



Overview of IEC Process and Tools

Tessie Fields, Andrew Sites, John Boyer
June 24, 2010





What are we going to cover?

Tessie Fields

Receptor evaluation as it relates to IECs

Q & A

Andrew Sites

Overview of IEC Process and IEC Tools

Using the IEC Tools - Case example

Q & A

John Boyer

Vapor Intrusion Issues





New SRRRA Training and Tools

New Quick Reference Guides for:

- Immediate Environmental Concern
- Receptor Evaluation

Provides a soup to nuts guide to what has to be submitted and when





site remediation program

[njdep home](#)



Index of Common Topics

Site Remediation Reform Act & Licensed Site Remediation Professionals Program

The Site Remediation Reform Act (SRRA) provides sweeping changes to the way in which sites are remediated in New Jersey. SRRA establishes a program for the licensing of Licensed Site Remediation Professionals (LSRPs) who will have responsibility for oversight of environmental investigation and cleanup.



[More information](#)

Interim Rules Implementing SRRA - including the Administrative Requirements for the Remediation of Contaminated Sites (ARRCS) Rules

The [SRRA interim rule package](#) is a **special adoption** that was effective upon filing with the Office of Administrative

[Find an LSRP](#)

[Become an LSRP](#)

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What's New

- ▶ Governor Nominations for Site Remediation Professional Licensing Board [14 May 2010]
- ▶ Request for Stakeholder Input - Extension Until Close of Business May 24, 2010 [14 May 2010]

About SRP

SRRA & LSRP

Community Relations

SRP Brownfields

SRP Rules

SRP Guidance Library

SRP Forms Library

Child Care Facilities

SRP Data

SRP Enforcement

Training & Tools

ISRA

UST

Info Sources

Known

-
9. Existing cases where someone is taking over the remediation

III. New responsibilities for ALL cases - Quick Reference Guides

1. [Immediate Environmental Concern \(IEC\) Overall process](#)
2. [Receptor evaluation](#) Posted 6 June 2010
3. [LNAPL Free Product Remedial Requirements](#)
4. **Remedial action permits**
 1. Soil
 2. [Ground Water](#)
5. **Discharge permits**
 - a. [Discharge to Ground Water Proposals](#)
 - b. Discharge to Surface Water Proposals
6. [Summary of Regulatory and Mandatory Timeframes](#)
7. Reporting and forms/CID etc
8. [Public notification](#)

V. Miscellaneous

1. **Acronym glossary**
 - a. Acronyms Glossary with Definitions
 - b. Printable List of Acronyms without Definitions
2. [Exceptions - Who does not need to hire an LSRP](#)
3. [SRRRA - Related FAQs](#)

I. New responsibilities for all cases

1. Immediate environmental concern (IEC)¹ - Overall process

Action	When	Forms and other submittals	Other sources of info	Rule citations
Call the assigned case manager if there is one, or call the hotline ^{2,3}	Immediately after IEC condition ¹ is identified	None	1-877 WARNDP or 1-877-927-6773	7:26E-1.4(b)
If the IEC is not related to the site: <ul style="list-style-type: none"> • Call the case manager if there is one, or call the hotline immediately, and • Submit IEC Response Action Form with 5 days. 	Within 5 days of identifying IEC condition	Submit the IEC Response Action Form with information about the IEC condition and the contaminant source. Include documentation supporting the conclusion that the IEC is not related to the site.	IEC Guidance	7:26E-1.4(c)
IEC is related to the site: <ul style="list-style-type: none"> • If new case⁴ hire an LSRP (if not already hired) • If existing case⁴ (not opting in) you do not have to hire an LSRP 	Within 5 days of identifying IEC condition	LSRP Retention or Dismissal Form	Submit to: NJDEP Case Assignment/Initial Notice 401 E State St PO Box 434 Trenton, New Jersey 08625-0434 Link to list of LSRPs with Temp licenses	7:26C-2
Ongoing requirement - Notify impacted property owners of analytical results: <ul style="list-style-type: none"> • If LSRP is hired - LSRP notifies and sends copies to the case manager • If no LSRP is hired - The Department sends notification 	Within 5 days of identifying IEC condition	Provide the case manager with a copy of the notification letters.	IEC Guidance	



Quick Reference Guides for Each Section of the Receptor Evaluation

1. General and Reporting Requirements (N.J.A.C. 7:26E-1.15)
2. Land Use (N.J.A.C. 7:26E-1.16)
- 3. Ground Water (N.J.A.C. 7:26E-1.17)**
 - a. Potable water IEC condition
 - b. No Potable water IEC condition
- 4. Vapor Intrusion (N.J.A.C. 7:26E-1.18)**
 - a. Indoor air IEC condition
 - b. No indoor air IEC condition is identified
5. Ecological (N.J.A.C. 7:26E-1.19)





Receptor Evaluation Quick Reference Guide

- Also has a brief introduction
- An index to all the separate guides
- Link to related FAQs
 - How to conduct and report a well search
- Contact information for Bureau Chiefs Mark Pederson, Steve Maybury or Kevin Kratina





What is a Receptor Evaluation?

It's a periodic report

- Initial Receptor Evaluation Report/form*
(270 days)
- Updated Receptor Evaluation Report/form
 - Remedial Investigation Report
 - Remedial Action Report

* Regulatory timeframe

* Also has a Mandatory Timeframe of 1 Year





Receptor Evaluation Report Timeframes

- The Department is considering changes to **regulatory** and **mandatory** timeframes for the interim rule proposal in September
- Updates on this topic will be provided on the web and via the Listserv





What is a Receptor Evaluation?

It's an **ongoing process** of identifying receptors and mitigating exposure

- Includes triggers and timeframes to:
 - Identify land use around the site
 - Sample potable water
 - Conduct vapor intrusion investigation
- The mechanism by which most IECs are identified





Who has to submit a Receptor Evaluation Report/form?

