Agenda

Restoration Advisory Board
Naval Weapons Industrial Reserve Plant Bethpage

September 17, 2009
NWIRP Bethpage, NY
7:00 p.m.

Welcome and Agenda Review
Lora Fly, NAVFAC Mid-Atlantic

Meeting Minutes
All Members

Technical Progress

Site 1 Soil Vapor Investigation
Rob Sok, Tetra Tech

Site 1 Soil Vapor Containment System Design
David Brayack, Tetra Tech

Offsite Groundwater Investigation – GM-75 Work Plan
David Brayack, Tetra Tech

GM-38 Construction Status
Stavros Patselas, Tetra Tech

Closing Remarks
Lora Fly

Presenters will be available after the program for questions.

NAVFAC
Naval Facilities Engineering Command

Restoration Advisory Board (RAB) Meeting

GM-75 Groundwater Investigation
Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage
September 17, 2009

GM-75 PROGRAM PURPOSE

NAVFAC

- Purpose: The GM-75 Program is being conducted to delineate an area of groundwater contamination that has TCE at a concentration greater than 1000 ug/l and is beyond the capture zone of the On-Site Groundwater Containment System.
- Program is also being used to investigate lower concentrations in groundwater that may impact water supplies.
- Vertical profile borings are used to quickly screen areas for the presence, depth, and concentration of contamination.

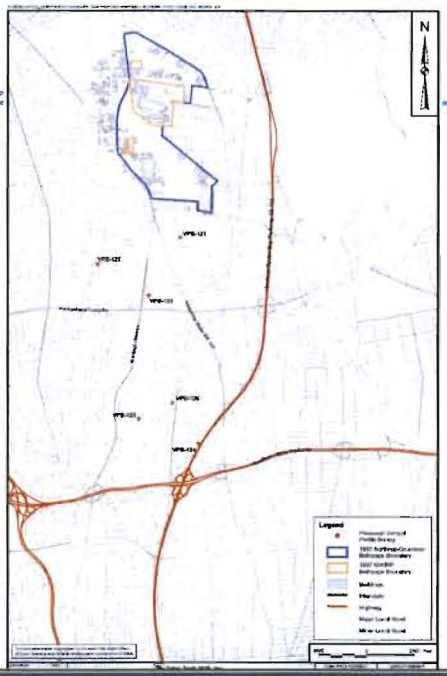
GM-75 VERTICAL PROFILE BORING PROGRAM

- A vertical profile boring is a 12-inch diameter hole drilled into the ground. At select depths, the drilling is stopped and a sampling device is lowered to the depth, and a sample of the water encountered is collected.
- The borings will extend to the Raritan Clay Layer at a depth up to 840 feet below ground surface.
- At 840 feet, the sampler is exposed to a pressure of 340 pounds per square inch (PSI).
- 36 groundwater samples will be collected per boring and analyzed for VOCs.

GM-75 VERTICAL PROFILE BORING PROGRAM (CONTINUED)

- Each boring requires 4 to 6 weeks to complete and costs $150,000 to $200,000.
- Six locations were selected.
- Work started in January 2009 and was completed in July 2009.
- Currently completing interim report of results. Based on data, no additional borings are planned.
- Next step is to analyze data and install outpost monitoring wells (2 or 3 planned).

GM-75 VERTICAL PROFILE BORING PROGRAM (CONTINUED)



GM-75 VERTICAL PROFILE BORING PROGRAM (CONTINUED)

GM-75 VERTICAL PROFILE BORING PROGRAM (CONTINUED)

GM-75 VERTICAL PROFILE BORING PROGRAM (CONTINUED)

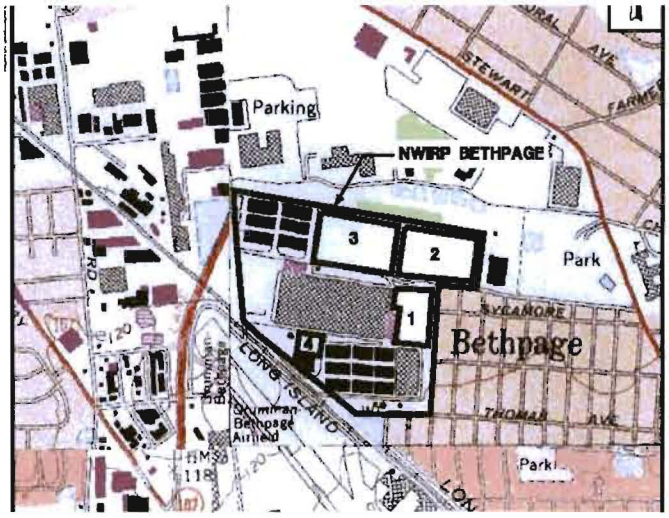
NAVFAC
Naval Facilities Engineering Command

Restoration Advisory Board (RAB) Meeting

Site 1 – Soil Gas Testing and Indoor Air Sampling Update

Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage
September 17, 2009

SITE MAP



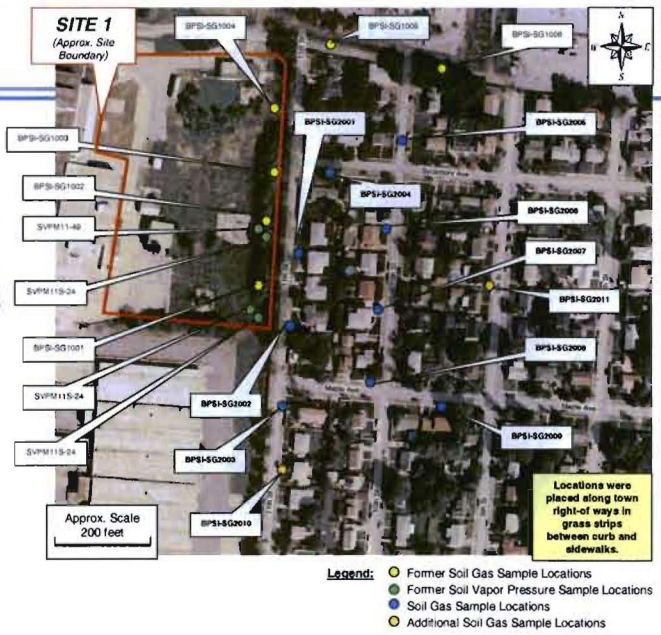
SITE 1 HISTORY – SOIL GAS

- October 2006 New York State Department of Health issued soil vapor intrusion guidelines – identifies soil vapor migration and potential intrusion into buildings as a potential concern.
- January 2008, Navy conducted a soil gas investigation at the eastern fence line of Site 1.
- Soil gas sampling results indicated elevated levels at the fence line.
- October 2008 soil gas testing conducted in the adjacent neighborhood along 10th and 11th Streets, and Sycamore/Maple Avenue.

SITE 1 HISTORY – SOIL GAS

- Additional soil gas sampling was conducted at two locations, on 9th Street and further south on 11th Street in early January 2009.
- Soil Vapor Extraction Pilot Test conducted in early January to obtain site specific data for full scale soil vapor containment system design.

SITE 1 SOIL GAS SAMPLING LOCATIONS



SOIL VAPOR INTRUSION/INDOOR AIR SAMPLING

- January 2009, Navy conducted initial indoor air and sub-slab sampling in homes targeted along 11th Street.
- Sampling results indicated TCE levels above NYSDOH guidelines in some indoor air and sub-slab samples.
- Initial indoor air and sub-slab sampling conducted in additional homes.
- Portable carbon air filtration units (APUs) installed as temporary mitigation measure and utility access sumps sealed (as needed) in basements.
- March 3, 2009 – Public Informational Meeting regarding the soil vapor investigation, indoor air sampling, future monitoring and mitigation measures.
- Ongoing indoor and outdoor air monitoring (March – present).

