ANCHORS AND GROUTING:
WHAT CAN WE REASONABLY EXPECT?

REFERENCES

GROUTING
I Applications
II Materials and Formulations
III QA/QC and Verification
IV Case Histories

ANCHORS
I Capacities
II Specifications
III Construction
IV Corrosion Protection

CONCLUSIONS
ANCHORS AND GROUTING: WHAT CAN WE REASONABLY EXPECT?

REFERENCES

ASCE/GEO-INSTITUTE PAPERS
- New Orleans 1982, 1992
- Logan 1997
- Boston 1998
- Urbana 1999
- Denver 2000
- Blacksburg 2001

ASDSO PAPERS
- Each year

TEXTBOOKS

INSTITUTION OF CIVIL ENGINEERS CONFERENCE PROCEEDINGS
- London 1997 – Anchors

JOURNALS
- Ground Engineering
- Geotechnical Engineering
- Societies and Associations

SHORT COURSES

SPECIALISTS (as opposed to “experts”)

STANDARDS AND CODES

GEOSYSTEMS, L.P.
(724) 942-0570
ANCHORS AND GROUTING: WHAT CAN WE REASONABLY EXPECT?

GROUTING

I APPLICATIONS

♦ Very high flows?
♦ Very high heads?
♦ Long term performance?
♦ Liquefaction mitigation?
♦ Potentially erodible rock masses?
♦ Miracles?
ANCHORS AND GROUTING: WHAT CAN WE REASONABLY EXPECT?

II MATERIALS AND FORMULATIONS

♦ One size fits all?
♦ Knowledge about “advanced formulations”?
♦ Unbiased opinions from
  • Suppliers?
  • Contractors?
  • Consultants?
  • “Experts”?
♦ Potential for solving any problem?
ANCHORS AND GROUTING:
WHAT CAN WE REASONABLY EXPECT?

GROUTING

III QA/QC AND VERIFICATION

♦ Sufficient site investigation?
♦ Cooperation from Contractor?
♦ Attainment of absolute goals?
♦ Real time control of processes and performance?
♦ S & M?
♦ One opinion?
ANCHORS AND GROUTING:
WHAT CAN WE REASONABLY EXPECT?

ANCHORS

I  CAPACITIES

♦ In rock?
♦ In soils?
♦ SBMA potential
♦ Limits?
ANCHORS AND GROUTING:
WHAT CAN WE REASONABLY EXPECT?

ANCHORS

II SPECIFICATIONS

♦ PTI, 1996?
♦ USACOE?
♦ FHWA?
♦ Do it yourself?
ANCHORS AND GROUTING:
WHAT CAN WE REASONABLY EXPECT?

ANCHORS

III CONSTRUCTION

♦ How big?
♦ How deep?
♦ How straight?
♦ Does percussion kill?
♦ Do we need additives in grout?
♦ Are contractors our friends?
♦ Is FERC our friend?
♦ Are we good enough?
♦ Who cares anyway?
ANCHORS AND GROUTING: WHAT CAN WE REASONABLY EXPECT?

ANCHORS

IV CORROSION PROTECTION

♦ Is it necessary?
♦ Why water test and pregrout?
♦ Long term evidence and monitoring?
♦ Is epoxy coated strand the answer?
CONCLUSIONS

♦ Long term solutions to virtually every problem in the field.
♦ Occasionally – hopelessly bad specifications
♦ Variable contractor performance
♦ S & M from “experts”
♦ Claims and disputes
♦ Growing market for KNOWLEDGEABLE AND COMPETENT practitioners
I’d rather be tied down and injected than be rolled and compacted.