



Crane Accident Investigation



Crane Accident Exhibits

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Incident Investigation Worksheet □ 12 Pages

CRANE ACCIDENT

DATE OF ACCIDENT: 02/18/2013

TIME OF ACCIDENT: 1:50pm

James (Jimmy) Michael Swenson was operating a mobile crane to move a cutter head from an equipment storage area to an adjacent storage area in order to gain access to additional equipment.

Herrington Dredge Company History

The Herrington Dredge Company has been in business since 1958. Through the years, the company has been successful and the emphasis has always been on "getting the job done". There have been incidences along the way and the occasional accident. But the trend has been getting worse in recent months and in December 2012, the company hired John Gagne, a recent college graduate with a BS in Occupational Safety and Health. John has been gathering information about the employee's experience and training by conducting interviews with the employees because the personnel files were not well kept. John is also in the process of updating the existing safety manual to a document that is pertinent to the company's activities and not just a "boiler plate" document.

Exhibit 1

Incident Report

10-44880

Smithland, South Carolina Sheriff Department



PO Box 1660
Smithland, SC 27253

Report Date
2/18/13
Nature of Call
Death Investigation
Officer
Scott Lucas

Administrative Information						
Agency Smithland, SC Sheriff Department			Report No. 10-44880	Supp No. ORIG	Report Date 2/18/13	Reported Time 13:50
Call Number 10194		Status Industrial/Construction Accident			Nature of Call Death Invest.	
Location 385 SW Columbia Blvd			City Smithland		Zip Code 27253	
Division West	Beat W320	From Date 2/18/13		From Time 10:00	Officer 2641/Scott Lucas	
Assignment West Day Shift		2nd Officer Rick Hatten		Assignment West Day Shift		Entered By OIC2458
Assignment Data Entry/Reports		RMS Transfer Successful		Approving Officer OIC3590		Approval Date 2/18/13
Approval Time 16:26						
Location Name Herrington Dredge, Main Yard						
# Offenses 1		Offense Death Investigation 1		Description Death Investigation		Complaint Type I
Link Dec	Involvement Dec	Invl No. 1	Name James Swenson	Race W	Sex M	DOB 3/5/91
Person Summary						
Invl Dec	Invl No. 1	Type I	Name James Swenson	Race W	Sex M	DOB 3/5/91
Summary Narrative						
Officer dispatched to a death investigation. Upon arrival, the officer determined the deceased had been ejected during a crane tipover. There were clear signs of head and neck trauma. Victim appeared to be deceased with no pulse or breathing.						

Exhibit 2

Report Officer 2641/Scott Lucas	Printed at 2/20/13	Page 1 of 2
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Incident Report

10-44880

Smithland, South Carolina Sheriff Department

DECEASED 1: James Michael Swenson

Involvement Deceased		Involv No. 1		Name James Micahel Swenson	
Race White		Sex M	DOB 3/5/91	Age 21	Ethnicity White
Juvenile? No	Height 5'11"	Weight 185#			
Type Home	Address 8712 Caldwell Road			City Smithland	State SC
Phone Type Home		Phone No. 999-999-9999			
Employer/School Herrington Dredge Company					

Narrative

On 02/18/13 at approximately 13:50 hrs., I, Officer Scott Lucas, ID2641, was dispatched to a death investigation at 385 SW Columbia Blvd., Smithland, SC. Call received indicated that an employee was involved in a crane tipover, and had suffered fatal injuries. The location is the primary yard for Herrington Dredge Co., and the crane was often used to move equipment around the yard, and to load/offload trucks as needed. Firefighters and EMT personnel were dispatched from Unit 5, and pronounced Mr. Swenson deceased pending final decision by ME. No efforts were made to resuscitate Mr. Swenson due to the nature and location of injuries, and time since accident.

I locked down the scene and interviewed personnel: John Gagne 01/25/74 (HDC Safety), Jack Higginbotham 09/12/58 (HDC mechanic), Cletus Riley 05/16/70 (HDC yard manager), Mike Honcho 04/21/62 (HDC laborer), and Bill Urqhart 06/07/61 (HDC crane operator), John Scott 06/17/67 (HDC yard crew).

According to witness accounts and reports from HDC management James Swenson was an operator-in-training and was assigned to move a large steel object described as a "cutter head" for a dredge. The cutter head was sitting in the yard, blocking access to other equipment, hence the need for relocation. He moved a crane next to it and attached slings to the cutter head. When he picked the cutter head up, he swung the crane boom and load to his right, and the crane tipped over. Mr. Swenson was ejected out the side window of the crane, suffering a broken neck and apparently died instantly.

The crane involved in the accident is a Grove, TMS 180, Ser. # 2926, built in 1972.

Report Officer 2641/Scott Lucas	Printed at 2/20/13	Page 2 of 2
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Accident Investigation

Crane Photo Set

Exhibit 3



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100_4613.JPG



100_4614.JPG



100_4617.JPG



100_4618.JPG



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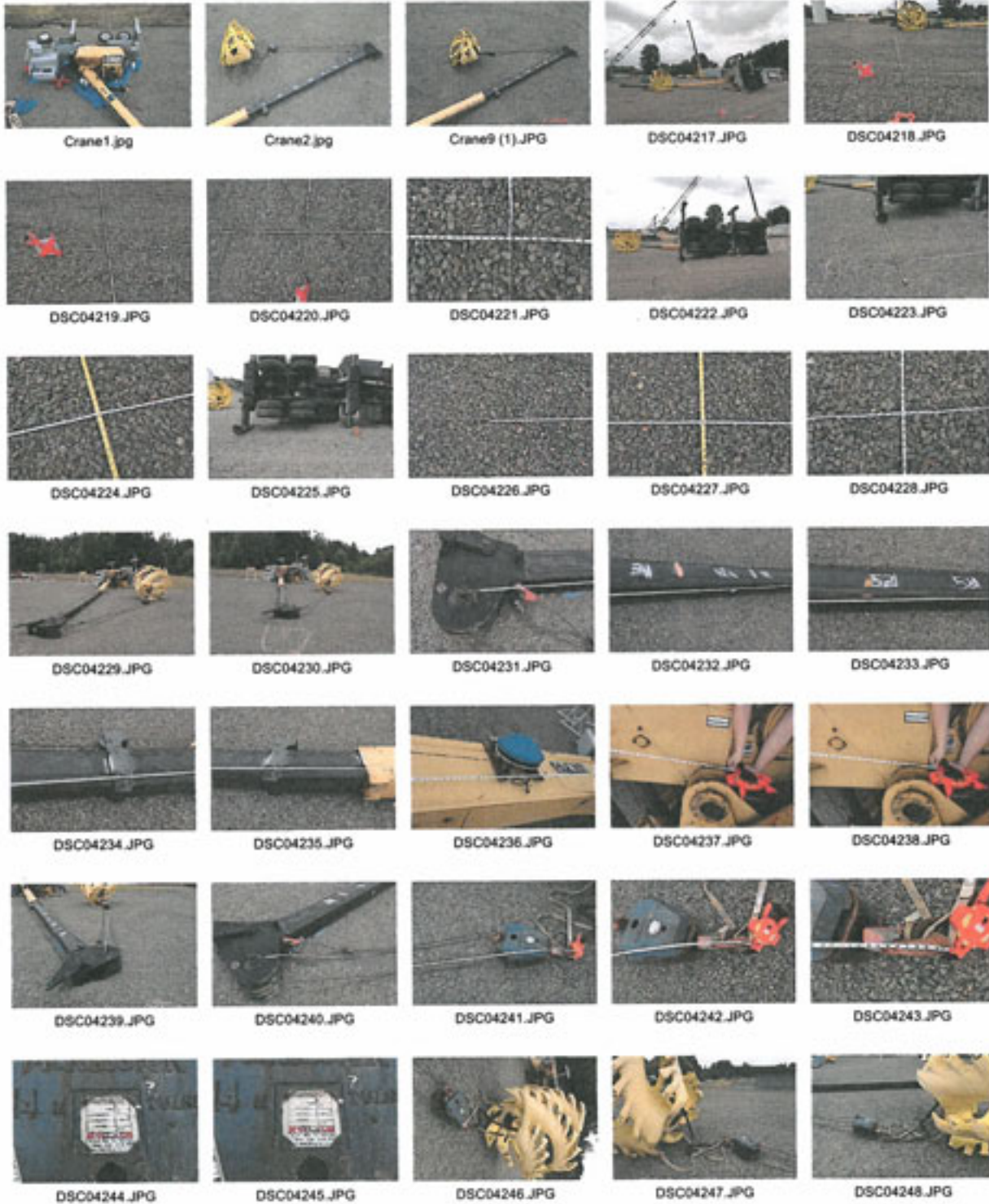
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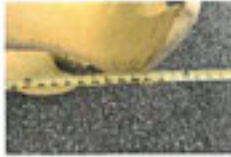




