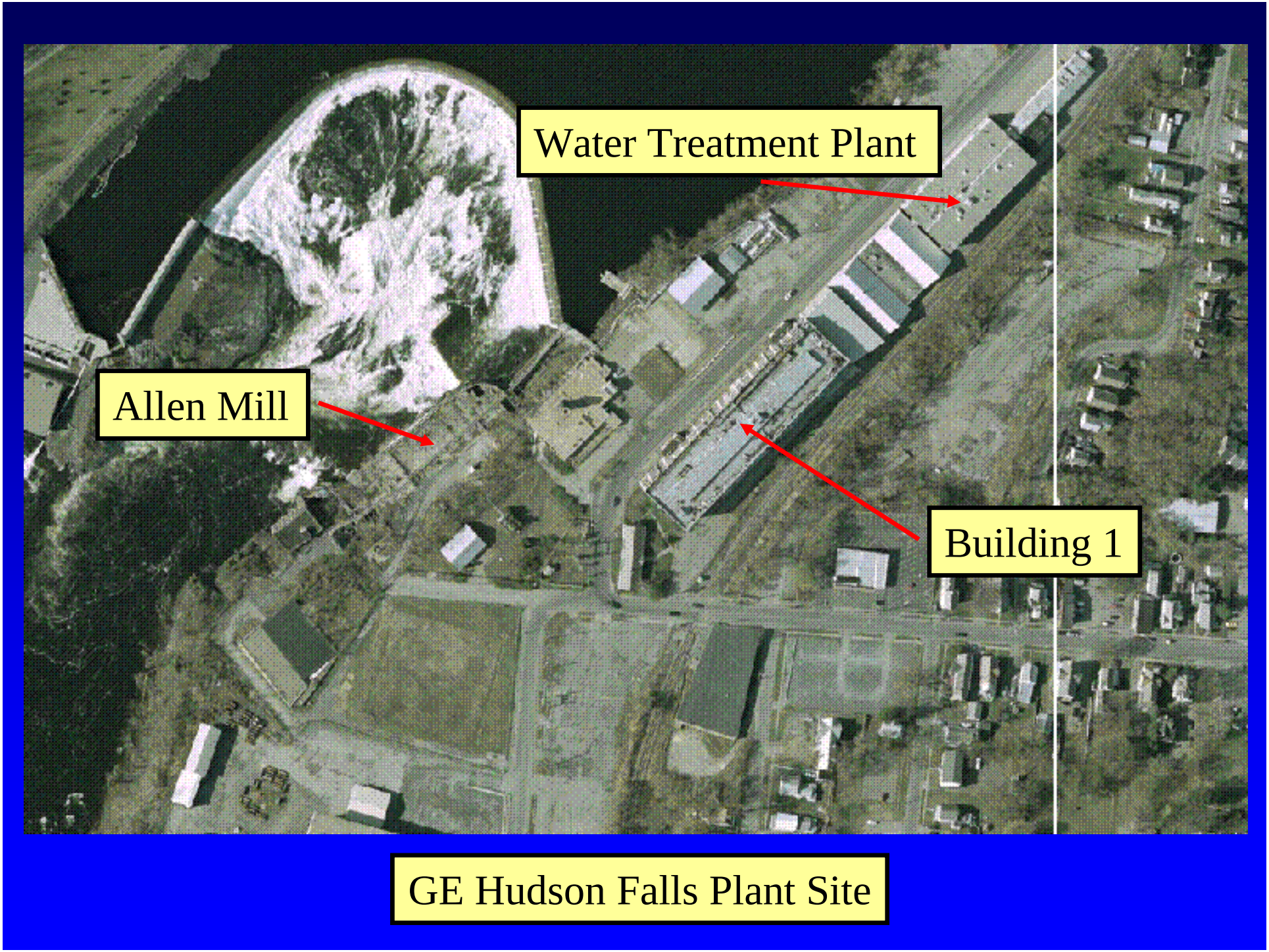
Ongoing Remedial Work at the GE Hudson Falls Plant Site and GE Fort Edward Plant Site

USEPA Community Advisory Group Meeting
November 15, 2007

Division of Environmental Remediation
New York State Department of
Environmental Conservation


