

Workplace Health and Safety Fatality Report



WORKER STRUCK BY TUBING

Type of Incident: Fatal

Date of Incident: March 10, 2008

Government of Alberta ■
Employment and Immigration

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SECTION 1.0 DATE AND TIME OF INCIDENT

1.1 March 10, 2008 at approximately 11:55 p.m.

SECTION 2.0 NAME AND ADDRESS OF PRINCIPAL PARTIES

2.1 Prime Contractor

2.1.1 Penn West Energy Trust
Suite 2200 425 1 Street SW
Calgary, Alberta T2P 3L8

2.2 Employer

2.2.1 Concord Well Servicing a division of CCS Company
3606 Highway Street
Valleyview, Alberta T0H 3N0

2.3 Worker

2.3.1

(Names and personal details were removed before distribution of this report)

SECTION 3.0 DESCRIPTION OF PRINCIPAL PARTIES

3.1 Owner / Prime Contractor

Penn West Energy Trust is a conventional oil and natural gas producing trust, based in Calgary, Alberta and operates throughout the Western Canada Sedimentary Basin. Penn West Energy Trust hired Concord Well Servicing to service the well. Penn West Energy Trust employs approximately 850 workers.

3.2 Employer

Concord Well Servicing operates 140 service rigs in Alberta, Saskatchewan, British Columbia and Northwest Territories. Concord Well Servicing employs approximately 600 workers.

3.3 Worker(s)

3.3.1 The Derrickman had been working for Concord Well Servicing for 9 months as a floorhand. On the day of the incident he was performing the duties of a Derrickman. Prior to the incident he had worked as a Derrickman for three shifts. He had no previous experience with the oil and gas industry prior to joining Concord Well Servicing.

The Derrickman received training in First Aid, Workplace Hazardous Materials Information System (WHMIS), H2S Alive, Transportation of Dangerous Goods (TDG), Canadian Association of Oilwell Drilling Contractors (CAODC) Driver Training, Hours of Service and had been Fit Tested for respiratory protective equipment.

At the time of the incident, the Derrickman was wearing a full body harness and it was attached to the overhead fall protection system.

- 3.3.2 The Operator had been working for Concord Well Servicing for approximately 18 months. He had recently moved from the derrickman position to the Relief Operator and had worked as a Relief Operator for approximately 1 week in the previous month.
- 3.3.3 The Floorhand had worked for Concord Well Servicing for approximately 1 month. Prior to working for Concord Well Servicing he had worked a total of 4 years in the well servicing industry and as a driller for the previous 7 months with a different service rig company. He had only 4 days of experience working on a slant service rig.

SECTION 4.0 LOCATION OF INCIDENT

- 4.1 The incident occurred, approximately 10 kilometres North of Provost, Alberta. The LSD for the site was 12-04-40-02-W4 (Reference Attachment A – Map).

SECTION 5.0 EQUIPMENT, MATERIAL AND OBSERVATIONS

5.1 Equipment and Material

- 5.1.1 The equipment involved in the incident was a Concord Well Servicing Slant Service Rig 96. The Rig 96 consisted of the main mast, winch assembly, a mast boom assembly, traveling block/elevator assembly, a monkey board, power tong assembly, the rig floor, the operator's control panel and the service rig carrier (Reference Attachment B – Photographs 1, and 2).
- 5.1.2 The main mast was a DRECO 62-110,000 Slant Rig, Serial Number H-2255. The main mast was approximately 19 meters long and provided a support structure for the winch assembly, the mast boom assembly, the traveling block/elevator, power tongs assembly and the monkey board. The main mast was set at an angle of approximately 40 degrees off vertical.
- 5.1.3 The winch assembly consisted of a transfer elevator, winch line and a winch. The transfer elevator was attached to the end of the winch line. The transfer elevator was designed to lift single length of tubing from an inclined position against the main mast to a vertical position for the storage rack (Reference Attachment B – Photograph 3).

- 5.1.4 The mast boom assembly was used to align the transfer elevator and the single length of tubing for racking. At the time of the incident, the mast boom assembly was set at an angle of approximately 80 degrees off the main mast.
- 5.1.5 The traveling block/elevator assembly consisted of a split block and an elevator. The traveling block/elevator assembly was used to raise and lower the tubing string in the well bore.
- 5.1.6 The monkey board was an elevated work platform for the Derrickman. The monkey board had several controls available for the Derrickman which operated the winch, the mast boom and the sheave alignment on the mast boom. There was overhead fall protection system built into the work platform (Reference Attachment B – Photographs 4 and 5).
- 5.1.7 The power tong assembly consisted of a tong cart, power tong and a tubing catcher. The power tong and tubing catcher were mounted on the tong cart. The tong cart was held in place on the main mast with guides. The power tong was used to disconnect and re-connect single length of tubing onto the tubing string in the well bore. The tubing catcher was used to catch the tubing that was disconnected from the tubing string (Reference Attachment B – Photograph 6)
- 5.1.8 Tubing involved in the incident was approximately 9.75 meters long by 7.3 centimeters in diameter. It had a nominal weight of approximately 9.7 kilograms per meter.

