



*New legislation in South Africa
regarding Emergency
Preparedness and Response*

3rd International Mines Rescue
Conference
Nashville – Tennessee

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Mines Rescue Services**



The employer's obligation to perform rescue operations

- The Mine Health and Safety Act, No. 29 of 1996 imposes an overall obligation on the employer at a mine to provide a working environment that is safe and healthy, as far as reasonably practicable



The employer's obligation to perform rescue operations

- In order to comply with the obligation to provide a safe working environment, the employer must ensure that:
 - Prescribed First aid provisions are available both on surface and underground
 - Systems and procedures are implemented in the event that rescue operations are to be undertaken
 - That the appropriate health and safety equipment and facilities are supplied to employees.



Relevant provisions of the Mine Health and Safety Act

- Regulation 16.1(1) provides that an employer must ensure that a competent person reports to the employer, at appropriate intervals determined in accordance with the mine's risk assessment, on the adequacy of escape and rescue procedures at the mine relating to explosions, fires and flooding.



Relevant provisions of the Mine Health and Safety Act

- Regulation 16.2 imposes an obligation on an employer to issue self-contained self-rescuers to employees in certain circumstances
- Regulation 16.2(2) applies to every other mine other than a coal mine. This regulation provides that if a risk assessment shows that there is a significant risk that employees may be exposed to irrespirable atmospheres, an employer must ensure that no person enter such an area without a body worn self –contained self-rescuer.



Relevant provisions of the Mine Health and Safety Act

- Regulations 16.2(3), 16.3 and 16.4 provides that:
 - A SCSR supplied to a full time employee, must be allocated for that employee's sole use
 - The employer must ensure that no defective SCSR is issued for use to any employee
 - The employer is obliged, on an annual basis, to have a representative sample of the SCSR's at the mine tested by an organisation accredited to do so in terms of the South African National Accreditation System



*New legislation approved by MHSC
on 26 January 2007*

- Chapter 16 – Emergency Preparedness and Response
- Guideline for the compilation of a mandatory code of practice for Emergency Preparedness and Response



Chapter 16 - Definitions

- “Emergency” – means a situation, event or set of circumstances at a mine that could threaten the health or safety of persons at or off the mine, and which requires immediate remedial action, such as the evacuation, rescue or recovery of persons, to prevent serious injury or harm, or further serious injury or harm, to persons



Chapter 16 - Definitions

- “Breathing apparatus” – means an apparatus, which renders the user independent from breathing from the atmosphere for a minimum of two (2) hours.



Employer Responsibility – Mine Rescue Teams

- Reg. 16.5(1) The employer at every underground mine must:-
- (a) provide and maintain, readily available at the mine, mine rescue teams, consisting of at least five competent persons, per mine rescue team, in the following minimum proportions determined by the maximum number of persons who could be underground at any one time -



Employer Responsibility – Mine Rescue Teams

- (i) where there could be between 100 and 1100 persons underground, at least 1 mine rescue team
- (ii) 1101 and 3600, at least 2 teams
- (iii) 3601 and 8100, at least 3 teams
- (iv) more than 8100, at least 3 teams and at least 1 additional team for every additional 6300 persons who could be underground



Employer Responsibility – Mine Rescue Teams

- (b) Sufficient breathing apparatus
- (c) Enter into a contract with a service provider
- (d) Immediately notify service provider should an emergency occur that may require use of teams or service provider



Chapter 16

- 16.5(2) Mines Rescue Service Provider
- 16.5(3) Licence to Practice:-
 - Keep a register of persons found competent to practice as rescue team members by the mines rescue service provider
 - Implement and maintain system to issue licences to practice to persons who meet criteria and must include at least the following:



Licence to Practice

- (i) has not attained the age of 46
- (ii) been declared medically fit in terms of Code of Practice on Minimum Standards of Fitness to Perform work at a Mine
- (iii) Undergone and passed Heat Tolerance Test initially and at intervals not exceeding 24 months



Licence to Practice

- (iv) Undergone refresher training at intervals not exceeding 3 months. At least 2 trainings in atmosphere filled with smoke
- (v) Passed Work Load Training initially and thereafter at intervals not exceeding 12 months
- (c) Suspend or revoke any such licence



