Training of Amerindian Rangers in Occupational Safety and Health

1. Introduction

2. Purpose

To introduce Trainees to the concept and purpose of Occupational Safety and Health.

3. Scope.

This training course is not meant to put trainees through an exhaustive or rigorous study of Occupational Safety and Health, but rather to give a reasonable insight of what is OSH, its importance and show that by enforcement of the applicable laws, in the Mining Act and Regulations together with the OSH Act, human lives can be saved, accidents can be reduced significantly, and injuries ill health and absenteeism can be minimized. Thereby, productivity and production can be enhanced in a working environment such as Small and Medium Scale Gold and Diamond Mining.

4. Definitions.

What is Occupational Safety and Health?

Occupational Safety and Health is defined as:

- Helping workers in all jobs, including Miners, to obtain or get and keep the best health and well being in their bodies and minds, and treat each other and be treated in the best way.
- Preventing workers from becoming ill or being involved in accidents due to the state of their workplaces and working conditions.
- Protecting hired workers from risks or dangers due to conditions in the work place that lead to accidents or sickness.
- Changing and adjusting the working conditions so that each worker would work in conditions such that his or her body is comfortable and his or her mind is at ease. (Adapted from ILO/WHO, 1992).

This definition had had some modifications in interpretation over the years, the most significant being that of:

- Considering the total health (body and mind) of the worker in a total environment (surroundings, equipment, furniture, etc).

Occupational Safety and Health is *commonly* defined in Guyana as:

Safety and Health in relation to work and the environment in which work is done. ***Workers***, (trade unions) and ***employers*** are expected to work to improve work place safety and health, as they are in the best position to identify safety and

health problems and develop solutions. (Min. Labour/ILO, guide to OSH Act 2001)

5. Then the questions that should come to mind are what are *meant by Safety and Health?*

Safety can de described as – the absence or being free of conditions that may lead to mental or physical injury or the destruction of property. It involves all miners' activities ranging from slips and falls to boat accidents, drowning, hit by objects, or eye injury.

Health can be described as – freedom from illness and diseases. In Small Scale Mining – it includes positive control of miners' exposure to toxic or poisonous substances such as *mercury vapours, fuel fume, dust, noise etc.*

Hazard (danger) *means* the potential to cause injury or damage to the health of people.

Accident is an event that is not expected or intended to occur, and it causes a loss of some type.

Fatal Accident *means,* an accident or an incident, which results in the death of a miner.

Non- fatal accident *means* accident or incident when a miner receives scratches to his or her body, or sustains broken bones or other injuries.

Near- misses are incidents in which a miner or someone almost has an accident.

6. Importance of OSH in Mining?

- OSH is important to Mining by way of statutory (legal) requirements and by recognition of the Government of Guyana and International Organizations.
- OSH is very important in protecting human life and health in Mining Operations and communities nearby, thereby preventing accidents, illness, injury and diseases.
- OSH helps to keep all work place environments free from hazards, or danger so that workers/ miners and the community remain healthy in order to be productive people (people who are able to do good work), so that productivity and production can be improved to the maximum.
- OSH helps to prevent damage to or loss of equipment and damage to the workplace, to reduce accidents or near misses, and so keep equipment and people working with less down time or leave.

- OSH is therefore important since it applies to Mine Workers, Mine Operators and Owners, and Government Regulators, GGMC.

7. How can Miners, Operators, and Regulators (GGMC) achieve this?

- By implementation and enforcement of the provisions and requirements of OSH and Mining Acts and Mining Regulations. That is, by demanding that all GMs, Mines Operators and Mines Workers must follow the law, checking if Miners are following the law, and taking action against those who break the law.

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In the Mining Act 20/89 Miners and Regulators (GGMC) operate under the Mining Regulations:

1. Mining Regulations 101- 110, which deal with Sanitation in Mines.
2. Mining Regulation 125, which deals with reporting of Serious Accidents (the OSH Act requires all accidents to be reported by the Operator to OSH Dept. of the Ministry of Labour.)
3. Mining Regulations 127- 138 deal with Safe Use of Poisonous Substances.
4. Mining Regulations 173- 177, deal with Duties of Employers *(such as keeping of medicine, etc. on claim; sending of sick servant (worker) to hospital, sending home a worker at the end of the appointed time, procedure in respect of death on claim, procedure in respect of death on way to or from claim)*
5. Mining Regulation 214, deals with issuing of **Cease Work Order** (**CWO) FOR ANY UNSAFE WORKINGS** that will endanger life, limbs, etc. (***but only a Mines Officer can issue this*).**

In the OSH Act # 32/97, Miners and Regulators in the Mining Industry operate under Parts IV, V &VII.

