Former Ford Aeronutronics Property

Community Update

Jessica Law, P.G.
Engineering Geologist
Santa Ana Regional Water Quality Control Board

May 28 – 30, 2019

Agenda

Item	Speaker	Time
Opening	Marina Perez Public Participation Specialist State Water Resources Control Board	10 minutes
Current investigation activities and findings; Upcoming work activities	Jessica Law Project Manager Santa Ana Regional Water Quality Control Board	30 minutes
Q&A	Marina Perez, Facilitator	50 minutes

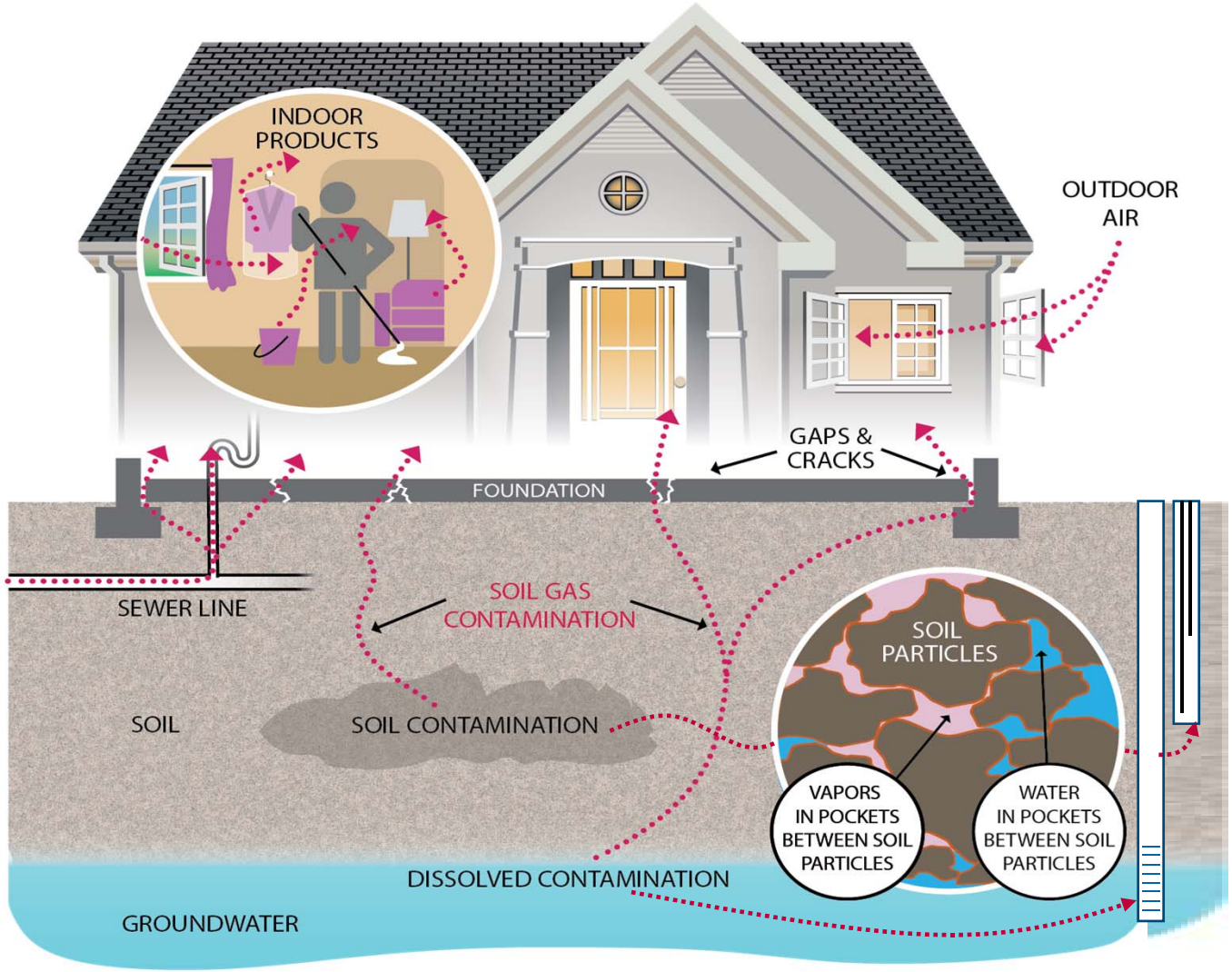
Opening/Introductions

- **Purpose:** Share recent findings from site investigation work, discuss next steps and timeline, answer questions and address concerns
- **Handouts**
  - Acronym Glossary
  - Common household items that contain VOCs
  - TCE Fact Sheet
  - Vapor Intrusion Frequently Asked Questions
  - Where to get more information
  - Presentation
- **Introductions**
  - Regional Water Quality Control Board
  - Office of Environmental Health Hazard Assessment
  - Wood Environment and Infrastructure

Presentation Outline

- Vapor intrusion overview
- Screening level overview
- What's new since February 2019
- Current scope of work:
  - Soil gas plume
  - Indoor air
- Preliminary findings/next steps
- Schedule
- Q & A

