

**DFSP NORWALK  
RESTORATION ADVISORY BOARD  
Defense Logistics Agency - Energy Update**

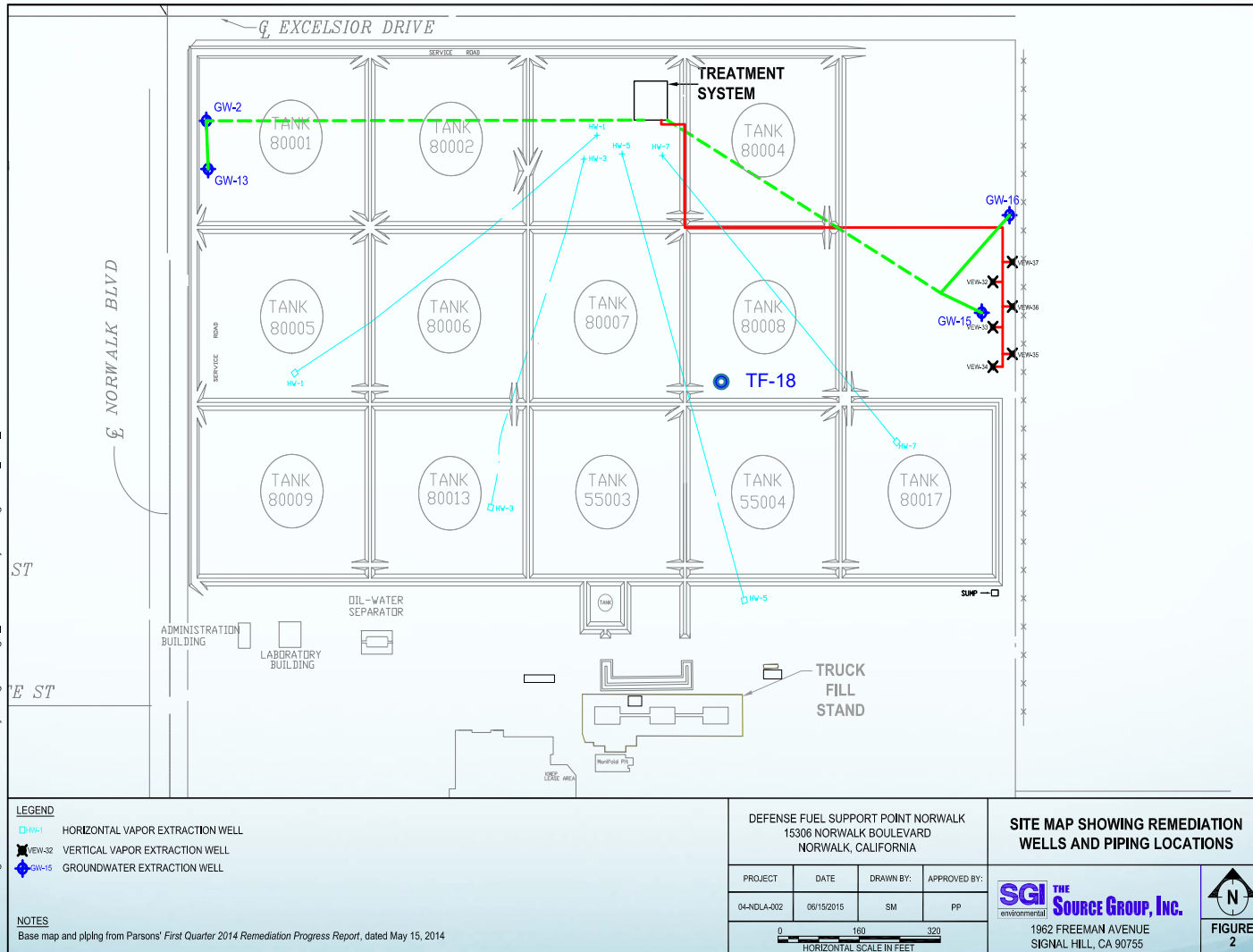
**August 16, 2016**

# Status of Remediation System

## Status of Soil and Groundwater Remediation System

- **Groundwater Remediation: Treated 74.4 million gallons since April 1996 (approx 500,000 gallons in 2016)**
- **SVE System: Recovered 2.9 million pounds since April 1996 (approximately 5,000 pounds / 1,500 gallons in 2016)**
- **SVE system is currently operating – with majority of vapors drawn from treatment cells**
  - **With closure of treatment cells, horizontal SVE wells will be brought back on line**
- **LNAPL Recovery: 200 gallons in 2016**
  - **70% of LNAPL from TF-18**
  - **Five more extraction wells added near TF-18 and became operational in August 2016**

