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Citizens Advisory Board
C-400/Groundwater Subcommittee Summary
May 17, 2012, 5:30 PM

Attendees: Ralph Young, Maggie Morgan, Gaye Brewer, Buz Smith, Eddie Spraggs, Jeff Carman, Stephanie Brock, Dylan Nichols, Todd Mullins, Turpin Ballard, Nathan Garner, Eric Roberts and Jim Ethridge

Carman gave a groundwater update presentation. Areas covered in the update included the NE/NW plumes Interim Remedial Action (IRA) and optimization, the SW plumes sources, and the dissolved phase plumes.

Young asked if the discharge from the cooling tower treatment of the NE plume was permitted and sampled. Mullins said that there was an allowance for how much was released to the air during the treatment.

Carman explained the different treatments for Phase IIa and Phase IIb of the IRA. Phase IIa will be treated by electrical resistance heating (ERH). Phase IIb will be treated by chemical oxidation.

Young expressed concern over the public's concept of the treatment and what affects it will have on the natural system. Ballard agreed that it was just a perception issue and that the soils will be protected for future use of the site.

Nichols gave a presentation on development of a video/presentation on the success of the groundwater treatments implemented at the site. Morgan and Young agreed with the direction Nichols had laid out as a path forward.

Morgan adjourned the meeting at 6:40 pm.

Groundwater Operable Unit Update

Paducah CAB GW Subcommittee

May 17, 2012

Topics

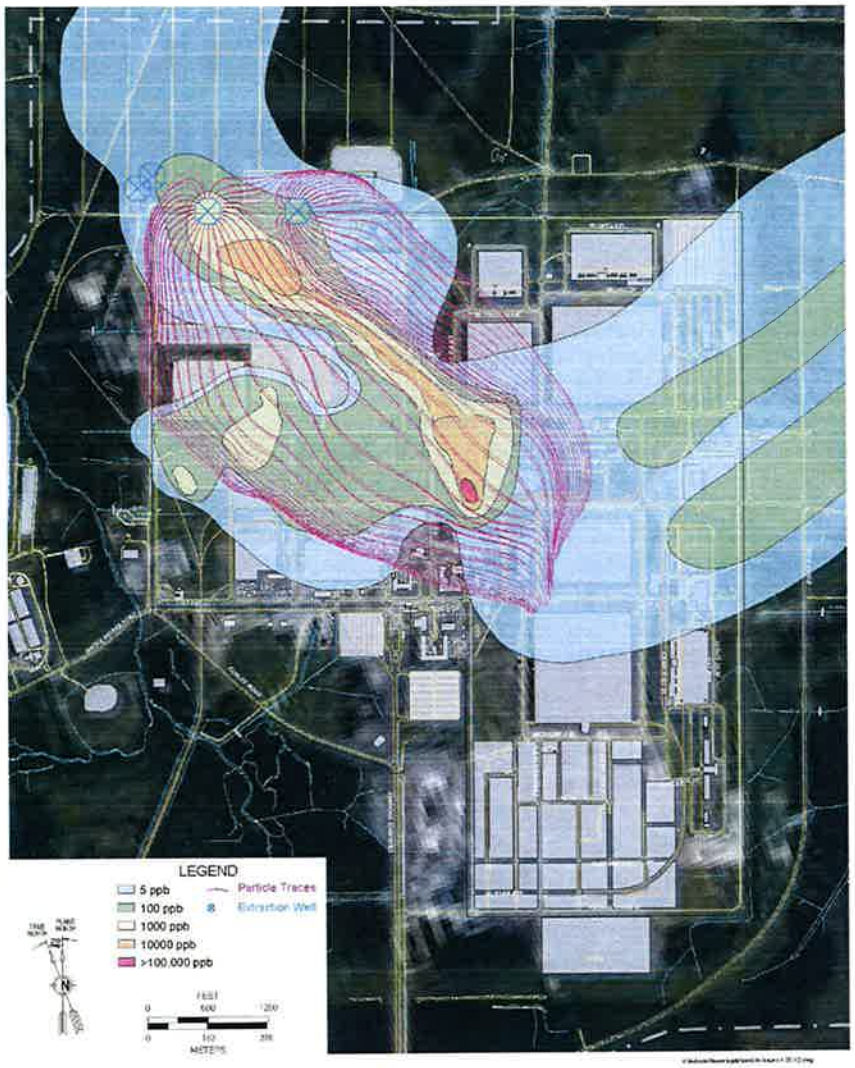
- NW/NE Plumes IRA / Optimization
- SW Plume Sources
- Dissolved Phase Plumes