Vapor Intrusion Conceptual Model



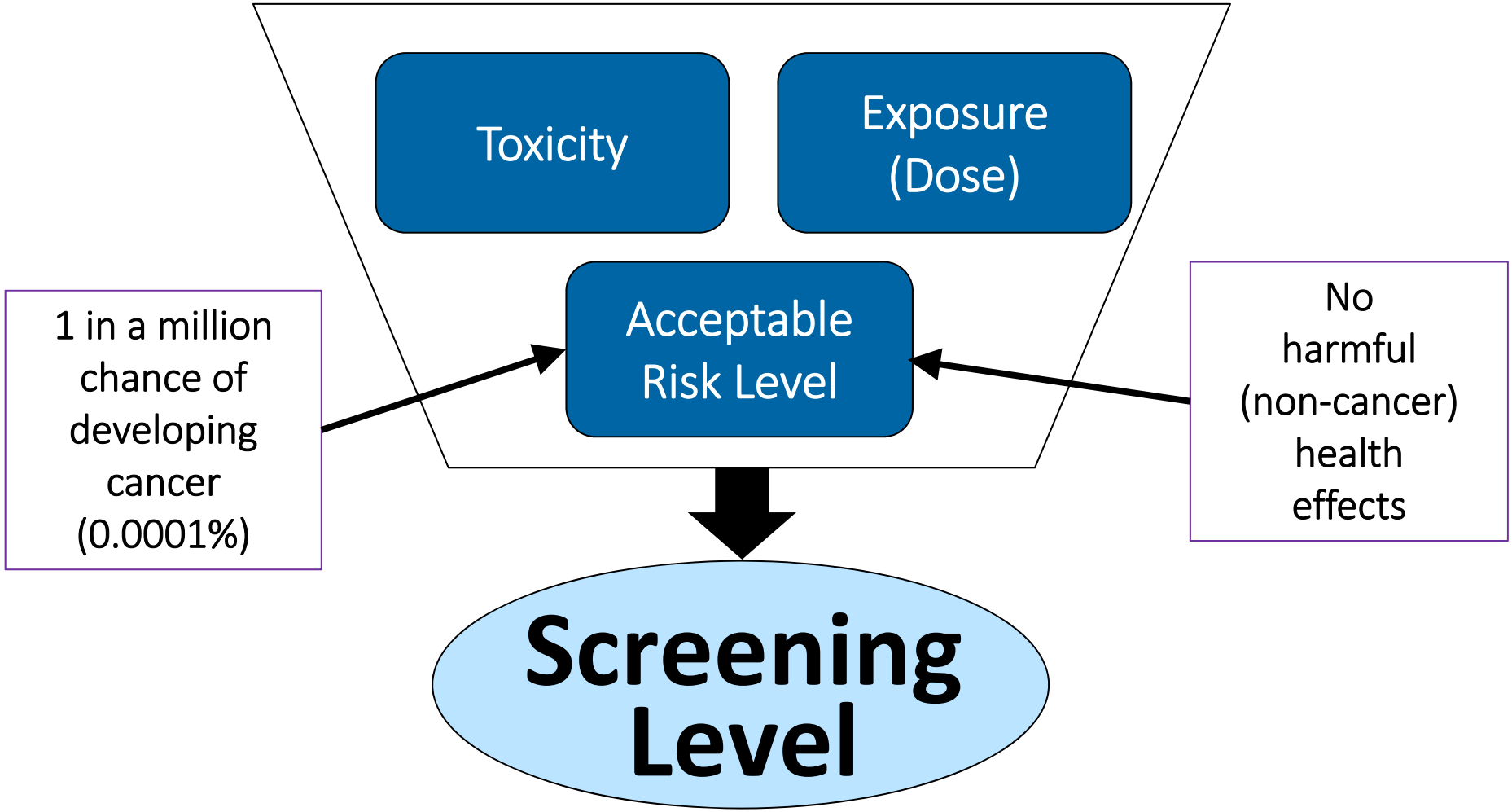
Source: CalEPA

Vapor Intrusion - Recap

- Soil gas is also referred to as soil vapor.
- The vapor forming chemicals at this site are referred to as volatile organic compounds (VOCs).
- Primary VOCs detected at the site are tetrachloroethene (PCE) and trichloroethene (TCE); both were used as solvents in many industries.
- Subsurface monitoring is used to evaluate concentrations of contaminants in the subsurface.
- Soil gas in the subsurface needs to be present at certain concentrations for vapor intrusion to occur.

- How do we know what concentrations may result in vapor intrusion?

Environmental Screening Levels (ESLs)



Environmental Screening Levels - Recap

- Developed by the San Francisco Bay Regional Water Board.
- A tool used to screen or evaluate potential threats posed by contamination at a site.
- Prioritize efforts where the most significant problems have been identified at contaminated sites.
- A chemical present at concentrations above its corresponding ESL does not mean there is an immediate threat but it does mean additional evaluation is generally necessary.
- ESLs are very stringent and have multiple levels of assumptions built in to be protective of public health.
- ESLs are updated periodically.

What's New
Vapor Intrusion Assessment

Continued Vapor Intrusion Assessment

- Installed 57 soil gas probes
- Sampled 157 soil gas probes
- Sampled 96 homes

Re-evaluating the work plan methods to changing industry recommendations

- The need to sample sewer gas
- Evaluating indoor air testing methods

Reached out to California Dept. of Public Health

- Did not identify community studies or existing reports of cancer clusters for this area.

Environmental Investigation
Vapor Intrusion Assessment

- Preliminary findings.
- Data to be evaluated within a risk assessment report.
- If you live in an area to be evaluated, please have your home tested.
- Information within this presentation is based on investigation efforts through April 30, 2019 (investigation is ongoing).

Environmental Investigation
Vapor Intrusion Assessment – Soil Gas

Determine Extent of Soil Gas Plume

- Samples being evaluated for all volatile organic compounds.
- PCE and TCE are the primary two contaminants detected in soil gas that exceed screening levels.
- 115 sampling locations for evaluating the extent of soil gas plume.
- Good understanding how far the soil gas plume has spread and we are close to fully defining the outer edges.
- Good understanding for what buildings should be evaluated.

Prior to Making Decisions

- A minimum of two sampling events in different seasons is necessary.
- Recommended by U.S. EPA and CalEPA guidance.

Environmental Investigation
Vapor Intrusion Assessment – Indoor Air

Why Evaluate Buildings

- When there is soil gas that exceeds screening levels, vapor intrusion may be occurring.

Evaluating Vapor Intrusion

- Collect indoor air sample over a 24-hour period in various rooms.
- Collect concurrent soil gas sample from either a sub-slab soil gas probe or perimeter soil gas probe.
- Collect samples in different seasons (i.e. summer and winter months)
- Prepare a risk assessment report

Indoor Air Testing Results
Project Totals to Date

479 homes that need sampling

↓

254 signed access agreements (53%)

↓

159 homes sampled (33%)

Indoor Air Testing Results
Project Totals

159 homes sampled

- Low levels of PCE and TCE have been detected in indoor air in some homes.
- Additional contaminants detected in indoor air but not in the subsurface.

3 homes with TCE levels over short-term action level

- 2 homes offered air purifying units
- 1 home concluded to be an indoor air source

55 homes with PCE and/or TCE over screening level

- Further evaluation is necessary to determine if vapor intrusion or indoor air source

Indoor Air Testing Results
Belcourt Hill Totals

24 homes that need sampling

↓

10 signed access agreements (42%)

↓

0 homes sampled

Indoor Air Testing Results
Belcourt Hill Totals

0 homes sampled

- Totals are through April 30, 2019
- Homes are scheduled for sampling.
- Once a home is sampled, it typically takes 3-4 weeks to receive a letter describing the results and the next steps.

Indoor Air Testing Results
Sea Island Totals

25 homes that need sampling

5 signed access agreements (20%)

0 homes sampled

Indoor Air Testing Results
Sea Island Totals

0 homes sampled

- Totals are through April 30, 2019
- Homes are scheduled for sampling.
- Once a home is sampled, it typically takes 3-4 weeks to receive a letter describing the results and the next steps.

Indoor Air Testing Results
One Ford Road Totals

147 homes that need sampling

↓

102 signed access agreements (69%)

↓

77 homes sampled (52%)

Indoor Air Testing Results
One Ford Road Totals

77 homes sampled

- Low levels of PCE and TCE have been detected in indoor air.
- Additional contaminants detected in indoor air but not in the subsurface.

1 homes with TCE levels over short-term action level

- 1 home concluded to be an indoor air source

22 homes with PCE and/or TCE over screening level

- Further evaluation is necessary to determine if vapor intrusion or indoor air source

Indoor Air Testing Results
Bayridge Park Totals

145 homes that need sampling

88 signed access agreements (61%)

56 homes sampled (39%)

Indoor Air Testing Results
Bayridge Park Totals

56 homes sampled

- Low levels of PCE and TCE have been detected in indoor air.
- Additional contaminants detected in indoor air but not in the subsurface.

