Fatigue Risk Management System: RP 755

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PHMSA: Control Room Management (CRM) Workshop
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RP-755 Background

- **BP Texas City Incident, March 2005**
- **Investigated by Chemical Safety Board**
- **Finding:** "... *extended working period clearly has the potential to contribute to a lack of attentiveness, and slowness to identify and respond to process upsets."*
- **Recommendation:** "... *API and the United Steel Workers union work together to develop fatigue prevention guidelines that would, at a minimum, limit hours and days of work and address shift work*"
- **ANSI Committee first met, July, 2008**
- **Standard published, April, 2010**

RP 755: Key Concepts

- **Fatigue addressed via a comprehensive Fatigue Risk Management System (FRMS)**
- **FRMS informed by science and recognizes operational issues**
- **Key stakeholders shall be consulted in developing and implementing the local application of the FRMS**
- **Culture of fatigue management should be created in which the shared responsibility of mitigating risk is recognized**
- **Scope**
  - Refineries, petrochemical and chemical operations, natural gas liquefaction plants, and others such as those covered by the OSHA Process Safety Management Standard
  - Applies to locations where employees commute to work
  - On-site contractors expected to have equivalent programs
  - Employees working night or rotating shifts, extended hours/days or call outs

RP-755 & PHMSA CRM Standard

- RP-755 focused strictly on fatigue risk management
  - CRM scope includes other aspects of control room operations
- RP-755 more detailed than CRM's fatigue requirements
- RP-755 calls for use of management systems
  - CRM requirements similar to a management system
- RP-755 broadly consistent with CRM's fatigue requirements

RP-755 Elements Broadly Consistent with CRM

- **Staff-Workload Balance**
  - **CRM does not specifically require**
- **Training, Education & Communication**
  - **RP-755 calls for family members to be educated – otherwise similar**
- **Work Environment**
  - **CRM does not address**
- **Individual Risk Assessment & Mitigation**
  - **Similar requirements**
- **Incident/Near Miss Investigation**
  - **Similar requirements**

RP-755 Components (Con't)

- Hours of Service
  - RP-755 addresses
    - Consecutive days worked (normal operations and outages)
    - Consecutive hours worked
    - Exception/extended shifts process
  - CRM addresses consecutive hours worked and calls for hours of service guidelines which may be exceeded if necessary for safe operation
- Periodic Review of FRMS to Achieve Continuous Improvement
  - Similar requirements

Back-up; RP-755 Elements

RP 755: Elements

- **Staff-Workload Balance**
  - Initial & periodic assessment of staffing levels and workload balance
  - Ensures that hours of service guidelines are feasible
  - Recognizes workload variability across shifts, weeks and months
  - Accounts for planned and unplanned outages
    - Turn-arounds, hurricane recovery and emergency management situations
- **Employee Training, Education & Communication**
  - Employees
  - Family members
    - Awareness only
  - Supervisors
    - Training will focus on recognition and remediation of excess fatigue
- **Work Environment**
  - Key concern – lighting
    - Bright lighting where possible
    - Use indirect lighting to minimize glare and eye strain

RP 755: Elements (con't)

- **Individual Risk Assessment & Mitigation**
  - Individuals encouraged to be continuously aware of their level of fatigue
  - Programs to identify and address sleep disorders should be offered
  - Supervisors shall have the responsibility and authority to take appropriate steps to ensure fitness for duty per the FRMS
- **Incident/Near Miss Investigation**
  - Investigations of incidents should consider role of fatigue
  - Fatigue-related information collected should include:
    - time of incident
    - shift pattern incl. number of consecutive shifts worked
    - number of hours awake
    - number of hours slept in last 24 hours for individuals involved

RP 755: Elements (con't)

Hours of Service

Operational Situation	12-Hour Shift	10-Hour Shift	8-Hour Shift
Maximum Consecutive Shifts (Day or Night) In a Workset			
a) Normal Operations	**7 shifts**	**9 shifts**	**10 shifts**
b) Outages	**14 shifts**	**14 shifts**	**19 shifts**
Minimum time off after a workset			
a) Normal Operations	**36 hours**	**36 hours**	**36 hours**
▪ Workset of 4 or more night shifts	**48 hours**	**48 hours**	**48 hours**
▪ After 84 hours or more regardless of day or night	**48 hours**	**48 hours**	**48 hours**
b) Outages	**36 hours**	**36 hours**	**36 hours**

RP 755: Elements (con't)

Hours of Service (con't)

Extended shifts shall occur only to avoid unplanned open shifts or safety critical tasks

Operational Situation	12-Hour Shift	10-Hour Shift	8-Hour Shift
Unscheduled maximum shift	18 hours	16 hours	16 hours
Time off after shift			
10 – 16 hour shift	N/A	N/A	8 hours
12 – 16 hour shift	N/A	8 hours	N/A
14 – 16 hour shift	8 hours	8 hours	N/A
>16– 18 hour shift	10 hours	N/A	N/A
Maximum Daily Shift Length	18 hours	16 hours	16 hours
Maximum Number of Extended Shifts per Workset	1	- 1 for 14 hour shift or - 2 for 12 hour shifts - 3 or more 12 hour shifts, follow 12 hour normal operations guidelines above	extended shifts must be non-consecutive - 2 if greater than12 hours in duration - If >2, follow 12 hour normal operations above

RP 755: Elements (con't)

- **Exception Process**
  - Utilized when exceeding HoS or extended shifts
  - Involves immediate supervisor and another management representative
  - Includes documented risk assessment and mitigation plan
- **FRMS should undergo periodic assessments of its effectiveness and identify opportunities for Continuous Improvement**
  - Targets should be set for key parameters of FRMS such as:
    - Percentage overtime
    - Number of open shifts
    - Number of extended shifts
    - Number of exceptions
  - Metrics should be gathered to determine if targets are being met
  - Plans should be developed to close gaps between targets and actual FRMS performance