Bethpage Site 1 Proposed Plan
Big-Picture Talking Points

- The Navy has identified environmental cleanup plans for remaining contamination in soil, shallow groundwater, and soil vapor for Site 1 of NWIRP Bethpage.
    - People currently are not exposed to the environmental contaminants at Site 1.
    - Environmental cleanup and land use restrictions are needed to prevent potential future exposure to PCBs, TCE, metals, and other contaminants that remain at Site 1.
- The public is encouraged to review and comment on the cleanup plans presented in the Site 1 Proposed Plan by January 22, 2018.
- Site 1 does not include the off-site groundwater plume, and therefore the Proposed Plan does not include actions to address the off-site plume.

Bethpage Site 1 Open House 12/12/17- Talking Points

Poster 1 (Welcome) - Melissa Cushing & Farrell

Poster 2 (NWIRP Bethpage History and Cleanup Team) - Melissa Cushing & Farrell

- Navy owned the property since the early 1940s
- Navy is here to stay until the cleanup work is completed
- Navy is the lead agency and supported by NYSDEC and NYSDOH

Poster 3 (Site 1 CSM exposure) - Kristi Francisco and Joe McCloud

Poster 4 (Soil and Soil Vapor Contaminants/Groundwater Contaminants) - Kristi Francisco and Joe McCloud

- 3 media involved soil, soil vapor and local shallow groundwater
- Contamination is on Navy property
- No one is being exposed –
    - Site is either fenced in or covered by concrete or gravel
    - No one is drinking the water,
    - Vapors are control by a treatment system

Poster 5 (Summary of Alternatives-Soil/Soil Vapor/Groundwater) - Dave Brayack, Scott Healy and Greg Healy

- Navy evaluated a variety of alternatives
- examples of treatment systems that were assessed

Poster 6 (Preferred Alternative for Site 1 Soil) - Dave Brayack, Scott Healy and Greg Healy

- Are protective and comply with environmental and health regulations
- Removes the majority of the mass
- Protects the groundwater
- Easy to implement and is cost effective
- 2 to 3 year construction,
    - no trucks through neighborhood,
    - normal working hours

Poster 7 (Preferred Alternative for Site 1 Soil Vapor) - Dave Brayack, Scott Healy and Greg Healy

- Existing system operates effectively and is protective
- Targets contamination to speed up mass removal

Poster 8 (Preferred Alternative for Site 1 Groundwater) - Dave Brayack, Scott Healy and Greg Healy

- Monitors the effectiveness of the excavation and cover as well as the SVE system

Poster 9 (What are PCBs?/PCBs Found all over the World) – Katherine Super and Steve Karpinski

Poster 10 (PCBs in the Environment/PCB Health Effects) - Katherine Super and Steve Karpinski

Poster 11 (What is TCE?/TCE in the Environment) - Katherine Super and Steve Karpinski

Poster 12 (TCE Health Effects) - Katherine Super and Steve Karpinski

- The Navy is addressing several toxic chemicals which could cause harm if people were exposed to elevated levels
- No one is currently exposed
- Proposed preferred remedies are to prevent potential future exposure
- These chemicals are commonly found everywhere in the environment

Poster 13 (Where do we go from Here?/Community Participation) – Mike Zobel

- We will take comments today
- Written comments will be accepted until January 22, 2018
- Public website contains the Proposed Plan

DECEMBER 12, 2017

WELCOME

Public Availability Session
to provide information and solicit input for

Final Remedy Selection at

Site 1 – Former Drum Marshalling Area

Naval Weapons Industrial Reserve Plant
Bethpage
(Former Grumman Plant)

NWIRP BETHPAGE HISTORY

The primary mission of the **Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage** was to research, design, build and test military aircraft in support of our national defense

1941

Northrop Grumman (NG) purchased the property and started production of aircraft during WWII. Later, the Navy and NG exchanged properties, resulting in a 109-acre Government-Owned Contractor-Operated (GOCO) facility and a neighboring 550-acre NG-owned and operated facility

1986

Navy Environmental Restoration Program began - initial studies identified sites on NWIRP Bethpage requiring further investigation

1998

NG returned operational control of the NWIRP Bethpage to the Navy

2008

Navy transferred 96 acres of NWIRP Bethpage property to Nassau County for economic redevelopment. Remaining 9 acres were retained by the Navy to complete Environmental Restoration Program requirements

Present

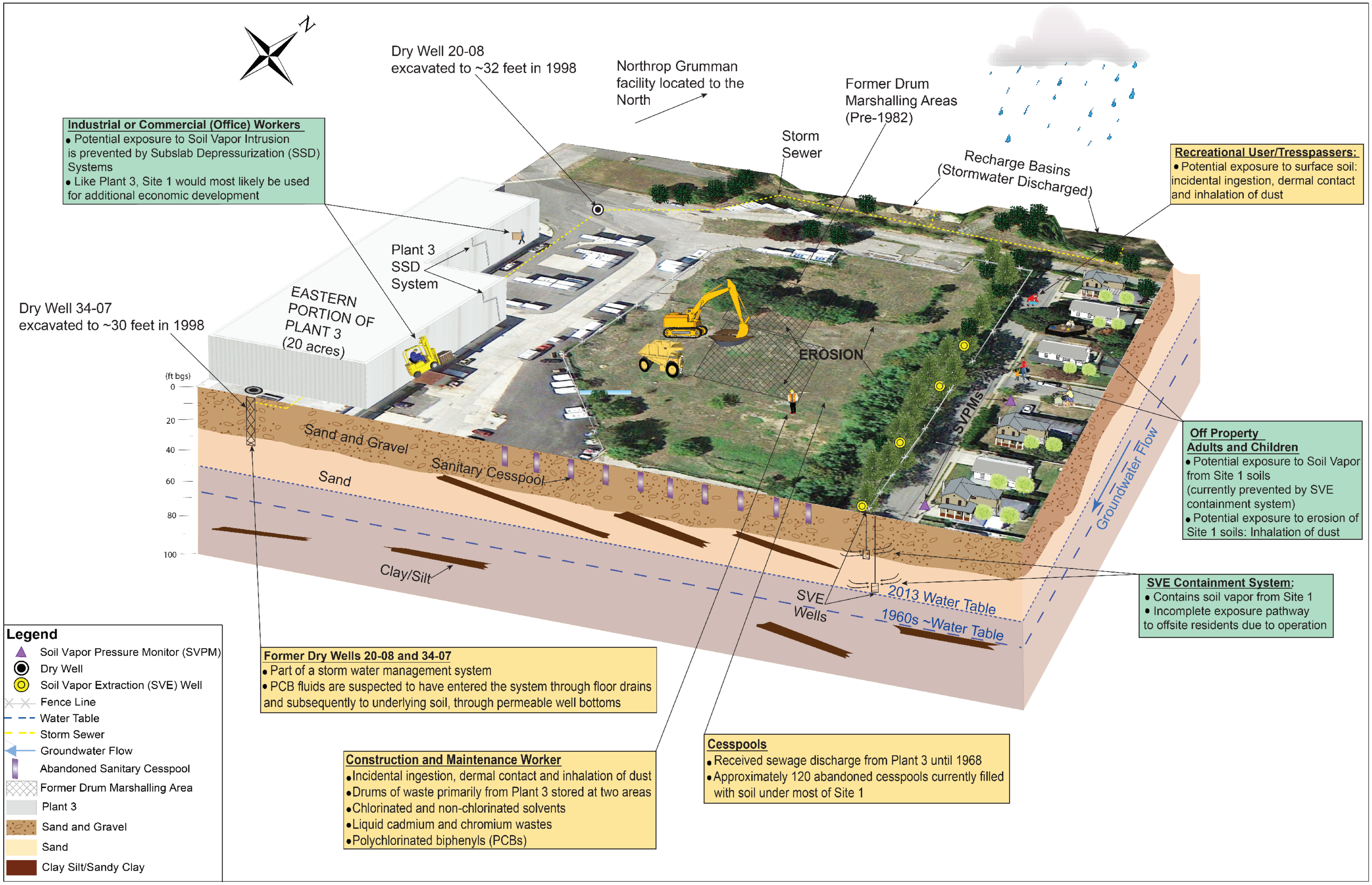
Environmental Restoration Program work continues at two sites on former NWIRP Bethpage and for off-site groundwater contamination