1 homes with TCE levels over short-term action level

- 1 home offered air purifying units

26 homes with PCE and/or TCE over screening level

- Further evaluation is necessary to determine if vapor intrusion or indoor air source

Indoor Air Testing Results
Belcourt Terrace Totals

50 homes that need sampling

39 signed access agreements (78%)

21 homes sampled (42%)

Indoor Air Testing Results
Belcourt Terrace Totals

21 homes sampled

- Low levels of PCE and TCE have been detected in indoor air.
- Additional contaminants detected in indoor air but not in the subsurface.

1 homes with TCE levels over short-term action level

- 1 home offered air purifying units

4 homes with PCE and/or TCE over screening level

- Further evaluation is necessary to determine if vapor intrusion or indoor air source

Indoor Air Testing Results
Newport North Totals

84 homes that need sampling

24 signed access agreements (29%)

2 homes sampled (2%)

Indoor Air Testing Results
Newport North Totals

2 homes sampled

- Additional homes are scheduled for sampling.

0 homes with TCE levels over short-term action level

2 homes with PCE and/or TCE over screening level

- Further evaluation is necessary to determine if vapor intrusion or indoor air source

Indoor Air Testing Results
Corsica Villas Totals

23 homes that need sampling

↓

0 signed access agreements

↓

0 homes sampled

Indoor Air Testing Results
Corsica Villas Totals

0 homes sampled

- Access with the HOA is pending.

Indoor Air Testing Results
Belcourt Masters Totals

3 homes that need sampling

↓

3 signed access agreements (100%)

↓

2 homes sampled (66%)

Indoor Air Testing Results
Belcourt Masters Totals

2 homes sampled

- Totals are through April 30, 2019
- Other home sampled beginning of May
- Once a home is sampled, it takes approx. 3-4 weeks to receive a letter describing the results and the next steps.

0 homes with TCE levels over short-term action level

0 homes with PCE and/or TCE over screening level

- Further evaluation is still necessary.

Indoor Air Testing Results
Belcourt Park Totals

0 homes that need sampling

0 signed access agreements

0 homes sampled

Preliminary Findings

- 2 homes have been offered air purifiers to reduce indoor air concentrations.
- Low levels of TCE and PCE have been detected in indoor air of some of the homes sampled.
- Move forward with initial clean up.

What's Next

Interim Remedial Action Plan (IRAP)

- Interim measures to control, minimize, or eliminate contaminants that pose an actual or potential threat.
- An IRAP includes a work plan that proposes a remedial technology
- In select areas
- Based on current soil gas and indoor air results
- Water Board approval prior to implementing

Risk Assessment Report

- A document prepared to evaluate possible health effects when a contaminant(s) is present at the site.
- Based on analytical data.
- Minimum of 2 sampling events in different seasons (~6 months apart).
- OEHHA will review this document.

Upcoming Work Activities

Q-3, 2019

- 2nd site-wide soil gas sampling event
  - Submit draft Interim Remedial Action Plan (IRAP)
  - 2nd Quarter 2019 Progress Report
  - Continue vapor intrusion assessment

Q-4, 2019

- Provide Water Board response to IRAP
- Submit 3rd Quarter 2019 Progress Report
- Continue vapor intrusion assessment
- Community Meeting

2020

- Submit Quarterly Progress Report
- Submit a Risk Assessment Report
- Conduct interim remediation

Summary

- Continue vapor intrusion investigation to fully define soil gas plume
- Continue to gain access and test indoor air
- Develop and implement interim remediation plan to address highest impacted areas.

Additional Information

- Geotracker
- Lyris List for email notification
  - Next public event – late 2019
- Water Board webpage
- Ford’s site-specific website and 800 number
- Local information repository - library

Q
&
A

Common Household Sources of Volatile Organic Compounds (VOCs)

Air fresheners (including electric varieties and room sprays)

Scented candles

Perfume/cologne

Beauty products (e.g., hairspray, hair dye, aerosolized products)

Pepper spray

Paints, varnishes and lacquers

Nail polish and nail polish removers

Paint thinner

Paint, varnish, rust and lacquer removers

Shoe polish

Adhesives/glues (e.g., wood glue, craft glue, model glue, carpet glue)

Markers

Cleaning agents (e.g., bleach, ammonia)

Rubber cement and epoxy adhesives

Toilet disinfectant

Moth balls

Gasoline

Automobile exhaust

Cigarette smoke

Cleaning solvent (e.g., carburetor/car part cleaner)

Petroleum products

Carpet/rug/upholstery cleaners

Plastic foam insulation

Refrigerant

Printing inks

Insecticides, fungicides and pesticides

Flame retardant fabrics

Plastic products

Polyresin molded decorations (particularly from China)

Soil or space fumigant

Building materials (e.g., particle board)

White correction fluid (for typewriters and print)

