

POST REMEDY ASSESSMENT VERSUS REMEDIAL TECHNOLOGY

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For M2S2 Webinar
15 August 2018

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REMEDIAL/INVESTIGATIVE TECHNOLOGY OVERVIEW

- Remedial/Investigative Technologies
 - Analog
 - Digital Geophysical Magnetometer (DGM)
 - Advanced Geophysical Classification (AGC)
- Visual Sample Plan (<https://vsp.pnnl.gov>)
 - Remedial Investigation - transect design
 - Density estimate to evaluate remedial alternatives
 - Remedial Design
 - Remedial Action Objectives – RAO Speedwagon
 - Post-remedial Evaluation – verification
 - RAO Speedwagon (FUDS Training Course 428)



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Remedial Technologies – A Closer Look

Analog –

- + Real-time field observations
- + Anomaly locations can be flagged and excavated immediately
- + Few field constraints such as vegetation/topography
- Data quality depends on human factors (including attentiveness/distraction and hearing ability).
- Probability of detection ranges from 50 to 72%
- No permanent electronic record is provided
- No after-the-fact data analysis is possible
- Does not meet DoD policy requirements for reproducible results
- Does not meet DoD policy requirements under 2000 UXO Management Principles



Photo credits: Schonstedt and Minelab



Remedial Technologies – A Closer Look

DGM –

- + Digitally record and geo-reference data to anomaly locations
- + Permanent electronic record
- + Probability of detection approaches 100%
- + Results are reproducible
- Vegetation/topography may limit access or impede function



Photo credits: USACE and Parsons



Remedial Technologies – A Closer Look

AGC –

- + Digitally record and geo-reference data to anomaly locations
- + Permanent electronic record
- + Probability of detection approaches 100%
- + Results are reproducible
- + Higher data quality and greater confidence
- + Less intrusive fieldwork (fewer digs)
- + Accreditation of performing organizations
- Vegetation/topography may limit access or impede function

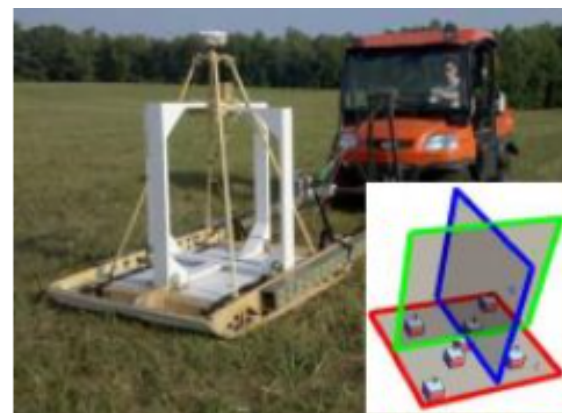


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Draft Munitions Response Quality Assurance Project Plan (QAPP) Updates – February 2018

The Intergovernmental Data Quality Task Force (IDQTC) Munitions Response (MR) Subgroup is preparing MR-QAPP Guidance

Current requirements and guidance are contained in:

- Uniform Federal Policy for Quality Assurance Project Plans (UFP-QAPP; https://www.epa.gov/sites/production/files/documents/ufp_qapp_worksheets.pdf)
- Optimized UFP-QAPP worksheets (<https://www.epa.gov/fedfac/optimized-uniform-federal-policy-quality-assurance-project-plans-worksheets>)



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Draft Munitions Response Quality Assurance Project Plan (QAPP) Updates – February 2018

Draft Worksheet Templates

- Draft Worksheet #9 (including Figure 9-1): Project Planning
- Draft Worksheet #10 (including Tables 10-1 and 10-2): Conceptual Site Model (CSM)
- Draft Worksheet #11: Data Quality Objectives (DQOs)
- Draft Worksheet #12: Measurement Performance Criteria (MPCs)
- Draft Worksheet #17: (including Figure 17-1), Sample Design
- Draft Worksheet #22: Measurement Quality Objectives (MQO)
- Uses and Limitations of Analog Geophysical Technology (a fact sheet)



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Draft Munitions Response QAPP Updates – February 2018 (continued)

Key takeaway:

Analog tools do not represent the best available detection science, and project teams should disclose the uses and limitations of the data as qualitative and subjective.

Further:

The Department of the Army April 2017 guidance recommends AGC implementation on Formerly Used Defense Site (FUDS) projects, rather than analog or DGM detection systems, where applicable.



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RAO Speedwagon – Selecting and evaluating remedial alternatives

Long story short – does the remedial action performed meet the remedial action objectives and reduce risks to an acceptable level?

Some key factors (of many) used to answer the above question:

- Were data quality objectives met?
 - Confidence in the process and data requirements (QA/QC seeding)
- If analog technology is/was used, are there are areas within the MRS where DGM or AGC could provide quantitative, statistical confidence to support the post-remedy assessment?



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?QUESTIONS?

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