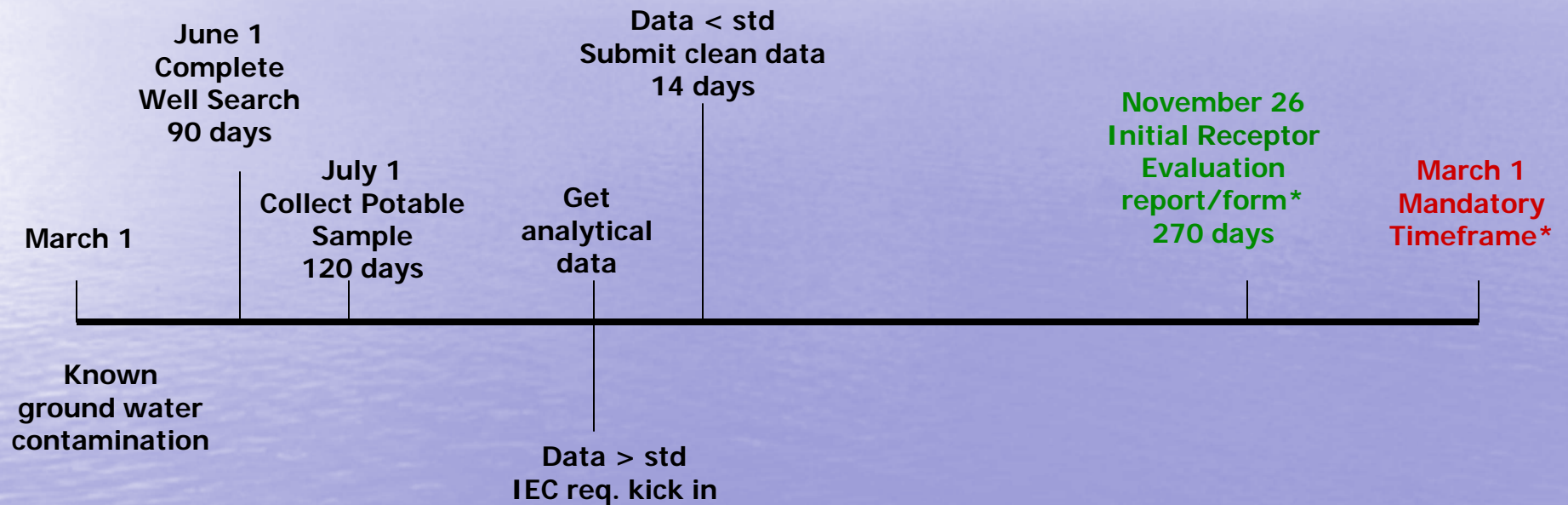
- All Existing Cases
 - Unless remediation is completed before November 26, 2010
- All New Cases
 - Unless remediation is completed in less than 9 months
 - UHOT cases

Will be submitted by LSRPs and non-LSRPs





Initial Receptor Evaluation Report/form Timeline with Potable Water Requirements for Existing Cases



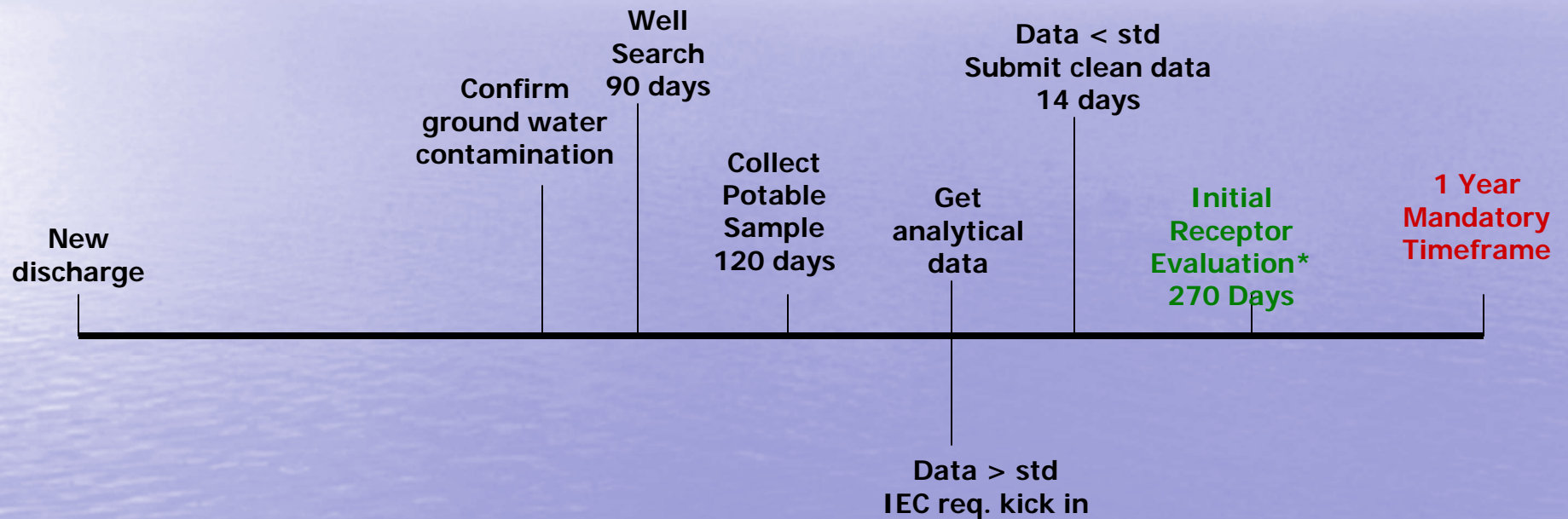
* Regulatory timeframe

* Mandatory timeframe





Initial Receptor Evaluation Report Timeline with Potable Water Requirements for New Cases



* Regulatory timeframe

* Mandatory timeframe





Receptor Evaluation Report

- The initial receptor evaluation report describes all potable water and/or VI work conducted to date. It is:

“What you know at the time the report is submitted”

- If an extension of regulatory or mandatory timeframe is needed the remediating party may request an extension pursuant to the ARRCS rules (N.J.A.C. 7:26C-3)





Any general questions about the
Receptor Evaluation?





Immediate Environmental Concern

- Overview of IEC Process
- Overview of IEC Tools
- Using the IEC Tools - Case example
- Q & A





What is an IEC?

- Contaminant source in the environment
- Migration pathway
- Human receptor (people coming in contact with contamination above a standard or screening level)





Three types of IECs

- Potable wells
- Vapor intrusion
- Direct contact





Basic IEC Concept

- Delineate IEC problem
- Mitigate IEC problem
- Remove source causing IEC problem





What is the IEC process?

