1-30-00034-0002

Availability Session
GM-38 Area Groundwater Remedy
Bethpage, New York

September 23, 2004
Sponsored By:

NAVFAC
Naval Facilites Engineering Command

NEW YORK STATE
DEPARTMENT OF
ENVIRONMENTAL
CONSERVATION

ARCADIS
Infrastructure, buildings, environment, communications

TetraTech

9/23/04

Why Are We Here Today?

- Preparing to start the first of two "phases" of the GM-38 Area Groundwater Remedy.
- This Availability Session serves to inform the Interested Public about the project and schedule.
- Representatives of Sponsoring Parties are here to answer questions.

Project Status and Agency Role

- The NYS Department of Environmental Conservation (DEC) and Department of Health (DOH) are lead regulatory agencies.
- 12/13/00 - Public Meeting on Operable Unit 2 (OU2) Proposed Remedial Action Plan (PRAP). The GM-38 Area is part of OU2.
- 3/29/01 and 4/30/03 - OU2 Records Of Decision (ROD) issued by NYSDEC & Navy, respectively. Remedy for GM-38 Area is required.
- 9/23/04 - Voluntary Availability Session for GM-38 Area Remedy.


Outpost Monitoring Well
VPB - Vertical Profile Boring
Municipal Water Supply Well
Former Northrop Grumman Boundary
NWIRP Bethpage Boundary
BWD Bethpage Water District
SFWD South Farmingdale Water District
LWD Levittown Water District
NYWS New York Water Service
Bethpage
GM 38 AREA
VPB-39
VPB-73
VPB-49C
BWD 4-1
BWD 4-2
VPB-42
VPB-48
BWD 6-1
BWD 6-2
VPB-51
VPB-38
VPB-47
VPB-40
BWD 5-1
VPB-77
EXTENT OF VOC CONTAMINATED GROUNDWATER
VPB-76
VPB-43
SFWD 7377
SFWD 4043
SFWD 5148
VPB-45
OW1-1 (D)
OW1-2 (D)
OW1-3 (D)
VPB-46
VPB-44
OW4-1 (D3)
OW4-2 (D3)
LWD 5303
VPB-50
OW2-1 (D)
OW2-2 (D2)
NYWS 3780
NYWS 3893
NYWS 9338
NYWS 8480
SFWD 6150
OW3-1 (D2)
OW3-2 (D3)
1900
0
1900
Feet

Description of GM-38 Area Groundwater Remedy

- Requirement of OU2 ROD.
- Goal is to locally reduce volatile organic compound (VOC) concentrations in groundwater.
- Elements of GM-38 Area Remedy:
  - Extract contaminated groundwater using wells.
  - Treat groundwater with air stripping.
  - Treat air emissions with GAC.
  - Inject treated water to groundwater system using wells.


Outpost Monitoring Well
VPB - Vertical Profile Boring
Municipal Water Supply Well
Former Northrop Grumman Boundary
NWIRP Bethpage Boundary
BWD Bethpage Water District
SFWD South Farmingdale Water District
LWD Levittown Water District
NYWS New York Water Service
Bethpage
GM 38 AREA
VPB-39
VPB-73
VPB-49C
BWD 4-1
BWD 4-2
VPB-42
VPB-48
BWD 6-1
BWD 6-2
VPB-51
VPB-38
VPB-47
VPB-40
BWD 5-1
VPB-77
EXTENT OF VOC CONTAMINATED GROUNDWATER
VPB-76
VPB-43
SFWD 7377
SFWD 4043
SFWD 5148
VPB-45
OW1-1 (D)
OW1-2 (D)
OW1-3 (D)
VPB-46
VPB-44
OW4-1 (D3)
OW4-2 (D3)
LWD 5303
VPB-50
OW2-1 (D)
OW2-2 (D2)
NYWS 3780
NYWS 3893
NYWS 9338
NYWS 8480
SFWD 6150
OW3-1 (D2)
OW3-2 (D3)
1900
0
1900
Feet


GM-38 REMEDY
CURRENT CONDITIONS
BWD
PLANT 4
500 ppb
Groundwater
Recovery Wells
GROUNDWATER
FLOW
Groundwater
Injection Well(s)
BWD
PLANT 5
350
0
350
Feet

Groundwater Modeling to Support Remedial Design

- Groundwater Modeling is a tool used to assess groundwater flow and VOC migration.
  - The "groundwater model" incorporates site-specific factors that control/influence groundwater movement.
  - The "groundwater model" was used to assist in the following:
    - Design of remedial system
    - Long-term planning for period of system operation
    - Determining long-term effects of system operation on local water supplies.