At the time of the incident, a single length of tubing was disconnected from the tubing string. The disconnected tubing was dropped into the tubing catcher. The power tong assembly was lowered creating a tubing string stump approximately 0.90 meters long. When the Derrickman lifted the tubing with the transfer elevator, the tubing contacted the tubing string stump and created a sudden unexpected whip like motion striking the worker on the back of his head (Reference Attachment B – Photographs 7, 8, and 9).

After the incident, the thread end of the tubing landed on the ground under the operator's platform (Reference Attachment B – Photograph 10).

5.2 Observations

- 5.2.1 Upon arrival at the well site, Workplace Health and Safety Compliance (WHSC) noted the mast boom had been lowered on to the resting blocks, a valve was put on the end of the tubing string stump, the high angle rescue equipment was put away, the tubing in the main mast was resting in the catcher, the transfer elevator was secured to the monkey board and the service rig was shut down. These actions were taken after

the incident to ensure the scene was safe and secure for the rescuers and investigators.

- 5.2.2 The Derrickman's hardhat and safety glasses were moved before WHSC had documented their locations.

SECTION 6.0 NARRATIVE DESCRIPTION OF THE INCIDENT

- 6.1 On March 10, 2008, at approximately 7:00 a.m. the slant service rig crew consisting of the Rig Manager, Rig Manager in Training, Operator, Groundman, Floorhand, and Derrickman arrived on site. The Service Rig Supervisor, representing Penn West Energy Trust arrived shortly afterwards and held a safety meeting with the slant service rig crew to discuss work for the day.
- 6.2 At 8:30 a.m. the Tubing Inspector, of Pelle Tubing Inspections Ltd., arrived on site and attached a scoping tool to inspect the tubing string inside the well bore. After inspecting the tubing string, the scoping tool was removed from the well bore.
- 6.3 The slant rig crew started to pull the remaining 27 lengths of tubing from the well bore. The Operator lifted tubing string into position with the traveling block/elevator assembly. The Floorhand then disconnected a single length of tubing from the tubing string which dropped into the tubing catcher.
- 6.4 The Derrickman attached the transfer elevator onto the single length of tubing.
- 6.5 Floorhand then raised the single length of tubing with the power tong assembly. The Operator then released the single length of tubing from the traveling block/elevator assembly. Floorhand then lowered the single length of tubing with the power tong assembly.
- 6.6 The Derrickman activated the winch to raise the single length of tubing. The transfer elevator started to lift this single length of tubing from the top end off the main mast into the vertical position.
- 6.7 At approximately 11:55 a.m. while the Derrickman was lifting the single length of tubing with the transfer elevator, the tubing contacted the tubing string stump and created a sudden unexpected whip like motion. The tubing struck the Derrickman on the back of his head, knocking his hard hat and safety glasses off.
- 6.8 Groundman saw the Derrickman slump into his full body harness and called a "man down" alert. The Operator and the Rig Manager in Training put on their full body harnesses and climbed the main mast to check the Derrickman. They started to provide first aid to the Derrickman.

- 6.9 The Rig Manager and Groundman brought the high angle rescue kit from the portable dog house and made preparations to extricate the Derrickman from the monkey board.
- 6.10 At approximately 12:04 p.m. the Service Rig Supervisor called 911. Emergency Medical Services (EMS) instructed the Service Rig Supervisor to stabilize the Derrickman and not to extricate him until the arrival of EMS.
- 6.11 At approximately 12:14 p.m. EMS arrived onsite and removed the Derrickman from the monkey board. The Derrickman was then transferred to Provost Regional Hospital where he was pronounced dead.

SECTION 7.0 ANALYSIS

7.1 Direct Cause

- 7.1.1 The Derrickman received fatal injuries when he was struck by the tubing on the back of his head.

7.2 Contributing Factors

- 7.2.1 A tubing string stump of approximately 0.9 meter long was left above the power tongs when the tong cart was lowered after disconnecting a single length of tubing.
- 7.2.2 The main mast was set at an angle of 40 degrees off vertical which created a potential for the 0.9 meter long tubing string stump to contact the tubing while the tubing was lifted.
- 7.2.3 When the tubing was lifted with the transfer elevator, the tubing contacted the tubing string stump, created a sudden unexpected whip like motion striking the Derrickman on the back of his head.
- 7.2.4 The hazard assessment conducted at the site did not identify the hazards associated with the racking of single length of tubing on a slant service rig.

SECTION 8.0 FOLLOW-UP/ ACTION TAKEN

8.1 Employment and Immigration; Workplace Health and Safety Compliance

- 8.1.1 On March 10, 2008 Workplace Health Safety Compliance (WHSC) received notification of a fatal workplace incident. WHSC responded to the scene and commenced an incident investigation.