- Regulatory timeframes effective immediately (November 4, 2009)
- Every IEC gets a Case Manager
- New cases go to IEC group
- Case Managers on existing cases will handle IECs
- LSRP/consultant must work with Case Manager
- Most work based on verbal approvals
- Documentation via email





LSRP or Environmental Consultant?

- New cases must use an LSRP
- Existing cases that opt in must use an LSRP
- Existing cases may use either LSRP or non-LSRP





IEC Regulatory Timeframes

- | | |
|-------------|---|
| Immediately | <ul style="list-style-type: none">• Call the Hotline/case manager |
| 5 days | <ul style="list-style-type: none">• Notify DEP and mitigate |
| 60 days | <ul style="list-style-type: none">• Engineered system response• Receptor delineation |
| 120 days | <ul style="list-style-type: none">• Engineered System Response Action Report |
| 270 days | <ul style="list-style-type: none">• Source Control Report* |

* Also has 1 year mandatory timeframe





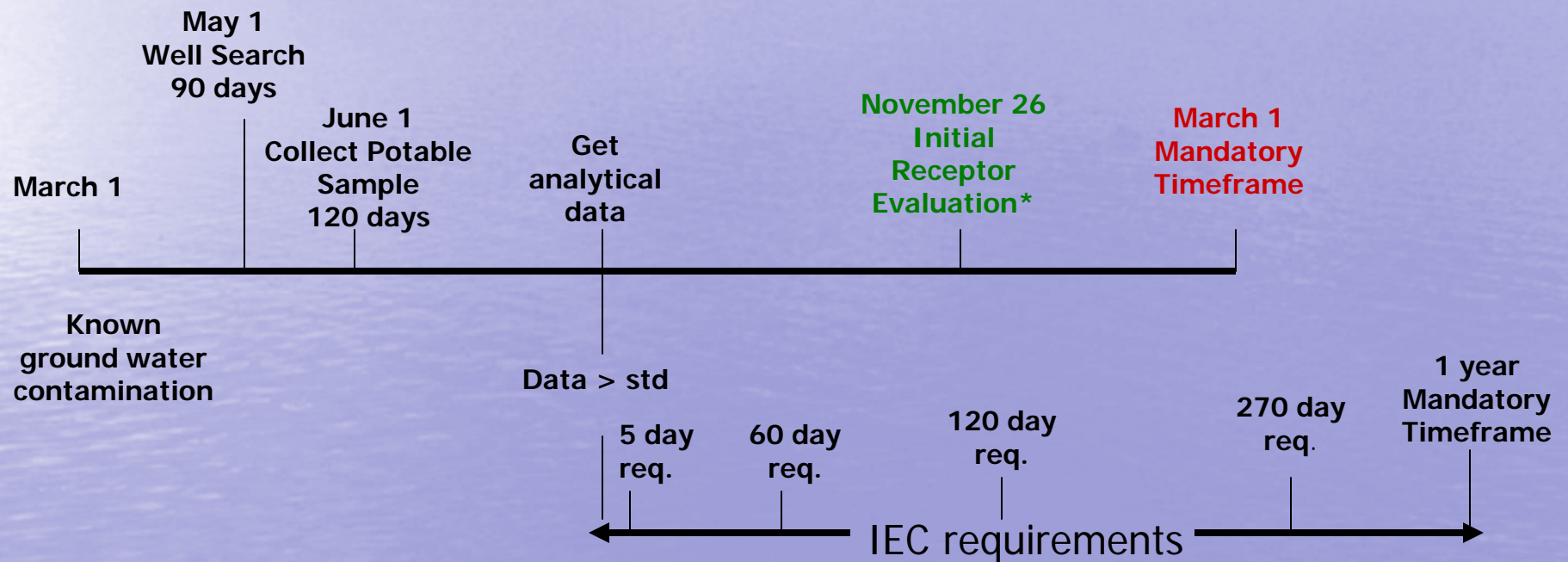
IEC Source Control Timeframes

- The Department is considering changes to **regulatory** and **mandatory** timeframes for the interim rule proposal in September
- Updates on this topic will be provided on the web and via the Listserv





Receptor Evaluation Report Timeline with IEC – Potable water





Immediate requirements

- Notify case manager for assigned cases
- Notify the HOTLINE for new cases or when no case manager is assigned
 - Must refer to case as an “**IEC Case**”
- Notify HOTLINE for unknown source IEC





5 Day Requirements

Mitigate IEC with interim response action

- Provide
 - Bottled water
 - Vent, seal cracks and sumps
 - Notification to owner, Twp., Health Dept.
- Submit
 - IEC Response action form
 - Spreadsheet
 - Map of site and IEC condition
 - All analytical results with full lab data deliverables





5 Day Required Submittal

- For all cases
 - Submit paper copy & Email to Initial Notice
- For existing cases
 - Email to case manager
- For new cases
 - Initial Notice will notify the IEC group





60 Day Requirements

- Identify additional receptors (potable wells and structures)
 - Conduct sampling
 - Comply with notification requirements
- Install permanent mitigation (Engineered System Response Action)
 - POET or waterline connection
 - Sub-slab ventilation





120 Day Requirements

Submit IEC Engineered Receptor Response Action Report

- Receptor delineation & Receptor control description
- IEC Immediate Action Form
- Spreadsheet with all data
- Map
- GIS compatible map submission





270 Day Requirements

- Conduct focused remedial investigation
- Initiate source control
- Submit IEC Source Control Report
 - IEC Response Action Form
 - Spreadsheet with all data
 - Map of CKE area
 - GIS compatible map submission





IEC Guidance

- Written for more common types of IEC conditions
- Time extensions can be requested
- Frequent communications and information sharing with case manager is vital





What will your case manager do?

