

# Public Information Meeting

## Former Raritan Arsenal

### Edison, New Jersey

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US Army Corps of Engineers  
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# Agenda

- DERP-FUDS
- Site History
- Operable units
  - ▶ Groundwater (GW)
    - Indoor Air
    - Vapor Mitigation Systems
    - GW Long Term Monitoring (Monitored Natural Attenuation)
    - GW pilot studies – AOC 2
      - ▷ Anaerobic Bioaugmentation @ Area 18C
      - ▷ Potassium Permanganate @ 165 Fieldcrest Avenue Area
  - ▶ Soil
    - Area 18E – Soil Investigations
  - ▶ Ordnance
    - Area 12 – History
    - Area 12 – Status
    - Area 13 – Status
- FY 2010 Milestones
- FY 2011 Future Planned Activities
- Public Involvement
  - ▶ Restoration Advisory Board decision
  - ▶ USACE webpage
- Questions



# What is DERP – FUDS?

- Defense Environmental Restoration Program – Formerly Used Defense Sites (DERP–FUDS)
  - ▶ Goals: Complete environmental restoration of the former Raritan Arsenal
  - ▶ Address potential human health and environmental risks associated with past Department of Defense (DOD) activities.
  - ▶ Former Raritan Arsenal project being completed by the U.S. Army Corps of Engineers (USACE)
    - Includes remedial investigation (RI) and cleanup, as appropriate, of 33 soil investigation areas.
    - Includes several groundwater plumes (Areas of Concern – AOCs).



# Site History

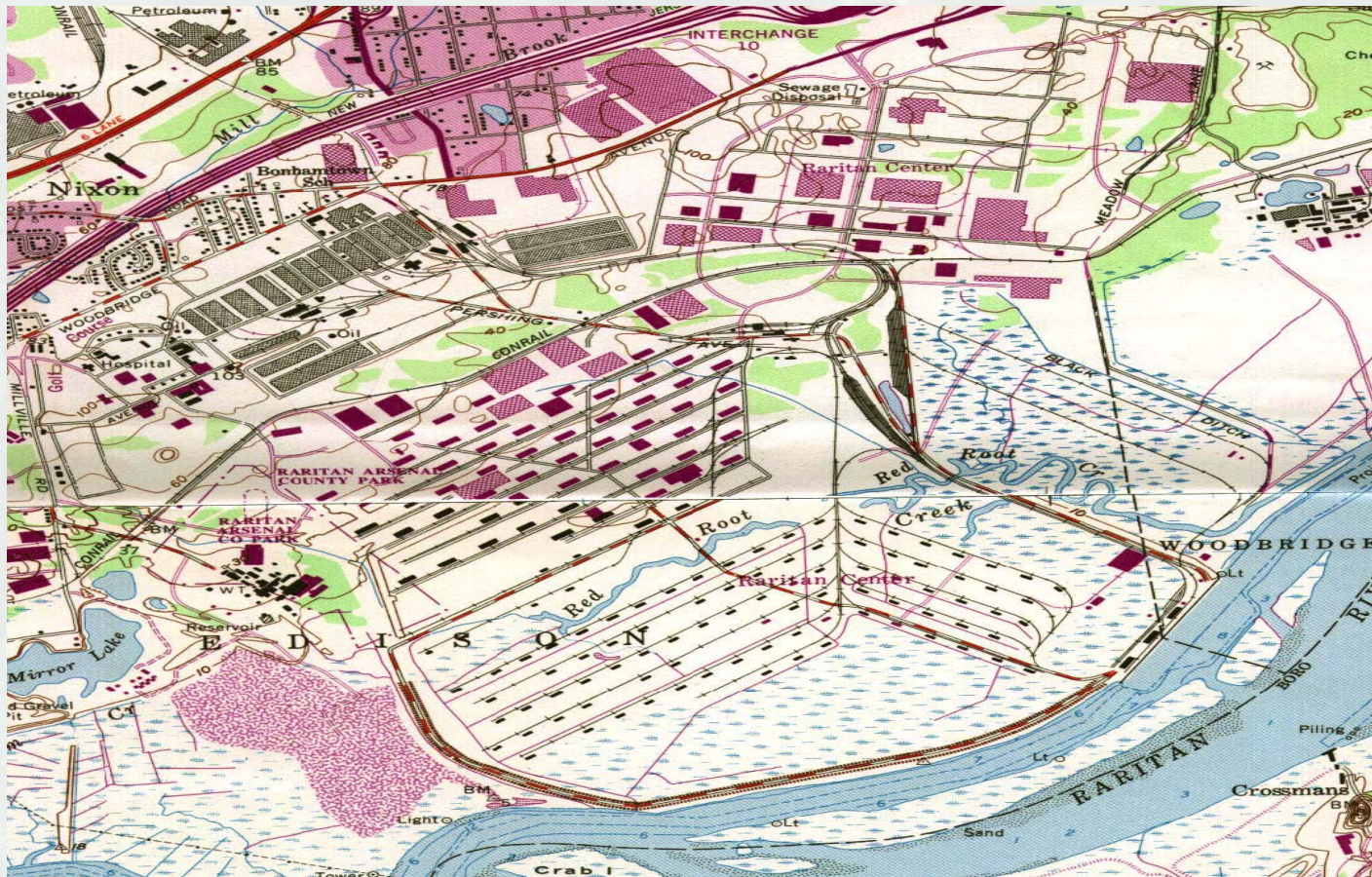
- Mission of Arsenal from 1917-1963
  - ▶ shipping and storage of ordnance material;
  - ▶ general supplies to other arsenals and military facilities;
  - ▶ stored, modified, and shipped military vehicles.
- Decontamination process completed in October 1963.
- Arsenal closed 1964
- Upon disposition, Arsenal consisted of 3,234 acres, approximately 440 buildings, 2.8 million square feet.
- Site-wide network of over 62 miles of roads and railways.
- Government officials and citizens proposed an orderly conversion of property from military to civilian use.
- Group recommended two-thirds of Arsenal be targeted for future industrial use.
- In 1964, GSA sold 2,360 acres to private landowners.
- GSA retained 200 acres of former Arsenal property.