# In-Situ Treatment System

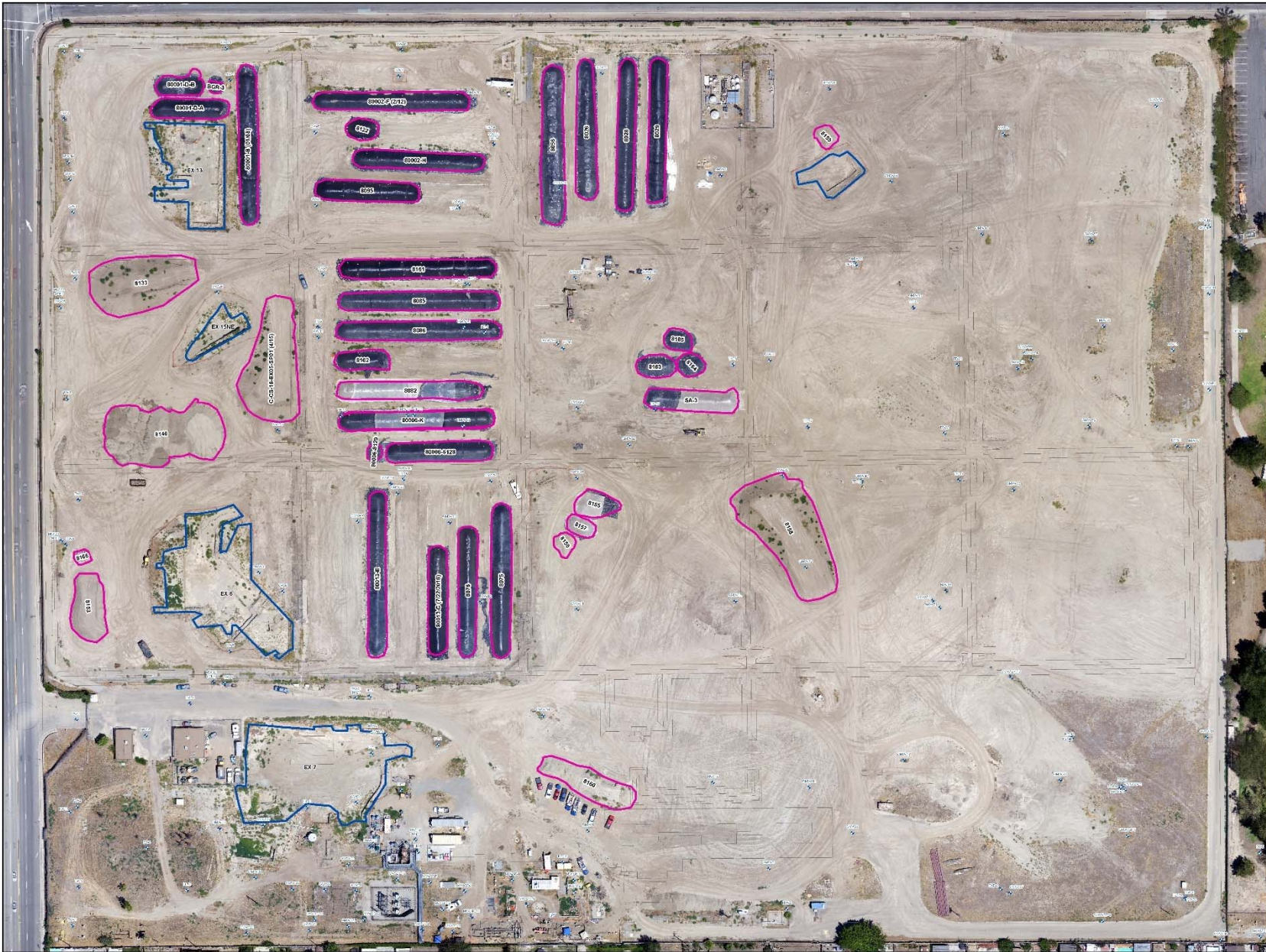


DFSP Norwalk / Figures & CAD / Remediation System Logout2007\_2015\_06-15

# Soil Remediation – Site Wide

## Soil Remediation:

- **Soil Remediation Accomplished by Excavation and On-site Bio-remediation**
- **All Soil Between 0 to 10 feet with *Contamination Above Cleanup Goals* to be Excavated and Treated:**
  - **100% of the Targeted Shallow Soil Excavated from the Future Park Area**
  - **99.5% of the Targeted Shallow Soil Excavated Site-wide**
- **Deeper Soil (> 10 feet) with Highest Concentrations of Contamination (affecting groundwater) were Removed and Treated:**
  - **Tank Basin 80008 and 55004**
  - **Former Truck Rack Area**



