

# THE PUNJAB MINING STAFF AND WORKERS TRAINING REGULATIONS, 1999

[11<sup>th</sup> June, 1999]

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# THE PUNJAB MINING STAFF AND WORKERS TRAINING REGULATIONS, 1999

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[11<sup>th</sup> June, 1999]

*In exercise of the power conferred upon him under Section 29 of the Mines Act, 1923, the Governor of the Punjab is pleased to make the following Punjab Mining Staff and Workers Training Regulations, 1999.*

**1. Short title and commencement.**- (a) These regulations may be called the Punjab Mining Staff and Workers Training Regulations, 1999.

(b) They shall come into force at once.

**2. Procedure.**- (1) The chief inspector shall at such intervals as he may deem fit notify training programs.

(2) The training programmes shall be conducted by the training officer.

Explanation:- "Training Officer" includes a person possessing the qualification of a Training Officer under the rules and especially authorized by the Chief Inspector to act as such.

(3) No person shall be employed in quarries or surface mining unless he has received training for at least six days in accordance with Schedule-I annexed to the regulations.

(4) No person shall be employed in underground mines unless he has received training for at least six days in accordance with Schedule-II annexed to these regulations.

(5) No person shall be employed in underground gassy coal mines unless he has received training for at least six days in accordance with Schedule-III annexed to these regulations.

(6) Persons who already stand employed in the mines shall not be allowed to continue in the employment unless they receive training in their respective trades in accordance with Schedule-IV to VII at such places as may be notified by the Chief Inspector.

(7) Notwithstanding any thing contained in these regulations of Chief Inspector may permit employment of such persons who could not receive training for reasons beyond their control to the subject to the conditions that the owner, agent or manager communicates the names of such persons to the Chief Inspector within seven days from the date on which such persons are employed.

(8) Within 30 days from the commencement of these regulations every owner, agent or manager shall nominate at least one employee from each of his mine to receive training in accordance with Schedule IX annexed to these regulations.

**3. Maintenance of record.** - (1) every owner, agent or manager shall maintain a discipline-wise record of persons required to receive training and of those who have received training.

(2) The chief inspector shall maintain discipline –wise- record in respect of:-

<sup>1</sup> Noti. Dev-II/10-4/98, dated 11.06.1999. The Punjab Gaz. Pt. I, July 7, 1999, p. 359-37.

- (i) all persons who intend to receive training; and
- (ii) all persons who have received training and have been issued certificates in token thereof.

**4. Place of training.-** As far as possible the training shall be imparted at a centrally located mine, or such other place as may be fixed by the Chief Inspector.

**5. Medium of instruction.-** The medium of instruction shall be Urdu or the local vernacular.

**6. Training on duty.-** Persons employed in any mine and required to undergo training shall be relieved by their respective employers for the training. During the period of training such persons shall be treated as on duty.

**7. Non attendance of trainees.-** Every person required to undergo training shall complete such training. Provided that if a person is prevented from attending such training by circumstances beyond his control he shall complete the training at such subsequent occasion as the Chief Inspector may determine.

**8. Procedure of nomination of trainees.-** (1) Every person required to undergo training shall submit the particulars on Form-I within the one month from the date which he is required to do so by the Chief Inspector.

(2) A person once imparted a particular category of training shall be re-nominated for the refresher course to receive training in accordance with Schedule -VIII after such period as Chief Inspector may fix.

(3) In case of any dispute between the employer and employee regarding the nomination of a person for training, the decision of the Chief Inspector shall be final.

**SCHEDULE-I**  
**See Regulation 2 (iii)**

**Course of Theoretical and Practical training for surface and open cast workers**

1<sup>st</sup> day (Surface):

Talk: Organisation, time keeping the need for discipline and punctuality, other matters of general interest. Training in First Aid.

Visit: Attendance room. Pit Head bath, Canteen, Rest shelter.

2<sup>nd</sup> day (Surface):

Talk: Rules, Standing orders, etc. in force at the mine, safety in the vicinity of surface machinery. Training in First Aid.

Visit: Tramway and sidings, Haulage rooms, Electrical gears, workshop.

3<sup>rd</sup> day (Surface):

Talk: Benching in quarries. Dressing of overchanges, Fencings First Aid and Hygiene.

Visit: Quarries, Medical Centres, Practical Work, Tub Manipulations, Coupling, Trimming, Locking, re-railing of tubs.

4<sup>th</sup> day (Surface):

Talk: Shotfiring and safety regulations Training in First Aid.

