161.292:31	Fee to accompany application for license; fund; disposition of fees.
45.1-161.292:33	Denial or revocation of license.
45.1-161:.292:34	Operating without license; penalty.
45.1-161.292:35	Annual reports; condition to issuance of license following transfer of ownership.
45.1-161.292:37	Maps of mines required to be made; contents; extension and preservation; use by Department; release; posting of map.
45.1-161.292:38	When the Director may cause maps to be made; payment of expense.
45.1-161.292:39.	Making false statements; penalty.

Article 5:

All sections

Article 6:

45.1-161.292:53	Duties of mine inspectors.

Article 7:

45.1-161.292:54	Frequency of mine inspections.
45.1-161.292:55.	Evaluation of risks at mines.
45.1-161.292:56.	Review of inspection reports and records.
45.1-161.292:58.	Scheduling of mine inspections.
45.1-161.292:61	Duties of inspectors.

Article 8:

45.1-161.292:66	Injunctive relief.
45.1-161.292:68	Prosecution of violations.
45.1-161.292:69	fees and costs

Article 9:

45.1-161.292:71	Training programs.
45.1-161.292:72	Mineral mining safety training.

REGULATIONS

Chapter 35: Certification Requirements for Mineral Mining.

Part II: Minimum Certification Requirements.

4 VAC 25-35-50.	Underground foreman.
4 VAC 25-35-70.	Surface foreman, open pit (not applicable to drilling and blasting activities).
4 VAC 25-35-80.	Surface blaster.
4 VAC 25-35-90.	Underground mining blaster.
4 VAC 25-35-100.	Mineral mining electrician (electrical repairman).
4 VAC 25-35-110.	Mine inspector.
4 VAC 25-35-120	General mineral miner.

Chapter 40: Safety and Health Regulations for Mineral Mining.

Part I: Administrative Provisions – Surface and Underground

4 VAC 25-40-10. Definitions.
Abandoned mine
Abandoned workings
ACGIH
Auxiliary fan
Bridle
Escapeway
Hoist
Lay
Main fan
Mine opening
Refuse
Shaft

4 VAC 25-40-25 Purpose and authority
4 VAC 25-40-70. Approval procedure.
4 VAC 25-40-90. Documents incorporated by reference.

Part II: General Safety Provisions – Surface and Underground

4 VAC 25-40-240. Waste receptacles.
4 VAC 25-40-385. Mobile crane requirements for personnel hoisting
4 VAC 25-40-388. Rope requirements.

Part IV: Fire Prevention and Control – Surface and Underground

4 VAC 25-40-530. Distance of storage tanks from mine opening.
4 VAC 25-40-690. Fire-resistance building near underground openings.
4 VAC 25-40-710. Dust or gases.

Part V: Air Quality and Physical Agents – Surface and Underground

4 VAC 25-40-720. Employee exposure limits to airborne contaminants.
4 VAC 25-40-760. Silica compounds.

Part VI: Explosives – Surface and Underground

4 VAC 25-40-840. Mudcapping
4 VAC 25-40-850. Blasting near underground mines.
4 VAC 25-40-920. Electric detonators.
4 VAC 25-40-930. Non-electric blasting.

Part VII: Drilling – Surface and Underground

4 VAC 25-40-1060. Moving handheld drills.
4 VAC 25-40-1090 Rotary jet piercing equipment.
4 VAC 25-40-1095. Drill logs required for boreholes intended for blasting.

Part VIII: Boilers and pressure vessels

4 VAC 25-40-1280. Boiler equipment and maintenance.

Part IX: Mobile Equipment – Surface and Underground

4 VAC 25-40-1500. Securing electrically powered mobile equipment.
4 VAC 25-40-1520. Warning lights.
4 VAC 25-40-1590. Railroad equipment.
4 VAC 25-40-1610. Design of chute-loading installations.
4 VAC 25-40-1630. Anchoring of sizing devices.

Part XI: Travelways – Surface and Underground
4 VAC 25-40-1930. Crossovers.

Part XII: Electricity – Surface and Underground
4 VAC 25-40-2040. Trailing cables of mobile equipment.
4 VAC 25-40-2060. Running over cables.
4 VAC 25-40-2080. Making connections under load.
4 VAC 25-40-2090. Insulating wires and cables.
4 VAC 25-40-2100. Avoiding power lines.
4 VAC 25-40-2210. Electrical transmission wires.
4 VAC 25-40-2130. Shovel trailing cables.
4 VAC 25-40-2240 Frame grounding for trailing cables
4 VAC 25-40-2280. Dust-proof and waterproof electrical equipment.
4 VAC 25-40-2350. Trailing cables to be clamped.
4 VAC 25-40-2360. Storing surplus trailing cables.
4 VAC 25-40-2390. Lightning grounds.
4 VAC 25-40-2440. Protecting power lines.
4 VAC 25-40-2450. Bare power line precautions.
4 VAC 25-40-2480. Lightning arrestor for telephone circuits.
4 VAC 25-40-2490. Lightning arrestor for power circuits.

Part XIII: Materials Handling – Surface and Underground
4 VAC 25-40-2620. Riding loads or hooks.
4 VAC 25-40-2640. Handling of molten material.
4 VAC 25-40-2650. Overhead crane equipment.
4 VAC 25-40-2660. Overhead crane bridges.

Part XIV: Guards
4 VAC 25-40-2730. Protruding sets-crews.

Part XVI: Mining Near Gas and Oil Wells
4 VAC 25-40-5750. Notice of intent to mine near gas or oil wells.
4 VAC 25-40-5760. Application for mining near gas or oil wells.
4 VAC 25-40-5770. Mining plan.
4 VAC 25-40-5780. Approval to mine near plugged gas or oil wells.

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SECTION 10

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