- 8.1.2 On March 10, 2008 WHSC contacted the prime contractor and verbally requested the incident scene be secured.
- 8.1.3 On March 11, 2008 WHSC took photographs, measurements, statements and seized the Derrickman's hardhat and safety glasses.
- 8.1.4 On March 12, 2008 WHSC interviewed the slant service rig crew.
- 8.1.5 On March 12, 2008 WHSC issued the following orders to Concord Well Servicing:
- A stop use order was for the mast boom, transfer elevator, the transfer cable, the winch assembly and the associated hydraulic system.
 - Conduct an incident investigation, determine the causes and prepare the report.
 - Provide documentation for workers' competency and training, maintenance of the slant service rig and operating procedures.
 - Conduct hazard assessment for the site and for the task of "tripping tubing"
- 8.1.6 On March 12, 2008 WHSC issued the following orders to Penn West Energy Trust:
- Conduct an incident investigation, determine the causes and prepare report.
 - Provide the manufacturers specifications for the single length of tubing involved in the incident.
- 8.1.7 On April 18, 2008, Concord Well Servicing provided the requested documents and complied with all the orders issued by WHSC.
- 8.1.8 On May 27, 2008 Penn West Energy Trust provided the requested documents and complied with all the orders issued by WHSC.

8.2 Industry

- 8.2.1 On March 10, 2008 Penn West Energy Trust notified WHSC of a workplace fatality, initiated their investigation into the incident and secured the incident scene.
- 8.2.2 On March 10, 2008 Concord Well Servicing stopped using Rig #96, secured the well head and initiated their investigation into the incident.
- 8.2.3 On April 18, 2008 Concord Well Servicing provided the requested documentation.
- 8.2.4 On May 27, 2008 Penn West Energy Trust made their investigation available to WHSC. On June 2, 2008 representatives from Penn West Trust met with WHSC and reviewed their findings of their investigation.

8.3 Additional Measures

8.3.1 Concord Well Services issued an industry wide safety alert in the Enform Safety Newsletter regarding the incident and preventative measures.

SECTION 9.0 SIGNATURES

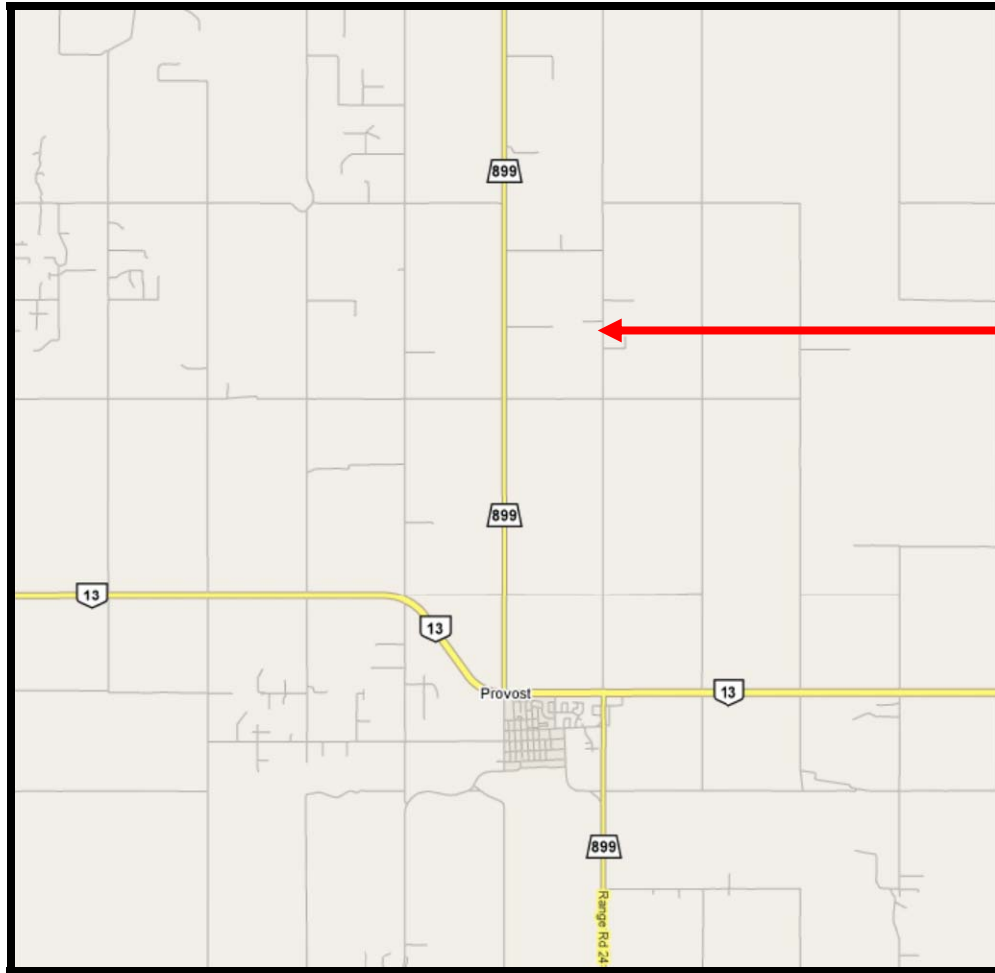
Original Report Signed _____
Lead Investigator Date

