

MAI-2013-22

UNITED STATES  
DEPARTMENT OF LABOR  
MINE SAFETY AND HEALTH ADMINISTRATION  
Metal and Nonmetal Mine Safety and Health

REPORT OF INVESTIGATION

Surface Nonmetal Mine  
(Common Sand)

Fatal Other Accident (Drowning)  
December 10, 2013

Hunter Sand & Gravel, LLC  
Dredge IV  
Paducah, McCracken County, Kentucky  
Mine ID No. 15-17687

Investigators

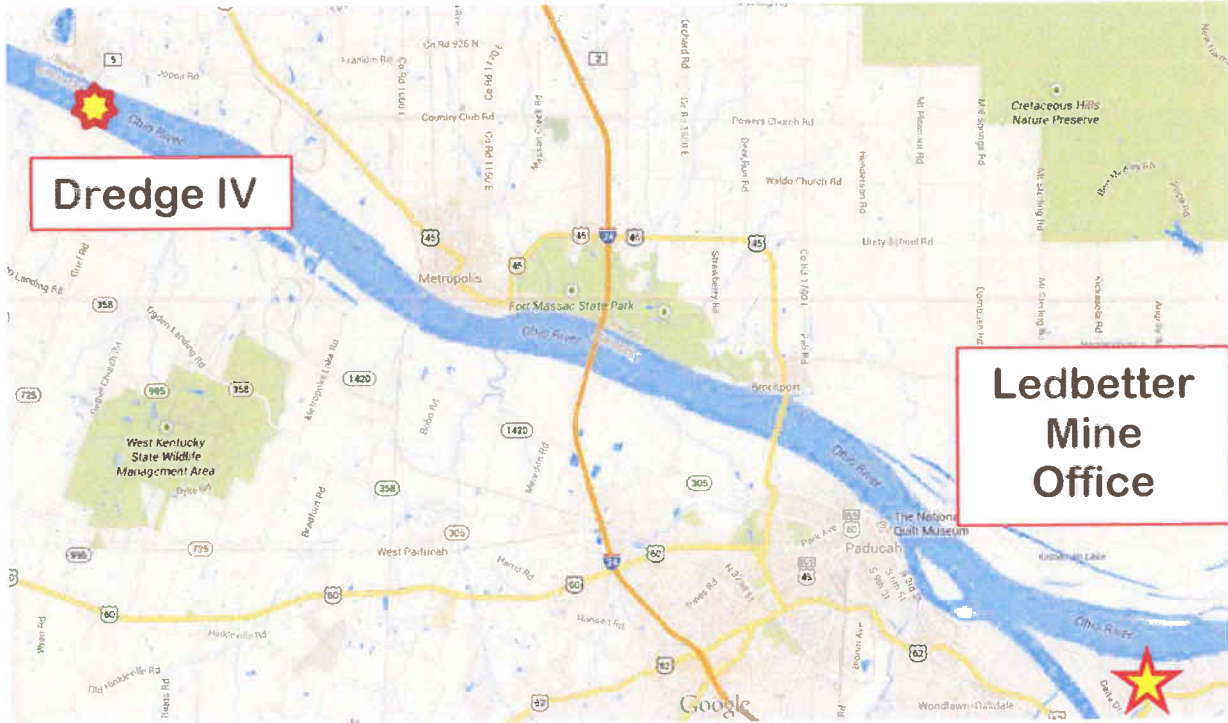
Scott Johnson, P.E.  
Supervisory Mine Safety and Health Inspector

Sonia Conway  
Mine Safety and Health Inspector

Michael Pruitt  
Mine Safety and Health Specialist (Training)

Originating Office  
Mine Safety and Health Administration  
Southeastern District  
135 Gemini Circle, Suite 212  
Birmingham, AL 35209  
Samuel Pierce, District Manager





Dredge IV is located outside Joppa, Illinois, approximately 21 miles downstream on the Ohio River from the mine office in Ledbetter, Kentucky (32 miles by road).





