

**FLOORHAND CRUSHED BETWEEN
EXCAVATOR AND STATIONARY
EQUIPMENT**

Type of Incident: FATALITY

Date of Incident: October 19, 2012

SECTION 1.0 DATE AND TIME OF INCIDENT

1.1 The incident occurred on October 19, 2012 at 4:45 a.m.

SECTION 2.0 NAME AND ADDRESS OF PRINCIPAL PARTIES

2.1 Owner/Prime Contractor/Contractor

2.1.1 Inception Exploration Ltd.
1900, 215 – 9th Avenue SW
Calgary, Alberta
T2P 1K3

2.2 Employers

2.2.1 Ensign Drilling Limited Partnership (Ensign Drilling Inc.) operating as Ensign Canadian Drilling
1000, 400 – 5th Avenue SW
Calgary, Alberta
T2P 0L6

2.2.2 Daylo Services Inc.
229 Elgin Gardens SE
Calgary, Alberta
T2Z 4T6

2.2.3 W.C. Consulting Ltd.
14000 Crescent
Prince George, BC

2.3 Worker(s)

2.3.1 Floorhand 1 (***** *)
*** ***)

2.3.2 Equipment operator (**** *)
**** *)

SECTION 3.0 DESCRIPTION OF PRINCIPAL PARTIES

- 3.1.1 Inception Exploration Ltd. is a junior oil and gas company based out of Calgary. A well licence to drill for gas in the Gold Creek field at surface location LSD 4-7-70-5W6M was issued to Inception Exploration Ltd. from the Energy Resources Conservation Board on July 24, 2012. To oversee this work, as their on-site representative, Inception Exploration Ltd. retained W.C. Consulting Ltd. to provide a well site supervisor. Inception Exploration Ltd. also entered into a Master Daywork contract with Ensign Drilling Partnership, by its agent Ensign Drilling Inc. operating as Ensign Canadian Drilling on October 14, 2012, to provide drilling equipment and manpower.
- 3.1.2 Ensign Canadian Drilling is one of the largest drilling companies in Canada with company headquarters located in Calgary. Ensign Canadian Drilling has over 300 drilling rigs worldwide. On October 18, 2012, Ensign Canadian Drilling mobilized drilling rig #88, including auxiliary equipment and manpower, to run 24 hour crews at the Inception Exploration Ltd.'s well site.
- 3.1.3 W.C. Consulting Ltd. is an independent owned and operated consulting firm that provides well site supervision services. On October 18, 2012, the well site supervisor (**** *) was present at the Inception Exploration Ltd.'s worksite, as their representative, and was coordinating the operational activities at the worksite. Daylo Services Inc. was retained through W.C. Consulting Ltd. to provide well site drilling waste management services and drilling rig support for Inception Exploration Ltd.'s drilling operations.
- 3.1.4 Daylo Services Inc. is a company based in Calgary that offers on-site drilling waste management services. Daylo Services Inc. provided an excavator and two operators to assist with the worksite equipment set up and waste management activities at the Inception Exploration Ltd.'s worksite.
- 3.1.5 The excavator operator (**** *) started working for Daylo Services Inc. as an equipment operator on October 15, 2012. Prior to starting with Daylo Services Inc., the equipment operator (**** *) had worked in the drilling industry for 6 years and had some former experience operating a variety of mobile equipment. The equipment operator (**** *) arrived at the Inception Exploration Ltd.'s worksite on October 18, 2012, to operate an excavator owned by Daylo Services Inc.
- 3.1.6 The floorhand 1 (**** *) started working for Ensign Canadian Drilling in 2008. From August 2010 to August 2012, floorhand 1 (**** *) worked as a driller with Ensign Canadian Drilling. In October 2012, the worker received a call back for a floorhand position on Rig # 88 with Ensign Canadian Drilling. The worker had not worked since August 10, 2012 and agreed to fill the floorhand position on Rig #88. On October 18, 2012, the former driller reported to Rig #88, completed a rig

orientation and commenced floorhand duties on the night shift crew.

