



NMP3 USEPR Subsurface Investigation and Site Characterization

NRC Site Visit
October 9 – 10, 2007

Agenda

10/9/07

1300 – Meet NRC Team at UniStar site headquarters

1315 – Safety Briefing

1330 – Geotechnical Review Activities

10/10/07

0800 – NRC (entire team) gathers at UniStar site HQ

0810 – Presentation on NMP Site Characterization Project activities

0900 – Safety briefing

0915 – SUV tour of the site

1030 – Site Visit Review Activities

1145 – Lunch

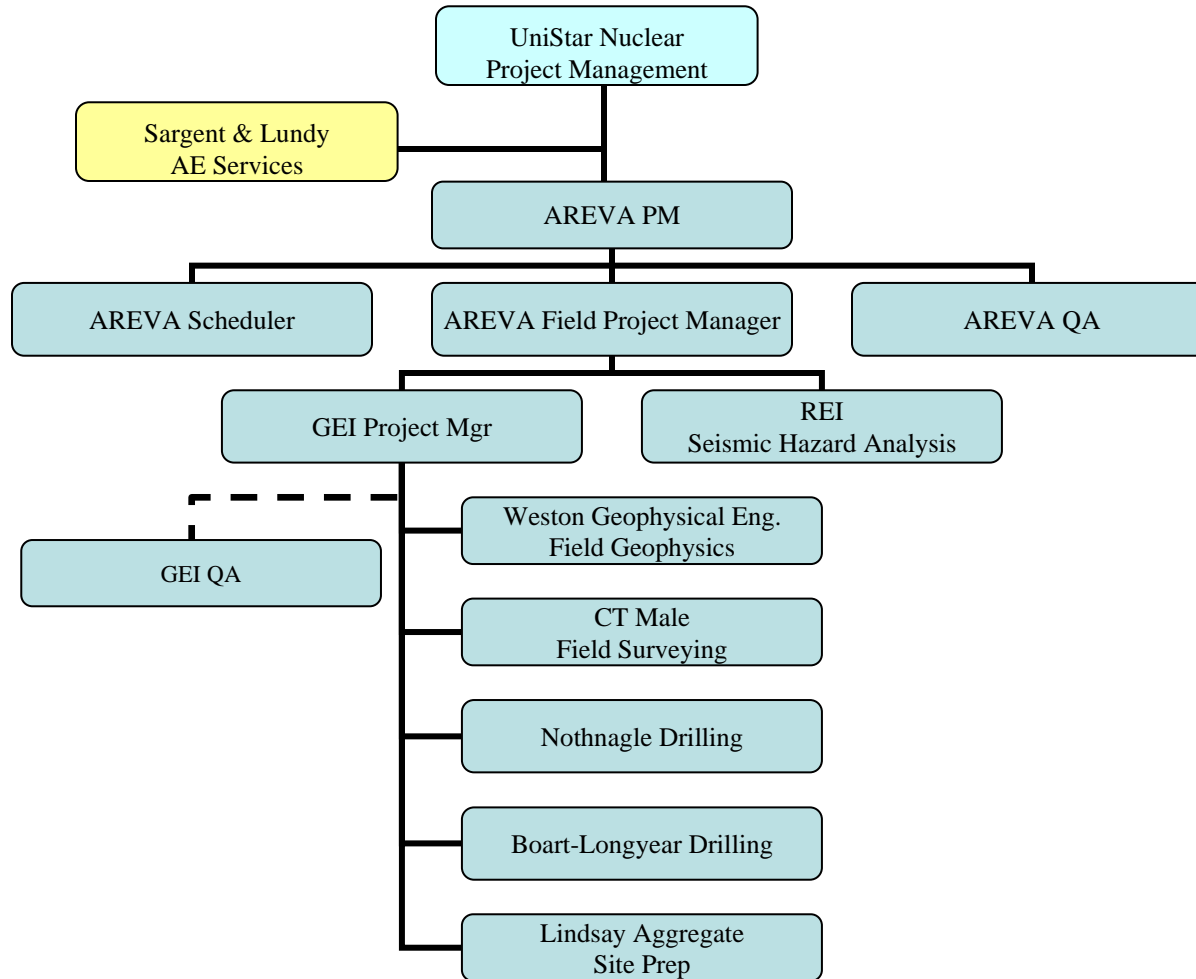
1230 – Site Visit Review Activities

1630 – Exit Meeting

NMP3 Project Overview

- NMP3 Site Description
 - Mostly wooded with significant wetlands on the available property
 - Conceptual design of water intake to finalize borings
- Site Selection and Layout
 - Located the unit north of Lake Rd. and west of NMP U1
 - Optimized location and orientation around wetlands to facilitate subsurface investigation field work
 - Optimized proximity to lake to minimize intake tunneling
 - S&L developed site layout and alternatives analysis for Makeup Water Pumphouse/piping, finalizing this week

NMP3 Site Characterization Organization Chart



Site Map
(Reference)



Met Tower

Center Line
of New
Reactor

NMP
Security
Checkpoint

Subsurface Investigation - Project Scope

Site Characterization Field Work

- Investigations of:
 - Soil
 - Bedrock
 - Ground Water
- Soil borings
- Bedrock cores
- Monitoring wells: water levels and sampling
- Seismic refraction and cross-hole work

