



“十三五”科学技术专著丛书



Standard Manual of HSE Risk Management in Petroleum Logging Engineering Technology

夏学锋 王长峰 孙中原 编著



北京邮电大学出版社
www.buptpress.com



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**Standard Manual of HSE Risk Management in
Petroleum Logging Engineering Technology**
石油测井工程技术 HSE 风险管理标准手册

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Abstract

This book aims to teach the petroleum logging employees and managers to know the HSE risk management in petroleum logging engineering technology. The book is divided into four parts and contains ten chapters in total. The first part aims to introduce the general industrial safety and what would be happening in well logging program. The second part introduces what the employees should mind when preparing at wellsite and what the HSE and its management is. The third part mainly introduces the chemical safety from three aspects, named radioactive safety, explosive safety and hydrogen sulfide safety respectively. The last part contains pressure control safety.

This book can be used as a guidance book in petroleum logging employees' work and would improve their safety consciousness.

This book should also attract the attention of the managers in petroleum logging industry, both domestic and abroad. They could supervise their employees whether they were in a safe environment and teach them how to protect their personal safety.

What's more, this book could also be used for the students' self-study in petroleum major, who are preparing to join the well logging job.

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Preface

Project risk management is one of the important measures to safeguard the interests of enterprises and employees. In project risk management, construction safety, personnel health and environmental protection are the goals pursued by enterprises. Based on the background of petroleum logging project and the authors' many years' experience of industry management and large project management, this book combined the practice of management and academic research, comprehensively narrated the HSE risk management measures of project types and industries, and developed a standardized risk management manual. The novelty of content and the perfect combination with practice are the two main features of this book.

The book is written by Dr. Xia Xuefeng, Professor Wang Changfeng and Dr. Sun Zhongyuan. Among them, Dr. Xia Xuefeng, a senior engineer, expert of petroleum logging technology, engaging in petroleum logging industry for 20 years. As a senior management personnel in the logging industry, he has accumulated a rich of experience from construction operation and management positions on the field, and made the risk management decision for the staff according to risk management theory. Based on the rich experience and profound theoretical basis, he completed the main structure of the book. Professor Wang Changfeng, PMI GAC project management certification experts, PMI GAC CRC project management certification review experts, International Project Management Association (IPMA) level tutor, has long been engaging in teaching and research work in the field of large-scale engineering project management. His main research areas are project management theory and practice, the security risk early warning and emergency management, engineering project integration and

control, and has achieved a high level of landmark achievements, during the writing of this book with the theoretical guidance of expert level. Dr. Sun Zhongyuan has a profound theoretical basis, in domestic and foreign academic journals published more than 10 papers, and has participated in the study of several National Natural Science Fund projects. He has interviewed and investigated a large number of on-site employees and managers, to supplement and improve on the content of the book. Deeply grateful for their hard work here.

In the process of writing, the author also reviewed a lot of related resources on safety, health and environmental protection, collected the image and video data through on-site interviews, and summarized HSE risk management standards in petroleum industry. Here, thank all the people who have contributed to the writing of this book. Because the development of information technology is very rapid, the application of information technology is becoming more and more popular, and the level of the authors are limited, if there is some inappropriate expression, hope for experts' and readers' comments.

Authors
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Chapter One General Industrial Safety

1.1 Overview

This chapter covers the general practices and policies for employees to reduce the risk of accident in the workplace both for ourselves and colleagues who share our work spaces.

1.2 Office and Shop Safety

Carelessness on the part of office workers and those who frequently work in the office area can contribute to serious accidents. Observe the following safe practices and prevent injury.

1.2.1 Safety in the Office

File Cabinets

Open and close file drawers with the handles, keeping free hand clear of drawer. Close all file and desk drawers when they are not in use. Open no more than one file drawer at a time.

Look while Walking

In office, shop, or on stairs, refrain from reading while walking. Do not carry articles stacked high enough to interfere with clear vision of obstacles.

Stacking

Never stack or place heavy articles on top of file or supply cabinets.

Chairs

Take care when sitting in swivel chairs. Avoid leaning back too fast or beyond a safe angle.

Climbing

Use only good ladders for climbing to elevated points. Never climb on chairs, desk drawers, boxes or other makeshift supports.

Electric Cords

Floors must be kept clear of electrical or telephone cords. Plug-in boxes or conduit must be positioned to prevent tripping.

Fire

Matches or cigarettes must be placed in ashtrays or approved receptacles—not in waste baskets or laid on desks or tables. No smoking on prohibited area.

