

**Site 1 Facilitated
Technical Meeting No. 2
Naval Weapons Industrial Reserve Plant
(NWIRP) Bethpage**

**NYSDEC, Albany, NY
December 3, 2007**

AGENDA



1. Meeting Goals / Introductions / Ground Rules (Susan/Steve) – 5 minutes
2. Bethpage Land Transfer Status (Susan) – 5 minutes
3. NEBA Effort (Susan/Dave) – 5 minutes
4. OU2 Status – SFWD & NYWS (Jim/Susan) – 5 minutes
5. TAC Meeting Status (Steve) – 5 minutes
6. Site 1 Historical Quick Review (Dave/Jim) – 20 minutes
7. Innovative Technology Review (Dave/Dan) – 60 minutes
8. ARAR Review (Dave/Steve) – 15 minutes
9. Action Item / Parking Lot Review (Susan/Steve/All) – 15 minutes
10. Sep 17 Meeting Minutes Review (Susan/Steve/All) – 10 minutes
11. Closing/Next Meeting (Susan) – 5 minutes

GROUND RULES



- 1. Stay on Topic**
- 2. Treat Each Other with Respect**
- 3. Take Turns Speaking (One at a Time)**
- 4. Listen**
- 5. Be Honest**
- 6. Have an Open Mind**
- 7. Participate**
- 8. Focus on Issues (Not on People)**
- 9. Identify a Problem AND a Possible Solution**
- 10. Make Progress/Move Forward**

BETHPAGE LAND TRANSFER



- **96 Acre Parcel - Transfer for January 2008 ?**
- **9 Acre Parcel - Lease for January 2008 ?**
- **Navy - Continue remediation efforts on 9 Acre Parcel (Site 1 and AOC 22)**
- **Navy – Continuing to pursue GSA disposal route**

NEBA/FEASIBILITY STUDY



- **Net Environmental Benefit Analysis (NEBA) – provides a concise view of remedial choice vice benefits and money spent**
- **NEBA will be developed as a joint effort with NYSDEC**
- **Feasibility study will be developed concurrently with these facilitated, technical meetings and NEBA efforts**

OU2 (OFF-SITE GROUNDWATER)



- **South Farmingdale – discussions are continuing between DOJ and SF attorneys**
- **After agreement is reached – funding will be allocated**
- **Agreement will likely contain requirements for technical review by Navy and partial payments based upon milestones reached**
- **New York Water Service – NYWS letter sent to Navy for temporary treatment; Navy preparing to refer to DOJ**