# Former Raritan Arsenal – Edison, NJ

## Site map



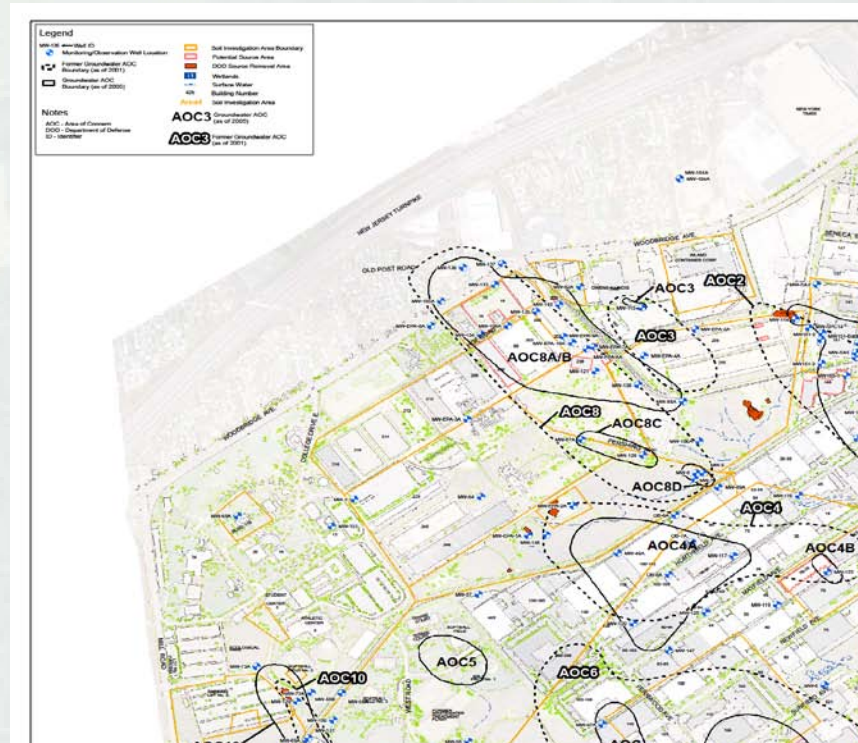
# Operable Units

- The following three (3) operable units (OUs) are being addressed:
  - ▶ contaminated groundwater;
    - Long Term Monitoring (LTM) of GW plumes;
    - Classification Exemption Area (CEA); and
    - Ongoing monitoring of buildings for potential vapor intrusion.
  - ▶ contaminated soils;
  - ▶ residual unexploded ordnance (UXO);
    - Definition of UXO is military munitions that:
      - ▷ Have been primed, fused, armed, or otherwise prepared for action;
      - ▷ Have been fired, dropped, launched, projected or placed in such a manner as to constitute a hazard to operations, installations, personnel, or material; and
      - ▷ Remain unexploded either by malfunction, design, or any other cause.





# Areas of Concern (AOCs)



# Indoor Air

- Scope of work: Monitor for volatile organic compounds (VOCs) in indoor air and sub-slab soil gas
  - ▶ Program evaluated all buildings in the Arsenal within 100 feet of an establish GW plumes
    - 10 buildings remain within AOC 2, 6 & 8 presently undergoing monitoring (indoor air & sub-slab soil gas):
      - ▷ 151 Fieldcrest Avenue
      - ▷ 160 Fieldcrest Avenue
      - ▷ 165 Fieldcrest Avenue
      - ▷ 102-168 Fernwood Avenue
      - ▷ Campus Plaza 4
      - ▷ EPA buildings 10, 18, 200, 205 & 2
  - ▶ These results are documented in the Indoor Air Quality Reports; currently up to report #5





# Vapor Mitigation Systems

- Mitigation systems:
  - ▶ 8 buildings: sub-slab depressurization (mitigation) system installed & monitoring
    - Mitigation systems performing as intended; analytical results show decreasing VOC concentrations
      - ▷ 5 buildings: U.S. EPA installed mitigation system; & USACE performing monitoring (EPA bldgs 10, 18, 200, 205 & 209) (within AOC 8)
      - ▷ 2 building: USACE installed mitigation system & performing monitoring (160 Fieldcrest Avenue & 102-168 Fernwood Avenue) (within AOC 2 & 6)
      - ▷ 1 building: NJDEP installed mitigation system; USACE performing monitoring (165 Fieldcrest Avenue) (within AOC 2)
- Monitoring only; no mitigation systems installed at 2 buildings: {Campus Plaza 4 & 151 Fieldcrest (sub-slab only)} (within AOC 2)



# GW Long Term Monitoring (LTM)

- Site-wide Groundwater Remedial Action Work Plan (GWRAP) Approved
  - ▶ No Further Action for Area of Concern (AOC) 3 and 7
  - ▶ AOCs 2 & 8A/B - excluded from GWRAP due to ongoing source investigations
- USACE implementing the GWRAP
  - ▶ Scope of work
    - GW Long Term Monitoring (Monitored Natural Attenuation)
      - ▷ GW sampling schedule
        - First round of sampling – Summer 2010
        - Second round of sampling – Summer 2012
        - Thereafter every five (5) years for thirty years (until 2042)