- Section 43 – provisions as to sanitary and other arrangements (part iv).
- Section 45 – duties of employer at a construction site.
- Section 46 - duties of employer generally
- Section 47 - additional duties of employers
- Section 48 - duties of Supervisors
- Section 49 - duties of workers
- *Section 56 - refusal to work.
- Section 69 – notification of accidents (part vii)

8. What about the OSH Act do Miners and Regulators in the Mining Industry need to Know?

- The OSH Act is a law passed in Parliament to provide protection to workers.
- The OSH Act has a number and the year it was enacted i.e. 32/1997.
- The OSH Act came into force on September 18, 1999.
- To date no new Regulations have yet come into force. (However, there are OSH draft Regulations for Mining in place, which will soon become law). These are not covered in the training Course.
- The OSH Act is also based on the premise that Hazards or danger can be dealt with in the workplace through positive or meaningful interaction – discussion and action - between workers and employer.

Look at these words.

(a) Parliament – an assembly that makes the laws of a Country
(b) Act – a decree or law made by a parliament
(c) Regulations – subsidiary or lesser laws. *(Laws that have the effect of spelling out the specific requirement of the Act.)*
(d) Hazards – danger anything that may result in injury/ harm to the health of a person or damage to or loss of equipment.

9. Identifying Hazards in Mines.

How to identify hazards in Mining Operations and Camps.
Hazards can cause accidents that can result in down time, injury, illness, damage to equipment, or even death.

Here is what you should do!
Familiarize yourselves with (learn about, or get to know), the following hazards groups and types that can cause injury or sickness to any person who is exposed to them.

Hazard Groups	Hazard Types
1. Physical	Noise, extreme temperatures (*very cold and hot),* lighting, vibration and radiation *(direct light from welding)*
2. Chemical	Dust, fumes *(that form acids),* vapours (*such as from burning amalgam*), gas and smoke.
3. Biological	Micro-organisms *(bacteria, virus),* macro- organisms (rats, flies, bats, mosquitoes, etc.

4. Electrical	Damaged cables, points, switches, overloaded circuits, electrical equipment near water etc.
5. Mechanical	Is there adequate protection against – rotating or spinning parts of machines, jet nozzles, and hazardous or dangerous areas? Are protective clothes and gear and safety devices provided e.g. overcoats, long boots, hard hats, eye goggles, earmuffs, gloves, fencing, and guards?
6. General Hygiene	What is the status of general hygiene, at mining camps, dredges, shops and landings in terms of: Cleanliness, overcrowding, drainage, ventilation, toilet facilities, supply of drinking water, waste disposal pits, and/ sites, disposal of plastic and Styrofoam food boxes, etc.
7. Ergonomic (Workers' comfort and efficiency in the workplace)	Are you comfortable working with the – seat provided, eating table, hammocks, beds, workspace, workstation, work design, workbench, equipment and work tools etc.
8. Transportation Boat	Are lifejackets provided, is there enough rope, is the size and type of engine suitable for the boat? Does the captain know the river channel?
Vehicle	Is the vehicle overcrowded? Are the brakes, lights, horn, etc. working properly? Is the vehicle equipped with proper tyres, seatbelts, towrope, mirrors, etc?
9. Stability	Are there dangers from pit wall, flowing water, slippery pit floors, and falling trees?
10. Deep, Steep or unprotected places.	Are there dangers from shafts, steep pits, steep roads, trails, and unprotected holes?

11. Methods of Identifying Hazards.

Hazards cause accidents. All of the ten groups of hazards described in the section before may be present in a mining /dredging operation. Hazards or dangers may be identified using any of the following three methods.

