



QUORUM

MINING & RELINING
SERVICES

HEALTH AND SAFETY MANAGEMENT

INCIDENT ACCIDENT INVESTIGATION MANUAL

Revision No.
0000

Document No.:
QMRS OSH 05

Effective date:
August 2011

Incident and Accident Investigation Manual

Accident Investigation Process, Procedure, and Forms



HEALTH AND SAFETY MANAGEMENT	Revision No. 0000
INCIDENT ACCIDENT INVESTIGATION MANUAL	Document No.: QMRS OSH 05
	Effective date: August 2011

Incident Investigation Process

Purpose: To help management prevent recurrence of accidents by identifying all of an accident's causal factors. *The primary goal of the investigation is to obtain information to help prevent recurrence of future accidents, not to assign blame.*

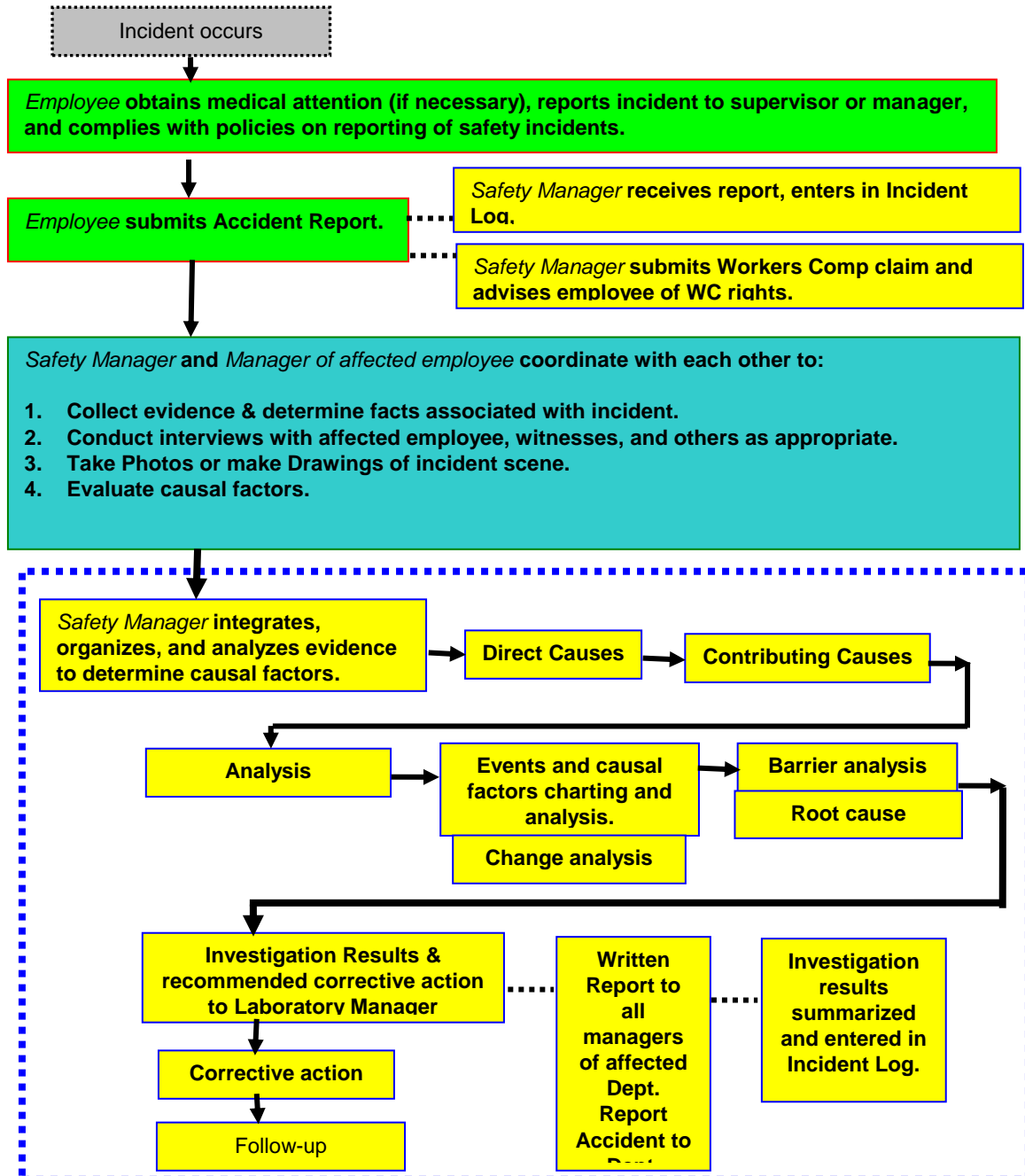
Contents

<u>PROCESS OVERVIEW</u>	3
<u>INTRODUCTION</u>	4
<u>1. INCIDENT REPORTED</u>	5
<u>2. EVIDENCE COLLECTION AND FACT DETERMINATION</u>	6
<u>3. INTEGRATE, ORGANIZE, AND ANALYZE EVIDENCE TO DETERMINE CAUSAL FACTORS</u>	8
<u>4. EVALUATE CAUSAL FACTORS</u>	8
<u>5. ANALYSIS</u>	9
<u>6. REPORT</u>	11
<u>7. CORRECTIVE ACTION</u>	11
<u>8. FOLLOW UP</u>	11

Annex 1 Accident Incident report
Annex 2 Statement template



Process Overview





HEALTH AND SAFETY MANAGEMENT

INCIDENT ACCIDENT INVESTIGATION MANUAL

Revision No.
0000

Document No.:
QMRS OSH 05

Effective date:
August 2011

Introduction

Investigations are conducted and an Incident Investigation Report form completed for all reported incidents involving QUORUM employees.

When any type of safety incident, accident, near-miss, or hazard is identified, it is important that the proper reporting procedures are followed in a timely manner.

It is the responsibility of all managers to ensure their employees understand the importance of reporting all safety incidents or hazards immediately. As managers, we should make employees feel comfortable about reporting; if employees fear they will be punished in any way for reporting an incident, then no doubt many incidents will go unreported. It is the reporting of these incidents that will permit us to take steps in prevention of an injury in the future.

Definitions:

⊙ **Incident:** Any unplanned event resulting in or having the potential for injury, ill health, damage or loss.