Deployment of Mines Rescue Teams

- 16.5(4) The employer and rescue service provider must take reasonable measures to ensure that teams are deployed as soon as possible
- 16.5(5) No employer or mine rescue service provider may allow any team member to be deployed unless in possession of valid licence to practice and passed pre-operational medical



Chapter 22

- Competent person means a person who:
 - (i) has passed a course of training approved for this purpose by the Chief Inspector of Mines or
 - (ii) has been assessed and found competent against applicable unit standards, skill programme and/or qualification recognised for this purpose by the MQA



Code of Practice

Aspects to be addressed in the COP

- Emergency Preparedness Measures
 - Detection and early warning systems
 - Communication systems
 - Emergency medical care
 - Mine evacuation and escape procedures
 - Training and awareness



Code of Practice

- Emergency Response Measures
 - Rescue and response capabilities
 - Management of emergencies
- Reporting and Recording





*What is the impact on Mine
Rescue Service Providers?*

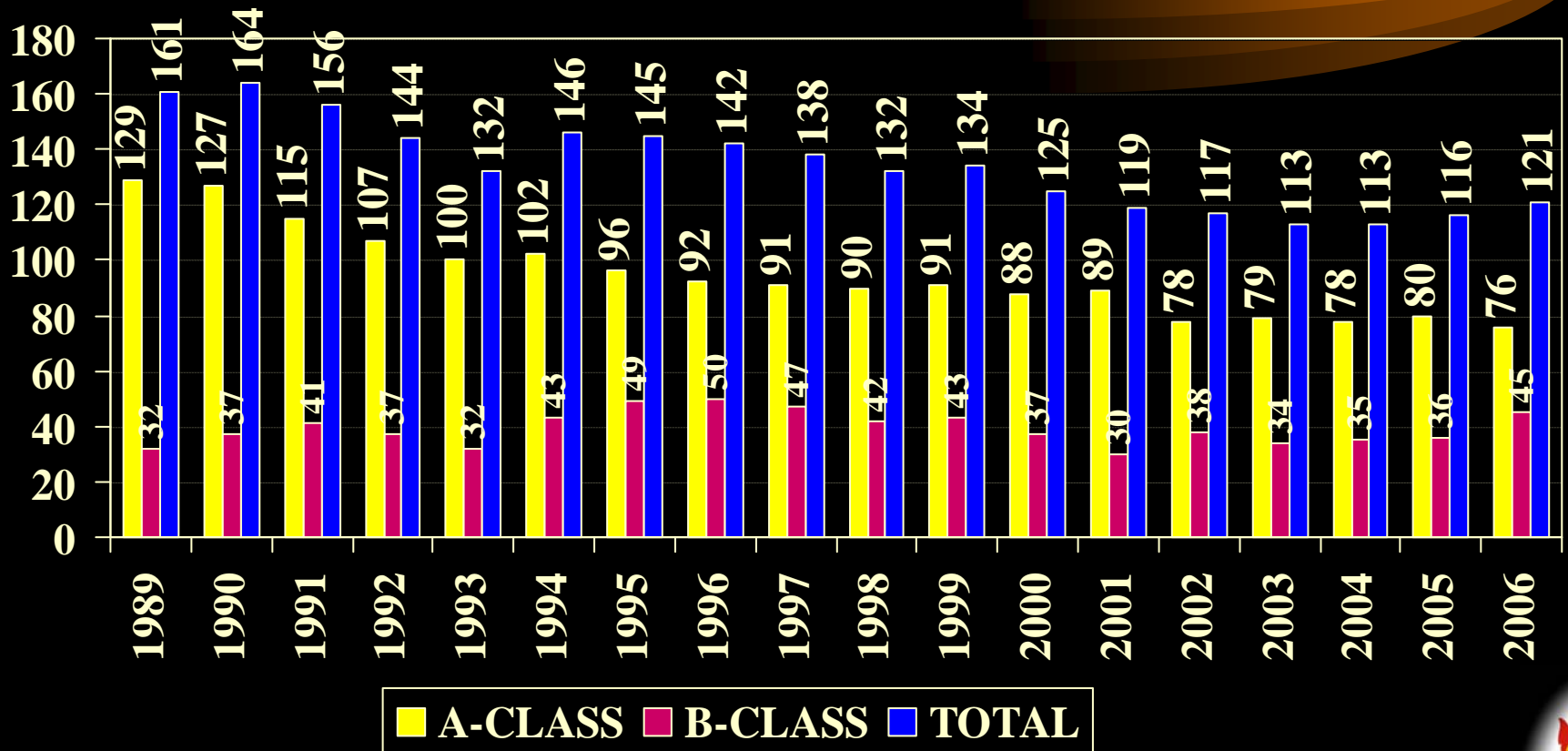


M.R.S. Membership Scheme

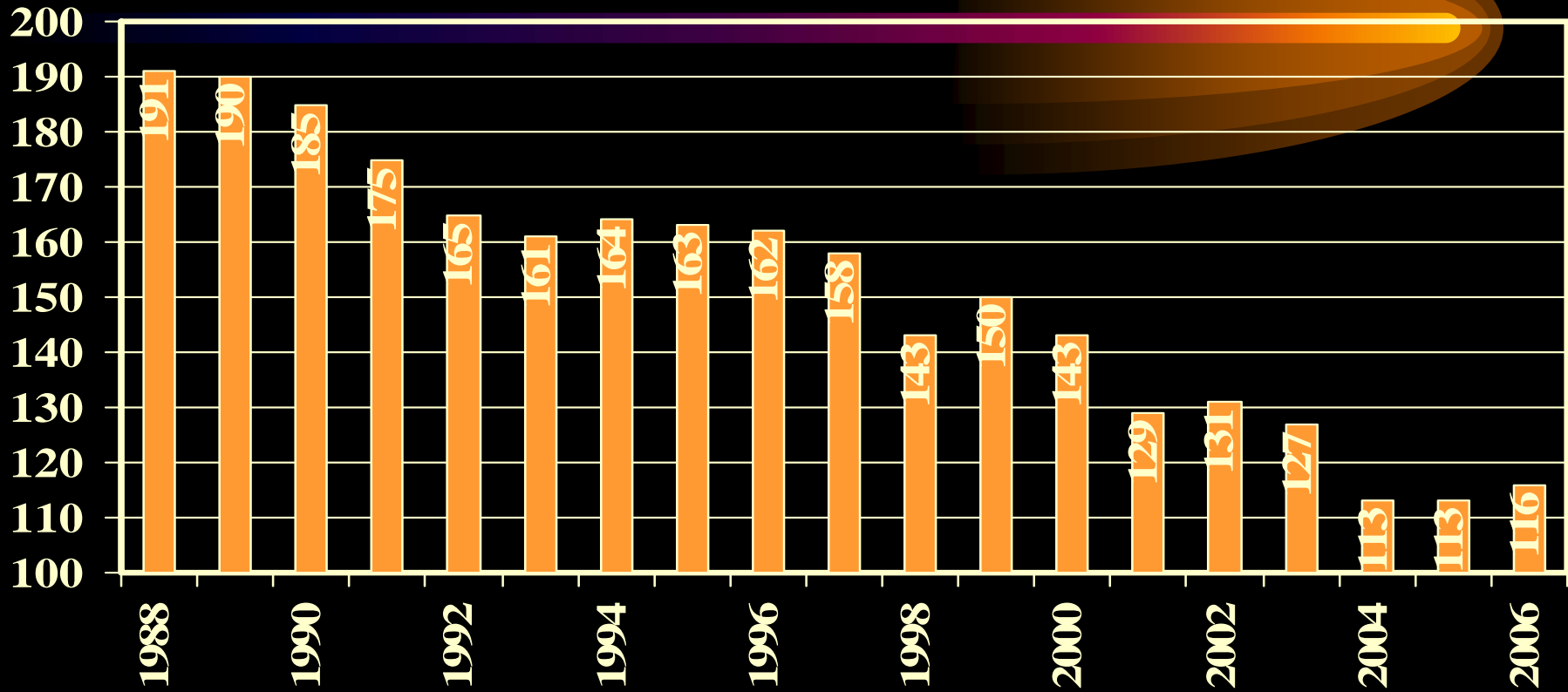
- “A” Class member
 - Maintains own team
- “B” Class member
 - Does not maintain own team
 - Can call for assistance from neighbouring mines through Mines Rescue Services.