1. Develop a ***Hazard Checklist*** (this can be based on the regulations etc.)
2. Analyzing *unsafe* ***incidents***, ***accidents*** and ***injuries*** data.
3. Conduct a ***Walk-through Survey*** (observations)

The first two methods are usually done by an OSH officer ***(A Ranger would not be expected to do this).*** Using the method of analyzing unsafe incidents, Accidents and injury, a Checklist can be developed from GGMC Records of known causes of *fatal accidents,* which can be placed into two categories. (1) Accidents and (2) Dangerous Occurrences in Mines.

The third method can be done by a Miner, Mine Operator or Supervisor, Regulator (Mines Officer or Ranger) by walking through the Mining Operation or Camp and taking note of hazards and writing them down.

Accidents in Mines can be described as – any occupational injuries to any person as a result of:

- Work within the area of Mining Activities for which medical treatment is administered and which resulted in loss of consciousness or death.
- Accidents can also be classified as (1) Near- Miss, (2) Non- fatal accident and (3) Fatal (death) accident.

Dangerous Occurrences in Mines can be described as – any unplanned events at any mines that have the potential to cause an injury or disease to persons at work. *For example,*

- An event that largely affects mining activity, such as landslides, collapse of working face, inrush of water into mines.
- An event that causes damage to or disrupts the operation, e.g. large tree fall, fire, explosion.
- An event that requires the withdrawal of miners or any other emergency action.
- An event that endangers any individual at Mines/worksites in the community.

Reports of mining accidents in Guyana show that the most common causes of accidents in Guyana are: *pit wall failures, hits by falling trees, hits with Jetting hose nozzle, drowning, falls in shaft holes, squeezes between objects, crushing by machine, etc. (Alleyne, 2003).* Based on the writer's knowledge of the hazards and the causes of

accidents in Small and Medium Scale Gold and Diamond mining, the following Checklist has been made up for you to easily identify hazards or dangers in mining operations in your area. **This Checklist should be used every time you carry out a walk through survey.**

12. <u>Here is a Checklist to be used by Rangers for Walk-through Surveys.</u>

Causes of Fatal and Non-fatal Accidents and Near misses.	**Hazards**		**Mitigation**	**Remarks**
	Yes	**No**		
Physical Hazards Can anyone be injured or suffer ill health from exposure to:				
Noise			Use earmuffs	
Extreme temperatures (cold& heat)			Protective coats or remove from source	
Poor lighting			Encourage natural light	
Vibration				
Radiations (welding etc.)			Shield protection	
Poor water quality (TSS, muddy)			Decrease input from source/ put in settling ponds	
Falling trees in and near work site/ground.			Cut/ remove all trees, clear work ground of all trees	
High pit wall			Build gentle slopes.	
Absence of ladder in pit			Put in ladder at suitable point	
No easy way of going into or coming out of the pit in case of accident or emergency.			Ensure point of entry and exit are in place at all times	
Can anyone be injured due to Deep, Steep or Unprotected places such as:				
Shafts			Place signs and barriers	
Pits			"	
Steep roads			"	
Trails			"	
Unprotected holes?			"	
Chemical Hazards Can anyone be injured or suffer ill health from exposure to:				
Dust			Use dust respirators	

Fumes			Use fumes respirators	
Vapours			Use vapour respirators	
Gas			Use gas respirators	
Smoke			Move to less smoky areas	
Biological Hazards Can anyone be affected or injured or suffer ill health from constant exposure to:				
Macro- organism - Bats			Use lights at nights	
- Flies			Keep surroundings clean	
- Rats.			Proper housekeeping at camp site etc.	
- Malaria Mosquitoes.			Follow GGMC'S publication on malaria control	
Electrical Hazards Can anyone be injured by electrical shocks or burnt due to:				
Damaged cables			Repair or change cable	
- Switches			Change damaged switches	
- Points			" points	
-Overload circuits			Don't work more equipment than is necessary on the circuit	
- Electrical equipment working near water.			Avoid working electrical equipment where water can touch it.	
Mechanical Hazards. Is there adequate protection against:				
Spinning parts of machines			Put on guard around it	