**Legend**

- ◆ DFSP\_Nnrwk\_GWM\_Wells
- Excavations
- Stock\_pile



**earthforensics, inc.**

**STOCKPILE  
LOCATION MAP  
(07/22/2016)**

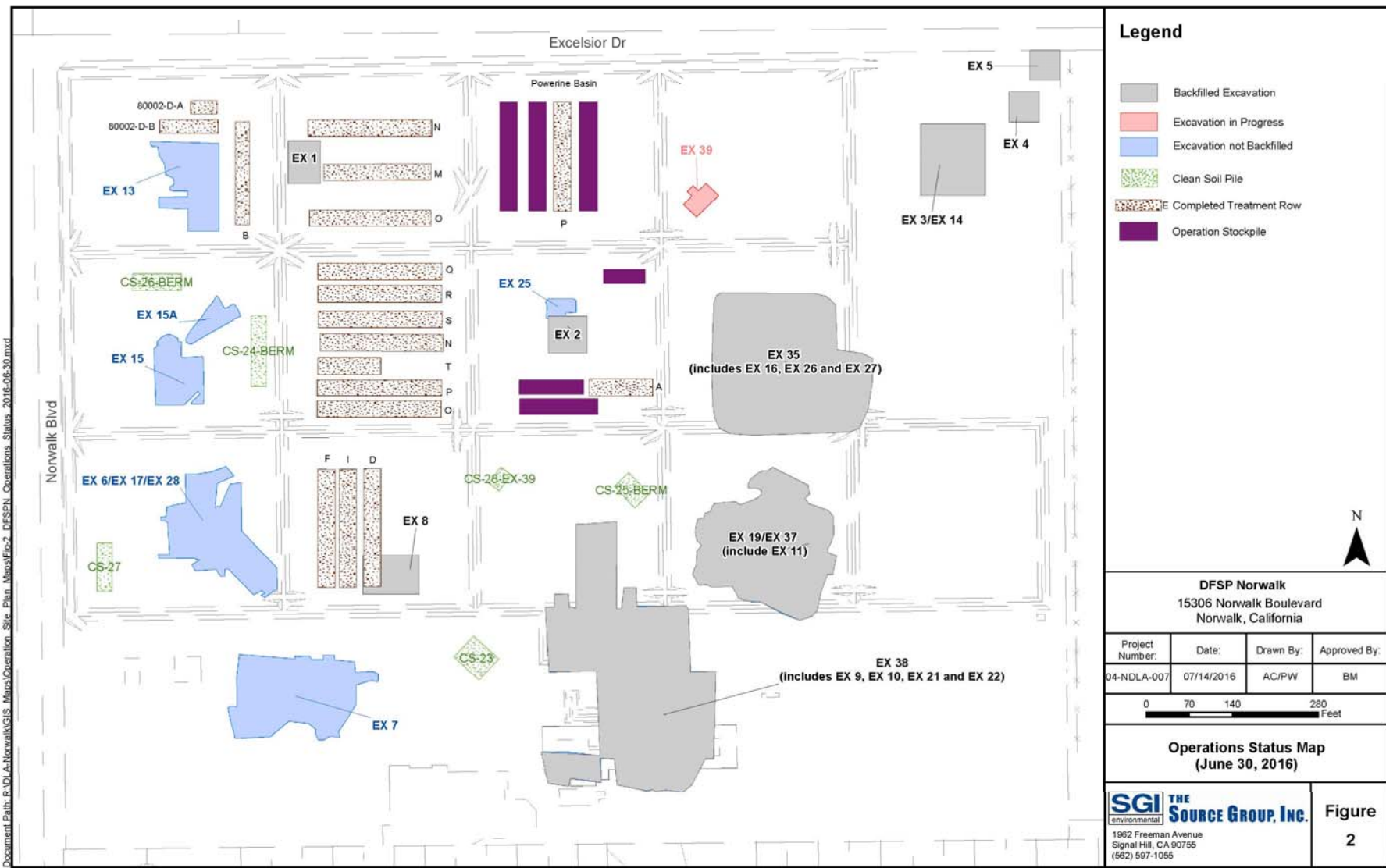
DFSP-Norwalk Norwalk, Ca	
Date: 7/31/2016	Project #: 2016.150
Project Name: DFSP-Norwalk	Plate <b>1</b>

# Soil Remediation – Status

## Soil Remediation Project Progress:

- **Approximately 120,000 yds<sup>3</sup> of Soil Excavated**
- **Approximately 66,000 yds<sup>3</sup> (93,000 tons) of Contaminated Soil Excavated and Placed into Treatment:**
  - **55,000 yds<sup>3</sup> Treated and OK'd For Backfill**
  - **11,000 yds<sup>3</sup> Currently Being Treated**
- **Most “Cross Trenches” Have Been Performed – only Minor Amount of Additional Contamination Encountered and Removed**
- **Currently: Final Batches of Soil Treatment Piles are under Monitoring Prior to Final Sampling**

# Status Map



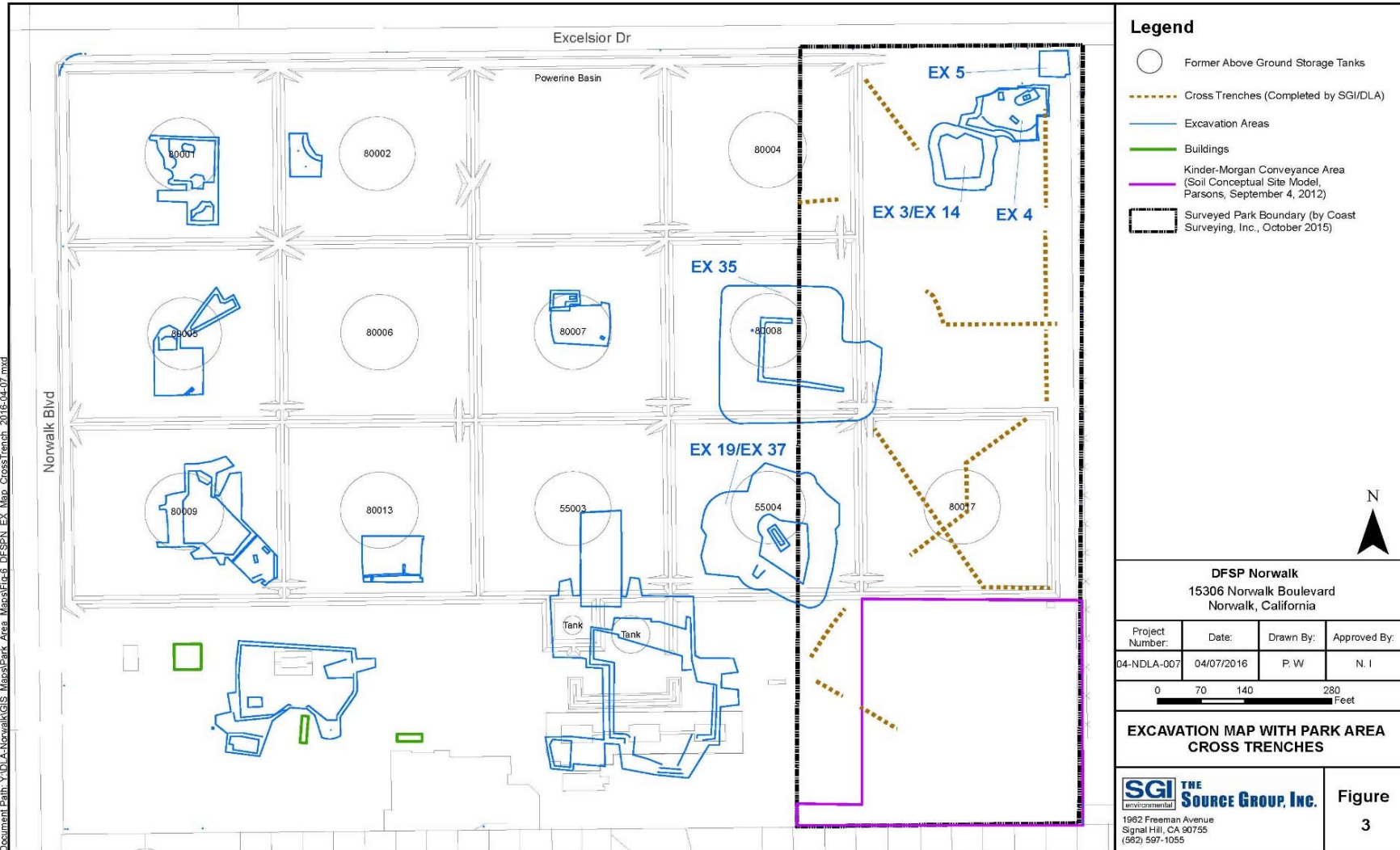
Document Path: R:\DLA\Norwalk\GIS\_Maps\Operations\_Site\_Plan\_Maps\Op-2\_DFSCH\_Operations\_Status\_2016-06-30.mxd