SECTION 4.0 LOCATION OF INCIDENT

- 4.1 The incident occurred at the Inception Exploration Ltd.'s well site located at LSD 4-7-70-5W6M, approximately 30 kilometres (km) south of Grande Prairie.

SECTION 5.0 EQUIPMENT, MATERIAL AND OBSERVATIONS

5.1 Equipment and Material

- 5.1.1 Excavator (Refer to Attachment C – Photograph 1)
 - Make: John Deere 120 D
 - Unit # 7517
 - Serial Number *****
 - Hour reading: 714.8
 - Attachment: Pallet fork with pipe clamp
 - Attachment certification: March 1, 2011

The John Deere 120 excavator (excavator) and the pallet fork attachment were owned by Daylo Services Inc. The excavator was used at the location for the purpose of moving equipment for the initial site set up and later was to be used for rig support to manage drilling waste cuttings (waste by product). The excavator was equipped with a pull pilot control shut off lever (Attachment C – Photograph 2). The purpose of this lever was to prevent unintended machine movement when the controls or pedals were accidentally moved. When the pull pilot control shut off lever was in the locked position, the machine would not move since this lever shut off the hydraulic pressure to all pilot controls (Attachment C – Photograph 3). This mechanism had to be placed in the locked position prior to standing up, leaving the operator's seat and before allowing anyone to approach the machine.

- 5.1.2 Portable Flare Tank (Attachment C – Photograph 4)
 - Size: 15 metres³ (m)
 - Serial Number: *****
 - Weight: 15 769 pounds
 - Unit: BR-FT-05

The portable flare tank (flare tank) was owned by Brocko Rentals and Hauling. Inception Exploration Ltd. leased this flare tank for their drilling operations at the worksite. The purpose of the flare tank was to collect any liquids and gases that came up from the well. Up to 15 m³ could be collected in the tank while the gases were directed up through the flare stack and burnt.

The entire unit was mounted on a skid which could be positioned where required. The skid was a steel frame designed to facilitate handling and positioning with

powered mobile equipment, cranes or flatbed trucks. The skid was designed with attachment points for hooks, chains, or cables and had at least two lengthwise beams to facilitate sliding the equipment into place on the worksite. Once in position, the flare tank was hooked up to two lines that included a degasser line and a flare line.

5.1.3 Rigging

The rigging, used to connect the portable flare tank to the excavator pallet forks, consisted of 4.2 m of L7 transport chain with two forged G70 3/8 inch hooks at each end. The hooks of the ends of the chain were to be hooked onto the attachment points on the flare tank skid and wrapped around the excavator pallet forks so that it could be moved into position (Attachment C – Photograph 5).

5.2 Observations

5.2.1 On October 19, 2012, Occupational Health and Safety (OHS) investigators arrived at the scene at 8:54 a.m. The Royal Canadian Mounted Police (RCMP) had the scene secured and released the scene to OHS to commence the investigation. The conditions at the time of arrival were very muddy with ongoing snow and rain.

5.2.2 The excavator involved in the incident was parked at the scene. The engine was shut off and the pallet fork attachment was lowered to the ground.

5.2.3 The flare tank was not connected to the degasser or flare line. The chained used as rigging was hooked onto one of the attachment points on the front of the flare tank skid. The opposite attachment point was buried in the mud with no rigging attached. Near this attachment point was a wooden stick stuck in the ground. Skid marks were also seen behind the flare tank.

5.2.4 At 2:30 p.m., the Daylo Services Inc. owner operator (**** *) was directed by OHS investigators to start the excavator and demonstrate the pilot control lock out. OHS investigators observed the controls on the excavator were rendered inoperable when the pilot control was moved into the locked position.