CLEANUP TEAM

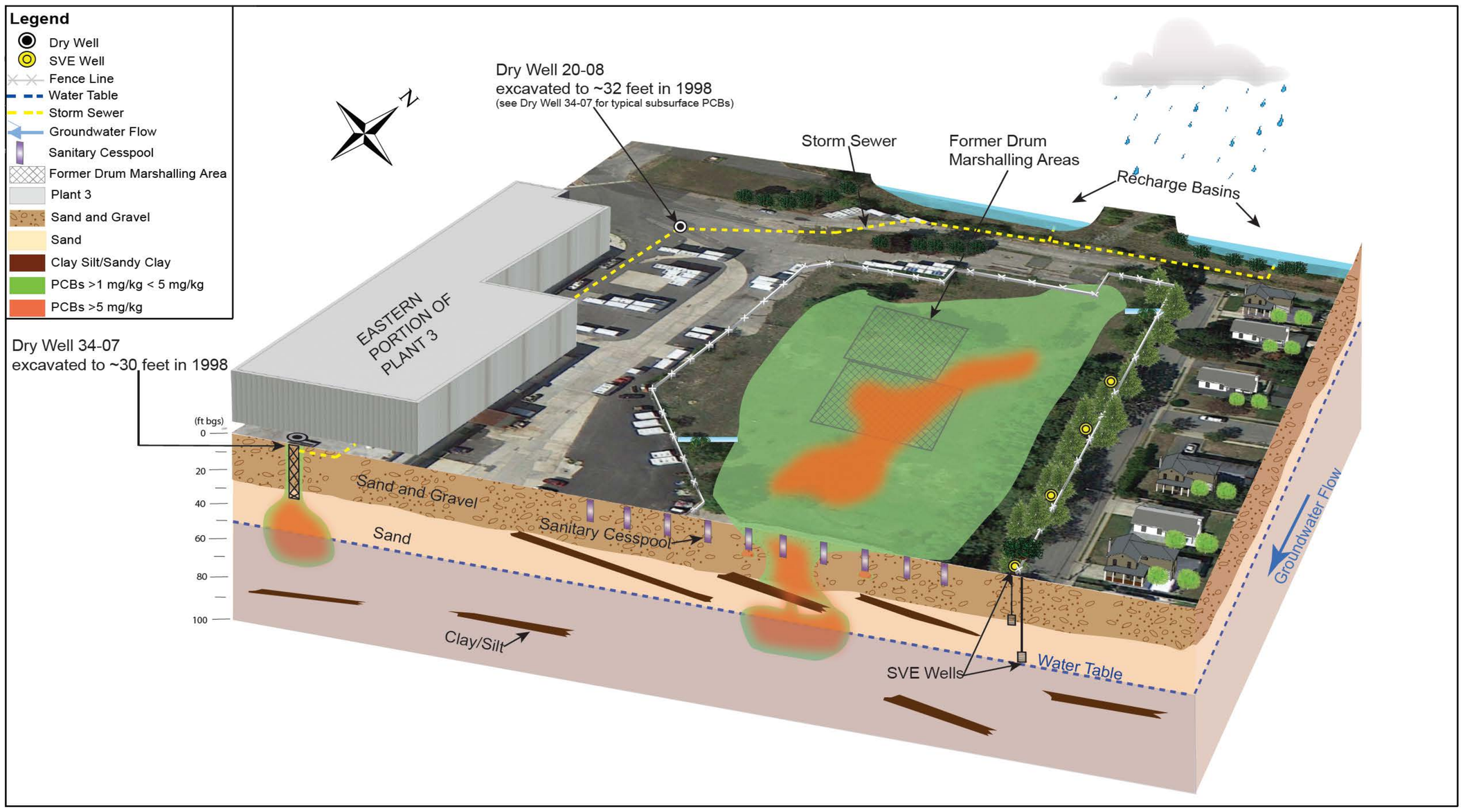
- The Navy's Environmental Restoration Program is conducted to meet requirements of the ***Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)***
- The Navy is the lead agency for environmental restoration at NWIRP Bethpage under CERCLA
- ***Naval Facilities Engineering Command (NAVFAC)*** manages the program at NWIRP Bethpage

- The ***New York State Department of Environmental Conservation (NYSDEC),*** with assistance from the ***New York State Department of Health (NYSDOH),*** is the lead state agency providing regulatory support for NWIRP Bethpage