Original Report Signed _____
Reviewer Date

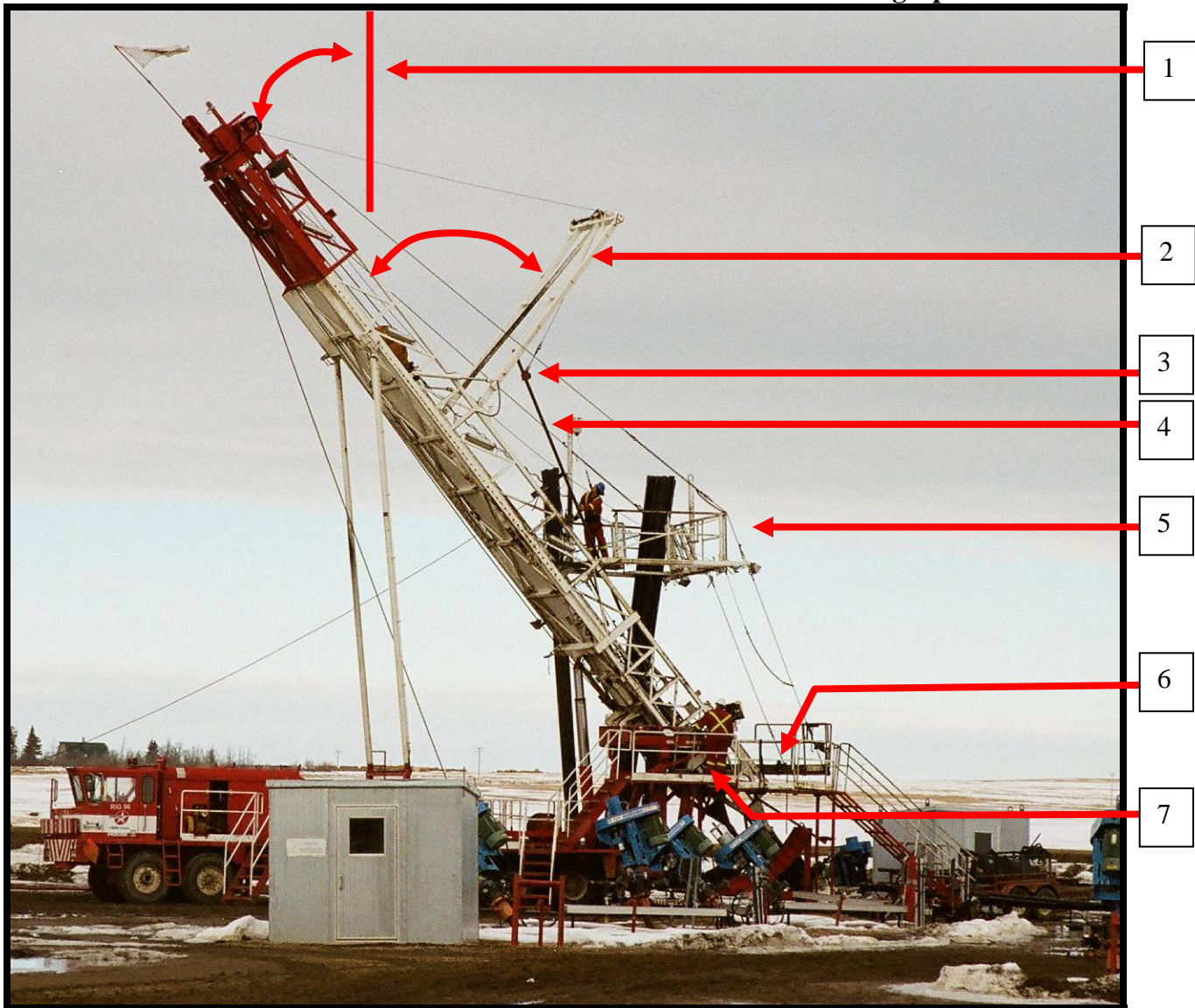
Original Report Signed _____
Regional Senior Manager Date

SECTION 10.0 ATTACHMENTS:

Attachment A Map
Attachment B Photographs

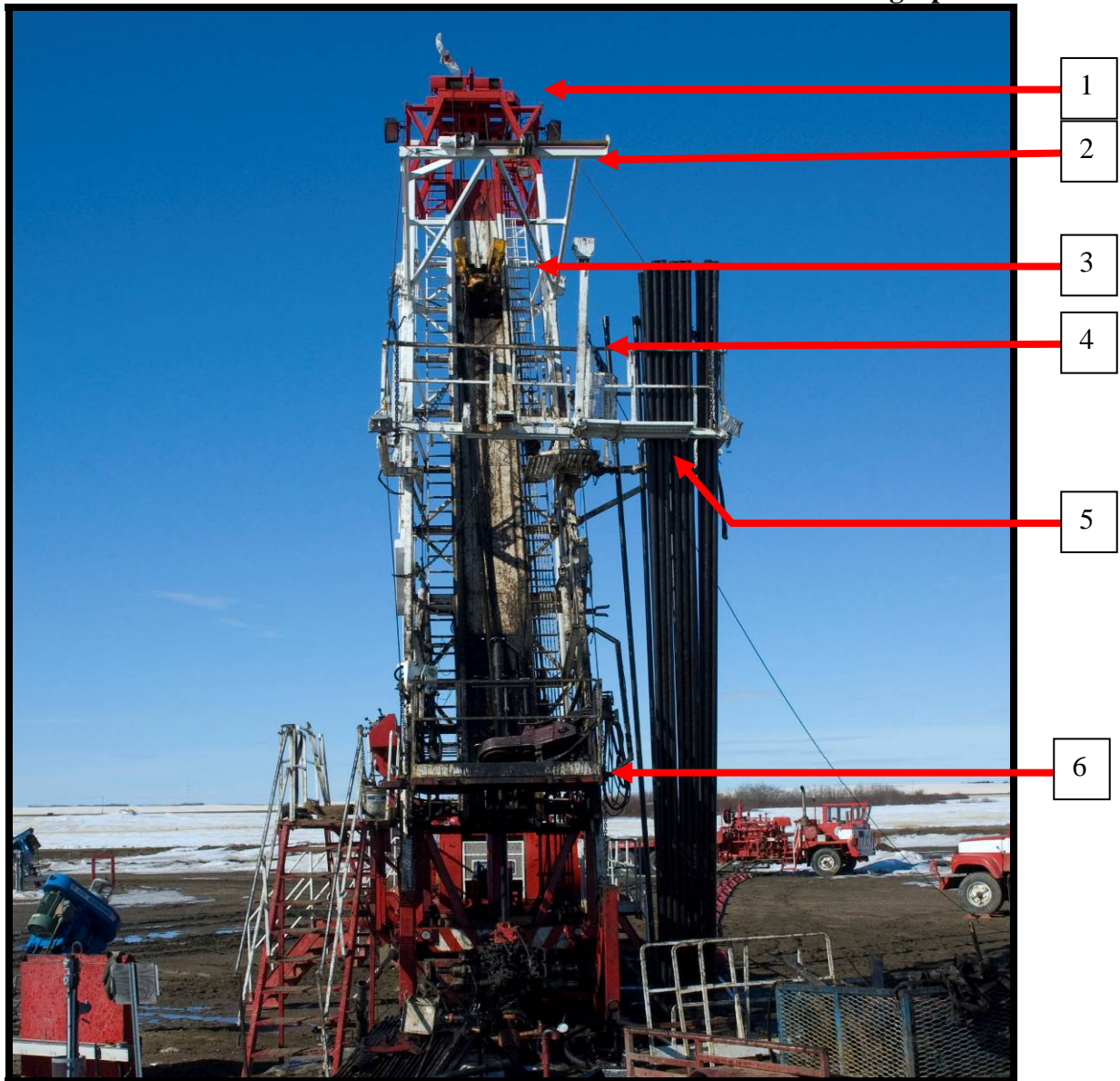


Map – The arrow shows the approximate location of the well site.



Photograph 1 – Shows the Slant Service Rig 96

1. Main mast angle - 40 degrees off vertical
2. Mast boom angle – 80 degrees off mast
3. Transfer elevator
4. Tubing
5. Monkey board
6. Rig floor
7. Operators control panel