TECHNICAL ADVISORY MEETING (TAC) STATUS



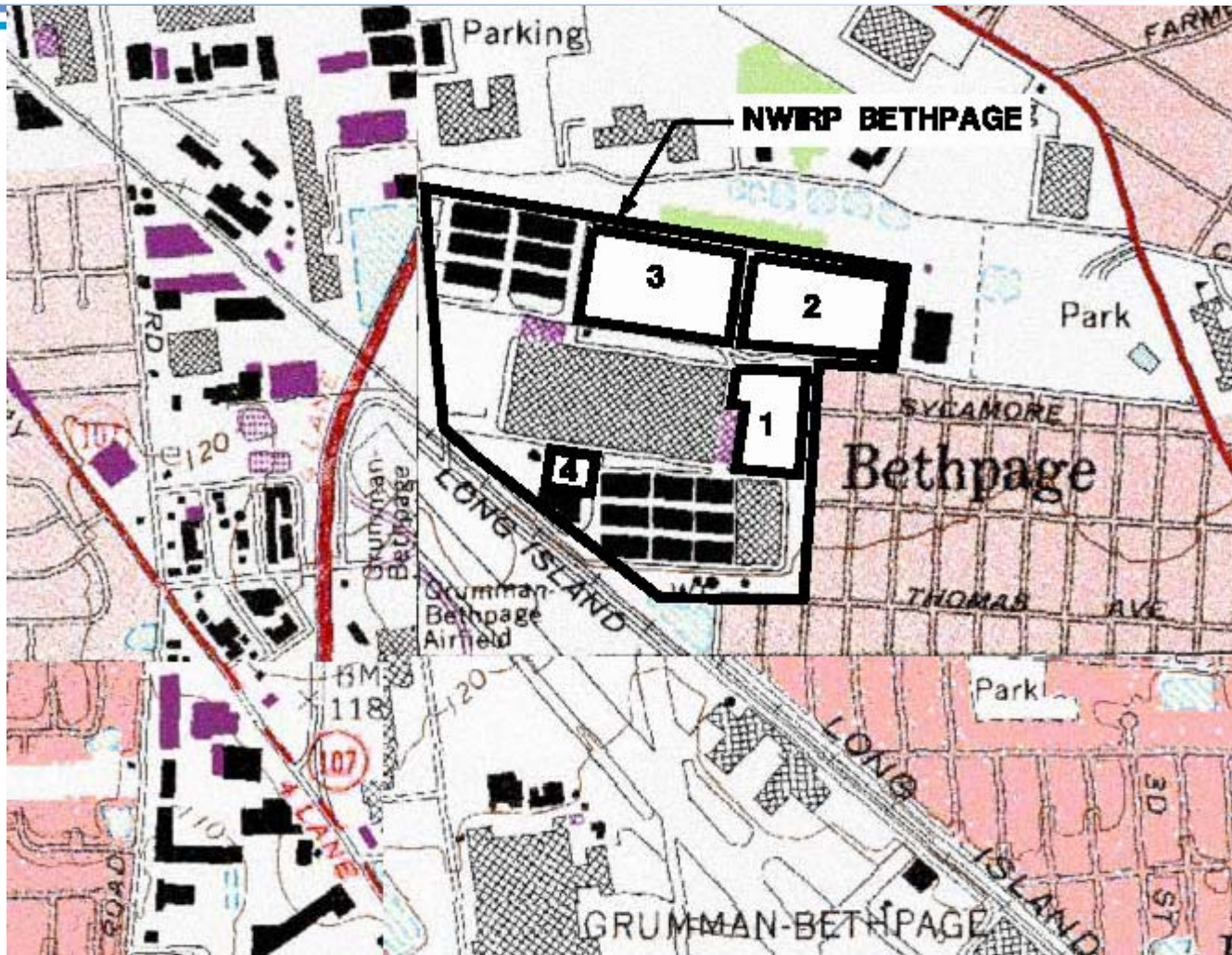
- **TAC Meeting Purpose**
- **TAC Meeting Schedule**

SITE 1 HISTORICAL REVIEW



- **Northrop Grumman Operations from 1940s to 1998**
- **Navy Caretaker Status from 1998 to present**
- **Initial Assessment Study 1986**
- **Remedial Investigations 1991 to 1993**
- **Feasibility Study 1994**
- **OU 1 (Soils) Record of Decision 1995**
- **Air Sparing/Soil Vapor Extraction System 1996 to 2001**
- **Pre-Remedial Design Soil Investigations 1995 to 2002**
- **Navy Re-evaluating Site 1 ROD Implementation 2003 to 2007**
- **Soil Vapor Intrusion Concerns 2008**