SITE 1 – FORMER DRUM MARSHALLING AREA



SOIL AND SOIL VAPOR CONTAMINANTS



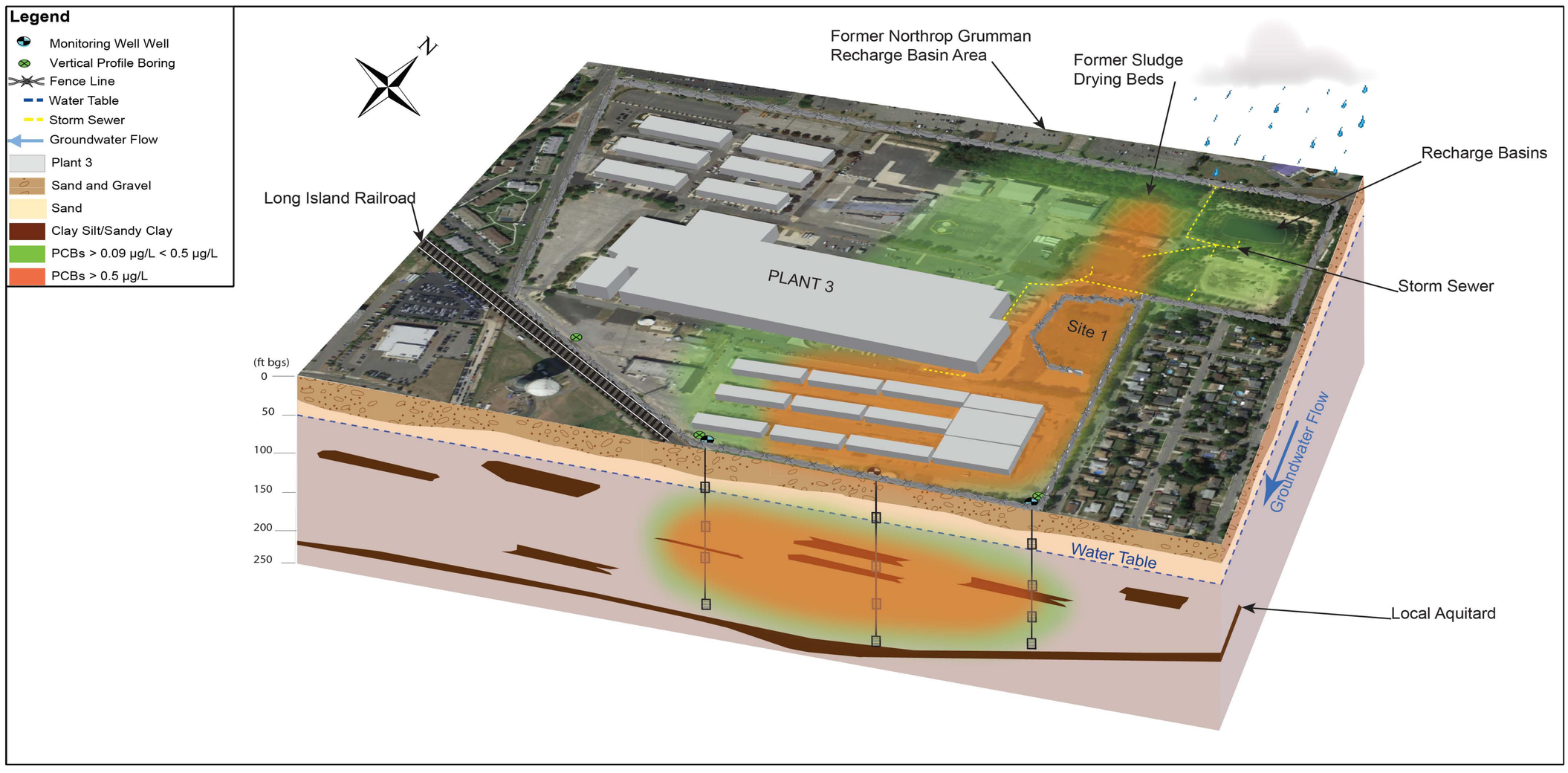
Soil

- PCB- and TCE- contaminated soil on property
- Metals and other contaminants are also present
- 4.5 acres down to 65 feet deep

Soil Vapor

- TCE- contaminated soil vapor on property
- Off property areas are protected by the SVE Containment System

GROUNDWATER CONTAMINANTS



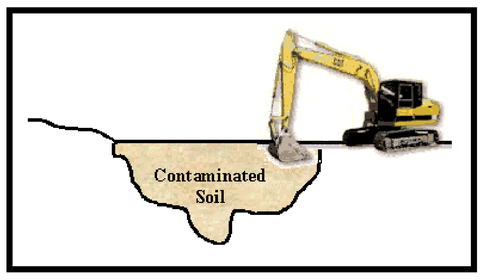
Groundwater

- PCB- and metal- contaminated groundwater on property
- 60 acres down to 300 feet deep

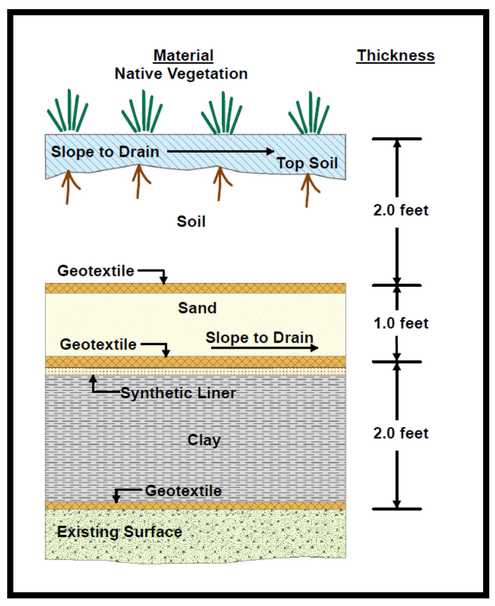
SUMMARY OF ALTERNATIVES - SOIL

Soil: Evaluated nine alternatives, which included permeable cover, excavation, vertical barrier, and solidification

Excavation
Removal of soil using construction equipment



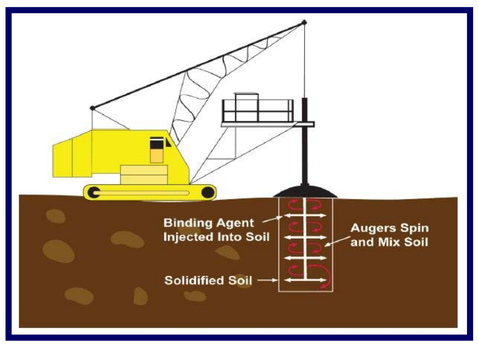
RCRA Cap
A leak proof barrier over contaminated soil to prevent rain water from contacting the contaminants



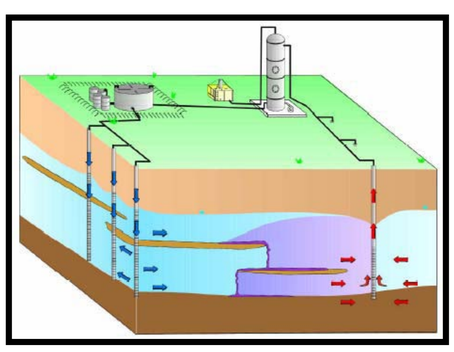
Permeable Cover
Soil or gravel is used to prevent exposure to contaminated soil, while allowing rain water to infiltrate

Vertical Barrier
A leak proof wall around contaminated soil

In-Situ Solidification
Contaminated soil is mixed with cement or clay in the ground to immobilize contaminants