Jetting nozzles			Secure to stable object	
Dangerous areas			Erect sign or notice board and or barricade	
General Hygiene What is the status of hygiene in and around Mining Camps? Is it ***(G-good), (S-satisfactory) or (P-poor).*** In terms of:				
Cleanliness [G/S/P]			Keep place clean	
Air passing through [G/S/P]			Provide openings	
Toilet facilities [G/S/P]			Use information provided by the Ministry of Health for guidance (must have proper toilet).	
Supply or drinking water [G/S/P]			Provide pure water in container. Container must marked ' drinking water'.	
Overcrowding [G/S/P]			Reasonable space at all times	
Waste disposal pits [G/S/P]			Place in waste pit and burn or cover with a layer of mud.	
Disposal of plastic [G/S/P]			Identify and mark disposal site. Dig pit and place plastic waste in pit and bury.	
Disposal of Styrofoam food boxes and cups. [G/S/P]			"	
Clearing of bushes camp etc.			Bushes should be cleared at least 50 feet or more around camp etc.	
Well drained, with no holes, pits with water, plastic containers or plastic bottles etc. [G/S/P]				
Ergonomic. Can anyone be injured due to:				
Poorly designed seating			Provide comfortable seating or chairs	
Inadequate or poor placed lighting			Put lights where persons are not affected	
Poorly designed eating table			Provide comfortable eating table	

Uncomfortable size hammocks			Hammocks should be comfortable and suit the persons who use them.	
Poorly designed and uncomfortable size of sleeping beds			Sleeping beds should be properly designed and comfortable to the persons who use them	
Inadequate workspace			Make workplace inside and outside of camps comfortable to workers.	
Poorly designed work bench			Make benches comfortable to workers	
Faulty equipment to do work			Good equipment should be provided at all times to workers do their work	
Unsuitable work tools				
Transportation (Boat). Are these safety measures in place where applicable?			Use the checklist prepared for boat by the Environmental Division – GGMC, for guidance.	
Lifejackets			"	
Bow rope			"	
Size and type of engine suitable for the boat?			"	
Captain knows the river channel?			"	
Transportation (Vehicle) Are these safety measures in place where applicable?			Use the checklist prepared for vehicle by the Environmental Division – GGMC, for guidance.	
Seatbelts			"	
Brakes in working order Lights in working order			" "	
Horn etc.			"	
Equipped with proper tyres			"	
Towrope, etc.				

13. Enforcement

Having gone through all of the above, we are in a better position to look at the Mining Regulations, and OSH Act, Part V, mentioned earlier in more depth. These are the following:

In the OSH Act # 32/97 you may operate under Part IV section 43 (1) to (8); and Part V, sections 45, 46, 47, 48 and 49 etc.

In the Mining Act 20/89 you use the Mining Regulations:

Mining Regulations **101- 110,** which deal with ***Sanitation in Mines***

Mining Regulations **125,** which deal with ***reporting of Serious Accidents*** (the OSH Act requires all accidents to be reported by the Operator to OSH Dept. of the Ministry of Labour.)

Mining Regulations **127- 138** deal with ***Safe Use of Poisonous Substances***.

Mining Regulations **173- 177**, deal with ***Duties of Employers.***

Mining Regulation **214,** deal with issuing of **CWO FOR ANY UNSAFE WORKINGS** that will endanger life, limbs, etc. ***(but only a Mines Officer can issue this*)*.**

Checklist for OSH Act # 32/97.

Requirements under the OSH Act [issues]	**Enforcement by Rangers (yes)(no)**	**How enforcement is to be done.**
Section 43		
Section 45		
Section46		
Section 47		
Section 48		
Section 49		
Section 69		
*Section 57	**No**	

Checklist for Mining Regulations (65:01)/ Act 20/89.

Requirements under the Mining Regulations [issues]	**Enforcement by rangers (yes)(no)**	**How enforcement is to be done.**
Mining Regulation, 101-110		
Mining Regulation, 125		
Mining Regulation, 127-138		
Mining Regulation, 173-177		
Mining Regulation, 214	**No**	
Mining Regulation		
Mining Regulation		
Mining Regulation		
Mining Regulation		
Mining Regulation		

The Secretary/ Legal Adviser – GGMC will deal with the above Checklists in depth.

Discussions

End Of training

I thank you!

Prepared by

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October, 20, 2003, Environmental Division – GGMC