SECTION 6.0 NARRATIVE DESCRIPTION OF THE INCIDENT

6.1 On October 18, 2012, at approximately 9:00 a.m., the Daylo Services Inc. owner operator (**** *) and the equipment operator (**** *) arrived at the Inception Exploration Ltd. worksite. They reported to the Inception Exploration Ltd.'s well site supervisor (**** *). The owner operator (**** *) and the well site supervisor (**** *) had a pre-job safety meeting regarding equipment operation on the worksite.

6.2 The owner operator (**** *) was instructed by the well site supervisor (**** *) to assist with setting up the well site trailers, and the owner operator (**** *)

- *****) would be needed to assist the drilling rig crew once the drilling rig arrived on location.
- 6.3 The owner operator (**** *) had the equipment operator (**** *) assisting while the owner operator (**** *) operated the excavator to help with the site set up. The equipment operator (**** *) was informed that the equipment operator (**** *) would be working the night shift. The owner operator (**** *) instructed the equipment operator (**** *) to read through the company new employee orientation and Daylo Services Inc. safe work practices and procedures.
- 6.4 That evening at approximately 7:00 p.m., the equipment operator (**** *) started to operate the excavator under the direction of the owner operator (**** *).
- 6.5 At approximately 12:30 a.m., October 19, 2012, the owner operator (**** *) informed the equipment operator (**** *) that the owner operator (**** *) was going to bed and would be up at 6:15 a.m. to relieve the equipment operator (**** *). The equipment operator (**** *) completed a few tasks and then went to the equipment operator's (**** *) worksite trailer. The equipment operator (**** *) waited to be summoned by the night shift drilling rig crew when they needed the equipment operator's (**** *) help.
- 6.6 The equipment operator (**** *) was notified that the drilling crew was ready to install the flare lines and flare tank. A motorman (**** *) with Ensign Canadian Drilling instructed the equipment operator (**** *) to position the flare and degasser lines. Once completed, the flare tank needed to be repositioned in order to connect it to the flare lines.
- 6.7 The equipment operator (**** *) used the excavator to push the flare tank forward. The conditions were very muddy, and it was raining. The front of the flare tank skid was digging into the mud as the equipment operator (**** *) attempted to move it. The flare tank was moved approximately 2.6 m when the motorman (**** *) signalled to the equipment operator (**** *) to stop.
- 6.8 Floorhand 1 (**** *) and floorhand 2 (**** *), with Ensign Canadian Drilling, came to help connect the flare tank to the lines. The flare tank was positioned approximately 1.0 m away from the lines that needed to be connected and still needed to be moved forward.
- 6.9 The motorman (**** *), the equipment operator (**** *), floorhand 1 (**** *) and floorhand 2 (**** *) discussed how best to move the tank to make the connections. The Ensign Canadian Drilling's workers had never

- used an excavator to perform this task. They decided the best way to do this was to chain up the front of the flare tank skid to the forks on the excavator and have equipment operator (**** *) then lift the front of the flare tank and pull it forward into position.
- 6.10 Floorhand 1 (**** *) and floorhand 2 (**** *) started to hook the chain up to the flare tank while the equipment operator (**** *) positioned the excavator forks in close proximity to them.
- 6.11 Floorhand 1 (**** *) and floorhand 2 (**** *) hooked the north side of the flare tank skid and wrapped the chain around the excavator fork. They couldn't connect the south side of the flare tank skid since that area was buried in the mud. Floorhand 1 (**** *) and floorhand 2 (**** *) tried to clear the mud away from the hook up point. They didn't have a shovel readily available to dig out the area. Floorhand 1 (**** *) found a stick and was using it to clear the mud out from the hook up point. In doing so, floorhand 1 (**** *) was positioned between the excavator forks and a post on the flare tank skid. Floorhand 2 (**** *) was positioned along the south side of the flare tank skid and assisted digging the area out with both hands. The motorman (**** *) was positioned in front of the excavator forks and waited for floorhand 1 (**** *) and floorhand 2 (**** *) to finish rigging up the chain to the flare tank (Attachment C – Photograph 6).
- 6.12 The equipment operator (**** *) had the excavator running while floorhand 1 (**** *) and floorhand 2 (**** *) were digging out the mud to rig up the chain. The equipment operator (**** *) decided to get out of the excavator to see how they were doing and to ask if they needed any help.
- 6.13 At approximately 4:45 a.m., the equipment operator (**** *) locked out the excavator and proceeded to get out of the machine. While exiting the cab of the excavator, the lockout mechanism was disengaged and the controls were activated.
- 6.14 When the excavator controls were activated, the boom and the fork attachment moved towards the portable flare tank and crushed floorhand 1 (**** *) between the fork attachment and the stationary post on the flare tank. Floorhand 2 (**** *) was struck in the head and knocked over backwards.
- 6.15 The motorman (**** *) and floorhand 2 (**** *) were yelling at the equipment operator (**** *) to move the excavator boom and forks to free floorhand 1 (**** *). The equipment operator (**** *) went back into the excavator and moved the forks away from floorhand 1 (**** *); the equipment operator (**** *) then placed the fork attachment onto the ground.
- 6.16 The motorman (**** *) provided first aid to floorhand 1 (**** *) while floorhand 2 (**** *) went to summon the on-site medic for assistance.