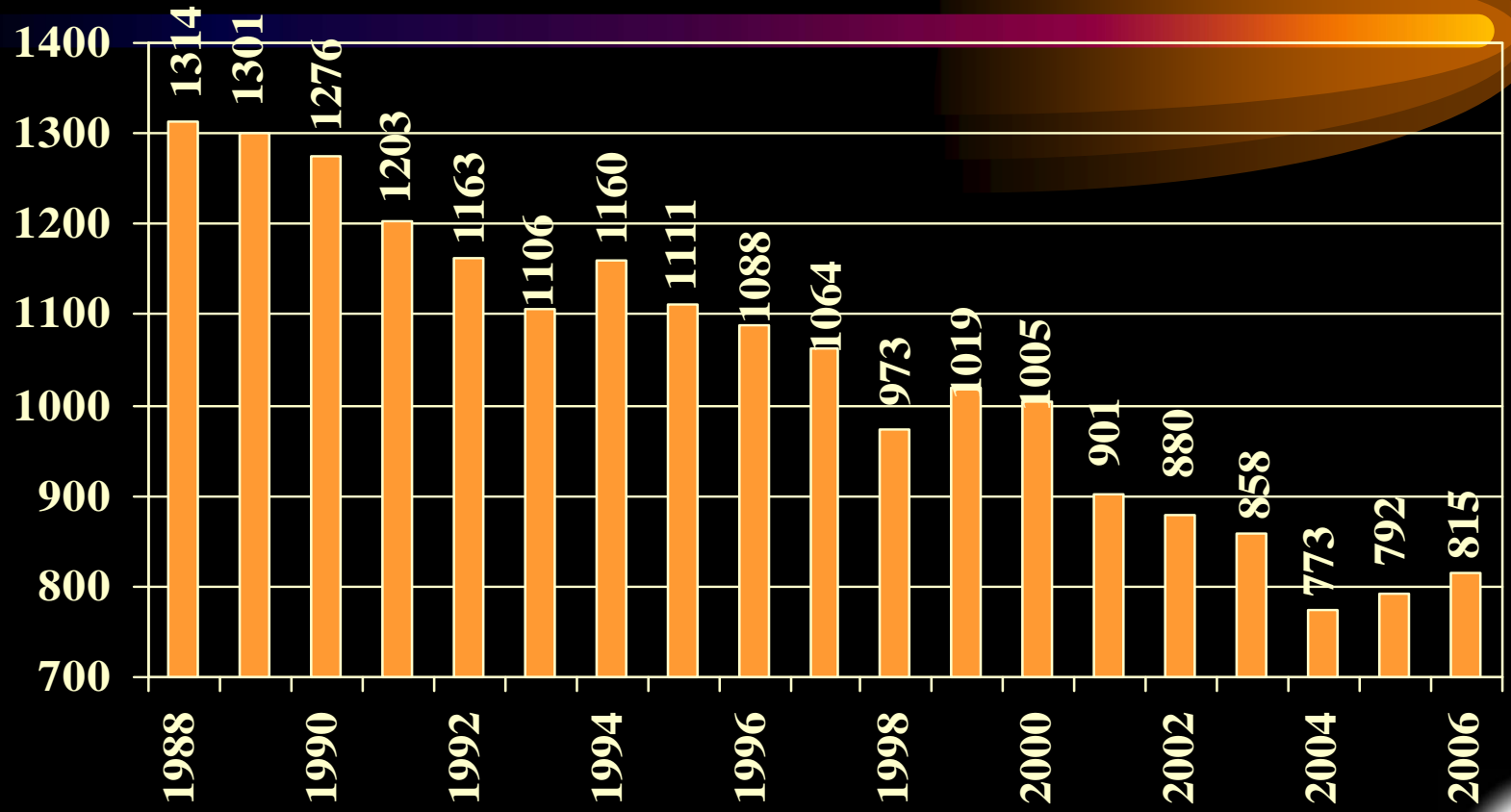
M.R.S. Member Mines



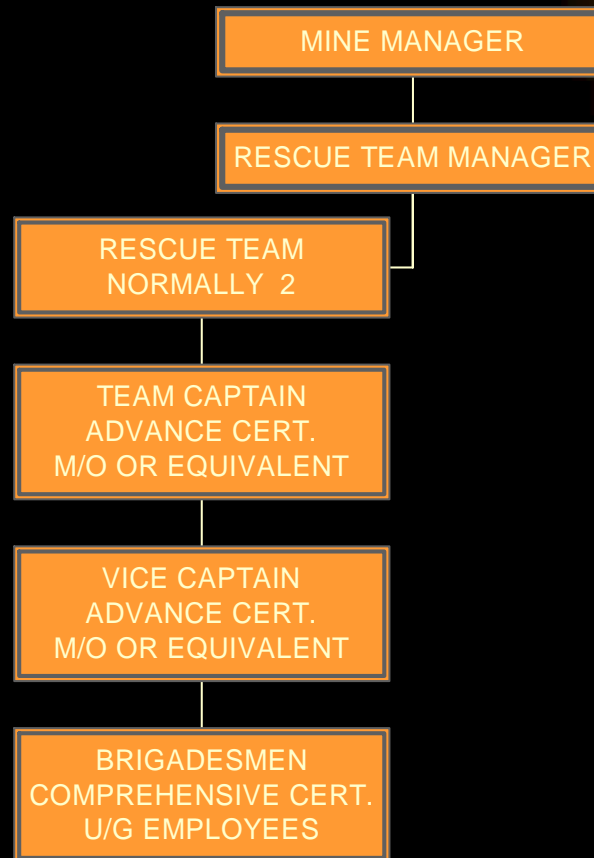
MRS - Rescue Teams



MRS Brigade Strength



Rescue Team Structure



Requirements for Brigadesmen

- Volunteer mine employees selected by mine management
- Cool of temperament, responsible, used to discipline and experienced in underground work
- Aged between 21 and not exceeding 46



Requirements for Brigadesmen

- Medically examined prior to undergoing the Heat Tolerance Test
- Volunteers must attend a five day initial training course



Physical Criteria of Brigadesmen

- Medical Examinations (Licence to Practice)
 - Initial
 - Periodical
 - Pre-operational
- Heat Tolerance Test
- Work Load Test



Initial Course



- 5 day practical and theoretical course on the use of breathing apparatus and fire fighting techniques
- Candidates to complete Work Load Test at end of course



Advance Course



- Three day course
- Provide effective leadership
- A pre-requisite for all captains and vice captains
- Focus on risk assessment and management principles



Quarterly Training



- 1st and 4th quarter
Practical in simulated mine
- Each alternate year in 2nd quarter - Heat Tolerance Test
- 3rd quarter
Work Load Test



Heat Tolerance Test



- 24 Steps per minute
- 31,7 °C W/B
- 33,2 °C D/B
- One hour
- Rectal temperature
- $\leq 39.0^{\circ}\text{C}$ heat tolerant.
- $\geq 39.1^{\circ}\text{C}$ not heat tolerant



Work Load Test

- Scientifically developed test to measure the work load capacity of brigadesmen in a pre-determined time.



Work Load Training



Work Load Training



What is the impact on the mining industry?

- Compliance with Regulations
- Implement a Code of Practice



Compliance with Regulations

- Determine the number of rescue teams
- Identify / Employ / Train rescue teams
- Provide Breathing Apparatus
- Enter into a contract with service provider
- Notify in the event of emergency



Code of Practice

- Conduct a H I R A of all aspects relating to Emergency Preparedness and Response
- Draft the CoP encompassing the above risks and incorporate the following minimum standards



Code of Practice

- Detection and Early warning Systems
- Communication Systems
- Emergency Medical Care
- Evacuation and Escape procedures
- Places of Safety
- Employee Training



Code of Practice

- Rescue and Response capabilities
- Procedures for the management of emergencies
- Control Rooms
- Reporting and recording



Code of Practice

- Review of CoP after every emergency
- Review of CoP after every operational change