## OVERVIEW

On December 10, 2013, Dustin Burnham, Dredge Deck Hand, age 27, drowned when he fell into the Ohio River. Burnham walked onto barge MEM 611 to measure the amount of material in the barge (take a draft reading) when he lost his footing and fell into the river. A tugboat (Patsy M) was attached to the barge and Roger Fairfield, Tugboat Pilot, saw Burnham in the water. Fairfield disconnected the tugboat from the barge to rescue Burnham who was approximately 20 yards down river when he disappeared below the surface of the water.

Burnham had been taking a break in the break room on Dredge IV when Robert Douglas, Dredge Foreman, called on the radio for a draft reading. Douglas was in the control room loading the barge and needed a draft reading to determine if the barge was ready to be moved. Burnham left the break room and walked to the barge. Fairfield saw Burnham get on the barge, but did not watch him as he traveled to the other side of the barge to obtain the draft reading. Typically, miners had to manually check the readings several times each shift to ensure the barge was being loaded correctly.

The accident occurred due to management's failure to ensure that a competent person examine each working place at least one each shift for conditions which may adversely affect safety or health. Accumulations of snow and ice were not removed from the deck of the barge. The snow and ice on the barge covered the barge rigging which created an additional slipping and tripping hazard.

Management also failed to enforce a life jacket policy. Persons interviewed stated miners were known to forget or refrain from wearing their life jackets and had to be frequently reminded. Several spare life jackets were available in the break room. Burnham's life jacket was lying in a chair next to his cell phone. Additionally, management failed to provide a safety belt and line to ensure the victim could not fall into the river.

## **GENERAL INFORMATION**

Dredge IV, a vacuum dredge facility operated by Hunter Sand & Gravel, LLC, and owned by HMT Holdings, Inc., is located on the Ohio River near Joppa, Massac County, Illinois. At the time of the accident, the principal operating official for the dredge was Carl Blanchard (Hook), Operations Manager. The dredge operates 24 hours a day, five to six days a week. Total employment is 10 persons that work two 12 hour shifts.

Dredge IV is anchored to the bottom of the river. The dredge rotates a suction head with the aid of two spuds, allowing the vacuum hose to sweep the river bottom. The sand is pumped to the top of the dredge and a series of screens and belts separate the material. Screened sand is loaded into an attached barge. A tugboat is used to bring the empty barges to the dredge and remove the loaded barges. The tugboat takes the loaded barges to a mooring along the river bank near Joppa, Illinois.

The Mine Safety and Health Administration (MSHA) completed the last regular inspection at this operation on May 23, 2013.

## **DESCRIPTION OF THE ACCIDENT**

Dustin Burnham (victim) started his shift at 6:00 p.m. on December 9, 2013, the day prior to the accident. The crew of five miners initially checked the condition of the equipment including the fluid levels. The crew finished loading a barge that had been partially loaded by the previous crew. Burnham and Eddie Henson, also a Dredge Deck Hand, changed spuds around 12:15 a.m., December 10, 2013. About 1:30 a.m., they took a break in the dredge's break room. Persons interviewed stated it was a common practice to remove life jackets and coats while in the break room.

About 2:15 a.m., Henson left the break room to turn on a propane heater. Douglas called on the radio for a draft reading. Burnham responded to this call and left the break room to obtain the draft reading. Fairfield then noticed Burnham get onto the barge, but did not see him walk across the barge.

Fairfield looked away from Burnham to check the position of another vessel, the Diane B. Siegel. At approximately 2:45 a.m. Fairfield turned back and saw a light in the water moving down river with the current. He immediately called on the radio "Man Overboard!" Rodney Story, Tugboat Deck Hand, was in the

galley of the tugboat when he heard the call. Story released the facewires from the barge, freeing the tugboat from the barge. Fairfield then maneuvered the tugboat near the visible light in the water. Story grabbed a life ring and stood at the head of the tugboat. As the tugboat neared the light, Story saw Burnham's head lamp under water and saw him sink out of sight before a rescue could be made.

Carl Blanchard, Dredge Operations Manager, was at his home and heard the "Man Overboard!" distress call on his handheld radio. When the distress call was made, Blanchard immediately notified the United States Coast Guard. Blanchard then called Robert Stone, Manager Sales & Compliance.