6.17 The medic immediately responded to the scene and tended to floorhand 1 (*****
*****).

6.18 Floorhand 1 (***** ***) sustained fatal injuries and died at the worksite.

SECTION 7.0 ANALYSIS

7.1 Direct Cause

7.1.1 Floorhand 1 (***** ***) was fatally injured when crushed between a stationary object and the forks of an excavator.

SECTION 8.0 FOLLOW-UP/ ACTION TAKEN

8.1 Alberta Labour, Occupational Health and Safety

8.2 Industry

8.2.1 Daylo Services Inc. and Ensign Canadian Drilling complied with the orders and stop work orders issued with respect to the worksite.

8.2.2 Inception Exploration Ltd. conducted an investigation into the circumstances surrounding the incident and submitted a copy of the report to OHS for review. The report identified corrective measures to prevent recurrence.

8.3 Additional Measures

8.3.1 There were no additional measures taken.

SECTION 9.0 SIGNATURES

ORIGINAL REPORT SIGNED

Lead Investigator

February 22, 2017

Date

ORIGINAL REPORT SIGNED

Investigator

February 22, 2017

Date

ORIGINAL REPORT SIGNED

Manager

January 30, 2017

Date

ORIGINAL REPORT SIGNED

Director

February 22, 2017

Date

SECTION 10.0 ATTACHMENTS:

Attachment A	N/A
Attachment B	N/A
Attachment C	Photographs

ATTACHMENT C



Photograph 1

#1 Shows the John Deere 120 D excavator owned by Daylo Services Inc.

#2 Shows the pallet fork attachment connected to the John Deere 120 D excavator.