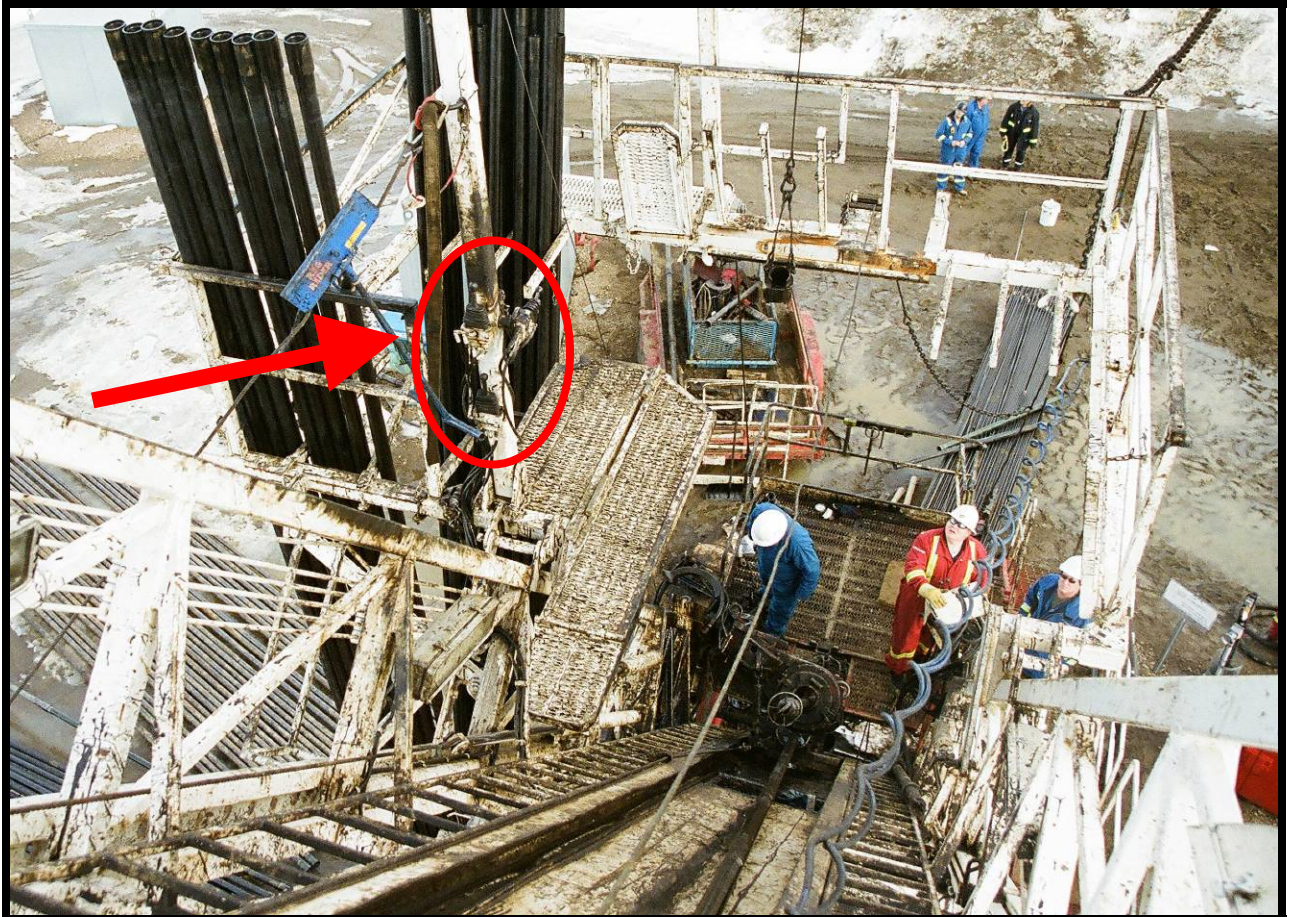


Photograph 2 – Shows the Slant Service Rig 96

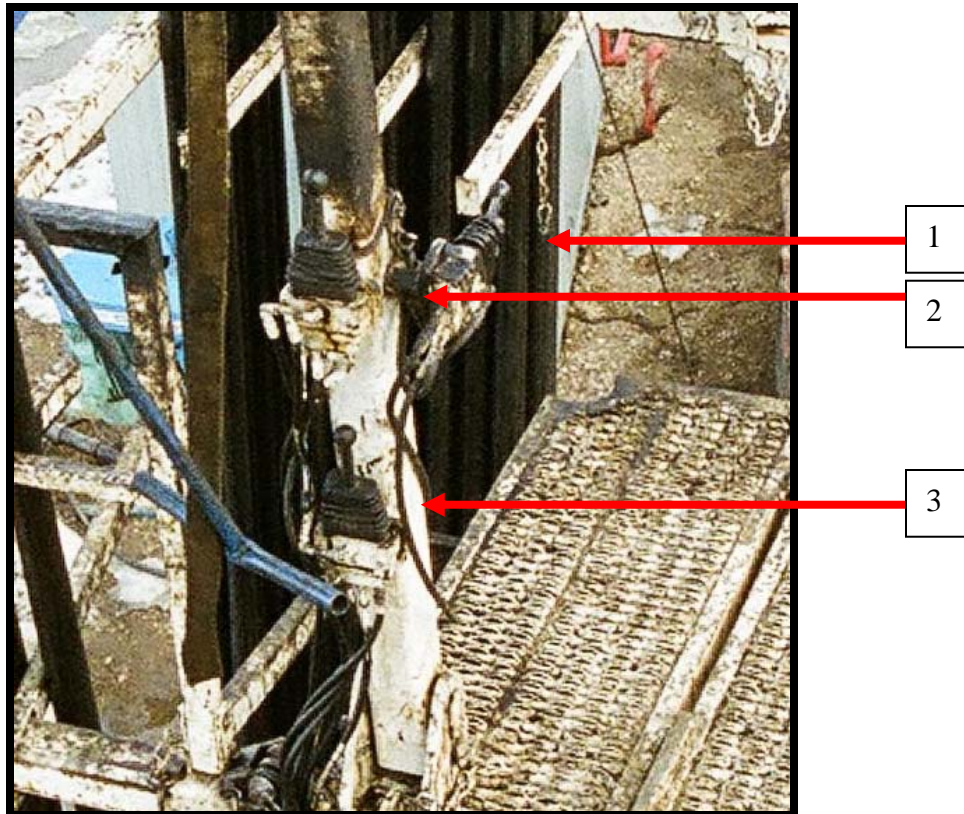
1. Winch assembly
2. Mast boom
3. Travelling block/elevator assembly
4. Overhead fall protection system
5. Tubing rack
6. Power tong assembly



Photograph 3 – Shows the transfer elevator used at the time of the incident.