The McCracken County Disaster and Emergency Services (DES) responded and was involved in the search daily until it was called off on December 19, 2013.

### **INVESTIGATION OF THE ACCIDENT**

Robert Stone called MSHA's National Call Center about 4:16 a.m. EST on December 10, 2013. The National Call Center notified Michael Evans, Safety Specialist, and an investigation started the same day. A verbal order was issued under the provisions of 103(j) of the Mine Act to ensure the safety of the miners. At 7:00 a.m., soon after the first Authorized Representative (AR) arrived at the mine, this order was modified to 103(k) of the Mine Act.

MSHA sent an inspector from the Franklin, Tennessee Field Office to secure the accident scene until the accident investigation team could arrive. By 11:00 a.m., two members of MSHA's accident investigation team from the Lexington, Kentucky Field Office arrived at the mine and made a physical inspection of the accident scene. A third member of the investigation team from Educational Field Services (EFS) arrived that evening. The accident investigation team interviewed employees, examined the accident scene, and reviewed documents and work procedures relevant to the accident. MSHA conducted the investigation with the assistance of mine management and employees.

## **DISCUSSION**

### **Location of the Accident**

The accident occurred on barge MEM 611. It was attached to Dredge IV and was being loaded at the time of the accident. This dry bulk cargo barge was a nominal 200 foot in length and 35 foot wide. The walkways on the lengths were 39 inches wide. The raked (sloped) end had a 13 foot wide walkway and the stern end had a six foot wide walkway. The coamings (side walls) were four feet above the decking. This open barge had no outside railings.

### **Weather**

The weather on the morning of the accident was clear with a temperature about 23 degrees Fahrenheit. The river rose approximately four feet the previous day, making the current swift. The water temperature was about 40 degrees Fahrenheit. The wind speed averaged 7 mph that day, with gusts up to 18 mph. Weather was considered a contributing factor to the accident. The temperature for the Joppa area had been below freezing since 4:00 p.m. on December 5, 2013.

### **Rescue and Recovery**

The list of organizations and personnel that participated with rescue and recovery efforts include but is not limited to the following: Metropolis Fire Department, Metropolis EMS, McCracken DES, US Coast Guard, Massac County EMS, Massac County Sheriff's Department, Indiana Department of Natural Resources, and Joppa Fire Department along with many individual volunteers. Many volunteers, including family members, searched the downstream banks for weeks following the accident. The body of the victim has not been recovered as of the issuance of this report.

### **Factors Causing the Victim to Fall into the River**

- The snow and ice partially covered the rigging along the barge's walkway. The victim slipped and fell into the water. Management was aware the deck of the barge was covered with snow and ice; however, no action was taken to sand, salt, or clear the barge deck's regularly used walkway of snow and ice.

- Miners travel barge walkways to obtain draft readings and collect sand samples several times a shift while loading each barge. Barges were not included in the workplace examinations being conducted. Management failed to ensure that a competent person examined each working place, at least once each shift, for conditions which may adversely affect safety or health.
- The victim walked onto a snow and ice covered barge to obtain draft readings on the opposite side of the barge. The victim slipped on the barge and fell into the water. During attempted rescue within minutes from falling overboard, the victim sank into the water instead of floating to the surface, indicating the victim was not wearing a life jacket.
- Management failed to provide and require safety belts and lines for the miners working on the barges when there was a clear danger of falling.
- Management failed to provide safe work procedures that addressed snow and ice accumulation on deck surfaces and the additional safety risk that it poses. During the loading of the barges, the slope of the deck varies based on the loading process. At the time of the accident, the barge decking was sloping approximately 14 percent (8 degrees) away from the dredge.

### **TRAINING AND EXPERIENCE**

Prior to starting work for Hunter Sand & Gravel, LLC, Burnham had about 55 months of mining and/or river experience that included the following: loading barges, trains, operating a front-end loader, putting together barges and making and cutting tows. On February 14, 2013, Burnham completed 24 hours of Part 48 New Miner Training through the Illinois Eastern Community College at the John A. Logan College and began working at the Calvert City Terminal. Burnham received Part 46 Newly Hired Experienced Miner Training when he began working for Hunter Sand & Gravel, LLC on October 22, 2013.



