Corrosion Protection of Grouted Post-Tension Tendons

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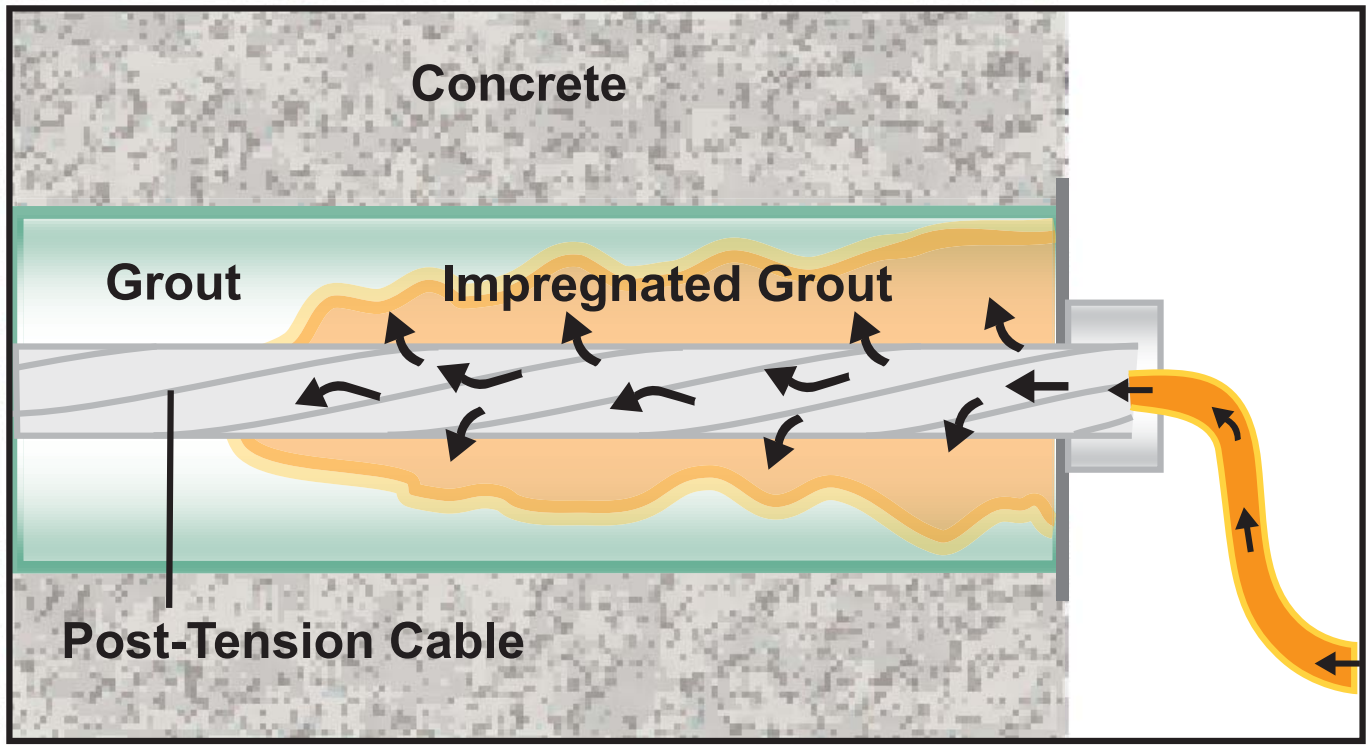
Background