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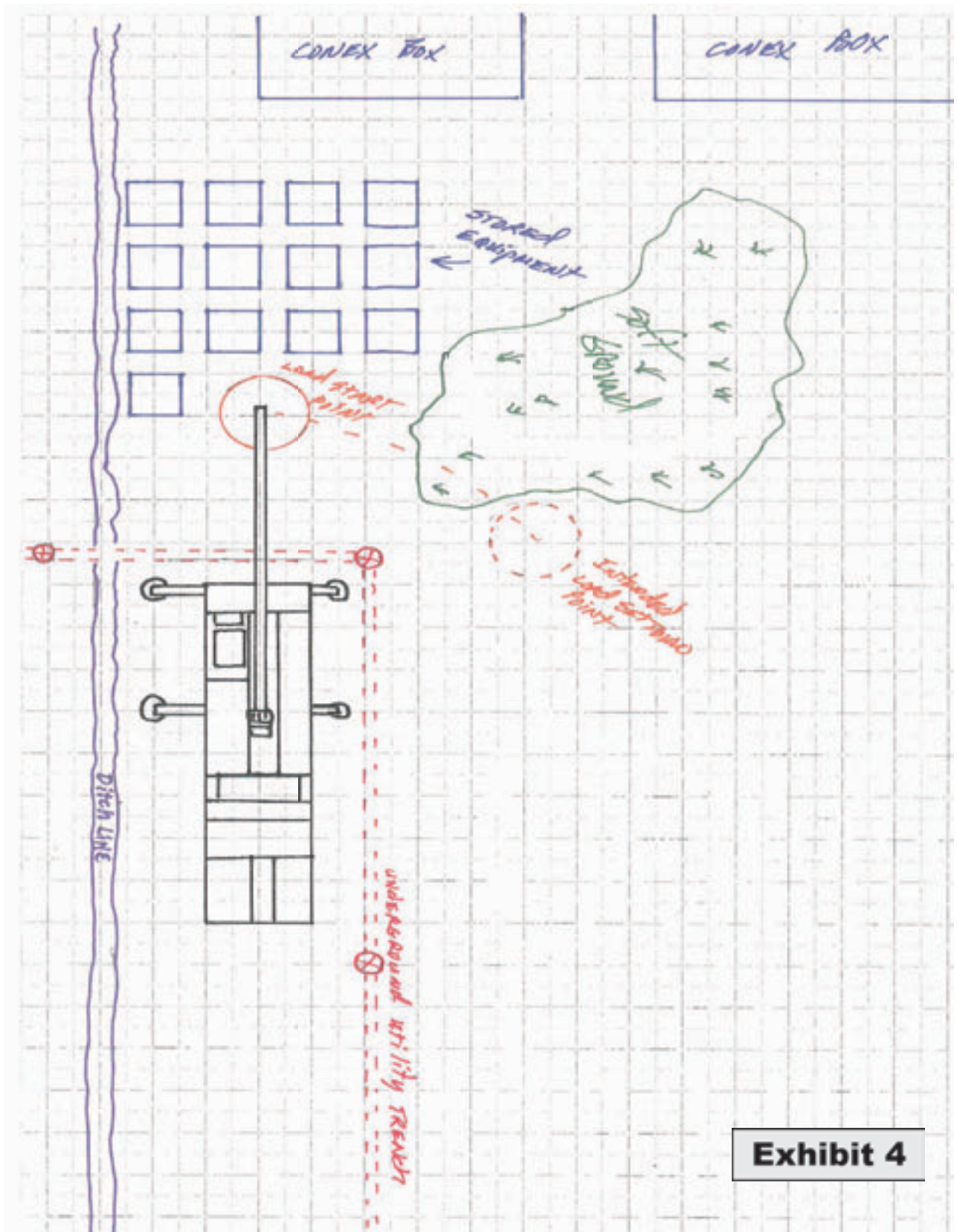
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HERRINGTON DREDGE COMPANY

SHIPPING TICKET

ORIGIN:

Smithland Yard

DESTINATION:

Sharp Project

LOADING DATE:

2/18/13

SHIP DATE:

2/18/13

SPECIAL SHIPPING INSTRUCTIONS:

See Steve at project site when delivered

ITEMS:

QUANTITY	STOCK NUMBER	DESCRIPTION
1	12489	Cutterhead - 13000 #3

Cletus Riley 2/18/13
AUTHORIZATION DATE DRIVER DATE

Exhibit 5



HERRINGTON DREDGE COMPANY



Exhibit 6

Herrington Dredge Company
385 SW Columbia Blvd. Smithland, SC 920801
Phone 800.500.2424 Fax 800.500.2525 Website www.herrington.com