## **Soil Remediation: Eastern 15 Acre Park Area**

- ◆ **Completed Backfill of Park Area Excavations**
- ◆ **Performed Confirmation Soil Gas Survey on Future Park Area**
- ◆ **Prepared Human Health Risk Assessment:**
  - ◆ **Findings of HHRA Confirmed that Proposed Park Area is Ready for Re-use**
- ◆ **All Documentation Submitted to the RWQCB and is Currently Under Review**

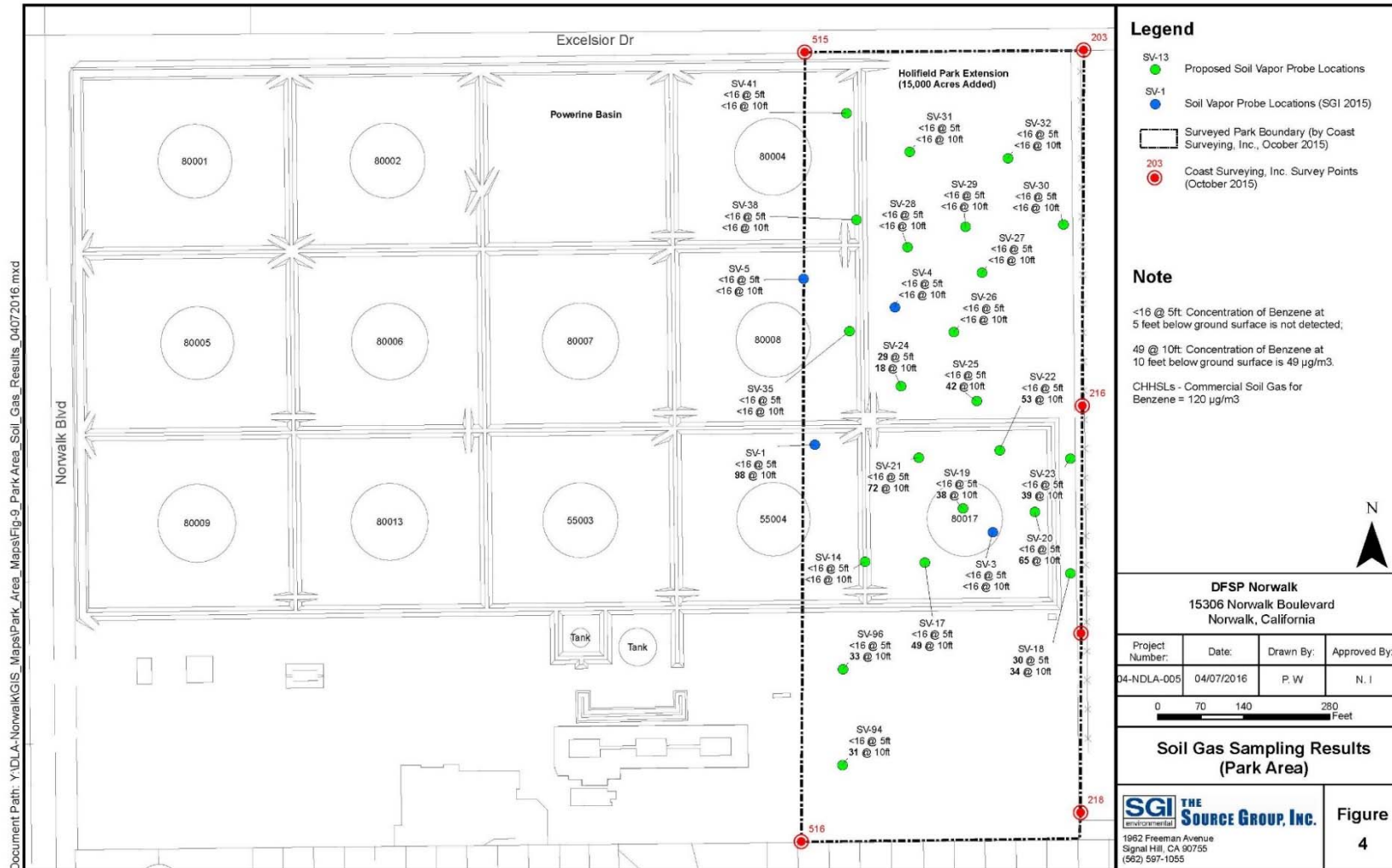


# Eastern Park Area Cross Trenching



Document Path: X:\DLA-Norwalk\GIS\_Maps\MapArea\_Manual\GIS\_DFSPN\_EX\_Map\_CrossTrench\_2016-04-07.mxd

# Eastern Park Area Soil Gas Results



## **Soil Remediation: to End of 2016**

- ✦ **Complete Soil Treatment (Estimate November 2016) and Request for Authorization to Re-use**
- ✦ **Transport Soil not Treated to Cleanup Goals for Off-Site Recycling, If Needed**
- ✦ **Import Soil for Backfill – Additional Soil is Needed due to Higher Compaction Density of Backfilled Excavations**
- ✦ **Backfill Remaining Excavations (December to January 2016)**

## **Soil Remediation – Future Steps**

- ⊕ **Perform Site-Wide Soil Gas Survey Upon Backfill of Final Excavations**
- ⊕ **Prepare and Submit Case Review Form to RWQCB for Formal Closure of Shallow Soils, Western Area**
- ⊕ **Closure Request will Include a Human Health Risk Assessment**