- Ensure each requirement is completed
- Establish routine updates
- Communicate with you throughout IEC process
- Document progress or lack of progress





SRP Guidance Library

- IEC Guidance document
- IEC - GAC POET Specifications
- Excel spreadsheets:
 - Potable water
 - Vapor intrusion





Site Remediation Reform Act Guidance Library

Fees/Oversight Costs Guidance Document [Ver 1.0]	Web page
Free Product Removal	TBA
GIS guidance	Web page
Hazardous Discharge Site Remediation Fund Application Guidance	Web page
Immediate Environmental Concern (IEC) Guidance [Draft]	PDF 102 Kb
● IEC - GAC POET Specifications	PDF 116 Kb
● IEC - Potable Water Spreadsheet [ver. 1.0]	Excel xls 37 Kb
● IEC - Vapor Intrusion Spreadsheet [ver. 1.0]	Excel xls 35 Kb
Issuance of Response Action Outcomes (RAO) [Ver. 1.1]	PDF 138 Kb
● RAO Shell Document [ver. 1.1]	MS Word doc 77 Kb
Licensing of Proposed Child Care Centers	Web page
Light Non-aqueous Phase Liquid (LNAPL) Free Product Initial Recovery and Interim Remedial Measures [Draft ver. 0.0] NEW	
Until revised, use this draft document as the basis for proceeding with actions related to LNAPL Free Product. As part of stakeholder input, please provide any comments on this document to crweb@den.state.nj.us within the next 2 weeks.	



SRP Forms Library

- IEC Response action form
- Excel spreadsheets:
 - Potable water
 - Vapor intrusion





Site Remediation Reform Act (SRRA) Forms

Hazardous Discharge Site Remediation Fund Application form	7:26C-11.2		
IEC Response Action form	7:26E-1.14	1.0	PDF 206 Kb
● IEC - Potable Water Spreadsheet		1.0	Excel xls 37 Kb
● IEC - Vapor Intrusion Spreadsheet		1.0	Excel xls 35 Kb
ISRA Alternate Compliance Option Application	7:26C-5	1.2	PDF 229 Kb
LNAPL Free Product Reporting Form	7:26E-1.12	1.1	PDF 220 Kb
LSRP Notification of Retention or Dismissal	7:26C-2.3	2.2	PDF 193 Kb
Model Termination of Deed Notice **	7:26C-13.4		
Negative Declaration *	7:26B-6.1		
Potable Well/Indoor Air Sampling Notification form	7:26E-1.4(e)	1.0	PDF 186 Kb
● Sampling Notification Spreadsheet		1.0	Excel xls 42 Kb
Preliminary Assessment/Site Investigation form	7:26E-3.1 & 3.3	1.1	PDF 529 Kb
Public Notification and Outreach form	7:26E-1.4	1.1	PDF 205 Kb
PUST Remediation, Upgrade and Closure Fund Application form	7:26C-12.2		
Receptor Evaluation form	7:26E-1.15	1.0	PDF 264 Kb



IEC Tools

- Checklist
- Spreadsheet
- Maps
- Quick Reference Guide





IEC Checklist and Spreadsheet

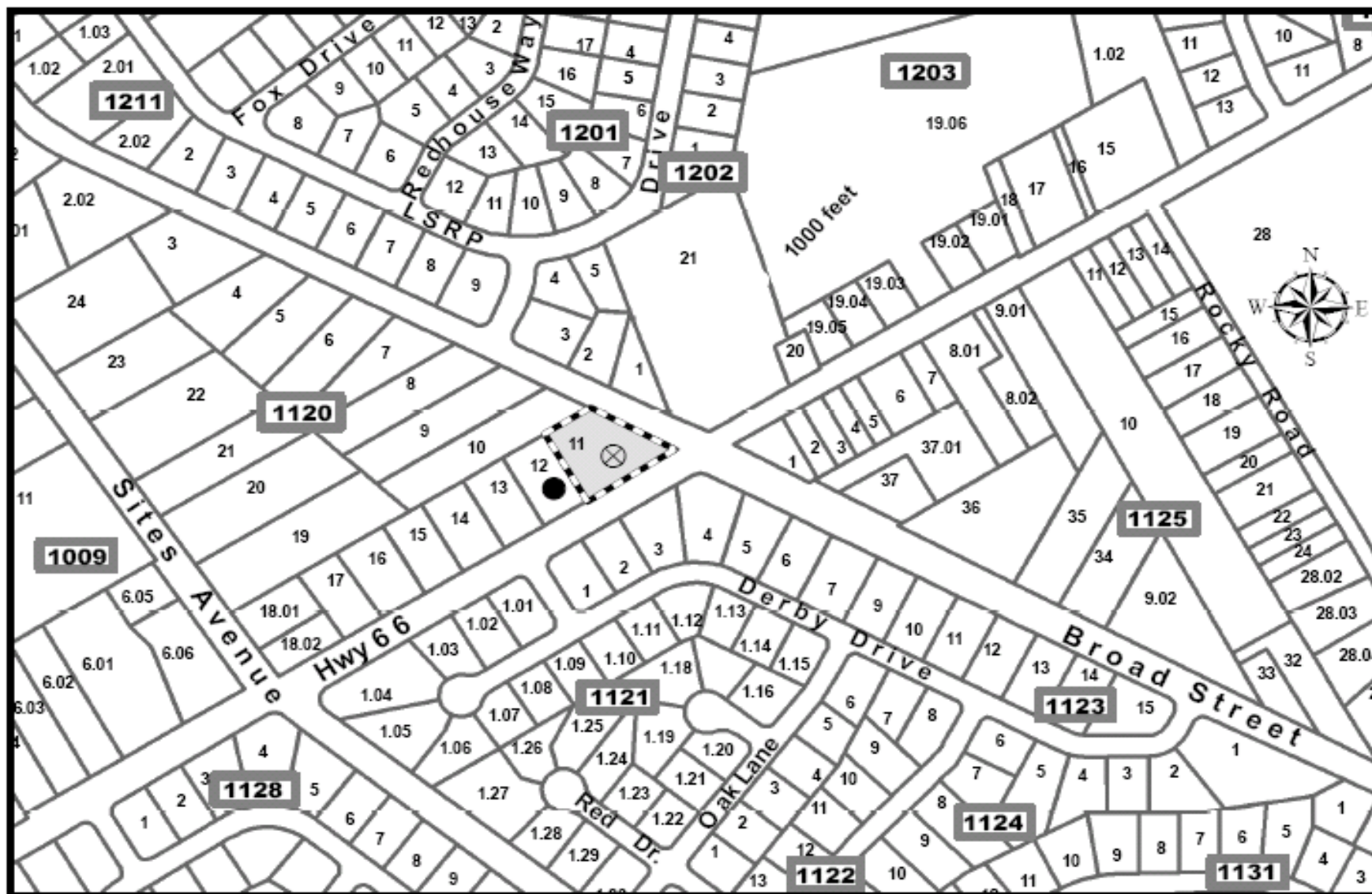




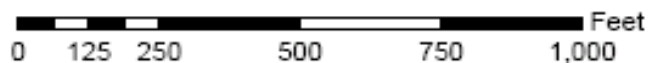
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1120 = Block designation