Visit: Practical demonstration of taking shelter, etc.

5<sup>th</sup> day (Surface):

Talk: Legislation and duties of work persons. Training in First Aid

Visit: "What's wrong".

6<sup>th</sup> day:

Talk: Mine official and their duties, oral test.

**SCHEDULE II**  
**See Regulation 2 (iv)**

**Course of Theoretical and Gallery training for underground workers**

1<sup>st</sup> day:

Talk: Method of transport below ground, signaling manholes and other safety appliances on haulage roads. Training in First Aid.

Visit: Underground pit bottom, traveling roadway, second outlet, haulage ramming roadways, station and fencing below ground.

Practical Work: Tub manipulation, coupling, tramming locking, rerailing of tubs and signaling, laying of pipes and track.

2<sup>nd</sup> day:

Talk: Face work, roof control, testing of roof, support regulation.

First Aid and Hygiene. Training in First Aid.

Visit: Underground working faces, underground latrines, First Aid stations.

Practical Work: Prop setting, chock building and withdrawal.

3<sup>rd</sup> day:

Talk: Ventilation, lighting, legislation and duties of work person.

Training in First Aid.

Visit: Underground ventilation and lighting devices, fan houses, air crossing, stopping, regulator, doors etc.

Practical Work: Electric brattices, ventilation of blind ends, practical demonstration of fire fighting devices, detection of noxious gases.

4<sup>th</sup> day:

Talk: Shotfiring and safety regulation, causes and prevention of fire underground care of lamps, Training in first Aid.

Visit: Underground practical demonstration of taking shelter, etc.

Practical Work: Building of sand bag stoppings.

5<sup>th</sup> day:

Talk: Mine gases (Particularly carbon monoxide, carbon dioxide and methane) and dangers there from. Testing for the same. General revision. Training in First Aid.

Practical Work: Cleaning of galleries.

6<sup>th</sup> day:

Talk: Mine Official and their duties, oral test.

Visit: Underground "What's Wrong".

### **SCHEDULE III** **See Regulation 2 (v)**

#### **Course of special additional training for entrants to gassy coal mines**

1<sup>st</sup> day:

Talk: Dangers of inflammable gas. Effects of inflammable gas in different percentage. Gas caps difference between combustion and explosion. Afterdamp, its effects. Method of testing for inflammable gas with flame safety lamp.

Demonstration: Gas Caps, difference between combustion and explosive.

Visit: Visit to safety lamps cabin to see how lamps are maintained, cleared etc and to study construction of safety lamps.

2<sup>nd</sup> day:

Talk: Principle of construction of flame safety lamps and of flame proof electrical equipment. Assembly of flame safety lamps. Care of safety lamps during use, dangers of opening or tampering with safety lamps.

Demonstration: Effect of wires gauge on flame.

Practical Work: Testing for gas.

Visit: Visit to workshop to see flame proof equipment.

3<sup>rd</sup> day:

Talk: Duties of workers in gassy mine and where inflammable gas exists, dangers of smoking, contrabands..

Visit: Visit (1) to lamp cabin to see arrangements for checking lamps before issue and after receipt and (2) to the mine entrances to see arrangement for checking safety lamps and for searching of contrabands.

Practical Work: Cleaning and assembling safety lamps.

4<sup>th</sup> day:

Talk: Explosion and health hazards from dust. Methods of suppressing dust. Water sprays. Cleaning and stone dusting. Wet cutting, water drilling, use of respirators, occurrences of inflammable gas method of removing gas, necessity for good ventilation at the face, ventilation devices.

Visit: Underground visit to see dust suppression arrangements and measure. Surface and underground visit to see ventilation devices.

Practical Work: Erection of brattices. Ventilation of doors and regulators.

5<sup>th</sup> day:

Talk: Dangers of shotfiring gassy mines.

Precaution: Underground visit to see shot firing.

6<sup>th</sup> day:

General Revision. Oral test.

**SCHEDULE IV**  
**See Regulations 2 (vi)**  
**Course of Training for Timberman**

**Training First Aid given to every trainee who has not already undergone such training**

1<sup>st</sup> day:

Talk: Type of rocks and their characteristics. Dangers from fall of ground. Need for artificial support. Use of protective equipment.

Talk: Practical Work, handling and transport of timber including lowering in inclined and shafts. Correct methods of lighting and shifting, stacking of timber.

Talk: Different materials for support, their strength and characteristics,  
Application, fire danger from timber and cuttings.