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Accident Investigation

Crane “Rigging” Photo Set

Exhibit 7



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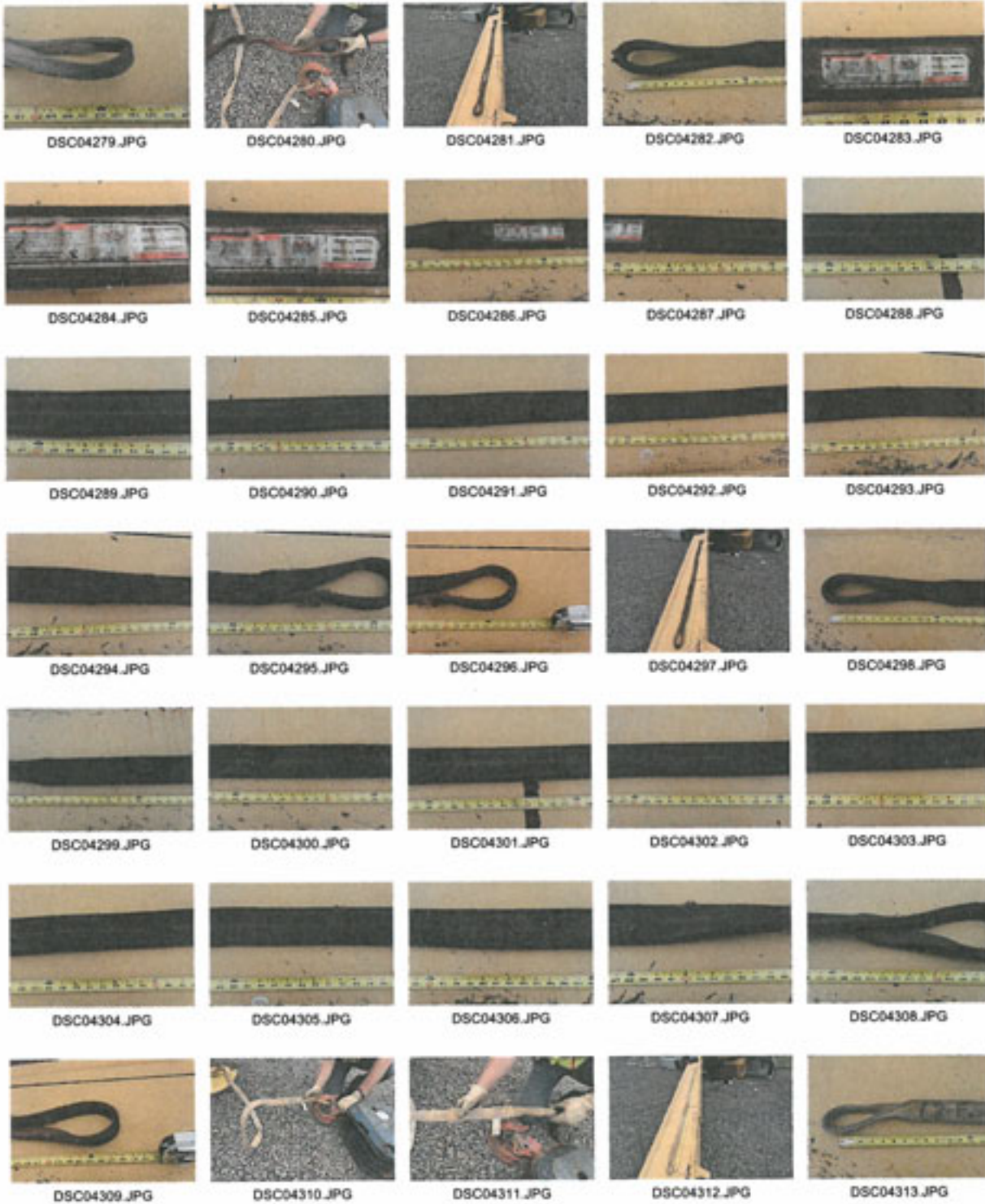
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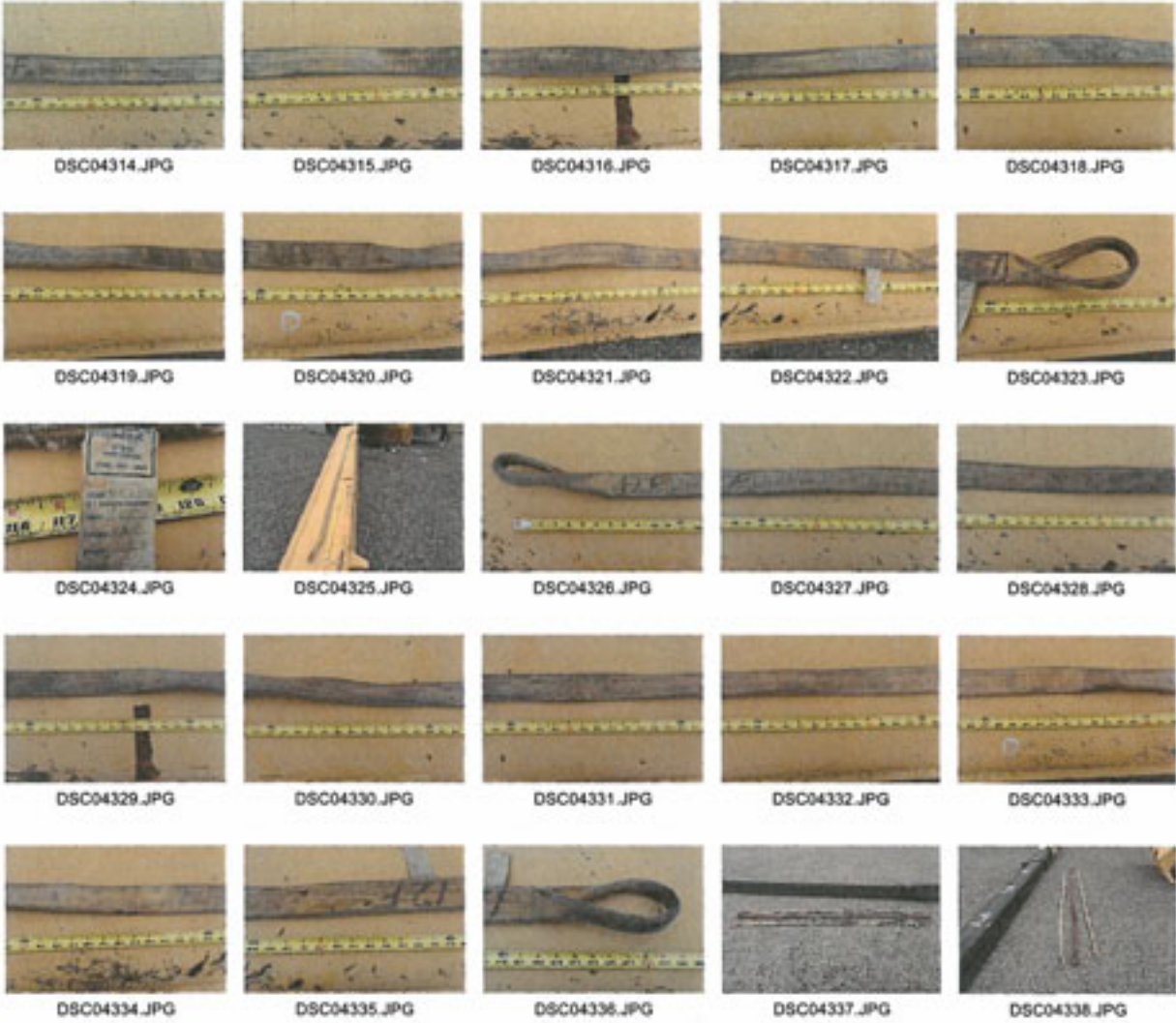


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HERRINGTON DREDGE COMPANY

statement of Cletus Riley, Yard
Manager for Herrington Construction.
I told Jimmy to move that cutter
head from where it was about 30
ft. to get it out of the way. We
needed to put the crane there to
move some other stuff. I told him
to stay away from a sewer line that
runs under a couple of manholes.
I didnt want to screw up the
crappers.

Exhibit 8

Herrington Dredge Company
385 SW Columbia Blvd. Smithland, SC 920801
Phone 800.500.2424 Fax 800.500.2525 Website www.herrington.com

Page 1



HERRINGTON DREDGE COMPANY

I was in my crane loading out a truck. I looked over and noticed that Jimmy's boom wasn't scoped out right and I wanted to talk to him but I had to land my load first. When I was done, I started walking over to Jimmy's crane and saw him getting tight as he swung over the side and I started to yell to get his attention but it was too late. I told Mike to call 911 and I stayed with Jimmy. I didn't look good.

Bill Urghant

Exhibit 9

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Page 1



HERRINGTON DREDGE COMPANY

[Faint handwritten signature]

COMPANY SAFETY REP
JOHN GAINES

CRANE: G-ROOF TM 180 SIN 2965
PURCHASED USED FROM PRIVATE
COMPANY. OWNED CRANE 1 1/2 YEARS
(NOV 2011), COMPANY MECHANICS
REVIEWED CRANE (OVERALL
CONDITION).

OEM MANUALS PARTIAL SET FROM "SELLER"
MAINT. ANNUAL INSPECTION UPON ACIOTT
NOV 2011, NEXT NOV 2012
(IN-HOUSE ANNUAL)

MONTHLYS BEGAN JAN 2013
HOUT LINE (MAIN) REPLACED NOV, 2012
SERVICED OUTRIGGER FEB 2013. NOTED
WORKING (REFORMED PER ANSI STANDARDS).

LOAD CHART RE-INSTALLED LOAD CHART IN CAB
SALVAGED FROM SIMILAR TM 180
SIN # 2921 (METAL PLACARD + LABEL)

Exhibit 10



HERRINGTON DREDGE COMPANY

MECHANIC IN-HOUSE TRAINING, JAKE HIGGINBOTHAM
NO FORMAL TRAINING

CRANE OPERATOR : JAMES MICHAEL SWANSON
IN HOUSE TRAINING BY LANCE MANION,
YARD OPERATOR. HAS BEEN MAKING LIFTS
ON HIS OWN. HAS BEEN WARNED IN
PAST REGARDING PROPER PLACEMENT + USE
OF OUTRIGGERS, BEING LIGHT ON BACK
OUTRIGGERS

NO KNOWN HEALTH PROBLEMS.