⊙ **Accident:** Commonly used to describe an incident which has resulted in an injury or damage.

⊙ **Near-miss:** Any incident which *could have* resulted in injury, serious illness, or equipment damage.

Reporting and sharing near-miss incidents is a key to improving safety.

⊙ **Hazard:** A source or a situation with the potential for harm in terms of human injury or ill health.

⊙ **Accident investigation:** The determination of the facts of an accident by inquiry, observation, and examination and an analysis of these facts to establish the causes of the accident and the measures that must be adopted to prevent its recurrence.

Key Points:

- Investigations of incidents, injuries or hazards are *not* to be used as a means to assign BLAME.
 - Any suggestion that assignment of blame or finding a “scapegoat” is intended would jeopardize the credibility of the investigation and reduce the quality and accuracy of information supplied.
- The investigation should occur as soon as possible.
 - The less time between an incident and the investigation, the more accurate the information obtained.
 - While concern for an injured person shall take precedence over everything else, when incidents involving injury or illness occur, early investigation is essential.
- The purpose of investigating incidents is to:
 - Prevent similar incidents recurring in the future.



HEALTH AND SAFETY MANAGEMENT

INCIDENT ACCIDENT INVESTIGATION MANUAL

Revision No.
0000

Document No.:
QMRS OSH 05

Effective date:
August 2011

- Identify any new hazards.
- Identify and choose suitable controls.

The **QUORUM** Incident Investigation Process is designed to uncover the facts of an incident, analyze those facts, determine the root cause, determine any contributing causes, and recommend/implement corrective actions aimed at preventing future occurrences.

The Process below is to be followed for any and all safety incidents, accidents, near-misses ,Occupational diseases and illness and hazards (the process steps may need to be modified in the case of investigating a reported hazard).

Note that everything starts with the affected employee. If the employee decides to not report an incident, the entire process fails and we miss an opportunity to prevent an injury.