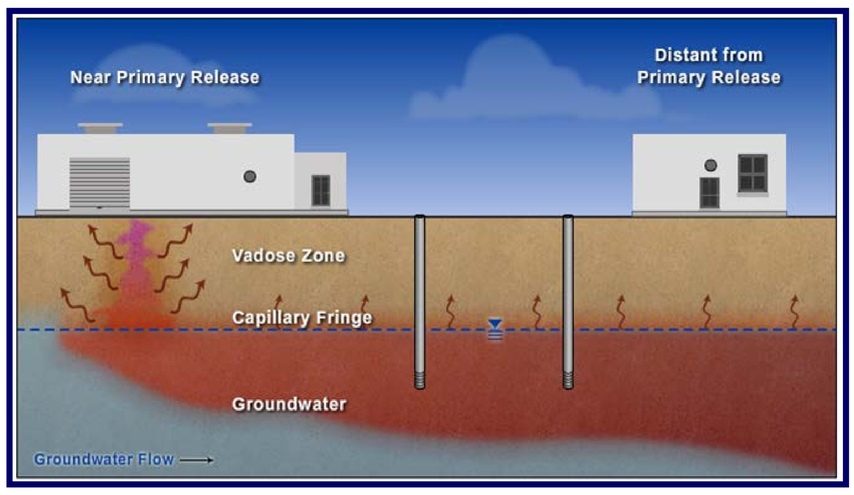
In-situ Solvent Extraction
- Contaminated soil is mixed with a solvent in the ground to initially mobilize the contaminants
- The mixture is then removed for treatment



SUMMARY OF ALTERNATIVES - SOIL VAPOR

Soil Vapor: Evaluated three alternatives which included continued operation of the Soil Vapor Extraction Containment System (SVECS) and enhancing the SVECS

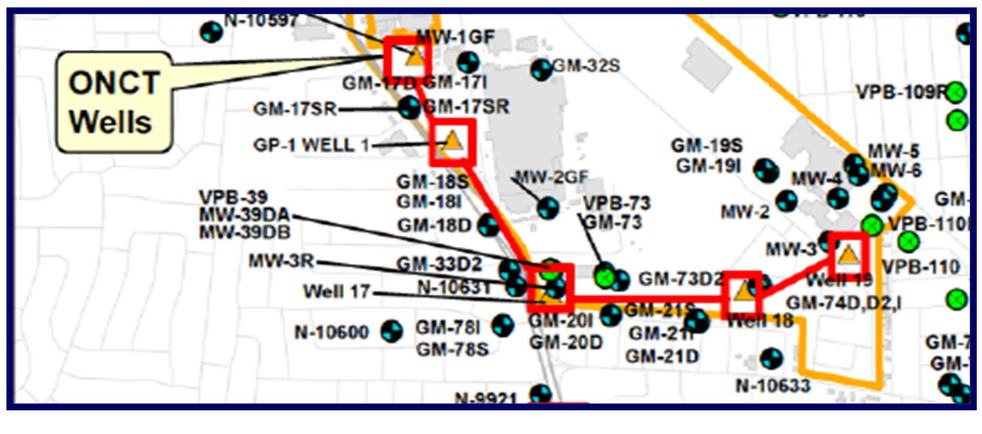
Soil Vapor Extraction Containment System
- Soil vapor extraction, or “SVE ” removes contaminant vapors from below ground by applying a vacuum



SUMMARY OF ALTERNATIVES - GROUNDWATER

Groundwater: Evaluated four alternatives which included monitoring and modifications to the Northrop Grumman Onsite Containment (ONCT) System

Northrop Grumman ONCT System
- System consists of five (5) extraction wells
- Extracted water is treated on-site and discharged to the on-site recharge basins

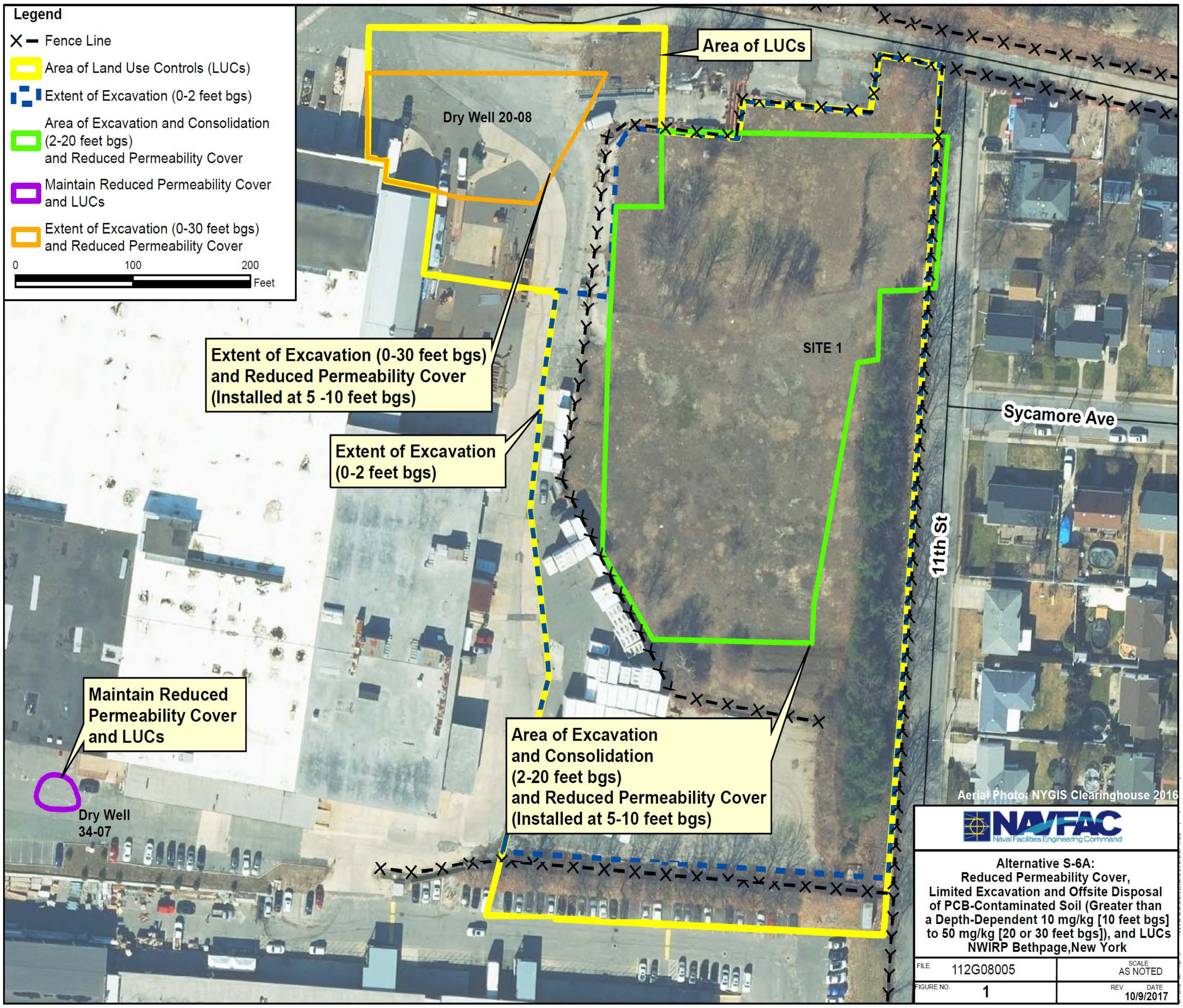


PREFERRED ALTERNATIVE FOR SITE 1 SOIL

Alternative S-6A:

- Excavation and Offsite Disposal of PCB-Contaminated Soil (Greater than a Depth-Dependent 10 parts per million (ppm) - Maximum of 10 feet below ground surface [bgs] to 50 ppm Maximum of 20 or 30 feet bgs)
- Reduced Permeability Cover
- Land Use Controls

- **Capital Cost: $25,600,000**
- **Annual Cost: $12,800 to $43,000**
- **30-Year Total Cost: $26,000,000**

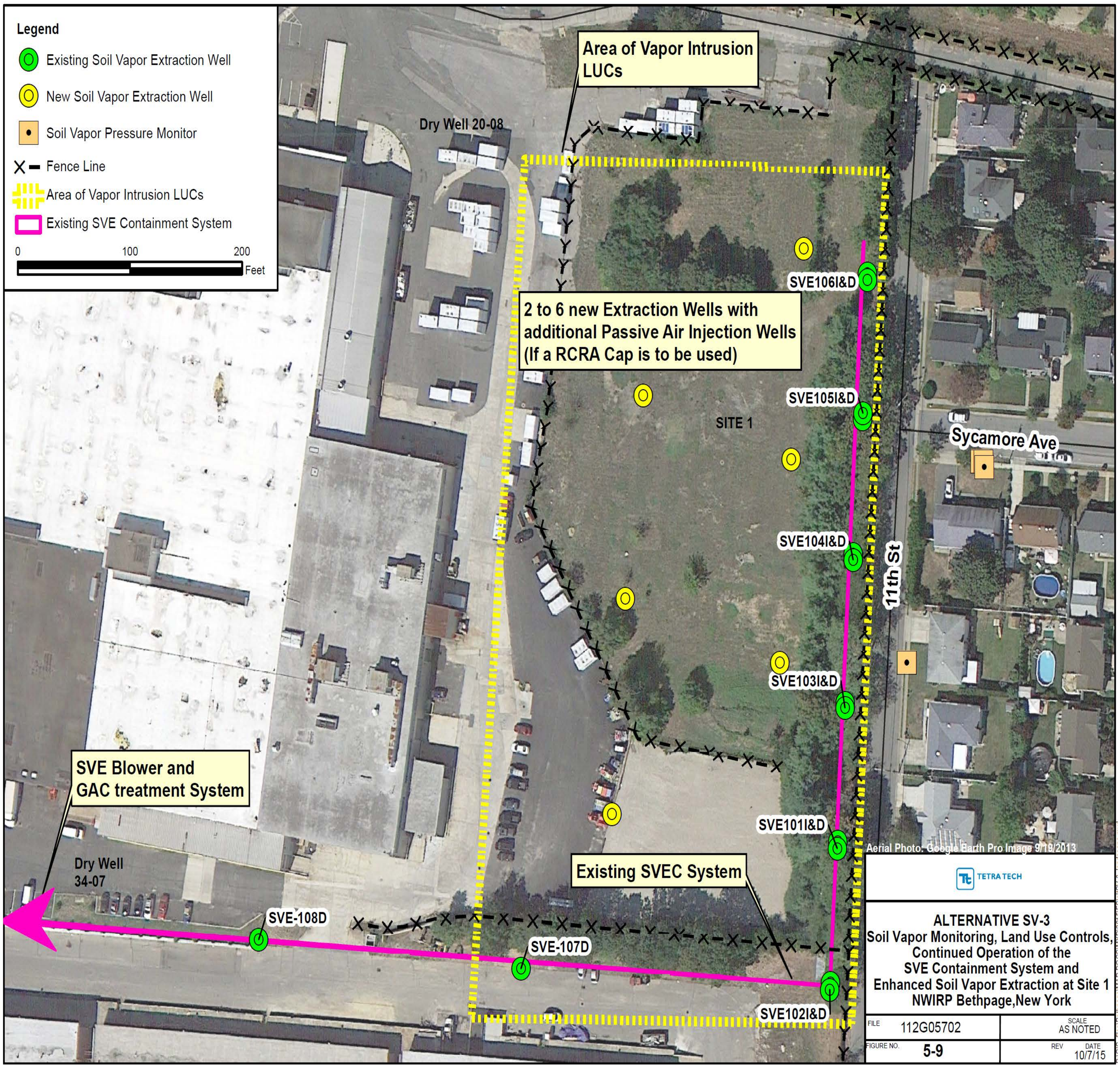


PREFERRED ALTERNATIVE FOR SITE 1 SOIL VAPOR

Alternative SV-3:

- Soil Vapor Monitoring
- Land Use Controls
- Continued Operation of the Soil Vapor Extraction Containment System
- Enhanced Soil Vapor Extraction at Site 1

- **Capital Cost: $220,000**
- **Annual Cost: $110,000 to $125,000**
- **30-Year Total Cost: $1,700,000**