GE Hudson Falls
GE Fort Edward


Water Treatment Plant
Allen Mill
Building 1
GE Hudson Falls Plant Site

Remedial Program
GE Hudson Falls Plant Site

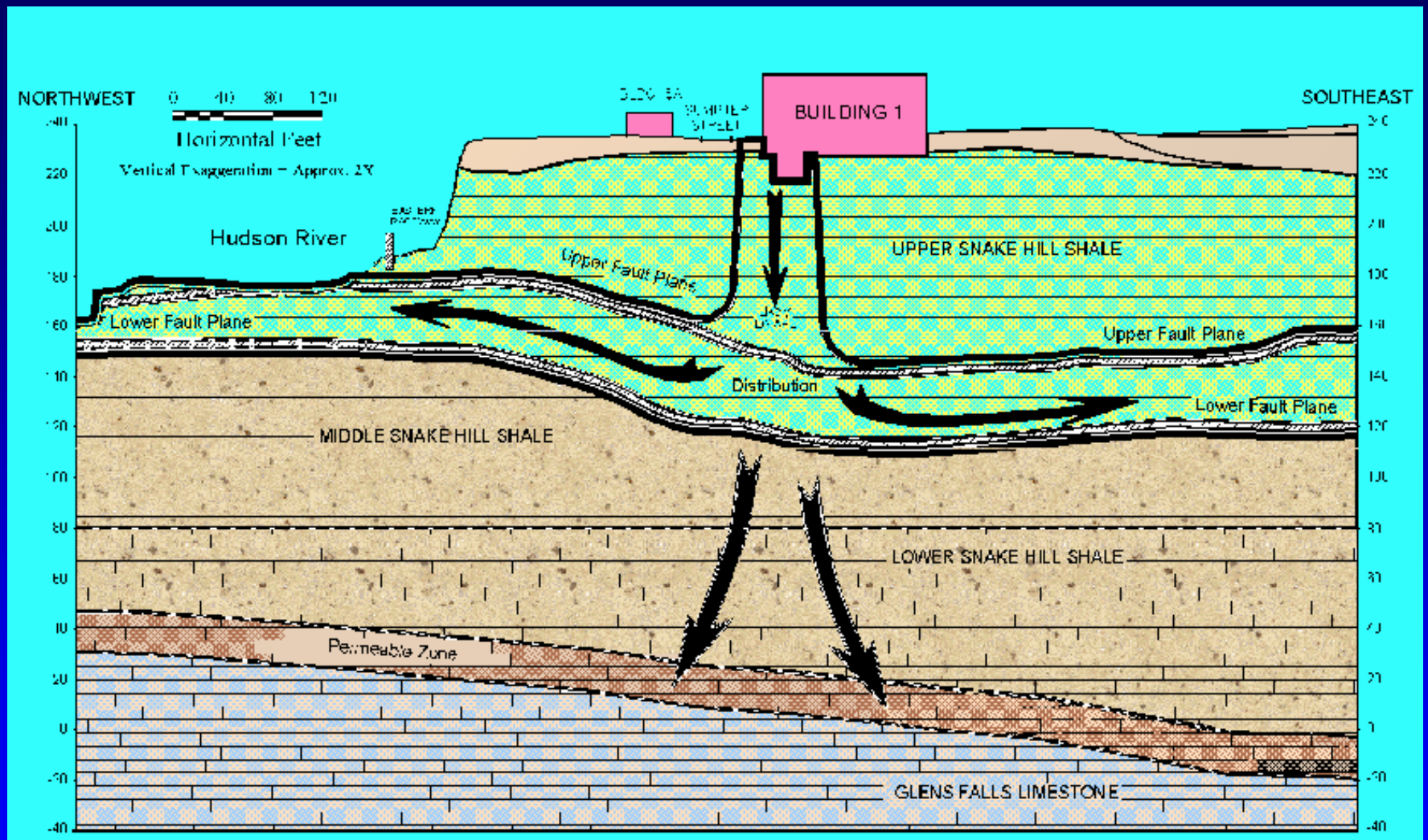
- Record of Decision (ROD) issued March 16, 2004
- ROD identifies selected remedies for overburden soils, and overburden/bedrock groundwater

Soil Remedy: Treatment/Disposal

- Building decommissioning and demolition
- Soil treatment and/or disposal, with cleanup level determined to be protective of groundwater
- Treatment technologies to be selected in design
- Monitoring program
- Institutional controls

Groundwater Remedy: Enhance Existing Remedial System with Tunnel and Drain System

- Install and operate a tunnel and drain system along the western boundary of the site to supplement the existing system
- Expand the existing wastewater treatment plant from 125 to 375 gallons per minute
- Monitoring program and institutional controls


NORTHWEST
SOUTHEAST
0 40 80 120
Horizontal Feet
Vertical Exaggeration = Approx. 2X
BUILDING 1
Hudson River
Upper Fault Plane
Lower Fault Plane
UPPER SNAKE HILL SHALE
Upper Fault Plane
Distribution
Lower Fault Plane
MIDDLE SNAKE HILL SHALE
LOWER SNAKE HILL SHALE
Permeable Zone
GLENS FALLS LIMESTONE

Remedial Work
Spring 2007

- Limited removal of contaminated soils
- Compartments 1 and 3
- Soil removal to allow access for construction of tunnel drain collection system – groundwater portion of site remedy

Photo of GE Hudson Falls plant site, displaying key locations for ongoing remedial projects at the site

Photo of GE Hudson Falls plant site, displaying key locations for ongoing remedial projects at the site

Schedule for Implementation GE Hudson Falls

- Soils removal to allow for tunnel drain collection system construction – started in late May 2007, completed in mid July 2007.
- Tunnel drain collection system – started in August 2007; construction scheduled for approximately two years.

Construction Steps

- Shaft Construction
- Tunnel Excavation
- Drain Installation
- System Fit-out

Shaft Construction

- Excavation will be by blasting of rock
- Shaft will be 24 feet in diameter, and 200 feet deep
- Rock spoil will be excavated from the shaft and staged for sampling

Shaft Construction

- Rock spoil which does not meet standards will be properly disposed off-site
- If the rock spoil meets standards, then the spoil is being placed in Compartment 3


