Former Nansemond Ordnance Depot Human Health Risk Assessment (HHRA)

US Army Corps of Engineers

CAPE Environmental Management Inc

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C A P E
ENVIRONMENTAL

Role at FNOD

- Plan and Perform HHRA
  - Prepare a work plan (July 2004)
  - Gather existing data
  - Exposure - who, how, what, and where?
  - Figure out what chemicals might be harmful
  - Exposure – how much?
  - If exposed – how does it affect people?
  - If there is a risk – how much risk is there?
  - Submit a report for use in site decisions

HHRA Process/Outline

- Data Collection and Evaluation
- Exposure Assessment
- Toxicity Assessment
- Risk Characterization
- Uncertainty Analysis

What Will the HHRA Tell Me?

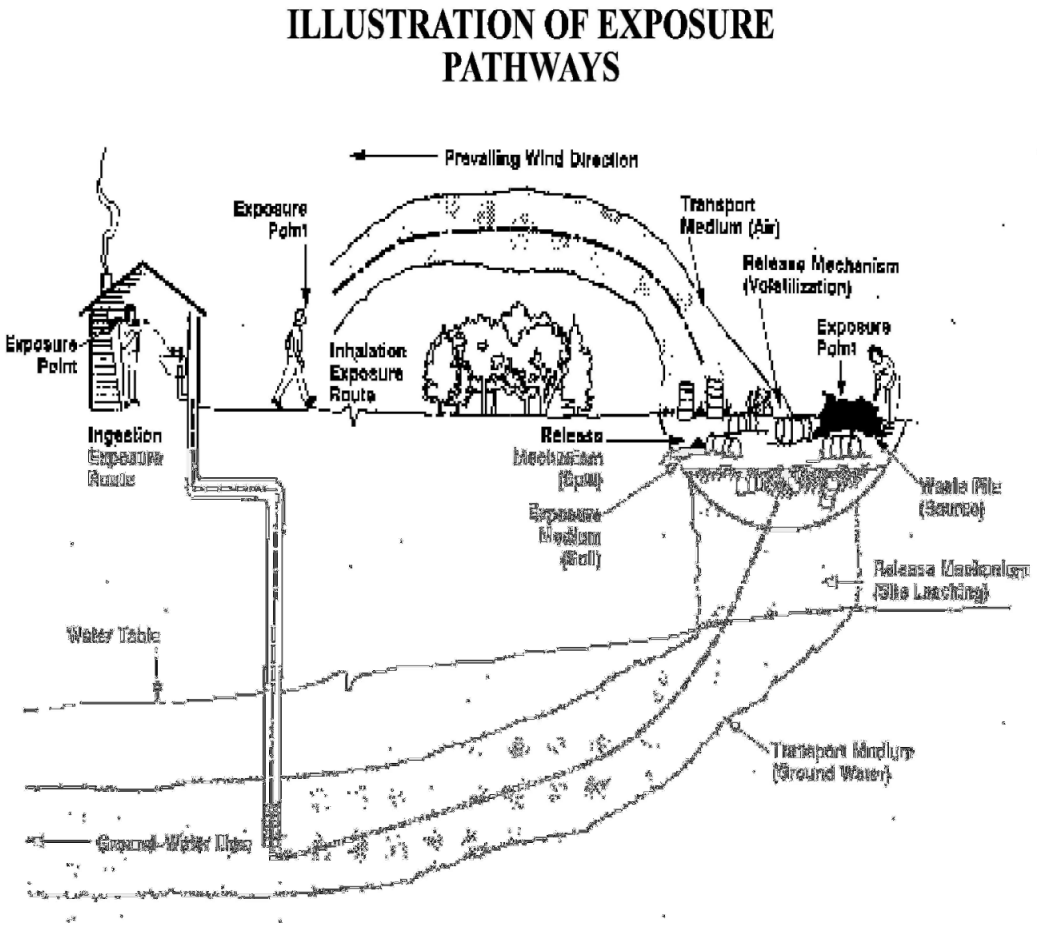
- HHRA will help answer the following:
  - Are there chemicals out there that will harm us?
    - If so, what chemicals are they?
    - What are the health risks of the chemicals at this site?
    - Is it possible that they will cause cancer?
    - Is there a possibility they will cause non-cancer problems?
  - Will these exposures harm children and/or adults?
  - Are only full-time residents at risk or are visitors/workers also at risk?
  - How sure are we about the results?
  - What areas, if any, will need to be cleaned up?
  - Does access or land use of the site need to be limited?