Investigation team:

The Investigation Team in an Incident or Accident should consist of:

- ☞ Safety Officer
- ☞ PROJECT Manager
- ☞ Employees supervisor
- ☞ Safety representative or committee
- ☞ Witnesses
- ☞ Affected employee

1. Incident Reported

- a. *Employee* obtains medical attention (if necessary), reports incident to supervisor or manager, and complies with Customer policies on reporting of safety incidents.
- b. *Employee* and Supervisor submits Accident Report
- c. All incidents recorded on **QUORUM** Safety Incident Data Log.
- d. *Safety Officer/ Consultant* submits Workers Comp claim and advises employee of WC Claim# and WC rights and responsibilities for their state.
- e. *Completed accident report to be submitted to the DOL as per the regulation.*



2. Evidence Collection and Fact Determination

(Safety Officer & Supervisor of Affected Employee)

- Interviews:** Interview employee, witnesses.
- ◆ Create a relaxed atmosphere.
 - a. Conduct the interview in a neutral location that was not associated with the incident.
 - b. Be polite, patient, and friendly.
 - c. Treat witnesses with respect.
 - ◆ Prepare the witness.
 - a. Describe the investigation's purpose: to prevent accidents, not to assign blame.
 - b. Explain that witness may be interviewed more than once.
 - c. Stress how important the facts given during the interview are to the overall investigative process.
 - ◆ Record the information
 - a. Write down questions and answers
 - b. Note crucial information immediately in order to ask meaningful follow-up questions.
 - ◆ Ask Questions
 - a. Ask open-ended questions, without interjecting judgments or your opinion. Get the facts without placing blame or responsibility. Let witnesses know your positive motive - prevention.
 - b. LISTEN for clues in coworkers' conversations. Unsolicited comments often have merit. Repeat comments back to the individuals to ensure you have understood their meaning correctly.
 - ◆ Close the interview

a. Photos/Drawings

- ◆ If photos are not possible, provide a drawing that best describes the incident and the surrounding areas.
- ◆ Photos should be taken of the area where the incident occurred, any damage that occurred, and of any visible injuries on the employee.

b. Fact Determination (Use Incident Investigation Form near end of this document)

1 Description of the Incident



HEALTH AND SAFETY MANAGEMENT

INCIDENT ACCIDENT INVESTIGATION MANUAL

Revision No.
0000

Document No.:
QMRS OSH 05

Effective date:
August 2011

- ◆ Personally conduct a walk-through of the incident scene when possible, or delegate responsibility to another employee. Consider the following:
- ◆ What was the employee doing at the time of the incident? Was the injured employee working alone or working with others?
- ◆ Describe any equipment, tools, or products that were directly involved
- ◆ Was there a sequence of events leading up to the incident?
- ◆ If equipment was involved, clearly describe the type, model, size, condition, and distinguishing features. Were there any known issues with the equipment?
- ◆ Describe the work environment? Consider weather, housekeeping, and lighting.
- ◆ Take photos of the accident scene (if permissible), as well as any equipment involved.

2 The Use and Nature of Preventative Measures

- ◆ Was the required personal protective equipment worn?
- ◆ Was the employee properly trained for the task being performed?
- ◆ Are there standard procedures established for the task?
- ◆ Are procedures outlined in writing?
- ◆ Were standard procedures followed? If not, how did the worker's actions deviate from the procedures?
- ◆ Were adequate machinery or equipment guards in place (Lockout/Tagout)?
- ◆ Were there any immediate remedial actions taken to prevent recurrence?

3 The Nature of Any Injuries

- ◆ What body parts were affected?
- ◆ Describe the extent of any employee injuries.

4 Corrective Action

- ◆ What action or actions have you already taken as a result of your investigation?
- ◆ What additional actions, if any, will be taken or recommended and when do you expect these actions to be completed?



3. Integrate, Organize, and Analyze Evidence to Determine Causal Factors

- ◆ Distinguish between accurate and erroneous information in order to focus on areas that will lead to identifying the incident's causal factors by:
- ◆ Understanding the activity being performed at the time of the incident.
- ◆ Challenging "facts" that are inconsistent with other evidence.
- ◆ Corroborating facts through interview results.
- ◆ Reviewing policies, procedures, and work records to determine the level of compliance or implementation.

