Using the NRT Technical Assistance Document:

Managing Worker Fatigue during Disaster Recovery Operations

NRT Extended Work Shift Work Group:
EPA, OSHA, NIOSH, FEMA, USACE, CPWR,
AIHA EI-SIG, Lippy Group
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Volume I

Guidance for Managing Worker Fatigue
During Disaster Operations

Technical Assistance Document

April 30, 2009

THE NATIONAL RESPONSE TEAM

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Volume II

Guidance for Managing Worker Fatigue
During Disaster Operations

Background Document

April 30, 2009

THE NATIONAL RESPONSE TEAM

Volume II: Background Document

- States Problem and Scope
  - Recovery Operations not Response
- Outlines Disaster Recovery Conditions and Hazards that Impact Workers
- Highlights the Research Reviewed
- Identifies Existing Regulations and Work Practices

Why Create a Technical Assistance Document?

- Long work shifts/weeks and worker fatigue were recognized as critical issues during recent disasters
- Guidance for recovery workers is limited; only a few NRT agencies have formal policies

EXISTING REGULATIONS AND WORK PRACTICES

- Transportation Industry
- Nuclear Power Industry
- Wild Land Firefighting
- Healthcare Industry
- U.S. Coast Guard (USCG)
- U.S. Army Corps of Engineers (USACE)

Literature Review Highlights

- Numerous studies show that accident rates increase when shifts exceed12 hours or work weeks exceed 60 hours
  - 12+ hrs/day—37% increased risk of injury/accidents and 60+ hours/week—23% increased risk of injury/accidents
  - Construction workers working 8+ hours/day—57% higher injury rate
  - Long shifts and 40+ hours/week—reduced performance, decreased alertness and cognitive function, increased fatigue, and increased injury levels

Literature Review Highlights

- Sleep deficits can lead to performance deficiencies and contribute to accidents and injuries
- Workers need more time off to recuperate from longer, more stressful work shifts
- Off-shift activities (e.g., athletic, social) can help workers recuperate
- Regular rest breaks can improve alertness and reduce the risk of injury, especially during long work days

Volume I: Process-Oriented Technical Assistance Document

- Manage fatigue at two levels through:
  - Organizational Program
  - Incident-Specific Plan
- Common elements:
  - Assessment
  - Identification and Evaluation of Fatigue Risk Factors
  - Controls
  - Evaluation

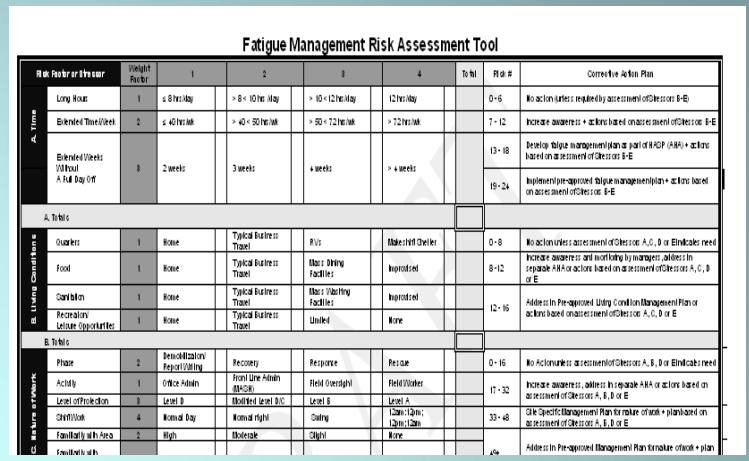
Volume I: Process-Oriented Technical Assistance Document

- **Assessment**: Analysis of the incident(s), tasks/operations, and site conditions
- **Identification and Evaluation of Fatigue Risk Factors**:

  List of fatigue risk factors and significance of each to overall risk
- **Controls**: Policies, procedures, and work practices to mitigate risk factors
- **Evaluation**: Process for evaluating program/plan effectiveness

Fatigue Risk Factors

- Work Hours and Rest Periods
  - Long work hours
  - Shift work/rotating shifts/night shifts
  - Lack of/limited rest breaks
- Site Conditions
  - Chemical, biological, and physical hazards
- Living Conditions
  - Temporary or communal living conditions



Fatigue Management Risk Assessment Tool

	Risk Factor or Measure	Weight Factor	1	2	3	4	Total	Risk #	Corrective Action Plan
A. Time	Long Hours	1	≤ 8 hrs/day	> 8 < 10 hrs /day	> 10 < 12 hrs/day	12 hrs/day		0 - 6	No action unless required by assessment of Stressors B-E)
	Extended Time/Week	2	≤ 40 hrs/wk	> 40 < 50 hrs/wk	> 50 < 72 hrs/wk	> 72 hrs/wk		7 - 12	Increase awareness + actions based on assessment of Stressors B-E
	Extended Weeks Without A Full Day Off	8	2 weeks	3 weeks	4 weeks	> 4 weeks		13 - 18	Develop fatigue management plan as part of HASP (AHA) + actions based on assessment of Stressors B-E
								19 - 24	Implement pre-approved fatigue management plan + actions based on assessment of Stressors B-E
	A. Totals								
B. Living Conditions	Quarters	1	Home	Typical Business Travel	RVs	Make/Shift Shelter		0 - 8	No actions unless assessment of Stressors A, C, D or E indicates need
	Food	1	Home	Typical Business Travel	Mass Dining Facilities	Improvised		9 - 12	Increase awareness and monitoring by managers ,address in separate AHA or actions based on assessment of Stressors A, C, D or E
	Sanitation	1	Home	Typical Business Travel	Mass Washing Facilities	Improvised		12 - 16	Address in Pre-approved Living Condition Management Plan or actions based on assessment of Stressors A, C, D or E
	Recreation/ Leisure Opportunities	1	Home	Typical Business Travel	Limited	None			
	B. Totals								
C. Nature of Work	Phase	2	Demobilization/ Report/Waiting	Recovery	Response	Rescue		0 - 16	No Actions unless assessment of Stressors A, B, D or E indicates need
	Activity	1	Office Admin	Front Line Admin (MASH)	Field Oversight	Field Worker		17 - 32	Increase awareness , address in separate AHA or actions based on assessment of Stressors A, B, D or E
	Level of Protection	8	Level D	Modified Level D/C	Level B	Level A		33 - 48	Site Specific Management Plan for nature of work + plan based on assessment of Stressors A, B, D or E
	Shift/Work	4	Normal Day	Normal night	Swing	12am-12pm; 12pm-12am			
	Familiarity with Area	2	High	Moderate	Slight	None			Address in Pre-approved Management Plan for nature of work + plan
	Familiarity with								

- Nature of Work
  - PPE use
  - Unfamiliar work environment/work task
- Emotional Issues
  - Psychological Issues

Fatigue Management Risk Assessment Tool

- Guidance for Managing Worker Fatigue During Disaster Recovery Operations

ASSESSMENT

- **MIL-STD-882D -10 February 2000**
- **US CG SPE**
- **US CG GAR**
  - Calculate numerical values which assist in making Smart Risk Decisions
  - Used to make Go - No Go decisions or determine Level of Authority for decision making.
- Evaluates added Risk due to fatigue
- Exposure X Severity weight factor

ASSESSMENT TOOL

- Five Risk Factors
  - Time
  - Living Conditions
  - Nature of Work
  - Site Conditions
  - Emotional

  Fatigue Management Risk Assessment Tool062308.Doc

Using the NRT Technical Assistance Document

- Managing Worker Fatigue during Disaster Recovery Operations
- Facilitated discussion

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Representing AIHA

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