

Occupational Health and Safety

Fatality Report

**WORKER IMPALED WITH
KINLEY TOOL CUTTER**

Date of Incident: February 2, 2007

Type of Incident: Fatal

Alberta 

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Section 1.0 DATE AND TIME OF INCIDENT

1.1 February 2, 2007 at approximately 3:40 p.m.

Section 2.0 NAME & ADDRESS OF PRINCIPAL STAKEHOLDER(S)

2.1 Owner(s)

2.1.1 Canadian Natural Resources Limited
2500 – 855 2nd Street, S.W.
Calgary, Alberta
T2P 4J8

2.2 Prime Contractor

2.2.1 Canadian Natural Resources Limited
2500 – 855 2nd Street, S.W.
Calgary, Alberta
T2P 4J8

2.3 Contractor

2.3.1 Decca Consulting Ltd.
500, 444 – 5th Ave, SW
Calgary, Alberta
T2P 2T8

2.4 Contractor

2.4.1 Wespro Production Testing Limited
6605 – 46 Avenue
Ponoka, Alberta
T4J 1J8

2.5 Employer (Contracting to Wespro)

2.5.1 1228462 Alberta Limited
10813 -96 Street
Clairmont, Alberta
T0H 0W3

2.6 Other Employers:

2.6.1 Kodiak Wireline Services (Edson) Limited
140 – 27 Street
Edson, Alberta

2.6.2 High Arctic Energy Services LP
8133 Edgar Industrial Close,
Red Deer, Alberta
T4P 3R4

2.6.3 Brandette Well Servicing Limited
P.O. Box 6150
Drayton Valley, Alberta
T7A 1R6

Section 3.0 DESCRIPTION OF PRINCIPAL STAKEHOLDER(S)

3.1 Canadian Natural Resources Limited is a senior independent oil and natural gas exploration, development and production company based in Calgary, Alberta, and they are the owners and prime contractors of the lease site.

3.2 Decca Consulting Ltd. was hired by Canadian Natural Resources Limited to manage the lease site as the prime contractor.

3.2.1 Decca Consulting Ltd. assigned a well site supervisor to manage the lease site in the capacity as the prime contractor for Canadian Natural Resources Limited.

3.3 Wespro Production Testing Limited was hired by Canadian Natural Resources Limited to monitor the pressure of the well. 1228462 Alberta Limited, was hired by Wespro and the owner of 1228462 Alberta Limited became the victim.

3.4 Kodiak Wireline Services (Edson) Limited provide specialized wireline services to the oil field industry. They were contracted by Canadian Natural Resources Limited to retrieve some oil field tools.

3.5 High Arctic Energy Services LP specialize in working with high pressure oil wells.

3.6 Brandette Well Servicing Limited was hired by Canadian Natural Resources Limited to service the well and provide assistance to the other employers at the site.

Section 4.0 LOCATION OF INCIDENT

4.1 LSD 16-24-53-22 W5, 53 km northwest of Edson, Alberta.

Section 5.0 EQUIPMENT AND MATERIAL INVOLVED

5.1 Slickline Tool (Attachment “A” Photograph#1)

5.1.1 The Kinley tool cutter is designed to recover wirelines, slicklines, and electric lines when the attached instrument is stuck in the tubing and no longer can be pulled out.

5.2 Pipe Joints 60.3 mm OD

5.2.1 Three pipe joints connected together by collars which were 9 m, 2.4 m and 3 m in length.

5.3 SlickLine Tools (Bottom Hole Assembly)

5.2.1 The tools that were stuck inside the tubing consisted of two bridge plugs, a 3 m spacer bar, the Kinley cutter, a 1.5 m cutter bar, a 91 cm cutter bar, and a 4.5 m tool string with rope socket.

Section 6.0 NARRATIVE DESCRIPTION OF INCIDENT

6.1 On February 2, 2007 High Arctic Energy Services LP workers tripped the tubing out of the well with the slickline tools stuck inside and placed it on the catwalk unsecured. The Well Site Supervisor was informed that there was trapped pressure in the tubing. (Attachment “A” Photograph #2) The workers involved in removing the stuck slickline tools were, the Well Site Supervisor, two well testers from Wespro Well Production Testing and a Kodiak Wireline Worker. The two well testers volunteered their services to assist the other workers trying to remove the stuck slickline tools inside the tubing string. 1228462 Alberta Limited was contracted to Wespro and he became the victim.

6.2 The workers removed the 3 m pup joint from the tubing string and moved it from the catwalk. No pressure was detected. The workers attempted to remove the stuck tools from the remaining tubing string placed on the catwalk and unthreaded the 2.4 m pup joint. The workers detected a release of some pressure but the stuck slickline tools prevented the removal of the 2.4 m pup joint from the tubing string.