Furniture polish and floor polish

Residential wood combustion

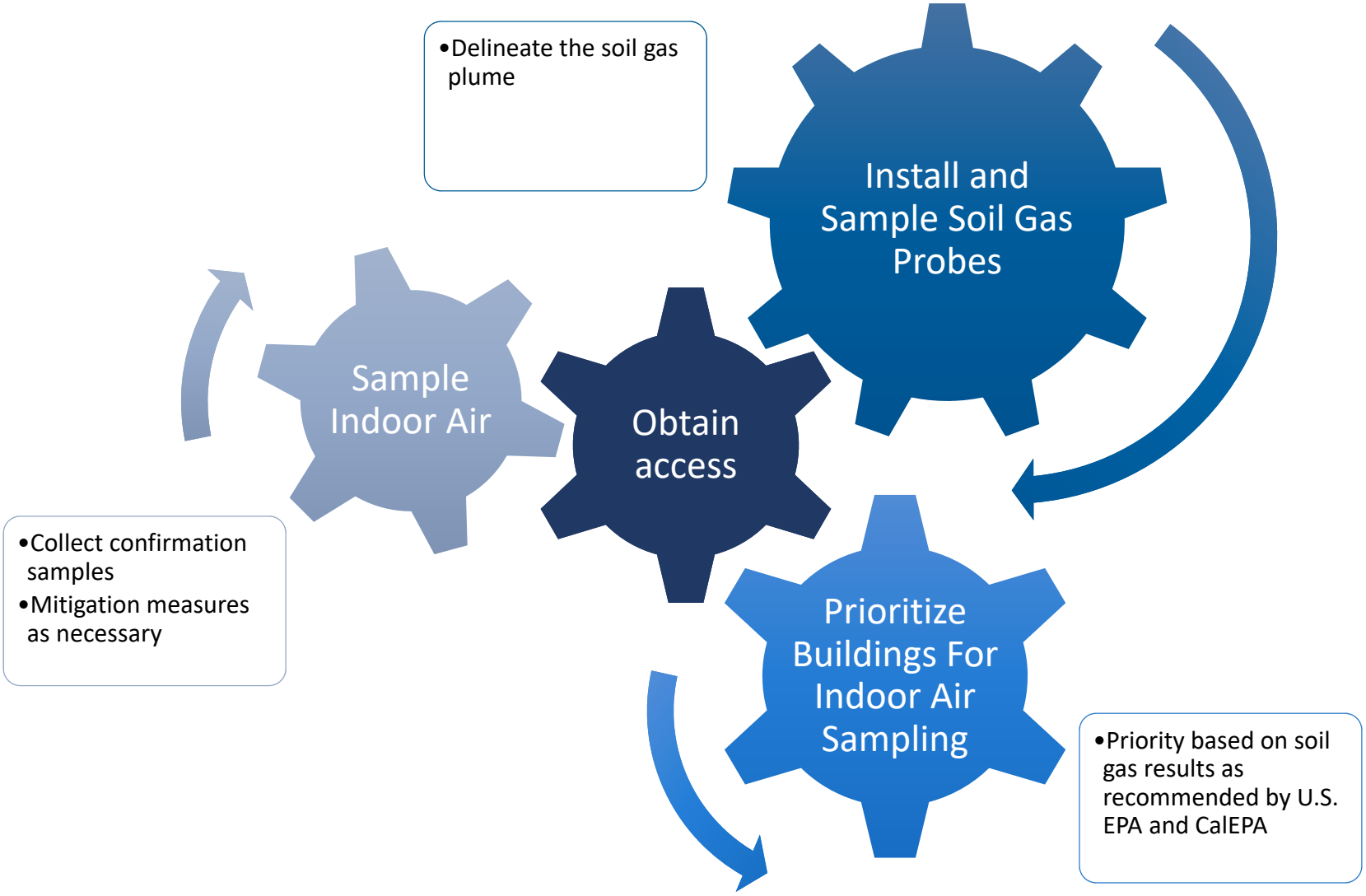
Fiberglass

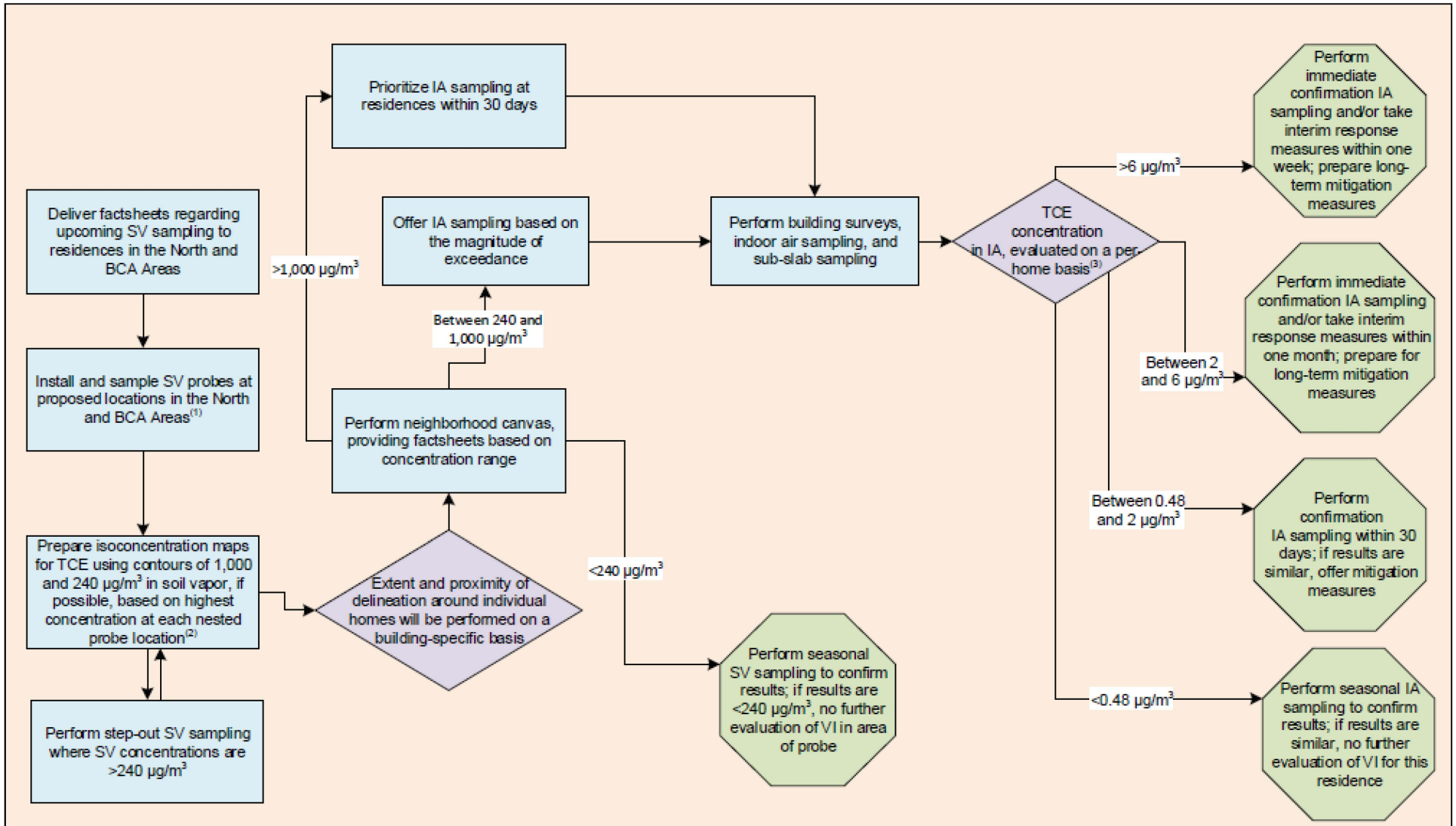
Dry cleaning chemicals

Metal degreasers and metal cleaners

Drain cleaners

Decision Flow Chart for Vapor Intrusion Assessment





Notes

(1) Amec Foster Wheeler, 2017. Revised Addenum to Work Plan for Groundwater Investigation – North Area, Former Ford Aeronutronic Property, Newport Beach, California

(2) Source of soil vapor screening levels: February 2016 San Francisco Bay RWQCB ESLs of 240 (final screening level) and 1000 µg/m³ ("Trigger" level and noncancer ESL) for TCE.

(3) Indoor air concentrations will be evaluated with respect to the following:

- Outdoor air concentrations
- Sub-slab and/or crawl space concentrations, if applicable
- Presence of preferential pathways indicating possible migration via sewer line
- Indoor air screening levels: 0.48 µg/m³ (long-term; U.S. EPA 2018 RSL and 2016 SFRWQCB ESL) and 2 and 6 µg/m³ [short-term; Accelerated and Urgent Response Action Levels, respectively; DTSC 2014 HHRA Note 5: Health-based Indoor Air Screening Criteria for Trichloroethylene (TCE)].

Abbreviations

IA = indoor air
SV = soil vapor
µg/m³ = micrograms per cubic meter
VI = vapor intrusion
BCA = Big Canyon Arroyo

NORTH AND BCA AREAS
VI EVALUATION STRATEGY
RESIDENTIAL PROPERTIES
Former Ford Aeronutronic Property
Newport Beach, California

wood.

