



DEFENSE LOGISTICS AGENCY

THE NATION'S COMBAT LOGISTICS SUPPORT AGENCY



DFSP Norwalk RESTORATION ADVISORY BOARD

August 23, 2018





Remediation of Upper 10 Feet



Soil Remediation Project Progress:

- **All Planned Excavations and Cross Trenching Completed**
- **Approximately 175,000 tons of Soil Excavated**
- **77,000 tons of Cleaned Soil Tested and Approved for Backfill**
- **98,000 tons Treated and Approved for Backfill**
- **All Soil Between 0 to 10 feet with *Contamination Above Cleanup Goals* have been Excavated and Treated**



Remediation of Upper 10 Feet



Soil Remediation Project Progress (Cont'd):

- **All Excavations Backfilled**
- **Soil Gas Surveys Completed**
- **Human Health Risk Screening Completed and Documented**
- **Eastern Area Report: *No Further Action* from RWQCB, April 2018**
- **Western Area Report submitted to the RWQCB, *pending RWQCB review***



Status of Remediation System



- **Groundwater Remediation:**
 - **672,006 gallons of groundwater extracted and treated in Q1-Q2 2018**
 - **78.4MM gallons of groundwater extracted and treated since April 1996**
- **SVE System:**
 - **9,418 pounds of vapor-phase hydrocarbons removed in Q1-Q2 2018**
 - **2.98MM pounds of vapor-phase hydrocarbons removed since April 1996**
- **LNAPL Recovery:**
 - **278 gallons of LNAPL were recovered during Q1-Q2 2018 via hand bailing, absorbent socks, and automatic pumping**
 - **50,000 gallons of LNAPL recovered since April 1996**