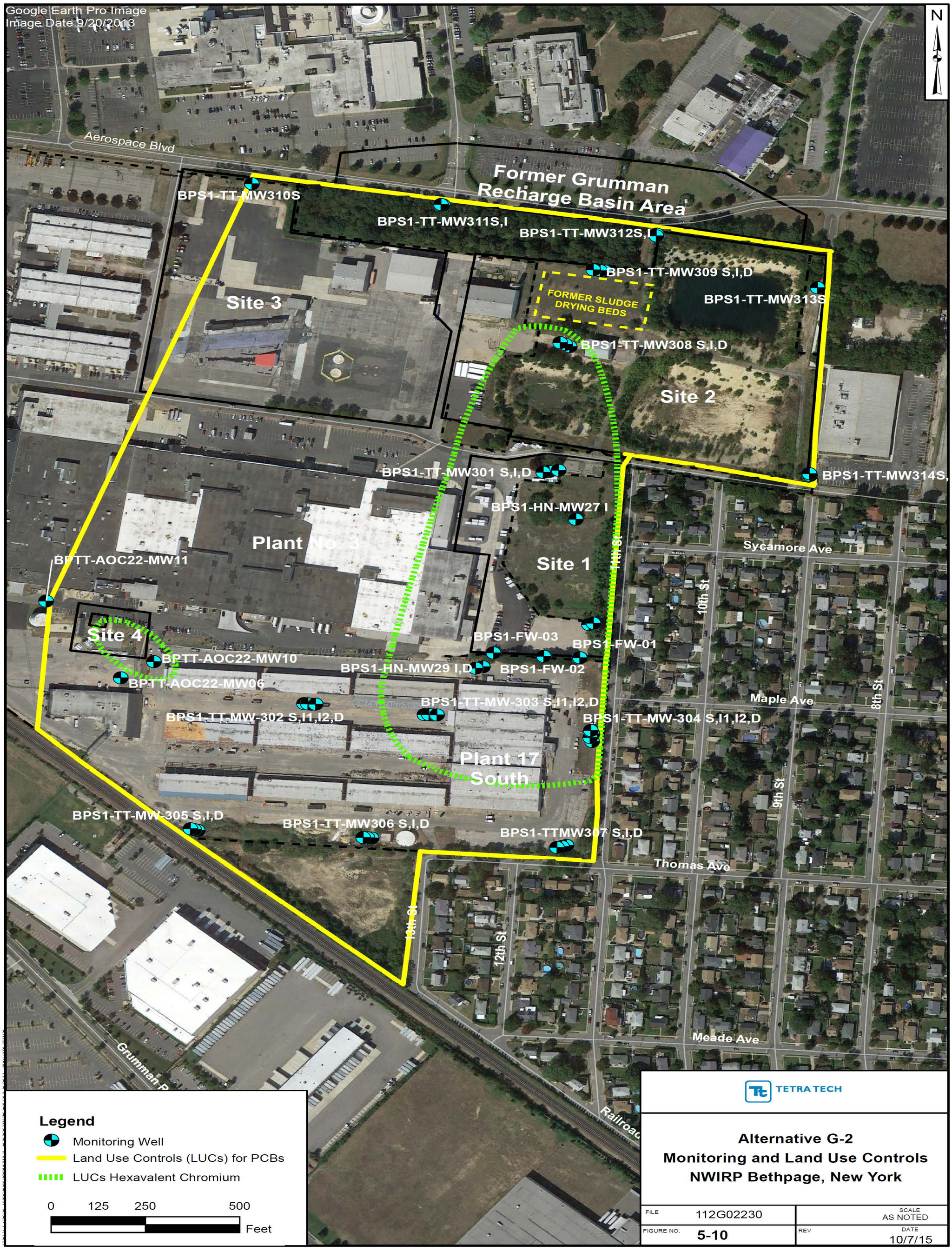


PREFERRED ALTERNATIVE FOR SITE 1 GROUNDWATER

Alternative G-2:

- Monitoring
- Land Use Controls

- **Capital Cost: $230,000**
- **Annual Cost: $110,000 to $125,000**
- **30-Year Total Cost: $2,600,000**



WHAT ARE PCBs?

PCBs, or polychlorinated biphenyls, are man-made compounds that were used in many products world-wide until the late 1970s

Chemical Properties

- Oily liquids or solids that are colorless to light yellow
- Do not burn easily
- Do not dissolve easily in water

History

- Invented in 1929
- Used all over the world in many products
  - Electrical transformers
  - Other electrical devices with PCB capacitors
  - Fluorescent light fixtures
  - Some paints
- Manufacture of PCBs stopped in U.S. in 1977

United Nations Stockholm Convention (May 2001) banned PCB production and mandated a phase-out of ongoing uses around the world by 2025. The treaty calls on countries to make determined efforts to remove from use all PCB-containing electrical transformers and other equipment

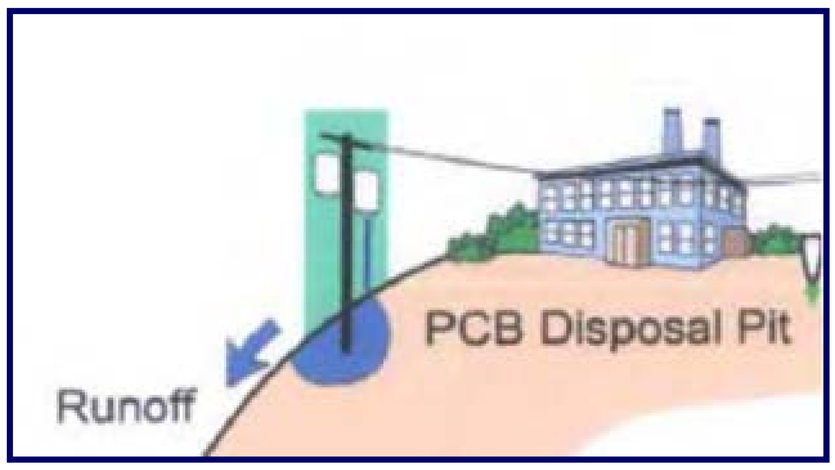
PCBs ARE FOUND ALL OVER THE WORLD

- PCBs do not break down easily and remain in the environment for very long periods of time
- PCBs can cycle between air, water, and soil
- PCBs can be carried long distances in the air

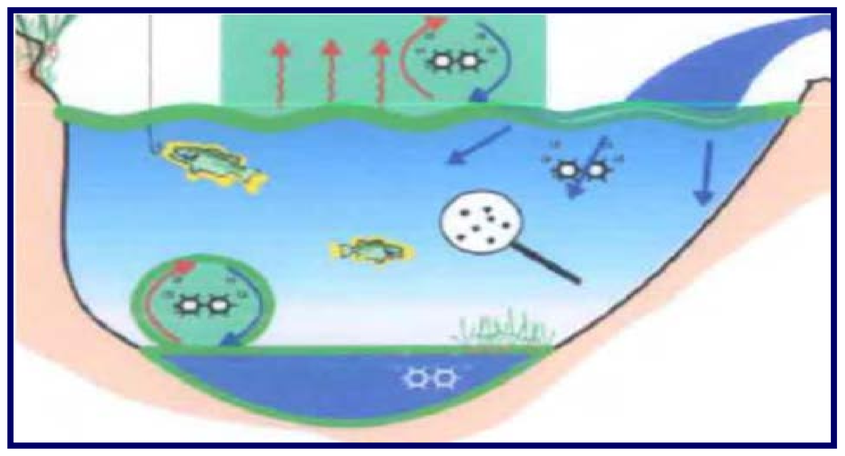
PCBs have been found in snow and sea water in areas far away from where they were released, such as the Arctic