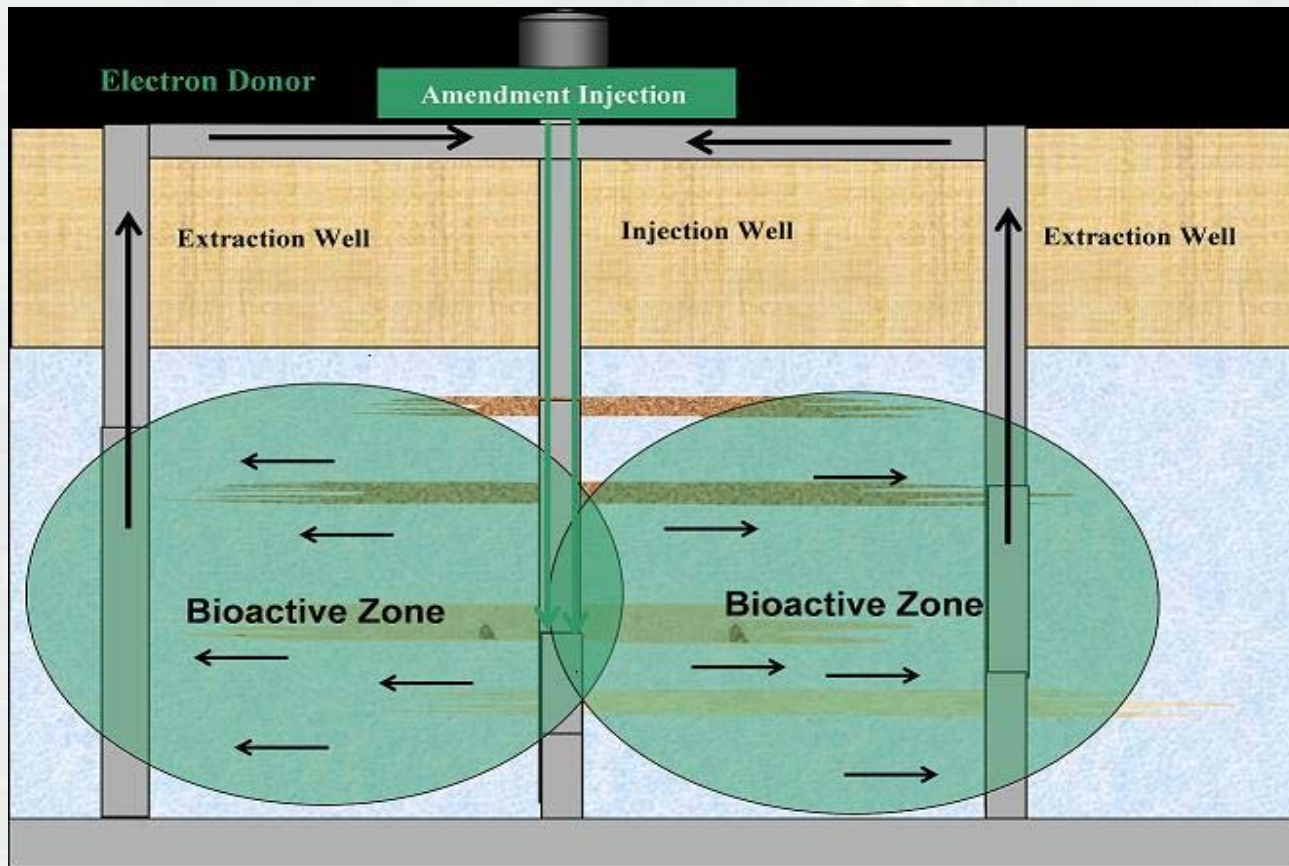
# Groundwater pilot studies – AOC 2

## ■ Area of Concern (AOC 2)

- ▶ USACE currently completing post monitoring of the GW treatment pilot studies
  - Objective: reduction of chlorinated solvents (aka VOCs) in AOC 2
    - ▷ Anaerobic Bioaugmentation @ Area 18C
      - Shaw's developed culture (aka SDC-9) in which an anaerobic bacteria that treats chlorinated solvents (aka VOCs)
      - Provides long term effort; bacteria has a long life expectancy
      - Findings at Area 18C: VOC concentrations decreased by 77% to 100%
    - ▷ Potassium Permanganate @ 165 Fieldcrest Avenue Area
      - When permanganate solution is applied and comes in contact with VOCs, the solvent is immediately transformed and broken down into its component molecules.
      - Provides short term effort; immediate one time injection
      - Findings at 165 Fieldcrest Avenue Area : VOC reductions of 59% to 95%
  - Path forward: Final Remedial Action Report targeted for July 2010