SOIL GAS SAMPLE LOCATIONS AND NYSDOH SUB-SLAB GUIDELINES

Legend:

- Soil Vapor Sampling – Shallow TCE conc. greater than 250 ug/m³.
- Soil Vapor Sampling – Shallow TCE conc. less than 250 ug/m³

APU and Access Sump Photos

SOIL VAPOR INTRUSION/INDOOR AIR SAMPLING

- Indoor and Outdoor Air Sampling/Monitoring – Sampling events conducted in March, April, June and August 2009
- Sub-Slab Depressurization (SSD) Systems (May 2009) – Installed in 6 homes where sub-slab vapor levels indicated the need for this type of mitigation (NYSDOH - Mitigation Matrix).
- Air sampling and monitoring consists of indoor, outdoor, and SSD stack samples

Sub-Slab Depressurization Systems

FUTURE ACTIONS

- Ongoing air monitoring in homes to monitor vapor levels and effectiveness of portable carbon air filtration units (APUs) and SSD Systems.
- Future sampling planned for November 2009 (prior to SVE system startup) and March 2010.
- Full scale SVE System - (construction completion anticipated in December 2009).
- Anticipated future soil gas, indoor air, outdoor air, and SSD stack sampling to monitor effectiveness of these short-term and long-term mitigation measures.

QUESTIONS ?

NAVFAC
Naval Facilities Engineering Command

Restoration Advisory Board (RAB) Meeting

SITE 1 SOIL VAPOR CONTAINMENT SYSTEM

Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage
September 17, 2009

Site 1 – Former Drum Marshalling Area

NAVFAC

Historical Information

- Trichloroethene (TCE), Tetrachloroethene (PCE), and 1,1,1-Trichloroethane (TCA) were identified as primary solvents in soil and groundwater.

Former AS/SVE Remediation System:

- Full Scale System operated from 1998 to 2002.
- System removed 4,500 pounds of chlorinated solvents
- By 2002, groundwater concentrations in downgradient monitoring wells were 20 µg/L or less – achieved groundwater goal.
- No rebound observed in groundwater through 2008.

Site 1 – Former Drum Marshalling Area (Continued)

Long-Term Soil Vapor Containment System

Design Criteria and Goals:

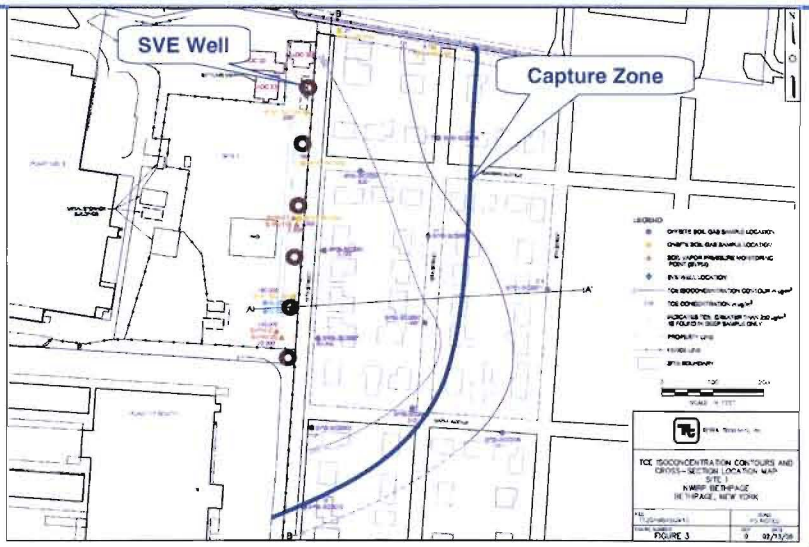
- **Use an onsite soil vapor extraction system to prevent further offsite migration of contaminated soil gas, and**
- **To the extent practical, capture contaminated soil gas that has migrated offsite:**
  - **–Primary goal is to capture soil gas with TCE at concentrations greater than 250 µg/m³; required soil gas capture zone is a maximum of :**
    - 270 feet to the east and southeast near groundwater, and
    - 170 feet to the east and southeast at an intermediate-depth
  - **–Secondary goal is to capture soil gas with TCE at a concentration greater than 5 µg/m³, required soil gas capture zone is a maximum of 410 feet to the east and southeast.**
- **Long-term operation required to address residual TCE in fine grained soils (clay) in southeast corner of site (below water table; water table variability)**

Long-Term Soil Vapor Containment System (Continued)

Full Scale Design:

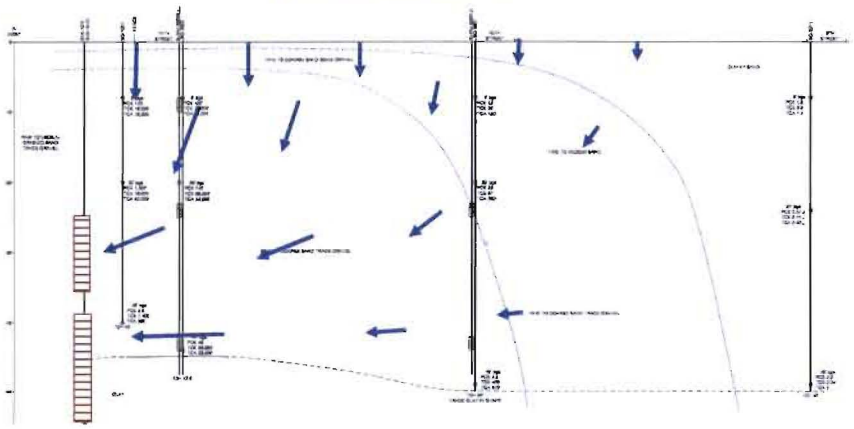
- Six clusters of intermediate and deep soil vapor extraction wells (12 wells total)
- Clusters will be approximately 100 feet apart along the fence line
- Design flow rate of 50 cfm per well, and a total system flow rate of 600 cfm
- Two 600 cfm blowers, at a rated vacuum of 40 inches water column
- Condensate tank – 600 gallons
- Vapor phase carbon units - 1800 pound units
- Buried piping and units housed in a building for year round operation

Long-Term Soil Vapor Containment System (Continued)



Long-Term Soil Vapor Containment System (Continued)

Cross Section A – A'



Questions ?

NAVFAC
Naval Facilities Engineering Command

Soil Vapor Extraction Containment System at Site 1

Naval Weapons Industrial Reserve Plant
Bethpage, NY

Restoration Advisory Board Meeting

September 17, 2009

SYSTEM CERTIFICATION ISO 14001 SGS

TETRA TECH EC, INC.

Zero Incident Performance Zip Do it safe... Do it right

Treatment System Design

- Mass Removal of Volatile Organic Compounds (VOC's) from soil gas
- Process Flow Rate = 600 to 1000 cubic feet per minute (cfm)
- Extraction from 12 wells of depths between 35 – 60 feet below ground surface
- Piping from each well into flow station and connected together w/in manifold
- SCH 40 PVC pipe in trench

Treatment System Design (cont'd)

- 1000 gallon moisture separator to remove free water from well and in the piping
- Two SVE blowers of 7.5 HP each
- Extracted vapors from wells will be treated w/ carbon media in a 5,000 lb vessel
- Treated vapors discharged outside via stack

Current Schedule

Milestones	Date
Drilling (3 weeks)	Start Sept 21, 2009
System Construction (2 months)	Oct – Nov 2009
Treatment Equipment Delivery	By end of Oct 2009
System Start-up and Testing (2 weeks)	December 2009
TtEC begins 6 month O&M	Dec 2009 - June 2010
TtEC completes transition of O&M phase to other Navy contractor	June 2010

Wrap-up

Questions?