## Boundary of New Park Area – Looking North



## Excavation 07- Looking South



# Soil Treatment Cells

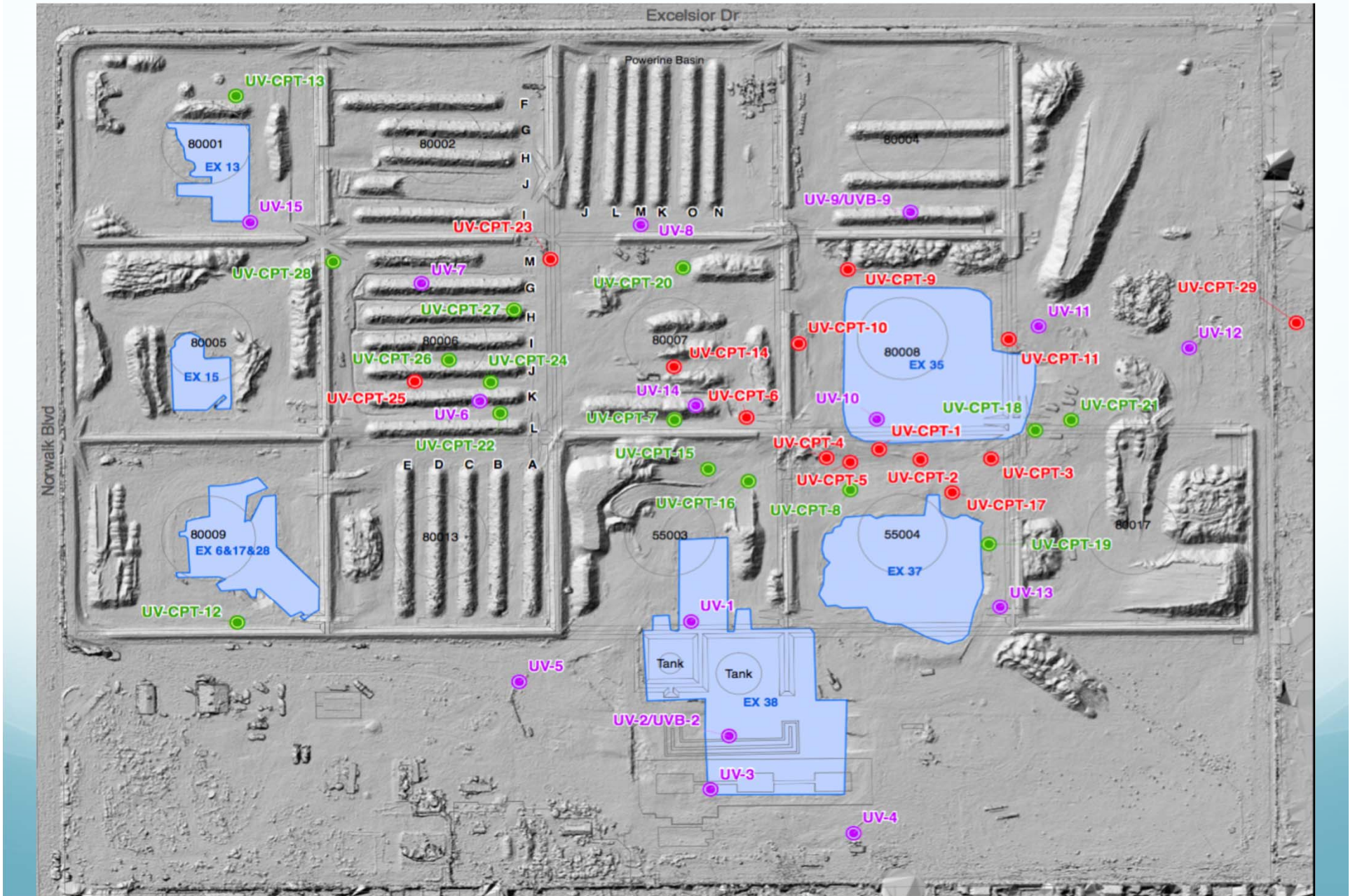


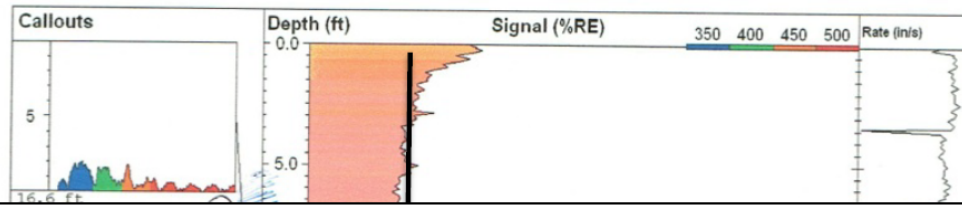
## **Groundwater – Planning for Next Phase**

- **Install Replacement Groundwater Recovery Wells and Re-configure Extraction System**
- **Northeast Area – GMW-62: Collect Final Data to Demonstrate Minimal Residual Hydrocarbon Impact at GMW-62 and Holifield Park**
- **Operate New Free Product Wells in Tank Farm Central Area**
- **Evaluate LNAPL Recovery and Options for Enhancements**
- **Install and Commission New and Replacement Air Sparge Wells**