## ROOT CAUSE ANALYSIS

Investigators conducted a root cause analysis and the following root cause was identified.

Root Cause: Management failed to provide a safe work environment for the miners on the barges. Specifically, the operator failed to identify the hazard of snow and ice accumulation on the barge decking. This accumulation also covered the hidden danger of slip and trip hazards. Additionally, management failed to enforce a life jacket policy.

Corrective Action: The barges at this mine have been under a Section 103(k) order since December 10, 2013, and have been the subject of an ongoing investigation. On March 21, 2014, the operator implemented a safe and effective means of having miners obtain draft readings and sampling on the barges. These new procedures incorporate a fall-arrest system to prevent a miner from falling into the river while obtaining draft readings and samples. These new safety measures on the barges include the following:

1. The wearer's name should be written on or securely affixed to his/her Approved Personal Flotation Device (PFD),
2. Promptly after a barge arrives alongside Dredge IV, the condition of the barge walkways shall be determined. Any hazardous conditions shall be properly abated by the responsible Competent Person before any employee uses the walkway for any reason other than hazard abatement.
3. No activity by any employee on or along the barge outboard walkway is permitted unless the fall-arrest system described below is utilized.
  - a. Employees must wear and securely buckle an approved fall-restraint belt equipped with the appropriate lanyard secured to the belt before boarding a barge for this purpose.
  - b. A barge coaming clamp shall be affixed to the upper rim of the stern coaming, with the semi-circular back of the clamp positioned against the coaming rim. The clamp must be affixed sufficiently far from the outboard edge to cause the lanyard to be taut when the employee is in position to take the draft reading. The taut lanyard must prevent access to any point less than twelve inches from the outboard edge.
  - c. After the coaming clamp is affixed, the lanyard carabiner is to be snapped onto the coaming clamp. The employee then may take the outboard draft reading.

- d. Correct location of the coaming clamp, securely affixed to the coaming rim, restrains the employee from getting too close to the outboard edge, but allows for safe access to obtain a barge draft reading from the outboard stern area of the barge.
  - e. Upon completion of the task, the carabiner must be unsnapped from the coaming clamp. If another coaming clamp is available for use at the bow end of the barge, the clamp must be left affixed to the coaming rim until no further readings will be taken at the stern corner of the barge. If another coaming clamp is not available, the coaming clamp shall be removed and carried to the bow.
  - f. The process shall be duplicated at the bow of the barge by affixing a coaming clamp to the rim of the bow coaming in a similar manner and attaching the lanyard.
  - g. Access to the outboard walkways is to be accomplished by using the bow and stern decks of the barges.
4. At no time will a miner travel the outboard walkway while it is attached to the dredge. This 'red zone' will be off-limits.
  5. All coaming clamps must be removed from the barge before the barge leaves the vicinity of the dredge.

## CONCLUSION

The accident occurred due to management's failure to ensure that a competent person examine each working place at least one each shift for conditions which may adversely affect safety or health. Accumulations of snow and ice were not removed from the deck of the barge. The snow and ice on the barge covered the barge rigging which created an additional slipping and tripping hazard.

Management also failed to enforce a life jacket policy. Persons interviewed stated miners were known to forget or refrain from wearing their life jackets and had to be frequently reminded. Several spare life jackets were available in the break room. Burnham's life jacket was lying in a chair next to his cell phone. Additionally, management failed to provide a safety belt and line to ensure the victim could not fall into the river.

## ENFORCEMENT ACTION

### Issued to Hunter Sand & Gravel, LLC

Order No. 8733223 – issued on December 10, 2013, under provisions of Section 103(j) of the Mine Act. This Order was modified later that same day to Section 103(k) of the Mine Act. Three additional modifications were made to this Order on December 10 to allow continued investigation of the accident. The conditions that contributed to the accident still exist on the barges; therefore, the Order was modified an additional two times and continues to remain in effect as of the issuance of this report.