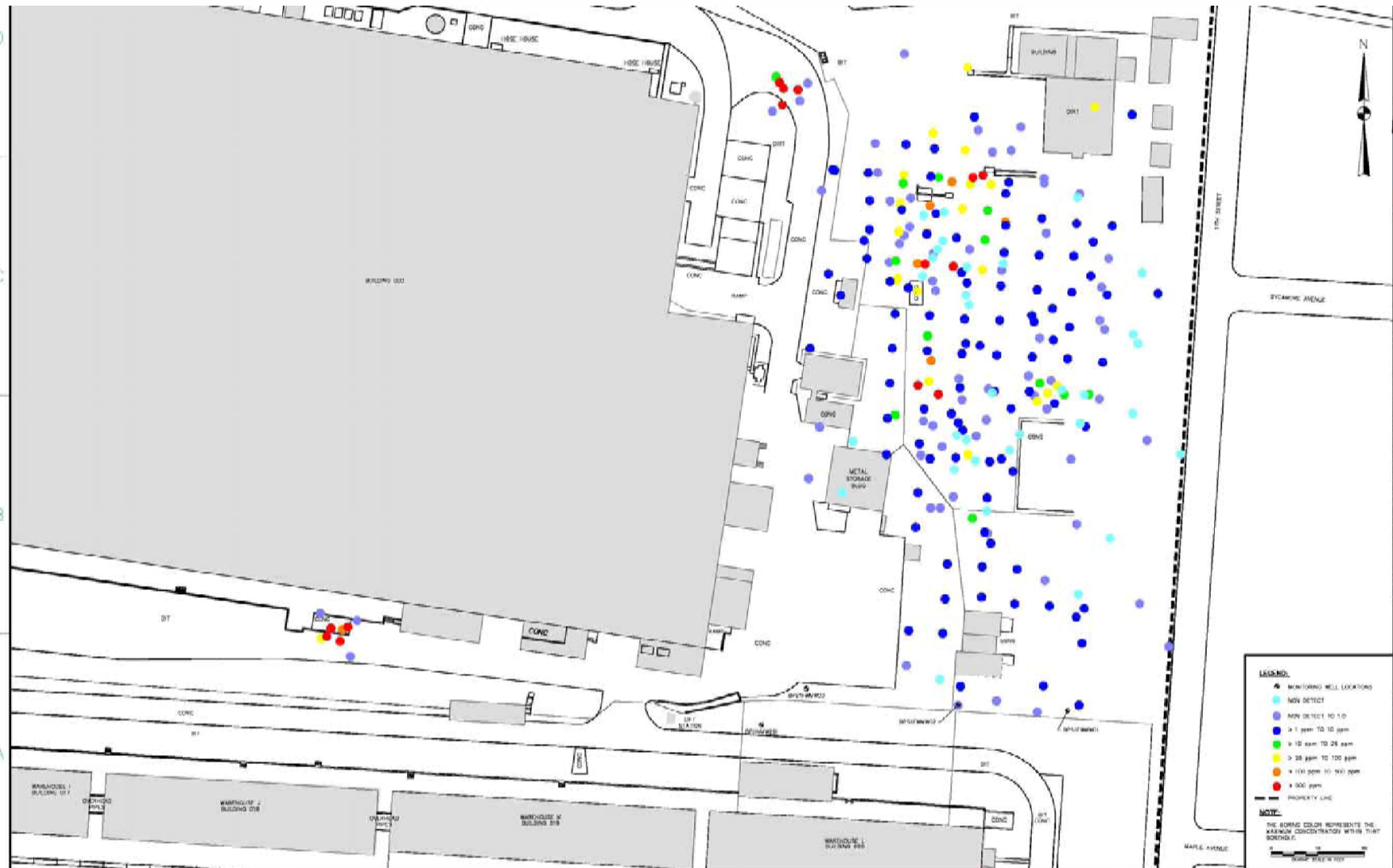
SITE 1 LAYOUT



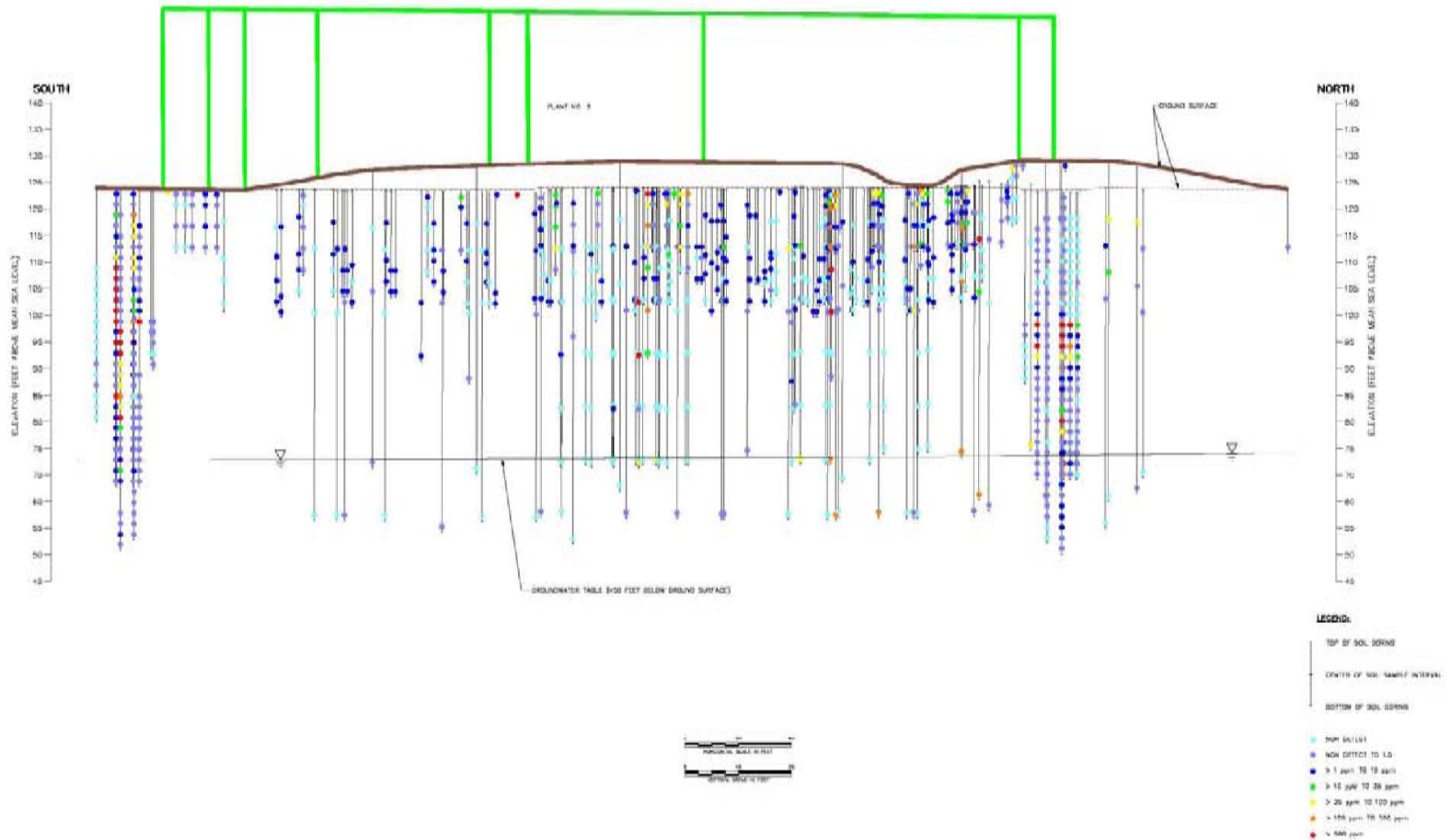
SITE 1 AERIAL



SITE 1 PCB RESULTS



SITE 1 PCB RESULT – CROSS SECTION



INNOVATIVE TECHNOLOGY SCREENING



Response	Technology/ Objective	Contaminant Class App	Technology Status	Representative Process	Applicability
<u>NO ACTION</u>	N/A	N/A	N/A	N/A	N/A
<u>EXISTING CONTROLS</u>	<p><u>Institutional Controls</u> – Control access of receptors to impacted soils</p> <p><u>Environmental Monitoring</u> – Provide early warning of potential GW impacts</p>	ALL	Conventional	<ul style="list-style-type: none"> •Environmental Easement •Zoning / Ordinance •Defined Site Use •Site Mgmt Plan •GW Monitoring •MNA 	Applicable

INNOVATIVE TECHNOLOGY SCREENING



Response	Technology/ Objective	Contaminant Class App	Technology Status	Representative Process	Applicability
<u>Removal</u>	<u>Mechanical Excavation</u>	All	Conventional	Backhoe and Clamshell Excavation Equipment	Applicable – for deep soils, shoring required Deep Saturated Soils-dewatering required