NO LAW PROBLEMS

LAST PHYSICAL, FEB 2012

ANNUAL DRUG SCREENING JAN 2013 BY
SMALL COMPANY

ACCIDENT

MO ON SCENE, HE CALLED TOA
UNSURE IF BLOOD TEST TAKEN
(SAMPLE)



HERRINGTON DREDGE COMPANY

I was on my forklift driving from the stop heading towards the crane to go pick up a load. As I was getting closer to where Jimmy and the crane was, I noticed that he didn't have control of the load because it was swinging. So as I was getting closer I saw that Jimmy was all alone which I thought was weird, and as the load was swinging I notice Lance running towards the crane waving his hands telling Jimmy to stop. I looked over back at the crane and saw it starting to tip. I jumped out of the forklift because I was really close to the crane, and ran the other way. When I looked back after hearing it crash down, I saw Jimmy on the ground.

Johnny Scott

Exhibit 11

Herrington Dredge Company
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Phone 800.500.2424 Fax 800.500.2525 Website www.herrington.com

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HERRINGTON DREDGE COMPANY

2-18-2013

MIKE HONCHER

I was taking 5 gal pails of lube oil from a SKid. I noticed the crane setting up to move the cutter head. I saw Jimmy get out of crane to rig-up the head. Wasn't paying attention to the crane work. Next thing I know I heard Lance yelling and screaming. I turned to see Jimmy's crane tipping over and Jimmy being shot out of the cab. I ran over to see if I could help. Lance told me to go to the office to call 911.

Exhibit 12

Herrington Dredge Company
385 SW Columbia Blvd. Smithland, SC 920801
Phone 800.500.2424 Fax 800.500.2525 Website www.herrington.com

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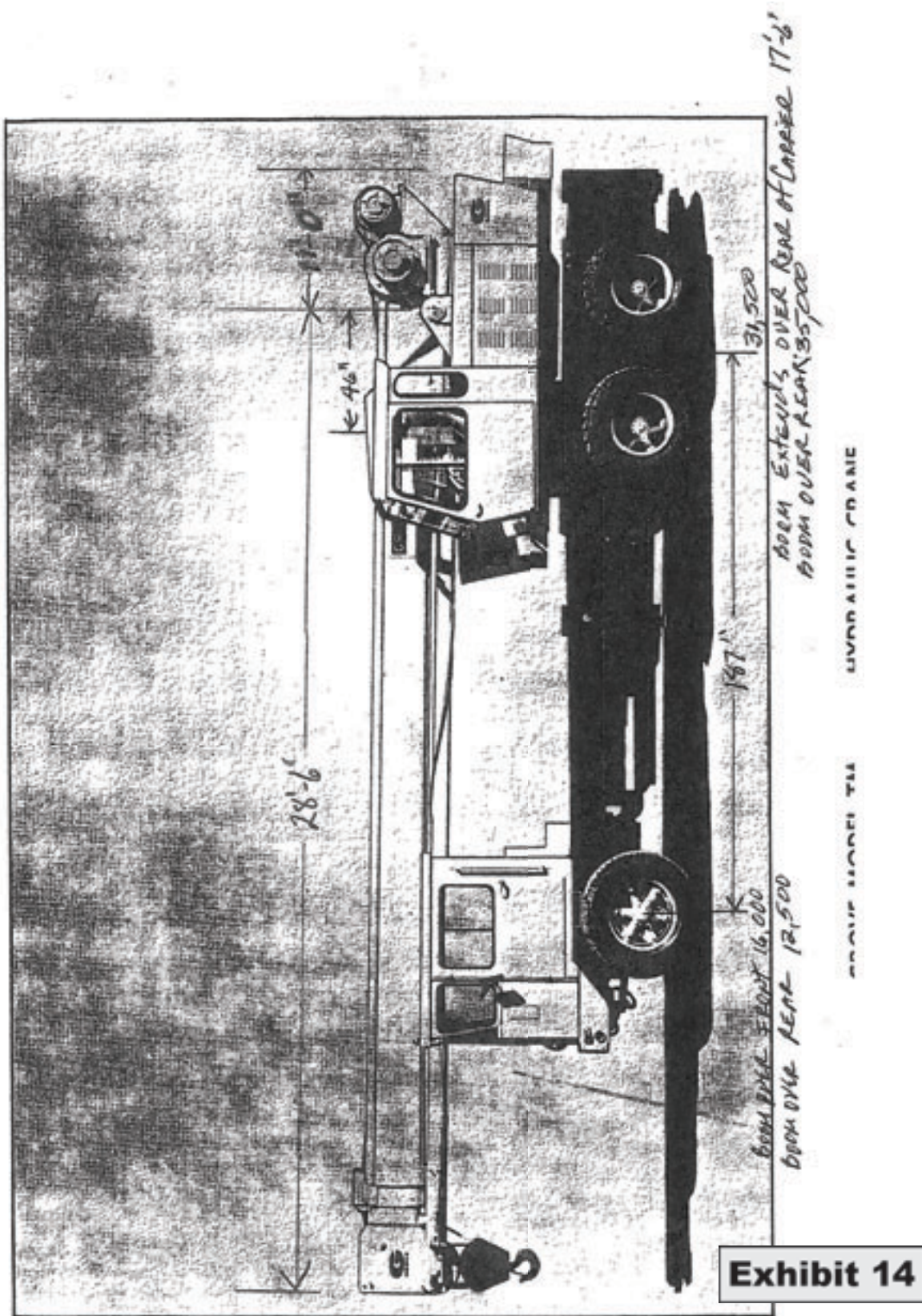
**Herrington Dredge Company
Qualified Material Handling Personnel**



Name	Qualifications													
	Yard Laborer - Trained	Deckhand - Trained	Forklift Operator - Trained	Forklift Operator - Qualified	Rigging - Trained	Rigging - Qualified	Sm Hyd Crane (25 ton) - Trained	Sm Hyd Crane (25 ton) - Qual.	Qualified Mobile Crane Signaler	Lg Hyd Crane (25 ton +) - Trained	Lg Hyd Crane (25 ton +) - Qual.	LatticeBarge Crane - Trained	LatticeBarge Crane - Qualified	Lift Director/CLP
Higgingbotham, Jack	Apr-73	Aug-75	Oct-95	Oct-95		May-02		Apr-02	Apr-02					
Evans, Kim		Jul-05				Feb-06								
Whitacre, Doug								Oct-03			Oct-03			
Potter, Michael			Jul-01	Jul-01										
Manion, Lance											Mar-99		Mar-99	Mar-99
Stroud, Ed								Oct-96	Oct-96		Oct-96			
Clevenger, Greg	Apr-97					May-99	Aug-01	Aug-01	Aug-01					
Brooks, Steve		Mar-99												
Gerhardt, Mike		Jun-78				Jun-78		Jun-78						
Riley, Cletus		Mar-75		Aug-75		Aug-75		Aug-75						Aug-75
Harkendorff, Bill								Apr-99			Apr-99		Apr-99	
Baker, Ken		Mar-87				Mar-87								
Siemans, Randy								Feb-82			Feb-82		Feb-82	
Honcho, Mike	Jan-04	Jan-04	Feb-04	Feb-04										
Hampton, Clark								Jun-89			Jun-89		Jun-89	
Urqhart, Bill							Jul-91	Jul-91	Jul-91	Feb-98	Feb-98			Apr-00
Swenson, James	Mar-07	Mar-07					Nov-12		Nov-12					
Schilling, Bob	Jul-01	Jul-01	Aug-01	Aug-01		Jun-05			Jun-05					
Scott, John			Nov-03	Nov-03		Jan-04								
Thompson, Frank	Apr-97	Apr-97		Aug-97										
Michaelson, John		May-96				Jul-01		Jun-03	Jul-01	Jun-03	Jun-03			
Razuk, Joseph	Jan-07													
Simmons, Waylon				Feb-88		Feb-88		Apr-94	Apr-94		Apr-94			Oct-99

Exhibit 13

NOTE: Dates for training and qualification have been gathered over time, based on in-house training activities and as the employee has been deemed to be qualified by HDC management. Revised - John Gagne, Safety Officer, December 14, 2012.