*An accident occurred at this operation on 12/10/2013 at approximately 0245. As rescue and recovery work is necessary, this order is being issued, under Section 103(j) of the Federal Mine Safety and Health Act of 1977, to assure the safety of all persons at this operation. This order is also being issued to prevent the destruction of any evidence which would assist in investigating the cause or causes of the accident. It prohibits all activity at (Dredge IV in the Ohio River, location of the accident scene] until MSHA has determined that it is safe to resume normal mining operations in this area. This order applies to all persons engaged in the rescue and recovery operation and any other persons on-site. This order was initially issued orally to the mine operator at 0400 and has now been reduced to writing. The action is allowed for the cleaning of the dredge deck and barge #MEM-611 deck, for the purpose of safety of rescue and recovery workers safety, of the victim body.*

Citation No. 8728537 -- issued under the provisions of Section 104(d)(1) of the Mine Act for a violation of 30 CFR 56.11016:

*On December 10, 2013, a fatal accident occurred at this dredge operation. A dredge hand walked onto the snow and ice covered deck of the barge to obtain a draft reading. The victim slipped and fell into the water. The mine operator was aware the deck of the barge was covered with snow and ice. However, management did not take action to sand, salt, or clear the barge deck's regularly used walkway of snow and ice. The mine operator engaged in aggravated conduct constituting more than ordinary negligence in that management had been made aware of the snow and ice hazard and failed to take corrective action. This violation is an unwarrantable failure to comply with a mandatory standard.*

Order No. 8728538 -- issued under the provisions of Section 104(d)(1) of the Mine Act for a violation of 30 CFR 56.15020:

*On December 10, 2013, a fatal accident occurred at this dredge operation. A dredge hand walked onto a snow and ice covered barge to obtain draft readings on the opposite side of the barge. The victim slipped on the barge and fell into the water. The victim was not wearing a life jacket. The mine operator engaged in aggravated conduct constituting more than ordinary negligence in that management was aware miners, not wearing life jackets, were working and traveling where there was a danger of falling into the water. This violation is an unwarrantable failure to comply with a mandatory standard.*

Order No. 8728539 -- issued under the provisions of Section 104(d)(1) of the Mine Act for a violation of 30 CFR 56.15005:

*On December 10, 2013, a fatal accident occurred at this dredge operation. A dredge hand walked onto a snow and ice covered barge to obtain draft readings on the opposite side of the barge. The victim slipped on the barge and fell into the water. The mine operator engaged in aggravated conduct constituting more than ordinary negligence in that management failed to provide and require safety belts and lines for the miners working on the barges when there was a clear danger of falling. This violation is an unwarrantable failure to comply with a mandatory standard.*

Order No. 8728540 -- issued under the provisions of Section 104(d)(1) of the Mine Act for a violation of 30 CFR 46.7(b):

*On December 10, 2013, a fatal accident occurred at this dredge operation. A dredge hand walked onto a snow and ice covered barge to obtain draft readings on the opposite side of the barge. The victim slipped on the barge and fell into the water. The task of obtaining a draft reading changed due to snow and ice accumulation on the barge deck surface. The snow and ice slip and fall hazard affected the health and safety risk encountered by the victim. The mine operator engaged in aggravated conduct constituting more than ordinary negligence in that management failed to provide safe work procedures that addressed snow and ice accumulation on deck surfaces and the additional safety risk that it poses. This violation is an unwarrantable failure to comply with a mandatory standard.*



Citation No. 8728541 -- issued under the provisions of Section 104(a) of the Mine Act for a violation of 30 CFR 56.18002(a):

*On December 10, 2013, a fatal accident occurred at this dredge operation. A dredge hand walked onto a snow and ice covered barge to obtain draft readings on the opposite side of the barge. The victim slipped on the barge and fell into the water. Miners travel barge walkways to obtain draft readings and collect sand samples. Management failed to ensure that a competent person examine each working place at least one each shift for conditions which may adversely affect safety or health.*

Approved: Sam Pierce

Date: 3/31/14

Samuel Pierce  
Southeastern District Manager

## APPENDICES

- A. Persons Participating in the Investigation
- B. Victim Data Sheet
- C. Work Vest Data
- D. Photos