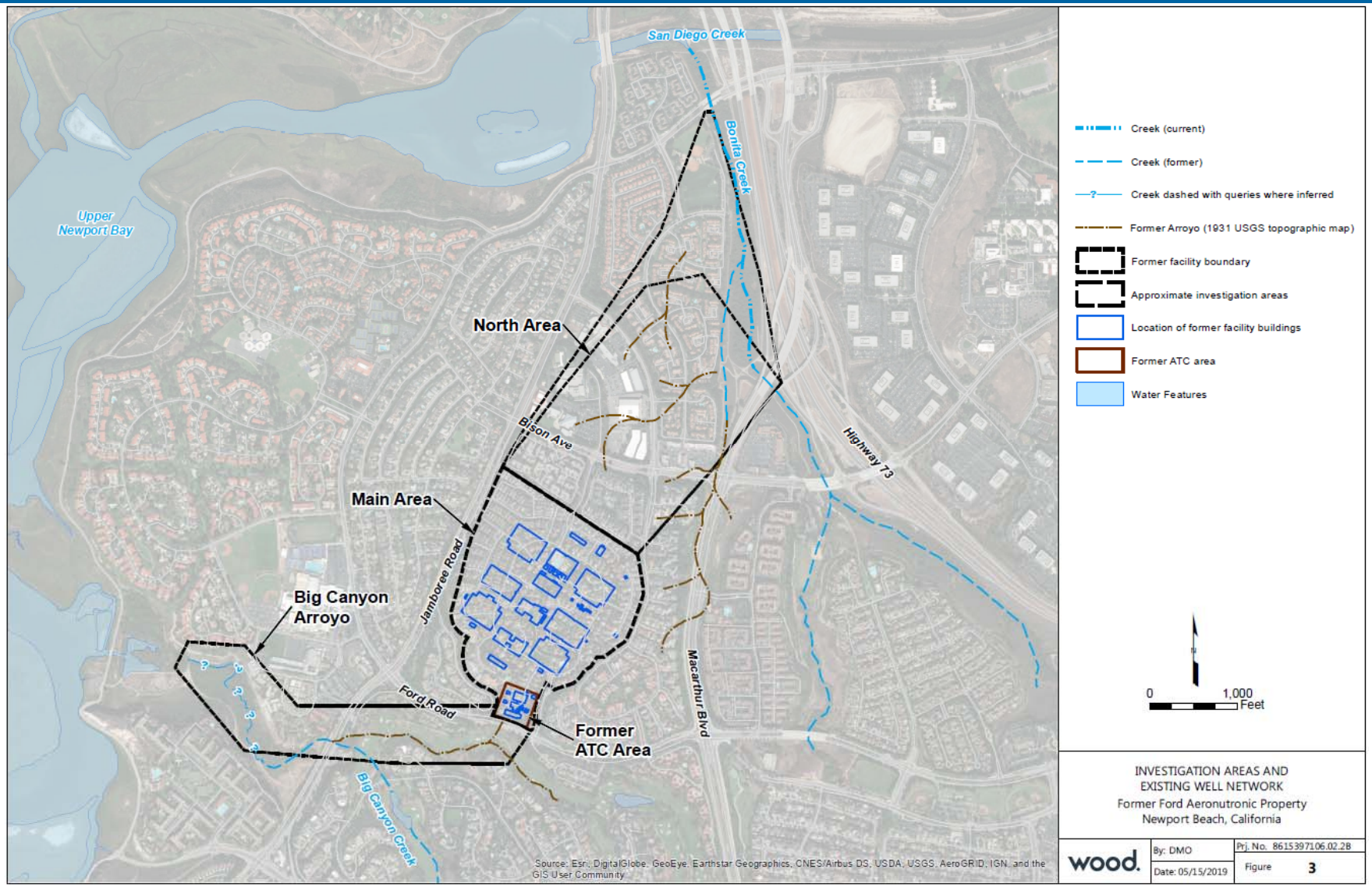
Date: 07/02/2018 | Project 8618397107

Data Quality

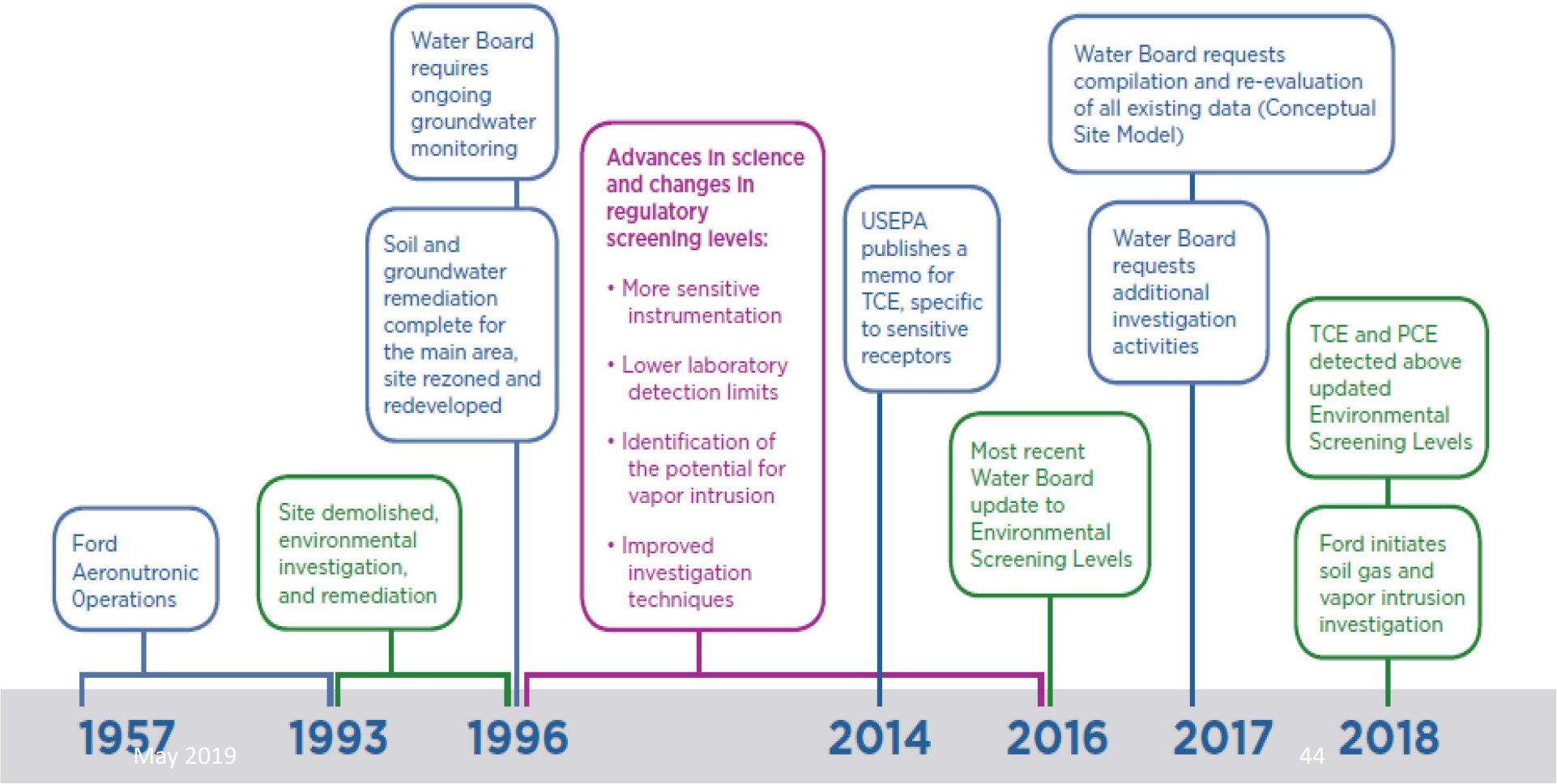
- Site inspections
  - Work plan
  - Permits
  - Fieldwork procedures
- State certified laboratory
  - Lab QA/QC Measures
- Field duplicates
- Data validation