4. Evaluate Causal Factors

The process of determining causal factors seeks to answer the questions - what happened and why did it happen?

i. Direct Causes

- ◆ The immediate events or conditions that caused the accident.
- ◆ Should be stated in one sentence.
 - a. Example: "The direct cause of the incident was the inadvertent activation of electrical circuits that initiated the release of CO₂ in an occupied space."

ii. Contributing Causes

- ◆ Events or conditions that collectively with other causes increased the likelihood of an incident *but that individually did not cause the incident*.
- ◆ May be longstanding conditions or a series of prior events that, alone, were not sufficient to cause the accident but were necessary for it to occur.
 - a. Example: "Failure to implement safety procedures in effect for the project contributed to the accident."

iii. Root Causes

- ◆ The causal factors that, if corrected, would prevent recurrence of the same or similar accidents.

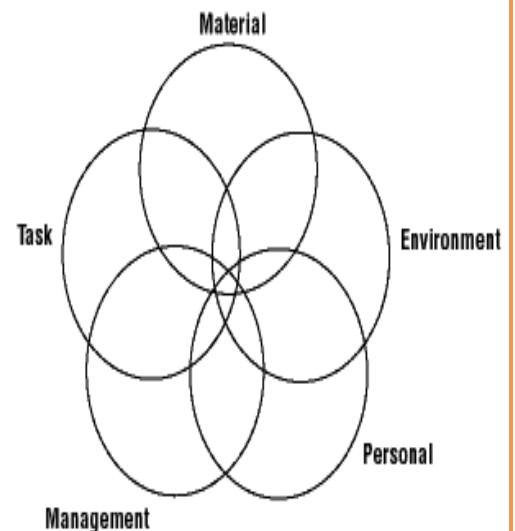


- ◆ May include failures in management systems to:
 - a. Define clear roles and responsibilities for safety.
 - b. Ensure that staff is competent to perform their responsibilities.
 - c. Ensure that resources use is balanced to meet critical mission and safety goals.
 - d. Ensure that safety standards and requirements are known and applied to work activities.
 - e. Ensure that hazard controls are tailored to the work being performed.
 - f. Ensure that work is properly reviewed and authorized.
 - g. Example: "Management failed to clearly define responsibilities for safety reviews of planned work. The lack of clarity in roles and responsibilities for safety reviews was a root cause of the accident.

5. Analysis

Root Cause Analysis

- i. Root cause analysis should be conducted on every occurrence, regardless of severity or complexity. Minor incidents often foreshadow more serious events.
- ii. Root cause analysis is a systematic process that uses the facts and results of the analytic techniques used during the investigation to determine the most important reasons for the accident.
 - ◆ The intent of the analysis is to identify and address only those root causes that can be controlled within the system being investigated, excluding event or conditions that cannot be reasonably anticipated and controlled, such as some natural disasters.
 - ◆ From the previously discussed analytic techniques, many facts concerning the accident should now be available. This evidence is examined to determine the root cause of the accident.
- iii. Explore each of the following areas during the root cause analysis.
 - ◆ **Task:** Here the actual work procedure being used at the time of the accident is explored. Look for answers to questions such as:
 - a. Was safe work procedure used?
 - b. Had conditions changed to make the normal procedure unsafe?
 - c. Were the appropriate tools and materials available?





