Emergency Action & Response Planning

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Hazards

- Vehicles Accidents
- Injuries & Fatalities
- Weather
- Fire & Explosions
- Earthquake

- Active Shooter
- Environmental
- Power Loss
- Terrorist
- Disease
Do Any Of These Look Familiar?
Emergency Action Planning Cycle

- Mitigation
- Preparedness
- Emergency Management
- Recovery
- Response
Consequences!

- The Media
- The Public
- Regulators
- Insurance Costs
- Production
- Future Contracts
Preparedness

Mitigation

Preparedness

Emergency Management

Response

Recovery
Preparedness

Minimum Requirements for a Written Plan:

– OSHA 1910.38; 1026.35; and ...

– Section 5(a)(1) General Duty Clause

– API 49 7.3-8; 68 7.3-9

“Written plans are worthless if they are too complicated to implement in an emergency!”
Preparedness

Written Plans must include:

- Reporting procedures
- Evacuation, Exit Route, and Critical Duties procedures
- Shelter-in-Place procedures
- Muster Point and Accountability procedures
- Rescue & Medical procedures
- Training Plans for All Employees – Practice Drills
- Program audit procedures

Plans must be written for each worksite. Not one size fits all.
Preparedness

Written Plans must:

• Cover all potential hazards
• Be specific to each unique work site; and
• Be easy to understand and implement

• Sample Plan
Preparedness

A thorough *Hazard Assessment* for each worksite is the key to a successful plan.

You have 3 options for most Emergency Responses

1. Do Nothing – Wait and See What Happens
2. Evacuate to a safer place
3. Shelter-in-Place
Preparedness

Best Ways To Prepare:

• Drill on Your Procedures
• Learn from Others
• Coordinate Resources and Drills with Stakeholders (company, subs, communities, etc.)
Response
Response

At that moment,

how do you handle the event?
“Dude, Where Do We Go?”
Response Plan must have Critical Actions & Directions

- Communication Links and Capability
- Command & Control
- Rescue and Medical Treatment
- Damage Assessment
- Outside Resources Coordination
- Media Control
- Response Plan to Management w/ Targets
How Long Does a Response Last?

Until Recovery Begins!
Recovery
How Do You Know When Recovery Begins?

• Days/Weeks/Months/Years
• Production back on line (drilling, completion, production, construction, etc.)
• Media Losing Interest (news cycle, articles, internet blogs, etc.)
• Lawyers Showing Interest
• Regulators Showing Interest
Mitigation
What is Mitigation?

• Mitigation is the effort to reduce the loss of life and property by lessening the impact of disasters in the future.
Value of Mitigation?

• Creates Safer Work Sites and Communities
• Speeds Recovery Process
• Saves Money
Key Activity - After Action Review

- What Happened?
- What Went Well?
- What Needs to be Improved?
- Objectives, Assignments, and Time Tables
- Follow Up with Top Management
Value - After Action Reviews

- Creates detailed action plans w/ dates
- Creates metrics for management reviews
- Gives speaking points to media
- Provides credibility to Regulators and Insurance Companies
- Keeps Employees Informed
- Institutionalizes Key Learnings for Organization
Case Study?

Tornado

• Anchoring of Rig Site Shelter–in-Place
Cactus Drilling Rig #117

Oilwell 860E -
• Rated at 1500 HP.
• 142’ Derrick
• 1 Million pounds static hook load.
• 30’ Floor Height

8 Miles West of El Reno, OK
Front Anchors Snapped, Rear Held
When anchors snapped, Shelter-in-Place was partially airborne. Rear anchors held.
Tornado Shelter Design

Energy absorption (massive impacts)

Understanding wind loads

Up Lift

Overturn

Skid (+)

Skid (-)
At 350 mph...

What are the physics?

It is obvious that a box-like house with six, 10,000 # anchors can **not** withstand such Wind forces.

8,300 lb. Std Conex box

99,000 #/s

85,800 #'s

8,300 #'s

700,000 ft-lbs

10,000 # anchors
Forces generated by 350 mph wind impacting long side

The wind accelerates as it passes over the top creating “wing lift” (negative pressure) that “aspirates” air from beneath the floor. This causes a vacuum beneath the floor that is much greater than the uplift. This vacuum “forces” the unit downward preventing movement in any direction.

As wind speed increases, dual internal 14” Vacuum tubes cause dynamic equalization of the static pressure at the roof apex with the pressure inside the enclosed “basement” stabilizing shelter thus forcing the safe room downward.

The Faster the Wind the MORE stable the shelter

113,400 #'s

39,800 #'s

41,000 #'s

73,000 #'s

185% Safety Factor

*US Patent 8,136,303 and 8,245,450 and 8,375,642 and other Patents Pending*
Key Findings from Mitigation Analysis

• Having an Emergency Response Plan is Good
• Providing Shelter-in-Place is Necessary
• Mechanically Anchored SIP is inadequate
• New Anchoring Technology exists
• Aerodynamic Anchoring of SIP is better
Conclusion

- Emergency Response Plans Are Essential
- Each phase drives towards “Response”
- Evaluation, Training, and Drills Pay Off
- Keep An Eye On Technology
• Questions?
• Comments?
• Concerns?
Red Dog
Anchorless Multipurpose Safe Rooms