NAVFAC
Naval Facilities Engineering Command

Groundwater Remediation Project

Naval Weapons Industrial Reserve Plant
Bethpage, NY
GM-38 Area

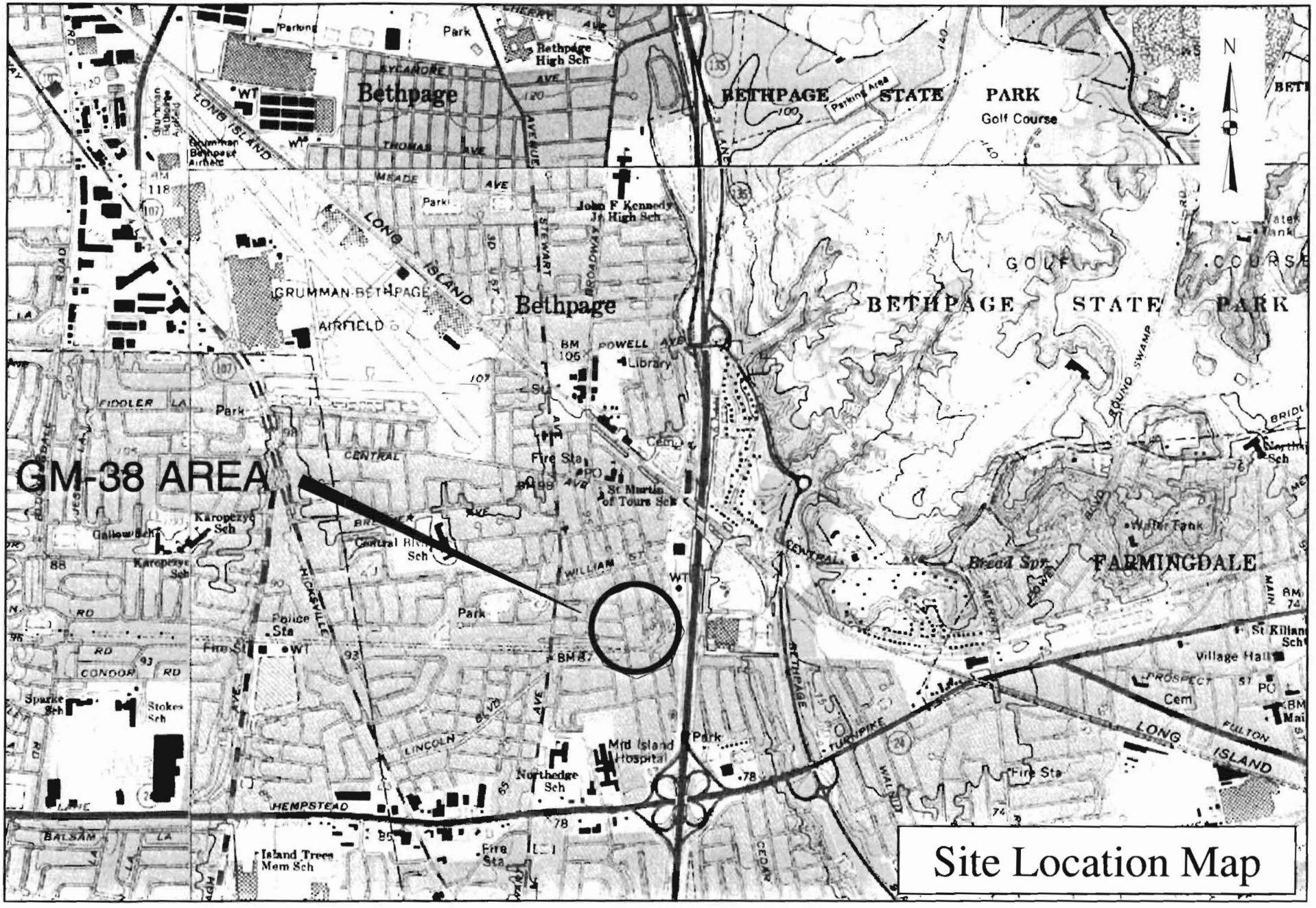
Restoration Advisory Board Meeting

September 17, 2009

SYSTEM CERTIFICATION ISO 14001 SGS

TETRA TECH EC, INC.

Zero Incident Performance Zip


GM-38 AREA
Bethpage
GRUMMAN-BETHPAGE AIRFIELD
BETHPAGE STATE PARK
Golf Course
FARMINGDALE
Site Location Map

Treatment System Design

- Mass Removal of Volatile Organic Compounds (VOC's) from groundwater
- Process Flow Rate = 1,100 gallons per minute (gpm) but currently 800 gpm
- Max. Design Flow Rate = 1,375 gpm
- Pumping from two recovery wells (one located on Route 135 western right of way and other to be located on west side of Broadway near Arthur)

Treatment System Design (cont'd)

- Primary treatment is Air Stripping
- Secondary treatment (polish) is Carbon Media
- Vapors from Air Stripping Treated w/ Carbon Media
- Split the discharge of treated water into one injection well and into a county recharge basin located west of Broadway

Construction Status

- Plant Entrance is located at 100 Broadway between residences at 96 and 106 Broadway
- The majority of the construction phase is complete.
- Subcontractors are working on final punch list items.
- Plant is currently continuously operating.
- Shutdowns occur for further calibration, minor troubleshooting, and equipment maintenance.
- The construction trailer will be removed by October 2009
- The temporary security fence will be removed by end of October 2009

Upcoming

- Complete construction phase punch-lists
- Complete site restoration including hydro-seeding
- Demobilize trailer and remove temporary construction fence
- Install RW-3 on western side of Broadway near Arthur Ave
- Set the pump in RW-3 and make the connection
- Complete operational adjustments for additional flow rate and begin pumping from RW-3
- Complete installation of additional monitoring wells
- Continue operation, maintenance, and monitoring

Esthetic Considerations

- Maintain as many existing trees as possible
- 100 new trees were planted
- Excavated soil to be used to construct berm
- Building exterior is a natural color, bronze
- 10'high chain link fence with privacy screening
- No audible exterior alarms
- Silencers installed on some treatment equipment to minimize noise heard outside

Community

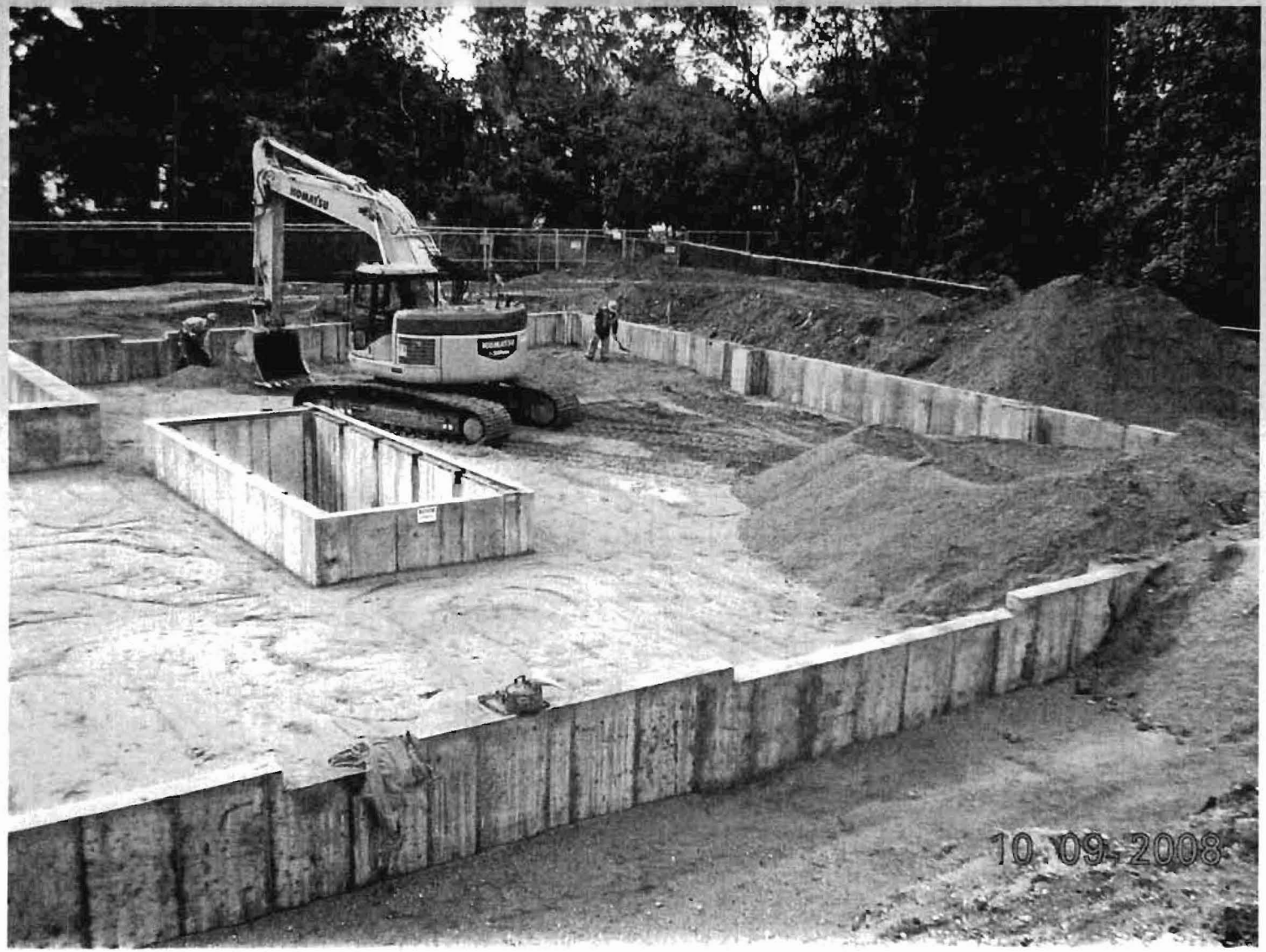
- A project goal is to minimize disturbance to the surrounding neighborhood to best extent possible during the construction.
- NYSDEC Citizen Participation Office

