

Investigation Report

Worker fatally injured when run over by a telehandler

October 25, 2013

## The contents of this report

This document reports Occupational Health and Safety's investigation of a fatal accident when a welder helper was struck and run over by a telehandler (also known as a zoom boom) in October 2013. It begins with a short summary of what happened. The rest of the report covers this same information in greater detail.

## Incident summary

The operator used a rented zoom boom equipped with a forklift and jib accessory to move a metal I-beam from the laydown yard to the tank farm at an oil production site. The welder helper was on the right side of the zoom boom holding the tag line. The zoom boom operator lost sight of the welder helper during a gradual turn to the left. The welder helper was found on the ground in front of the right front tire of the zoom boom. The welder helper sustained severe crush injuries and died at the Swan Hills Healthcare Centre.

## Background information

Devon Canada Corporation (Devon) is an oil and gas exploration, development and production company based in Calgary, AB. The company was registered in Alberta in 2003 and is a subsidiary of Devon Energy Corporation, based in Oklahoma City, OK. Devon had approximately 900 employees. The incident occurred at the Devon Canada Swan Hills site. The Swan Hills Oil Battery Installation project was to install a new low pressure (LP) flare line and other upgrades.

Radium Technologies Incorporated (Radium) is a privately-owned, Alberta-based energy services company. Radium's principal services are facility construction, fabrication and oilfield maintenance. The company was formed in 2007 and is based in Grande Prairie, AB. Radium had approximately 150 employees. Radium was the employer of the deceased worker and contractor to Devon. Radium rented the zoom boom from United Rentals of Canada.

United Rentals of Canada (United) is a supplier of rental equipment and powered mobile equipment for construction and industrial purposes. United is a national chain based in Toronto, ON and was registered in Alberta in 2012. United rented the JLG Skytrak Model 8042 telehandler (zoom boom) with the forklift and jib boom configured as a unit to Radium.

The contracted safety advisor had worked as a safety advisor since 2006 and was contracted by Devon, starting work on August 29, 2013.

The contracted site superintendent had worked as a pipefitter and site superintendent since 2004 and was contracted by Radium to supervise the Radium workers and contractors at the project site, starting work on September 3, 2013.

The contracted welder started work for Radium on October 8, 2013. The welder had previously worked with the welder helper at another worksite.

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The welder helper started work with Radium on October 8, 2013 and was a second year welding apprentice with six years of experience in the oil and gas construction industry. The welder helper completed Radium's and Devon's worksite and safety orientation requirements. Prior to starting work with Radium, the welder helper completed third party training including information on rigging, hoisting, visibility and traffic control. The welder helper assisted the zoom boom operator several times prior to the incident and was familiar with using a tag line while moving a suspended load with the zoom boom.

The zoom boom operator started work with Radium on September 3, 2013. The zoom boom operator completed zoom boom safety training with a third party trainer on August 20, 2013. The zoom boom operator had two to three years' experience in operating mobile powered equipment and operated a zoom boom for two other employers prior to joining Radium. The zoom boom operator completed Radium's and Devon's worksite and safety orientation requirements. The zoom boom operator worked with the welder helper prior to the incident.

## Equipment and materials

### JLG Skytrak Model 8042

A JLG Skytrak Model 8042 telehandler (zoom boom) was involved in the incident. A fork lift and a heavy duty jib were attached to the boom. The zoom boom had an enclosed cab on the left side (Figure 1). The zoom boom was used to move materials and can lift the materials directly using the forks or by suspending loads using rigging attached to the jib. The maximum capacity was 3,629 kilograms (kg) and maximum lift was 12.78 metres (m). The equipment was owned and maintained by United Rentals of Canada and rented to Radium.



Figure 1. Photograph of zoom boom from left rear.

**I-beam**

A 15 centimetre (cm) wide and 4.4 m I-beam was attached to the zoom boom with a single choke configuration. The sling was placed near the centre of the I-beam. The I-beam needed to be moved from the laydown area to the tank farm. (Figure 2).

**Tag line**

A single tag line of synthetic rope 3.5 m long with knots tied in it to act as hand grips was attached to the I-beam. The welder helper was holding the tag line to help control any movement of the I-beam. (Figure 2)



*Figure 2. Photograph of I-beam with tagline attached. Photograph provided by Radium*

### Certified Sling

A 2.4 m certified sling (rated for 2812 kg) was used to suspend the I-beam using a single choke rigging configuration (Figure 3).