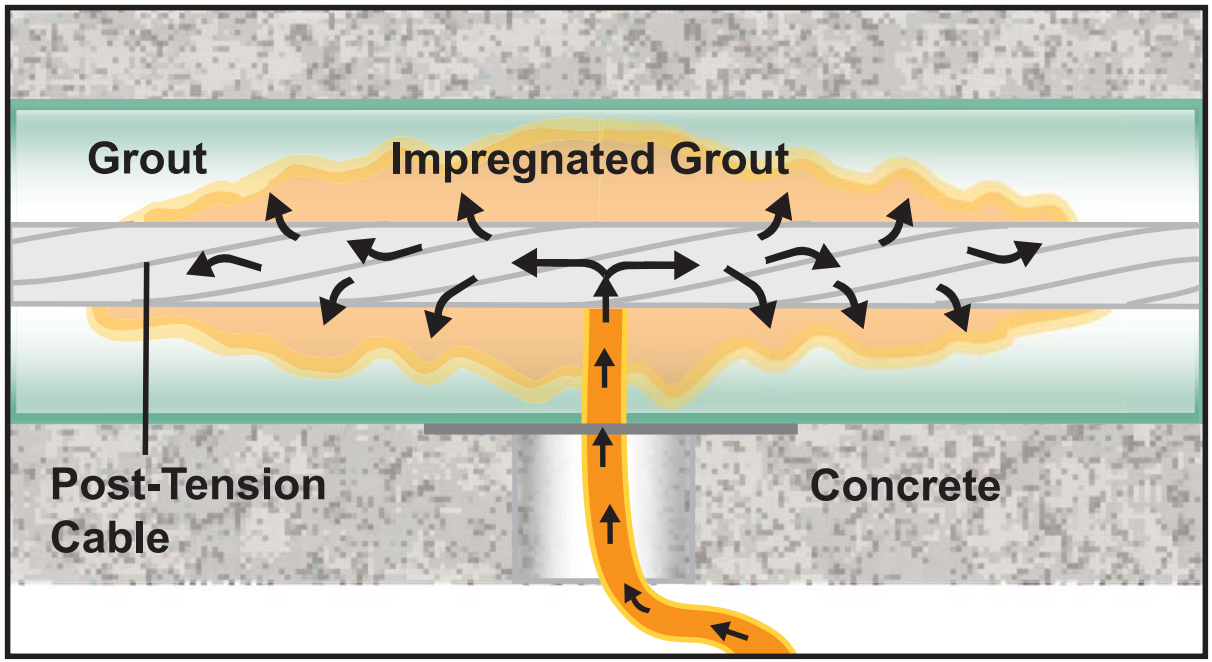
- Grouted Post-Tension Tendon Issues
  1. Bleed water voids
  2. Segregated grout
  3. Soft grout
  4. Chloride contaminated grout
  5. Sulfate contaminated grout

Post-Tension Cable Impregnation

- Corrosion protection for bonded post-tension and pre-stressed cables
- Uses corrosion inhibiting impregnation material
  - To make grout / concrete corrosion resistant
  - Coats exposed steel in voids to form a film and prevent corrosion