  631-444-0350
- Project Hotline cell phone number is

  516-732-3393
- Periodic project updates are delivered to the surrounding residences (approx. 200)

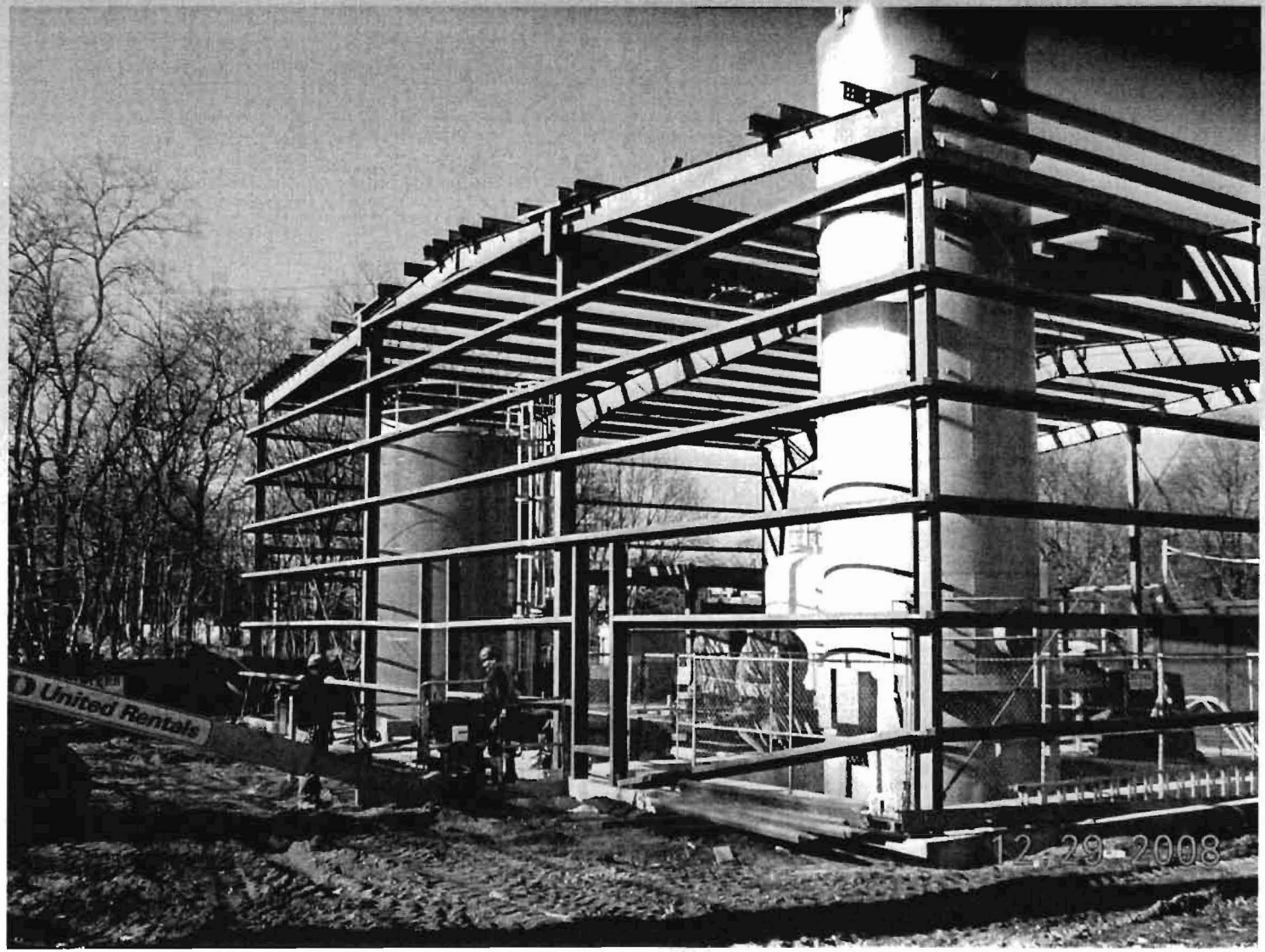
Current Schedule

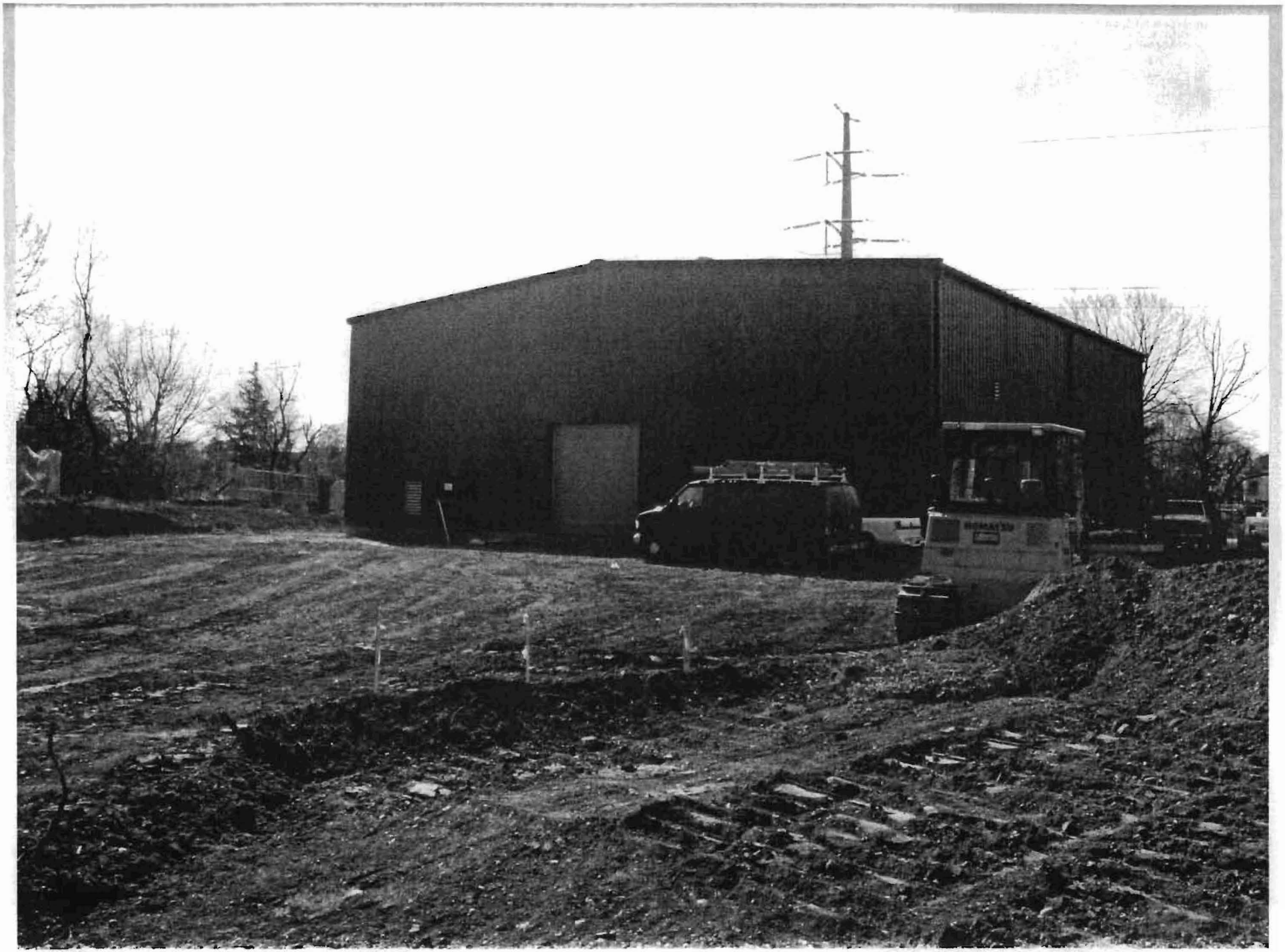
Milestones	Date
Treatment System Construction Complete	August 2009
Begin Operation and Maintenance Phase	September 2009
Complete RW-3 and begin pumping	November 2009
Complete install of 6 additional monitoring wells	December 2009
Begin transition of O&M phase to other Navy contractor	February 2010
TtEC completes transition of O&M phase	March 2010

