



# **UNIVERSIDAD TÉCNICA DEL NORTE**

## **FACULTAD DE INGENIERÍA EN CIENCIAS APLICADAS**

### **School of Industrial Engineering**

**Thesis prior to the completion of the degree of Industrial Engineer**

**“Design of a System of Technical Management of Security and Occupational Health for Prevention of Labor Risks under the Approach for Processes for the Workshop of Confections”.**

#### **SCIENTIFIC ARTICLE**

#### **Author**

John Alexander Gómez Sánchez

#### **Director**

Ing. Juan Carlos Pineda

IBARRA-ECUADOR

2014

# **Design of a System of Technical Management of Security and Occupational Health for Prevention of Labor Risks under the Approach for Processes for the Workshop of Confections**

## **PINTO**

Author: John Alexander GÓMEZ SÁNCHEZ

Universidad Técnica Del Norte, Av.17 de Julio, Ibarra, Imbabura

alexito.10@hotmail.es

### **ABSTRACT:**

The objective of this paper is to establish the system design of technical management of industrial safety to identify, measure control major risk factors in the productive process developed in the workshop of Confections' PINTO.

It is based on the application of techniques and methods recognized by the legal regulations for the identification and assessment of risks, which makes it possible to propose actions that oriented safeguard the integrity of the workers, installations, creating a safer working environment.

The methodology was based on a research field of the activities and procedures

developed in the work center, in a quantitative overview of the levels of risk identified with the use of measuring instruments, and a qualitative vision through the application of methods that involve direct interviews, merging the two approaches are able to obtain a perspective and appreciation more effective risk existing.

The results obtained were helpful in establishing proposals that allow for the development of preventive measures, corrective as well as an adequate risk management based on concepts of professional Industrial Safety.

Key Words: risk factors, vision quantitative, qualitative, risk management, development of preventive measures.

**Summary:** The aim of this document is to establish the system design of Technical Management of Industrial Safety to identify, measure control major risk factors in the productive

process developed in the workshop of Confections PINTO.

It is based on the application of techniques and methods recognized by the legal regulations for the identification and assessment of risks, which makes it possible to propose actions that oriented safeguard the integrity of the workers, installations, creating a safer working environment.

The methodology was based on a research field of the activities and procedures developed in the work center, in a quantitative overview of

**Key Words:** risk factors, vision quantitative, qualitative, risk management, development of preventive measures.

## I. Introduction

The industrial safety from its beginnings, it has established itself as a fundamental pillar for the business development and the well-being of workers, considering the human being as a priority in the course of time has been evolving with the technological requirements, adapting methods to the current reality, however, the rules of Ecuador has been focused on

## II. Methodology

the levels of risk identified with the use of measuring instruments, and a qualitative vision through the application of methods that involve direct interviews, by merging the two approaches are able to obtain a perspective and appreciation more effective of the existing risks.

The results obtained were helpful in establishing proposals that allow for the development of preventive measures, corrective as well as an adequate risk management based on concepts of professional Industrial Safety.

establishing measures of control binding through the IESS (Occupational Hazard), demanding better levels of management and risk management in the sense of ensuring safe working activities.

The business cannot ignore the application of the law, in that sense we can orient to better levels of management.

Pinto Companies nationally recognized as one of the largest producers of clothing is subject to compliance in addition to the regulatory compliance has a policy established the provision of resources for the safeguard the integrity of the workers

The research problem and the objectives of this study were aimed at the identification, measurement, evaluation of risks which allows you to obtain quantitative information to

guide the organization to establish control measures to enhance the security level handled in a garment factory PINTO.

In this sense, the research was based on an approach to implementation of techniques, methods of analysis allow me to obtain a qualitative approach-quantitative, based on a double methodological strategy that includes an investigation of documentary (bibliographic) and a field research which includes Surveys direct relationship with the workers, verification of observation facilities and the use of measuring instruments.

During the field research we were able to see the condition of the facilities, obtain a precise approach of the process and the direct relationship with the administrative and operating staff to determine from the optical and workers' perceptions of the level of security with the data obtained from different methods and techniques applied are proceeded to carry out an analysis of the level of risk in the array by using the method triple criterion gravity, vulnerability, probability, allowing to obtain a quantitative overview of the level of risk.

Post-analysis of the data obtained in the present study presents measures of control and management of risks with the respective recommendations aimed at preventing and mitigating risks.

### **III. Evaluation of results and discussion.**

The results obtained from the measurement and evaluation of the major risk factors present in the workshop of garments we can conclude the following:

1.- lighting levels are within the parameters established in terms of uniformity of the lighting in each area, however the natural light combined with the bad location of luminaires produce shadows in the reducing the visibility of the operators

in the same way, the lack of maintenance and control based on the operating hours of luminaires produces that in some sectors are not sufficient for lighting lamps damaged, by which the illumination level has fluctuations in regard to uniformity causing eyestrain.

It is important to mention that uniformity calculated is within the levels established by the law, however the proposed actions can help to improve and maintain better conditions with regards to the lighting in the area.

For the assessment of noise used the sonometer that allowed it to obtain values in the different scales A, B, C, being the scale to the most widely used and recognized by the local regulations.

Within the facilities there is a noise that does not exceed 85 decibels which is manageable and does not represent a risk of developing diseases such as hearing loss hearing labor, in the use of the air compressor and cauldrons slightly above the noise level by which it is mandatory to use hearing protection.

#### **IV. Work related**

The work developed within the facilities is the first study on issues of industrial safety, this contribution is a pilot scheme that can be used in the Workshop of Confections Pinto With the objective of mitigating risks and obtain a work environment more healthy.

#### **Conclusions and future work**

at the end of this technical process of research is able to determine the risk level of each of the activities carried out to achieve in this way establish control measures that are the scope of the organization in the sense of preventing accidents and incidents labor as well as obtain a improve the workplace environment allowing climbing a step aimed at continuous improvement and secure of their processes.

We were able to determine that the staff knows the risks to which it is exposed, however it is important and necessary to establish strategies for training and education, to allow the

worker greater motivation, knowledge and commitment to the company as far as safety, for which the top management must encourage and promote a culture of safety as well as the allocation of resources.

The technical management of occupational health and safety is a fundamental pillar within the security management of the company with which it is important a constant monitoring of the facilities, proper communication and planning for the allocation of resources and the commitment of the direction for the development of a culture of safety in the Workshop of Confections PINTO.

#### **Bibliographic References**

**CORTES**, José. Técnicas de prevención de riesgos laborales, 4ta ed. Tebar,2010.

**ASFAHL,Ray**. Seguridad y Salud 4ta. Ed. Mexico: Preutice Hall,2000.

<http://www.slideshare.net/GuidoCeballosHuertas/factores-riesgo-ocupacional-presentation>

<http://www.slideshare.net/guest0ce382/riesgos-profesionales1>

<http://www.Prevention-World.com>  
2013-12-10.