2<sup>nd</sup> day:

Talk and Practical Work:

Tools for Timberman, their selection, care and maintenance,  
Sylevestor prop withdrawal.

3<sup>rd</sup> day:

Talk: Type of support in galleries and drives, Support of faulted, disturbed and weak grounds, clearing of falls of roof and erecting supports, Roof support, Side support.

Talk and Practical work:

Training Measurements form putting supports, Selection of timber size, Preparing lids, Laggings and pickings.

4<sup>th</sup> day:

Talk: System of support in depillaring areas/stopes and longwall faces, System timbering Rules both in development and depillaring area.

Talk and Practical Work:

Sawing of timber, Erection of short props and cogs, withdrawal of supports.

5<sup>th</sup> Day:

Talk: Type of supports in shafts (including sinking shafts), raists and winzes, repair of such supports, Erection of barricades, Erection of brattices and temporary stopping, Erection of fences.

Talk and Practical Work:

Erection of tall props and cogs, Lagging of sides.

6<sup>th</sup> Day:

Talk: Maintenance of supports, Tightening, Testing of roofs and sides, Typical accidents in timbering and to timber men.

Talk and Practical Work:

Erection of timber on stear grading and supporting irregular places, Miscellaneous jobs for timber men.

## **SCHEDULE V** **See Regulation 2(vi)**

### **Course of Training in the handling and use of explosives**

1<sup>st</sup> Day:

Talk: What is an explosive? General composition of explosives, Differences between low and high explosives and their firings, Safety and its burning speed.

2<sup>nd</sup> Day:

Talk: High explosive, their detonation, Electrical short firing.

3<sup>rd</sup> Day:

Talk: Danger from explosives, charging and firing of shots, Clearing of fumes produced during shortfiring.

4<sup>th</sup> Day:

Talk: Danger from blasting in gassy mines, Cracks in shot holes, permitted explosives.

5<sup>th</sup> Day:

Talk: Dangerous nature of explosive, Care in handling explosives, Taking shelter, Storage of explosives on surface and below ground handling or of explosives, Return of unused explosive.

6<sup>th</sup> Day:

Talk: General revision and discussion.

**SCHEDULE VI**  
**See Regulation 2(vi)**

**Course of training of shot firing**

1<sup>st</sup> Day:

High and low explosives, Difference between them, their construction.

2<sup>nd</sup> Day:

Short firing accessories. Safety fuse and its burning speed, Detonators.

3<sup>rd</sup> Day:

Provision of regulation etc. relating to transport handling and use of explosives.

4<sup>th</sup> Day:

Storage of explosives, both above and below ground. Issue of explosives, Return of unused explosives.

5<sup>th</sup> Day:

Correct drilling and placing of shot holes. Charging and firing of shots, shown out shots, Taking shelter.

6<sup>th</sup> Day:

Danger from explosives in gassy mines, Permitted explosives, Precautions during shot firing in gassy mines, Dangers from cracks in shot holes.

7<sup>th</sup> Day:

Dealing with misfires, Provisions of regulations relating to duties of shot fires.

8<sup>th</sup> Day:

Examining working places and roadways after shot firing. Clearing road ways of dust and fumes after shot firing.

9<sup>th</sup> Day:

Firing of shots simply and in rounds, use of delay action detonators, Testing of circuits.

10<sup>th</sup> Day:

Blasting with Aluminum Nitrates, Fuel Oil explosives, Precautions.



11<sup>th</sup> Day:

Heavy blasting in open cast mines, Blasting with liquid oxygen precautions.

12<sup>th</sup> Day:

General revision and discussion, Writing of reports.

**SCHEDULE VII**  
**See Regulation 2(vi)**

**Course of training in gas-testing**

Demonstration to be arranged with every talk and each talk to be followed by discussion. The duration of each talk and discussion to be not less than two hours.

- 1<sup>st</sup> Talk: Physical and chemical properties of inflammable gas, occurrence of inflammable gas, Gas outbursts, Danger from inflammable gas in different percentages, Difference between combustion and explosion.
- 2<sup>nd</sup> Talk: Other mines gases: their properties and effects. After damp, its composition and effects.
- 3<sup>rd</sup> Talk: What makes a safety lamp, safe? Construction and assembly of safety lamps, both of flame and electric type, Care of safety lamp, Opening, cleaning, assembling and testing of safety lamps.
- 4<sup>th</sup> Talk: Method of Testing for inflammable gas with flame safety lamps, Gas caps, Accumulation and percentage tests, Precautions where gas is present.
- 5<sup>th</sup> Talk: Provisions of regulations relating to safety lamps and to the presence of inflammable gas, Other means of testing for inflammable gas, General revision and discussion.