GROVE
RT 600E


DANGER

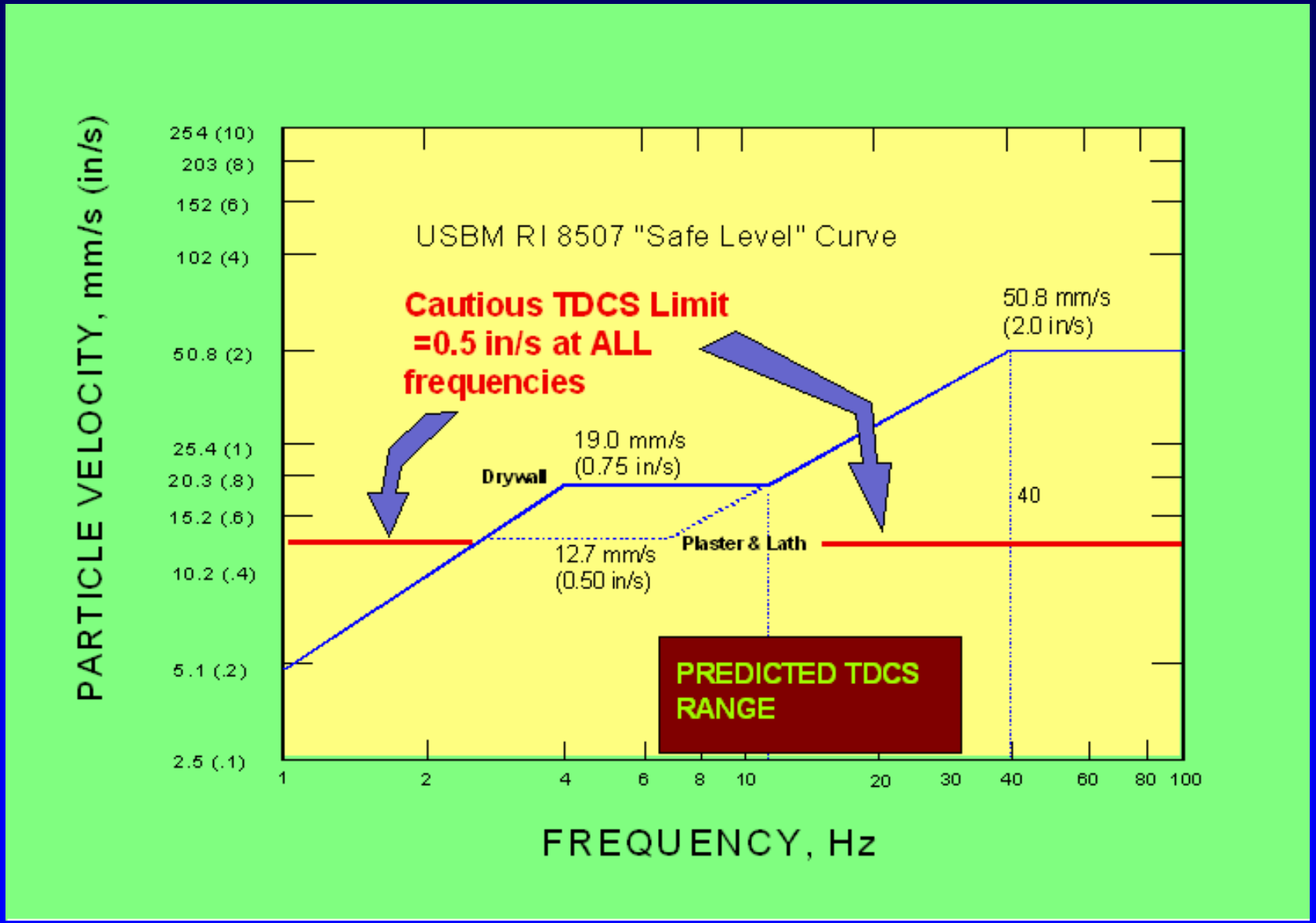

CAT
CAT
GROVE
GROVE

Blasting Program

- GE has hired an independent blasting expert to design the program to limit ground vibration
- A series of test blasts were conducted to verify the blast program design: 25% - 60% - 100% of design charge weight per delay
- Modifications to the program will be made, if needed

Blasting Program

- Ground vibration monitoring is being done to measure the impacts of blasting
- Nearby structures, including the Bakers Falls dam, are being monitored (survey of established control points after each blast) to measure impacts, if any, of blasting


PARTICLE VELOCITY, mm/s (in/s)
254 (10)
203 (8)
152 (6)
102 (4)
50.8 (2)
25.4 (1)
20.3 (.8)
15.2 (.6)
10.2 (.4)
5.1 (.2)
2.5 (.1)
USBM RI 8507 "Safe Level" Curve
Cautious TDCS Limit
=0.5 in/s at ALL
frequencies
50.8 mm/s
(2.0 in/s)
19.0 mm/s
(0.75 in/s)
Drywall
40
Plaster & Lath
12.7 mm/s
(0.50 in/s)
PREDICTED TDCS
RANGE
1
2
4
6
8
10
20
30
40
60
80
100
FREQUENCY, Hz

Instantel®

Job 774 - Hudson Falls

Date/Time	Vert at 15:47:27 October 17, 2007
Trigger Source	Geo: 0.0750 in/s
	Mic: 105 dB(L)
Range	Geo :10.00 in/s
Record Time	3.0 sec at 1024 sps
Job Number:	774

Serial Number	BE12640 V 8.12-8.0 MiniMate Plus
Battery Level	6.2 Volts
Calibration	August 14, 2007 by Instantel Inc.
File Name	N640BW81.730

Notes

Location:	Hudson Falls, NY
Client:	GE
User Name:	
General:	Unit located at GLV Warehouse