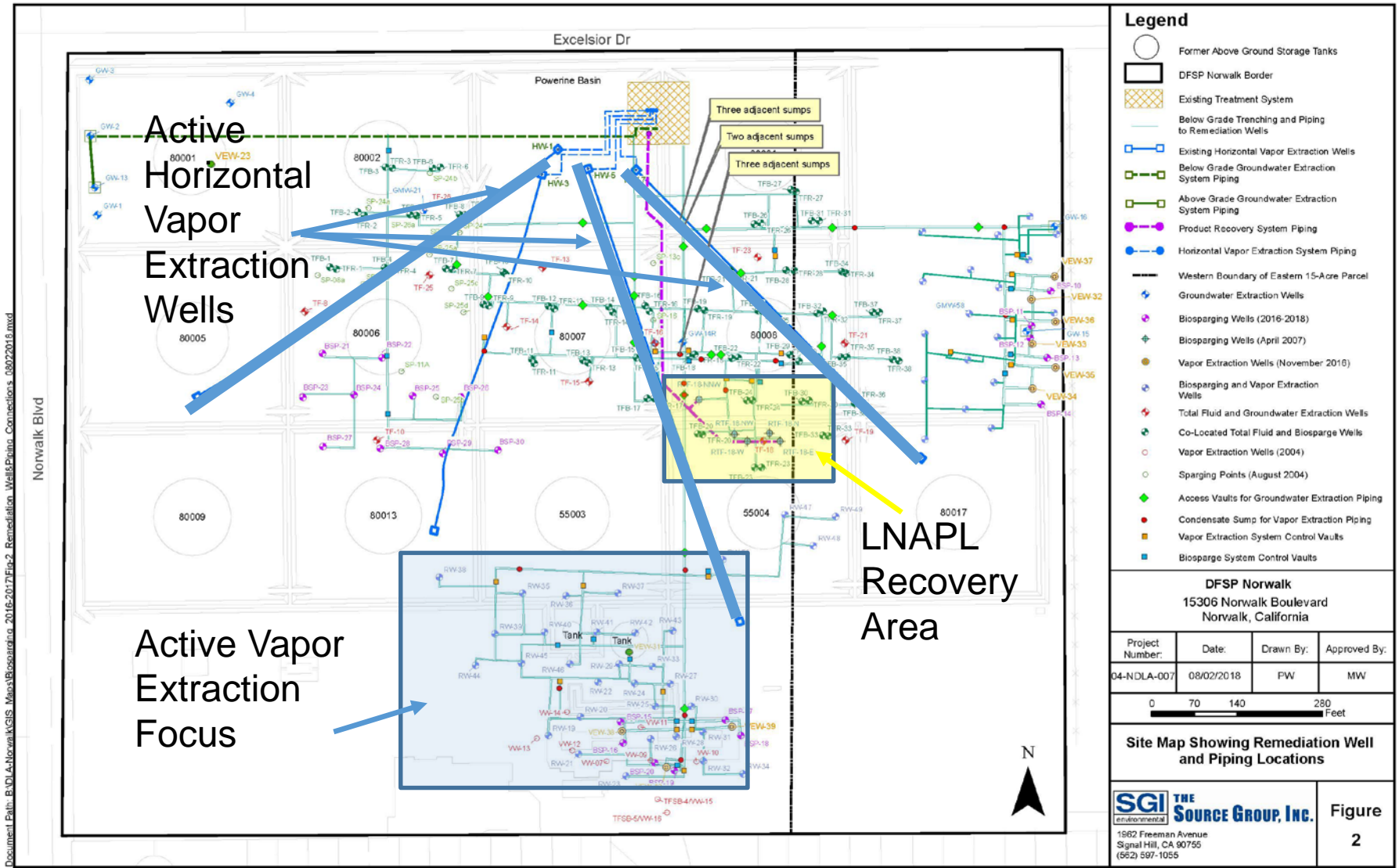
Status of Remediation System



- **SVE system is currently operating – from re-developed horizontal SVE wells and re-installed SVE wells in east and south parts of the Site**
 - **Tank Farm: HW-1, HW-5, & HW-7**
 - **Truck Rack: VEW-38, VEW-40, RW-19, -20, -22, -24, -26 through -30, -32, -33, -35 through -38 and -40 through -50**
 - **Operation Limited by Vapor Treatment Capacity**
- **LNAPL recovery continues in wells TF-18, RTF-18-N, TF-18, RTF-18-N, RTF-18-W and RTF-18-NW**



Focus on Deep Soil and LNAPL



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Status of Remediation System



- **A temporary 300-scfm gas-fired oxidizer is currently being operated due to increased vapor concentrations – operations limited to day time due to noise concerns**
- **A 750-scfm capacity vapor extraction system, with carbon treatment, is used for horizontal wells**
- **Original 3,000-scfm gas-fired oxidizer no longer functional and has been dismantled**
- **New 3,000-scfm gas-fired oxidizer has been constructed and shipment to Site is pending**
- **Electrical Upgrades are required and are being coordinated with SCE**
- **Natural Gas Services Upgrades are required and are being coordinated with SoCal Gas**