SUPERSTRUCTURE SPECIFICATIONS

- BOOM** – 28 ft. -70 ft., 3 section , full power telescoping.
24 ft. – 60 ft., 3 section, full power telescoping.
24 ft. – 70 ft., 4 section , power telescoping; 2 full power sections; fly section power extended and retracted from pinned position.
Boom telescope sections are individually controlled and supported on graphite impregnated nylon wear pads. Boom sections have side adjustable wear pads to eliminate metal to metal contact between the sections. Booms have pendulum boom angle indicator and an integral holding valve on each cylinder.
- BOOM NOSE** - Weld on type with integral rope guards; 3 sheaves mounted on anti-friction bearings. Removable pin type rope guards allow easy reeving.
- BOOM ELEVATION** – Dual, double acting hydraulic cylinders with integral holding valves, 0° to 75° elevation, combination controls provided for hand or foot operation.
- *JIB** – 20 ft. and 24 ft. “Stowaway” type with single rope self-equalizing suspension and jib back stops, jib sheave mounted on anti-friction bearing. 24ft. jib may be offset to 26°; 20ft. jib to 30°
- SWING** – Bearing swing circle, 360° continuous rotation, “Grove Planetary Glide Swing” with foot actuated disc swing brake and hand operated turntable brake. Combination controls provided for hand or foot operation. Swing speed 2.6 RPM.
- CAB** – Full vision, all steel.. fully enclosed; removable front windsheild, laminated safety glass windows throughout, hinged skylight and sliding side and rear windows for additional ventilation; full length control levers with combination hand and foot control for swing and boom elevation; fully adjustable operator’s seat, full engine instruments, heater, electric wiper, door lock , and 2 ¼ lb. dry type fire extinguisher.
- OUTRIGGER CONTROLS** –Independently controlled, in, out, up and down from superstructure cab. Sequence control arrangement eliminates accidental actuation.
- HYDRAULIC SYSTEM:**
- RESERVOIR** – 120 gallon, all steel welded construction, with integral baffles, clean-out access, dip stick.
 - FILTER** – 10 micron, return line type, with by-pass protection, replaceable cartridge.
 - PUMPS** – 3 section gear type, combined capacity – 112.5 GPM.
 - CONTROL VALVES** – Precision four-way double acting with integral load check, main and circuit relief valves. Three individual valve banks permitting simultaneous independent control of three crane functions. Maximum operating pressure – 2500 PSI.
 - OIL COOLER** – Full flow fin and tube, oil to air.
 - POWER DISTRIBUTION** – (Main & Auxiliary Hoist) (Boom Elevation, Mid-Telescope, Main Hoist Boost, *Accessory) (Swing, Fly Telescope, Outriggers).



HOIST SPECIFICATIONS

Description: Power up and down, equal speed, planetary reduction, with integral automatic break		
HOIST DATA	MAIN HOIST	AUXILLARY HOIST
	Grove Model 15H-16	Grove Model 15S-14
Drum Dimensions	12 in. Diameter	12 in. Diameter
	16 m Length	11 in. Length
	17.5 in. diameter flange	17.5 in. diameter flange
Performance	Single Line Speed	Single Line Speed
	460 FPM (Max.)	255 FPM (Max.)
	Single Line Pull	Single Line Pull
	8,880 lbs. (Max.)	8,880 lbs. (Max.)
Drum Rope Storage Cap	**720 ft. of 1/2 in. (Max.)	**490 ft. of 1/2 in. (Max.)
Permissible Single	7,200 lbs. of 6 x 37 class	7,200 lbs. of 6 x 37 class
Line Rope Pull	6,150 lbs. of 19 x 7 class	6,150 lbs. of 19 x 7 class

****6th layer of rope not recommended for hoisting operations.**

ENGINE SPECIFICATIONS

MAKE AND MODEL	Ford 300 Gas	*GM3-53N Diesel
TYPE	6 Cylinder Q.H.V.	3 Cylinder Q.H.V.
BORE AND STROKE	4.00 in. x 3.98 in.	3.875 in. x 4.50 in.
DISPLACEMENT	300 cu. in.	159.2 cu. in.
GOVERNED RPM	2800 RPM	2800 RPM
NET FLYWHEEL TORQUE	253 lbs. , ft. @ 1800 RPM	193 lbs., ft. @ 1500 RPM
ELECTRICAL SYSTEM	12 Volt, Negative Ground	12 Volt, Negative Ground
COMBUSTION SYSTEM	4 Cycle , naturally aspirated	2 Cycle, with blower
COOLING SYSTEM	Liquid	Liquid
FUEL CAPACITY	40 gallons	40 gallons
ALTERNATOR	38 AMP, 12 Volt	55 AMP, 12 Volt
BATTERY	62 AMP Hr., 12 Volt	204 AMP Hr., 12 Volt
AIR CLEANER	Dry Type	Dry Type
HOUR METER	Yes	Yes



SPEED AND GRADEABILITY PERFORMANCE

CONDITION AT FULL LOAD	SPEED RANGES	% OF GRADEABILITY @ MAX TORQUE
On Highway	6.11 to 49.41 MPH	21.48 to 1.34%
Off Highway	2.80 to 22.66 MPH	48.69 to 4.7%

‡ Auxiliary transmission in high range

‡ ‡ Auxiliary transmission in low range

Using standard tires, transmission, axles and standard gasoline engine.

AXLE WEIGHT DISTRIBUTION

BOOM OVER FRONT		
FRONT	REAR	GROSS
16,000 lbs.	31,500 lbs.	47,500 lbs.
BOOM OVER REAR		
FRONT	REAR	GROSS
12,500 lbs.	35,000 lbs.	47,500 lbs.

Standard Machine – 6 x 4, 187 in. W.B. Carrier, RD501 Gasoline Engine, 28 ft. – 70 ft. Boom and 24 ft. Jib, Main and Auxiliary Hoists, Hook Block, 16ft. Outriggers, and Standard Counterweight.

TM 180

RATED LIFTING CAPACITIES ON OUTRIGGERS WITH OPTIONAL COUNTERWEIGHT

RADIUS IN FEET	OVER REAR							
	BOOM LENGTH							
	28	34	40	46	52	58	64	70
10	36,000	34,000	31,900	29,800	27,800			
12	30,000	30,000	30,000	29,800	27,800	25,750		
15	27,000	27,000	27,000	27,000	27,000	25,750	23,700	21,700
20	20,250	20,250	20,250	20,250	20,250	20,250	20,250	20,250
25		15,750	15,750	15,750	15,750	15,750	15,750	15,750
30		12,200	12,200	12,200	12,200	12,200	12,200	12,200
35			8,800	8,800	8,800	8,800	8,800	8,800
40				7,500	7,500	7,500	7,500	7,500
45					6,000	6,000	6,000	6,000
50						4,900	4,900	4,900
55							4,000	4,000
60							3,250	3,250
65								2,750
66.5								2,400

RADIUS IN FEET	OVER SIDE							
	BOOM LENGTH							
	28	34	40	46	52	58	64	70
10	36,000	34,000	31,900	29,800	27,800			
12	30,000	30,000	30,000	29,800	27,800	25,750		
15	27,000	27,000	27,000	27,000	27,000	25,750	23,700	21,700
20	20,250	20,250	20,250	20,250	20,250	20,250	20,250	20,250
25		13,500	13,500	13,500	13,500	13,500	13,500	13,500
30		10,200	10,200	10,200	10,200	10,200	10,200	10,200
35			7,600	7,600	7,600	7,600	7,600	7,600
40				5,800	5,800	5,800	5,800	5,800
45					4,600	4,600	4,600	4,600
50						3,750	3,750	3,750
55							3,000	3,000
60							2,250	2,250
65								1,800
66.5								1,700

NOTES

1. Rated lifting capacities, with or without outriggers, are the maximum loads covered by the manufacturer's warranty with the machine standing on a firm, level and uniform supporting surface. Capacities do not exceed 85% of tipping.
2. For certain conditions, capacities are controlled by machinery strength. In these cases machine tipping must not be relied upon as the capacity limitation.
3. For clamshell and concrete bucket operation, weight of bucket and load should not exceed 90% of outrigger lifting capacities.
4. The weights of all load-handling devices are considered part of the load lifted and suitable allowances for them should be made.
5. Jib extensions are to be used for lifting crane service only.
6. With jib installed, lifting capacities over main boomhead must be reduced as follows:
Jib length - 24 ft. --- Reduced Capacity - 800 lbs.
7. The maximum boom length, including jib extension, may be raised from horizontal with outriggers set.
8. Long cantilever booms can create a tipping condition when in extended and lowered positions. Booms should be retracted proportionate to the capacity of the load chart.
9. Single line capacity 6000#. For larger capacities use multiple part reeving (one additional line for each 6000# of capacity).
10. Each power-telescoping boom section should be extended equally at all times. Do not operate one fully extended and another fully retracted.