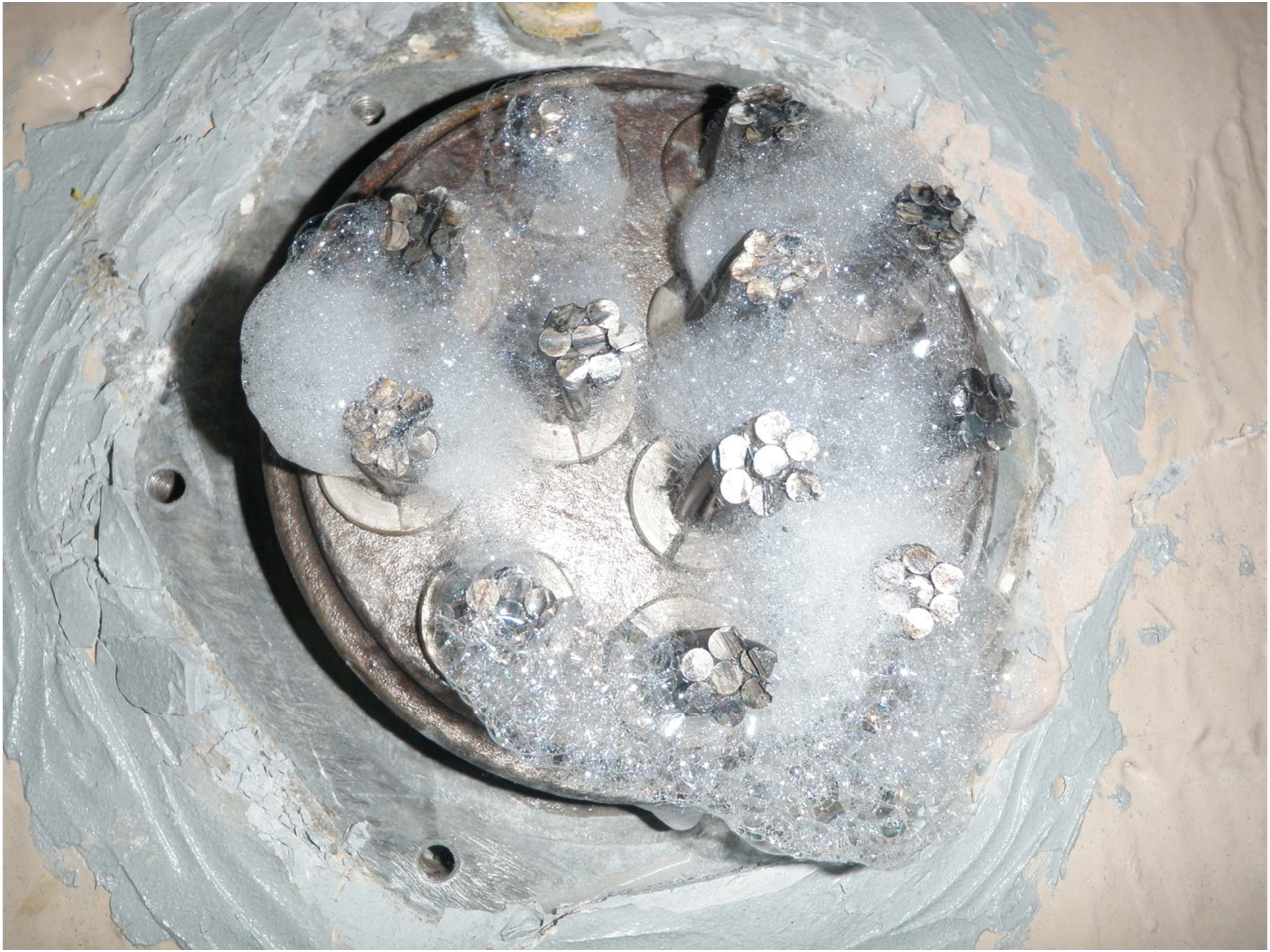

Concrete
Grout
Impregnated Grout
Post-Tension Cable

Impregnation Pattern


