



**SINOTECH  
ENVIRONMENTAL  
TECHNOLOGY,  
LTD.**

## About SETL

Sinotech Environmental Technology, Ltd. (SETL) has dedicated in site assessment, soil and groundwater investigation, and contamination remediation since 1990, persistent in quality assurance, technology innovation and sustainable customer relationship. SETL provides comprehensive professional services includes: environmental site assessment (ESA phase I and phase II), geology and hydrogeological survey, feasibility and pilot study for contaminated site remediation, planning and design, construction and O&M, risk assessment, life cycle analysis (LCA), brownfield planning, green and sustainable remediation (GSR) practices.

*Mission in site and groundwater restoring,  
expectation in enterprise image and  
better environment achieving.*

## Reasons to Choose SETL

More than two decades, SETL continuously accumulates experience and reputation in cooperating with numbers of clients in contaminated site investigation and remediation. Clients comprise government and private corporation, such as Taiwan EPA and EPB, petrochemical factories, electricity suppliers, gas stations, steel foundries, etc.

Customized and qualified site conceptual model (SCM) can be effectively constructed through the cooperation of SETL experts and the application of innovative technologies (e.g. numerical geological and risk assessment model). Comprehensive services are realized as more than 20 years experience in site remediation, such as planning, O&M, monitoring and so on. Furthermore, we are the leading company for green and sustainable remediation consulting in Asia area.



## Services

- Site Investigation (including sampling and well installation)
- Remediation Planning
- Remediation Feasibility Study and Pilot Study
- Remedies Design and Construction
- Site Management and O&M
- Environmental Site Assessment (ESA phase I and phase II)
- Geology and Hydrogeology Survey
- Groundwater Resource Management
- Risk Assessment and Life Cycle Analysis
- Green and Sustainable Remediation Planning and Management



## Major Clients

- Taiwan EPA and EPBs
- CPC Corporation, Taiwan
- Petrochemical industries
- Electronic and semiconductor industries
- Gas stations



# In-Situ Remediation Technologies

- Soil Vapor Extraction(SVE)
- Air Sparging (AS)
- Phytoremediation
- Bioventing
- Pump and treatment (P/T)
- Multi Phases Extraction (MPE)
- Surfactant Enhanced Aquifer Remediation (SEAR)
- Enhanced In-situ Bioremediation (EISB)
- *In-Situ* Chemical Oxidation (ISCO)



Oil-Water Separator



Bioremediation System



Soil Vapor Extraction

## On-site Remediation Technologies

- Soil Screening
- Soil Washing
- Bioremediation
- Soil Turn-Over Dilution
- Thermal Stripping
- Solidification/Stabilization(S/S)
- Biopile
- Landfarming



VOC Recovery System



Reagent Injection System

# Technology Innovation

- 2015, Research of ozone/nano-bubble remediation technics for contaminated sites (Sen-Kang company)
- 2010, Verification of developed surfactant and field testing (Sinotech)
- 2009, Developing of Fenton-like catalysis by iron complex for contaminated groundwater remediation (Sinotech)
- 2008, R&D of Fenton-like agent on in-situ oxidation for contaminated site (Sinotech)
- 2015, Development of Fate and Transport Model for Chlorinated Solvent-Contaminated Groundwater (II) ( National Central University )
- 2015, Groundwater reductive dechlorination bacteria biological agents R&D programs for chlorinated site (II) (Research express, NCKU)
- 2014, Development of Fate and Transport Model for Chlorinated Solvent-Contaminated Groundwater (I) ( National Central University )
- 2014, Verification of NGST geophysics technics (Taiwan Shoufu University)
- 2013, Groundwater reductive dechlorination bacteria biological agents R&D programs for chlorinated site (I) (Research express, NCKU)
- 2013, Utilization of solar energy in groundwater TCE electrolytic oxidation (NSC)
- 2013, Application of geological engineering technology in organic Chlorinated contaminated site investigation and remediation (Sinotech)
- 2012, Development of soil washing II, heavy metal washing and field testing (Sinotech)
- 2011, Development of soil washing, Feasible analysis (Sinotech)



# Breakthrough in Petroleum-Contaminated Sites Remediation

## ■ Petrochemical Factory

**Example: Grand Pacific Petrochemical Corporation**

- ✓ Soil and groundwater in this site were contaminated by BTEX. SETL design and implement the remedy which includes AS, SVE, ISCO, Surfactant Flushing and bioremediation.

## ■ Refinery

**Example: Chinese Petroleum Corporation (CPC)**

- ✓ This site is located in Kaohsiung, Taiwan. Major products are ethylene, ethyne, propylene, benzene, xylene etc.. Soil were contaminated by BTEX and TPH. Groundwater were contaminated by BTEX, TPH and naphthalene. SETL design and plan the remedy, including AS, SVE, ISCO, oil skimmer, surfactant flushing and excavation.

## ■ Gas Stations

**Examples: CPC, Mech Smile Inc. and National Petroleum Corporation**

- ✓ There are about 2,300 gas station in Taiwan. Contamination was often caused by the leakage of pipeline or UST, and the contaminants are BTEX, TPH(gasoline or diesel). SETL design and implement the remedy for our clients, the technics we often adopted are SVE, AS, excavation, biopile and ISCO.

## ■ Military Sites

**Example: Ministry of National Defense (MND)**

- ✓ SETL offered environment solutions and consultation to MND. Many army sites are contaminated by TPH. SETL plan and implement the off-site soil disposal. The soil was transported to cement or brick kilns to be as materials.

## ■ Long-range Pipeline Site

**Example: CPC**

- ✓ Contamination in this site was caused by man-made destruction to the pipeline, resulting in the oil spraying to the soil and permeate down to groundwater. SETL plan the remedy including off-site disposal and ex-situ bioremediation for contaminated soil and enhanced in-situ bioremediation for contaminated groundwater.