NW and NE Plume Extraction IRA

- NW Plume IRA
  - Control high mass centroid migrating off site
  - 4 EWs – South and North Wellfields
  - Optimized in 2010 with 2 new EWs
- NE Plume IRA
  - Control high mass centroid migrating off site
  - 2 EWs
  - Optimization underway in 2012
    - Currently in the design phase
    - Construction and operation in FY2013

NW / NE Plume System Optimization

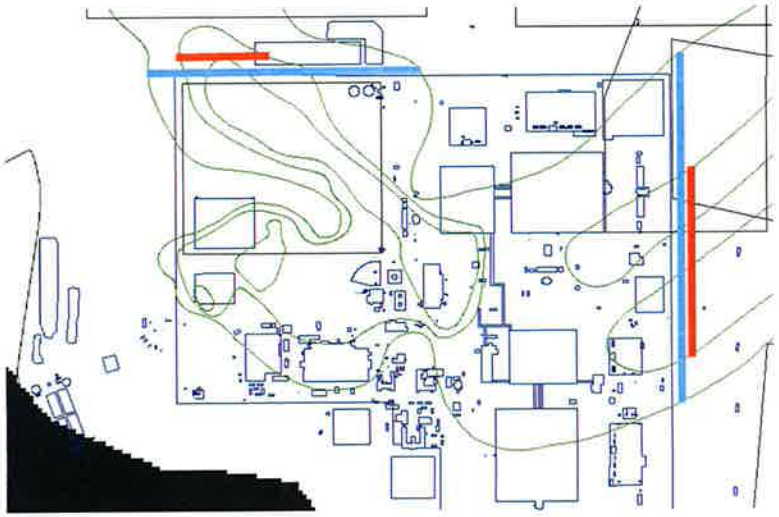
- Optimization modeling used 2008 PGDP Sitewide GW Flow Model
- NW Plume Groundwater System optimization was completed in 2010
  - Two new extraction wells installed along the north fence line
- The GW model recalibration was completed in April 2012



NE Plume System Optimization

- The recently recalibrated GW model is being used to optimize the well field design
- Objective is to increase plume capture and compliment NW Plume optimization
- Up to four extraction wells are to be installed along the east fence line and near the northeast corner of the PGDP
- A new treatment system will replace the air stripping capability of the cooling towers
- The optimized system is targeted to begin operations in September 2013

	V1	V1	V2	V2	V1	V1	V2	V2
Date	Across NW Plume, gpm	Across NW Plume Core, gpm	Across NW Plume, gpm	Across NW Plume Core, gpm	Across NE Plume, gpm	Across NE Plume Core, gpm	Across NE Plume, gpm	Across NE Plume Core
Feb-95	186	54	267	76	354	257	548	413
3Q 2005	219	54	304	86	456	335	627	477
1Q 2007	180	48	231	71	370	270	492	366
Apr-10	250	76	153	50	329	253	366	233
Oct-10	213	48	316	92	375	288	600	456
Apr-11	160	45	112	35	289	230	280	220
Oct-11	255	65	352	107	442	312	631	480
Average	209	56	248	74	374	278	506	378
Median	213	54	267	76	370	270	548	413



C-400 Interim Remedial Action

- Conceptual Site Model
- Phased Deployment
- Phase I Results and Lessons Learned
- Phase IIa Strategy
- Phase IIb
  - Proposed Remedy
  - RAO and Completion Criteria