#1

#2

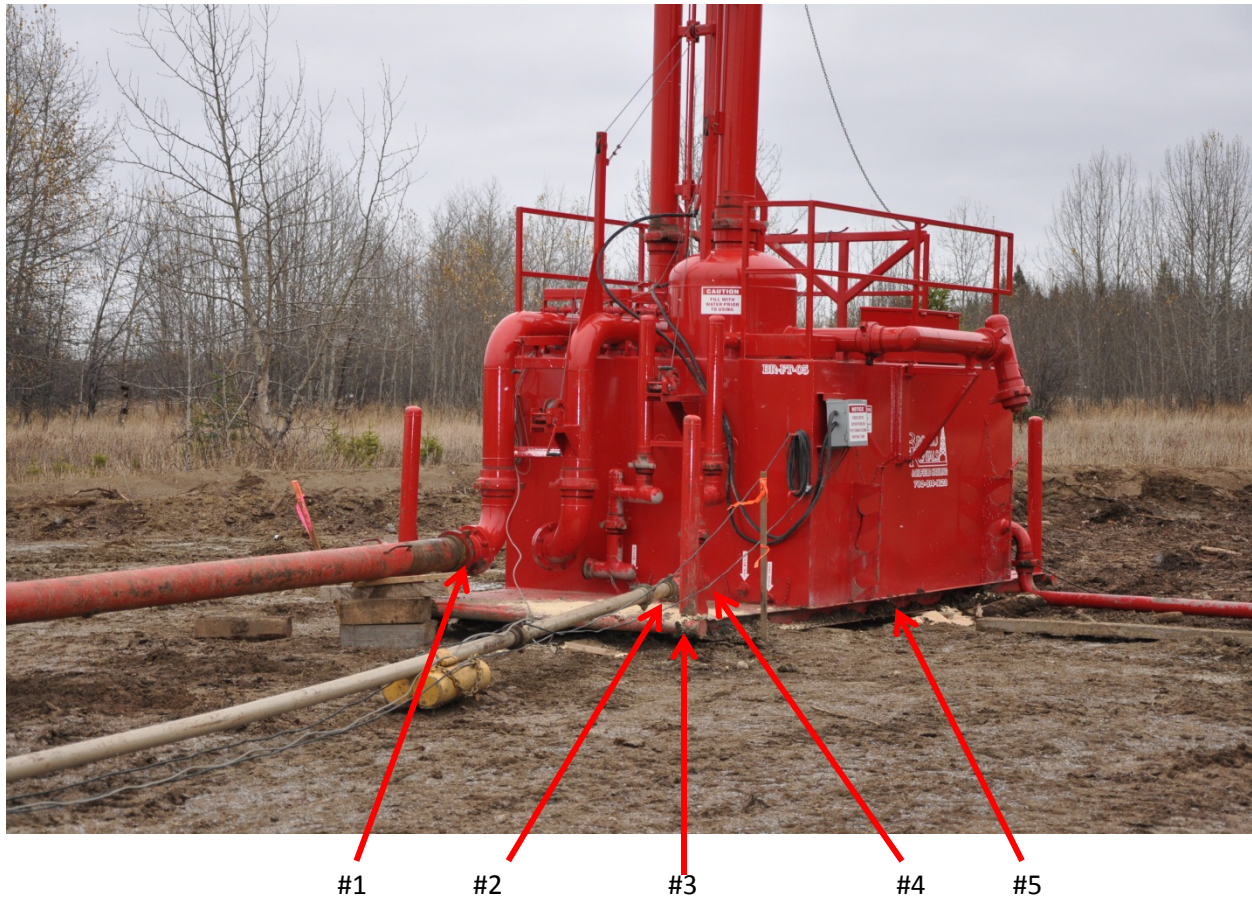
Photograph 2

- #1 Shows the pilot control shut off lever in the cab of the John Deere 120 D excavator. It is shown in the off position which enabled the controls to move the excavator as required.
- #2 Shows the operator's left side control handle that allowed the excavator boom to move.



Photograph 3

- #1 Shows the pilot control shutoff lever in the on or locked position. This disabled the hydraulic pressure to all controls rendering them inoperable.



Photograph 4

Shows the degasser and flare line connected to the portable flare tank. The workers were attempting to move the portable flare tank forward to make the connections as shown.