Extended Notes

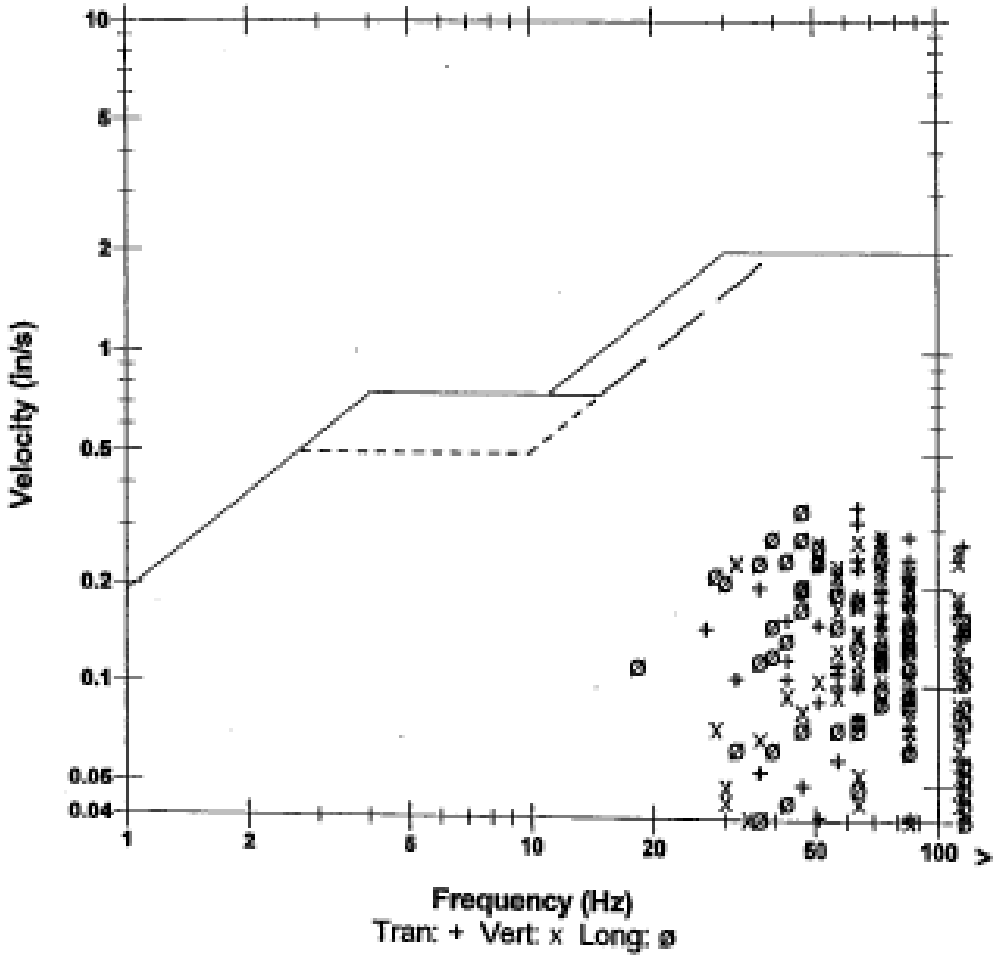
Post Event Notes

Microphone	Linear Weighting
PSPL	129.1 dB(L) at 0.313 sec
ZC Freq	22 Hz
Channel Test	Passed (Freq = 20.1 Hz Amp = 541 mv)

	Tran	Vert	Long	
PPV	0.350	0.290	0.345	in/s
ZC Freq	64	73	47	Hz
Time (Rel. to Trig)	0.028	0.022	0.464	sec
Peak Acceleration	0.451	0.424	0.358	g
Peak Displacement	0.00079	0.00087	0.00113	in
Sensorcheck	Passed	Passed	Passed	
Frequency	7.7	7.2	7.1	Hz
Overswing Ratio	3.6	3.9	4.0	