Acronyms used in HHRAs

- CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
- CSM = Conceptual Site Model
- COC = Chemical of Concern
- COPC = Chemical of Potential Concern
- HI = Hazard Index
- HQ = Hazard Quotient
- MCL = Maximum Contaminant Level
- RAGS = EPA Risk Assessment Guidance for Superfund
- RBCs = Risk-Based Concentrations
- RfD = Reference Dose
- RL = Remediation Level
- RME = Reasonable Maximum Exposure
- SF = Slope Factor

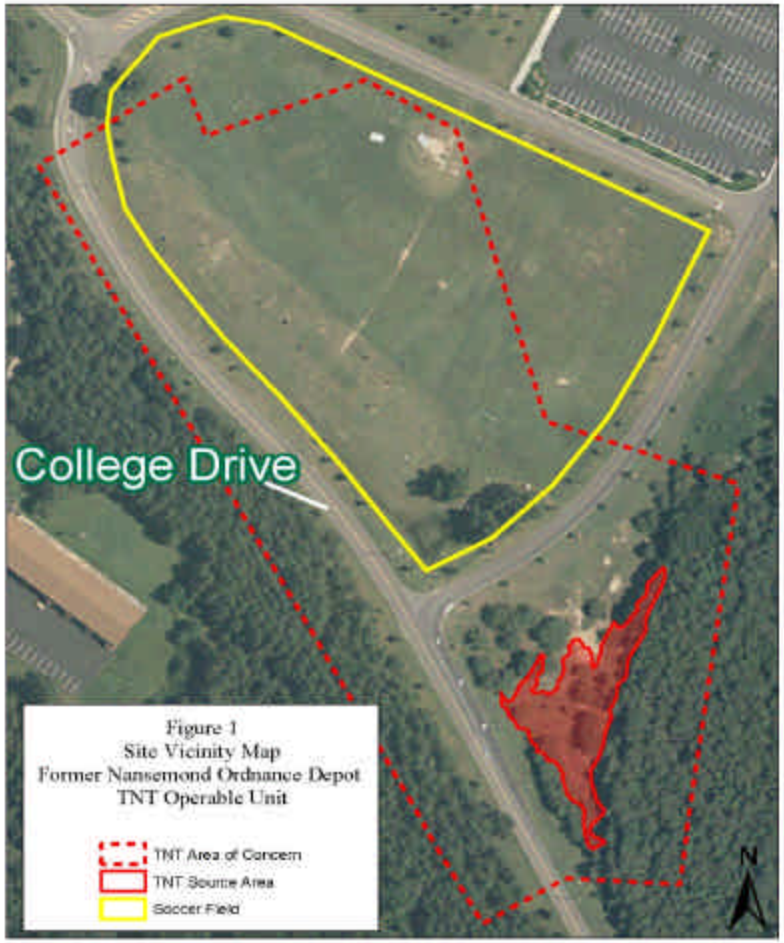
Terms used in HHRAs

- Exposure Medium
- Exposure Pathway
- Exposure Point
- Exposure Point Concentration
- Exposure Route



HHRA Work Plan for FNOD
July 2004

- Outlines HHRA approach
- Exposure Areas
  - TNT Source Area
  - Soccer Fields
- Identifies Exposure Pathways
- Defines Screening Criteria



BHHRA Work Plan

- Types of Contaminants being Evaluated:
  - Explosives
  - Metals
  - Burn by-products