- 6.3 The workers stated they thought that all the pressure had been released from the tubing string before they attached the pulling tools to the stuck slickline tools. With the pulling tools attached to the slickline tools inside the tubing, the Kodiak Worker and the owner of 1228462 Alberta Limited jarred on the stuck tools attempting to free the stuck tools.. Prior to performing this task the Well Site Supervisor instructed them to stay away from the end of the tubing in case the stuck tools released and expelled out the end.
- 6.4 When the tubing was jarred it released the trapped pressure caused by the tool stuck inside the tubing. As the tubing was not secured to the catwalk when the pressure was released the end of the tubing moved slightly to the left and the other end was forced back against the steps of the catwalk. (Attachment “A” Photograph # 3) When the tubing moved it was pointing in the direction of where the owner of 1224862 Alberta Limited was positioned.
- 6.5 The Kodiak Worker was struck in the facial area with sand and other debris and the owner of 1228462 Alberta Limited was impaled in the left lower back region with the Kinley tool cutter. (Attachment “A” Photograph #4)
- 6.5 Other workers on the lease site immediately went to the assistance of the injured worker and administered emergency first aid to the injured workers. Emergency medical assistance was called. The injured owner of 1228462 Alberta Limited succumbed to his injuries in the ambulance transporting him to a hospital. The injured Worker (Kodiak) was assessed at the hospital and released.

Section 7.0 ANALYSIS

7.1 Direct Cause:

- 7.1.1 A worker was impaled with a Kinley tool cutter when it expelled under pressure out of a tubing string.

7.2 Contributing factors:

- 7.2.1 There was no hazard assessment conducted prior to the task that would have addressed the potential pressure and how to control it.
- 7.2.2 An attempt to retrieve the slickline tools from the tubing on surface without securing the tubing string.

7.2.3 Anderson Associates Consulting Engineers Inc. conducted a review of the events that occurred at the incident scene and they concluded that the worker was fatally injured by the ejected Kinley tool cutter. The Kinley tool cutter was expelled under pressure due to the trapped gas pressure. Sand bridging most likely occurred while the pressure was being released. When the gas appeared to stop escaping, it was assumed to be somewhat safe.

7.2.4 The workers were instructed to stay clear of the end of the tubing because of the potential of some trapped pressure in the tubing as they were attempting to jar the tools loose. Impact forces imposed by jarring were sufficient enough to trigger the explosion that ejected the wireline tools from the tubing.

7.3 Investigation Information and Observations:

7.3.1 The two testers, that included the worker who was fatally injured, were volunteering their services and technically it was not in their job description to perform the task of removing tools that were stuck inside tubing as was the case in this incident.

7.3.2 It was suggested to the Well Site Supervisor by the Class 2 Snubber Operator from High Arctic Energy Services LP that a “Hot Tap” should be performed on the tubing to release the trapped pressure. This suggestion was not followed.

7.3.3 There was no written procedure available for handling pressurized tubing on surface and the safe removal of stuck tools.

Section 8.0 APPLICABLE LEGISLATION

8.1 Occupational Health and Safety Act, Section 2(5) Obligations of employers, workers, etc.

8.1.1 Decca Consulting Ltd. did not do what was reasonable and practicable by permitting the workers to perform an unsafe work task to remove the slickline tools from the tubing on the platform.

8.1.2 Decca Consulting Ltd. was directing the workers when they were attempting to remove the stuck slickline tools from the tubing.

8.2 Occupational Health & Safety Act, Section 2(2)(a)

8.2.1 Decca Consulting Ltd., did not do what was reasonable and practicable by permitting the workers to perform an unsafe work task to remove the slickline tools from the tubing on the platform.

8.3 **Occupational Health & Safety Code, Section 7(1) Hazard Assessment, Elimination and Control**

8.3.1 Decca Consulting Ltd. as an employer and contractor directing the work of other workers did not conduct a hazard assessment for the task that was being performed at the time of the incident. There was no written hazard assessment documentation available at the work site for this particular task.

8.4 **Occupational Health and Safety Code, Section 189 Securing equipment and materials**

8.4.1 Decca Consulting Ltd. did not take reasonable steps, to secure the tubing to the deck so that it would not move, in order to prevent the potential of a worker being injured if the tools became dislodged and expelled from inside the tubing.

Section 9.0 FOLLOW-UP / ACTION TAKEN

9.1 **Alberta Employment, Immigration and Industry**

9.1.1 Kodiak Wireline Services Ltd. was issued a stop work order by Workplace Health and Safety Compliance for the task of retrieving wireline tools which have become lodged inside tubing on surface until they developed a safe control.

9.1.2 Kodiak Wireline Services Ltd. was issued an order by Workplace Health and Safety Compliance to conduct an incident investigation, prepare a report and have it available for review for Workplace Health and Safety Compliance.