<u>Following Removal</u> – On- Site Treatment and Placement of Treated Material	<u>•Ex-Situ Solid/Stabil</u>	All	Emerging	Pug-mill or Excavator mixing w/Portland, bentonite, fly ash, slag, act carbon, blend	Possibly Applicable (Following Excavation)
	<u>•Biol Trtmt</u> – destroy PCBs w/Fungal / bacterial trtmt in bioreactors / land-farming	PCBs	Emerging	Anaerobic / Aerobic Dechlorination	N/A – emerging ex-situ processes requires time & land area

INNOVATIVE TECHNOLOGY SCREENING



Response	Technology/ Objective	Contaminant Class App	Technology Status	Representative Process	Applicability
<u>Following Removal</u> – On-Site Treatment and Placement of Treated Material	<u>Chemical Treatment</u> – destroy PCBs in soil	PCBs	Emerging	Oxidation – H₂O₂/Fenton’s/Permanganate (KMnO₄)	N/A – low effectiveness
				Base Catalyzed Decomposition (BCA)	Possibly Applicable (Following Excavation)
<u>Following Removal</u> – On-Site Treatment and Placement of Treated Material	<u>Chemical Treatment</u> – destroy PCBs in soil	PCBs	Experimental	Mechanical-Chemical Treatment	N/A – experimental
			Discontinued	Lime addition	N/A – low effectiveness because of volatilization