● = Contaminant detected at or above GWRS

◐ = Contaminant detected below GWRS

○ = Contaminant not detected

Initial Potable Well Sample

▤ = Site

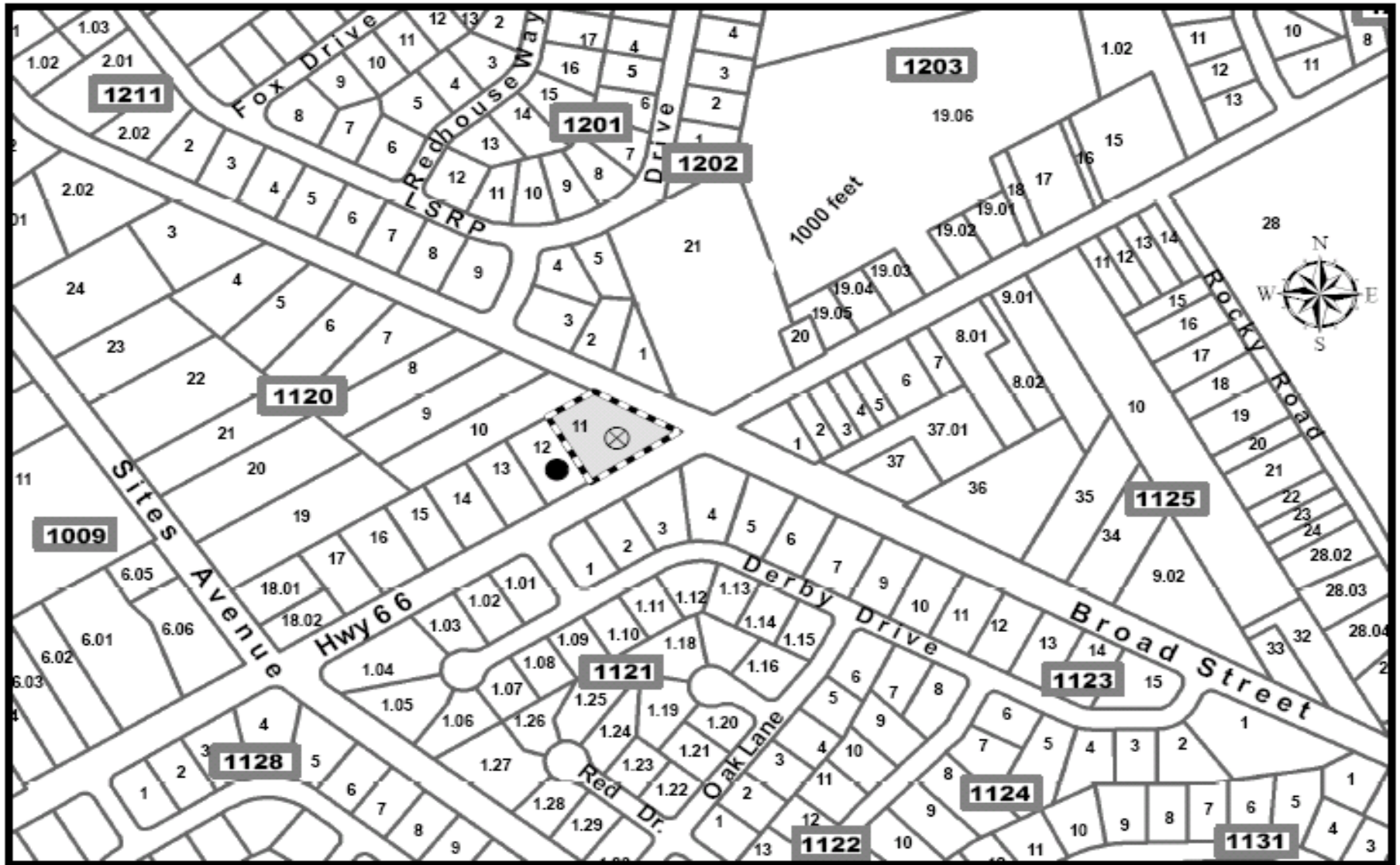
Rocky's Gas and Go
 3600 Hwy 66
 Anytown, NJ
 NJDEP SRP ID 123456
 John B. Expert, LSRP
 April 29, 2010



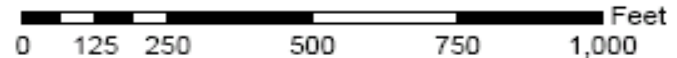
IEC Case Example

- New case
- Contaminated wells
- Residential/commercial area
- Source: gas station
- Waterlines on some streets
- Unknown groundwater flow direction





1120 = Block designation



- = Contaminant detected at or above GWRS
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Initial Potable Well Sample

= Site

Rocky's Gas and Go
 3600 Hwy 66
 Anytown, NJ
 NJDEP SRP ID 123456
 John B. Expert, LSRP
 April 29, 2010