Description of Modeling Effort

- Utilized a "State Of The Art" computer Groundwater Model.
  - Focused on modeling in the GM-38 Area.
  - Updated the model with recent groundwater quality and local public supply pumpage data.
  - Used "particle tracking" to identify "capture zones" of recovery wells.
  - Used "contaminant transport" to evaluate changes in VOC concentrations in groundwater over time.

Remedial Alternatives Evaluated via Groundwater Modeling

- Several remedial alternatives were evaluated: No active remediation, two-well, and three-well pumping scenarios.
  - Variation of pumping system components included:
    - Number of remedial wells
    - Pumping rates for remedial wells
    - Screen zones of remedial wells
    - Location of remedial wells
    - Duration of pumping
  - Variation of recharge system components included:
    - Location of treated water discharge
    - Method of treated water discharge

Design Criteria

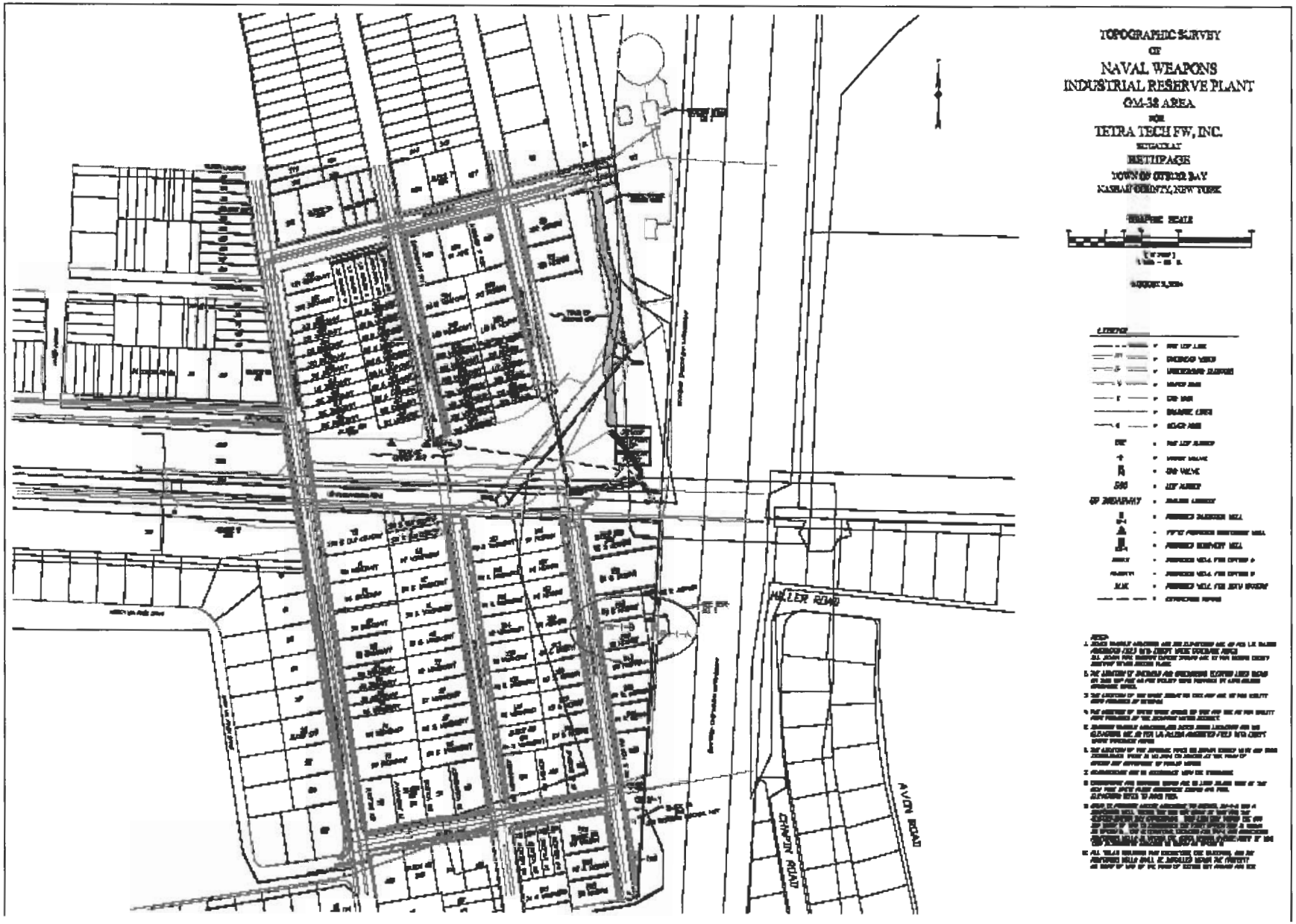
- **DESIGN PURPOSE AND LIFE**
  - Remedial system design will include groundwater extraction, treatment, and discharge activities.
  - The system is to be designed for an operational life of between 5 – 10 years.