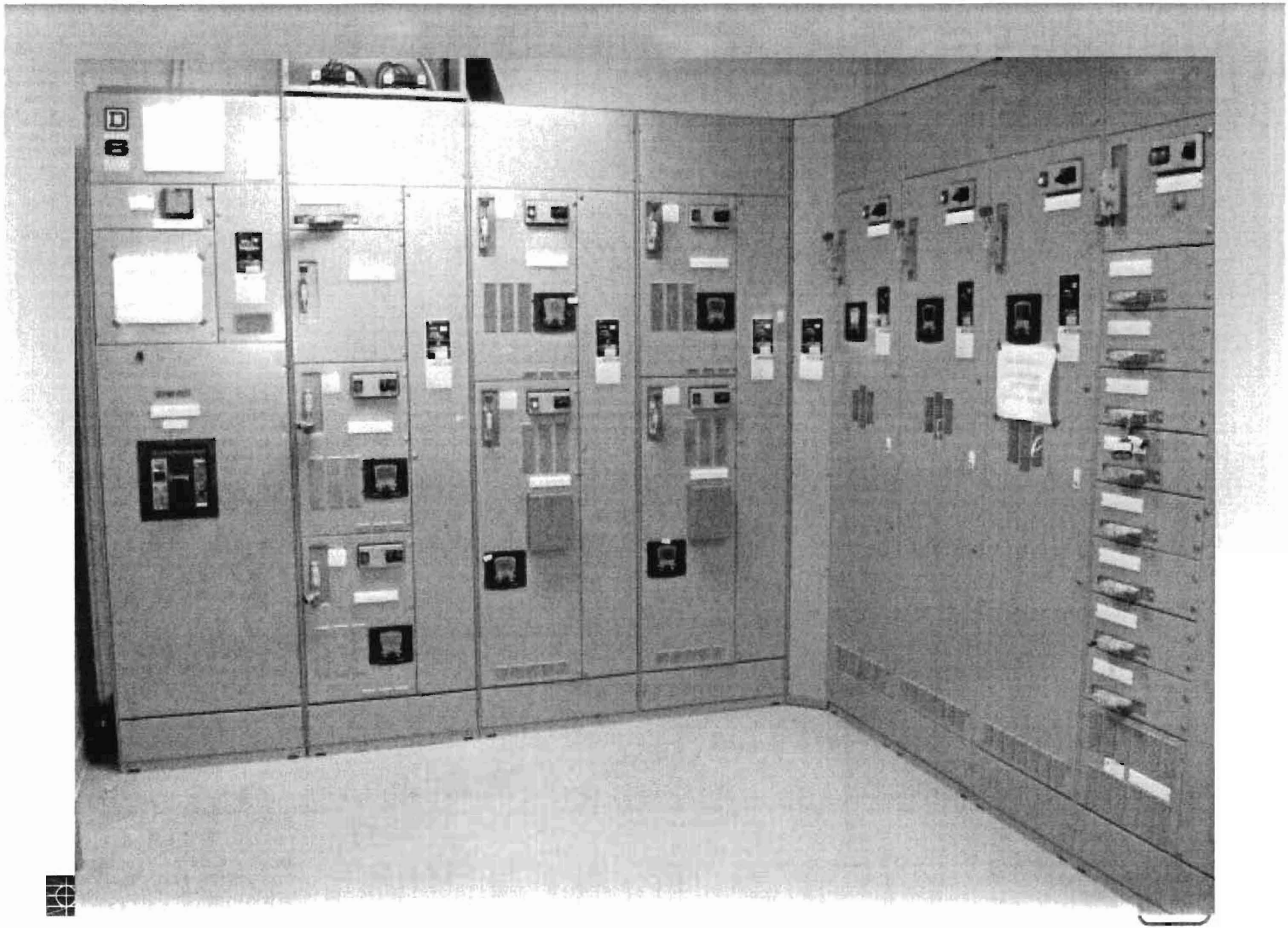

10.09.2008

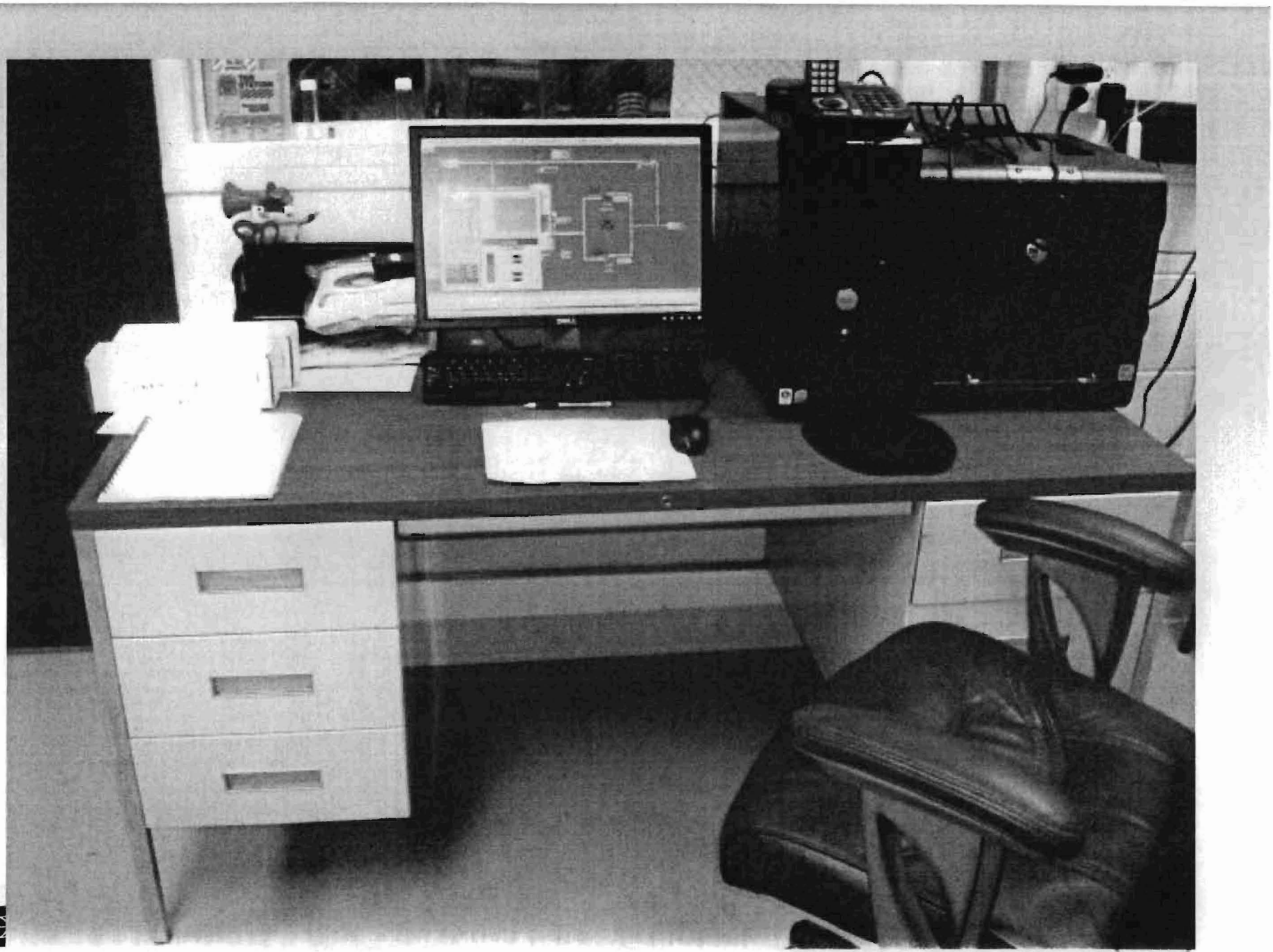
NAVFAC
Naval Facilities Engineering Command