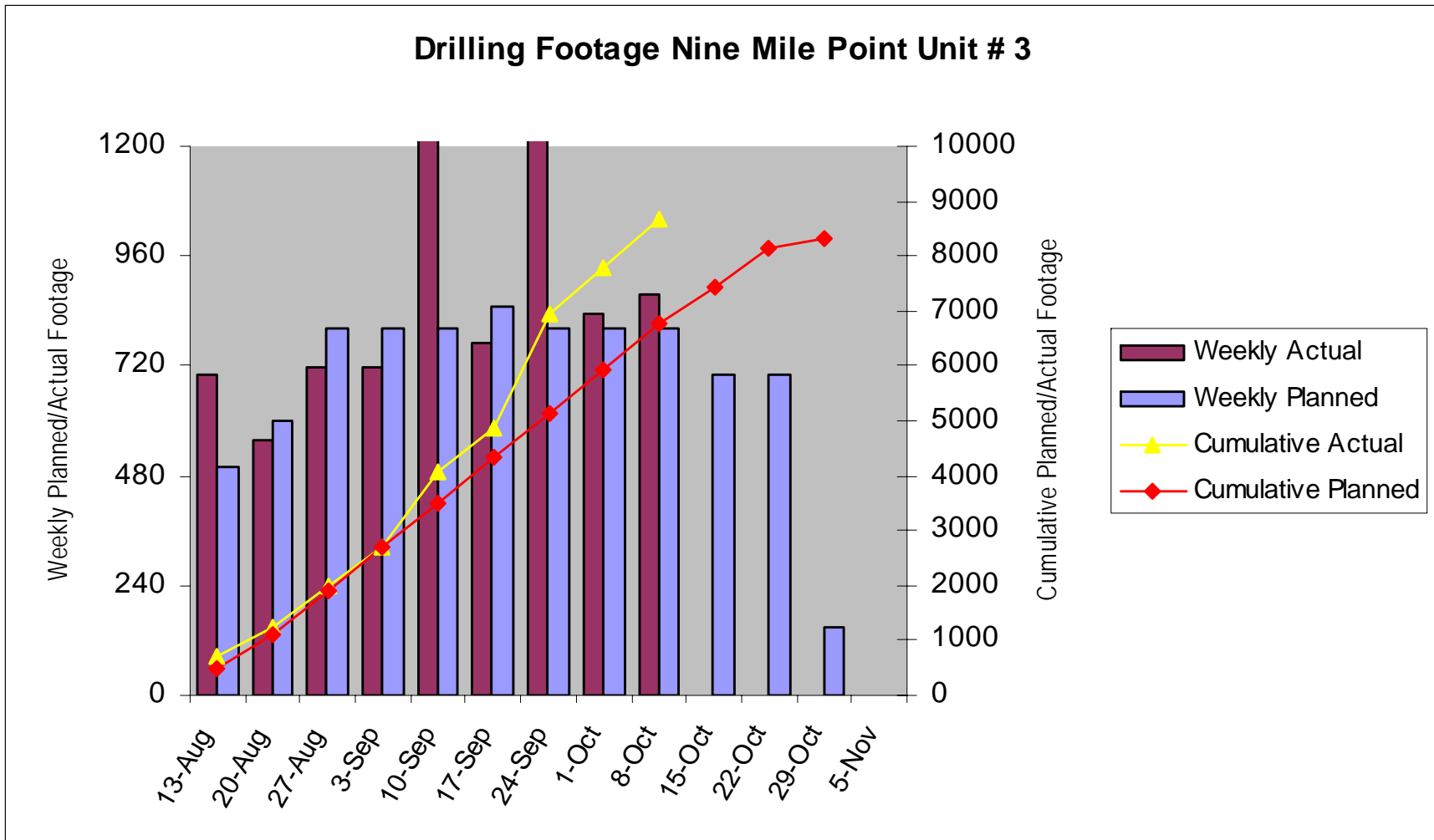
Subsurface Investigation

- References
 - Basis for site characterization work is derived from:
 - R.G. 1.132 Site Investigation for Foundation
 - R.G. 1.138 Lab Investigation of Soils
 - R.G. 1.198 Soil Liquefaction (likely NA)
 - R.G. 1.206 Combined License Applications
 - NQA-1, 1994, Subpart 2.20

Subsurface Investigation: Fall 2007

- Scope/Production Data
 - 33 Bedrock monitoring wells
 - 75 Geotechnical borings
 - About 9000 feet of rock core
 - 12 boreholes with multiple permeability tests in rock
 - 12 Seismic refraction lines
 - 2 cross-hole seismic arrays/6 geophysics borings
 - Offshore seismic refraction in planning

Drilling Progress



Subsurface Investigation

- Programmatic Approach: NQA-1
 - Work done under the AREVA QA Program
 - Approved Procedures: AREVA, GEI and WGE
 - Applicable Document List
 - AREVA Documentum system
 - Planning: Use of Work Plans for field work execution
 - QA in-process surveillances
 - Sample handling and storage (procedure)
 - Qualification and training
 - Records: all technical field documentation captured

Subsurface Investigation – QA Program

AREVA is delegated responsibility by UniStar Nuclear to perform site characterization work under their QA program

- AREVA has been audited and approved by UniStar Nuclear
- UniStar Nuclear observes site characterization activities to ensure quality meets expectations

AREVA is responsible for corrective action program implementation:

- Issues have been identified and corrective actions taken

