

ADVANCING Triad in NJ THROUGH LABORATORY CERTIFICATION

The Triad Approach



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TRIAD: WHAT ARE REAL-TIME MEASUREMENTS?

- Cornerstone of Triad data acquisition
- Involve use of any real-time measurement taken in the field to help delineate site through greater sampling/spatial density
- Techniques can be
 - Analytical
 - Geological
 - Geophysical

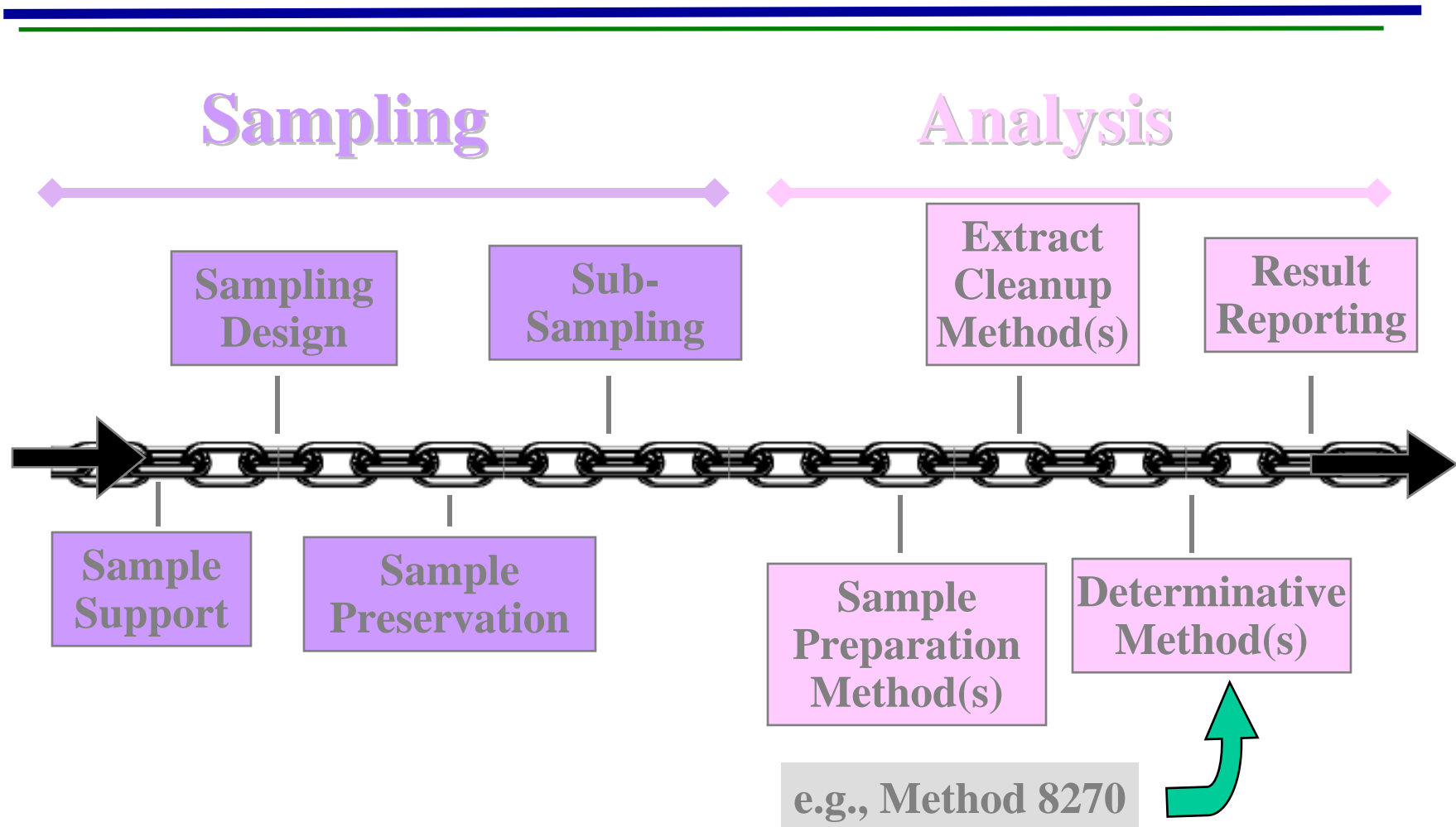
EXAMPLES OF REAL-TIME MEASUREMENT TECHNOLOGIES

- ▶ Analytical
 - Immunoassay
 - GC
 - GC/MS
 - XRF
 - In-Situ Probes
 - Open-Path Spectroscopy

- ▶ Geophysical
 - Electrical and Electromagnetic
 - Borehole Techniques
 - Seismic

- ▶ Geological
 - Direct-Push
 - Cone Penetrometer

THE DATA QUALITY “CHAIN”



It is risky to simply assume that generic procedures are representative for project specific decisions!