Grout
Impregnated Grout
Post-Tension
Cable
Concrete


S6-E2L-DS

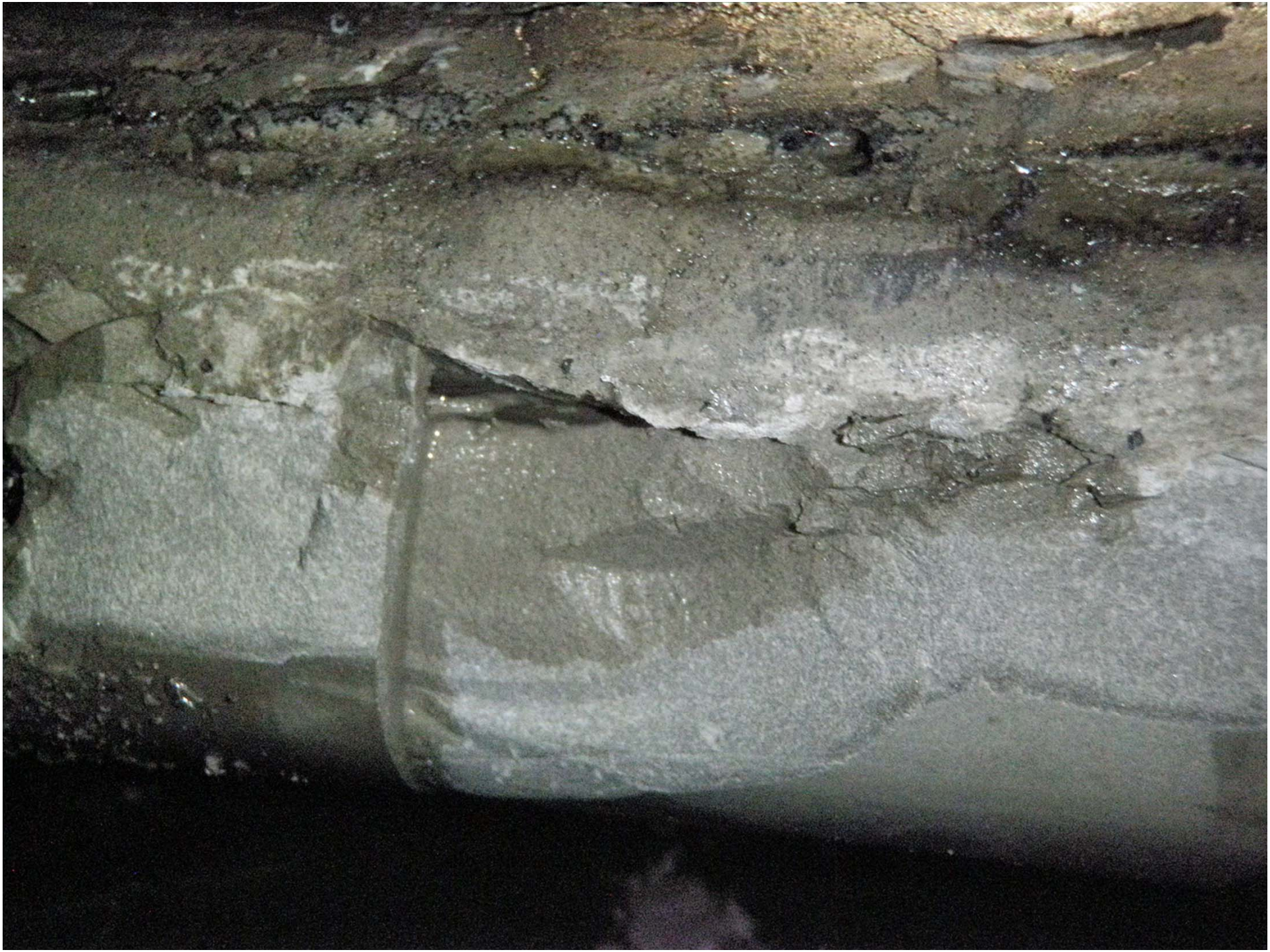

S2-E2L-US




