

Line #1 Dig Site #9  
Near Miss Incident  
09:00 September 3, 2005  
West of Lajoya, Texas

A Strike construction crew, working for Enterprise Products Operating LP, was repairing anomalies found on Line#1. At Dig Site #9 it was decided to bring in a rental Caterpillar 321C Track Hoe to lengthen the existing excavation, that had been dug the day before with a back hoe. The Track Hoe was at Dig Site #10 where it had been used for two days prior to excavate Dig Site #10. The track Hoe was loaded on to a low boy trailer by Strike personnel and transported to Dig Site #9, where it was unloaded off of the low boy by Strike personnel and “walked” into the Dig Site location. The Strike Operator set up the Track Hoe at the edge of the excavation, extended his boom from the travel position up ward when the bucket (approx. 1500 pounds) fell off of the boom to the ground where it rolled on to Enterprises’ previously excavated pipe line. Line pressure at the time of the incident was almost 800 psig.





- The Strike Operator, Crew, Wilcrest Inspector, Longview corrosion specialist, and Enterprise employee immediately vacated the immediate area, accounted for all personnel, and alerted Management and Safety of the incident. There was no one injured or any gas release as a result of this incident.





- ▶ After management and safety were on scene it was determined that the Track Hoe was equipped with a hydraulic quick coupler attachment for the bucket. This type of equipment is common in the utility excavation business, but not so common in the pipeline excavation business. After interviews were conducted, it was revealed that no one onsite had prior knowledge nor training about this feature.





- A switch inside the operators cab operates a hydraulic ram that couples and uncouples various attachments. Safety features to prevent unintentional uncoupling include:
- 1. A manual pull to activate switch in the cab.
- (This Safety Feature was functional)





- ▶ Another safety feature is a pendulum like bar that when the Track Hoe extends its boom into the DIG position it swings into place preventing the Hydraulic ram from opening.
- ▶ This Safety feature was also functional.





- ▶ Another safety feature is an audible alarm that sounds when the Hydraulic ram is switched into the open position, it sounds letting the operator know the Coupler is being OPENED.
- ▶ (This safety feature was found to be non functional on this Track Hoe)





- ▶ A review by OSHA of its Integrated Management Information System revealed that since January 1998, there were 15 incidents involving the unanticipated release of excavator buckets from quick connectors. Eight workers died in these incidents.
- ▶ The unexpected release of buckets are likely due in many cases to the failure of the quick couplers to be properly engaged and locked.
- ▶ Quick connect couplers are normally after market devices (this device in this incident was not, it was a Caterpillar device) that have been used on hydraulic excavators for several years and have steadily increased in popularity. They enable contractors to quickly make attachment changes on hydraulic excavators. Most have a lifting eye for lifting material. By removing the bucket a large amount of weight is removed from the excavator and the lifting capacity is increased. Additionally, removal of the bucket improves the operator's line of vision during lifting.



- ▶ Manufacturers of quick couplers have recognized the hazard of the bucket or other attachments being unexpectedly released from quick couplers and , in most cases , have provided users with a retro fit locking pin which is manually inserted behind the front lever (stick pin) or the rear lever (link pin) of the couplers to prevent unintended releases.
- ▶ Unintended releases appear to continue because: Not all employees / contractors who use quick couplers are aware of the hazard and the manufacturers' corrective actions; some users fail to retrofit the quick coupler with locking pins; and some users have insufficient training on installation procedures associated with the use of these couplers.

▶ Electronic Library of Construction Occupational Safety and Health

## ► If you encounter a Hydraulic Excavator with quick coupling devices installed OSHA recommends:

- Inspect all quick couplers to determine if they are subject to unexpected release hazards. Determine whether a manually installed locking pin and installation procedures have been provided by the manufacturer
- If necessary , obtain and install retrofits recommended by the manufacture, including positive locking pins and other devices that need to be manually installed.
- Consider the use of newer models of quick couplers that have been specifically designed to prevent the unintended release of attachments.
- Follow the manufacturer's recommendations for maintenance and inspection of the coupler to prevent malfunction of the quick coupler that could cause an unintended release of the attachments
- Follow the manufactures' installation procedures and recommendations on testing quick coupler and attachments and attachment connections every time an attachment is made.



- ▶ Training employees in: proper use of quick couplers ; making visual inspections; procedures for engaging attachments; and methods for testing connections.
- ▶ Requiring employees to use the proper procedures for engaging excavation attachments and incorporating the procedures into the company's safety and health program.
  - ▶ Electronic Library of Construction Occupational Safety and Health





Don't let this near miss happen again!  
Next time, we may not be as fortunate.