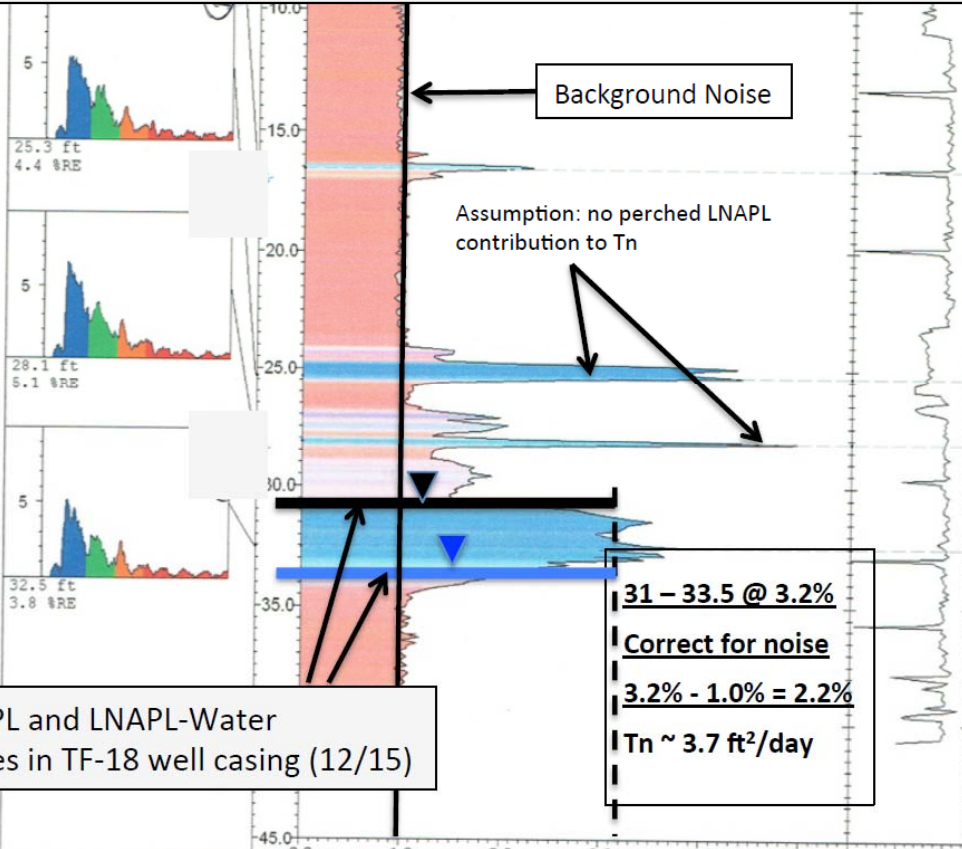


# Focus of Future Remediation Efforts






This CPT-UVOST Profile is northwest of TF-18 and assumed to be representative



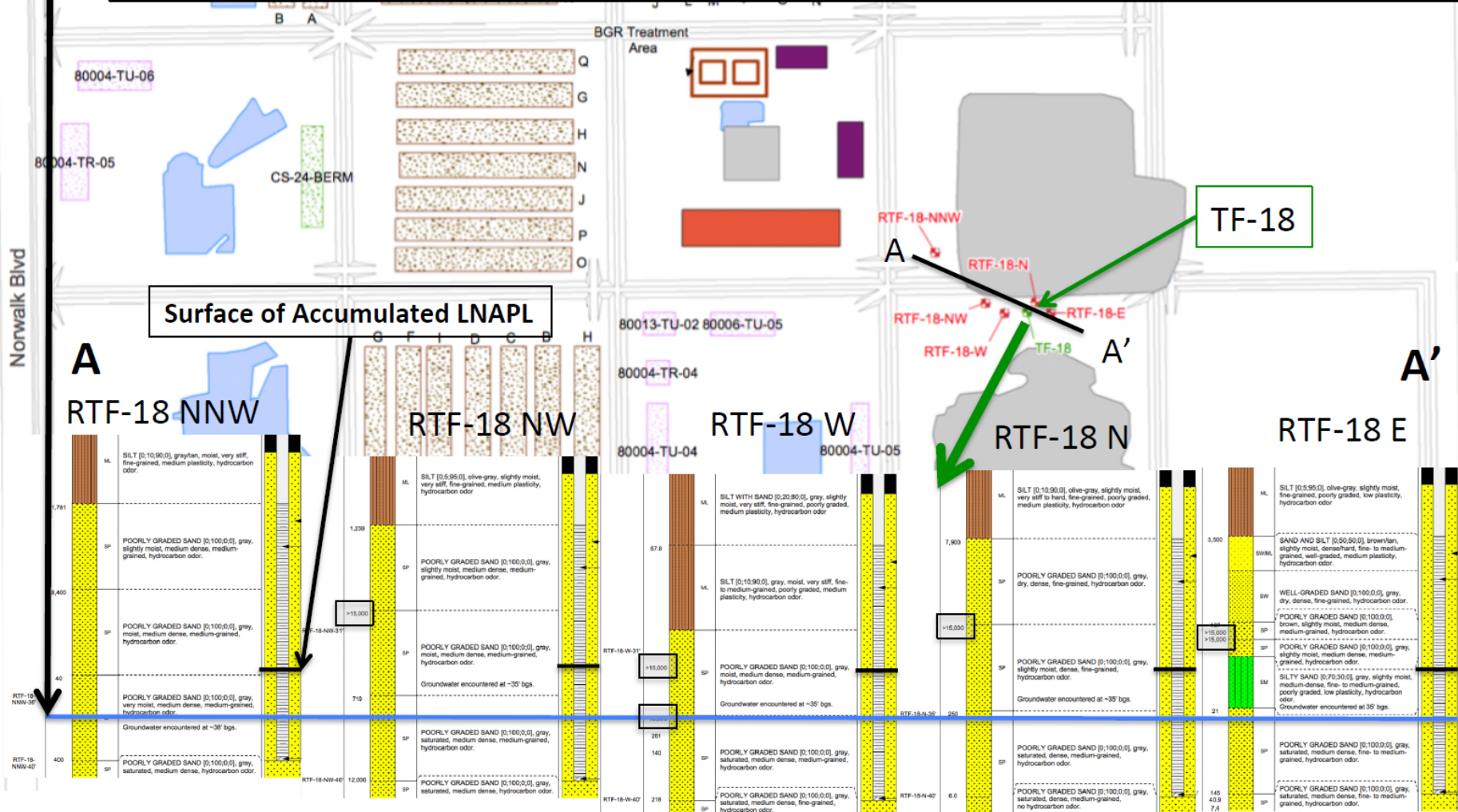
Air-LNAPL and LNAPL-Water interfaces in TF-18 well casing (12/15)

 www.greggdrilling.com	<b>UV-CPT-1</b>		<b>UVOST By Dakota</b> www.DakotaTechnologies.com