ENDON
2-E2L-05
9-16-13
Cleaned


C6


09/19/2013

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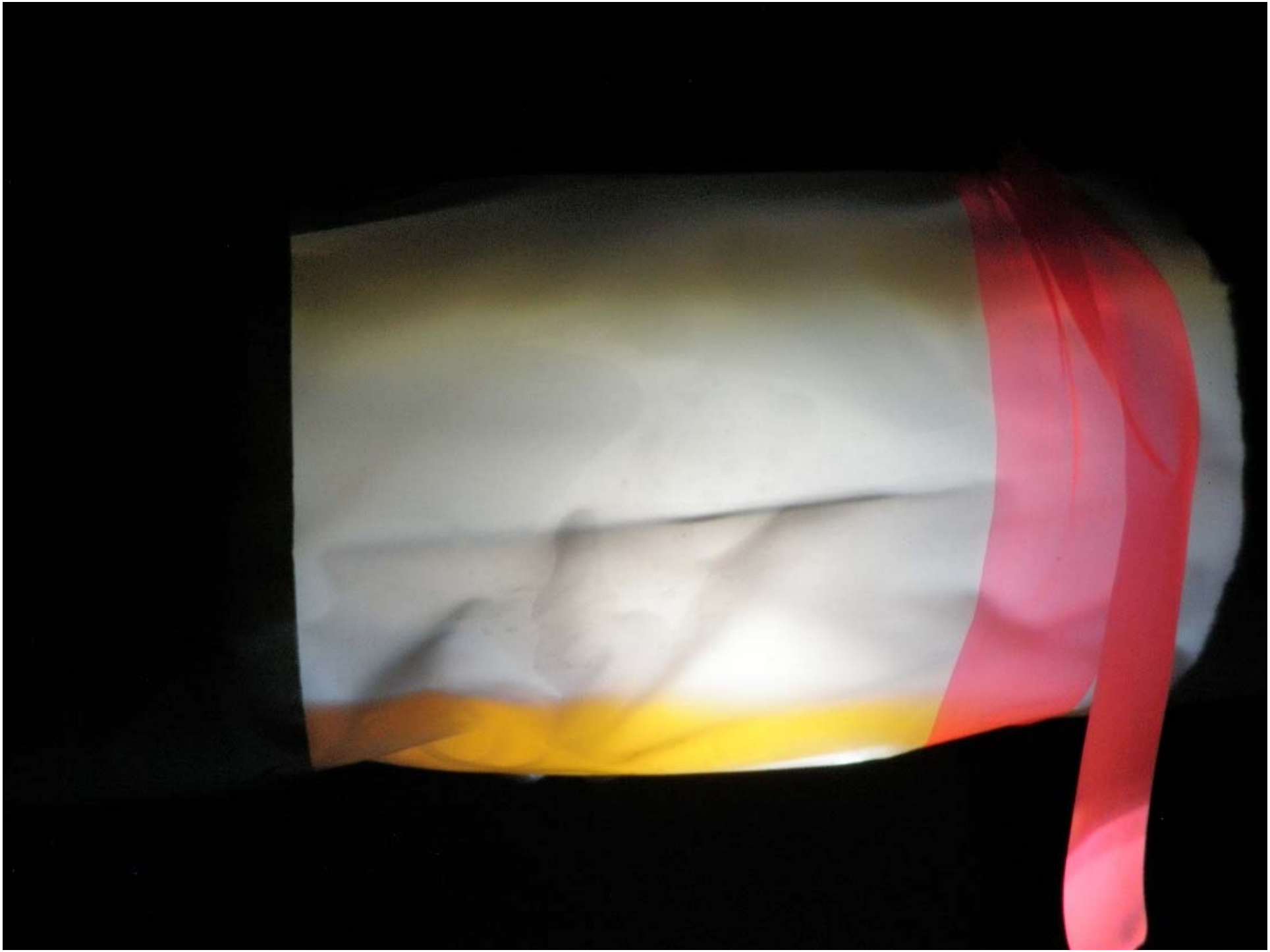
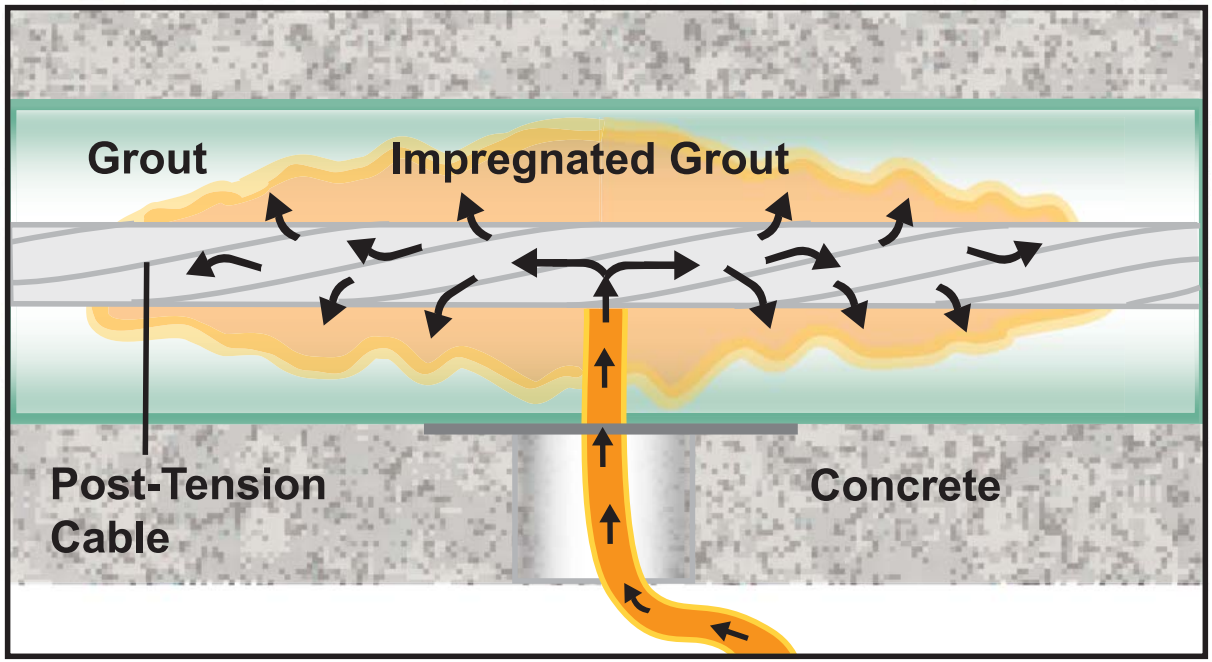
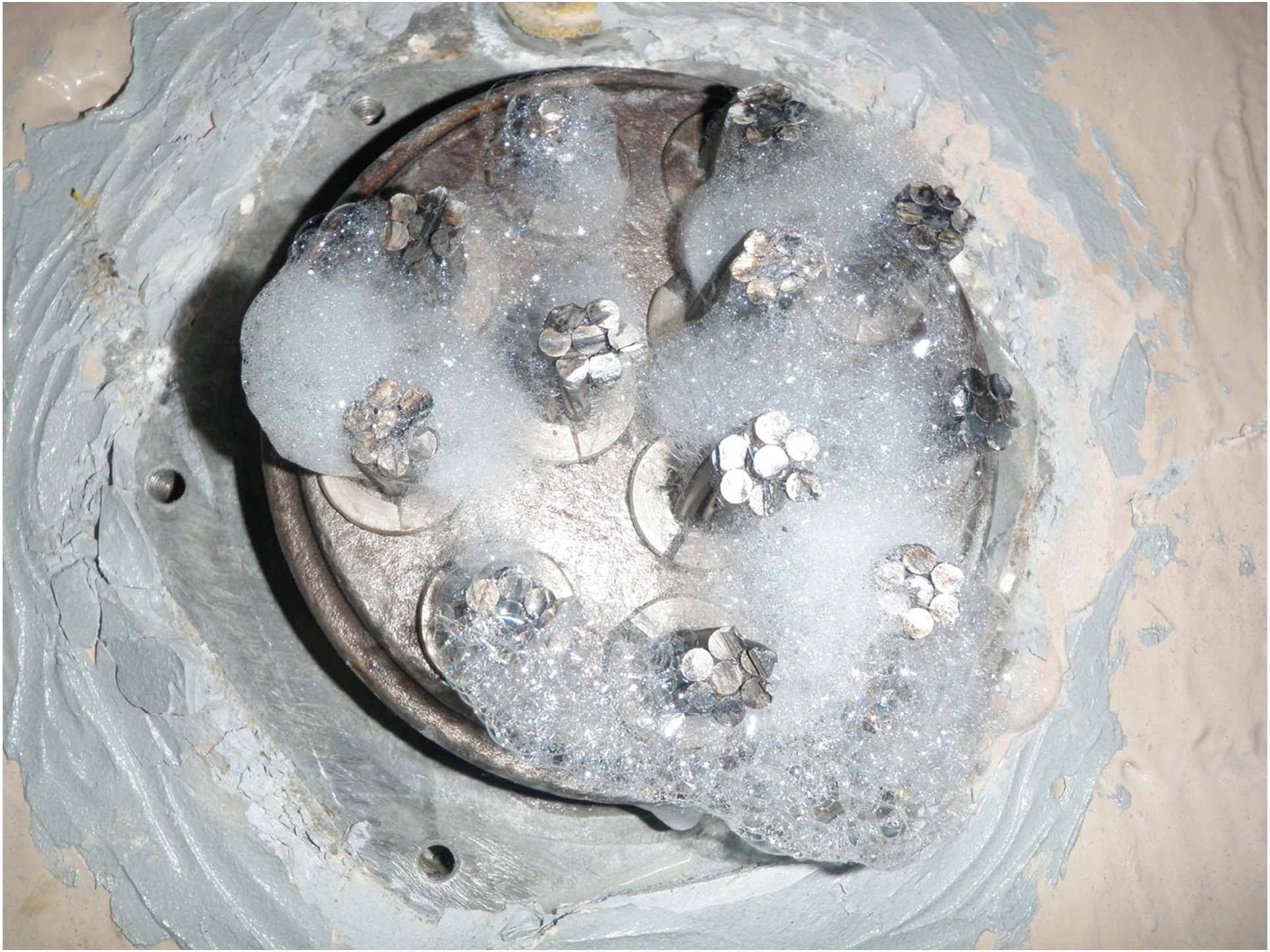