In Summary

- Some medium and most large mines
 - Rescue Teams in place
 - Risks identified
 - Emergency procedure in place
 - Lack Codes of Practice



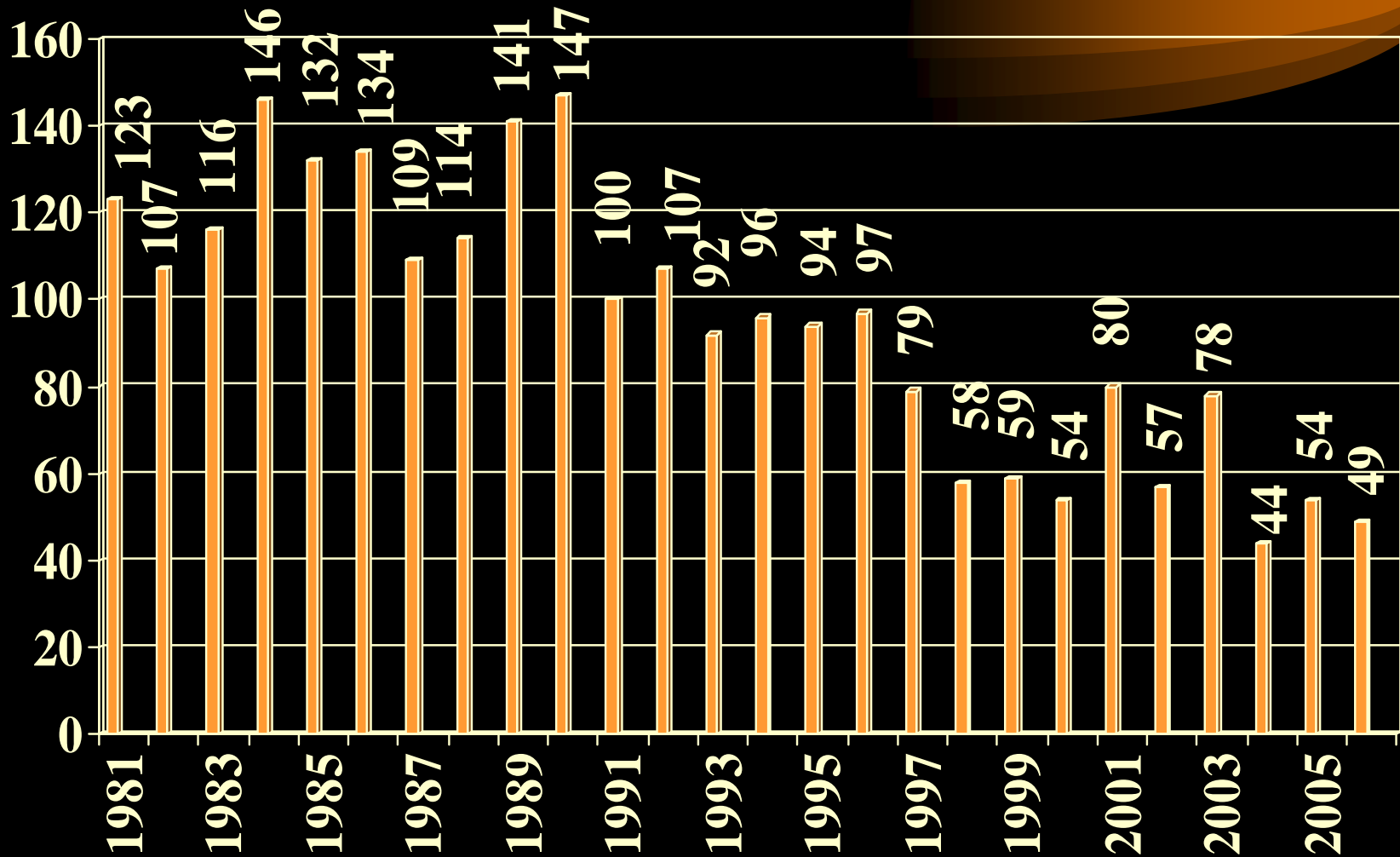
In Summary

- Medium to Small mines
 - Insufficient Rescue Teams due to resources
 - No risk assessment done
 - Little or no emergency procedures
 - Lack Codes of Practice