**SCHEDULE VIII**  
**See Regulation 8**

**Course of refresher training**

(Each talk to be followed by discussion. Duration of each talk and discussion to be not less than two hours.)

**For surface / open cast workers.**

1<sup>st</sup> Day:

- Talk: 1: Mine Organizations, time keeping, need for discipline and punctuality and other matters of general interest.
- Talk: 2: Rules, standing orders in force at the mine, Safety in the vicinity of machinery.
- Talk: 3: Benching in quarries, Dressing of overhangs, Fencing First Aid and Hygiene.

**Additional for underground workers.**

2<sup>nd</sup> Day:

- Talk: 4: Dangers from haulage, Manholes and other safety appliances signaling.

Talk: 5: Testing or roof, Dressing of roof and overhangs, Supports, Chocks, bars and props.

Talk: 6: Ventilation, Control devices, Danger from old working, Causes and prevention of fires, Noxious gases.

3<sup>rd</sup> Day:

Talk: 7: Dangers of shot firing, Safety precautions.

Talk: 8: Legislation, Duties of workman, Fencings.

Talk: 9: General revision and discussion.

### **Additional for gassy mine workers.**

4<sup>th</sup> Day:

Talk: 10: Occurrence of inflammable gas, Danger from inflammable gas, Combustion and explosion, After camp, its effects.

Talk: 11: Principle of construction of flame safety lamps and of flame proof equipment, Can caps, Methods of testing for gas.

5<sup>th</sup> Day:

Talk: 12: Duties of worker where inflammable gas exists, Control and danger of tampering with safety lamps, Methods of removing gas, Necessity of good ventilation at the face.

Talk: 13: Explosion and health hazards from dust, Methods of suppressing dust.

Talk: 14: Dangers of shot firing in gassy mines, Precautions.

6<sup>th</sup> Day:

Talk: 15: General revision and discussion.

## **SCHEDULE IX See Regulation 2(VIII)**

### **Course of training for mine supervisors**

1<sup>st</sup> Day:

- Different type of rocks and their formation.
- Formation and type of coal (ranking) types of coal seams.
- Introduction to open pit and underground mining methods.
- Room and Pillar and Long wall mining methods.

2<sup>nd</sup> Day:

- Type of materials used in artificial supports.
- Support for weak and strong rocks.
- Practical exercise.

3<sup>rd</sup> Day:

- Method of timbering in vertical coal seam and strong strata.
- Support in the goaf area.
- Practical exercise (erection of chocks in goaf area).

4<sup>th</sup> Day:

- Rules and Regulations of roof support.
- Types of explosives and in mining.
- Manufacturing of black powder and its proper use.
- Different types of explosive other than black powder.
- Safety measures for the transportation of explosive.

5<sup>th</sup> Day:

- Method to store the explosive.
- Points to be considered before drilling in rocks.
- Different drilling patterns in the underground blasting.
- Geometry of Bench blast.
- Practical exercise (drilling and blasting).

6<sup>th</sup> Day:

- Formula to get the required size of stones.
- Types of equipments used for blasting.
- Modern methods of quarrying.
- Practical exercise.

7<sup>th</sup> Day:

- Type and construction of the ventilation fans used in mines.
- Methods of installation of ventilation fans in different parts of underground mines.
- Type and construction of water pumps.
- Type and construction of compressors used in mines.
- Method of installation of water pumps in the mines.
- Practical exercise.

8<sup>th</sup> Day:

- Different types of haulages used in mines.
- Different types of electric motors used in mines.

- Construction of oil flame safety lamp and its uses in mines.
- Different types of wire ropes used in mines and methods of its examination.
- Practical exercise.

9<sup>th</sup> Day:

- Different types of electric safety lamps used in mines.
- Changing and maintenance of lamps.
- Importance of fresh air in the mines.
- Requirement of ventilation.
- Artificial and mechanical ventilation.
- Practical exercise.
- Factors affecting the mine atmosphere.

10<sup>th</sup> Day:

- Reasons of mine fires and methods to avoid spontaneous combustion.
- Methods of detection of mines gases.
- Ventilation standard and the equipment used for its measurement.
- Practical exercise.

