
SECTION B - CHAPTER 1: INTRODUCTION

Section 450-8.016(b) of County Ordinance Code Chapter 450-8, as amended by Ordinance 2006-22¹, requires Stationary Sources to develop a written human factors program within one year of the issuance of a guidance document developed by the Contra Costa Hazardous Materials Programs (CCHMP). The written human factors program and therefore, the guidance document, must address the following:

- The incorporation of human factors considerations in the Process Hazards Analysis process;
- The consideration of human systems as causal factors in the incident investigation process for Major Chemical Accidents or Releases or for an incident that could reasonably have resulted in a Major Chemical Accident or Release;
- The training of employees in the human factors program;
- Incorporation of human factors into operating procedures;
- Incorporation of human factors into maintenance safe work practice procedures and maintenance procedures for specialized equipment, piping, and instruments, no later than June 30, 2011;
- The requirement to conduct a Management of Organizational Change prior to staffing changes for changes in permanent staffing levels/reorganization in operations, maintenance, health and safety, or emergency response. This requirement shall also apply to Stationary Sources using contractors in permanent positions in operations and maintenance. Prior to conducting the management of organizational change, the Stationary Source shall ensure that the job function descriptions are current and accurate for the positions under consideration. Staffing changes that last longer than ninety days are considered permanent. Temporary changes associated with strike preparations shall also be subject to this requirement. Employees and their Representatives shall be consulted in such Management of Organizational Changes;
- The participation of employees and their representatives in the development and on-going implementation of the human factors program;
- The development of a human factors program that includes, but is not limited to, issues such as staffing, shiftwork and overtime;
- The inclusion of a human factors program description in the Safety Plan; and
- How the management system will coordinate, and guide resources to accomplish the above and meeting all of the requirements of Section A of this guidance document.

Together these elements form the foundation of the human factors program. Full compliance by the regulated Stationary Sources is required with the submittal of their Safety Plan, without extension, such that human factors and management systems must be current and included in the safety programs. This includes following good engineering practices and standards, as applicable to manage and implement these programs.

The CCHMP initially established a Human Factors Program Committee including representatives with technical expertise in process safety and in human factors to develop a program guidance document. This revision by CCHMP is the result of an effort to review and improve the guidance document, and to reflect additional requirements from the amendments to the County Industrial Safety Ordinance.

This document identifies the programs and activities that **must**, **should**, or **may** be developed or conducted by Stationary Sources to meet the requirements of CCHMP in regards to a human factors program. **Must** is used in accordance with very general programs that CCHMP expects to be developed (e.g., a program to train employees on the human factors program) or that are otherwise required by existing regulation/legislation/ordinance. **Should** is used in accordance with general alternatives to meet requirements. **May** is used in accordance with specific examples of acceptable methods for addressing human factors and errors. Examples denoted as **should** or **may** are provided to assist sources in developing their own programs; however, alternative methods may be acceptable and must be discussed with and approved by CCHMP representatives.

Chapter 2 of this document provides a brief description of human factors and some of the existing classifications for and approaches to assessing human factor identification and resolution. Chapter 3 addresses evaluating and minimizing existing latent conditions. Chapter 4 provides methods for uncovering active failures and latent conditions during Process Hazard Analyses. Chapter 5 describes methods for identifying human systems as causal factors during incident investigations. Chapter 6 and 7 include requirements for procedures and management of change respectively intended to minimize the existence or propagation of latent conditions. Chapter 8 describes employee participation in the development and on-going implementation of the human factors program. Chapter 9 describes employee training needed in implementing the human factors program. During the audit of the human factors programs developed by Stationary Sources, CCHMP may issue action items (mandatory and/or non-mandatory) to correct and/or guide the program improvement.

¹ Modifications were made to the Contra Costa County's Industrial Safety Ordinance (ISO) in 2006. Major changes made to the human factors program requirements included: requiring changes to maintenance and emergency response staffing to undergo a Management of Organizational Change evaluation; and requiring human factors evaluations of maintenance safe work practice procedures and maintenance procedures for specialized equipment, piping, and instruments. Since the corresponding City of Richmond's Industrial Safety Ordinance has not been amended, Stationary Sources subject to the City of Richmond's ISO are encouraged to comply with the County ISO amendments.