Safety di Industry MIGAS

Cahyo Nursilo

26 Juli 2018

SAFETY

- **THINK INCIDENT FREE**

- **HAZARDS ANALYSIS**

- **OPERATING PROCEDURE**

- **VERIFICATION & VALIDATION**

- **HUMAN PERFORMANCE**

THINK INCIDENT FREE

1. RENCANA KERJA

2. PERALATAN ATAU KENDARAAN YANG COCOG

3. TRAINING

4. PIKIRAN

Job Hazard Analysis

What is a job hazard analysis?

A job hazard analysis is a technique that focuses on job tasks as a way to identify hazards before they occur.

It focuses on the relationship between

      1. the worker,

      2. the task,

      3. the tools, and

      4. the work environment.

Ideally, after you identify uncontrolled hazards, you will take steps to eliminate or reduce them to an acceptable risk level.

Operating Procedures or Standard Operating Procedures (SOP's)

https://www.osha.gov/dte/grant.../sh.../4_psm_standard_operating_procedures2.ppt

- Where Did This Methodology Come From?

- Answer: <u>The Military</u>

- Definition:
  1. A standard **operating procedure** is a set of instructions having the force of a directive, covering those features of operations that lend themselves to a definite or standardized procedure ==without loss of effectiveness==.

  2. Standard Operating Policies and Procedures can be effective catalysts to drive ==performance improvement== and improving organizational results.

  3. Every ==good quality== system is based on its standard operating procedures (SOPs).

VERIFICATION & VALIDATION

- ➢ **VISIBLE**

- ➢ **ENGAGE**

- ➢ **COACH**

- ➢ **MOTIVATE**

Human Performance

Five Principles

The framework of Human Performance is captured in five guiding principles:

1. People, even the very best performance people, will make mistakes.

2. Error-likely situations are predictable, manageable and preventable.

3. Individual behavior is influenced by organizational processes and values.

4. People achieve high levels of performance based largely on the encouragement and reinforcement received from leaders, peers and subordinates.

5. Events can be avoided by an understanding of the reasons mistakes occur and application of the lessons learned from past events.

Human Performance

Human error is often cited as the main cause for up to 80 percent of all incidents and accidents in complex, high-risk systems that exist in the aviation, petrochemical, healthcare, construction, mining, and nuclear power industries.

Many of the major events that occur in the bulk power system are initially labeled as being caused by individual human error. When the causes of these human errors are broken down further, they reveal that the majority of the errors associated with events stem from latent organizational weaknesses, which are not attributable to one individual.

People, even the very best people, will make mistakes. We have not fully understood an event if we do not see the human's actions as reasonable (when they are). Through careful and thorough analysis of events and near misses, and most importantly, the subsequent understanding of the root and contributing causes, organizations can prevent future occurrences.

Sound administrative and cultural controls can withstand human error. However, these controls are weakened when conditions are present that provoke error. Eliminating error precursors at the job site, workplace, or organization reduces the frequency or numbers of active errors. Events can be avoided through an understanding of the reasons mistakes occur and application of the lessons learned from past events and near misses. The systematic investigation and evaluation of events in the bulk power system is uncovering many of the latent errors that are dormant in the system. Through the events analysis initiative and the use of Human Performance analysis and applications, the lessons learned and good industry practices are being applied to further improve the reliability of the bulk power system.

Performance Modes

The Generic Error Modeling System has <mark>three performance modes</mark> in which errors occur. The performance mode is determined by the individual's familiarity with the task.

Progressing from most familiar to least, the three performance modes are
1. skill-based,
2. rule-based, and
3. knowledge-based.

The skill-based performance mode is characterized by routine actions in a familiar setting; these are activities that we take for granted, like driving a car.

The rule-based performance mode is characterized by the performance of prepackaged actions taken because of the recognition of a familiar situation. These recognized situations are not as familiar as skill-based activities, but they have been previously experienced and we utilize rules developed from experience to negotiate through the task. We apply an if-then logic to the situation; if this happens, then I do this to complete the task.

Knowledge-based activities are those with which we have the least familiarity. This performance mode gets its name from what is gained in these activities—knowledge. These are unfamiliar situations requiring an individual to use analytical skills and judgment to complete.

SAFETY IN DESIGN

Testimony of Professor Nancy Leveson before the United States Senate Committee on Energy and Natural Resources
NANCY LEVESON MAY 17, 2011

It is about how to engineer and operate safer systems and to manage safety risks successfully.

The low accident rates in industries that apply these principles, such as commercial aviation, nuclear power, and defense systems, are a testament to their effectiveness.

When an accident occurred then the investigations may claim that it clear that at least some players in this industry are not using basic and appropriate safety engineering technologies and practices.

A second type of dysfunctional safety culture might be termed a *Paperwork Culture*, where employees spend all their time writing elaborate arguments that the system is safe but little time actually doing the things necessary to make it so.

Back up slide

THINK INCIDENT FREE

1. **RENCANA KERJA:**
   1. *Bagaimana memahami tugas tersebut dan cara melakukannya dengan selamat.*
   2. *Bagaimana mengetahui adanya hazards yang berhubungan dengan tugas tersebut*
   3. *Bagaimana merencanakan untuk seluruh pekerjaan dari tugas tersebut*
   4. *Bagaimana mengikuti petunjuk atau kebiasaan kerja yang selamat, yang biasa dilakukan untuk menyelesaikan tugas tersebut.*
   5. *Bagaimana melakukan rencana kerja tersebut dengan selamat*
   6. *Bagaimana memperhitungkan apakah perlu bantuan agar bisa menyelesaikan tugas tersebut dengan selamat.*

2. **PERALATAN ATAU KENDARAAN YANG COCOG:**
   1. *Bagaimana menggunakan Alat Pelindung Diri yang diperlukan*
   2. *Bagaimana menggunakan Peralatan dan Kendaraan yang sesuai dengan tugas tersebut*
   3. *Bagaimana memastikan semua peralatan dan kendaraan dalam kondisi yang selamat.*

3. **TRAINING:**
   1. *Bagaimana memastikan bila sduah ditraining untuk melakukan tugas ini.*
   2. *Bagaimana memastikan bila sudah ditraining untuk menggunakan perlatan dan kendaraan yang diperlukan.*

4. **PIKIRAN:**
   1. *Bagaimana memberi perhatian yang penuh kepada tugas tersebut*
   2. *Bagaimana menghentikan pekerjaan dan mengulang rencana kerja dan Job Safety Analysis ketika ada yang tidak dikira telah terjadi.*
   3. *Bagaimana agar memenuhi bahkan melebihi kebutuhan keselamatan.*