TRIAD: (+)'s OF REAL-TIME MEASUREMENTS

- Faster decision-making
- Fewer uncertainties
- Better Conceptual Site Model
- Better use of resources

REALITIES OF REAL-TIME MEASUREMENTS

- To improve sample throughput, something(s) got to give:
 - **Calibration**
 - * Frequency
 - * Extent
 - **QA**
 - * Amount
 - * Frequency
 - **Data Deliverables**
 - * Reduced quantity and/or detail
 - * Retention of records
- Many laboratories have a hard time quantifying the expected DQOs

REGULATORY CONCERNS RE. USE OF REAL-TIME MEASUREMENTS

- Is FAM data legally defensible?
- Unless the data comes from a certified laboratory, the data is not acceptable
- Unless all QA/QC is included, the data is not acceptable
- Unless full data deliverables are provided, the data is not acceptable
- Unless the sampling locations and/or frequency is approved by the regulators in advance, the data is not acceptable

SOURCES OF FAULTY REGULATOR REASONING

Methods = Data = Decisions

Screening Methods → **Screening Data** → **Uncertain Decisions**

“Definitive” Methods → **“Definitive” Data** → **Certain Decisions**

**Must Distinguish:
Analytical Methods from Data from
Decisions**

REAL DATA COMES FROM REAL SAMPLES

**Perfect
Analytical
Chemistry**

+

**Non-
Representative
Sample**



“BAD” DATA

**Must Distinguish:
Analytical Quality from Data Quality**

REAL-TIME MEASUREMENT IMPLEMENTATION ISSUES

- Convince project participants that more data over a wider spatial area, even if each data point has less certainty, produces a more certain overall result
- The real question is minimizing uncertainty, and greater sampling density is the answer
- “It’s the data representativeness, stupid”
- We need to blur the distinction between data obtained in the field vs. in the lab.



Certify Field Analytical Methods

CHALLENGES OF REAL-TIME MEASUREMENT IMPLEMENTATION

- Remind regulators that even most SW846 methods are done in certified laboratories are “guidance”, as well as always having error
- Educate regulators about the legal acceptability of FAM data (Daubert/Frye cases)
- Get experienced staff to admit that Triad is an improvement over the last 15-25 years of operations
- Convince regulators that real-time measurements are legally defensible

NJDEP PLAN TO GAIN SUPPORT FOR REAL-TIME MEASUREMENTS

- Get support from upper management
- Train/educate staff & middle management on Triad & FAMs
- Confirm there are no regulatory blockages
- We are not alone: ITRC and EPA OK'd
- Promote success stories and stress (+)s
- Gain support of technology vendors & real-time measurement practitioners
- Blend real-time measurements into existing State laboratory certification program

NJDEP LABORATORY CERTIFICATION PROGRAM

- Office of Quality Assurance (OQA) operates dual programs: national (NELAC) & state (ELCP)
- Certify ~ 900 labs. for >120,000 total tests
- Only cert. labs. can report regulatory data
- Some sampling is regulated (Rn, SDW)
- Certify mobile labs. for SW846 tests
- OQA Staff works closely w/NJ site remediation program

NJDEP REAL-TIME MEAS. IMPLEMENTATION PLAN

- Include real-time measurements in ELCP
- Pick limited # of methods for cert.
 - Immunoassay
 - Field XRF
 - Field GC
 - Field GC-MS
- Provide detailed requirements for cert.
 - Operator experience
 - SOP w/DQOs & QA limitations
- Conduct field audits before granting cert.

NJDEP REAL-TIME MEAS. IMPLEMENTATION PLAN STATUS

- 12 facilities have applied for certification
- 10 have been certified to date
- > 300 staff trained on Triad
- Less staff resistance to applying Triad
- Others are willing to accept use of real-time measurements, but only with full QA/QC
- “Only full data deliverables will do!”
- Still think practitioners will “cut corners”

WHERE DO WE GO FROM HERE?

- Continue to “talk up” Triad among the consulting and development constituencies
- Continue to promote the requirement for lab. cert. for real time measurements
- Consider certifying other “tools” such as MIP & LIF
- Closely monitor Triad project selection
- Continue to promote Triad successes, but be honest about situations where Triad has not worked well
- Provide staff training on real time measurements