## APPENDIX A

### Persons Participating in the Investigation

#### HMT Holdings, Inc, Hunter Sand & Gravel, LLC

Donnie Hall	Director of Safety & Risk Management
Robert (Stoney) Stone	Manager Sales & Compliance
Carl (Hook) Blanchard	Operations Manager

#### HMT Holdings, Inc, Hunter Sand & Gravel, LLC, Dredge IV

Robert Douglas	Dredge Foreman
Donald Lewis	Dredge Foreman
Eddie Henson	Dredge Crew
Duane Johnson	Dredge Crew
Kerry Livesay	Dredge Crew
Rodney Story	Dredge Crew
John Hammer	Dredge Crew
Donald Steele	Vessel Operator
Roger Fairfield	Vessel Operator

#### Goldstein and Price, L.C.

Neal Settergren	Attorney
Robert Nienhuis	Attorney

## **Federal and Local Agencies**

Massac County Emergency Management  
U.S. Department of Homeland Security, United States Coast Guard  
McCracken County Disaster and Emergency Services (DES)  
McCracken County Sheriff's Department  
McCracken County Rescue  
Metropolis Fire Department  
Joppa Fire Department  
Marshall County Rescue  
Illinois Department of Natural Resources  
Seaman's Institute

## **Mine Safety and Health Administration**

Scott Johnson	Supervisory Mine Safety and Health Inspector
Sonia Conway	Mine Safety and Health Inspector
Michael Pruitt	Mine Safety and Health Specialist (Training)
Ed Jewell	Mine Safety and Health Inspector



# APPENDIX B

## Victim Data Sheet

### Accident Investigation Data - Victim Information

**U.S. Department of Labor**  
**Mine Safety and Health Administration**



Event Number: 

6	6	4	3	3	7	4
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**Victim Information: 1**

1. Name of Injured/Ill Employee: <i>Dustin A. Burnham</i>	2. Sex: <i>M</i>	3. Victim's Age: <i>27</i>	4. Degree of Injury: <i>01 Fatal</i>
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5. Date(MM/DD/YY) and Time(24 Hr.) Of Death: <i>a. Date: 12/10/2013 b. Time: 2:45</i>	6. Date and Time Started: <i>a. Date: 12/09/2013 b. Time: 18:00</i>
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7. Regular Job Title: <i>172 Dredge deck hand</i>	8. Work Activity when Injured: <i>092 Walking on barge deck</i>	9. Was this work activity part of regular job? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	--	---

10. Experience			b. Regular			c. This			d. Total		
Years	Weeks	Days	Years	Weeks	Days	Years	Weeks	Days	Years	Weeks	Days
<i>4</i>	<i>37</i>	<i>0</i>	<i>0</i>	<i>6</i>	<i>4</i>	<i>0</i>	<i>6</i>	<i>4</i>	<i>4</i>	<i>37</i>	<i>0</i>

11. What Directly Inflicted Injury or Illness? <i>126 Drowning</i>	12. Nature of Injury or Illness: <i>110 Drowning</i>
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13. Training Deficiencies:		Annual:	Task:
Hazard:	New/Newly-Employed Experienced Miner:		

14. Company of Employment (if different from production operator) <i>Operator</i>	Independent Contractor ID: (if applicable)
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15. On-site Emergency Medical Treatment					
Not Applicable:	<input checked="" type="checkbox"/>	First-Aid:	<input type="checkbox"/>	CPR:	<input type="checkbox"/>
		EMT:	<input type="checkbox"/>	Medical Professional:	<input type="checkbox"/>
				None:	<input type="checkbox"/>

16. Part 50 Document Control Number. (form 7000-1)	17. Union Affiliation of Victim:
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## APPENDIX C



16152 E. Club Deluxe Rd., Hammond, LA 70403 (985)542-6266,  
(985)542-6371 fax, sales@taylortec.com

### One Minute Tailgate Safety Topic

#### Personal Flotation Devices

In regards to using Work Vests or any other Life Jacket, the saying goes "It can only save your life if you're wearing it." Less obvious is what to expect upon entering the water once you take an unexpected fall. Depending on the height from which you fall, position of your body when entering the water, along with any currents present you may be kept under longer than you think. Type V Work Vests are required by United States Coast Guard to have a minimum buoyant force of 17 ½ pounds. This is adequate buoyancy to keep your head, neck and the top of your shoulders above the water. You will rise to the surface more quickly with more body fat and air pockets in your clothing. A lean and muscular person will rise more slowly to the surface.