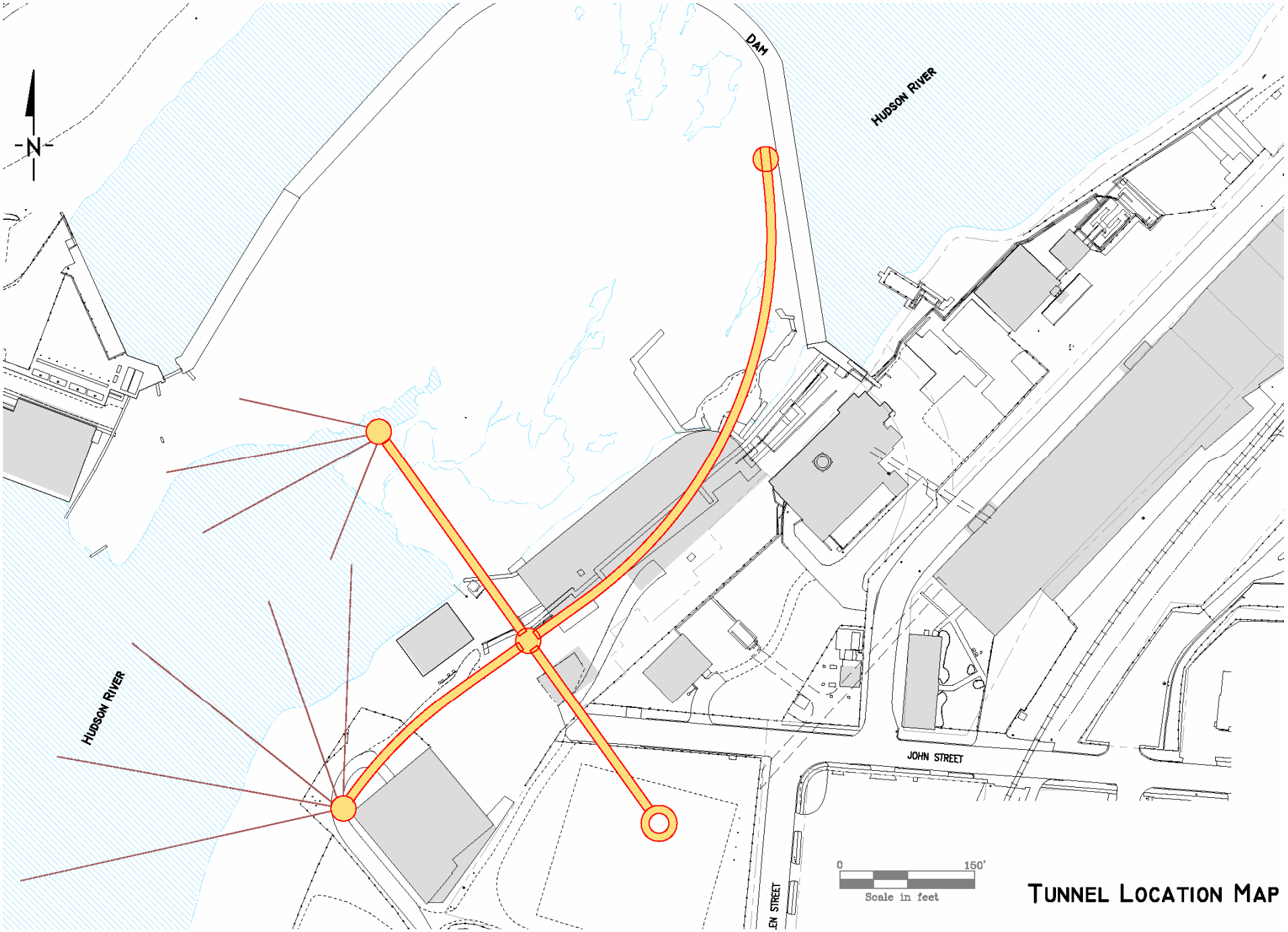
Peak Vector Sum 0.394 in/s at 0.028 sec

USBM RI8507 And OSMRE



Tunnel Construction

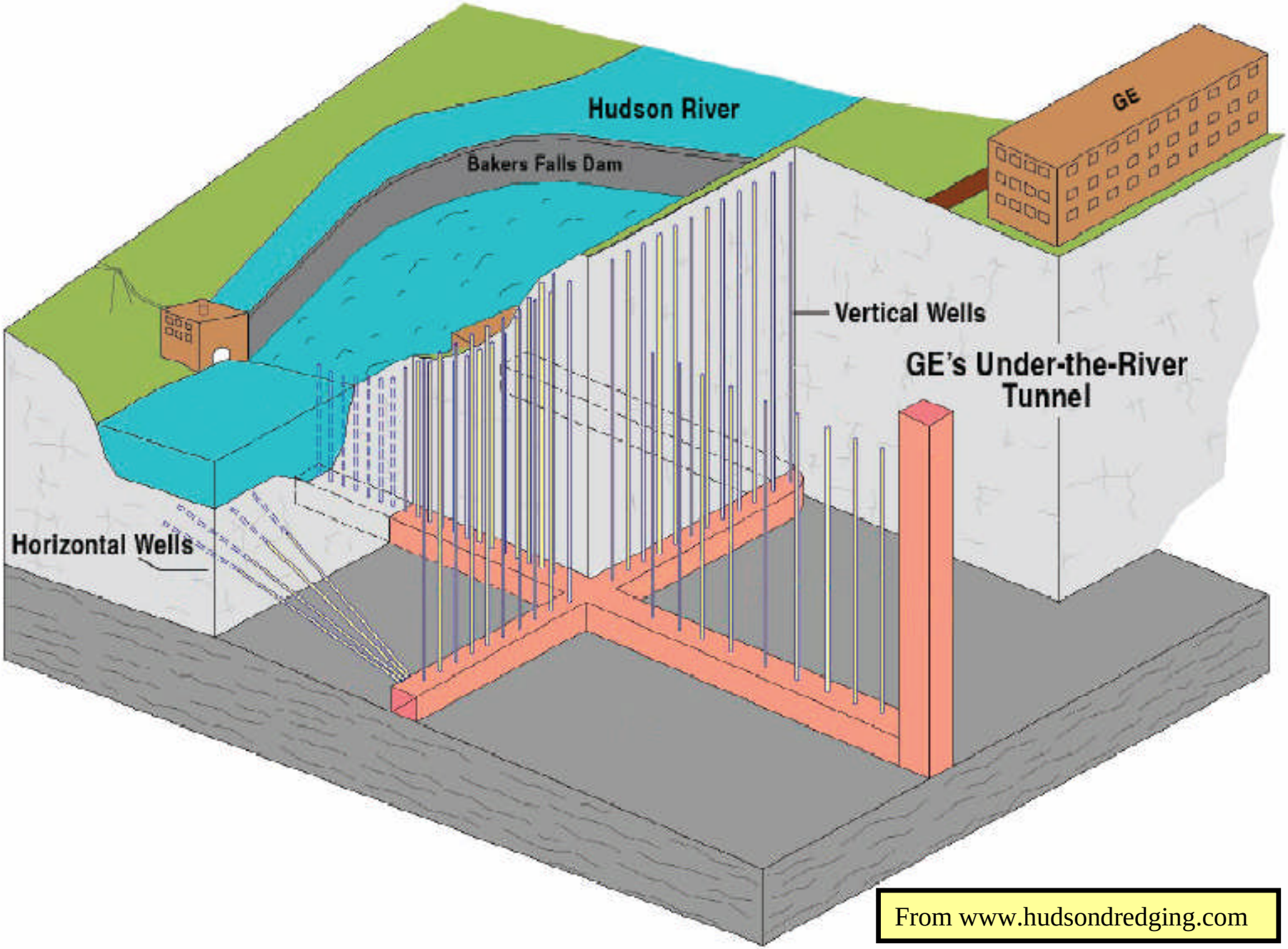
- Tunnel construction will begin once shaft excavation is complete
- Tunnel will extend along river upstream to near the Bakers Falls dam, and west across the base of the falls
- Tunnel excavation will also be done by blasting