9.1.3 An order by Workplace Health and Safety Compliance was issued to Canadian Natural Resources Limited to provide a safe work plan prior to work resuming at the worksite.

9.1.4 Canadian Natural Resources Limited was issued an order to conduct an incident investigation, prepare a report and have it available for review by Workplace Health and Safety Compliance.

9.1.5 Workplace Health and Safety Compliance issued an order to Canadian Natural Resources Limited to provide the service contract with the Wellsite Supervisor and Canadian Natural Resources Limited, copies of the safety meetings and hazard assessments conducted at the worksite since Jan. 31, 2007.

9.1.6 Workplace Health and Safety Compliance issued an order to Wespro Production Testing Limited to submit training documentation for the fatally injured worker. The owner of 1228462 Alberta Limited was contracting to Wespro Production Testing Limited at the time of the incident.

9.2 **Industry**

- 9.2.1 Kodiak Wireline Services Ltd. provided Workplace Health and Safety Compliance with a safe work procedure for pulling slick line tools from pipe on surface.
- 9.2.2 Kodiak Wireline Services Ltd submitted an incident investigation to Workplace Health and Safety Compliance for review.
- 9.2.3 Canadian Natural Resources Limited submitted a safe work plan to Workplace Health and Safety Compliance prior to work resuming at the worksite.
- 9.2.4 An incident investigation report was submitted by Canadian Natural Resources Limited to Workplace Health and Safety Compliance for review.
- 9.2.5 Canadian Natural Resources Limited submitted the service contract to Workplace Health and Safety Compliance for review.
- 9.2.6 Wespro Production Testing Limited submitted the training documentation on the worker to Workplace Health and Safety Compliance for review.

9.3 **Additional Measures**

- 9.3.1 No additional measures at this time.