PL10072

JIB CAPACITIES 24-Foot Jib with Main Boom Fully Extended

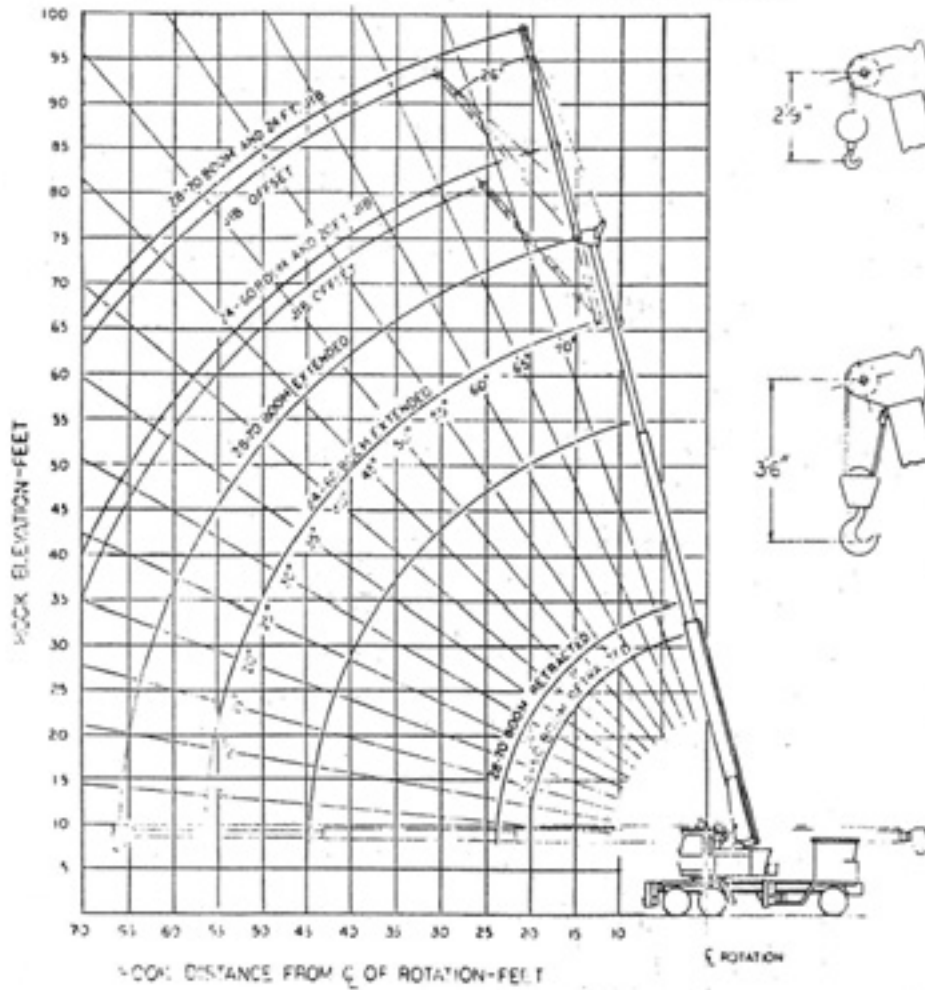
MIN. BOOM ANGLE	NO OFFSET	96° OFFSET
75°	6000#	2700#
70°	4750#	2550#
65°	4000#	2375#
60°	3500#	2300#
55°	3150#	2200#
50°	2900#	2170#
45°	2650#	2125#
40°	2550#	2085#
35°	2475#	2040#
30°	2400#	2000#
26°	2300#	1950#

NOTE: All jib capacities are based on structural strength of the jib or main boom. Actual loads must not exceed capacities given in main boom capacity chart for the same working radius less the allowance for jib weight.

2926

GROVE

TM180 RANGE DIAGRAM 28' - 70' & 24' - 60' BOOMS



PL10072



crane consultants, inc.

INSPECTION
TESTING
DESIGN/MODIFICATIONS
ENGINEERING

Phone: 206.246.7962
Fax: 206.246.1010
Email: cranecon@cranecon.net

No. 1801-05

PERIODIC EXAMINATION CERTIFICATE

The equipment below, after being inspected and/or tested by Crane Consultants, Inc., was found to be in compliance with the requirements of OSHA CFR's, WISHA WAC's, ANSI regulations as applicable.

Herrington Dredge Company

Company Name

1/29/13

Date of Inspection

1/31/14

Certificate Expiration Date

18-Ton Capacity Truck Mounted Hydraulic Crane

Type of Crane

Grove Model TMS 180 Serial No. 2926

Ed Rumburg

Inspected By:

William G. Rumburg, President

Receipt of this certificate indicates that the subject equipment meets the requirements of: OSHA 29 CFR 1910.67 & 1918.501
CFR 19 Parts 1910 & 1918 ASME B30.1

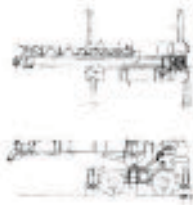


Exhibit 15



crane consultants, inc.

Phone: 206.246.7962
 Fax: 206.246.1010
 Email: cranecon@cranecon.net

MOBILE CRANE PERIODIC EXAMINATION

NAME OF OWNER Herrington Dredge Company		CCI JOB NO. 8174	CERT NO. 1801-05	EXPIRATION DATE 1/31/14	WT. TEST EXP. DATE N/A				
ADDRESS 385 SW Columbia Blvd., Smithland			STATE SC	ZIP 27253	EQUIPMENT ID NO. N/A				
DESCRIPTION 18-Ton Truck Mounted Hydraulic Crane			REMAINS AT WORK SITE YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> IF NO, explain						
MANUFACTURER Grove			MODEL NUMBER TMS 180	SERIAL NUMBER 2926					
EXACT LOCATION Smithland Yard									
POWERED BY: SUPPLIED ELECTRICITY <input type="checkbox"/> DIESEL <input type="checkbox"/> DIESEL/ELECTRIC <input type="checkbox"/> OTHER Gasoline			SERVICE STATUS AT TIME OF TEST MAGNET <input type="checkbox"/> CLAMSHELL <input type="checkbox"/> LIFTING <input checked="" type="checkbox"/> CONTAINER SPREADER <input type="checkbox"/> OTHER <input type="checkbox"/> describe						
BOOM LENGTH AT TIME OF TEST MAIN HOIST: 28' - 70' WHIP: N/A JIB: N/A			TYPE OF BOOM CONSTRUCTION Fabricated Steel Telescoping Box Sections (3 sections)						
WIRE ROPE:		NO. PARTS	DIAMETER	NO. STRANDS	WIRES PER STRAND	TYPE CORE	BREAK STRENGTH	CERTIFICATES OF WIRE ROPE REQUESTED?	
MAIN HOIST		3	1/2"	18	7	DY-FORM	N/A	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>
WHIP		N/A						CERTIFICATES AVAILABLE?	
BOOM		N/A						YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>
BOOM PENDANTS		N/A							

THE FOLLOWING ITEMS MUST BE INSPECTED WHERE APPLICABLE; IF NOT APPLICABLE, SO INDICATE:

	Acc	Rej	N/A		Acc	Rej	N/A
(A) Durable rating chart visible to operator	X			(L) Air, Hydraulic & Electrical Systems	X		
(B) Boom angle, radius indicator	X			(M) Fire Extinguisher	X		
(C) Wire rope, reeving and attachments	X			(N) Blocks and Sheaves	X		
(D) Operator controls marked or explanation in operator's view	X			(O) All deadending of cables	X		
(E) Anti-Two block devices	X			(P) All hook safety latches and straps	X		
(F) Operator's manual	X			(Q) All brakes	X		
(G) Travel alarm	X			(R) Structural Integrity	X		
(H) Outrigger locks	X			(S) Cab and machinery house condition	X		
(I) All pins and shafts	X			(T) Cable clamps, proper size, type spacing	X		
(j) Counterweight	X			(U) All clutches, dogs, gauges	X		
(K) Warning labels	X			(V) L.M.I. Weight indicator	X		
				(W) Other (explain)			X

TEST REQUIRED: Proof load test for cranes shall be based on manufacturer's load ratings to be applied at 10% excess at radii deemed necessary at time of certification. A derrick shall be proof load tested in excess of safe working load: to 20 T - proof load 25% excess; to 50 T - proof load 5 T excess; over 50 T - 10% excess. Bridge type cranes - 25% in excess of manufacturer's ratings.

RADIUS In Feet	BOOM ANGLE	TEST LOAD		MANUF. RATING	RATED CAPACITY		MAIN OR WHIP	CRANE CONFIGURATION AND TEST RANGE
		Tons	Lbs.		Tons	Lbs.		
Various			2,977	18-Ton		N/A	Main	Functional Test and LID Test Only LID read 2,980

MEANS OF APPLICATION OF PROOF LOAD Known Weights	BASIS FOR ASSIGNED LOAD RATINGS - DESIGNATE OWNER OR MANUFACTURER Mfr. Assigned Load Ratings
REMARKS	
Note: Fire extinguisher always in cab during operation - kept in ITI facility building to prevent theft when not in operation or use.	
INSPECTED UNDER THE PROVISIONS: Fed OSHA 1926.1400	
DATE ISSUED 1/29/13	SIGNATURE OF CERTIFIED INSPECTOR for Ed Rumburg
CRANE CONSULTANTS, INC. 15303 FIRST AVENUE SOUTH, SEATTLE, WA 98148	

MOBILE 1/03



INSPECTION
TESTING
DESIGN/MODIFICATIONS
ENGINEERING

crane consultants, inc.

Certification Deficiency Notice

Phone: 206.246.7962
Fax: 206.246.1010
Email: cranecon@cranscon.net

Owner's name Herrington Dredge Company	Cert Number 1801-05	EXPIRATION DATE 1/31/14	WT. TEST DATE N/A
ADDRESS 385 SW Columbia Blvd., Smithland, SC 27253			EQUIPMENT ID NO. N/A
MANUFACTURER Grove	MODEL NUMBER TMS 155C	SERIAL NUMBER 2926	
EXACT LOCATION Smithland Yard	Description 18-Ton Track Mounted Hydraulic Crane		

The undersigned, being authorized to do so, hereby tenders notification of the following listed uncorrected deficiencies, found upon (test and examination) (examination) of the described equipment in accordance with the requirements of OSHA CFR's, WISHA WAC's, ANSI regulations as applicable, to constitute in the opinion of the undersigned a currently unsatisfactory condition.

CCI Job No. 8174

No certification deficiencies were noted at the time of this inspection and functional test.


CCI Job No. 8174

Customer Notes:

1. Do you know what Daily/Operational Inspections you are required to perform?
2. Do you know what Frequent inspections/Signed reports you are required to maintain?

Please call us if you need further information

Crane Consultants, Inc. Certification/Inspection procedures shall not be construed as a substitute for, or cause for elimination of, normal operational inspection and maintenance routine throughout the year, which shall be carried out as usual by operating and maintenance personnel.

Certification company name Crane Consultants, Inc.;	Address 15303 1st Ave South;	City Seattle, WA	State ZIP+ 4 98146
Examiner Ed Rumburg	Date 1/29/13	Signature  for Ed Rumburg	

Rev Date: 5/21/03



INSPECTION
TESTING
DESIGN/MODIFICATIONS
ENGINEERING

crane consultants, inc.

Additional Findings & Recommendations

Phone: 206.246.7962
Fax: 206.246.1010
Email: cranecon@cranecon.net

Owner's name Herrington Dredge Company	Cert Number 1801-05	EXPIRATION DATE 1/31/14	WT TEST DATE N/A
ADDRESS 385 SW Columbia Blvd., Smithland, SC 27253			EQUIPMENT ID NO. N/A
MANUFACTURER Grove	MODEL NUMBER TMS 155C	SERIAL NUMBER 2926	
EXACT LOCATION Smithland Yard	Description 18-Ton Truck Mounted Hydraulic Crane		

The undersigned, being authorized to do so, hereby tenders notification of the following Additional Findings & Recommendations, found upon the inspection and testing of the described equipment in accordance with the requirements of OSHA CFR's, WISHA WAC's, ANSI regulations as applicable, to constitute in the opinion of the undersigned a condition which should be corrected, changed or monitored by maintenance personnel for any change in condition.

CCI Job No. 8174


- 1.) The rear outrigger box inside face hydraulic hoses access hole corner is fracturing approximately 1/4 inch - monitor and repair during the next PM for this machine.
- 2.) The boom mid section tip end was noted to have a small fracture on a corner weld of the doubler plate - monitor and repair if needed.

CCI Job No. 8174

Customer Notes:

1. Do you know what Daily/Operational Inspections you are required to perform?
 2. Do you know what Frequent inspections/Signed reports you are required to maintain?
- Please call us if you need further information**

Crane Consultants, Inc. Certification/Inspection procedures shall not be construed as a substitute for, or cause for elimination of, normal operational inspection and maintenance routine throughout the year, which shall be carried out as usual by operating and maintenance personnel.

Certification company name Crane Consultants, Inc.	Address 15303 1st Ave South;	City Seattle, WA 98146	State ZIP+ 4
Examiner Ed Rumburg	Date 1/29/13	Signature 	for Ed Rumburg Rev Date: 5/21/03



INCIDENT INVESTIGATION WORKSHEET

INVESTIGATOR INFORMATION

Investigator's Name: _____

Office Address: _____

Office Phone #: _____ Mobile Phone #: _____

FAX #: _____ Email Address: _____

CLIENT INFORMATION

Company's Name: _____

Client's Address: _____

Office Phone #: _____ FAX #: _____

Point of Contact (1) Name: _____

Mobile Phone #: _____ Email Address: _____

Point of Contact (2) Name: _____

Mobile Phone #: _____ Email Address: _____

Point of Contact (3) Name: _____

Mobile Phone #: _____ Email Address: _____

INCIDENT INFORMATION

Date of Incident: _____ Time of Incident: _____

Address of Incident: _____

Brief Description of Incident: _____



LOAD HANDLING EQUIPMENT (LHE) INFORMATION

DESCRIPTION

- Mobile Crane
- Overhead Crane
- Tower Crane
- Portal Crane
- Pedestal Crane
- Deck Crane
- Container Crane
- Articulating Boom Crane
- Boom Truck
- Self Erecting Tower Crane
- Barge Mounted Crane
- Stiff Leg Derrick
- Powered Hoist
- Manual Hoist
- Concrete Pumper
- Load Balancer
- Telehandler
- Forklift
- Skid Steer
- THGS (Gantry)
- Winch
- Strand Jacks
- Mechanical Jacks
- Hydraulic Jacks
- Air-lifting Bags
- SPT (Hydraulic Trailer)
- Excavator (Trackhoe)
- Backhoe/Loader
- Rotocraft
- Pipe Layer (Sideboom Tractor)
- Cableway System
- Other:

CONSIDERATIONS

Year and Make of LHE; Model #; Serial #; Load Chart Capacity for Configuration and Corresponding LMI Code; Maintenance Records; Inspection Records; Reeving System Capacity and Line Pull; Block Capacity; Working Radius at Time Incident; Planned Working Radius; Boom Length; Boom Telescoped (if applicable) as per Manufacturer's Specifications; Boom Angle; Outrigger Configuration; Counterweight Configuration; Proper Mat Size for Outrigger Pad and Ground Conditions; LHE Level Wire Rope/Chain Condition; Hook Condition, i.e. peening that could cause rigging failure; End Termination Condition; Operator Qualifications/Certifications; Designated Qualified Signal Person; Proper Hand/Verbal Signals; Operator's View of Picking Area/Landing Area/Signal Person Obstructed?; Visibility Concerns, i.e. "the sun was in my eyes"; Weather Considerations, i.e. wind, precipitation, fog, sun position, etc.; Load movement in proximity to obstructions that could cause load and/or slings to shift or become caught



RIGGING INFORMATION

DESCRIPTION

Slings

- Alloy Chain Slings
- Wire Rope Slings
- Metal Mesh Slings
- Synthetic Rope Slings
- Synthetic Web Slings
- Synthetic Round Slings
- Pipe Slings

Sling Configuration

- 1, 2, 3, 4 Legs
- Vertical, Choker, Basket Hitch, etc.
- Other _____

BTHLD

- Spreader Bar
- Spreader Frame
- Grabs, Clamps
- Coil Handler, Tongs
- Other: _____

Rigging Hardware

- Shackles
- Master Links
- Eyebolts
- Eye Nuts
- Swivel Hoist Rings
- Turnbuckles
- Rigging Blocks
- Dynameters

Sling Protection

- Engineered/Purchased
- Homemade/Field-made
- Other: _____

Attachment Points

- Welded Lugs
- Pad Eyes
- Other: _____

CONSIDERATIONS

*Conduct sling inspection, full pedigree pictures of labels and tags;
 *Terminations and splices, i.e. hand-tucked, swaged, resin poured, zinc poured, wire rope clips, compression type, etc.;
 *Look at slings carefully for pre existing damage, i.e., UV, broken and worn stitches, broken wires, distortion/deformation, chemical damage, heat damage, tears, abrasions;
 *Draw a scheme and photograph...Label and photograph;
 *Tape measurement...bearing point along side of sling;
 *Unique photo of each sling...labeled 1 through 4 (if more or less slings), lay sling out and photograph every 3 to 4 feet ON BOTH SIDES, close up photos of the warning labels and capacity tags;
 *Conduct full analysis, e.g. 3'3" minor abrasion, 7'6" friction cut, etc.;
 *Photograph rigging hardware and any rigging softeners/protection, i.e. wear pads, chaffing gear, etc. Is it homemade or any engineered system?



LOAD INFORMATION

DESCRIPTION

- Photos
- Drawings/Blue Prints
- Schematics
- Moving Components
- Outer Structure
- Inner Structure
- Rigging Method (as applied to the load)
- Other:

CONSIDERATIONS

Weight of the load; center of gravity of the load; load share per pick-point; shape; size; sail area; outer structure; Type of load; Design/style; Model Number; Draw picture to show how it was rigged; Take measurement if rigged in a choke or basket, around the beam to determine "circumference" and the remaining free length of sling; Locate connection points...side to side, end to end and diagonal; look for at connection points if rigged in a choker or basket for reaming fibers, coloration of the sling left on the load or color of the load onto the sling, moved paint or grease.. anything to show movement of the sling; Was the load "dew covered", wet, slick from rain, snow, ice, oil, etc.

Determine how the body was recovered/rescued and if the load was moved in anyway during the recovery/rescue.



LOAD TRAVEL PATH and PERSONNEL PLACEMENT INFORMATION

DESCRIPTION

- Photograph the area
- Sketch the load travel path in detail, i.e. provide dimensions

Personnel Placement

(Name, Title and Location)

(1)

(2)

(3)

(4)

(5)

(6)

(7)

(8)

Other:

CONSIDERATIONS

Starting position; Intended Finishing Position; Intermediate Position (if applicable); Location of the incident; Load Travel path; Obstructions; Limitations; Personnel Placement; Signal Person Placement; Tag Line Placement; Top view drawing of layout of the site before accident; Provide a Compass Rose with "North" indicated; Indicate wind directions and position of the sun or facility lights that may have impeded the vision of the parties involved



SEQUENCE OF EVENTS

DESCRIPTION

Known Witnesses (Eye Witness)

(1)

(2)

(3)

(4)

(5)

(6)

(7)

Assumed Witnesses

(1)

(2)

(3)

(4)

(5)

(6)

(7)

--	--

Other:

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CONSIDERATIONS

<p>Include a step by step sequence of events with time and/or durations if possible; How many hooks remained on the hook after the failure? Create a narrative of the events; Identify FACTS; Avoid opinions and/or assumptions.</p>
--



DETAILS OF PHYSICAL EVIDENCE

DESCRIPTION

- Load Handling Equipment (LHE)
- Rigging
- Load
- Personnel
- Building/Facility/Site
- Ancillary Equipment
- Other:

CONSIDERATIONS

Was there any discernable damage to any of the equipment, rigging, etc. prior to the incident? Did the hook recoil and strike the boom? Look for evidence. Is the hoist rope "rat nested" or loosely wrapped on the the hoist drum? Are the connection points on the load bent and/or twisted?



ROOT CAUSE ANALYSIS (1 OF 3)

	Mark If Applicable	Causal Factors	Comments	Recommended Action
Part 1: Policies and Programs		Not developed or inadequate		
		Developed - not communicated		
		Developed - not understood		
		Developed - not followed		
		Lack of disciplinary policy		
		Disciplinary policy not enforced		
		Other		
Part 2: Communication		Insufficient planning of tasks		
		Lack of worker communication		
		Lack of supervisor instruction		
		Lack of supervision		
		Work team breakdown		
		Confusion after communication		
		Language barrier		
		Other		
Part 3: Hazards		Unidentified or not labeled		
		Known but not corrected		
		Known but not reported		
		Created by external factors; example - weather		
		Documented but not repaired		
		Condition change not conveyed		
		Equipment repaired deficiently		
		PPE not adequate or defective		
		Other		



ROOT CAUSE ANALYSIS (2 OF 3)

	Mark If Applicable	Causal Factors	Comments	Recommended Action
Part 4: Equipment/Workstation		Poor workstation layout		
		Poor/faulty equipment design		
		Awkward workstation design		
		Equipment not guarded		
		Equipment repairs deficient		
		Lack of preventative maintenance		
		Lack of proper storage		
		Other		
Part 5: Productivity/Schedule		Heavy Workload		
		Tight Schedule		
		Long/Unusual working hours		
		Falsely perceived need to hurry		
		Co-worker assistance unavailable		
		Co-worker assistance inadequate		
		Change in process and/or plan		
		Other		
Part 6: Training		Deficient Orientation/Training		
		Deficient job-specific training		
		Insufficient training follow-up/reinforcement		
		Lack of planning		
		Lack of supervisor training		
		Hazards overlooked during training		
		JHA for activity completed, posted and signed by employees		
		Other		



ROOT CAUSE ANALYSIS (3 OF 3)

	Mark If Applicable	Causal Factors	Comments	Recommended Action
Part 7: Work Behavior		Short cuts taken		
		Required PPE not used/worn		
		Required PPE not used/worn properly		
		Tools/equipment used incorrectly		
		History of accidents/near misses		
		Disregarded/refused to follow procedure(s)		
		Co-worker assistance required - not requested		
		Horseplay		
		Other		
Part 8: Environment		Weather, temperature, humidity		
		Poor housekeeping		
		Poor lighting		
		Poor visibility		
		Poor air quality		
		Excessive noise		
		Other		
Part 9: Other Site-Specific Considerations				



SUMMARY OF ROOT CAUSE ANALYSIS

DESCRIPTION

Detail the items, elements, actions and/or the conditions that initiated the incident

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VIOLATIONS

DESCRIPTION

Possible violations of OSHA,
ASME, local authority, company
or best practices guidelines

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