Tunnel Location Map

Drain Installation

- Vertical drain wells will be installed from the tunnel up into the overlying bedrock to intercept contaminant flow to the river
- Drains will be connected to the site wastewater collection and treatment system



From www.hudsondredging.com

System Fit Out

- Once the drain wells are installed, the remaining work will be done to complete the system
- Includes ventilation, access, pump and control installation

Community Protection

- Air monitoring is being performed during all intrusive activities
- Dust monitoring
- Chemical monitoring being done if dust measurements are elevated above project standards, or when excavating in portions of the rock which could contain DNAPL

Project Reporting

- Blast monitoring results (ground vibration and blast overpressure) submitted within 1 day of blast
- Weekly reporting of geotechnical monitoring and air monitoring
- Standard monthly reporting

Project Contacts

- NYSDEC: Kevin L. Farrar, 625 Broadway 12th Floor, Albany NY 12233-7010

  518-402-9778 - kxfarrar@gw.dec.state.ny.us

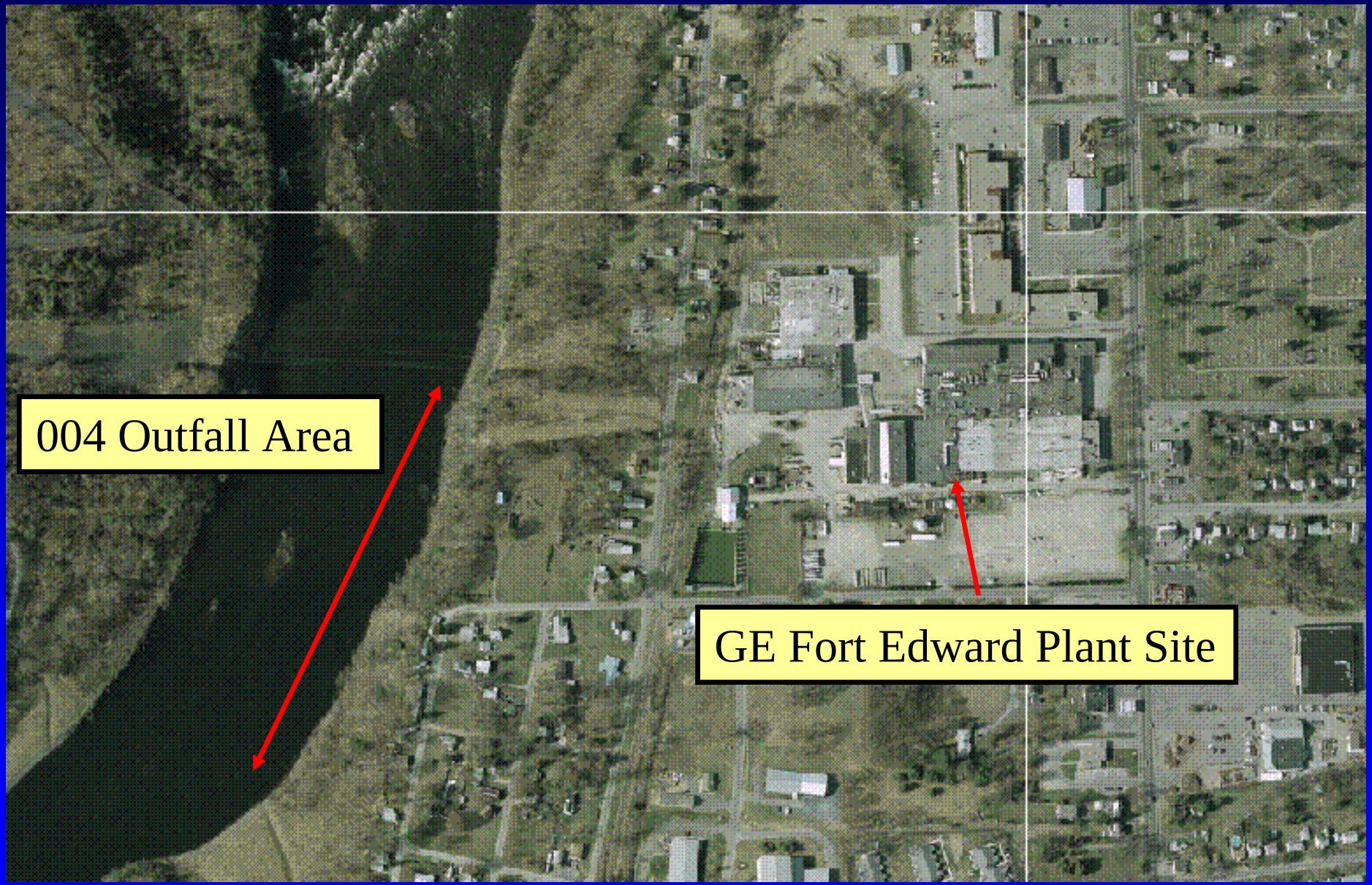
- NYSDOH: Deanna Ripstein, 547 River Street, Troy, NY 12180-2216