GWOU Projects – C-400 Conceptual Site Model

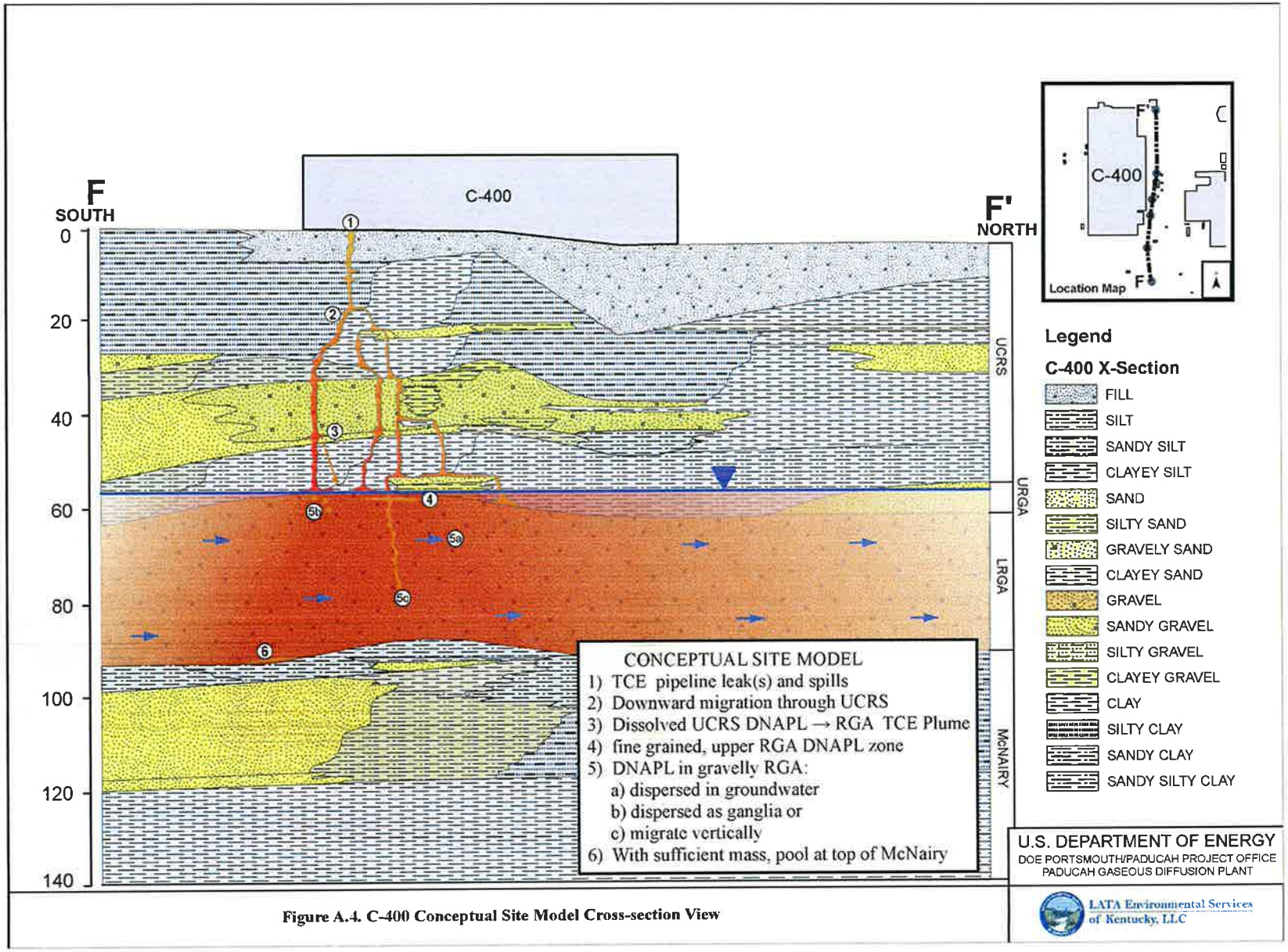
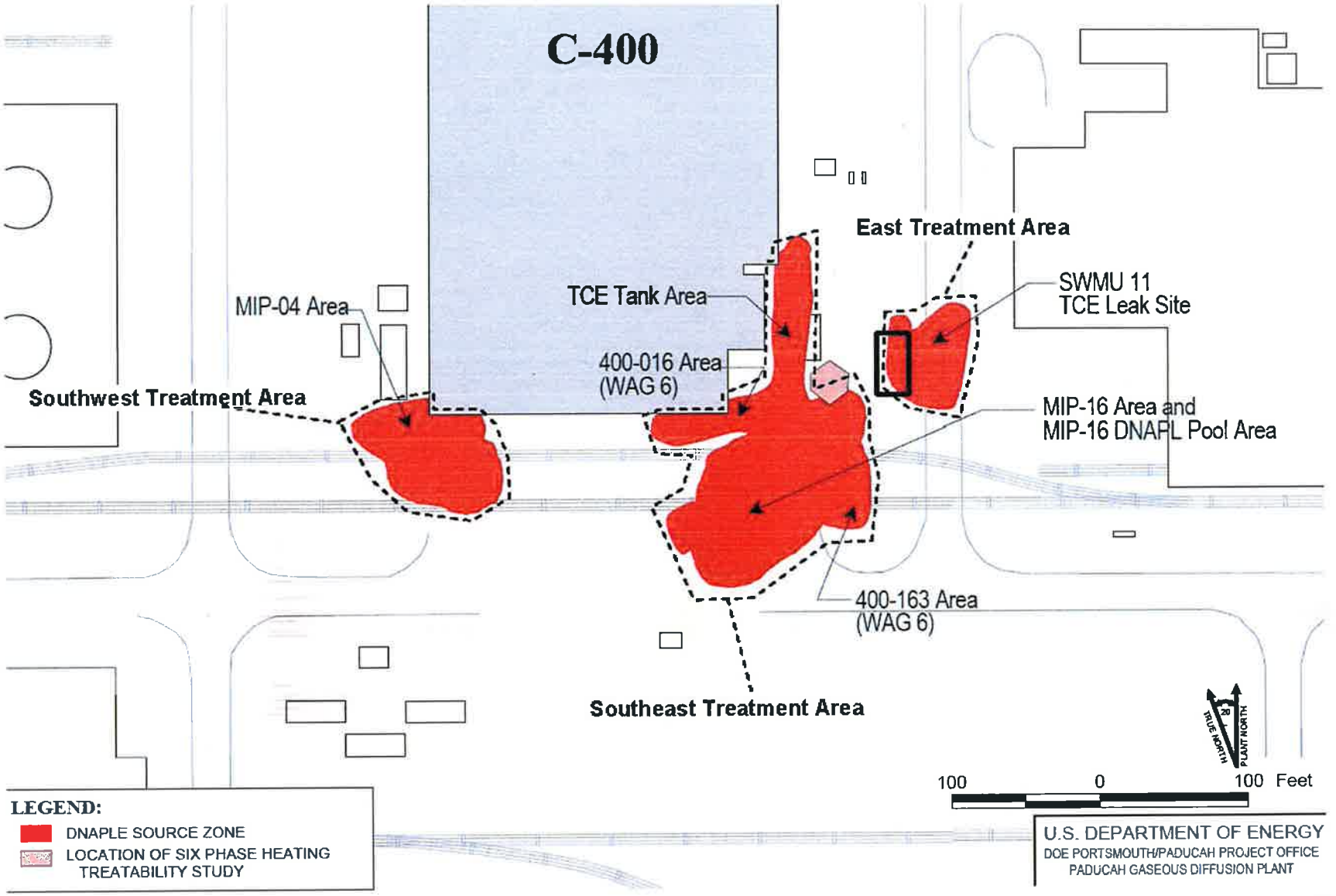