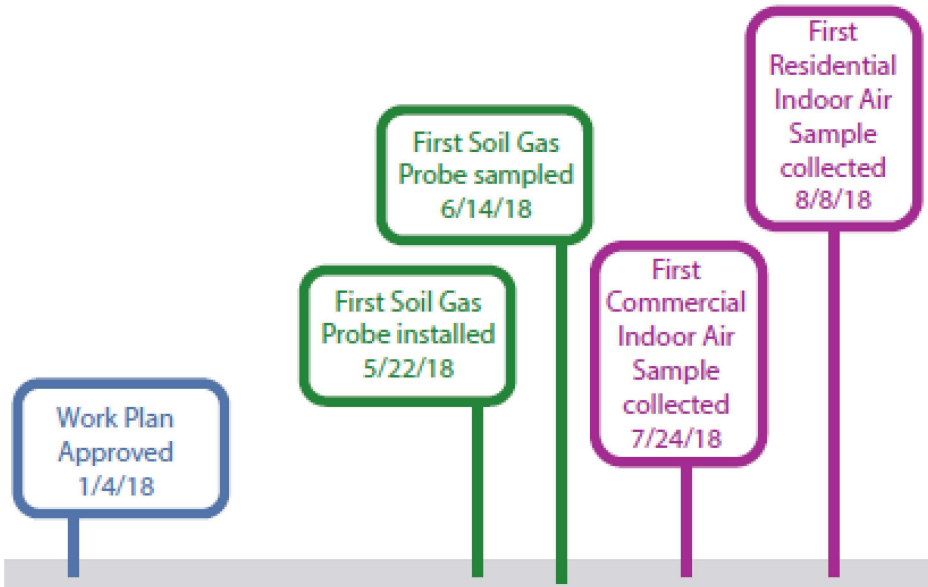
Airpura
MAX
MIN

Site Vicinity Map



TIMELINE


Ford Aeronutronic Operations
Site demolished, environmental investigation, and remediation
Soil and groundwater remediation complete for the main area, site rezoned and redeveloped
Water Board requires ongoing groundwater monitoring
Advances in science and changes in regulatory screening levels:
• More sensitive instrumentation
• Lower laboratory detection limits
• Identification of the potential for vapor intrusion
• Improved investigation techniques
USEPA publishes a memo for TCE, specific to sensitive receptors
Most recent Water Board update to Environmental Screening Levels
Water Board requests additional investigation activities
Water Board requests compilation and re-evaluation of all existing data (Conceptual Site Model)
TCE and PCE detected above updated Environmental Screening Levels
Ford initiates soil gas and vapor intrusion investigation
1957
1993
1996
2014
2016
2017
2018



Investigation Summaries from January 1, 2018 to April 30, 2019	
Number of homes offered indoor air sampling	479
Number of homes with executed access agreements	254
Number of homes sampled at least one time	159
Number of commercial properties sampled at least one time	3
Number of soil gas (SG and parcel PSGs) sampling locations installed	262
Number of soil gas samples collected (includes dups and reps)	652

2Q2018	
Soil gas sampling locations installed	24
Soil gas sampling locations sampled	13
Number of homes sampled[1]	0

3Q2018	
Soil gas sampling locations installed	40
Soil gas sampling locations sampled	58
Number of homes sampled[1]	35

4Q2018	
Soil gas sampling locations installed	25
Soil gas sampling locations sampled	11
Number of homes sampled[1]	51

1Q2019	
Soil gas sampling locations installed	109
Soil gas sampling locations sampled	176
Number of homes sampled[1]	71

2Q2019*	
Soil gas sampling locations installed	64
Soil gas sampling locations sampled	74
Number of homes sampled[1]	42

NOTE:
1. Number of homes sampled each quarter includes homes sampled for the first time, confirmation sampling and seasonal sampling.