#1 The connection point for the degasser line to the portable flare tank

#2 The connection point for the flare line to the portable flare tank

#3 Lifting point of the portable flare tank skid

#4 Stationary post on the portable flare tank skid

#5 The skid the portable flare tank was mounted to



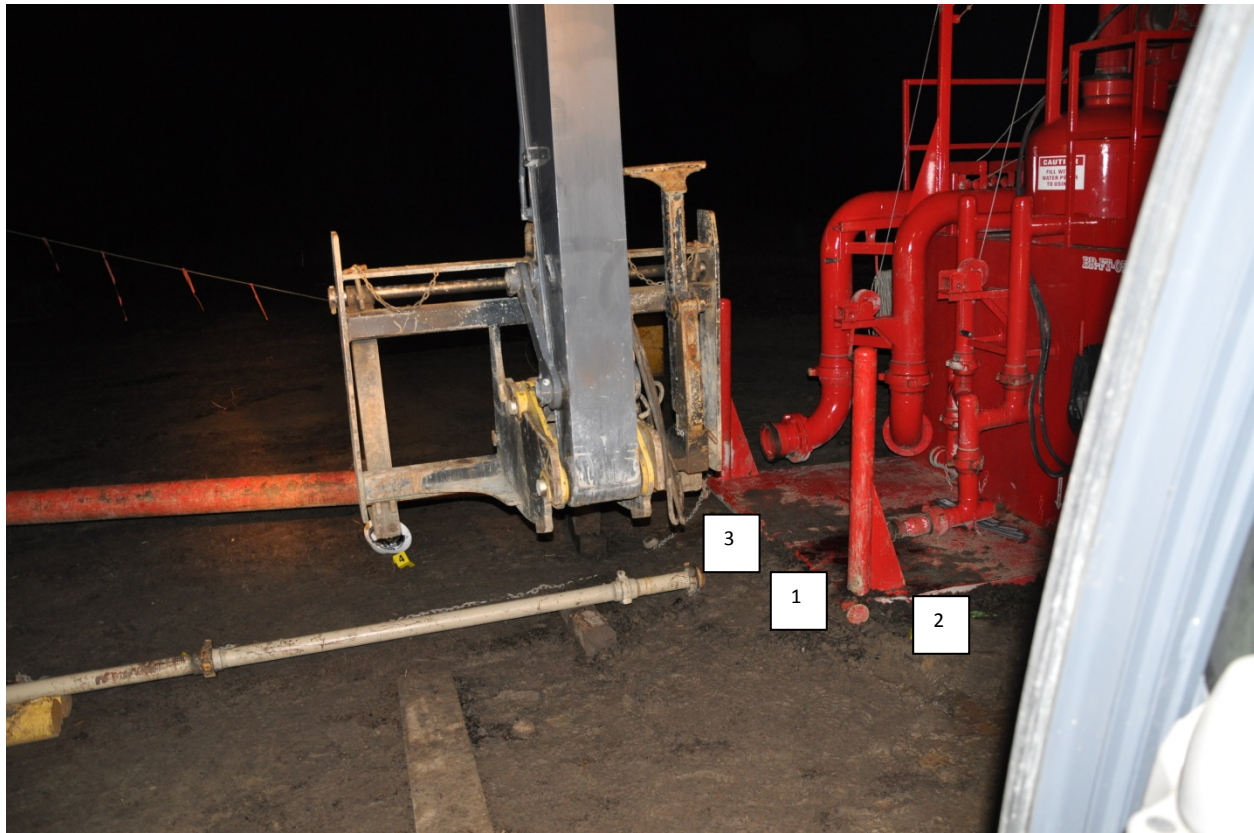
Photograph 5

Shows the portable flare tank and the unconnected degasser and flare line. Workers were attempting to rig the portable flare tank lifting points onto the fork of the excavator. The plan was to use the excavator to move the portable flare tank forward to connect the degasser and flare lines.

#1 Shows the chain rigged around the lifting point on the portable flare tank skid

#2 Shows the lifting point on the portable flare tank skid that was buried in the mud. Floorhands 1 and 2 (***** and *****) were attempting to dig lifting the point out of the mud to hook the chain onto it.

#3 Shows the direction the forks moved while Floorhand 1 (*****) was positioned in-between the stationary post and the excavator forks. The yellow star indicates where Floorhand 1 (*****) was positioned at the time of the accident.



Photograph 6

Shows the view of the work area from the excavator operator's seat and the approximate position of the workers just prior to the incident.

- #1 Floorhand 1 (***** *)
- #2 Floorhand 2 (**** *)
- #3 Motorman (***** *)