Grout
Impregnated Grout
Post-Tension
Cable
Concrete


03/17/2013

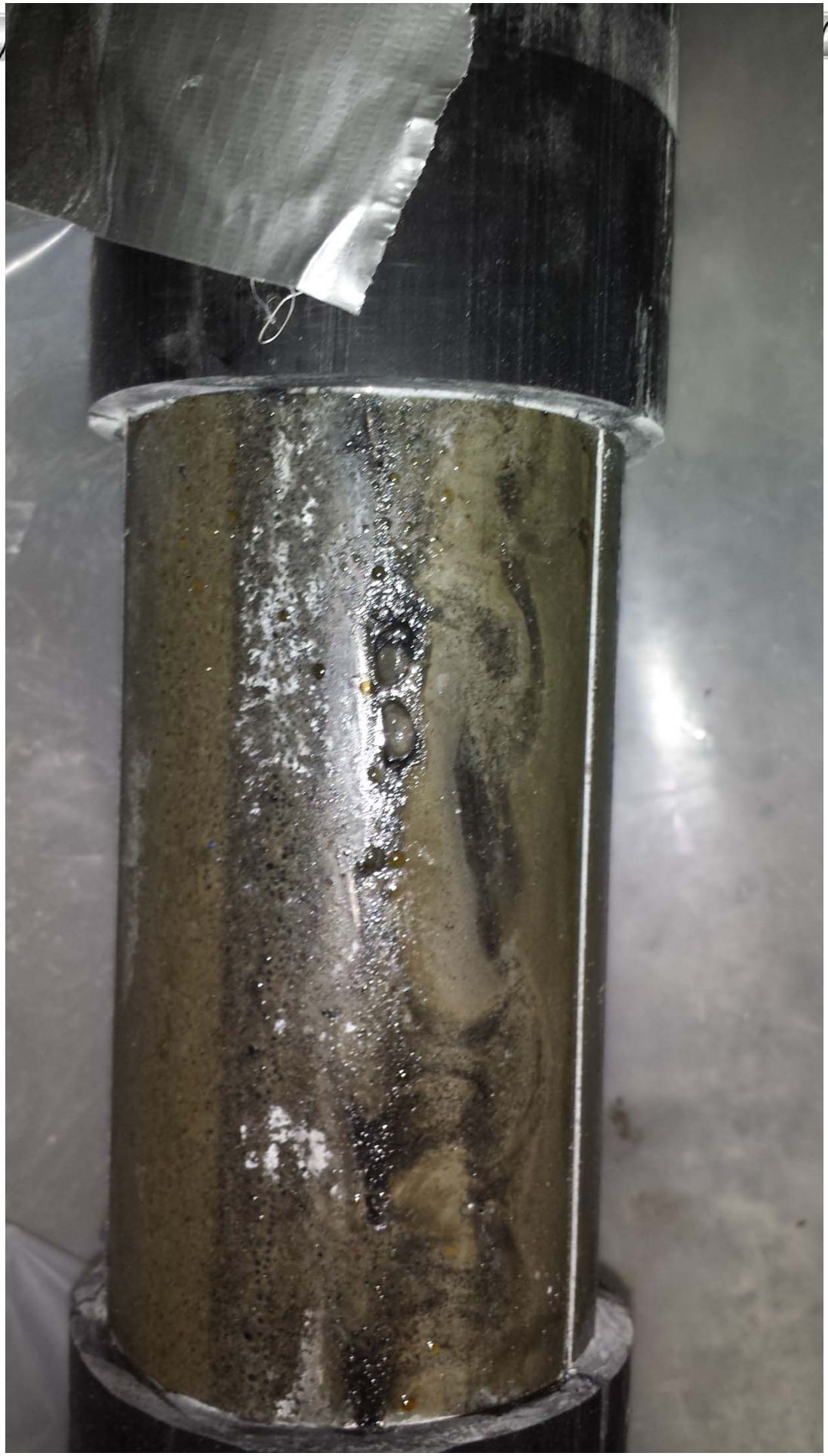

09/17/2013


CAMPBELL HAUSFELD
09/18/2013




09/18/2013

Six Months later



TENDON
S2-EIL-DS
9-16-13


10
20
30
40
50
60
70
80
90
100
%

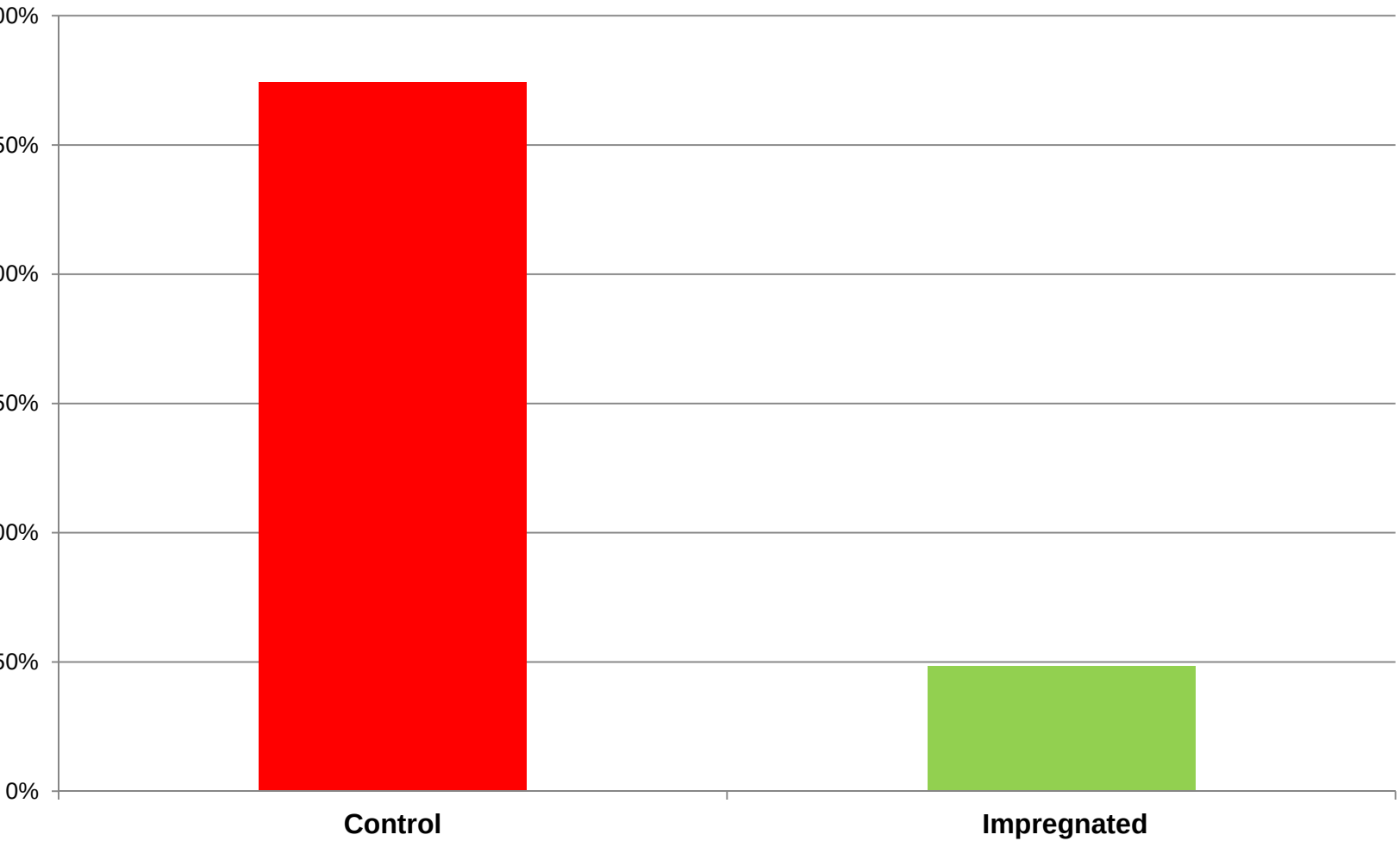
Corrosion Testing of Impregnation Material on Exposed Steel