- **CODES, STANDARDS, AND SPECIFICATIONS**
  - The remedial design will follow all federal, state, and local codes and requirements.

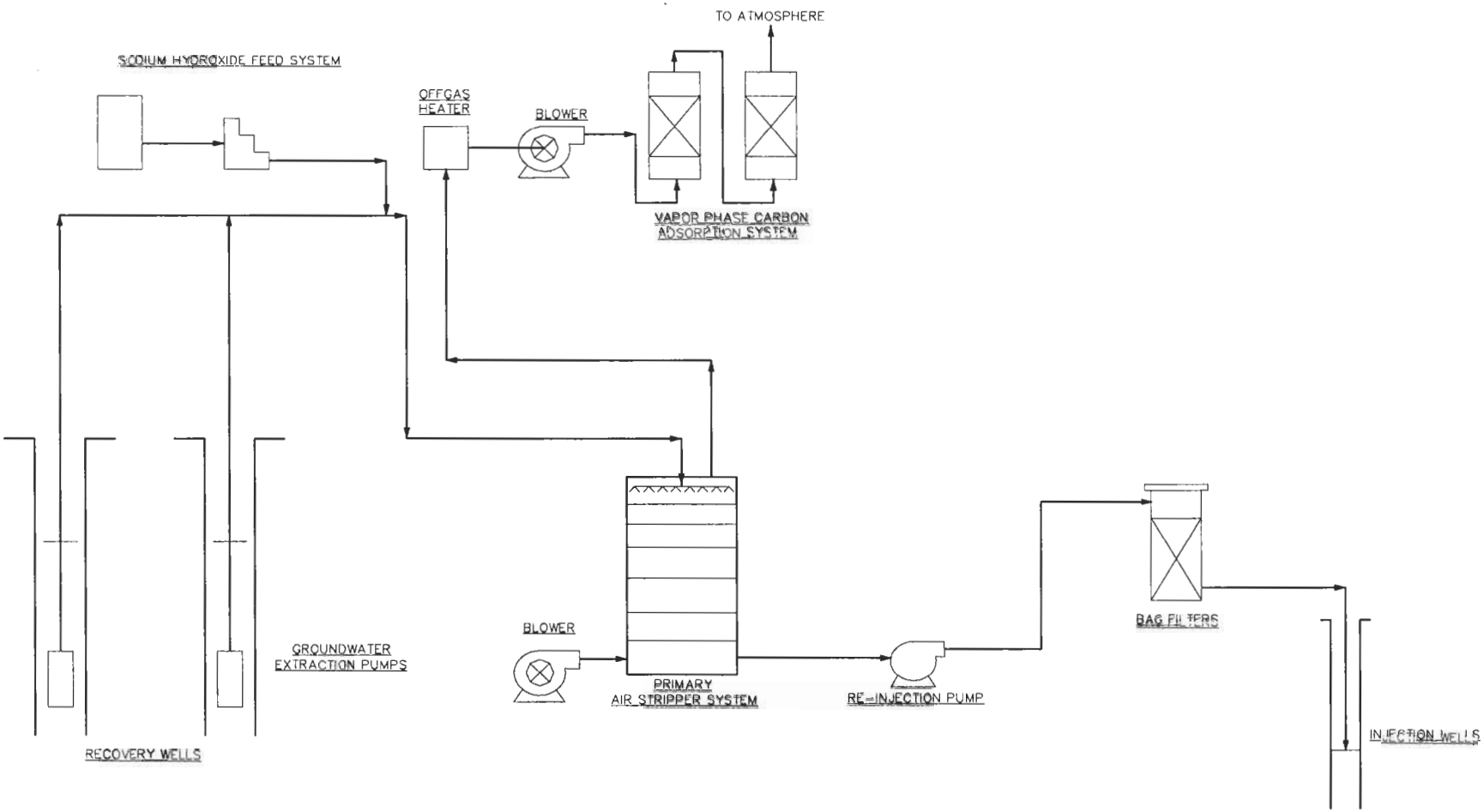
- **EXTERNAL LOADS / ENVIRONMENTAL CONDITIONS**
  - Mass removal of volatile organic compounds, primarily chlorinated solvents, from the aquifer system.
  - A treatability study will be conducted to develop system efficiencies.
  - The system will be designed for a flow rate of 1,100 gallons per minute from two recovery wells.
  - Treated groundwater shall be re-introduced into the aquifer via injection wells.