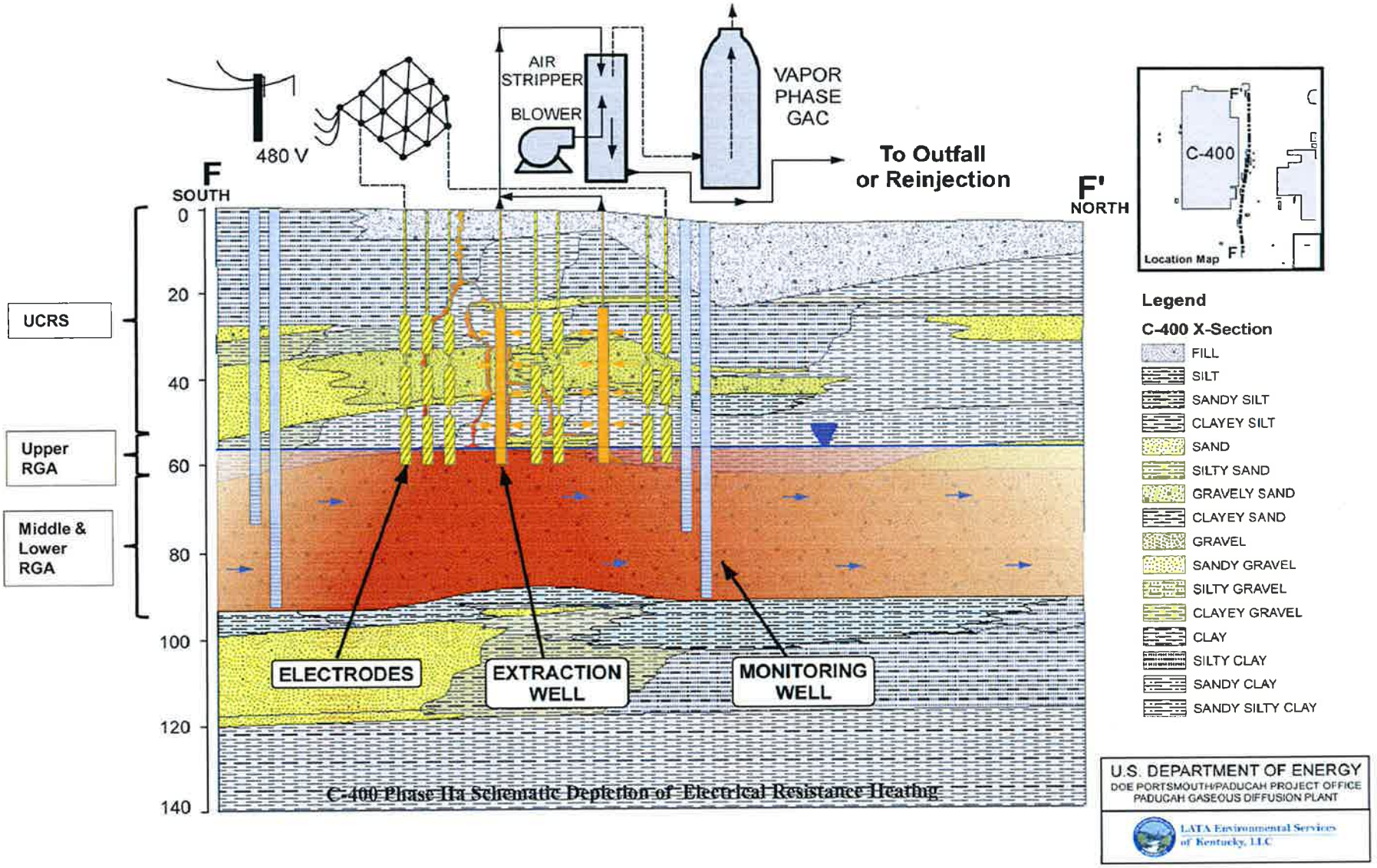