	Site: DLA Norwalk	Latitude / Datum: Unavailable / NA	Final depth: 40.67 ft
	Client: The Source Group	Longitude / Fix: Unavailable / NA	Max signal: 5.1 % @ 28.15 ft
	Job: UV-D1150659	Operator/Unit: Alex S/UVOST1007	Date & Time: 2015-11-23 07:48 PST

Excelsior Dr

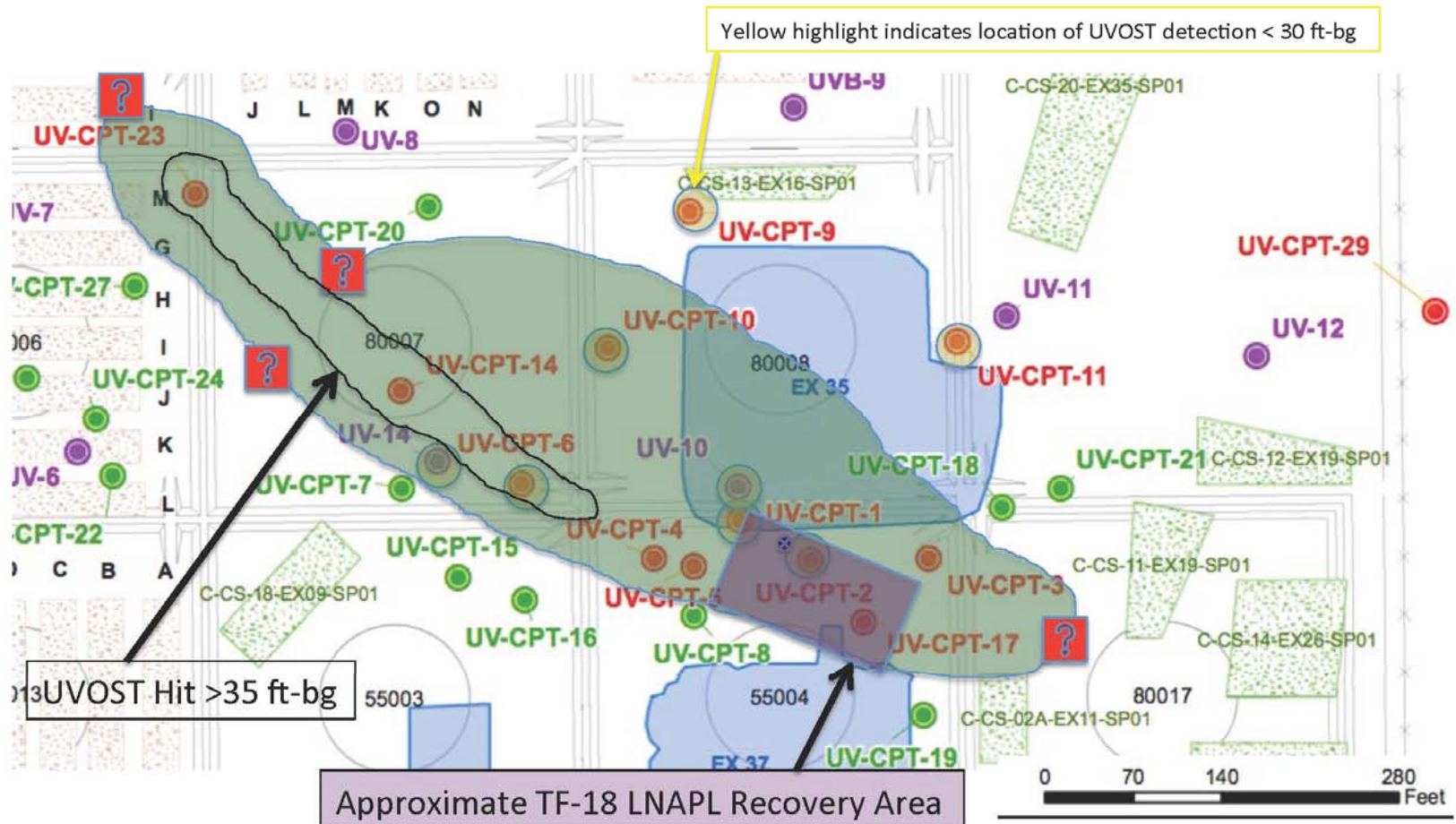
Ground Surface Elevation is 75.0 and 75.1 at TF-18 and RTF-18 W