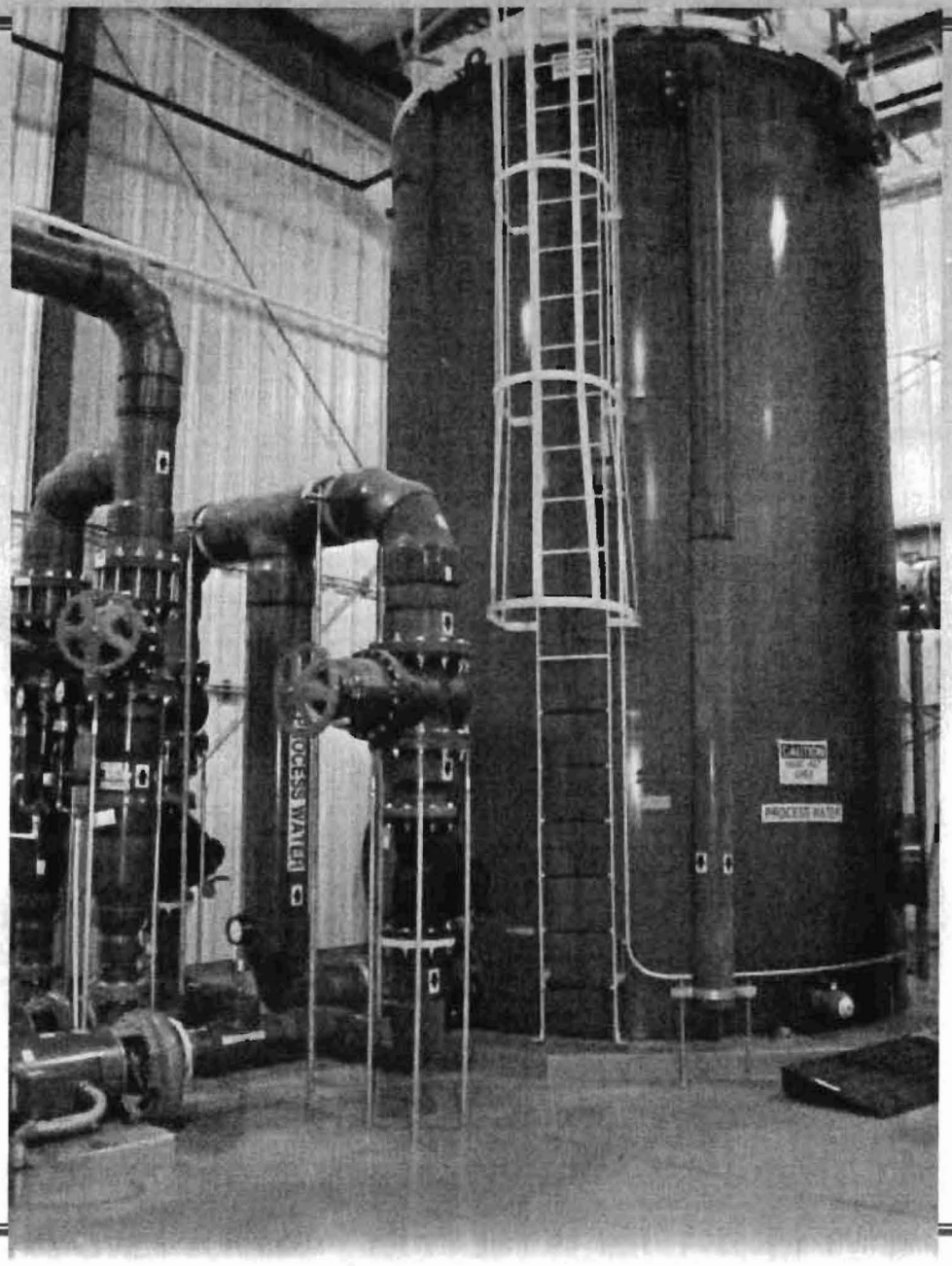
Tt

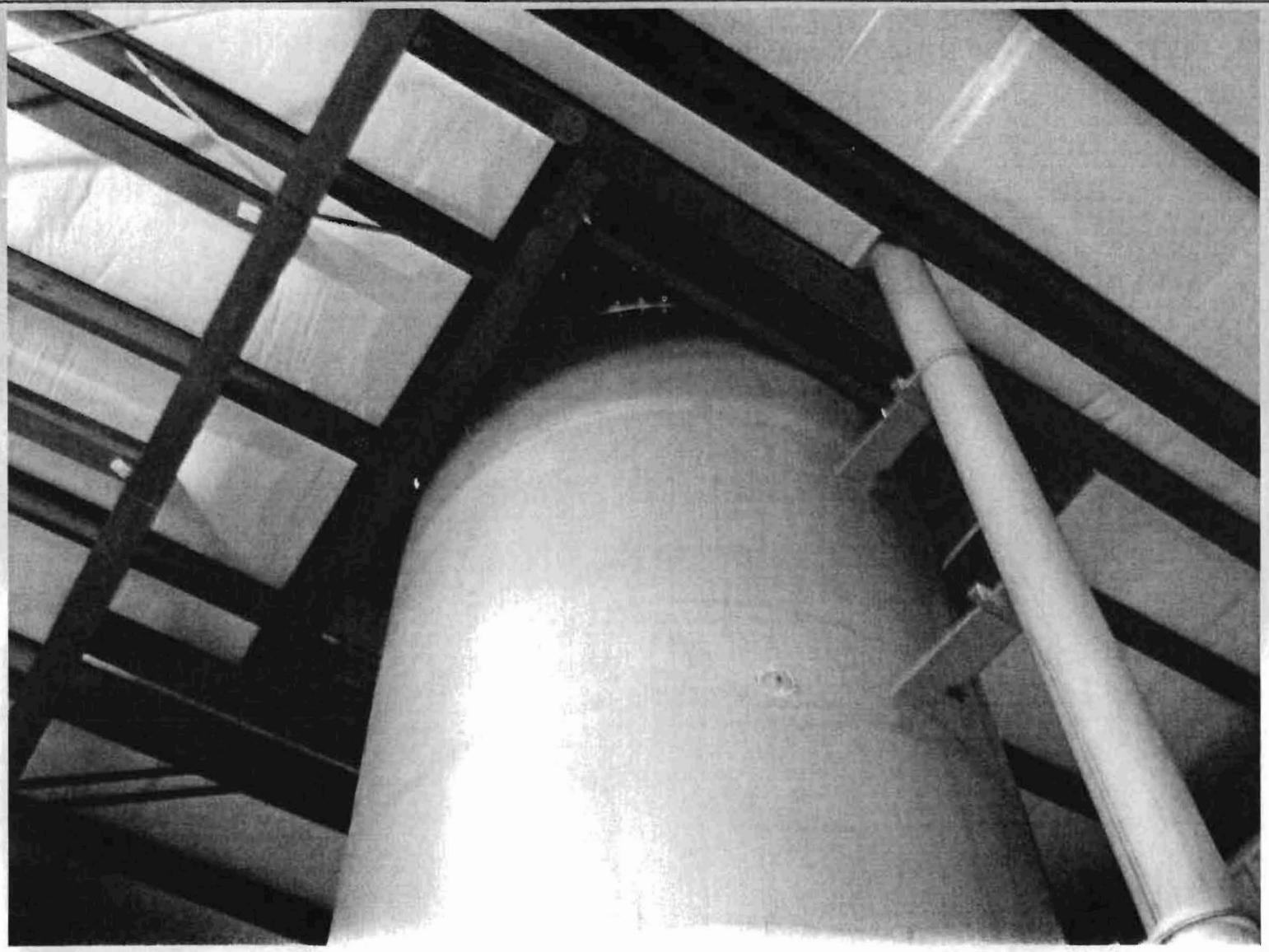

United Rentals
12-29-2008