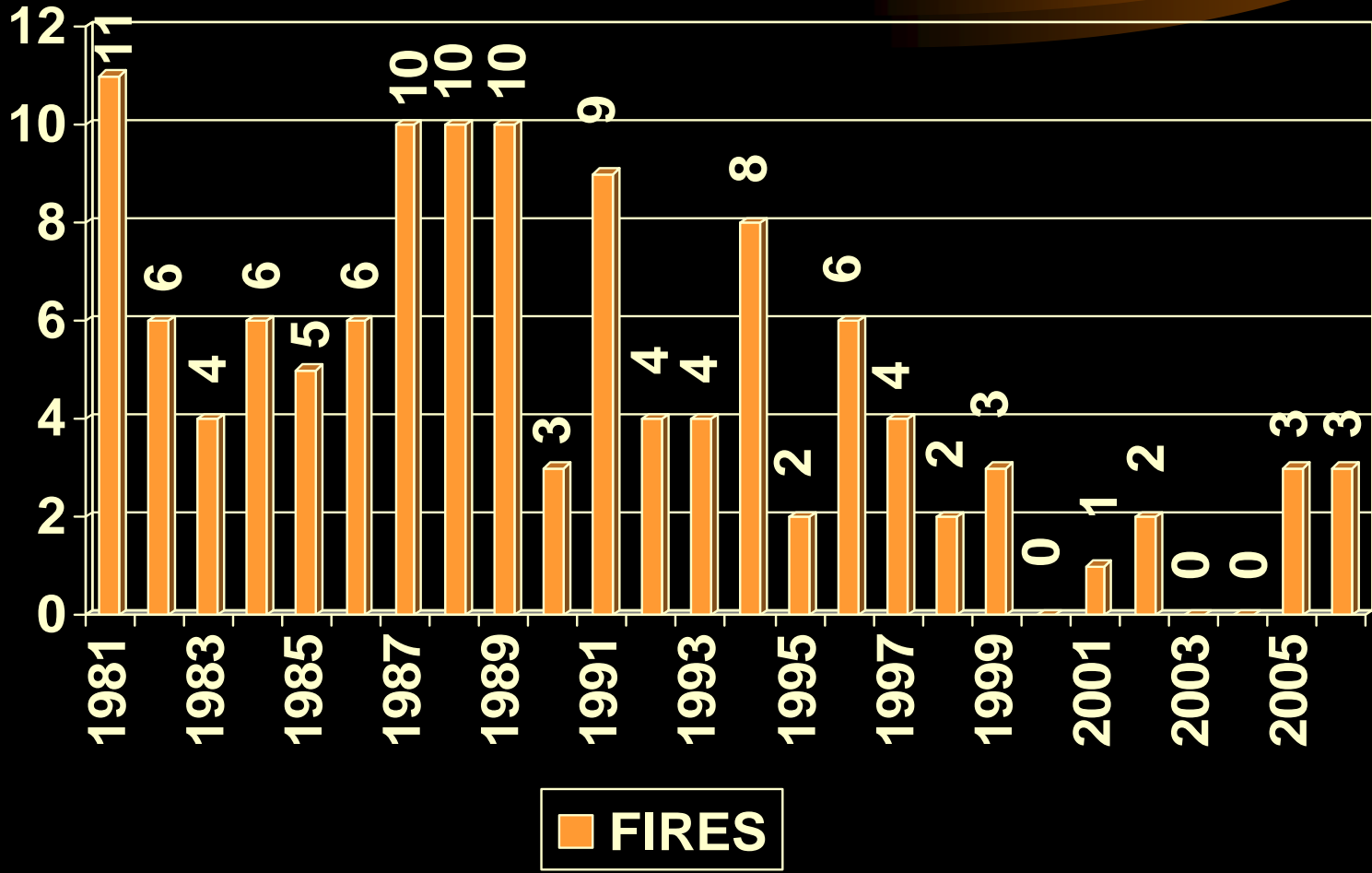
METALLIFEROUS FIRES

1981 – 2006



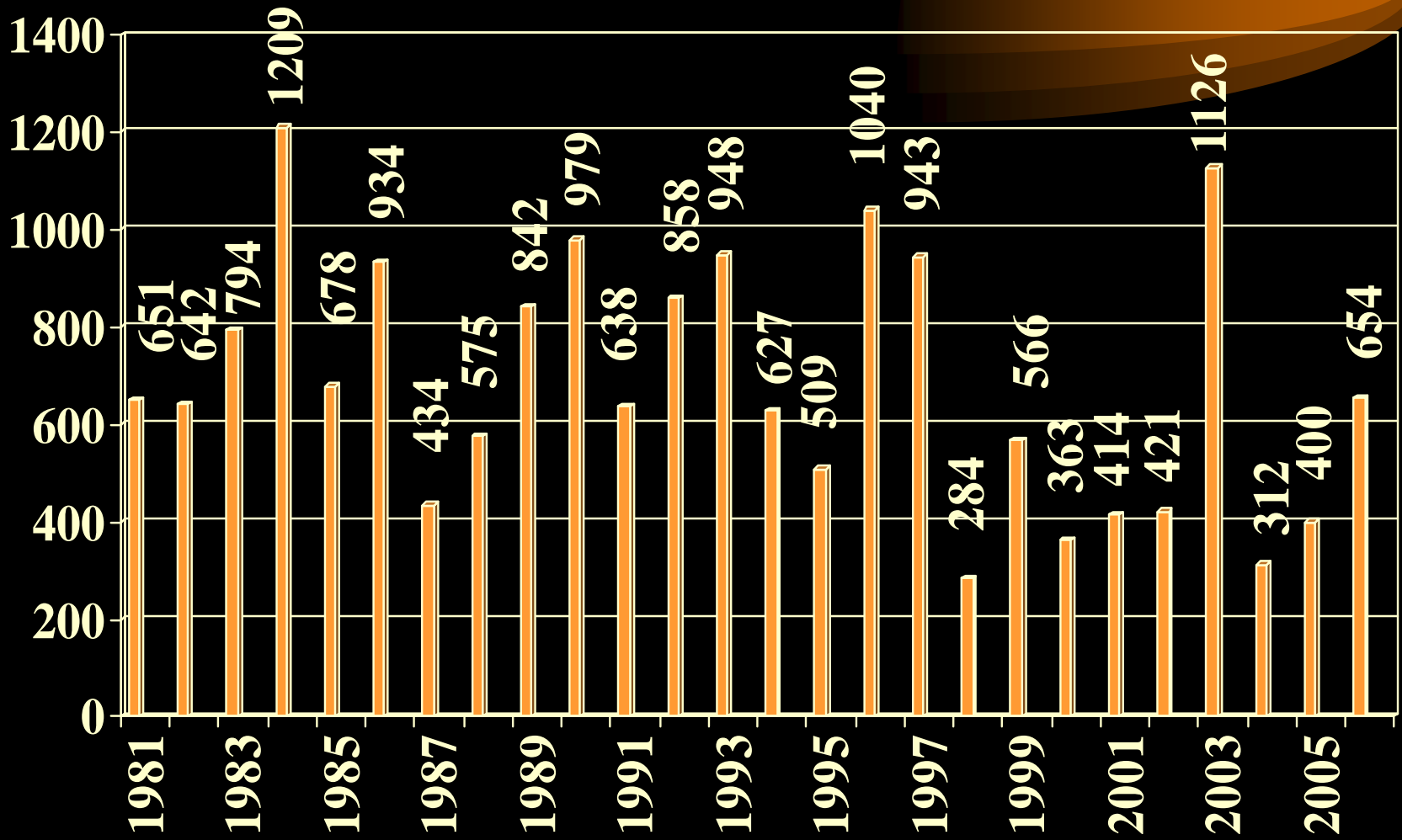
COLLIERY FIRES

1981-2006



RESCUE TEAM USAGE

1981 - 2006



In Summary

- The owner (manager) of the mine is legally responsible for all decisions taken during emergencies
- The government must be notified but is not involved during the emergency. They are responsible for the investigation into the cause of the emergency and to determine whether the risk assessment was adequate





Thank you