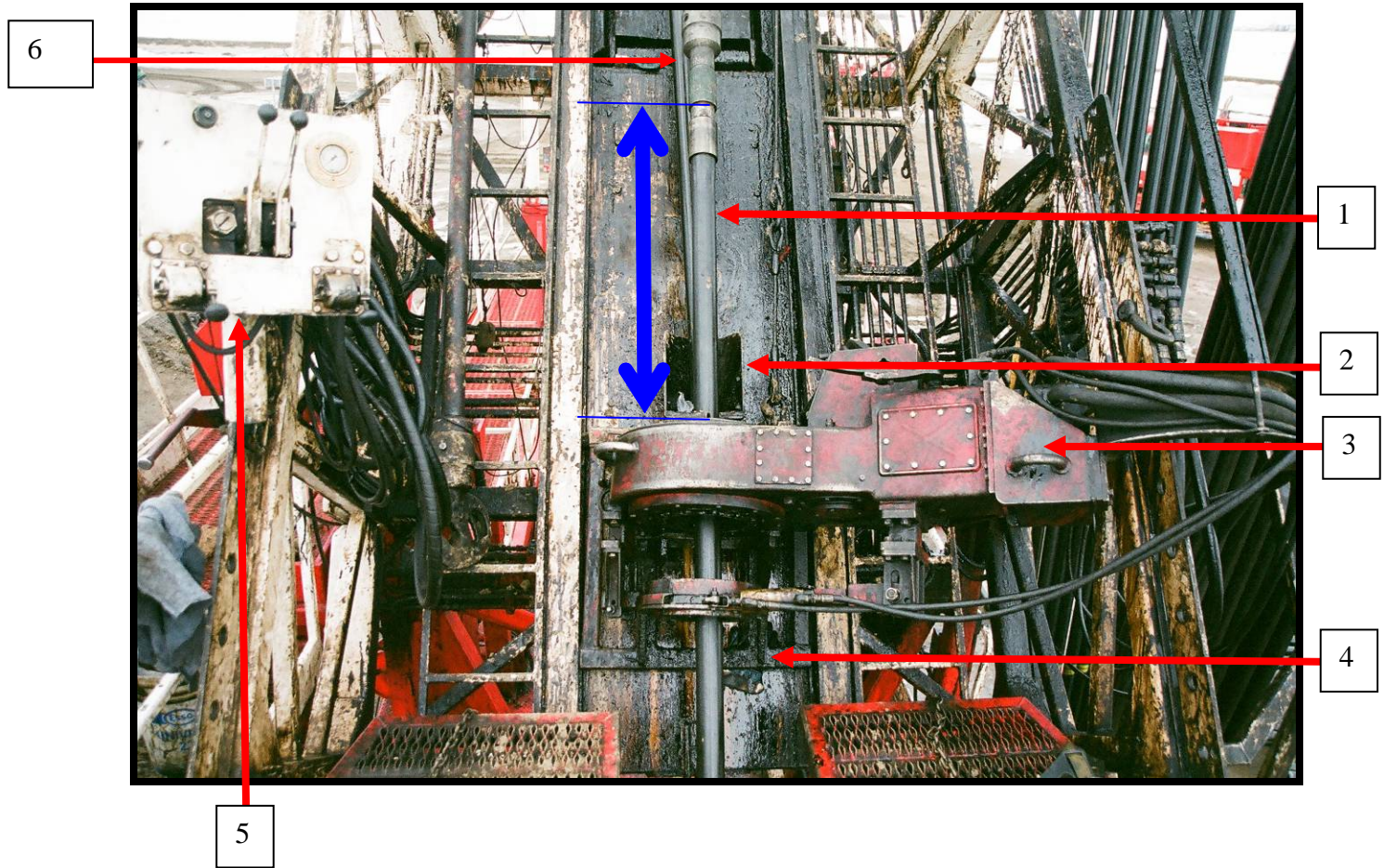
Photograph 4 - Shows monkey board, work platform for the Derrickman. The arrow shows the joysticks used by the Derrickman to control the winch, the mast boom and the mast boom sheave. See Photograph 5 for a close up of the controls