A person of 200 lbs weighs 10 lbs in the water, 80% of a person's weight is water which has no weight in the water, and about 15% is fat, which is lighter than water, consequently, the real weight of the person in water is about 10 pounds.

Having your Work Vest fit snugly is key to survival. Loose fitting or unbuckled Work Vests can slip over your head when falling feet first, allowing you to sink much further down. Hold on to your Work Vest as you enter the water just in case. Nothing is more important at that moment than getting your mouth above the top of the waves. Once in the water pull your Work Vest down to make sure all of the buoyancy is under the water. This will get your mouth and nose as high as possible. Most Work Vests have a strap that goes under your arms to keep your vest from riding up. If it is missing then replacement is recommended. Work Vests wear out over time and will lose some of their buoyancy. Here's a quick way to check for the minimum buoyancy of 17 ½ pounds. Attach 20 pounds of steel weight to the Work Vest. Dumb bell weights work just fine. Twenty pounds of steel weight weighs approximately 17 ½ pounds in the water. If your Work Vest floats above or just below the surface, it still meets the minimum required buoyancy. If it sinks it should be replaced. The foam in your Work Vest will lose its buoyancy if it is compressed under weight or crammed in storage. It's best to hang them or set them on a shelf when not in use.

Humans are land dwellers and need a little help in the water.



16152 E. Club Deluxe Rd., Hammond, LA 70403 (985)542-6266,  
(985)542-6371 fax, sales@taylor-tec.com

Please read below for the formula to determine buoyancy.

If a man weighs 200 pounds on land, he only weighs 10 pounds in the water.

80% of the human body is water. Water in the body has no weight in the water.

$200 \text{ pounds} \times 80\% = 160 \text{ pounds}$   
 $200 \text{ pounds} - 160 \text{ pounds} = 40 \text{ pounds}$

The human body is 15% fat, fat is lighter than water.

$200 \text{ pounds} \times 15\% = 30 \text{ pounds}$   
 $40 \text{ pounds} - 30 \text{ pounds} = 10 \text{ pounds}$

A 200 pound person only weighs 10 pounds in the water.

A U.S.C.G. approved Type V work vests is mandated to have 17.5 pounds of buoyancy. Our Type V's regularly test at 20 – 22 pounds of buoyancy.

So.....,

If a man weighs 350 pounds on land, he only weighs:

80% of the human body is water. Water in the body has no weight in the water.

$350 \times 80\% = 280 \text{ pounds}$   
 $350 \text{ pounds} - 280 \text{ pounds} = 70 \text{ pounds}$

The human body is 15% fat, fat is lighter than water.

$350 \text{ pounds} \times 15\% = 52.5 \text{ pounds}$   
 $70 \text{ pounds} - 52.5 \text{ pounds} = 17.5 \text{ pounds}$

A 350 pound person weighs 17.5 pounds in the water.

Our Type V Work Vest is designed to support a minimum of 18.75 pounds in the water. Please see the attached Specification Sheet for buoyancy information.

Please let us know if we may be of additional assistance.



16152 E. Club Deluxe Rd., Hammond, LA 70403 (985)542-6266,  
(985)542-6371 fax, sales@taylor-tec.com

## Inspecting your PFD for functionality and possible replacement.

Check your PFD often for rips, tears and holes.

If it is vinyl coated check it for areas where the vinyl has worn away.

Check the webbing and straps of your PFD for wear and fraying.

Check the stitching on all areas of your PFD to insure that they are still tight. This includes the seams, webbing, buckles etc.

If your PFD has reflective tape, check to insure that the reflective tape is still in place.

Check the hardware on your PFD to make sure it still functions properly and does not become unhooked easily.

## Caring for your PFD

Do not alter your PFD. IT may not stay on you in the water.

Do not leave heavy objects on your PFD, squash it in storage or use it for a kneeling pad. The compression can cause it to lose buoyancy.