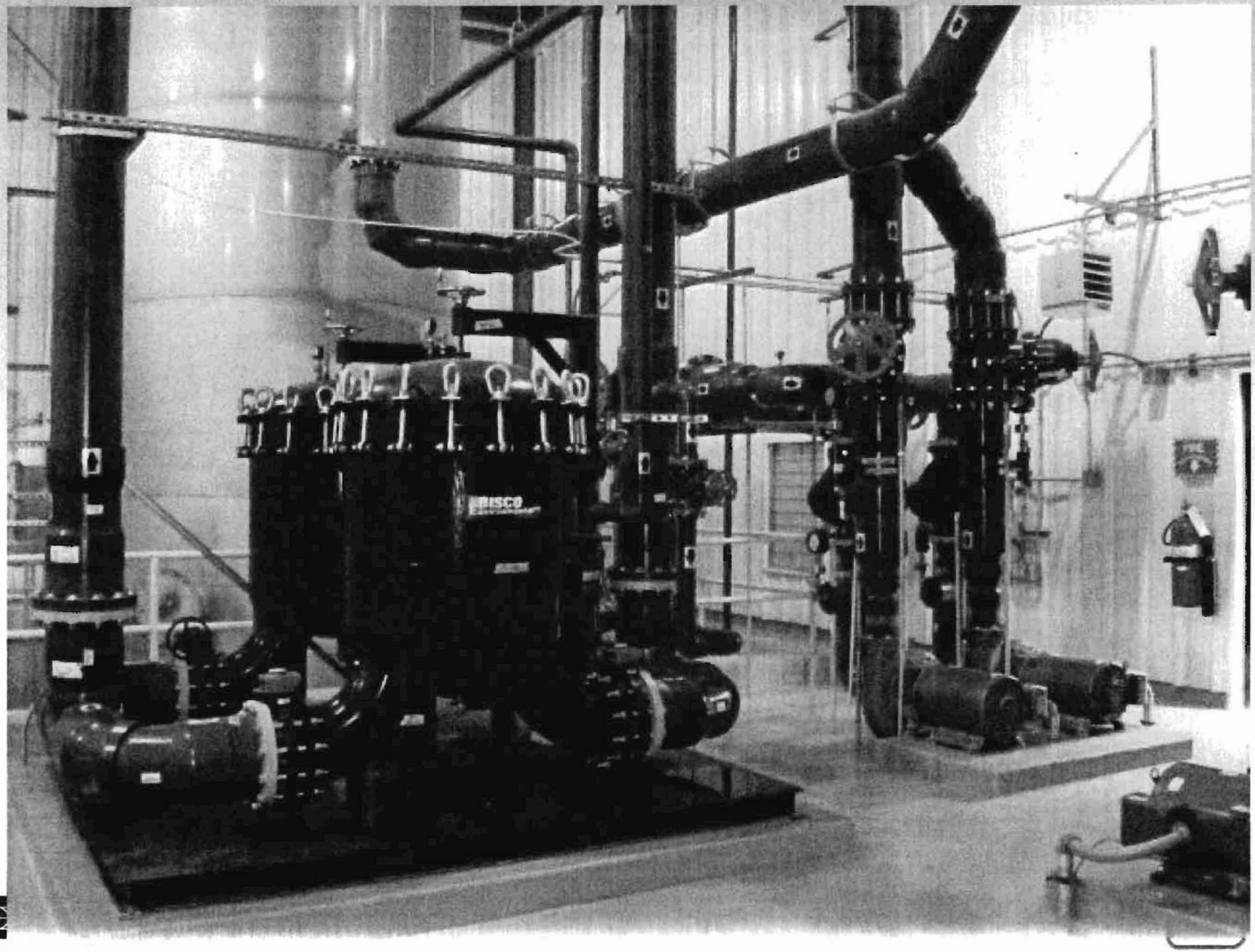


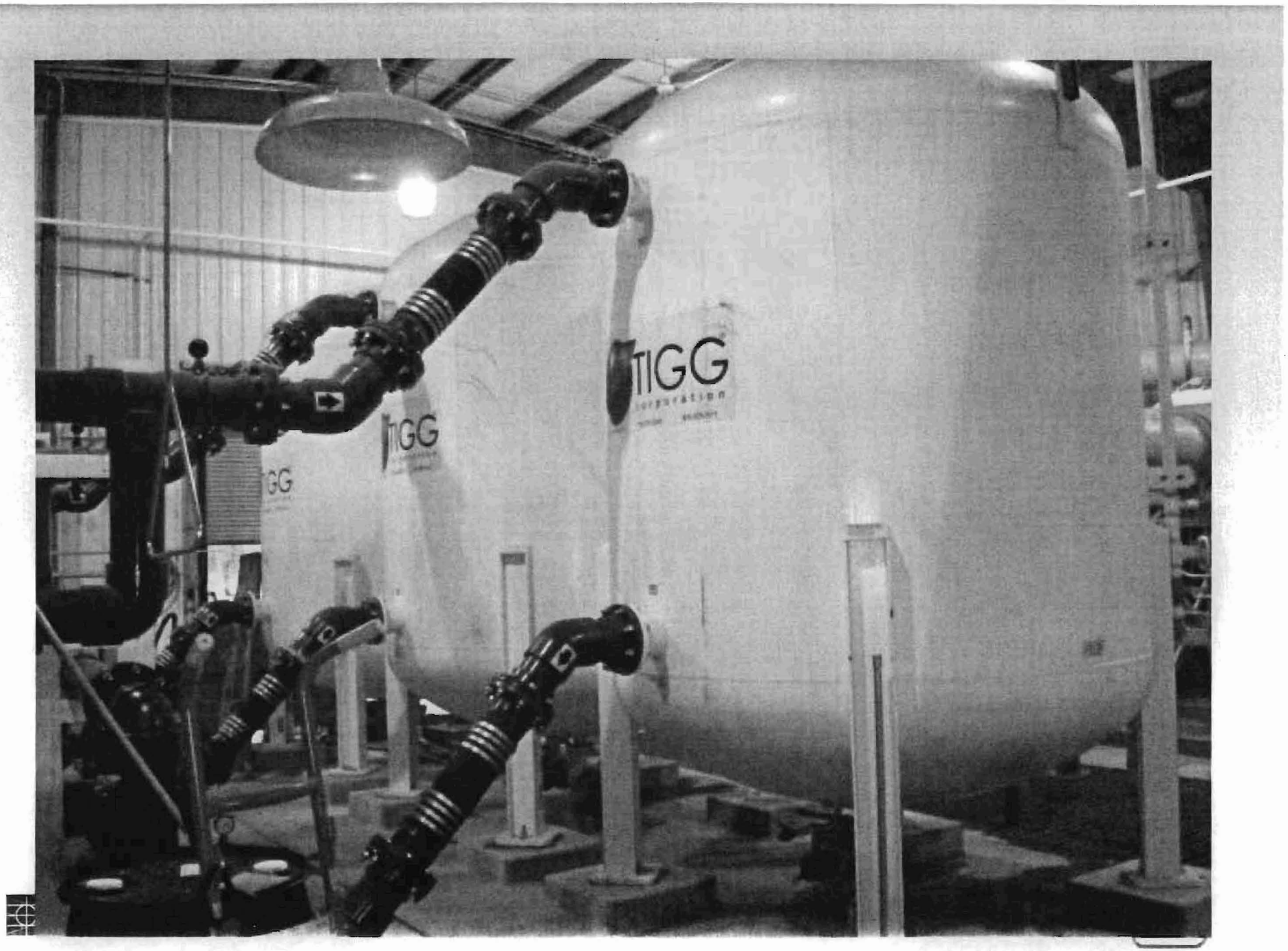


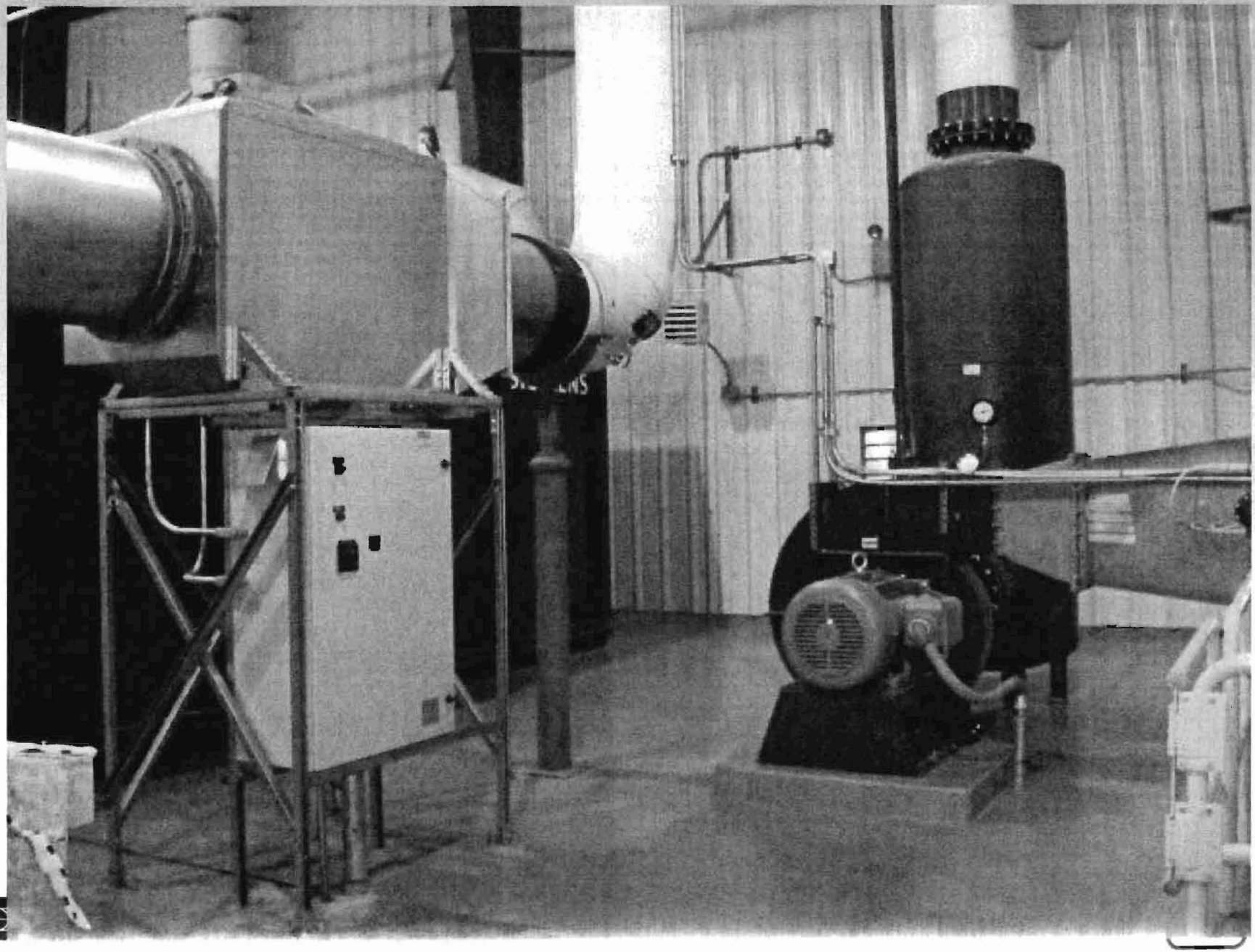

PROCESS WATER