11<sup>th</sup> Day:

- Calculation of cost of production.
- Responsibilities of the mine owner, agent, manager and sirdar under the Mines Act.
- Method of inspection of mines and maintaining the relevant record.
- Regulations regarding the use of explosives in the mines.
- Regulations related with mine fire, accidents, working plans and safety equipments.

12<sup>th</sup> Day:

- Practical Exercise.
- Timbering in mines.
- Blasting in mines.

13<sup>th</sup> Day:

- Introduction to Rescue Station, its organization and activities.
- Introduction of Mines Rescue equipments.

14<sup>th</sup> Day:

- Introduction to the principles of close and open circuit breathing apparatus, complete Description of BG-174 and Travox-120.
- Gallery Training using breathing apparatus Travox-120.
- Washing, assembling and testing of apparatus.
- Properties of the atmosphere, Atmospheric pressure, Baro-meter and water guage, Oxygen deficiency and treatment.
- Practical training using minimum equipment.

15<sup>th</sup> Day:

- CO<sub>2</sub> absorption-Comparison of Soda Lime and Alkali canister.
- Nitrogen accumulation - Danger associated with compressed oxygen, oil, grease, ignition etc.
- Gallery Training using breathing apparatus Travox-120.
- Washing, assembling and testing f apparatus.
- Brief description of CH<sub>4</sub>, CO<sub>2</sub>, N<sub>2</sub>, H<sub>2</sub>S, NO<sub>2</sub>, SO<sub>2</sub>, H<sub>2</sub> Allocate each trainee the overnight study of a gas.

16<sup>th</sup> Day:

- Description of fire damp, black damp, Oil flame safety lamp, Metheno-meter.
- Gallery Training using breathing apparatus BG-174.
- Washing, assembling and testing of apparatus.
- Demonstrate about use of oxygen Therapy and Resuscitation unit film on resuscitation.

17<sup>th</sup> Day:

- Use of instruments, oil flame safety lamp, Methanometer and Multi gas detector.
- Gallery Training using breathing apparatus BG-174.
- Washing, assembling and testing of apparatus.
- Description of CO filter (Self Rescuer).

18<sup>th</sup> Day:

- General mode of dealing with fire, description of fire extinguisher-film on fire-fighting.
- Gallery Training using breathing apparatus BG-174 and practical training of fire-fighting using fire extinguisher.
- Washing, assembling and testing of apparatus.

19<sup>th</sup> Day:

- Cause and effect of gas and coal dust explosion, stone dusting and stone dust barriers, advantages and disadvantages.
- Gallery Training using breathing apparatus BG-174 in fire and smoke. Washing, assembling and testing of apparatus.
- Humidity and its effects - Hygrometer and Velometer, underground communication.

20<sup>th</sup> Day:

- Mine ventilation, use of Anemo-meter.
- Gallery Training using breathing apparatus BG-174.
- Washing, assembling and testing of apparatus.
- First Aid and Mine Stretchers.

21<sup>st</sup> Day:

- Mine Rescue Rules pertaining to fresh air base, checking the apparatuses of members, order of travel and procedure in mine emergency.
- Gallery Training using breathing apparatuses.
- Ming plans reading, code of signs of signals.

22<sup>nd</sup> Day:

- Fire stopping-taking of gas samples in irrespirable atmosphere, gas sampling behind the stopping.
- Gallery Training using breathing apparatus BG-174.
- Washing, assembling and testing of apparatus.
- Revision of course.

23<sup>rd</sup> Day:

- Practical rescue training with BG-174 at one of the coal mines in Salt Range.

24<sup>th</sup> Day:

- Practical rescue training with BG-174 at one of the coal mines in Salt Range.

25<sup>th</sup> Day:

- Examination.

**FORM – I**  
**(See Regulations 3(h))**

Mr. \_\_\_\_\_, whose particulars are given below is hereby nominated for the training course (as required under Training Regulations), w.e.f. \_\_\_\_\_ to \_\_\_\_\_:-

1. Name: \_\_\_\_\_

2. Father's Name: \_\_\_\_\_
3. Age of the Candidate: \_\_\_\_\_
4. NIC Card No. \_\_\_\_\_
5. Village: \_\_\_\_\_
6. Thana (Police Station): \_\_\_\_\_
7. Post Office: \_\_\_\_\_
8. Tehsil: \_\_\_\_\_
9. District: \_\_\_\_\_
10. Province: \_\_\_\_\_

Name of Firm:

Signature of the Owners/Manager/Agent.