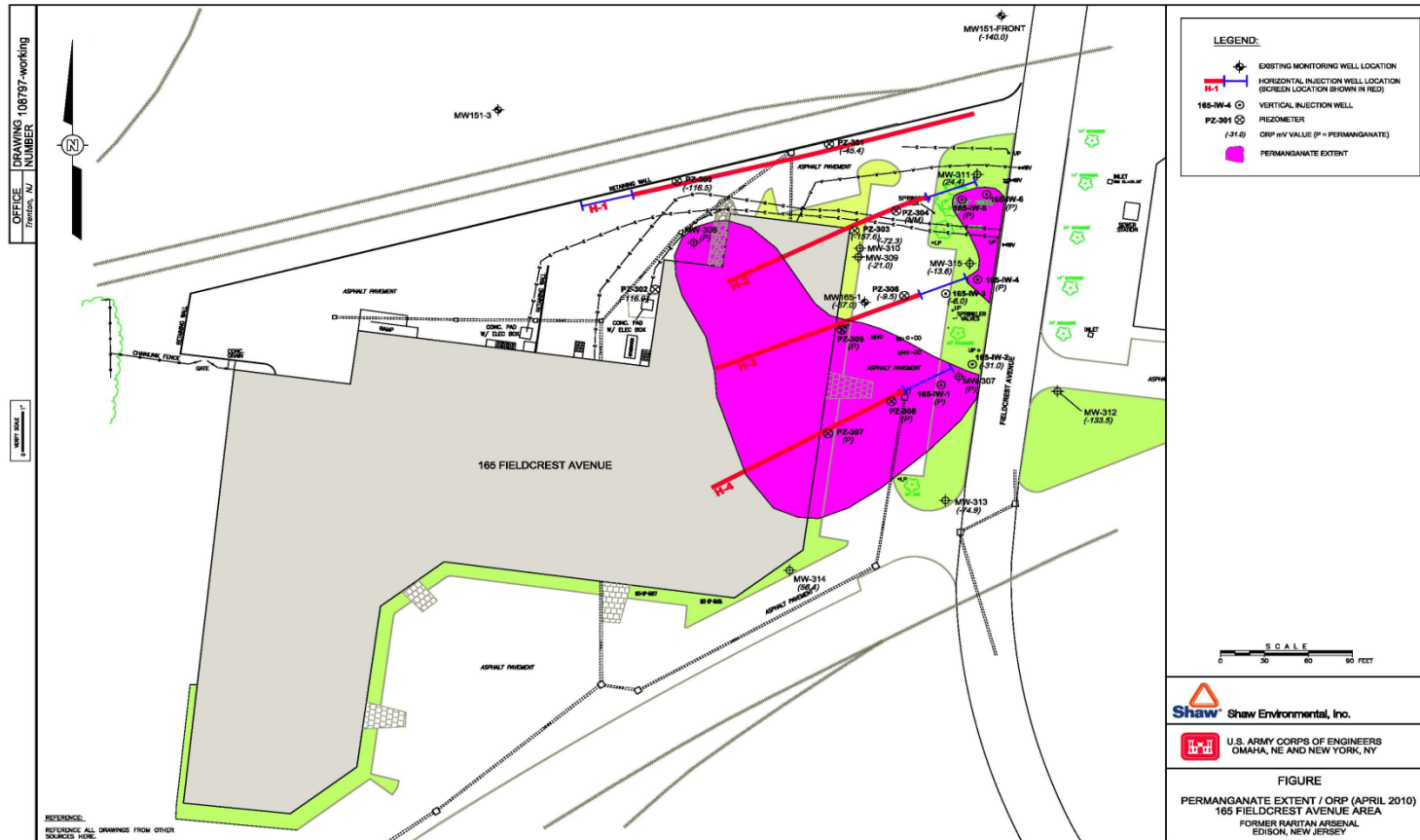


# Anaerobic Bioaugmentation @ Area 18C





# Potassium Permanganate @ 165 Fieldcrest Avenue Area



# Area 18E – Site Map



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# Area 18E – Soil Investigations