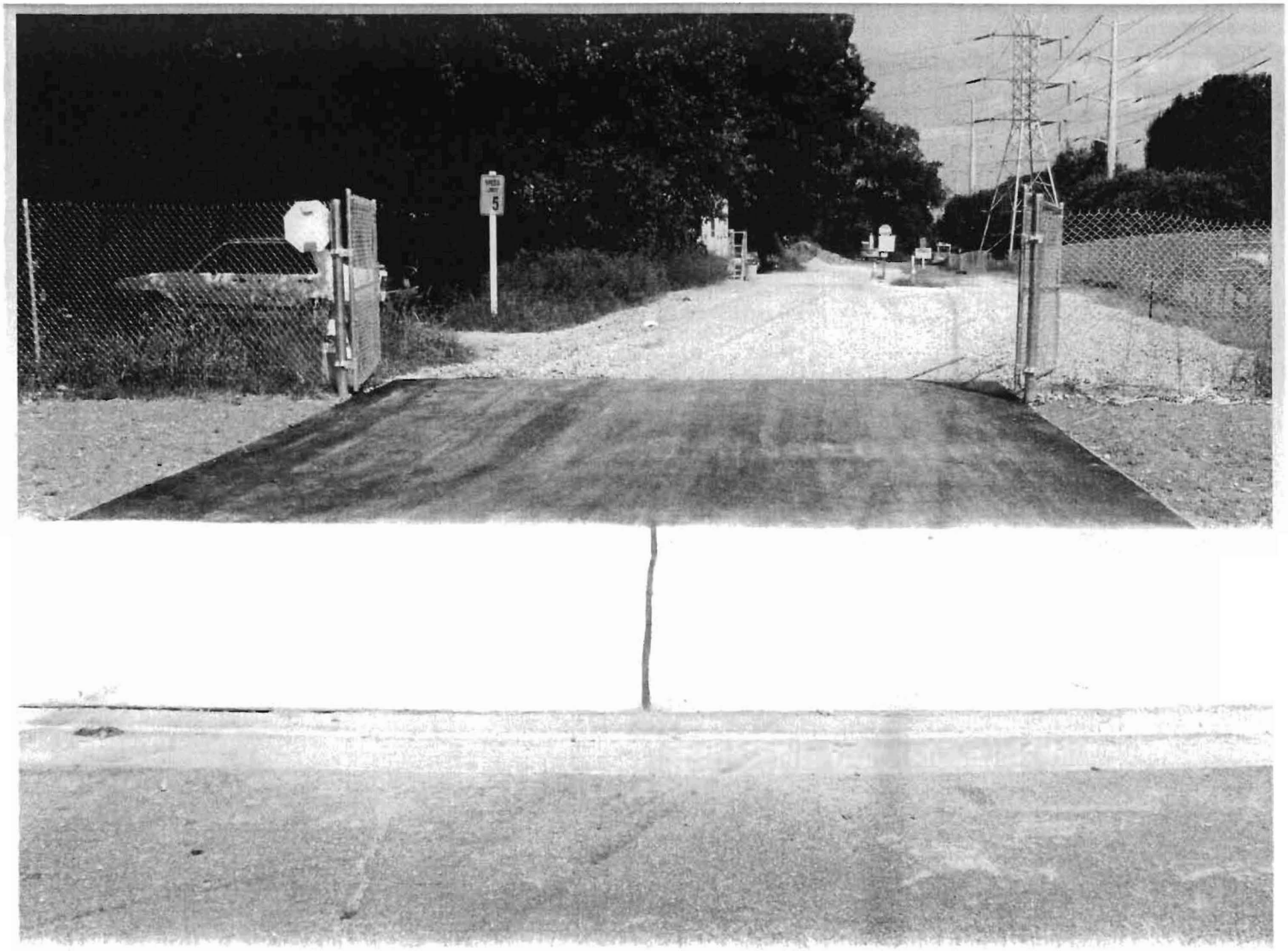


NAVFAC
Naval Facilities Engineering Command


BISCO


TIGG
TIGG




SPEED LIMIT
5

Wrap-up

Questions?