INNOVATIVE TECHNOLOGY SCREENING



Response	Technology/ Objective	Contaminant Class App	Technology Status	Representative Process	Applicability
<u>Following Removal</u> – On-Site Treatment and Placement of Treated Material	<u>Physical Treatment</u> – Concentration of PCBs, Cadmium, Chromium to allow volume reduction	All	Experimental	Soil flushing / Surfactant Solvent Washing & Recovery	N/A – experimental; low effectiveness
<u>Following Removal</u> – On-Site Treatment and Placement of Treated Material	<u>Combined Treatment</u> – destroy PCBs in soil	PCBs	Experimental	Chemical Oxidation / Biological Treatment Surfactant Washing / Chemical Treatment	N/A – experimental; low effectiveness

INNOVATIVE TECHNOLOGY SCREENING



Response	Technology/ Objective	Contaminant Class App	Technology Status	Representative Process	Applicability
<u>Off-Site Treatment / Disposal</u>	<u>Off-Site Treatment / Disposal in Permitted Facility</u>	All	Conventional	Permitted Treatment and Disposal Facilities	Applicable (Following Excavation and Transport)
<u>In-Situ Treatment</u>	<u>In-situ Solidification</u> <ul style="list-style-type: none"> •Prevents contact between sat soils and GW •Possibly Cad/Chromium •PCBs tightly sorbed to soil, little benefit 	Cadmium / Chromium	Emerging / Experimental for depths > 50 feet	<u>Auger Rig Mixed</u> w/ Portland Cement, bentonite, fly ash, slag, activated carbon, blend <u>Pressure / Jet Grout</u> w/ Portland Cement, bentonite, fly ash, slag, activated carbon, blend	No benefit because PCBs tightly sorbed No benefit because PCBs tightly sorbed-app to areas w/obstructions; beneath bldgs not advised because of damage

INNOVATIVE TECHNOLOGY SCREENING



Response	Technology/ Objective	Contaminant Class App	Technology Status	Representative Process	Applicability
<u>In-Situ Treatment</u> (con't)	<u>In-situ Solidification</u> <ul style="list-style-type: none"> •Prevents contact between sat soils and GW •Possibly Cad/Chromium •PCBs tightly sorbed to soil, little benefit 	Cadmium / Chromium	Emerging Experimental	Bucket / Blender Mixed – Portland, bentonite, fly ash, slag, activated carbon, blend Chemical Fixation with Polymer	No benefit because PCBs tightly sorbed; applicable to surface soils only; low mixing effectiveness for deeper soils Not applicable – too experimental
<u>In-Situ Treatment</u> (con't)	<u>In-situ Thermal Treatment – Removal of PCBs</u>	PCBs	Experimental	Steam Stripping, Contained Removal of Wastes (CROW)	Not applicable – experimental for PCBs, low effectiveness

INNOVATIVE TECHNOLOGY SCREENING



Response	Technology/ Objective	Contaminant Class App	Technology Status	Representative Process	Applicability
<u>In-Situ Treatment</u> (con't)	<u>Biological Treatment</u> – destroy PCBs in sat soil using fungal or bacterial treatment	PCBs	Emerging	Sequential Anaerobic / Aerobic Dechlorination	Not Applicable – emerging ex-situ processes, low effectiveness

INNOVATIVE TECHNOLOGY SCREENING



Response	Technology/ Objective	Contaminant Class App	Technology Status	Representative Process	Applicability
<u>In-Situ Treatment</u> (con't)	<u>Chemical</u> <u>Treatment of</u> <u>Saturated Soil</u>	All	Experimental	Oxidation – H ₂ O ₂ / Fenton's / Permanganate (KMnO ₄) Soil Flushing / Surfactant Solvent Washing & Recovery	N/A – low effectiveness N/A – experimental; insufficient hydraulic control
<u>In-Situ Treatment</u> (con't)	<u>Chemical</u> <u>Treatment of</u> <u>Saturated Soil</u>	All	Experimental	Chemical Fix / Stabilization Vitrification	N/A – Experimental & Impracticable

