# A Collaborative Approach to Safety in an Incident & Injury Free Environment

**Manson Construction**

**Great Lakes Dredge & Dock**

**Weeks Marine**

**IIF – Making it Personal**

# In an Incident & Injury Free Environment

*To be successful safety leaders at all levels in our organizations, we need to continuously strive to grow our safety culture by making it…*

*Personal*, *Relevant* and *Important*

*and share best practices.*

## Our Collaborative Approach

- Reduce accident risk for dredging contractors by taking a more predictive approach to risk
- Avoid duplication of efforts by sharing successes on leading indicators
- Encourage close industry, sub-contractor and customer cooperation to meet common safety objectives

## Examples of Leading Indicator Programs from IIF Contractors

- **2011 Safety Action Plans**
  - Sets vision and strategic aims of company/divisions
- **Safety Leadership Teams**
  - Review safety performance
  - Drive continuous improvement
- **Safety Contacts with field personnel**
  - Adopt a Dredge (GLDD)
  - Listening Tours (Weeks)
  - Safety Tours (Manson)
- **Data driven analysis**
  - Used as a predictive tool

## Examples of Leading Indicator Programs from IIF Contractors

- **IIF Project Kickoff Meetings**
  - Brings Senior Leaders, Operations Personnel, Customers and Sub-Contractors together to plan strategy for conducting an IIF project
  - Reviews scope of work and contract specification requirements
  - Reviews known and potential Safety, Health & Environmental concerns
  - Provides an opportunity for a new hire orientation to IIF and reinforcing the message to experienced workforce
- **In-depth Incident Investigation of all OSHA Recordable Injuries and serious near misses**
  - Objective is to prevent a recurrence of the incident.
  - Intent is not to place blame but to identify Safety Management System failures.

## Industry/Corps Safety Partnering

- Corps District attendance at IIF Project Kickoff Meetings is encouraged.
- Our Incident & Injury Free message continues to be spread at Corps venues such as "Safety Pays" and "Salute/Celebrate Safety" conferences.
- Safety Professionals in the dredging industry have been partnering with Corps HQ Occupational Safety and Health Office continuously for over 13 years in the development of best practices and safety initiatives. (eg: DSMP, CDMCS, EM385-1-1 input).

## How IIF Has Made a Difference Particularly in the Last Year

- Severity of injuries is substantially down.
- Senior management's support and involvement is evident to everyone.
- Workers know that they are empowered to stop any task without repercussion if they feel it's not safe.
- Accidents are more thoroughly investigated, and lessons learned are communicated throughout the companies.
- More focus on training, not only safety but leadership development as well.
- Safety stand-downs are mandated when project interventions are needed.
- More reporting and prompt correction of unsafe acts, unsafe conditions, and near misses.

## Key Challenges in an IIF Environment

- Getting Sub-Contractors involved
- Keeping Supervisors engaged
- All Project Partners actively participating
- Accountability for Safety
- Sustaining and recreating IIF
- Monitoring projects / Timely intervention
- Ensuring that safety and production go hand-in-hand

## Sustaining a Culture Change

- An *Incident and Injury-Free* commitment represents a core and defining value. It underpins how we operate and it continues to evolve.
- Sustainable culture improvement cannot be achieved overnight.
- We need to build a groundswell of companies in the dredging and construction industry standing together for this commitment with the support and encouragement from the Corps of Engineers.

## What the Corps Can Do to Support the Dredging Industry's Safety Efforts

- Corps Senior Leaders would benefit from visiting project sites and learning more about the inherent dangers in the dredging environment and what measures are being taken by contractors to mitigate risk.
- Accept invitations from contractors to attend Safety Leadership Team meetings and share your experience and knowledge.
- Support the efforts of the Council for Dredging and Marine Construction Safety (CDMCS) by actively participating in their quarterly meetings, in person or by conference call.
- Transition from traditional safety values to transformative safety which is the foundation of IIF.

# In an Incident & Injury Free Environment

*To be successful safety leaders at all levels in our organizations, we need to continuously strive to grow our safety culture by making it…*

*Personal*, *Relevant* and *Important*

*and share best practices.*

# CDMCS

Council for Dredging and Marine Construction Safety

**Our Mission**

To improve safety standards and best practices for the dredging and marine construction industry.

**Our Goals**

- Promote a culture of safety at all levels
- Resolve safety issues
- Apply lessons learned
- Enhance marine safety training
- Foster the development of safety management systems

# CDMCS

## Council for Dredging and Marine Construction Safety

### Membership

Open to all Industry contractors, labor unions, Federal agencies, safety professionals and trade associations.

### How to Get Involved

- Send request through CDMCS' Contact Us page at www.cdmcs.org.
- Attend a quarterly meeting as a guest.
- $500 for first year, $250/yr. thereafter – grants full access to member products
- Come attend our quarterly meetings.

# TOOLBOX TOPICS

CDMCS
COUNCIL FOR DREDGING AND MARINE CONSTRUCTION SAFETY

## Issue: Confined Spaces

Confined Spaces are enclosed work areas with limited access, poor flow of fresh air & potential for flammable atmospheric conditions. Examples: below deck compartment, top side control room or even a well lit equipment room.