IEC CHECKLIST

PI# 123456

Case Name Rocky's Gas & Go

Case Manager Bob Gallagher

LSRP/Consultant

Name: John B. Expert

Phone #: 609 687-2356

Email: J.Expert@LSRPRUS.com



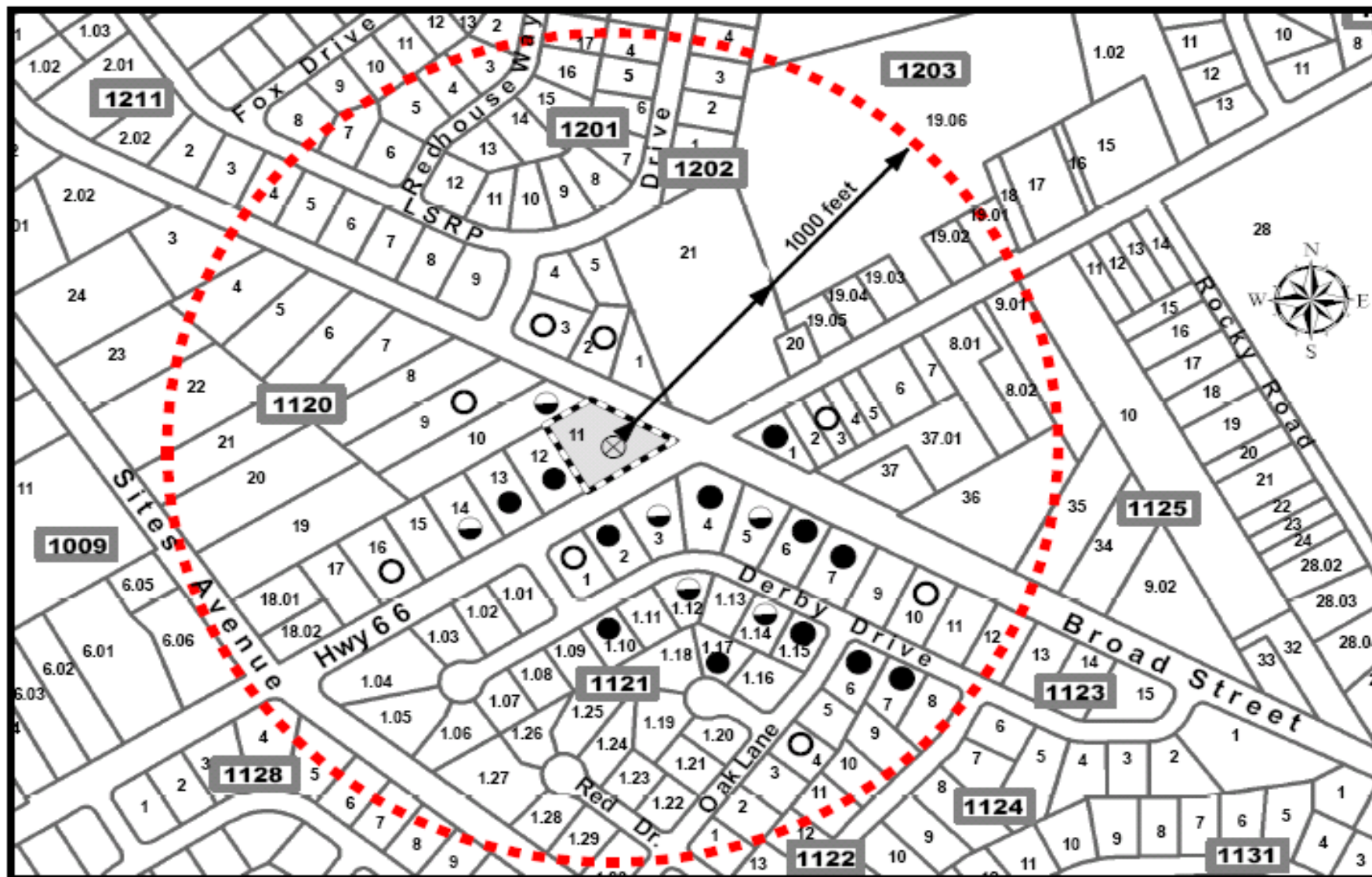
<u>INITIAL NOTIFICATION & INTERIM RESPONSE ACTION (5 DAYS) - [7:26-1.14(b)1-4]</u>	Yes	No	NA
1. Is the case an IEC?	<u>x</u>	___	___
A. Discharge?	<u>x</u>	___	___
B. Pathway?	<u>x</u>	___	___
C. Human receptor above standards?	<u>x</u>	___	___
2. What type(s) of IEC(s) are present?			
A. Potable (greater than or equal to GWRS)?	<u>x</u>	___	___
B. VI (indoor air, subslab, ambient samples)?	___	<u>x</u>	___
C. Direct contact?	___	___	___



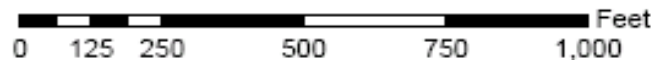
INITIAL NOTIFICATION & INTERIM RESPONSE ACTION (5 DAYS) - [7:26-1.14(b)1-4]

	Yes	No	NA
1. Is the case an IEC?	<u> x </u>	<u> </u>	<u> </u>
A. Discharge?	<u> x </u>	<u> </u>	<u> </u>
B. Pathway?	<u> x </u>	<u> </u>	<u> </u>
C. Human receptor above standards?	<u> x </u>	<u> </u>	<u> </u>
2. What type(s) of IEC(s) are present?			
A. Potable (greater than or equal to GWRS)?	<u> x </u>	<u> </u>	<u> </u>
B. VI (indoor air, subslab, ambient samples)?	<u> </u>	<u> x </u>	<u> </u>
C. Direct contact?	<u> </u>	<u> x </u>	<u> </u>
3. Is the submittal complete?	<u> x </u>	<u> </u>	<u> </u>
A. IEC Response Action form?	<u> x </u>	<u> </u>	<u> </u>
B. Spreadsheet?	<u> x </u>	<u> </u>	<u> </u>
C. Tax map showing sample locations?	<u> x </u>	<u> </u>	<u> </u>
4. Was the IEC submitted by an LSRP?	<u> </u>	<u> x </u>	<u> </u>
5. Did the Case Manager (CM) email the LSRP with contact information?	<u> x </u>	<u> </u>	<u> </u>
6. Did the CM create a new IEC folder?	<u> x </u>	<u> </u>	<u> </u>
7. Did the CM add their name to the case and provide updates in NJEMS?	<u> x </u>	<u> </u>	<u> </u>
8. Did the CM setup an IEC due date schedule?	<u> x </u>	<u> </u>	<u> </u>
9. What schedule did the CM direct the LSRP to provide updates?			
Weekly <u> </u> Biweekly <u> x </u> Monthly <u> </u>			