INNOVATIVE TECHNOLOGY SCREENING



Response	Technology/ Objective	Contaminant Class App	Technology Status	Representative Process	Applicability
<u>In-Situ Treatment</u> (con't)	<u>Combined Treatment</u> – destruction of PCBs in Saturated Soil	PCBs	Experimental	Chemical Oxidation / Biological Treatment Surfactant Washing / Chemical Treatment	Not applicable – experimental, low effectiveness
<u>Containment – Soil</u>	<u>Capping</u> •Physical barrier to direct contact •Decrease surface water infiltration to deeper soils	All	Conventional	Asphalt Cap Gravel Clay Cap RCRA Landfill Cap	Applicable

INNOVATIVE TECHNOLOGY SCREENING



Response	Technology/ Objective	Contaminant Class App	Technology Status	Representative Process	Applicability
<u>Containment – GW</u>	<u>Containment Cell Bottom</u> – In combo w/ vertical barriers; prevents contact between sat soils and GW	All	Experimental	Pressure Grouting w/ Portland, Bentonite or Blend; Cell bottom, placed in combo w/ vertical barriers and impermeable cap	Not applicable – not a proven technology at depths below 30 ft; N/A if cap is perm, due to “bathtub effect”
<u>Containment – GW</u>	<u>Slurry Wall</u> •In combo w/ cell bottom & impermeable cap, prevents contact between sat soils and GW; •prevents vapor migration in vadose zone	All	Conventional	Pumped – Portland, Bentonite or Blend	No GW benefit without impermeable cap and cell bottom

INNOVATIVE TECHNOLOGY SCREENING



Response	Technology/ Objective	Contaminant Class App	Technology Status	Representative Process	Applicability
<u>Containment – GW</u>	<p><u>Grout Curtain</u></p> <ul style="list-style-type: none"> •In combo w/ cell bottom & impermeable cap, prevents contact between sat soils and GW; •prevents vapor migration in vadose zone 	All	Conventional	In-situ Solidification – Portland, Bentonite or Blend	No GW benefit without impermeable cap and cell bottom
<u>Containment – GW</u>	<p><u>Sheet Pile Wall</u></p> <ul style="list-style-type: none"> •In combo w/ cell bottom & impermeable cap, prevents contact between sat soils and GW; •prevents vapor migration in vadose zone 	All	Conventional	Steel HDPE	<p>No GW benefit without impermeable cap and cell bottom</p> <p>N/A – HDPE only better than steel in low pH GW; also required depth</p>

INNOVATIVE TECHNOLOGY SCREENING



Response	Technology/ Objective	Contaminant Class App	Technology Status	Representative Process	Applicability
<u>Containment – GW</u>	<u>Hydraulic Curtain</u> – prevents potential migration of impacted GW	All	Conventional	Downgradient Pump & Treat Capture Zone	N/A to Surface Soil

ARAR REVIEW



- **Discussion of Applicable or Relevant and Appropriate Requirements (ARARs)**

ACTION ITEM REVIEW

(FROM SEP 17, 2007 MTG)



- 1. Copy of FFSRA to State (completed during Sep 17 mtg)**
- 2. Navy to Document all Actions/Findings Since Signing of ROD**
- 3. Navy to Provide Preliminary Technology Screening Letter**
- 4. Navy to Provide Additional Information regarding NEBA Process**
- 5. TetraTechNUS to provide Clear and Concise Project Schedules**
- 6. Reach Concurrence on ARARs**
- 7. Schedule Meeting with Nassau County to Discuss LIFOC Issues for Remaining 9 Acres of Site 1**
- 8. Brainstorm Funding Priorities**
- 9. Schedule Regular Phone Conferences**
- 10. Schedule Regular Face-to-Face Technical Meetings**
- 11. Submit Comprehensive List of All Information to be Provided in Letter to State**
- 12. Send out Draft Meeting Minutes**
- 13. Path Forward**

PARKING LOT ITEM REVIEW

(FROM SEP 17, 2007 MTG)



- 1. OU2 Groundwater**
- 2. AOC 22**
- 3. GM-75 and GM-38**
- 4. Wellhead Treatment**
- 5. Vapor Intrusion**
- 6. State Deadlines under State Requirements**
- 7. Schedule Team Input for Future Budgets (FY09+)**
- 8. Technical Advisory Committee Meetings**
- 9. FFSRA Modification to Include Soil**
- 10. Add GW Issues, AOC 22, etc. to our GANTT Charts**

MEETING MINUTES REVIEW



- **Review Minutes from September 17, 2007 Meeting**

CLOSING / NEXT MEETING



- **Closing**
- **Next Meeting Date, Location and Time**
- **Phoncons in between?**