Section 10.0 SIGNATURES

ORIGINAL REPORT SIGNED

Lead Investigator

_____ Date

ORIGINAL REPORT SIGNED

Investigator

_____ Date

ORIGINAL REPORT SIGNED

Manager

_____ Date

ORIGINAL REPORT SIGNED

Senior Manager

_____ Date

North

Section 11.0 ATTACHMENTS

Attachment A

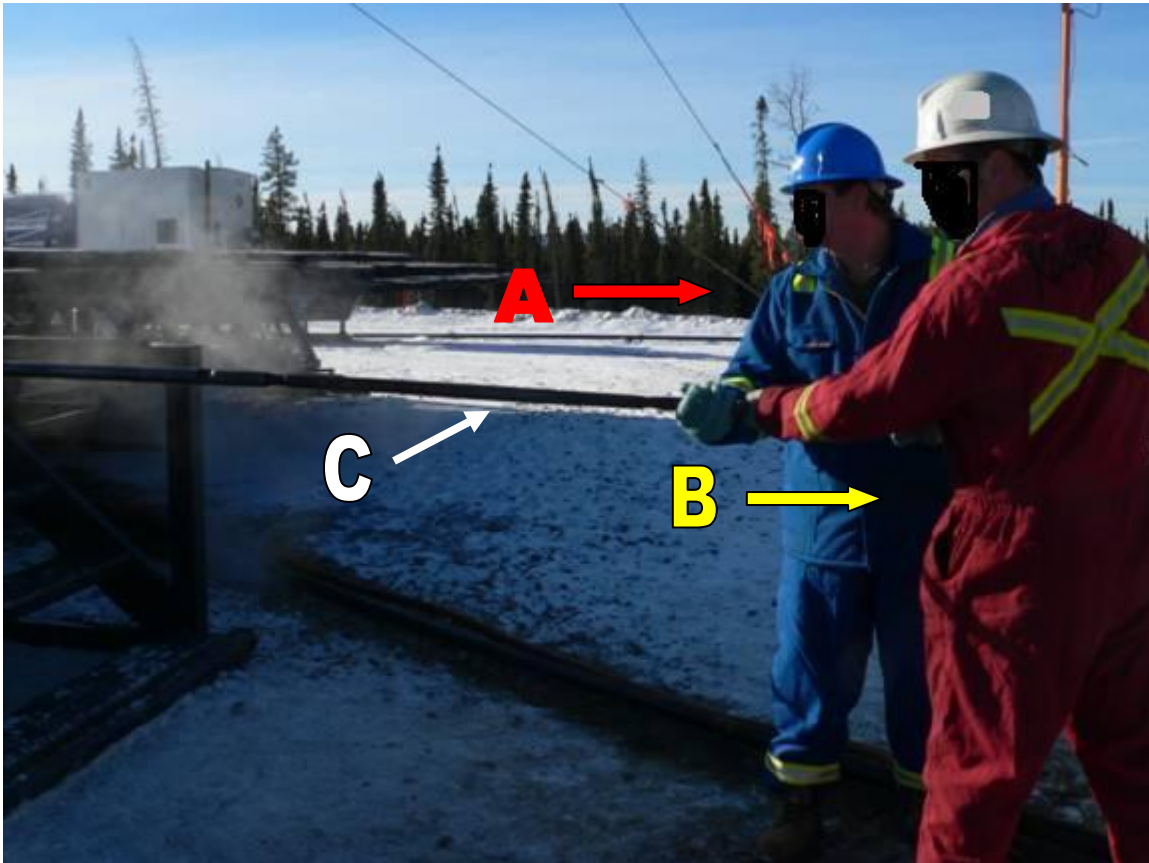
Photographs



Photograph #1 The Brandette service rig set-up.
The arrow is directed at the catwalk where the tubing had
been placed.



Photograph #2 Closer view of the catwalk where the tubing had been placed with the slickline tools stuck inside.



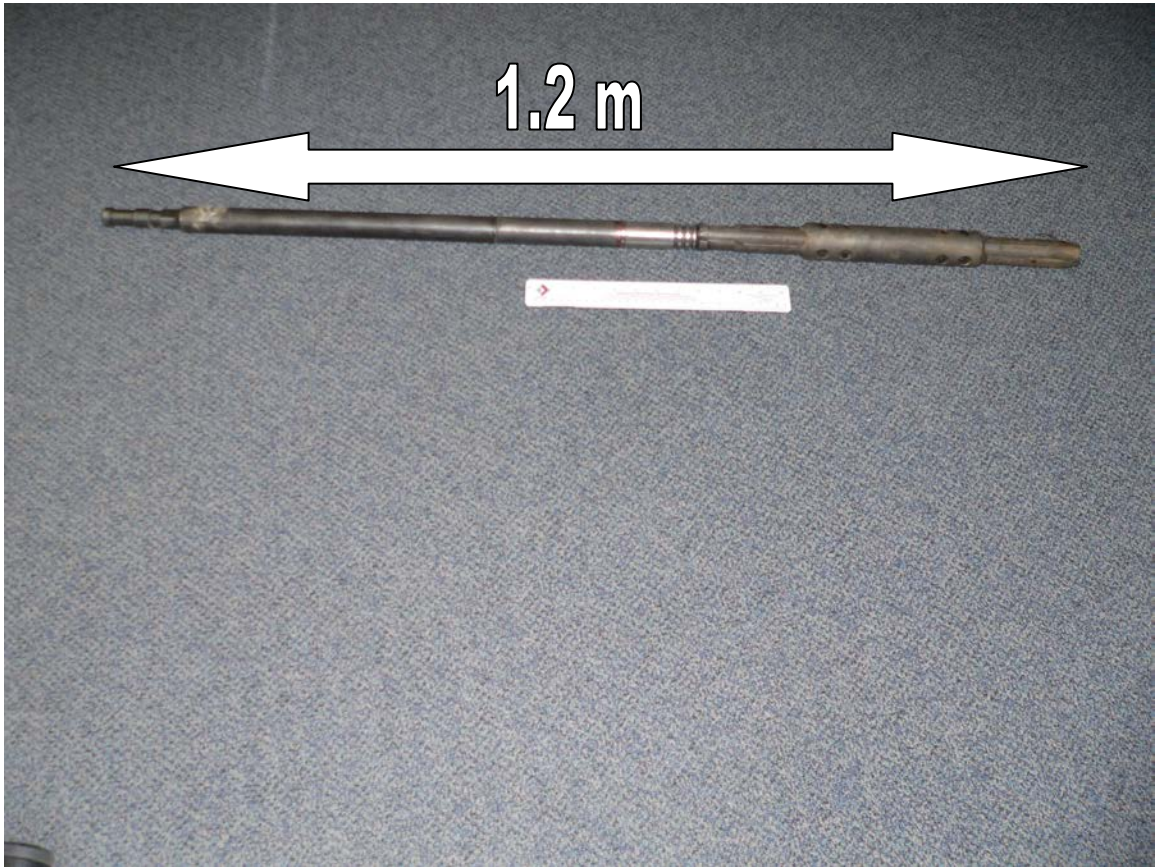
Photograph #3

Shows where the workers were positioned at the end of the catwalk when they were jarring on the stuck slickline tools inside the tubing string.

Arrow A is where the owner of 1228462 Alberta Limited was positioned.

Arrow B is where the Kodiak worker was positioned.

Arrow C indicates the direction the tubing moved when the trapped pressure released when it struck the stairs on the catwalk.



Photograph #4 View of the Kinley tool cutter that impaled the worker.
This tool was stuck inside the tubing which the workers
were attempting to remove.