## ■ Area 18E – Remedial Investigation

- ▶ Executing approved Supplemental Remedial Investigation Work Plan, Site Specific Sampling and Analysis Plan for Area 18E and Adjacent EPA Buildings
  - Scope of work: soil sampling activities, shallow groundwater sampling, soil borings and installing monitoring wells
    - ▷ Objective: complete the delineation of volatile organic compounds (VOCs) and metals in soil
    - ▷ Project status:
      - Construction commenced – July/August 2009
      - Investigation completed – December 2009
      - Results from the investigation have been generated into a remedial investigation report and will be issue to NJDEP for review in July 2010





# Area 12 – Site Map



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# Area 12 – History

- Area 12 – aka “Former Dredge Material and Explosives Detonation Area”
  - ▶ Size: Approx. 84 acres that lie along the Raritan River
  - ▶ A digital geophysical mapping (DGM) of the entire 84 acres had been completed
    - The DGM collects the highest quality magnetometer geophysical data of the various terrain. This data was then placed onto figures identifying the low dense and high dense anomaly locations.
  - ▶ In 2007 – 2008, an ordnance removal clearance effort took place
    - Scope of work: ordnance removal/clearance in low dense anomaly portions
      - ▷ Low dense anomalies = 60 acres completed
      - ▷ Findings: approximately 3,500 ordnance were found and removed
      - ▷ Remaining ordnance removal = 24 acres (high dense anomalies)



# Area 12 – Status

- Area 12 – aka “Former Dredge Material and Explosives Detonation Area”
  - ▶ USACE implementing an ordnance removal / clearance action
    - New contract awarded – March 2009
      - ▷ Awarded contractor – USA Environmental Inc.
      - ▷ Contractor mobilized late April 2010 in Area 12
    - Scope of work
      - ▷ Project calls for ordnance removal / clearance in high dense anomaly portions
        - High dense anomalies = 24 acres
        - Previously cleared = 1.5 acres
          - Findings: approximately 25,000 lb of munitions debris per acre was removed
        - Underway (funded) = 10.38 acres
          - Timeframe: in field till December 2010
        - Remaining (unfunded) = 12.12 acres
    - Funding to date: \$3.7 million
    - Funding needed to complete: \$4.2 million



# Area 13 – Site Map



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# Area 13 – Status

- Area 13 – aka “The Wharf”
  - ▶ Located in the Raritan River around and near the former Arsenal docks
  - ▶ At this time, no unexploded ordnance or hazardous toxic waste investigations have been conducted
  - ▶ USACE is preparing a proposed investigation scope of work
  - ▶ USACE will submit a funding request for the proposed investigation work





# Fiscal Year 2010 Milestones

- Final Baseline Ecological Risk Assessment completed March 2008, followed by Ecological Risk Management Action Plan, contracted in FY 2010.
- Annual Indoor Air Quality report #4 submitted to NJDEP and landowners – April 2009.
- Final Site-Wide Soil Human Health Risk Assessment submitted to NJDEP – February 2010.
- Area 4: Remedial Action construction completed. Deed Notice w/ addendum submitted to NJDEP and landowners – April 2010.
- Completed Area 18E Supplemental Remedial Investigation. Report submitted to NJDEP and landowners – July 2010.
- Annual Indoor Air Quality report #5 to be submitted to NJDEP and landowners – Summer of 2010.
- Final Remedial Action Report on AOC 2 – GW pilot studies to be submitted to NJDEP and landowners – Summer of 2010.



# Fiscal Year 2011

## Planned Future Activities

- Continue indoor air and sub-slab monitoring at select buildings
- Continue ordnance removal in Area 12
- Execute a Long Term Groundwater Monitoring Program & Well Abandonment project
- Prepare Annual Indoor Air Quality report #6
- Area 5: Ongoing Project Close-Out (PCO) process to document removal of chemical warfare material (CWM) project
- Area 18E – Potential soil removal action
- Prepare Final Ecological Risk Management Plan
- Prepare Soil – Record of Decision for selected areas
- Revise Management Action Plan
- Update Community Relations Plan