1120 = Block designation



● = Contaminant detected at or above GWRS

⊗ = Site

◐ = Contaminant detected below GWRS

Ground Water Flow Direction
Not Known

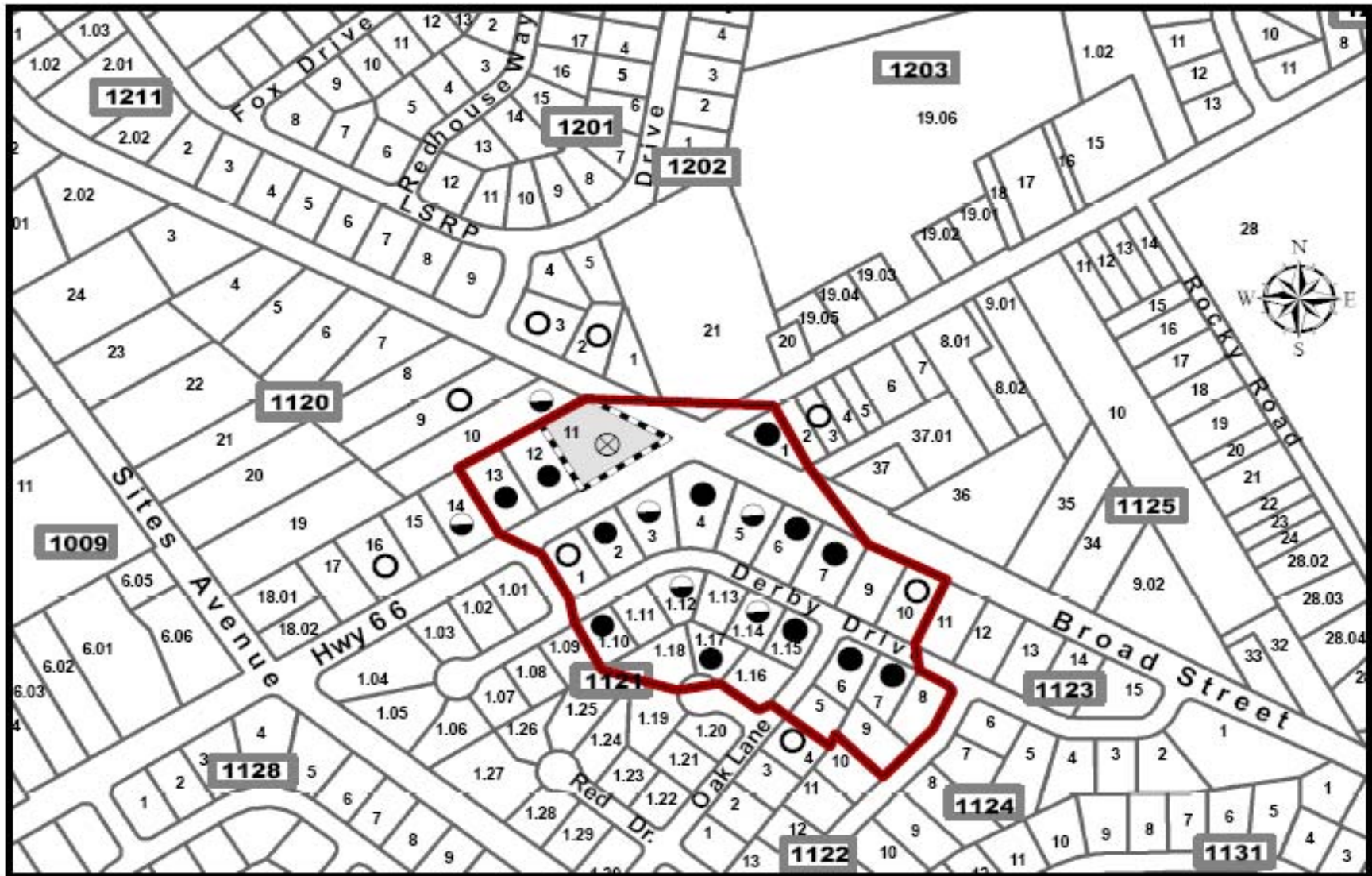
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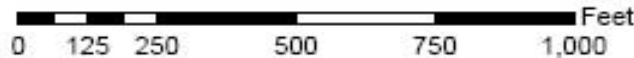
	A	B	K	L	M	N	O	P	Q	R	S	T	U	V	
2	VERSION 1.1														
3	DATE: 5/17/2010		To Add Additional Rows												
4	- Highlight a cell under the Date column for the appropriate property														
5	- Select <Insert> from the Main menu														
6	- Select <Row> from the Insert menu														
7															
8															
9	PROPERTY ID		ANALYTICAL RESULTS									IMMEDIATE RESPONSE			E
10	Block	Lot	Date Sampled	Sample Type	Sample ID #	COC1	PPB	COC2	PPB	COC3	PPB	Date Provided	Type	Provided by	D
11	1120	12	3/1/2010	Initial		Benzene	98					3/22/2010	Bottled water	RP	
12			4/7/2010	Post Install		Benzene	ND								
13															
14	1120	13	4/8/2010	Initial		Benzene	21					5/4/2010	Bottled water	RP	
15															
16															
17	1120	14	4/8/2010	Initial		Benzene	0.8								
18															
19															
20	1120	15													
21															
22															
23	1120	16	4/8/2010	Initial			ND								
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26	1120	17		Owner Refused											
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31															
32															





1120 = Block designation

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- = Contaminant not detected



Currently Known Extent (CKE)



= Site = CKE Boundary

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IEC Tools

- Simplifies and standardizes reporting process
- Promotes consistency between cases
- Facilitates compliance with new rule requirements
- Allows for easier electronic submissions
- Allows for real-time decisions between LSRP and case manager





Any questions about the
IEC Process?





Vapor Intrusion Pathway: Immediate Environmental Concern





Vapor Intrusion (VI) Pathway

Commercial/Industrial Worker

Resident Living over Plume

Working over Plume

Basement or
Crawl Space

Without Basement



Migration of subsurface vapors to indoor air

Courtesy: ITRC





What Constitutes a VI IEC?