  518-402-7870 - dmr13@health.state.ny.us

- GE: Joan Gerhardt, P.O. Box 295, Fort Edward, NY 12828

  518-792-4087


GE Hudson Falls
GE Fort Edward


004 Outfall Area
GE Fort Edward Plant Site

Remedial Program
GE Fort Edward Plant Site

- Record of Decision (ROD) issued February 2000 for Operable Units 3 and 4
- ROD identifies selected remedies for main manufacturing area (OU3) and former 004 outfall area (OU4)
- OU3 and OU4 RA construction complete

OU4 RA

- Implemented using SSF in 2003-04
- Removal of soils / sediments adjacent to and downstream of former 004 outfall to Hudson River
- River diversion using bladder cofferdam to allow for construction access
- NAPL seeps observed in river bottom during removal


28 9:14AM


23 8:28AM

Initial Bedrock Investigation - 2003

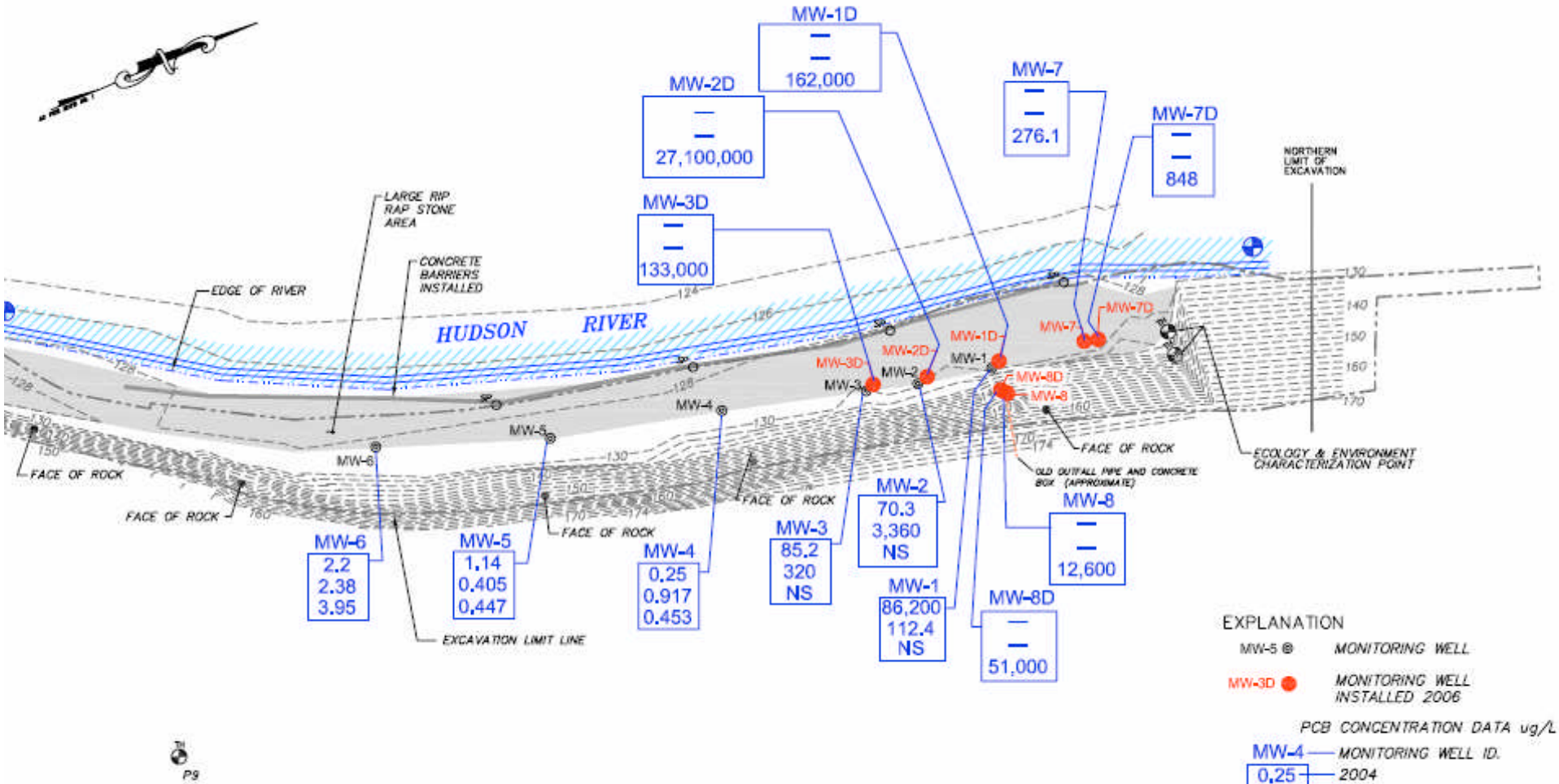
- NYSDEC installed 6 shallow (~ 5 ft. in rock) in late 2003 to evaluate potential for NAPL to be within bedrock
- PCB DNAPL found to be present in shallow bedrock in vicinity of former outfall box
- Additional investigation required

Preliminary Bedrock Investigations - 2005

- Order for additional investigation issued in summer 2005
- Limited scope of work, with provisions for additional work if determined necessary
- Additional bedrock wells installed to evaluate presence / absence of PCB DNAPL in rock

Preliminary Investigation Findings

- GE report on preliminary investigations submitted in early 2007
- PCB oil identified at depth (20 feet) in bedrock
- NYSDEC determined that it is necessary to determine nature and extent of NAPL in bedrock



NOTE:

1. REFERENCE DRAWING IS SHEET 2 OF 11, MADE BY ECOLOGY & ENVIRONMENT ENGINEERING, P.C., DATED 11/6/01, C.A.D FILE NO. NY05-1.dwg.
2. COORDINATES AND ELEVATIONS BASED ON INFORMATION THAT WAS OBTAINED ON CONTROL POINTS NOTED IN DRAWING AS BASELINE 300 & 301, THAT WERE FOUND & CHECKED IN THE FIELD.
3. CONTOUR LINES FROM AN ACTUAL FIELD SURVEY BY W.J. ROURKE ASSOCIATES, DONE WITHIN THE EXCAVATION AREA, ALONG THE NEW STONE ROAD TO SITE ENTRANCE, DATED JULY 15, 2004.

