

Shared Learning

COSTAIN

The Thameslink Programme Issue Date: 12th September 2017 - For further info contact sharon.fink@networkrail.co.uk

Issue Number: TLP079 Title: Dry Riser Failure

Overview of Event:

A 6 inch diameter dry riser was in the process of being hydraulically tested when it failed. The failure occurred at a 90 degree elbow which is approximately 5 metres from ground level. No one was injured. The failure occurred in an isolated room (SU 53) away from station operational and public areas. The event is being treated as significant due to the potential for injury to persons on site had the failure occurred at another point in the system.

General Key Messages:

- Systems being pressure tested must have the appropriate exclusion zones in place and marshalled
- Pressure gauges must be calibrated and current
- Inspectors must have radio / phone contact with the person charging the line so in the event of a leak the pressure can be de-energised safely within an appropriate timescale
- Permits to load and temporary works assessments must be completed and checked by a Temporary Works Supervisor.

Actions Taken / To Be Taken as a Result of the Investigation:

- Where a test or any procedure requires evidence of previous processes being undertaken, such as commissioning under an inspection and test plan (ITP), then testing will be carried out in accordance with the ITP and all witness signatures captured and ITP issued as part of the Information Pack (INP).
- Contractors to make sure WPPs and TBSs are strictly followed and all operatives involved have a clear understanding of the works by providing training to operatives on the installation and testing of Victaulic type systems.
- Contractors Supervisors to attend all sub-contractor task briefing sessions that relate to pressure testing.
- The project management team are to make sure that the required amount of labour is provided to carry out the works.
- Contractor Supervision of all task briefing sessions until sub-contractors are assessed as being competent in communicating the TBS and permit requirements.
- Contractor to review their procedure for allocating supervision and make sure that sub contractors are appropriately supervised.
- Sub contractor to review their programme of works to identify where 'pressure points' exist that have the potential to affect the planning and safe execution of the work.



Causes:

Immediate Cause – The immediate cause of the incident was the mechanical failure, under hydraulic pressure testing conditions, of the Victaulic coupler on the dry riser main.

Underlying Causes :

Procedure: The TBS and WPP details the need for the installation to be inspected and snagged in accordance with the ITP. Records of previous tests were not available but the team carried on under the incorrect understanding that the system had been tested and inspected successfully previously. The reliance on anecdotal evidence that the system was inspected and tested in October 2016 was flawed and this was a significant cause.

Procedure: The WPP and TBS sets out the test procedure. The failure to not follow a safety critical part of the process, specifically the establishment of the test rig, control of the testing pressures, establishment and monitoring of exclusion zones was significant.

Training: Though there was evidence to support a view that the PBS personnel involved in the activity were competent, they failed to follow the controls stated in the TBS and ITP. This was significant.

Organisation: The PBS supervision failed to adequately ensure that the requirements of the WPP and TBS were followed: in addition to the issues identified in item 2 above, adequate resources were not deployed. This was significant.

Organisation: The failure of NGB to exercise suitable and sufficient management and supervision of the PBS activity, specifically the adherence to process and deployment of adequate resources contributed to the incident.

Organisation: The dry riser was originally programmed to be entered into service in September 2017. The rescheduling of influenced the works and this had an impact on the planning and subsequent execution of the work; this was contributory.