Photograph 5 – Shows joystick controls on the monkey board

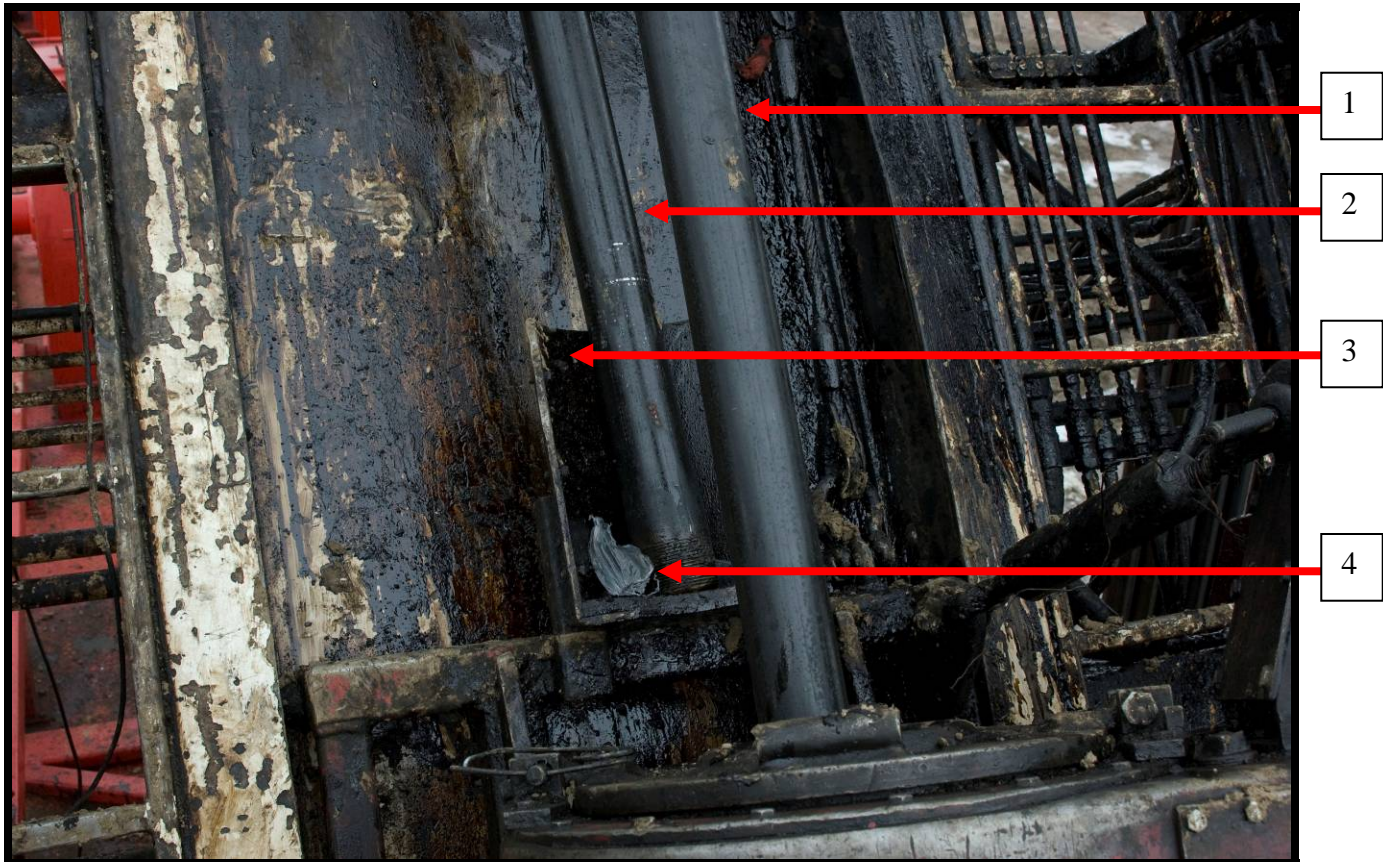
1. Winch Control to raise and lower the transfer elevator
2. Control to move the mast boom up and down
3. Control to move mast boom sheave left and right

of 10



Photograph 6 – Shows the power tong assembly and the tubing string stump with valve.

1. Tubing stump with valve, the blue arrows shows the length of the tubing stump
2. Tubing catcher
3. Power tong
4. Tong cart
5. Power tong controls
6. Tubing behind the tubing string stump



Photograph 7 – Shows tubing string stump, tubing and tubing catcher.

1. Tubing string stump
2. Tubing
3. Tubing catcher
4. Fragment of environmental barrier



Photograph 8 – Shows the tubing behind the tubing string stump. The arrow points to the marking on the tubing which appeared in line with the top of the tubing string stump. When the tubing was raised with the transfer elevator, the tubing contacted the tubing string stump, created a sudden unexpected whip like motion striking the worker on the back of his head.



Photograph 9 – Shows a re-creation of the incident site.

1. Tubing
2. Red circle shows the area where the tubing contacted the tubing stump
3. Tubing stump



Photograph 10 – Arrow shows the area where the thread end of the tubing landed on the ground.