Aren't all the warnings and procedural checks simply overkill? Think about this: According to a study performed by Safety Sciences, the following types of confined space incidents resulted in injuries and /or fatalities.

| Event Type | Occurrences | Injuries | Fatalities |
|---|---|---|---|
| No Oxygen | 80 | 72 | 78 |
| Explosion/Fire | 15 | 49 | 15 |
| Explosion/Fire at Entry Point | 23 | 20 | 32 |
| Electric Shock | 11 | 2 | 9 |
| Cave-In | 16 | 0 | 16 |
| Struck by Falling Object | 15 | 1 | 14 |

**What the numbers say:**

- 54 % of the people exposed to oxygen deficient conditions died.
- For every fire within a confined space, one person died.
- Fire at point of entry caused multiple fatalities in a single event.
- Cave-ins left 100% of victims dead.

Still think safety rules pertaining to confined spaces are overkill? It is important to know what you are getting into. Has the space been recently inspected by certified industrial hygienist, marine chemist or shipyard competent person?

Have instruments been used to determine the presence or absence of combustible or flammable vapors? Do these instruments show the oxygen level to be between 19.5 and 22.5%? Is a "safe for hot work/safe for workers" permit required? Are the contents of the space stable? Are the conditions of the permit or certificate being followed to the letter?

Confined space work is dangerous. However, it can be done safely if appropriate precautions are taken. The hazards in most cases are invisible, so take the following precautions before entering:

- Test before entry
- Evaluate potential hazards including physical
- Ventilate
- Use Buddy System
- Continually Monitor Atmosphere
- Rescue Equipment must be available with trained personnel. (Improperly trained rescuers often die attempting to save their buddy.)

*Resources: Company Confined Space Policy, OSHA Maritime Standards, USACE & NAVFAC Requirements*



# SAFETY BITS

CDMCS
COUNCIL FOR DREDGING AND MARINE CONSTRUCTION SAFETY

**Incident:** Man overboard not wearing a personal flotation device (PFD).

## Details:

A piledriver who was performing a welding operation on the rake end of a barge during an effluent pipe repair operation fell overboard. To compound things the accident occurred during the winter in mid February in the evening hours. The welder was laying out his welding leads from the welding machine which was located on the aft end of a 120' x 40' barge. While in the process of dragging his leads down the deck a twist lock connection became hung up. When the welder, who had his back to the machine and the leads on his shoulder, pulled to free the leads the twist lock connection came undone. When the leads parted suddenly the welders' forward momentum pitched him off the rake end of the barge into the effluent sewage discharge that was occurring at the time. The individual was dressed in heavy winter clothing and wearing welding leathers and was not wearing a PFD. Fortunately for the welder diving operations were being done from that location on the barge and a dive ladder that would not have normally been there was secured in place. Additionally, the upward force of the effluent discharge helped keep the individual on the surface until another piledriver was able to reach him with a boat hook and pull him to the ladder. After a change of clothing and a trip to the emergency room to be checked out the individual was okay.

## Causes:

**Direct Causes:**

1. Lack of proper safety rail or tie off in work zone.
2. Failure to wear proper PFD.
3. Failure of the twist locks connection on the welding leads

**Indirect Causes:**

1. Failure to set up welding machine in the work zone.
2. Catch points / tripping hazards on deck.

## Recommendations:

- Supply low profile PFD for welders that can be worn at all times. Standard issue work vests are bulky, especially when worn over winter clothing, and difficult to wear when welding.
- If a PFD cannot be worn because of flammability issues or won't fit under the welding shield the area should be properly barricaded.
- Make sure all twist lock connections are not worn and are in good working order.
- Keep the deck free of all tripping and catch points.
- At a minimum there should be a properly secured ladder on both the aft and rake end of the barge and mid-point on larger vessels.

# CDMCS

Council for Dredging and Marine Construction Safety

**Partnering on Safety**

- Corps Safety Manual & Contractual Revisions – full coordination between Government and industry CDMCS Members
- Regulatory Rulemakings – collaboratively review and coordinate comments to lawmaking bodies
- Industry Safety Statistics & Performance Metrics – discuss incidents, near misses, and trending
- Share Best Practices – target problem areas, elevate awareness and seek solutions

# USACE Marine Construction Safety MAY 2011

Karl Anderson
Safety and Occ Health Office
Headquarters USACE

BUILDING STRONG®

## Site Safety and Health Officer Guidance

- Evaluating SSHO requirements:
  - Number needed
  - Experience requirement
  - Use of Designated Representatives
  - Location of SSHO/ DR
- Developed draft from 2 rounds of comments from USACE and Industry
- Draft language is being reviewed and revised by USACE project personnel; expect final product this summer



## EM 385-1-1 Updates

- Available online at the HQUSACE website, under publications
- Listed as numbered changes
- Each change usually centered around one topic
- Changes are developed by USACE PDTs
- Drafts sent to AGC, DCA, etc. for comment if they will be more restrictive

## *EM 385-1-1, Changes*

- Change 2: Fall Protection Updates based on changes to ANSI Z359
- Change 3: Personal Floatation Devices (Section 5)
- Change 4: Hydrostatic Testing of Lines
- Change 5: Rigging
- Change 6: (future) Crane Operators



## Crane Accidents

- In the last 10 months, USACE operations (Contractor and in-house) have suffered almost 20 major accidents.
- Causes are broad in scope, including:
  - ►Untrained operators
  - ►Mishandling equipment
  - ►Rigging errors
  - ►Equipment failures

# Crane Accidents

- In near future, USACE will conduct examination of every piece of hoisting equipment on contracts, especially cranes. Will list:
  - ►Type of equipment
  - ►Last inspection
  - ►Last tests (load, performance)
  - ►Operator qualifications



# Crane Accidents

- We plan to use this data to get a picture of how we and our contractors are doing regarding compliance
- Hope to identify any areas of weakness
- Will share results, in national terms, with AGC