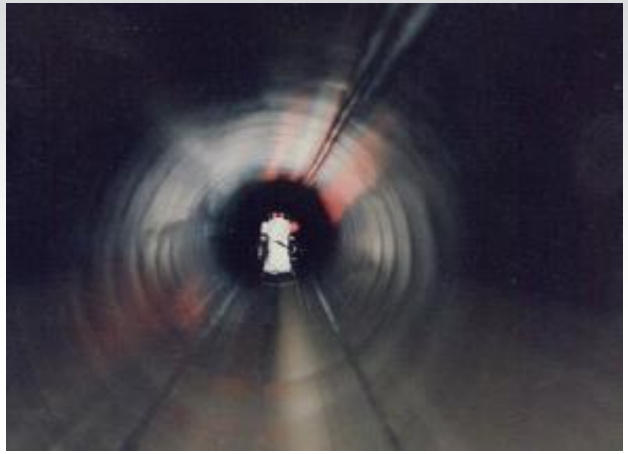
EMAS CHIYODA Subsea

Dahej Effluent Pipeline Installation by Bottom Pull (from Shore to Offshore)

20 JULY 2017

Buoyancy tanks and completed pipe strings & launch rollers at site

Cleaning & coating of internal field joint along pipe string



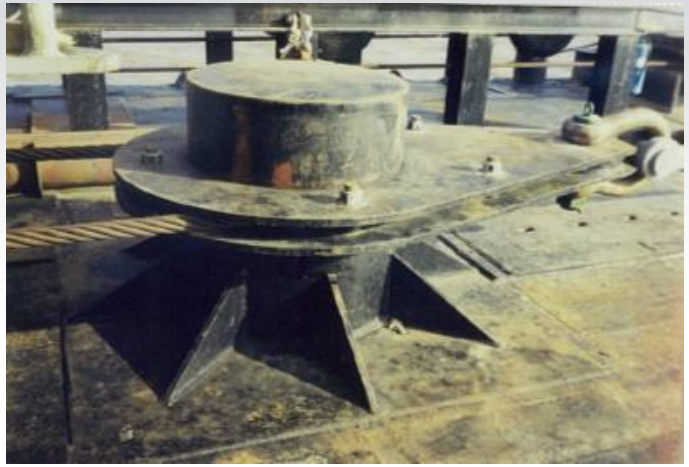
Gearing up for the first pipe pull

High pull forces experienced during 1st pipe pull because of cable embedment & pull cable not laid straight

Uprooting buried cable and straightening cable before next pull

Linear winch arrangement on pull barge located 4.5km offshore

Linear pull winch & the hold-back system



Stevpris Anchors used for barge mooring and barge ‘hold-back’

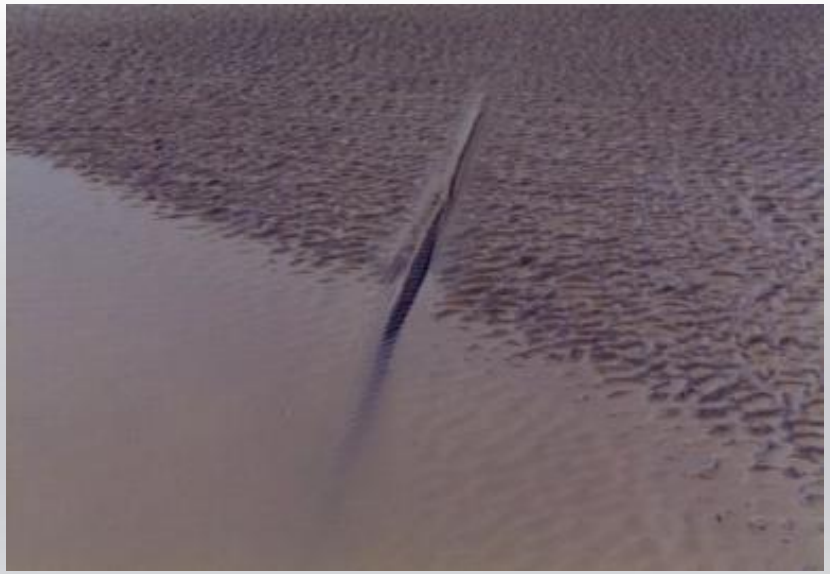
4 x 3.5 Te anchors were used for barge mooring,

and 1 x 18T anchor used for barge hold-back

Pipe pulling (shore to barge) in progress

Due to soil liquefaction and sedimentation, pipeline was stuck during receding tide and needed to be dislodged as much as possible before next pull

Pull cable self-embed after pull due to soil liquefaction and needs to be dislodged before the next pull



Dislodging and straightening of cable was a continuous process in between pulls

Dislodging and straightening of pull cable (Cont'd)

Dislodging and straightening of pull cable in water using tug, wire and shackle

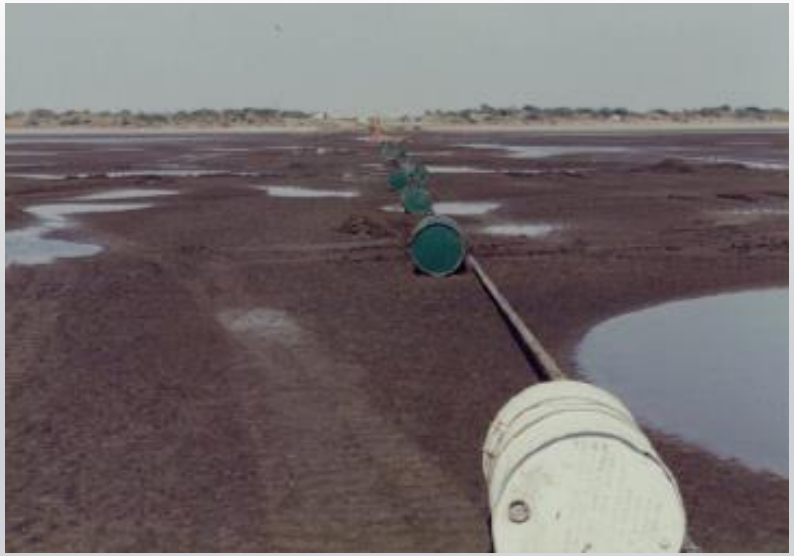
View of partially pulled pipeline during low tide

Tie-in of subsequent pipe string after an earlier pull

Getting the newly added pipe string ready for the next pull

Finally, a simple system was implemented to prevent pull cable for self-burying, i.e. used of oil drums

Installing oil drums along the entire pull cable along inter-tidal zone



State of buoyancy tanks after pipe pull

High current (peak 8 knots) has resulted in movement and sometimes dislodging of buoyancy tanks.
Highly liquefiable soil and the strong bi-directional (in-coming & receding) current has resulted in scouring on both sides of the pipeline during each pull.

Pipeline was buckled during a night pull when newly added section of pipe was too light and drifted with current

Installation of second section of pipeline to pull-barge location

Tie-in of 1st and 2nd sections of pipeline during low tide

Removal of buoyancy tanks after completion of pipe pull

Note scouring on both sides of pipeline caused by soil liquefaction and 'bi-directional' current during each tide cycle

Burying of pipeline by backhoe during low tide

Pipeline section that cannot be reached by onshore equipment during low tide was buried by jetting

Installation of the onshore section of the pipeline, which was relatively easy

Lowering pipeline into trench

QUESTIONS ???