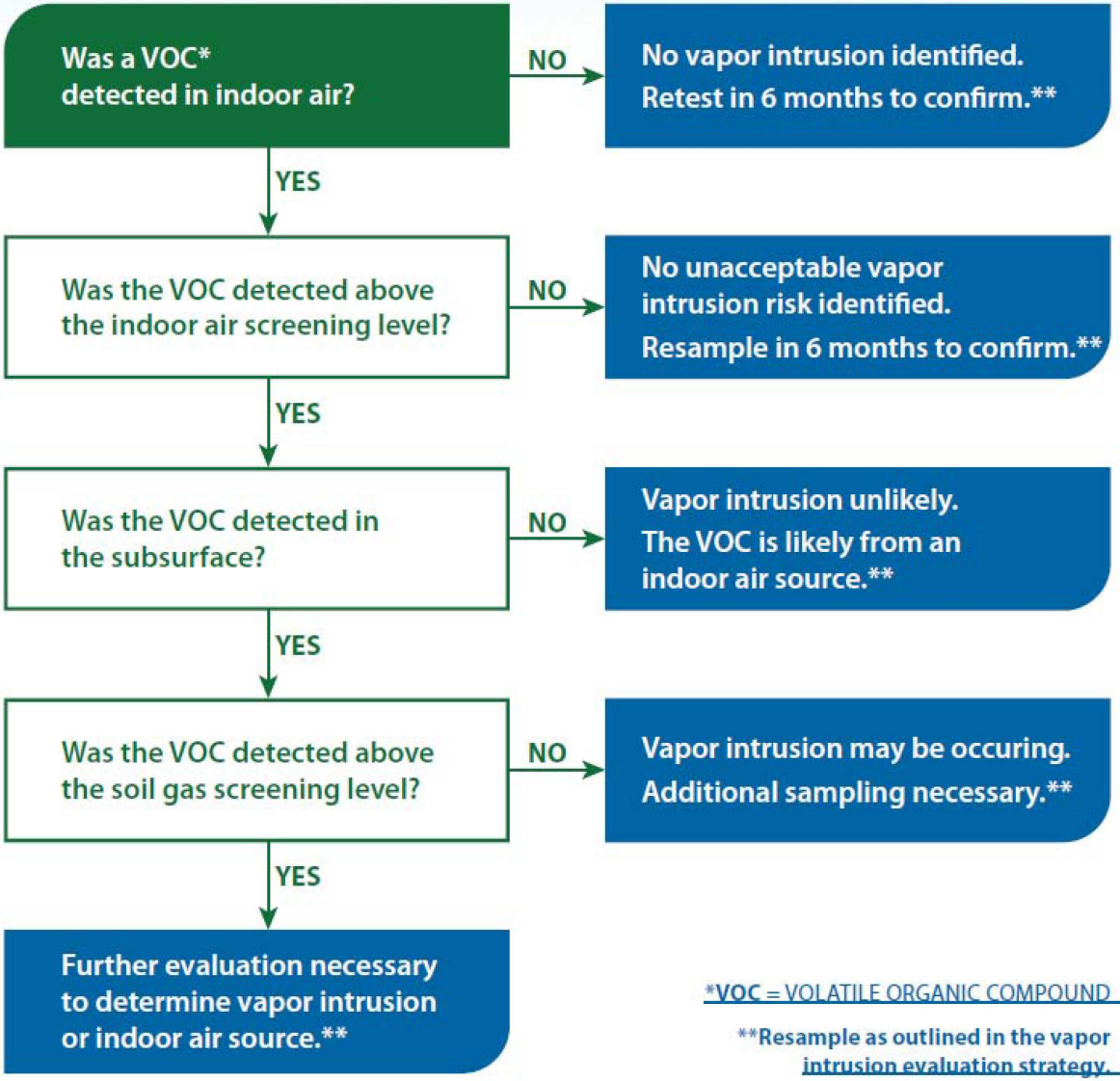
* April 1 to April 30, 2019

VAPOR INTRUSION INVESTIGATION TIMELINE
Former Ford Aeronutronic Property,
Newport Beach, California

wood.

By: KLU
Date: 05/23/2019
Proj. No. 8618397107.01.18
Figure 1

How to interpret your INDOOR AIR RESULTS



*VOC = VOLATILE ORGANIC COMPOUND

**Resample as outlined in the vapor intrusion evaluation strategy.

Environmental Quality Office
Sustainability, Environment & Safety Engineering

Ford Motor Company
Fairlane Plaza North
290 Town Center Drive, Suite 800
Dearborn, MI 48126

[redacted]

Re: Indoor Air Sampling Results for [redacted]
Environmental Investigation
Former Ford Aeronutronics Property, Newport Beach, CA

Dear [redacted]:

Thank you for your cooperation in the indoor air investigations being conducted by Ford Motor Company (Ford) under the oversight of the California Regional Water Quality Control Board, Santa Ana Region (Water Board). This letter confirms in writing the results of the indoor air sampling that was conducted at your residence on [redacted].

Background: Indoor air sampling was performed at your residence in connection with the Former Ford Aeronutronics Property located at former 1000 Ford Road in Newport Beach by Wood Environment & Infrastructure Solutions, Inc., with the goal of evaluating the potential migration of vapors released from impacted groundwater into overlying buildings (a process called "vapor intrusion"). Please be aware that your drinking water is not affected. Your water comes from municipal sources, not from groundwater in this area.

Your Indoor Air Sampling Results: Table 1 (below) and the attached laboratory analytical reports list the chemicals that were detected in the indoor air samples. All concentrations are below the health-based short-term screening levels and the interim response actions levels used by the Water Board and are not considered to be an immediate concern to your health. Tetrachloroethene (PCE) was detected above the long-term screening level. Per the Water Board, concentrations above the long-term levels require additional evaluation. A flow chart outlining the strategy for indoor air sampling based on trichloroethylene (TCE) concentrations in soil gas for residential land use scenarios is included in the attached Figure 3 from the Indoor Air Sampling Workplan as approved by the Water Board.

We have also measured the soil gas under the foundation of your residence (sub-slab soil gas). Although 1,2-dicholorethane (1,2-DCA) and PCE were detected in indoor air samples, they were not detected in the sub-slab soil gas. If the chemical detected inside your residence is not detected under your home, this indicates that the chemical is potentially present because of another source. Consistent with the Water Board's approved approach, the results of our investigation indicate that detections of 1,2-DCA in indoor air are associated with other sources and not vapor intrusion. Chemicals we are testing for (including 1,2-DCA, TCE, and PCE) belong to a chemical category called volatile organic compounds (VOCs), which are contained in industrial products as well as products commonly found in homes and offices such as lubricants, adhesives, air fresheners, cleaners, new carpet, and dry-cleaned clothing.

[redacted]

TABLE 1 - SUMMARY OF AIR SAMPLING RESULTS
[redacted], Newport Beach, California

All concentrations are presented in micrograms per cubic meter (µg/m³)

Sample Location	TCE Concentration	1,2-DCA Concentration	PCE Concentration
Air Results			
Family room air (1st floor)	Not detected	0.14	0.34
Family room air (1st floor) (duplicate)	Not detected	0.13	0.40
Bathroom air (1st floor)	Not detected	0.15	0.36
Master bedroom air (2nd floor)	Not detected	0.15	0.48
Bedroom air (2nd floor)	Not detected	0.15	0.44
Outdoor air	Not detected	Not detected	0.17
Comparison to Air Screening Levels			
Indoor Air Urgent Response Action Level (Short-term)	6	--	--
Indoor Air Accelerated Screening Level (Short-term)	2	--	--
Indoor Air Long-term Screening Level	0.48	N/A	0.46
Sub-slab Soil Gas Results			
Garage sub-slab soil gas	Not detected	Not detected	Not detected

Note: "--" indicates not applicable or no level has been established.
"N/A" indicates not applicable because chemical is not present as a result of vapor intrusion.

Next Steps: In order to fully evaluate potential vapor intrusion, the Water Board has requested **an additional round of sampling to confirm these findings within 30 days.** We believe this confirmation testing is important and, again, is offered at no cost to you.

Please call 833-949-3673 if you have any questions and to schedule the confirmation sampling. You can find additional project information at www.fordnbfacts.com.