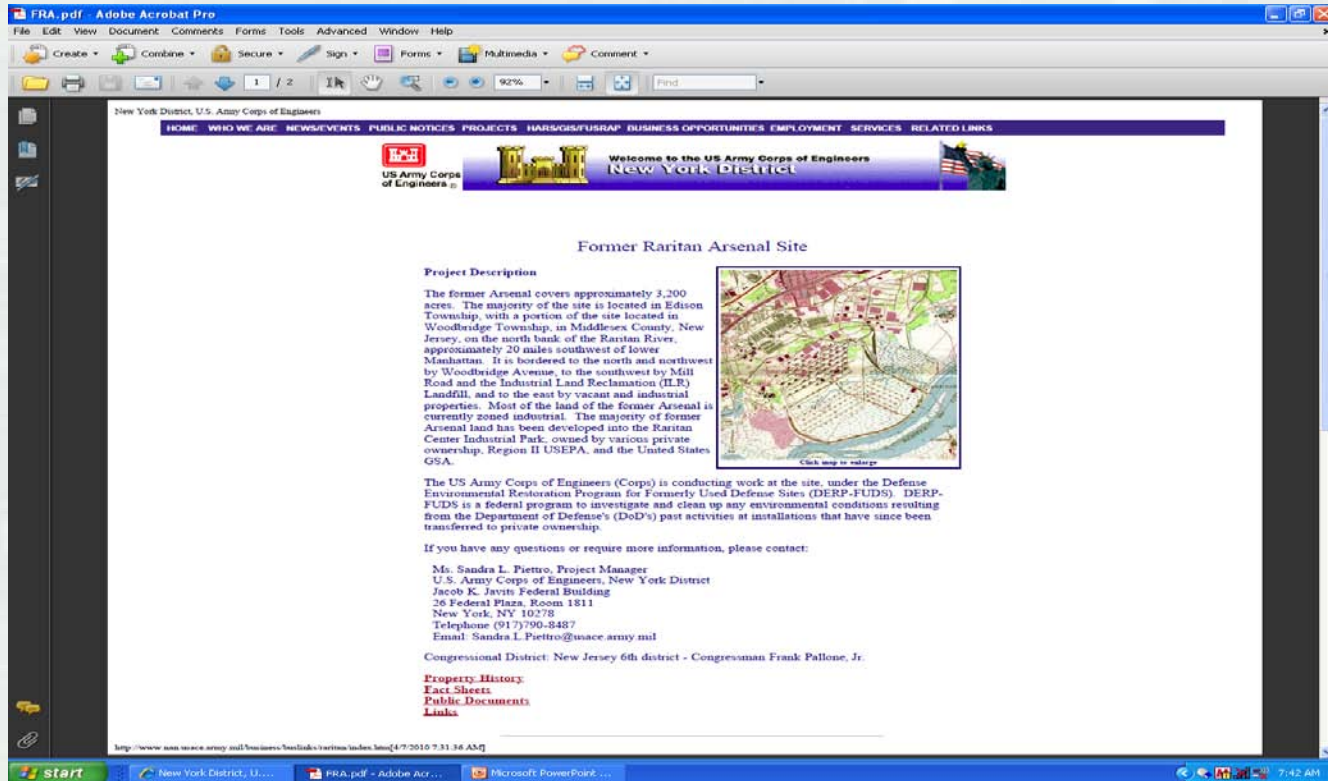
# Public Involvement

## *Restoration Advisory Board decision*

- Process
  - ▶ On December 10, 2009, community interest forms handed out
  - ▶ Community interest forms collected and consolidated
  - ▶ Forms were reviewed
- Findings
  - ▶ It was found that there was neither a significant number nor diversity of interested community members
- Appropriate action
  - ▶ Continue meeting with the working group and hold annual public information meetings with the local community
  - ▶ USACE will reassess community interest in twenty-four months
- Enhancement for public access
  - ▶ Website
  - ▶ Update Community Relations Plan



# Public Involvement *USACE Web page*



<http://www.nan.usace.army.mil/business/buslinks/raritan/index.htm>



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# Questions



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