CSM - TNT Source Area

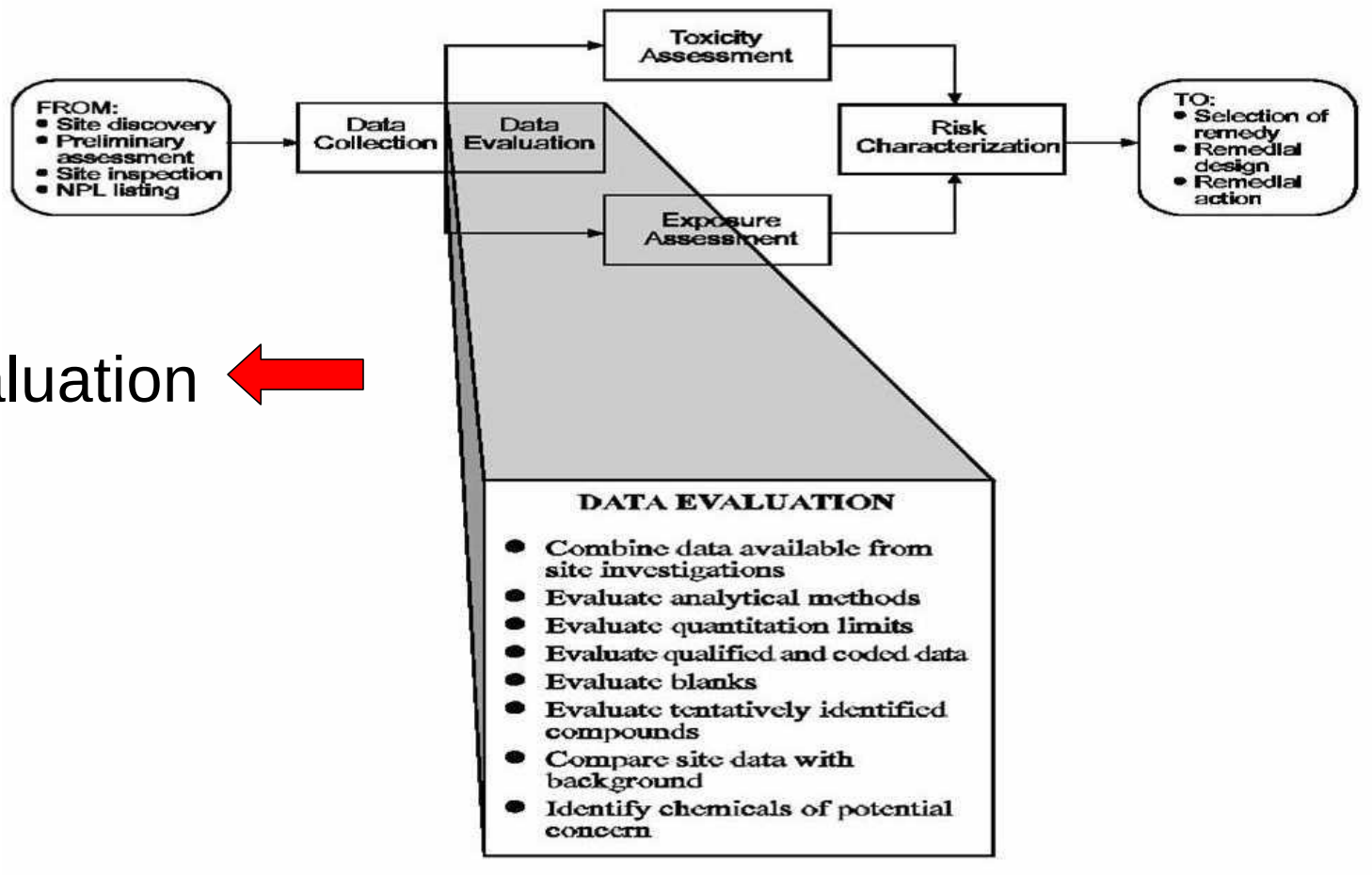
- Potentially Exposed Populations:
  - Future Residents (air, soil, tap water)
  - Future people out playing (air, soil, tap water)
  - Current & Future groundskeepers (air and soil)
  - Current & Future Construction Workers (air and soil)

CSM – Soccer Fields

- Potentially Exposed Populations:
  - Future Residents (air, surf soil, combined soil, tap water)
  - Current & Future people playing on soccer fields (air and surf. soil)
  - Current & Future groundskeepers (air, surf soil, tap water)
  - Current & Future Construction Workers (air, surf soil, combined soil)

Items Currently Working On

- Data Evaluation



Remaining Steps

- Exposure Assessment
- Toxicity Assessment
- Risk Characterization
- Uncertainty Analysis

How the Community Gets Involved

- Attend Public Meetings, such as this RAB
- Provide Input: Site History, Site Areas frequented by people (receptors) and their activities while on site, any chemical or health concerns related to the site, etc.
- Ask Questions