Corrosion Rate Test Specimen

Test Specimen Injection

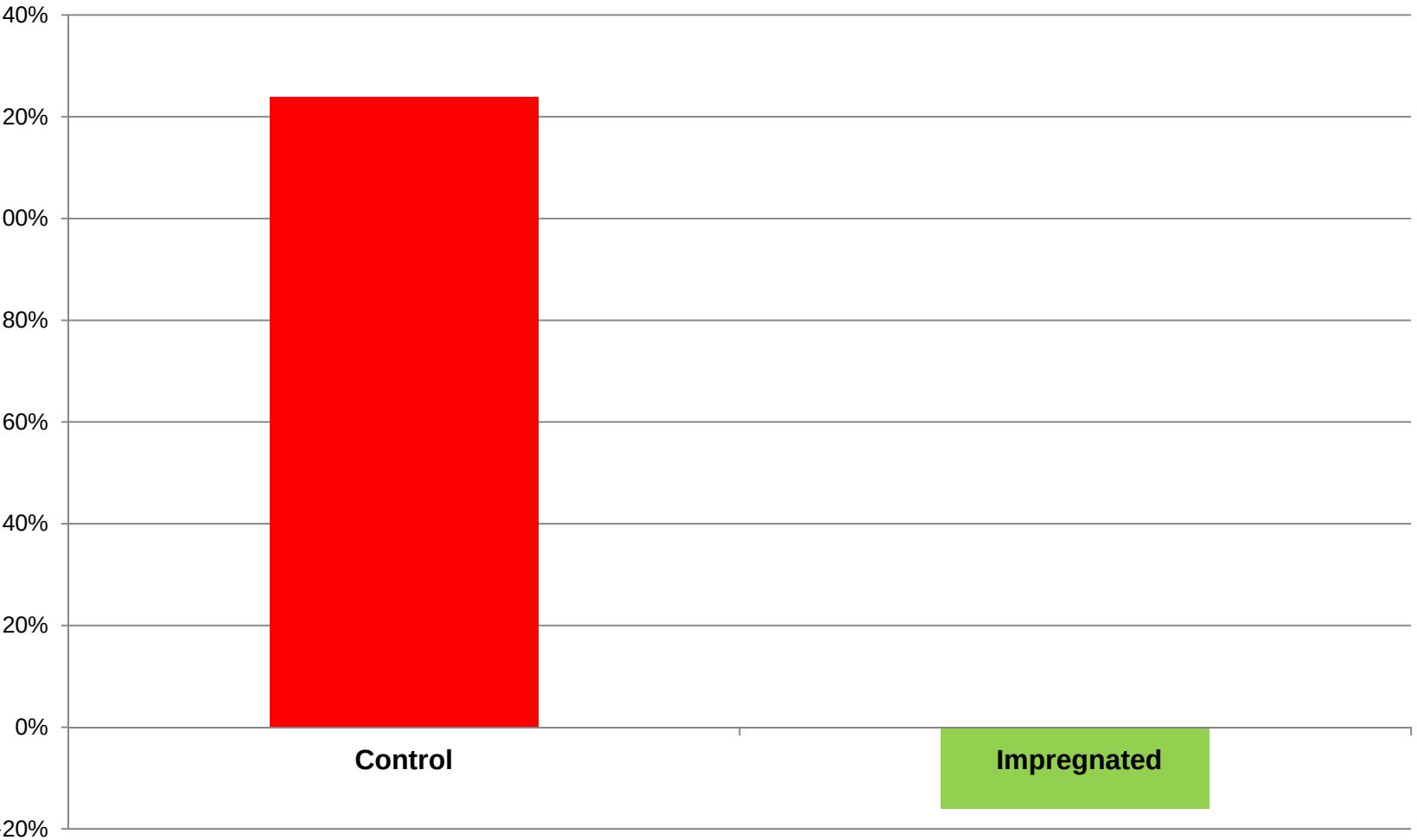
Average Percent Change in Corrosion Rate

4 Days After Wetting Test Specimen



Average Percent Change in Corrosion Rate

Over 40 Days After Wetting Test Specimen



Birch River Bridge

Testing on Grouted grouped Post-tensioning in ducts

Post-Tension Cable Impregnation Summary

- Corrosion Impregnation material can be pumped over 250 ft in a tendon
- Impregnation material is still evident after 6 months
- Impregnation material shows corrosion mitigation in laboratory testing

Thank You

Questions

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