Figure 3. Photograph of I-beam suspended with sling. Photograph provided by Radium.

### Sequence of events

On August 30, 2013, Radium rented the JLG Skytrak Model 8042 telehandler (known as a zoom boom) from United at the supplier's Whitecourt facility. United attached the forklift forks and the heavy duty jib at their facility. United delivered the zoom boom to the Devon Canada Swan Hills site on August 30, 2013. The zoom boom was in use at the worksite until October 25, 2013.

On October 25, 2013, at approximately 7:30 a.m., Radium's site superintendent held the daily Pre-Job Hazard Assessment/Safety Meeting. Devon's safety advisor, Devon's workers and all of Radium's workers, including the welder helper and zoom boom operator were present. All workers were directed to complete the crew and task specific safety meetings prior to beginning work.

At approximately 8:00 a.m., the Radium workers went to their individual work areas. The welder and welder helper worked through the morning in the laydown area.

The zoom boom operator did pre-start checks on the zoom boom. During the morning, the zoom boom operator used the zoom boom to move materials.

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After a lunch break, the welder and welder helper cut and prepared a 15 cm wide and 4.4 m I-beam in the lay down area adjacent to the tank farm. The I-beam needed to be moved to the tank farm. The zoom boom operator moved the zoom boom to the lay down area.

At approximately 1:30 p.m., Radium's site superintendent talked with the welder, welder helper and zoom boom operator about the scope of work and coordinating work with Devon operations.

The welder directed the zoom boom operator and the welder helper to move the I-beam to the tank farm.

The welder helper was the designated spotter. He was wearing coveralls with reflective striping, safety glasses, ear plugs and hardhat.

At approximately 1:45 p.m., the welder helper attached one 2.4 m certified sling to the I-beam using a single choke rigging configuration and attached the free end to the hook on the zoom boom's jib attachment.

The zoom boom operator took a tag line that was stored in the zoom boom and gave it to the welder helper. The welder helper tied the tag line to the right side of the I-beam, the side of the zoom boom opposite to the driver's cab.

At approximately 1:50 p.m., the operator lifted the I-beam.

The zoom boom operator and the welder helper used the zoom boom horn and hand signals to communicate.

At approximately 1:55 p.m., the zoom boom operator and the welder helper travelled with the load towards the tank farm. The zoom boom was travelling in second gear at a speed consistent with a walking pace. The ground was dry, compacted gravel and the travel path was clear of large rocks, debris and potholes. The weather was dry with good visibility.

The zoom boom operator lowered the boom to pass underneath an overhead pipe rack (a structure used to support above ground pipes).

Workers at the site saw the zoom boom operator and welder helper moving slowly through the worksite with the welder helper on the right side of the zoom boom and holding the tag line.

At approximately 1:57 p.m., the zoom boom operator approached a gate and prepared to initiate a gradual left turn. The operator looked to his right and saw the welder helper on the right side of the zoom boom. The operator looked to his left and the path was clear. The zoom boom continued to move slowly forward (Figure 4).



Figure 4. Photograph of zoom boom at location of incident.

- A: Sea-can (shipping container) structure to the left
- B: Gate and fence to the right

At approximately 1:58 p.m., the zoom boom operator looked to his right and could not see the welder helper. The zoom boom operator stopped the zoom boom and then reversed approximately 1.5 to 1.8 m. The zoom boom operator felt the right front tire of the zoom boom roll off an obstruction. The zoom boom operator stopped the zoom boom and exited the cab.

The welder helper was found face down on the ground in front of the right tire of the zoom boom (Figure 5). The zoom boom operator called for help and the Radium and Devon emergency response plans was initiated. First aid was started and contact with emergency medical services (EMS) was made. EMS transported the welder helper to Swan Hills Healthcare Centre where he was pronounced deceased.



*Figure 5. Photograph of front view of zoom boom at gate between fence (out of view to the left) and sea-can (to the right)*

*A: Location of welder helper immediately after the incident*

### **Completion**

Alberta Justice reviewed the results of this investigation and determined that the evidence in this case did not meet the reasonable likelihood of conviction standard. Accordingly there will be no charges stemming from this incident.

This file was closed on May 1, 2015.



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**Signatures**

Original Report Signed

May 1, 2015

Lead Investigator

Date

Original Report Signed

May 1, 2015

Manager

Date

Original Report Signed

May 5, 2015

Director

Date