Let your PFD drip dry thoroughly before putting it away.

Always store it in a ventilated place.

Never dry your PFD on a radiator heater, or any other direct heat source.

Do not store your PFD in direct sunlight for extended periods of time.



# WV-10 Work Vest Technical Sheet

**Model No:** WV-10

**U.S.C.G. App#** 160.053/70/0

**Manufacturer:** Taylortec, Inc.  
16152 East Club Deluxe Rd  
Hammond, LA 70403 USA + 1 985 542 6266

**Description:** Type V, inherently buoyant, 3 piece vinyl coated foam work vest.

**Packing:** 15 work vests per box

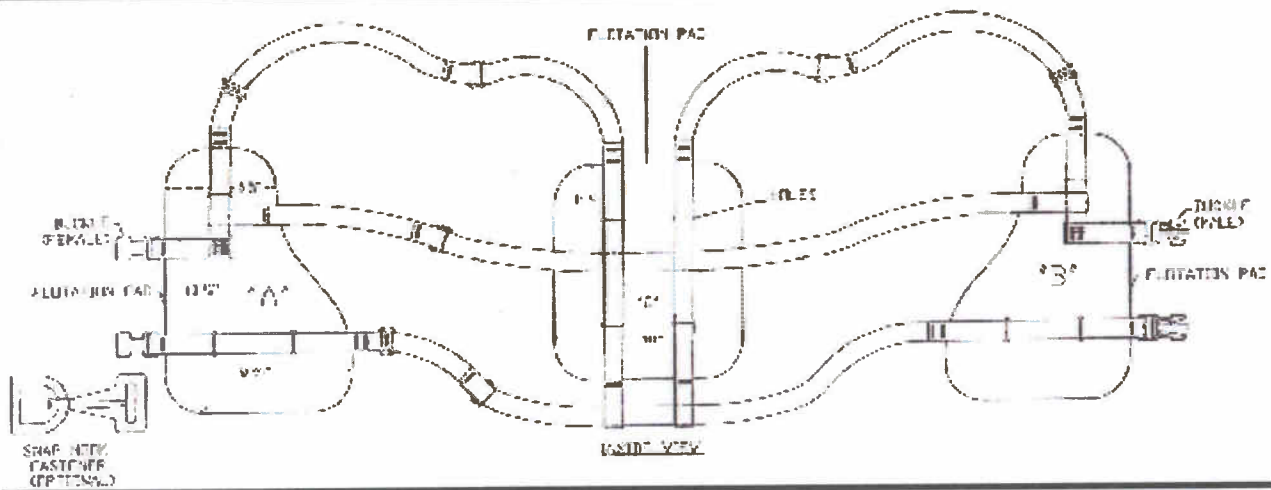
**Remark:** Price is based on quantity breakdown.

**Materials:** PVC based closed cell foam, liquid vinyl, 1" black polypropylene webbing, aluminum slides, plastic or stainless steel buckle, reflective tape is optional. All materials are U.S.C.G. and U.L. approved.

**Color:** International Orange

**Buoyancy:** Minimum Buoyancy as required by U.S.C.G. Specifications for Approval Number 160.053/70/0 is 17 1/2 lbs. Our Design Buoyancy = 18 3/4 ± 1/2 lbs

**Weight:** 1.85 lbs



**Pads:** 1 3/4" thick (± 1/8")

Vest Size:	Regular	XL	XXL	XXXL
Shoulder	12"	15"	18"	21"
Chest	60"	66"	72"	78"
Waist	56"	62"	65"	74"

**APPENDIX D**  
**Photos**



View of barge being loaded from the control room landing of Dredge IV. This is what the operator sees with the control room door open. The stairway shown on lower left is how the deckhands access the barges.



View of barge from the control room Dredge IV. Most of the windows are covered to keep the sunlight out. Unless the door is open, the only activity the control room operator sees is through this small door window.





View of barge and control room of Dredge IV during the afternoon following the accident. The windows of the control room are all covered to block out sunlight. The only non-covered window is on the doorway. The MEM 611 had been partially loaded at the time of the accident. It was leaning about 14 percent (8 degrees) away from the dredge.