

Phase 3 Data Collection Options

- Focus is on design of sampling program
 - Fills data gaps identified in Phase 2
 - Fulfills project objectives
 - Considers site conditions
 - Balances precision and accuracy vs. cost



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Meandering Path

- Efficient method to cover a large area
- GPS provides path record
- Magnetometer identifies possible subsurface MEC
- Width – five feet
- Depth – dependent on instrument and type of MEC



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Transects

- Assists in footprint reduction
- Helpful in characterizing contaminated area
- GPS provides transect record
- Magnetometer identifies possible subsurface MEC
- Width - five feet
- Depth - dependent on instrument and type of MEC



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Grids

- Assists in contamination isolation
- Can provide an electronic record
- Ensures total coverage of area
- Width - dependent on grid size (100'x100') five-foot lanes
- Depth - dependent on instrument and type of MEC



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Munitions Constituent (MC) Sampling Approach

- Phase I Sampling
 - Takes place during Remedial Investigation.
 - Sample areas most likely to contain explosives residue.
 - Establish presence or absence of soil contamination.
 - 25 to 30 soil samples, including 4 QC samples.
- Phase II Sampling
 - If necessary, based on Phase I results.
 - Establish nature and extent of contamination.
 - Additional soil samples including QC samples.
- Samples before and after blow-in-place.



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Munitions Constituent (MC) Sampling- Analytes

- Practice bombs (all types) contain 3-gram expelling charges with spotting markers.
- Expelling charge is black powder (older versions) or smokeless powder (newer).
 - Black powder – non-toxic potassium nitrate (saltpeter), sulfur, and charcoal.
 - Smokeless powder contains dinitrotoluene (DNT) and non-toxic carbon compounds.



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MC Sampling- Analytes

- Spotting marker – non-toxic red phosphorus, zinc oxide, or titanium tetrachloride.
- Rockets did not contain spotting charge or high explosives. Propulsion included black powder igniter and propellant (ballistite); should be fully expended.
- Primary contaminant of concern (COC) is DNT.



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Perchlorates

- No perchlorates used as rocket propellant at the Former Trabuco Bombing Range.
 - Ballistite (Nitroglycerin-based) rocket propellant was used at Trabuco.



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Munitions Constituent (MC) Sampling - Locations

- Soil samples near high concentrations of munitions from TCRA and near the Adobe hut (possible target of opportunity).
- 4 QC samples are blank, duplicates, and matrix spikes that help reduce/identify laboratory and sampling error.
- Samples at location of blow-in-place, before and after.
- Since explosives are not naturally occurring, background is presumed to be zero explosives contamination.



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Geophysical Prove-out

- **Geophysical prove-out (GPO) is a field demonstration to test geophysical instrument performance.**
- **Schedule**
 - Draft GPO Work Plan issued 3 October
 - DTSC comments due 3 November
 - GPO planned for Jan/Feb timeframe



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Geophysical Prove-out

- GPO site in O'Neill Park near Arroyo Vista park entrance.
- Check for subsurface UXO first... UXO avoidance.
- 22 inert munitions (seed items) placed in ground at various depths and orientations.
- Test performance of EM-61Mk 2 electro-magnetometer, Schonstedt magnetometer, and G858 magnetometer.
- Results used to steer RI Work Plan.



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Thank You

- Questions and/or comments?



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