Space Heaters

Keep space heaters of all types a safe distance from combustible materials. Never leave them turned on while unattended.

1.2.2 Safety in the Workshop

Safe Working Conditions

It is company policy that each facility provides a safe and healthful place in which our employees may perform their jobs.

Your Responsibility

When you perform your duties as an employee, you must be ever mindful of the responsibility you have in preventing injury to yourself and the other persons working with or near you as well as the costly aspects of destroying company property through carelessness. If a condition is noticeably hazardous or safety equipment is faulty or missing, notify your manager or bring the matter to the attention of the safety coordinator as soon as possible.

Fundamentals of Safety

The following fundamentals of general shop safety and good housekeeping help reduce accidents and assure a more pleasant and efficient place to work.

Clothing and Safety Equipment

Dress properly for the job you will do. Do not wear loose or ragged clothes, long neckties, finger rings or dangling shoe laces. Wear appropriate gloves when handling rough or sharp objects. Wear eye protection when operating buffers or grinders. Wear safety shoes while on the job at all times and head protection when there is any danger of head injury. Employees wearing prescription glasses must wear approved safety glasses for constant protection.

Housekeeping

Good housekeeping is one of the most important occupational accident prevention factors in our entire safety program. Good housekeeping at the base means providing a place for every useful item and keeping it there when not in use. A well kept shop is neat and orderly, with clean floors, clean windows and a generally fresh appearance. Dirty walls or lack of paint create an atmosphere of laxity which has a negative effect on the people who work there and results in neglect due to lack of pride. Good housekeeping is everyone's responsibility.

Safety Inspections

It is company policy that the facility is inspected every month. A checklist form is provided to assist in making this inspection. This responsibility, assigned by the base manager, may be performed by one or more employees. Employees should become familiar with the safety checklist. It applies to everyday work areas and responsibilities and all employees have the responsibility for keeping the base in safe operating condition.

Safety Meetings

Safety meetings should be held at least once in a month in each base and before each job. These meetings should cover safety topics and must be documented on company form. The base manager should always be present at monthly meetings but may designate someone else as chairperson. Area safety

coordinators may be consulted for safety topics and information.

1. 2. 3 General Housekeeping Procedures in Field Bases

Security

All bases will be kept securely closed and locked when unattended.

Unauthorized Visitors

Will be denied access to working areas in the shop or warehouse.

Cleanliness

Premises are to be kept clean, free of scrap, trash and litter at all times.

Floor Sumps and Drains

Are to be cleaned at regular intervals in accordance with company policies and applicable regulations.

Company rigging equipment is never to be loaned to a customer.

When a Service Unit Is Left over Night or Unattended

It is to be moved a safe distance from the well, tank batteries, separator or other such devices. The vehicle is to be securely locked, and the wheels blocked before the crew leaves the wellsite. In addition, the service unit operator is to obtain a signed release from the company individual in charge.

In the Event of a Well Emergency (Fire, Blowout, Etc.)

If the service unit is rigged up, the operator in charge is to attempt to remove any explosive or other tool from the well, the rig floor or vicinity, if possible!

If removal is impossible, the operator will order and assist in cutting the truck lines (conductor cable, speaker and weight indicator, etc.) and remove the unit and crew to a place of safety. The operator and crew will stand by to assist in the recovery of company equipment if it can be accomplished without personal danger.

Caution: Don't endanger life!

1. 2. 4 Steam Cleaners, Compressors and Fuel Burning Appliances

Venting

Steam cleaners shall be vented to the outside of the building.

Excessive Steam Pressure

If at any time the pressures exceed the limits as marked on the steam cleaner gauges, the cleaner must be put out of service until proper repairs are made.

Dead Man Switches

Are used on all steam cleaner nozzle valves.

Steam Cleaner Hoses

Must never be secured to the nozzles with screw clamps (radiator clamps).

Drainage and Safety Valve

Air compressors and receiver tanks are to be drained of condensation water daily (or fitted with automatic drain valves) and equipped with a pressure operated safety valve set to release at not more than 180 pounds.

Automatic Shut Down

All appliances using natural gas must be equipped with an automatic device to provide 100% shut-off, should the service fail.

Open Flame Type Heaters

Are not to be used in any office or shop facility.

Venting Fuel Burning Appliances

All fuel burning appliances must be vented to the outside of the building. Vent pipes or systems are to be cleaned annually.

1. 2. 5 Safety Posting

Each company base should have a means of posting safety material and