HEALTH AND SAFETY MANAGEMENT

INCIDENT ACCIDENT INVESTIGATION MANUAL

Revision No.
0000

Document No.:
QMRS OSH 05

Effective date:
August 2011

- d. Were they used?
- e. Were safety devices working properly?
- f. Was lockout used when necessary?
- g. For most of these questions, an important follow-up question is "If not, why not?"
- ◆ **Material:** To seek out possible causes resulting from the equipment and materials used, investigators might ask:
 - a. Was there an equipment failure?
 - b. What caused it to fail?
 - c. Was the machinery poorly designed?
 - d. Were hazardous substances involved?
 - e. Were they clearly identified?
 - f. Was a less hazardous alternative substance possible and available?
 - g. Was the raw material substandard in some way?
 - h. Should personal protective equipment (PPE) have been used?
 - i. Was the PPE used?
 - j. Again, each time the answer reveals an unsafe condition, the investigator must ask **why** this situation was allowed to exist.
- ◆ **Environment:** The physical environment and especially sudden changes to that environment are factors that need to be identified. The situation at the time of the accident is what is important, not what the "usual" conditions were. For example, accident investigators may want to know:
 - a. What were the weather conditions?
 - b. Was poor housekeeping a problem?
 - c. Was it too hot or too cold?
 - d. Was noise a problem?
 - e. Was there adequate light?
 - f. Were toxic or hazardous gases, dusts, or fumes present?
- ◆ **Personnel:** The physical and mental condition of those individuals directly involved in the event must be explored. The purpose for investigating the accident is **not** to establish blame against someone but the inquiry will not be complete unless personal characteristics are considered. Some factors will remain essentially constant while others may vary from day to day:
 - a. Were workers experienced in the work being done?
 - b. Had they been adequately trained?
 - c. Can they physically do the work?
 - d. What was the status of their health?
 - e. Were they tired?
 - f. Were they under stress (work or personal)?
- ◆ **Management:** Management holds the legal responsibility for the safety of the workplace and therefore the role of supervisors and higher management must always be considered in an accident investigation. Answers to any of the preceding types of questions logically lead to further questions such as:



HEALTH AND SAFETY MANAGEMENT

INCIDENT ACCIDENT INVESTIGATION MANUAL

Revision No.
0000

Document No.:
QMRS OSH 05

Effective date:
August 2011

- a. Was safety rules communicated to and understood by all employees?
- b. Were written procedures available?
- c. Were they being enforced?
- d. Was there adequate supervision?
- e. Were workers trained to do the work?
- f. Had hazards been previously identified?
- g. Had procedures been developed to overcome them?
- h. Were unsafe conditions corrected?
- i. Was regular maintenance of equipment carried out?
- j. Were regular safety inspections carried out?

6. Report

- a. The Incident Investigation Report is the official record of the investigation, and will contain accurate details and statements of the incident, as well as a determination of facts and recommendations to prevent future occurrences.
- b. The **QUORUM Incident Investigation Report Form** is used to document investigations.

7. Corrective Action

- a. Corrective actions are to be stated clearly in the Incident Investigation Report.
- b. Conclusions are assigned to the appropriate individual(s) for action and documentation in the Incident Investigation Report.
- c. Due dates for actions to be implemented should be included.

8. Follow Up

- a. Corrective action assignments are to be monitored by the Safety Officer for timely completion. Investigation results, including completed corrective action information, are to be communicated to all staff and employees on other Laboratory sites by means of internal safety communication and meetings.



QUORUM
MINING & RELINING
SERVICES

HEALTH AND SAFETY MANAGEMENT

INCIDENT ACCIDENT INVESTIGATION MANUAL

Revision No.
0000

Document No.:
QMRS OSH 05

Effective date:
August 2011

ACCIDENT		INCIDENT		IMMEDIATE NOTIFICATION REPORT FOR <u>ALL</u> INCIDENTS (12 Hours)			
LAB.		Section:		Accident No.			
Location of Incident		Date of Injury/Incident		Time		Date Reported	
Name of Injured		Reported By:		Originator's Name:			
INJURY (ACCIDENT) PERSONAL PARTICULARS				INCIDENT			
Employee. No.				Witness Name & Employee. No.			
Occupation							
ID / Teba No./P.P. No.				× Property Damage			
Date of birth				× Spillage Waste			
Age				× Equipment Failure			
Service with Mine				× Fire/Explosion			
In Present Job				× Chemical Spill			
Marital status				× Vandalism			
Country of origin				× Near Accident/Incident			
Nationality				× Customer Service			
Witness' Name & Employee. No.				× Misconduct			
Nature of Injury or Illness							
Name the object/equipment/substance which inflicted the injury or illness							
EVALUATION OF LOSS POTENTIAL							
A. Loss Severity		Major		Serious		Minor	
B. Occurrence		Frequent		Occasional		Seldom	
DESCRIPTION							
Describe how the event probably occurred.							