Approx. 35 ft-bg from TOC at RTF-18 W is Elev 39.86 and used here as the local datum. This was general level that fluid was observed in each borehole shortly after drilling.



# Approximate TF-18 LNAPL Recovery Area

LNAPL Source Area (Green - Deeper than 30 ft-bg)



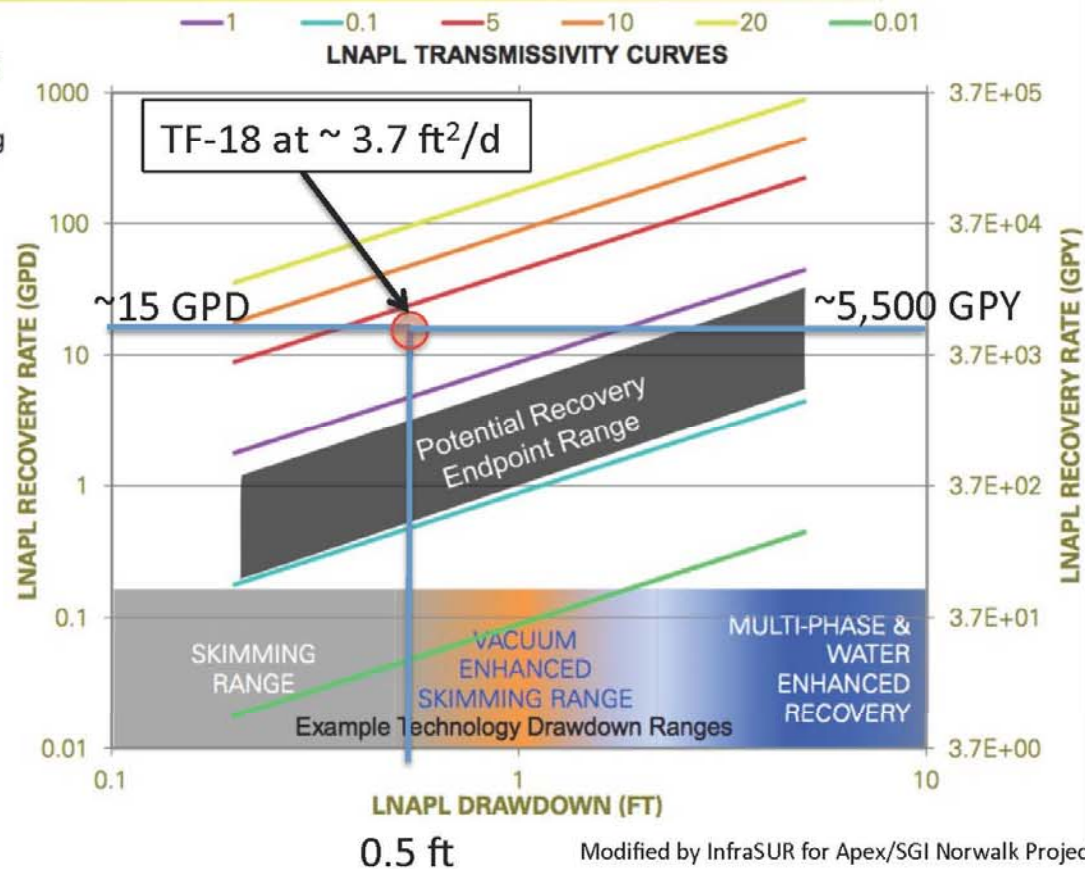
Norwalk JES InfraSUR 12/14/15 for SGI

# BP T<sub>n</sub> Guidance

## LNAPL Transmissivity in Practice



- Skimming LNAPL at 0.1 ft<sup>2</sup>/day results in less than 400 GPY skimming
- Skimming LNAPL at 5 ft<sup>2</sup>/day results in 7300 GPY skimming



# DLA Update

 **Questions and Discussion**