PCBs IN THE ENVIRONMENT

PCBs stick strongly to soil



PCBs do not dissolve easily in the water



People are exposed to small amount of PCBs almost everywhere in the environment

PCB HEALTH EFFECTS

PCBs in Your Body

- A portion of PCBs taken into your body will be removed in feces in a few days
- The PCBs that remain in your body fat or liver can be there for months or years

US Environmental Protection Agency (EPA) stated that *PCBs are probably cancer causing for people*

US Department of Health and Human Services stated that *PCBs may reasonably be anticipated to be cancer-causing for people*

Potential Health Effects

- **Large exposures in workers** (before 1977)
  - o Skin conditions such as severe acne (Chloracne) and rashes
  - o Liver damage – possibly liver and biliary tract cancer
- **Children –** born to women exposed to high levels in the workplace or who ate large amounts of contaminated fish
  - o Weighed slightly less than average at birth
  - o Possibly slower motor skill development
- **Animal Studies** (typically very high exposures)
  - o Liver, stomach, and thyroid damage
  - o Liver cancer
  - o Anemia
  - o Acne-like skin conditions
  - o Weakened immune systems
  - o Reproductive effects
  - o Neurological effects

More Information on PCBs available from: Agency for Toxic Substances and Disease Registry (ATSDR): http://www.atsdr.cdc.gov

WHAT IS TCE?

TCE (trichloroethylene) is a man-made, volatile organic chemical with industrial uses
TCE is a common groundwater contaminant at environmental investigation sites

Chemical Properties

- Colorless, volatile liquid
- Evaporates quickly
- Nonflammable

History

- Developed as a surgical anesthetic in early 1900's
- FDA stopped its use as an anesthetic and minor food additive in 1977
- Most significant historical use: vapor degreasing of metal parts (less common use today)
- Use as a degreaser in other operations (e.g., dry cleaning and textile industry)
- Most common use today – in the manufacture of other chemicals

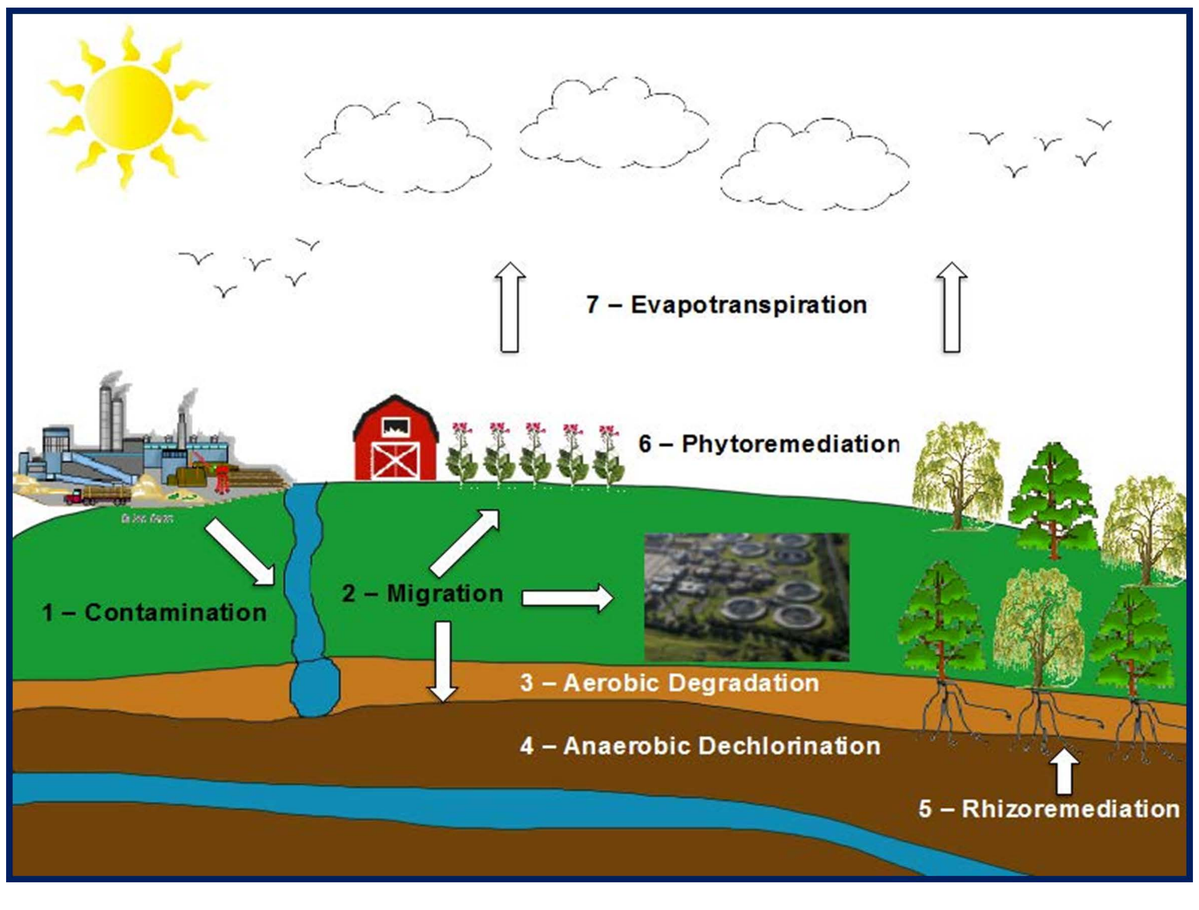
TCE IN THE ENVIRONMENT

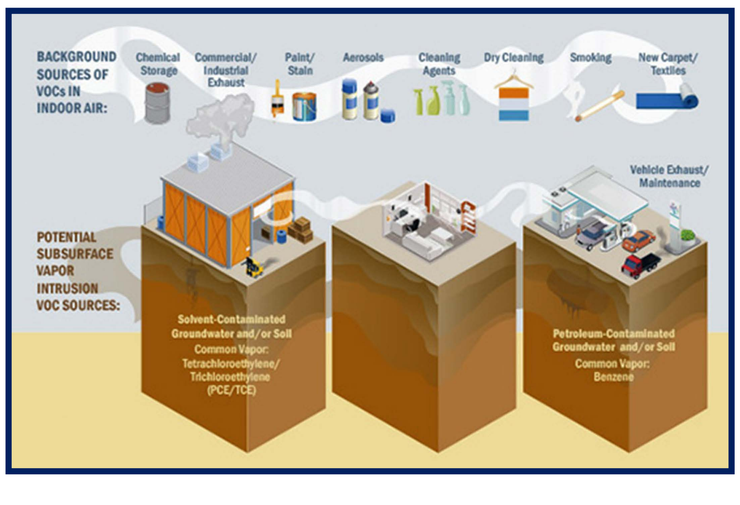
Soil

- TCE can be released to soil through historical spills
- TCE in soil can migrate to groundwater
- TCE in soil can evaporate from soil and migrate to air

Air

- TCE can evaporate from soil and migrate to outdoor air.
- TCE can evaporate from soil, migrate to the surface, and intrude into indoor air.
- TCE vapor migration and intrusion to indoor air depends on many things like:
  - How long has TCE been in subsurface?
  - How much TCE is in subsurface?
  - How deep in the ground is it?
  - What is the soil type? (Some soils are difficult for vapors to get through.)
  - Are there buildings directly over soil vapor areas?
  - What is the building construction type?
- There are technologies and construction practices that prevent vapors from intruding to indoor air





TCE HEALTH EFFECTS

TCE in Your Body

How can TCE get in your body?