Old Thermal Oxidizer





New Thermal Oxidizer





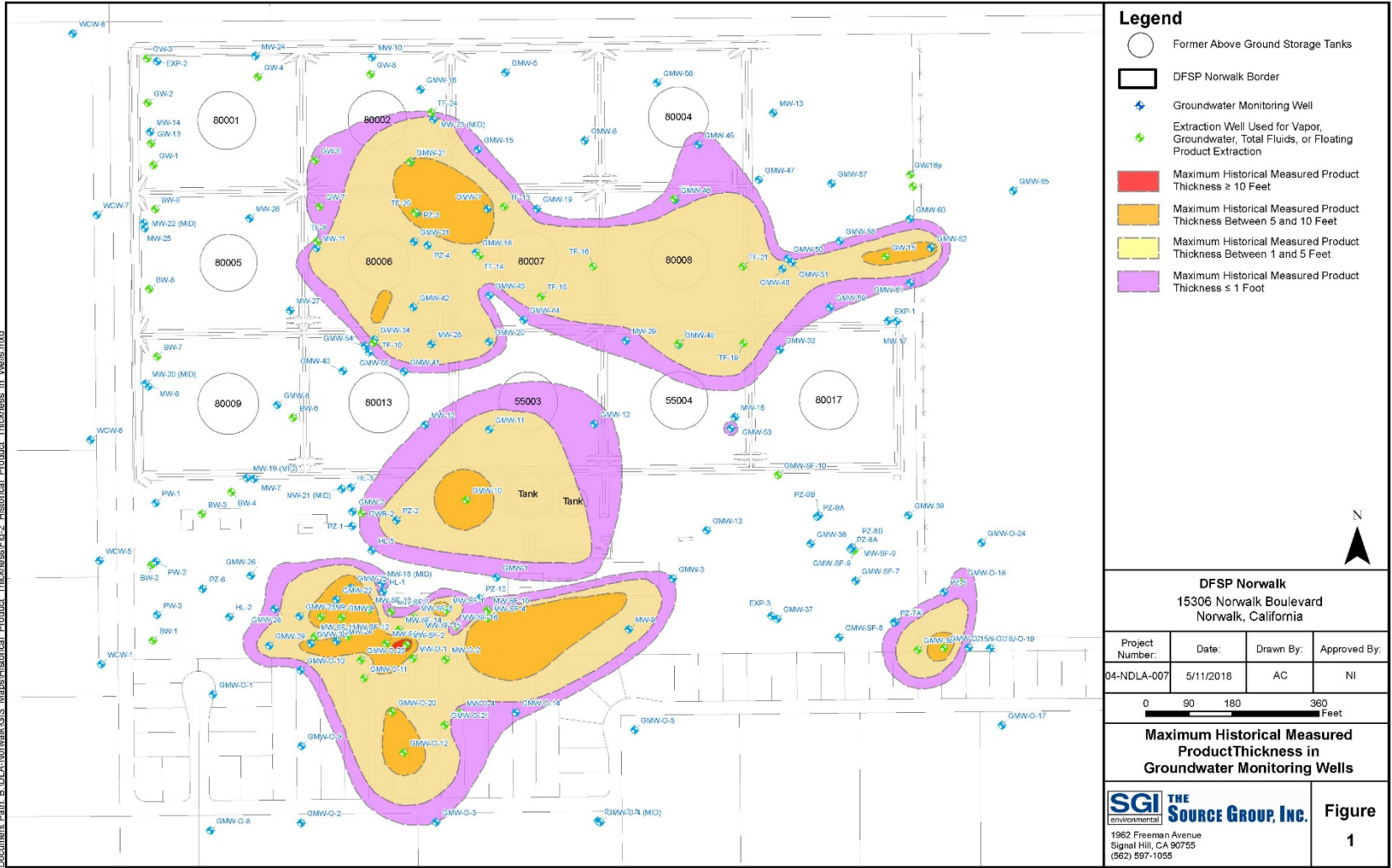
Focus LNAPL Removal



- **Currently Finalizing and Updating LNAPL CSM**
- **LNAPL Bench Test for Surfactant Completed: Evaluation of Potential Flushing of LNAPL-Possible Pilot Test to Evaluate LNAPL Recovery Methods and Options for Enhancement**
 - **Findings – Surfactants are not a Suitable Technology for Use at this Time**
- **Completed Field Testing to Evaluate Methods of Enhancing LNAPL Recovery and Effectiveness of GW Remediation**
 - **Vacuum-Enhanced LNAPL Recovery**
 - **LNAPL Bail-down and Recharge**
 - **Total Fluids (combined LNAPL and Groundwater Removal) Testing**



