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Points of View Regarding the Evaluation of Decisional Factors in Risk Management Associated to Large Combustion Plants

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Abstract

Risk management is a key component of strategic management in any organization, ensuring an effective management of potential opportunities and adverse effects of different risk categories. Risk management involves a number of decisions needed to be taken to relieve the effects of a disaster, meaning less danger to human life, destruction of assets and environment. The first step of this strategy is to acquire an evaluation of the risks involved.

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1. Introduction

Risk identification is the most important step in optimizing business agents operating large combustion plants further called LCP systems, within risk conditions. Generally, IMA systems are located in areas with potential risks: earthquake, landslides, environmental pollution (accidentally hydrocarbons pollution), flood (in certain locations), drought, chemical accident, fire/explosions (fuel, oxygen, hydrogen, acetylene, oil and reagents depots), transport accident, failure of public utilities (in case of earthquakes or/and large floods), terrorist or cybernetic attack. In addition, IMA systems can be considered high risk installations. A plant with risk is generally considered a plant that has "process units or depots, where in a potential bad incident results consequence with a significant effect on the workers inside the facility and on the public outside its borders."

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Given the functional structure of IMA systems, critical areas risk generators are those areas, buildings, facilities, equipment power stations, etc, where exists or may occur risks like explosions, fire, demolition of buildings or degradation of facilities, spills, seepage or spillage of toxic, or malicious human acts (terrorism, including cyber attack). For example, critical areas risk generators within a TPP(Thermal Power Plant) are: boilers , turbines and generators rooms, control rooms and power stations, fuel depots (underground tanks and/or ground stations, gas regulator units) pretreatment water facilities, oxygen, hydrogen, acetylene, oil and chemical reagents depots; communication systems (PBX digital radio broadcast stations, computer networks, including Internet) and administrative pavilions (workstations and servers, manager and head of departments cabinets, specialized offices).

For an overview of the implementing importance of a risk management system related to LCP further describing some risk categories determined by risk factors related to LCPs and risky maneuvers, specific to TPP's activities. Mechanical Risk due to running; the main risk factors are: pressurized containers, steam boilers, pipes through which circles steam at high pressure and temperature, pressurized gas pipes and various moving equipment (pumps, compressors, and so on). Electrical risk sources can be electrical installations, control rooms, outdoor high voltage stations, operating machinery supplied with electricity, etc. Chemical risk is mainly due to chemical treatment plants for used industrial water in power plants and thermal risk is caused by the high-pressure and temperature.

Within LCP systems along the energy production associated processes, are performed maneuvers with potential risk, for example: storage and handling of industrial hydrochloric acid, chemical reagents, sodium chloride, ammonia, soda lye. According with the written below, the plants with potential risk, used in LCP are: plants for chemical treatment of the industrial water (white was and ferrous sulfate), plants for water demineralization, plants for wastewater discharge, station for reduction of natural gas, download storage facility, preparation and dosing of hydrated lime dust, facility for preparation, dosing and dissolution of ferrous sulfate, compressed air facility, facility for storage, dissolution and transport of salt solution, the regenerating reagents management, oil and lubricants management, download facilities, solid fuel storage and breaking, liquid fuel storage (where is needed), liquid fuel download facility (tar), hydrogen production, storage and handling facility, clay and ashes management, ammonia solution storage and handling, etc.

2. Assessment Management Principles LCP's

The LCP's management has both performance management and associated LCP risk management. Performance management it's a projected process for the performance improvement of each employee, each decision factor, the teams involved in group analyze or decision activities, of entire organization and it is led by hierarchical management.

It is obvious that once the LCP's organization objectives are clear and relevant, the staff is selected, educated and continuously rated for being effective in objectives fulfillment, then the performance management system was well designed. So the performance management system characteristics include: clear bonds with organization objectives, with job requirements (through decision factors registry), rigorous and objective evaluation processes (on effective procedures of application, processing and interpretation of interview collected data, questionnaire but also continuously monitoring of the staff activities within LCP operating), with accent on individual development plans (increasing capability of LCP's operators), but also through rewords after evaluation.

For the top managers which exploits LCP systems, evolved into the staff performance evaluation system is important to know the importance of staff evaluation as being a key element into the human resource management, which allows an integrative approach because it interacts with other zones: recruiting and selection, organization structure (organizational chart and job descriptions), rewards, career planning/hierarchy, staff education and development. Considering this, it becomes obvious the careful making of performance evaluation system.

The evaluation of the LCP's management will contain:

- **Cognitive skills**:
  - detail attention: the ability to observe specific details, the ability to predict their importance and the consequences it can generate;
  - the ability to take decisions: the ability to use the decision as a management tool, the ability to choose the optimal direction of actions, to develop a number of alternative strategies and to choose the one that will bring the best team results; the ability to see the decision as a commitment;