Breakdown of a bridge deck during incremental launching operation

Type of Insurance:

CAR

Description of damaged item:

Breakdown of a bridge deck during incremental launching operation

Cause of Loss:

(3) Faulty design

Claim Cost

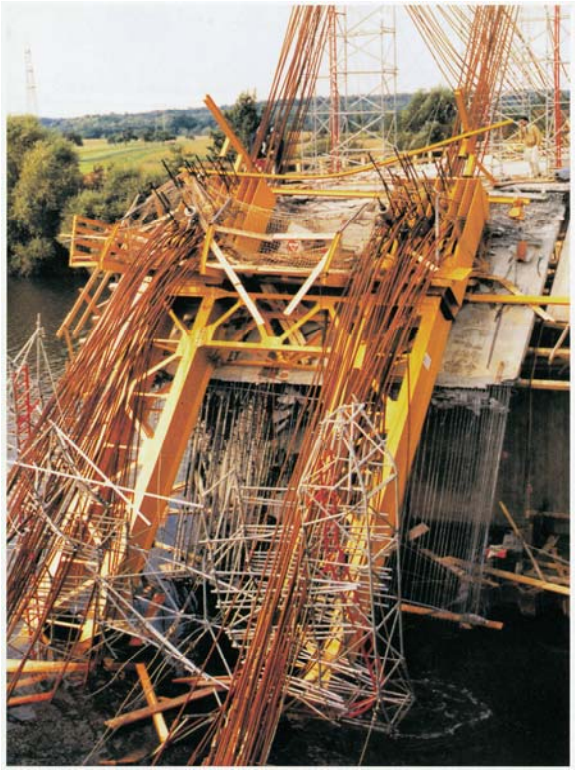
?

Description of Incident and Loss Prevention Measures initiated:

This bridge has a box section of pre-stressed concrete and comprises five 48 m spans, one 78 m span and one 42 m span. The reason for the longer span is to allow enough space for ship traffic. As ship traffic during construction could not be interrupted, the incremental launching method was used. In total 16 launching operations of 22,5 m each were planned.

For the launching across the longer span, a provisional cable staying was used to reduce the bending moments in the deck. A 16 m high auxiliary pylon was erected and braced on the deck. The tension in the stays and the pre-stressing of the deck had to be changed several times during the launching operation.

When the loss occurred on August 30, 1988, the first section (increment) of the bridge deck was already moving over the end span, the launching nose was halfway over the other abutment, and the auxiliary pylon about 6 m behind the first river pier. There was an explosion-like bang, whereupon the bridge deck on the river span broke between the first river pier and the auxiliary pylon and crashed into the river. As a result, the deck above the end span with the mounted launching nose rose and, due to its enormous dead weight, buckled over the river pier. Then the launching nose crashed onto the abutment and was severely deformed by the impact. The pylon skidded along the deck and landed in the river.



Source:

Bridges – Construction, Insurance and Risk Management –
IMIA Paper WGP59 (08)
6.2 of Loss Examples

http://www.imia.com/downloads/imia_papers/WGP59_2008.pdf