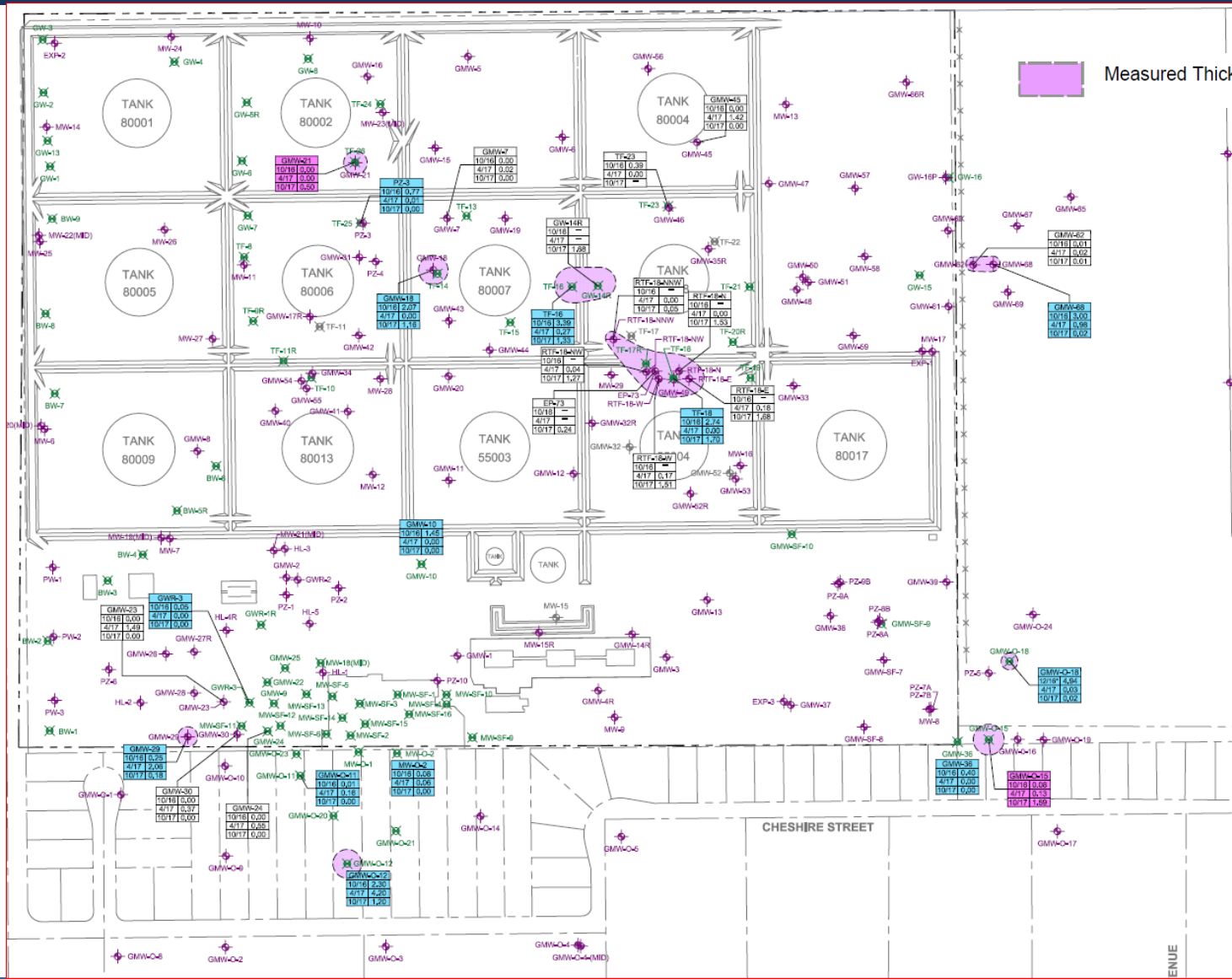
LNAPL - Maximum



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LNAPL - Current



Measured Thickness <1 Foot



Focus on Deep Soil and LNAPL



- **Based on the Findings of Field and Laboratory Testing, the Remediation System Was Expanded:**
 - **40 New Total Fluids (LNAPL and Groundwater) Wells Throughout the Tank Farm – To Enhance Recovery of LNAPL and Groundwater**
 - **65 New Biosparge Wells - To Enhance Remediation of Groundwater**
 - **16 New Vapor Extraction Wells – To Enhance Remediation of Deeper Soils – Augmenting 4 Horizontal VE Wells and 50 Existing Vapor Extraction Wells**
- **Increasing Biosparge Capacity via New 150-scfm Blower**
- ***Expanded System - Fully Operational by Fall of 2018!***