Sincerely,

Todd M. Walton
Manager, Global Site Assessment & Remediation

Attachments

cc: Jessica Law, Santa Ana Regional Water Quality Control Board

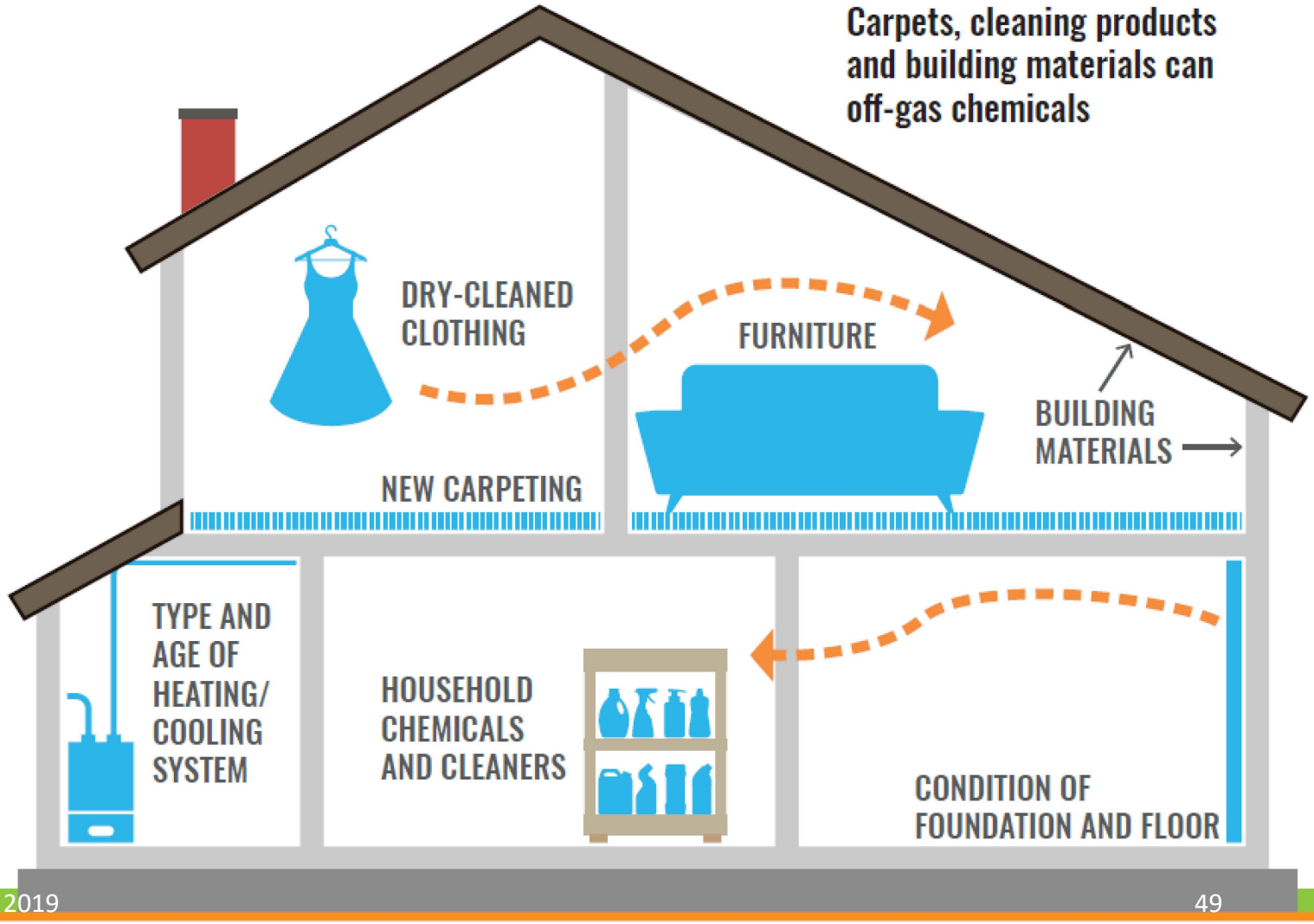
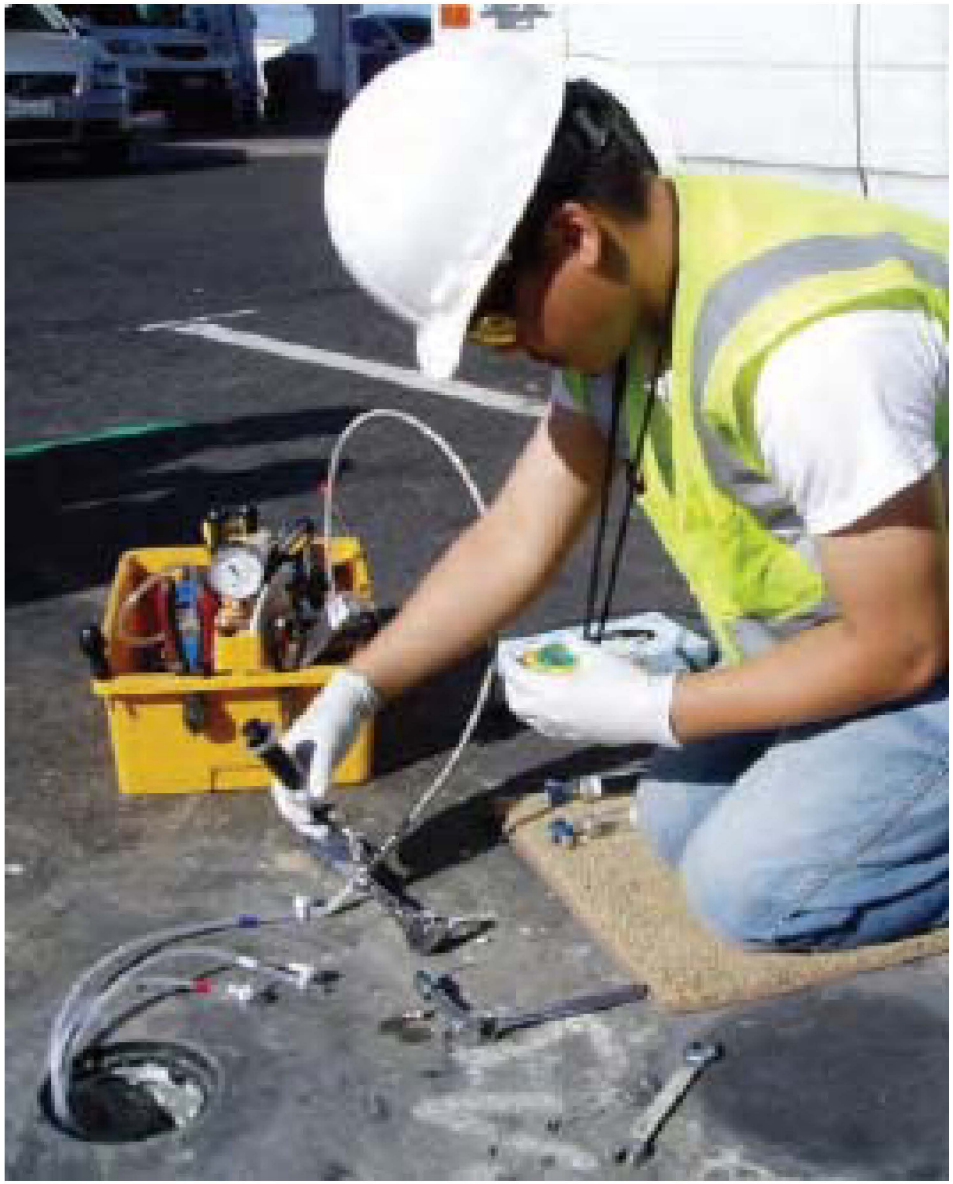
TCE Screening Levels

Long-Term Exposure Screening Levels

TCE	Sub-slab/Soil Gas Vapor Intrusion[1]	Indoor Air Direct Exposure[1]
Residential	240 µg/m³	0.48 µg/m³
Commercial	3,000 µg/m³	3 µg/m³

Short-Term Exposure Screening Levels

TCE	Sub-slab/Soil Gas Vapor Intrusion[1]	Indoor Air Direct Exposure—Accelerated[2]	Indoor Air Direct Exposure—Urgent[2]
Residential	1,000 µg/m³	2 µg/m³	6 µg/m³
Commercial (8-hour workday)	8,000 µg/m³	8 µg/m³	24 µg/m³
Commercial (10-hour workday)	8,000 µg/m³	7 µg/m³	21 µg/m³

Indoor Air Testing and VOCs in Household Use

Measuring chemicals in indoor air can be tricky because many common household items and materials can affect levels