- **HEALTH AND SAFETY**
  - A site specific health and safety plan will be developed.
  - All applicable OSHA regulations will be adhered to.

- **OTHER INFORMATION**
  - Obtain all necessary property access agreements.
  - Obtain all necessary local, state, and federal permits and utility easements for drilling and construction.
  - Drilling and construction activities will be restricted to normal business hours.


TOPOGRAPHIC SURVEY
OF
NAVAL WEAPONS
INDUSTRIAL RESERVE PLANT
GM-38 AREA
FOR
TETRA TECH FW, INC.
SITUATED
BETHPAGE
TOWN OF OYSTER BAY
NASSAU COUNTY, NEW YORK
MILLER ROAD
AVON ROAD
CHAPIN ROAD

GM-38 Groundwater Remedy Process Flow Diagram



PROCESS FLOW DIAGRAM
GM-38 AREA GROUNDWATER REMEDY
NWIRP Bethpage, New York

Types Of Equipment To Be Used

- Drill Rig
- Chain Saws and Tree Chipper
- 20,000 Gallon Temporary Storage Containers
- Earthmoving: Hydraulic Excavator and Track Dozer
- Trench Boxes and Sheeting/Shoring
- Surveying: Level, Beam Laser, Pipe Laser
- Material Management: Articulated Wheel Loaders and Backhoes
- Compaction: Vibratory Compaction Rollers, Trench Rollers, Plate Tampers
- Concrete Tools: Forms, Vibrator, Power Trowel, Screed, Bull Float
- Cranes: Stinger and Truck
- Rough Terrain Fork Lift
- Air Compressors, Generators, and Pressure Washers
- Man Lifts:Articulating Boom and Scissors
- Welding
- Power Tools: Saws, Pipe Bender, Pipe Threader, Drills

Community Impact Minimization Measures

- Full Time Management and Supervision by NAVY Contractor, Tetra Tech FW
- Work Within Normal Business Hours as Required by Town of Oyster Bay
- Weekly Project Status Updates to Town of Oyster Bay Officials
- Minimize Tree Removal to Maintain Natural Barrier
- Dust Control via Water and/or Suppression Products
- Site Restoration to Include Berms and Plantings to Create Visual Barriers
- Allow Building Color Selection by Town of Oyster Bay
- Minimize Exterior Building Lighting and Specify Lights with Shrouds
- Specify Equipment with Silencers or Other Mechanical Methods for Noise Control
- Automatic Plant Shutdown/Manual Restart Based on Specific Operating Conditions
- Fire Detection and Alarm System
- Install Chain Link Fence Around the Plant
- Security Alarm System

Typical Features of the Groundwater Remedy

1. Gravel Access Road to Groundwater Treatment Plant

3. Air Stripper Tower Designated for Use at GM-38 Area Plant

2. Exterior Building Features at a Groundwater Treatment Plant

4. Existing Air Stripper Tower at Bethpage Water District-Plant #4

5. Pre-cast Concrete Well Vault Containing Recovery Well

Project Contact Information

United States NAVY

- Engineering Field Activity, Northeast
  - James Colter, Remedial Project Manager — 610-595-0567, ext 163
  - Bob Ingram, Navy Construction Manager — 516-575-2121
- NWIRP Bethpage
  - Al Taormina, Facility Manager — 516-346-0344

Remedial Contractor

- Tetra Tech FW, Inc.
  - Stavros Patselas, Project Manager — 215-702-4000
  - Field Operations Leader for Drilling — To Be Determined
  - Construction Site Superintendent — To Be Determined

Town Oyster Bay

- General Services — 516-624-6100
- Public Works — 516-677-5935

New York State Department of Environmental Conservation

- Steven Scharf, Bureau of Eastern Remedial Action — 518-402-9620
- Bill Fonda, Public Affairs, Region I — 631-444-0249