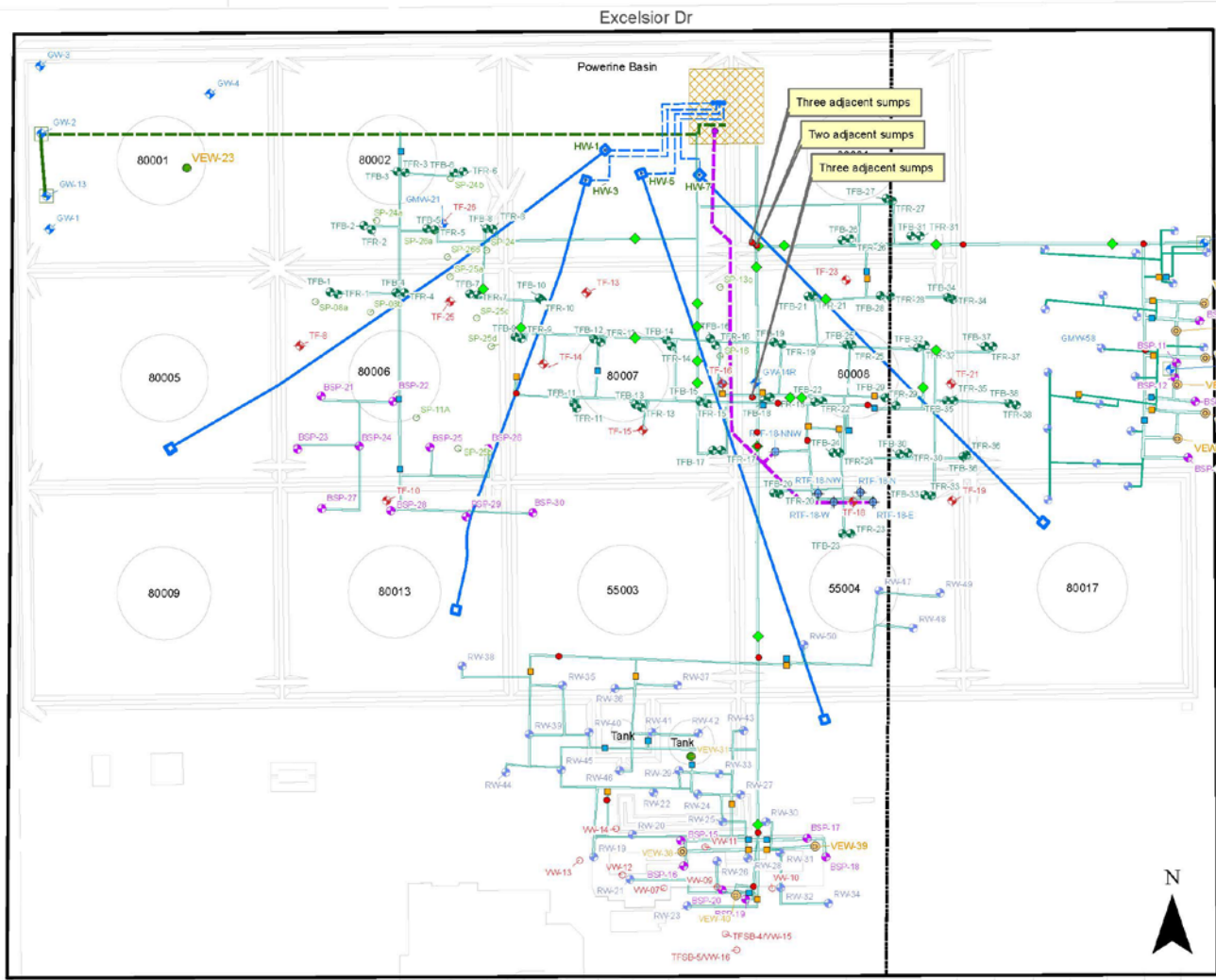


Focus on Deep Soil and LNAPL



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Norwalk Blvd

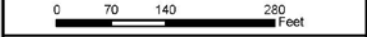


Legend

- Former Above Ground Storage Tanks
- DFSP Norwalk Border
- Existing Treatment System
- Below Grade Trenching and Piping to Remediation Wells
- Existing Horizontal Vapor Extraction Wells
- Below Grade Groundwater Extraction System Piping
- Above Grade Groundwater Extraction System Piping
- Product Recovery System Piping
- Horizontal Vapor Extraction System Piping
- Western Boundary of Eastern 15-Acre Parcel
- Groundwater Extraction Wells
- Biosparge Wells (2016-2018)
- Biosparge Wells (April 2007)
- Vapor Extraction Wells (November 2016)
- Biosparge and Vapor Extraction Wells
- Total Fluid and Groundwater Extraction Wells
- Co-Located Total Fluid and Biosparge Wells
- Vapor Extraction Wells (2004)
- Sparging Points (August 2004)
- Access Vaults for Groundwater Extraction Piping
- Condensate Sump for Vapor Extraction Piping
- Vapor Extraction System Control Vaults
- Biosparge System Control Vaults

DFSP Norwalk
 15306 Norwalk Boulevard
 Norwalk, California

Project Number:	Date:	Drawn By:	Approved By:
04-NDLA-007	08/02/2018	PW	MW



Site Map Showing Remediation Well and Piping Locations

SGI THE SOURCE GROUP, INC.
 1962 Freeman Avenue
 Signal Hill, CA 90755
 (562) 597-1055

Figure
 2



Long-Term Stewardship



- **Long-term Groundwater Monitoring and Sampling Continues after Active Remediation Complete**
- **Integration of Wells into Future Site Development Plans**
 - **May Require Decommissioning of Some Wells and/or Relocation of Critical Wells**
 - **Anticipated Reduction in Sampling Frequency and Number of Wells Sampled**
- **DLA and Landowner Coordinate Access and Schedules**
- **Continued Coordination with Stakeholders**
- **Request for No Further Action and Well Decommissioning**