QUORUM
MINING & RELINING
SERVICES

HEALTH AND SAFETY MANAGEMENT

INCIDENT ACCIDENT INVESTIGATION MANUAL

Revision No.
0000

Document No.:
QMRS OSH 05

Effective date:
August 2011

Reported to Inspector		Yes	No	Reported to Management	
ORIGINATOR'S NAME				SIGNATURE	

FORMAL ACCIDENT REPORT

1. Investigating Team					
Name		Occupation		Name	
Occupation		Name		Occupation	
2.	LOSS	Yes	No	Description of Loss	Type of Contact
	People				
	Property				
	Process				
	Service				
	Environment				
3.	Brief description of accident/incident: (This is after the investigation is being done)				
I N C I D E N T					
	Was the injured doing his normal duties? Yes No				
4.	What Immediate causes contributed most directly to this incident				
I M M E D I A T E	Suspected sub-standard practices:		Suspected sub-standard conditions:		
5.	What are the suspected basic causes for the existence of the practices and conditions?				



HEALTH AND SAFETY MANAGEMENT

INCIDENT ACCIDENT INVESTIGATION MANUAL

Revision No.
0000

Document No.:
QMRS OSH 05

Effective date:
August 2011

B A S I C	Suspected personal factors:			Suspected job factors			
SYSTEM FAILURE		IN ORDER	NOT IN ORDER	SYSTEM FAILURE		IN ORDER	NOT IN ORDER
Management			Risk Assessment Elements				
	Planning				Continuous Risk Assessments		
	Leadership And Supervision				Issue Based Risk Assessments		
	Work place discipline			Risk Control			
	Control (e.g. Quantity, Quality)				Planning & Design		
Hazard Identification			Training				
	Planned Inspections				Legislation		
	Planned task Observation				Cop's & Procedures		

6.	Corrective Action to prevent Recurrence	Responsible	Target Date	Date Completed
L E G A L				

7.	Actual or Estimated Cost and or Loss			
	COST PER DRESSING STATION CASE = R1910 COST PER SHIFT LOST (LTI & REP) = R 5000 COST PER FATALITY = R 820 000	Estimated Cost of property loss or damage		
	R	R		

.	1. Has a PTO been done previously pertaining to this task?	Yes	(Submit)	No	Reason below
---	--	-----	----------	----	--------------

9.	Remarks by Health and Safety Representative:				
L E G A L					
	Signature of Health and Safety Rep.:			Date:	
	Signature of Full Time Health and Safety Representative:			Date:	



QUORUM
 MINING & RELINING
 SERVICES

HEALTH AND SAFETY MANAGEMENT

INCIDENT ACCIDENT INVESTIGATION MANUAL

Revision No.
0000

Document No.:
QMRS OSH 05

Effective date:
August 2011

10.	Responsible (Line)	Name	Signature	Date
C	Supervisor			
O	Senior Supervisor			
N	Safety Officer			
T	Engineer			
R	Lab Manger			
O				
L				
11. Follow-up by Senior Supervisor:				
L				
E				
G				
A				
L				
Comments/Feedback: (On above action plans being implemented?)				

(PERSON COMPLETING REPORT PLEASE NOTE:)

1. This investigation report must be done in duplicate. The original copy must be sent to the Safety Officer via your head of department within 72 hours or 3 working days.
2. If additional writing space is required use a separate sheet of paper and attach ft to the investigation form.

Sketch (incl. Dimensions - Plan and Section) (Photographs: Make use of blank pages for photo's ETC.)



QUORUM
MINING & RELINING
SERVICES

HEALTH AND SAFETY MANAGEMENT

INCIDENT ACCIDENT INVESTIGATION MANUAL

Revision No.
0000

Document No.:
QMRS OSH 05

Effective date:
August 2011

[Large empty rectangular box for content]

Comments by Senior Management:

Manager

[Five empty horizontal lines for comments]



QUORUM
MINING & RELINING
SERVICES

HEALTH AND SAFETY MANAGEMENT

INCIDENT ACCIDENT INVESTIGATION MANUAL

Revision No.
0000

Document No.:
QMRS OSH 05

Effective date:
August 2011

Compiled by : Silver Streak Trading Health and Safety Consultant Date :	Reviewed By: Site Manager Quorum Date :	Reviewed by : Safety representative Quorum Date :
Approved by : C.E.O. Quorum Date :		