Figure A.4. C-400 Conceptual Site Model Cross-section View

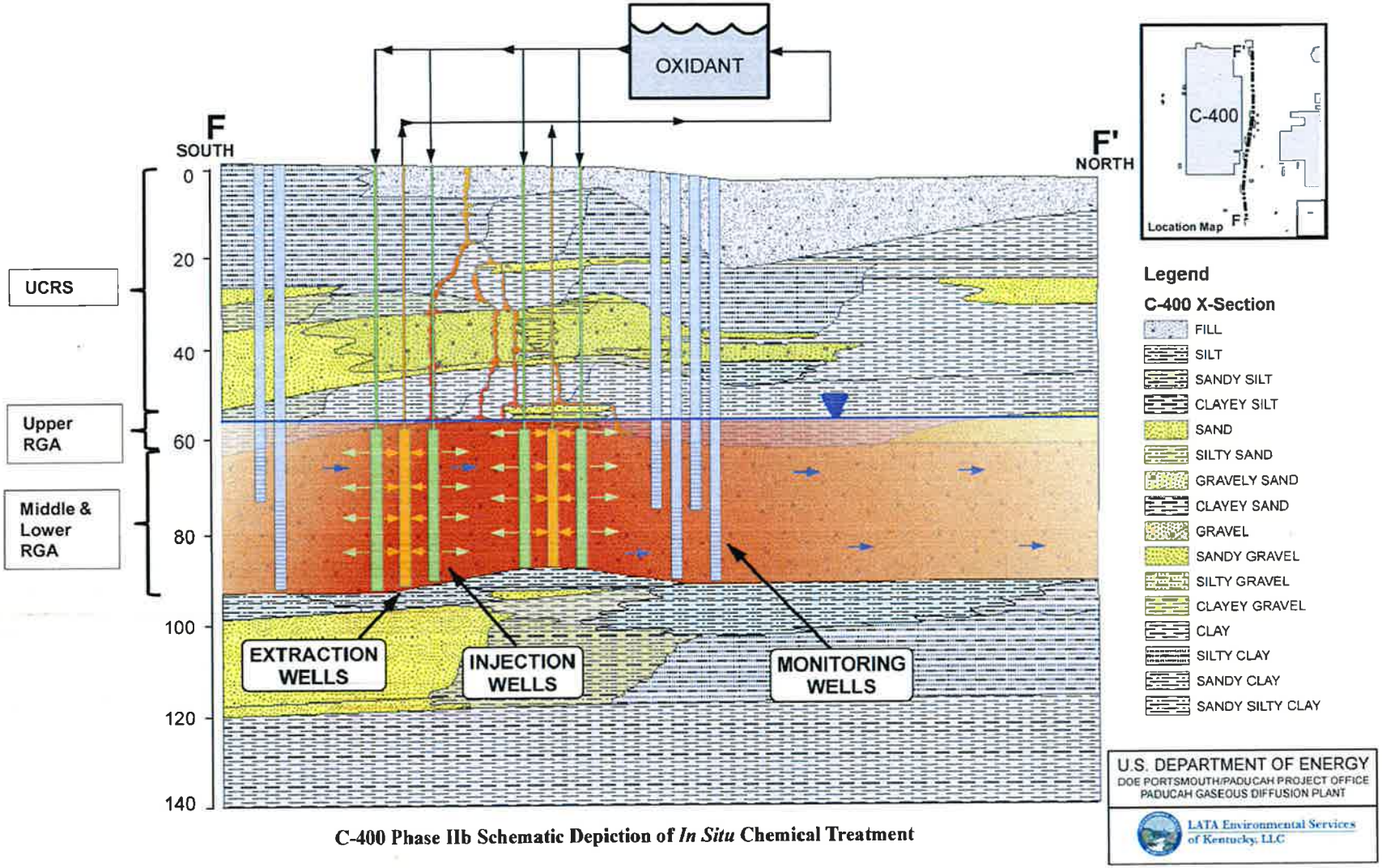
GWOU Projects – C-400 Phased Deployment



C-400 Phase IIa – Strategy

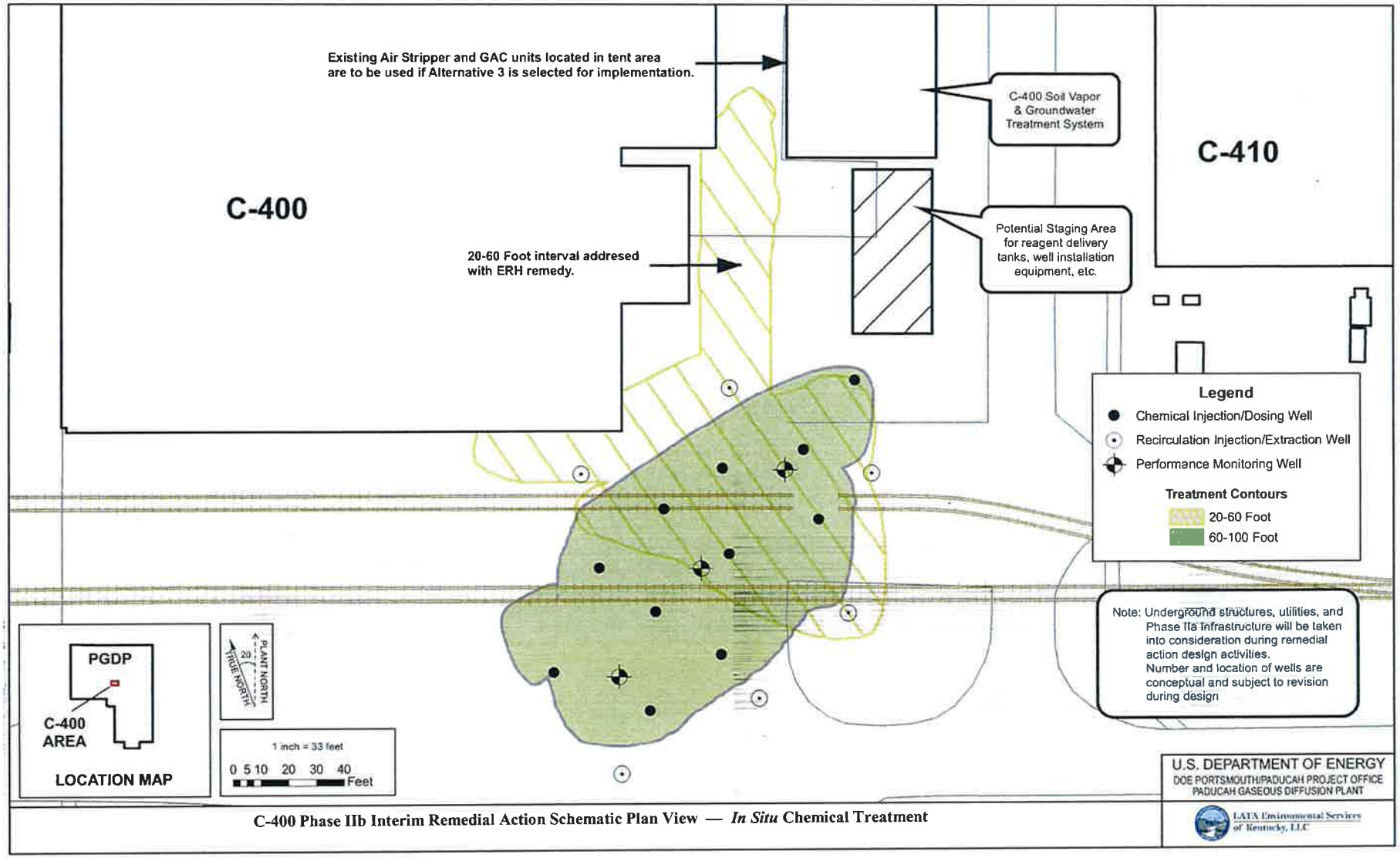


C-400 Phase IIb – Proposed Remedy



C-400 Phase IIb Schematic Depiction of *In Situ* Chemical Treatment

C-400 Phase IIb – Proposed Remedy



C-400 Phase IIb Interim Remedial Action Schematic Plan View — *In Situ* Chemical Treatment

C-400 Phase IIb – Technical Review

- **EPA and KY requested additional time to review the technical approach for Phase IIb**
- **EPA, KY, DOE, PRC and LATA Kentucky met in Nashville on May 9 & 10, 2012**
- **Results:**
  - Confirmed that the existing RAOS as contained in the ROD are appropriate
    - *"Reduce the extent and mass of the VOC source (primarily TCE and its breakdown products) in the RGA in the C-400 Cleaning Building area to reduce the migration of the VOC contaminants to off-site POEs."*
  - EPA identified a need for further evaluation of steam injection as a potential alternative
  - The parties agreed on completion metrics for implementation of *In Situ* Chemical Oxidation
    - Achieve reductions in TCE concentrations in the Phase IIb treatment zone such that average concentrations of TCE in groundwater are less than 11,000 μg/L
    - Apply iterative oxidant applications as follows:
      - Initial "low dose" under circulation, followed by
      - Two applications of circulated oxidant at full design strength
    - Agreed upon contingency actions include:
      - One further application of oxidant at the design strength and under circulation, or
      - Application of a supplemental technology, e.g., EZVI to address areas requiring additional treatment

GWOU Projects – SW Plume Sources Remedial Action

- Status: ROD signed in March 2012, RDSI to field in September 2012
- UCRS soil TCE Cleanup Levels
  - SWMU 1 – 0.073 ppm
  - C-720 Building – 0.075 ppm
  - Based on protection of RGA groundwater to MCLs at unit boundary using SESOIL modeling with 50-year TCE half-life
- Remedial Action
  - SWMU 1 – Oil Landfarm
    - Soil Mixing of UCRS soils with steam and chemical amendment
    - Interim LUCs for estimated 87 years
  - SWMUs 211A and B – C-720 Building
    - Enhanced In Situ Bioremediation with Interim LUCs for estimated 39 years, **or** Long-term Monitoring with Interim LUCs for estimated > 100 years
    - FFA parties will determine approach following RDSI data collection based on the extent and magnitude of contamination