



## D. H. GRIFFIN COMPANIES

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4700 Hilltop Road, Greensboro, North Carolina 27407

**To: Mike Singer-Project Director, Davidson River Village, LLC**

**From: Darrell W. Coble- D.H. Griffin Companies Safety Director**

**Ref: Accident Investigation for Josh Bowman- Equipment Operator, Former Ecusta Paper Mill**

On March 30<sup>th</sup> 2009 at approx 10:45 AM, D. H. Griffin operator Josh Bowman was running a Komatsu 400 Excavator with a UP 90 shear attachment. The operator was removing exterior piping from the outside of Building # 43 that protruded from the brick structure.

As the operator was attempting to remove a 10" diameter cast steel pipe approx 20' in length on the south side of the building (see pre-demolition photograph below); he reached up and took hold of the bracket that the pipe was resting on. Unknown to the operator this pipe was not secured to the bracket as the other similar pieces of pipe on the wall are. The pipe which appears to have been sitting on two winged flanges toppled / penciled away from the building.

The pipe glanced off the UP 90 shear attachment, missing the main boom of the excavator and entered the cab of the machine top end down. This action pinned the operator to the seat.

Site Superintendant Bill Bowman the operator's father was on opposite side of Bldg # 43 when incident occurred and responded when he heard noise.

Emergency personnel were immediately notified.



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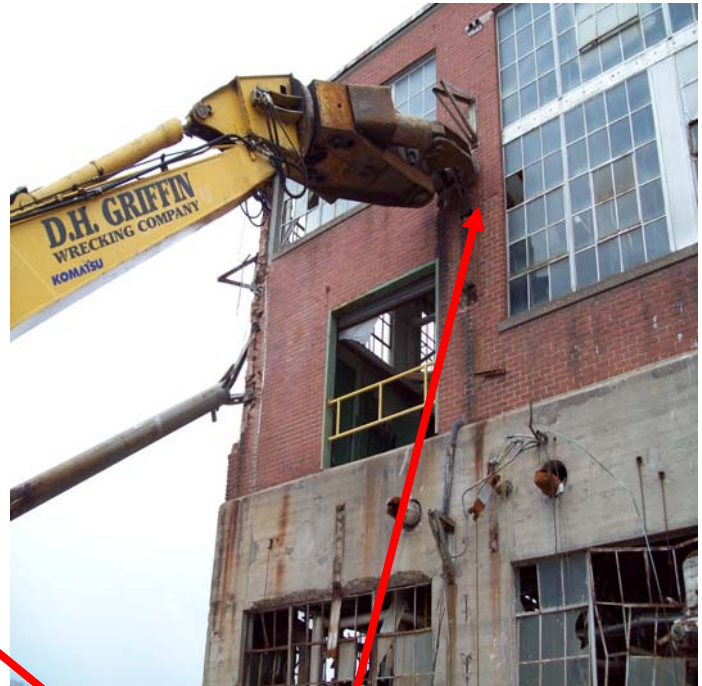
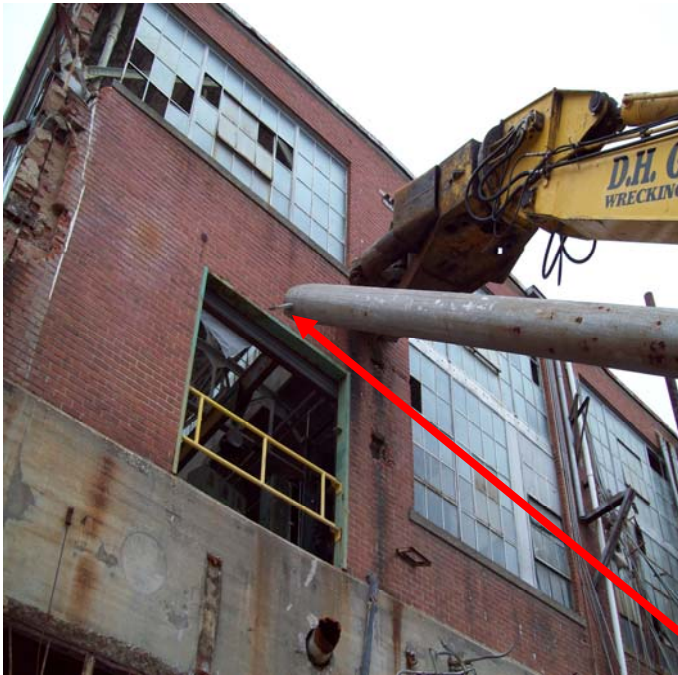
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**Winged Pipe Supports  
(Different Angles)**

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### Pipe Location in Cab of Excavator (Multiple Angles):



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The following actions were immediately put into action:

1. All work on-site ceased immediately and all site staff assembled at the main gate.
2. The accident area was secured for further investigation.
3. At the request of Davidson River Project Director all wrecking operations were immediately discontinued.
4. Initial investigation was immediately conducted by the personnel listed below:
  - a. Ecusta Site Safety: Mike Olquin
  - b. Project Manager: Tommy Hodge

### **INITIAL THEORY ON THE ACCIDENT CAUSE**

Although the exact cause of accident is unknown at this time this assessment is the result of a comprehensive review and investigation by D.H. Griffin Staff (Mike Oglin-DHG on Site Safety Rep., Operators Randy Hudson, Tommy Coleman, Project Manager Tommy Hodge, and Corporate Safety Darrell Coble).

After all staff members were interviewed, it was determined that there were no witnesses to the incident. Bill Bowman, the father of the victim, was interviewed at the hospital on the evening of March 31<sup>st</sup>. Josh Bowman was under sedation and was unable to speak with DHG staff or OSHA representative. Bill stated Josh has no recollection of the pipe falling from the building or into the cab of machine.

The following observations have also been verified:

- Prior to the start of work, the operator and site managers were un-aware that the pipe in question was not secured to the angled brackets. When the operator touched the brackets while attempting to get hold of the pipe it slid off the winged bracket and toppled over.
- Pipe rolled and entered into cab.
- Operator did not have protective cage closed on roof top window (**see pictures on following pages**).
- The open safety cage allowed pipe to penetrate cab striking operator on the left shoulder pinning him against seat and right side of cab.
- Based on observations made after the accident the cab rooftop window was in the closed position. The rooftop window appears to have been what struck the operator pushing him across the seat out of the direct path of the pipe.

### **2. CORRECTIVE ACTIONS TO PREVENT A SIMILAR FUTURE ACCIDENT**

- Standard operating guidelines (see attached document) for machine use have been established for the remaining vertical demolition at this site.

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- **WARNING** Decals are being printed and will be installed in all excavator cabs, as soon as they are available, advising operators to secure all cab protection prior to commencing any overhead work.
- All operators have been instructed on these procedures at site.
- A spotter will be present when excavators are working on any overhead work or any overhead material.
- All structures scheduled for demolition will have pre-task plan completed identifying the machines, personnel and height limitations of the dedicated equipment.

### Safety Cage in open and closed positions:

(Open Position)



(Closed Position)



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cc Foyle Perkins – Western Division Manager  
Tommy Hodge- Project Manager

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### **STANDARD OPERATING GUIDELINE**

#### **DEMOLITION EQUIPMENT USAGE FOR DRV JOB SITE BREVARD, NC STRUCTURES REMAINING AFTER APRIL 1, 2009**

##### **Revised Procedures:**

All loose or hanging debris will be removed from buildings by long reach machines before smaller machines that cannot reach them adequately are allowed in the drop zone.

Additional measures will be employed on Bldg # 62 include increase ramp size at base an additional 15' in height at north side of building to allow operator and machine to be further away from actual work. Additionally a spotter with direct communication to the operator will be utilized while demolition activities continue.

Going forward on this project anytime a machine will be working where the work is overhead, a dedicated spotter for each such operation will be utilized.

### **Description of Building**

#### **BUILDING 62-Boiler House**

- Long reach unit
- Komatsu 800
- Lower floors 30 ton or larger excavator and hammers

#### **BUILDING 43-Turbine Building**

- Remove upper floors with Komatsu 800 or Long Reach
- Lower floors 30 ton or larger excavator and hammers

#### **BUILDING 15-Water Treatment**

- 30 ton or larger excavator with grapple or hammers

#### **BUILDING 52-R&D**

- 30 ton or larger excavator with grapple or hammers

#### **BUILDING 44-Telephone**

- 30 ton or larger excavator with grapple or hammers

#### **BUILDING 89-Warehouse**

- 30 ton or larger excavator with grapple or hammers

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### **BUILDING 56 & 58-Digester & Bleach make-up**

- Remove upper floors with Komatsu 800 or Long Reach
- Lower floors 30 ton or larger excavator and hammers

### **BUILDING 107 & 108 & 102-Waste Treatment**

- 30 ton or larger excavator with grapple or hammers

### **BUILDING 110-Smoke Stack**

- Komatsu 800 or Long Reach

### **BUILDING 72-Guard Shack**

- 30 ton or larger excavator with grapple or hammers

### **BUILDING 2-Admin**

- 30 ton or larger excavator with grapple or hammers

### **BUILDING 1-Guard Shack**

- 30 ton or larger excavator with grapple or hammers

- *These are general guidelines, field circumstances may dictate stopping and using different techniques in different situations.*

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