NMP Geological Summary

- Depth to Bedrock:
 - 0 to 30 feet; Average 15 feet
- Soils:
 - Fill in some areas
 - Unconsolidated glacial deposits, minor clay, local till
- Bedrock:
 - Regional dip < 5 degrees south
- Oswego Sandstone (10 to 20 Feet)
 - Massive, siliceous sandstone (thin shale, siltstone)
 - Transition zone – Alternating sandstone, shale; 6 to 12 inch shale at base

NMP Geological Summary

- Pulaski Fm (120 to 140 feet):
 - Argillaceous sandstone; Interbedded fossiliferous shale, siltstone; 0.25 to 3.0 inch green marker horizon
 - Interbedded shale, siltstone, sandstone; 1 to 12 inch fossiliferous shale marker horizon
 - Siltstone, shale, Interbedded sandstone; 3 to 5 foot sandstone at base
- Whetstone Gulf Fm – siltstone, shale, interbedded sandstone, fossiliferous
- Fractures:
 - Typically low angle, clean (bedding plane)
 - Occasionally clay filled
 - Rare sulfide or Fe-oxide
 - Rare high angle, clean, generally in sandstone
 - RQD > 85%, sometimes more fractured in top 5 feet

NMP Hydrological Summary

- Surface water bodies:
 - Lake Ontario to the North
 - Intermittent drainage where wetland crosses site at North
- Regional groundwater gradient approximately 0.7% to N-NW
- Depth to groundwater > 9 feet (bgs), commonly dry to 50 feet when air hammer drilling. No perched groundwater observed. Shallow wells planned.
- Pressure testing:
 - Oswego – unconfined aquifer
 - 1.2 to 19 gal.
 - Pulaski – confined aquifer, locally methane – bearing
 - < 1 to 23 gal.
 - Whetstone – confined aquifer
 - < 1 to 2.4 gal.