0 80
Scale in feet

TITLE: Sample Location Map with PCB Concentration Data

LOCATION: GE Fort Edward, 004 Outfall

GeoTrans, Inc. A TETRA TECH COMPANY

CHECKED	JRB
DRAFTED	RMK
FILE	
DATE	Jan 2007

FIGURE 3-2

Ongoing Remedial Investigation (RI)

- GE currently implementing the RI with State oversight
- The objective of the investigation is to delineate the extent of PCB oil in bedrock

Investigation Work

- Monitoring wells were initially installed at a number of locations in the vicinity of the former outfall structure to a target depth of 50 feet; limited open intervals in rock
- All intervals were cored; each identified discrete open horizon was evaluated for well completion
- Rock core samples were sent to lab for rapid turn around PCB analyses

Investigation Work

- Wells bailed / developed to check for DNAPL presence
- Groundwater samples collected for rapid turn around PCB and VOC analyses
- Some well locations adjusted in the field in response to initial investigation results
- Additional well locations / depths added

Findings To Date

- PCB DNAPL identified at depth (> 100 feet) in vicinity of former outfall structure
- PCB DNAPL vertical or horizontal extent not yet delineated
- Discrete fractures in bedrock found to contain PCB in rock core samples

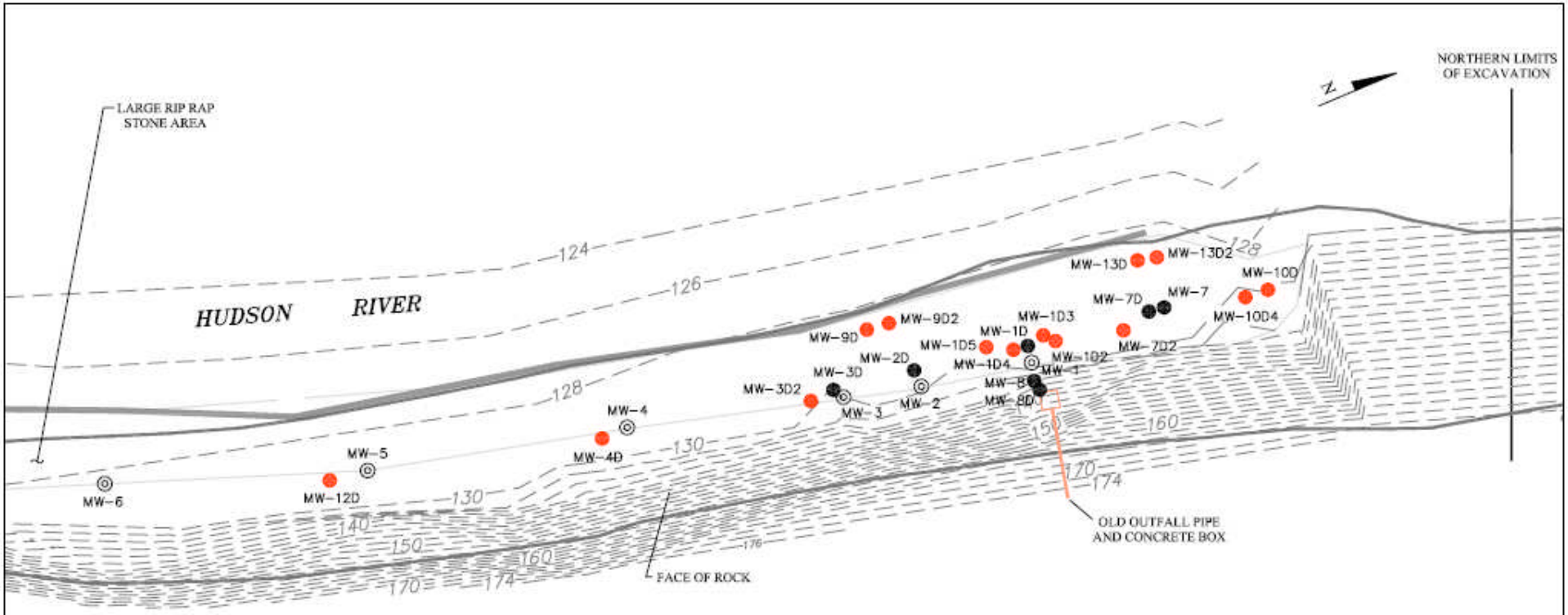


Figure 1
Monitoring Well Locations.
GE Fort Edward, Former 004 Outfall

QEA
Quantitative Environmental Analysis, LLC


Flexshield
Z8Z17-AP

Next Steps

- The overall scale at which the investigation is being performed is being modified; the PCB oil in bedrock is potentially not limited to the immediate vicinity of the former outfall
- The next targeted interval is the middle Snake Hill Shale at approximately 130 - 140 feet depth; same stratigraphic interval which is targeted by the TDCS at the Hudson Falls plant site