- Inhalation (if TCE is in the air)
- Ingestion (if TCE is in drinking water or food)
- Skin absorption (if TCE is in water – but lower amount because it's so volatile)

How does TCE leave your body?

- TCE is removed from the body through exhaling and in urine
- TCE does not accumulate in the body

Potential Health Effects

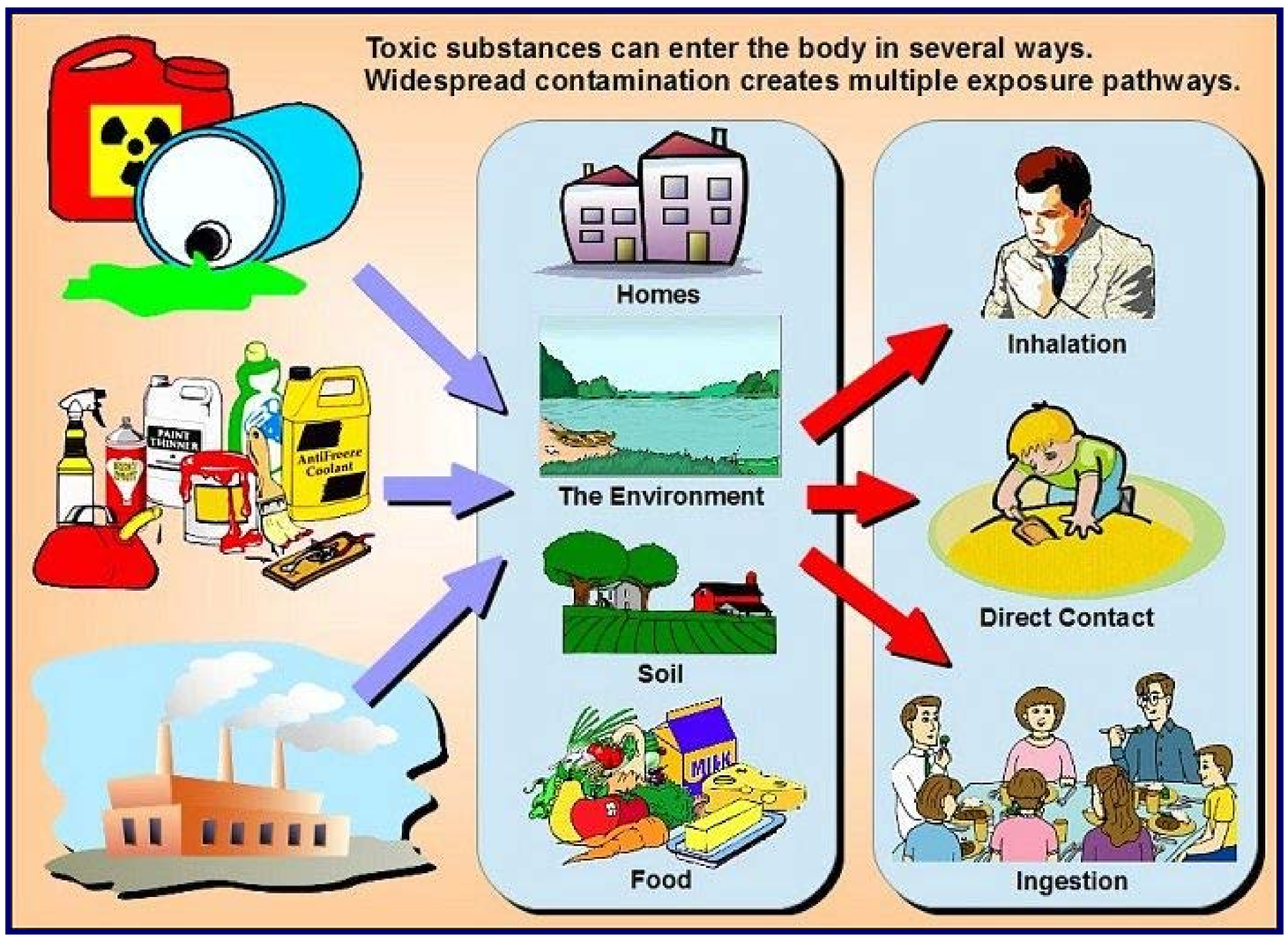
- Possible health effects are dependent on how much TCE exposure and for how long[1]

Human studies

- Central nervous system effects
  (At high concentrations – not environmental levels)
- Kidney cancer in humans. (TCE exposures have been associated with this type of cancer)
- Possible reproductive effects
  (But, may be affected by other factors)

Animal Studies

- Liver and kidney effects (including cancer) in rats and mice
- Developmental effects in rats and mice



Regulatory Values Protect the Public from TCE Health Effects:
NYSDOH Indoor Air Guideline: 2 µg/m^3

US EPA classifies TCE as a "carcinogenic to humans."

[1]**New York State Department of Health (NYSDOH)**, "Whether a person experiences a health effect depends on how much of the chemical he or she is exposed to, how often the exposure occurs, and how long the exposures last."
https://www.health.ny.gov/environmental/investigations/soil_gas/svi_guidance/docs/fs_tce.pdf

More Information on TCE available from: Agency for Toxic Substances and Disease Registry (ATSDR): http://www.atsdr.cdc.gov

WHERE DO WE GO FROM HERE?

COMMUNITY PARTICIPATION

Public Comment Period

November 22, 2017 through January 22, 2018

Submit Written Comments

The Navy will accept written comments on the Proposed Plan during the public comment period

Submit Written Comments to:

Public Affairs Officer
Code 09PA
Naval Facilities Engineering Command, Mid-Atlantic
9324 Virginia Ave, Rm. 302
Norfolk, Virginia 23511

Information Repository

The Navy has established an Information Repository, which contains the documents used to support the Navy's Preferred Alternatives, located at:

Bethpage Public Library
47 Powell Road
Bethpage, New York 11714
(516) 931-3907

These documents can also be accessed at a public website at:

http://go.usa.gov/DyXF