A vapor intrusion IEC exists at a structure if:

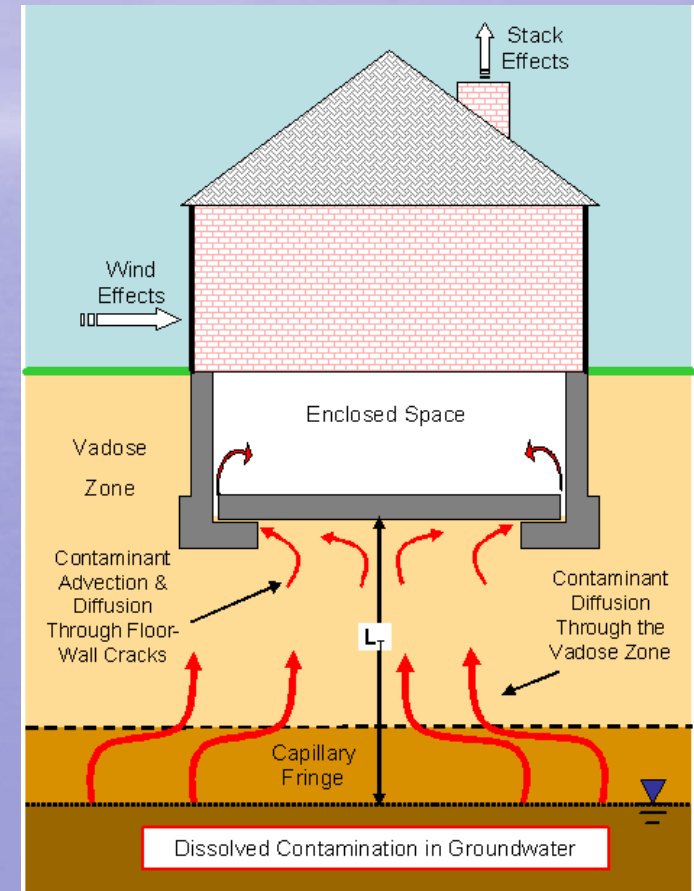
- 1) The results of an indoor air sample exceeds the appropriate NJDEP Indoor Air Screening Level; and,
- 2) The indoor air exceedance is resulting from a completed vapor intrusion pathway (evaluate potential background sources).





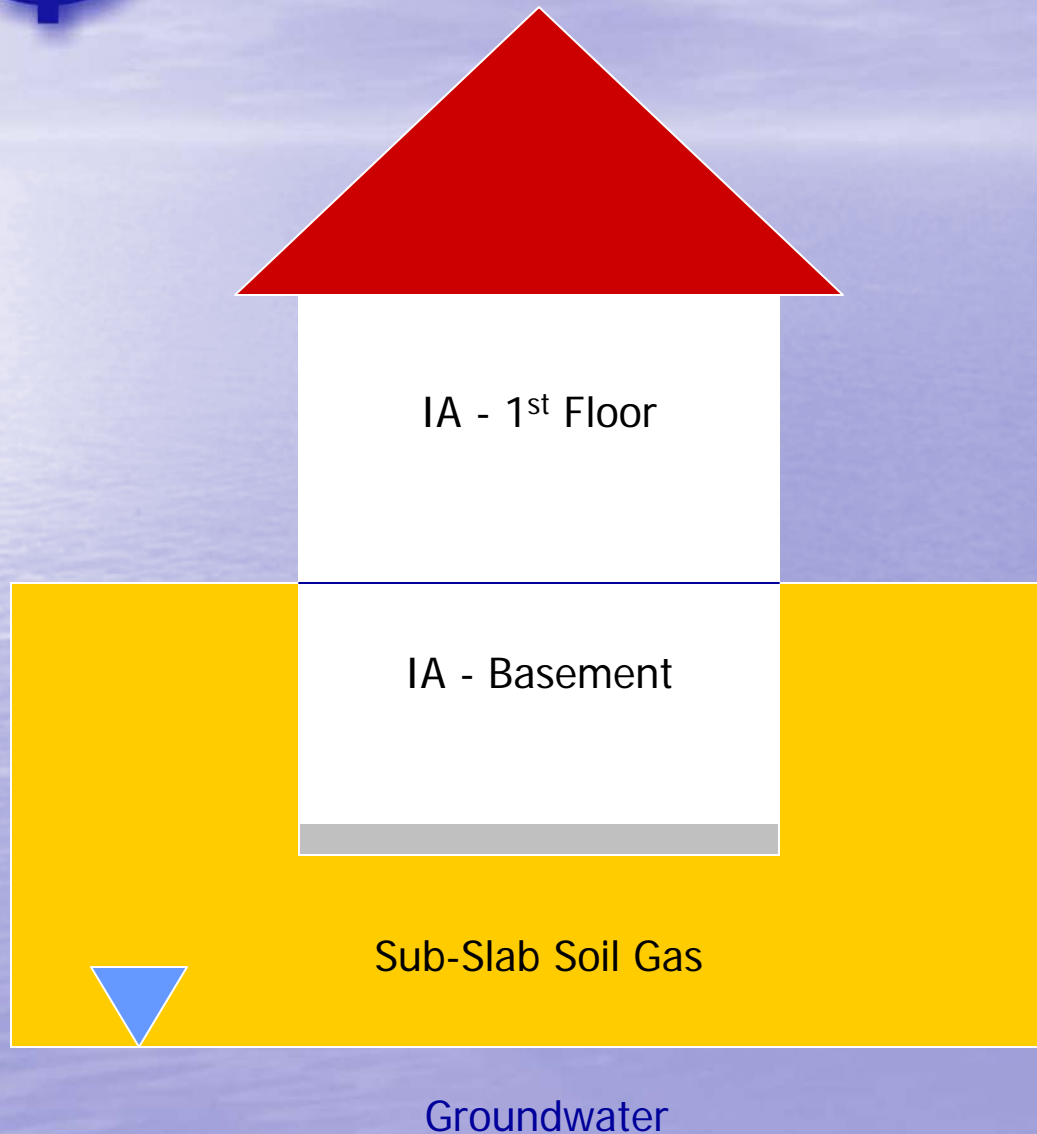
When is the VI Pathway Complete?

- 1) There is an identified source related to a discharge;
- 2) There is a pathway that connects the source and a human receptor; and,
- 3) A human receptor is adversely impacted by a subsurface vapor contaminant migrating into a structure.





Vapor Intrusion IEC Scenarios



Site-related Contaminants of Concern (COC)

- Tetrachloroethene (PCE)
 - GWSL – 1 $\mu\text{g/L}$
 - SGS� – 34 $\mu\text{g/m}^3$
 - IASL – 3 $\mu\text{g/m}^3$
- 1,1,1-Trichloroethane
 - GWSL – 2,300 $\mu\text{g/L}$
 - SGS� – 51,000 $\mu\text{g/m}^3$
 - IASL – 1,000 $\mu\text{g/m}^3$

Non-COC

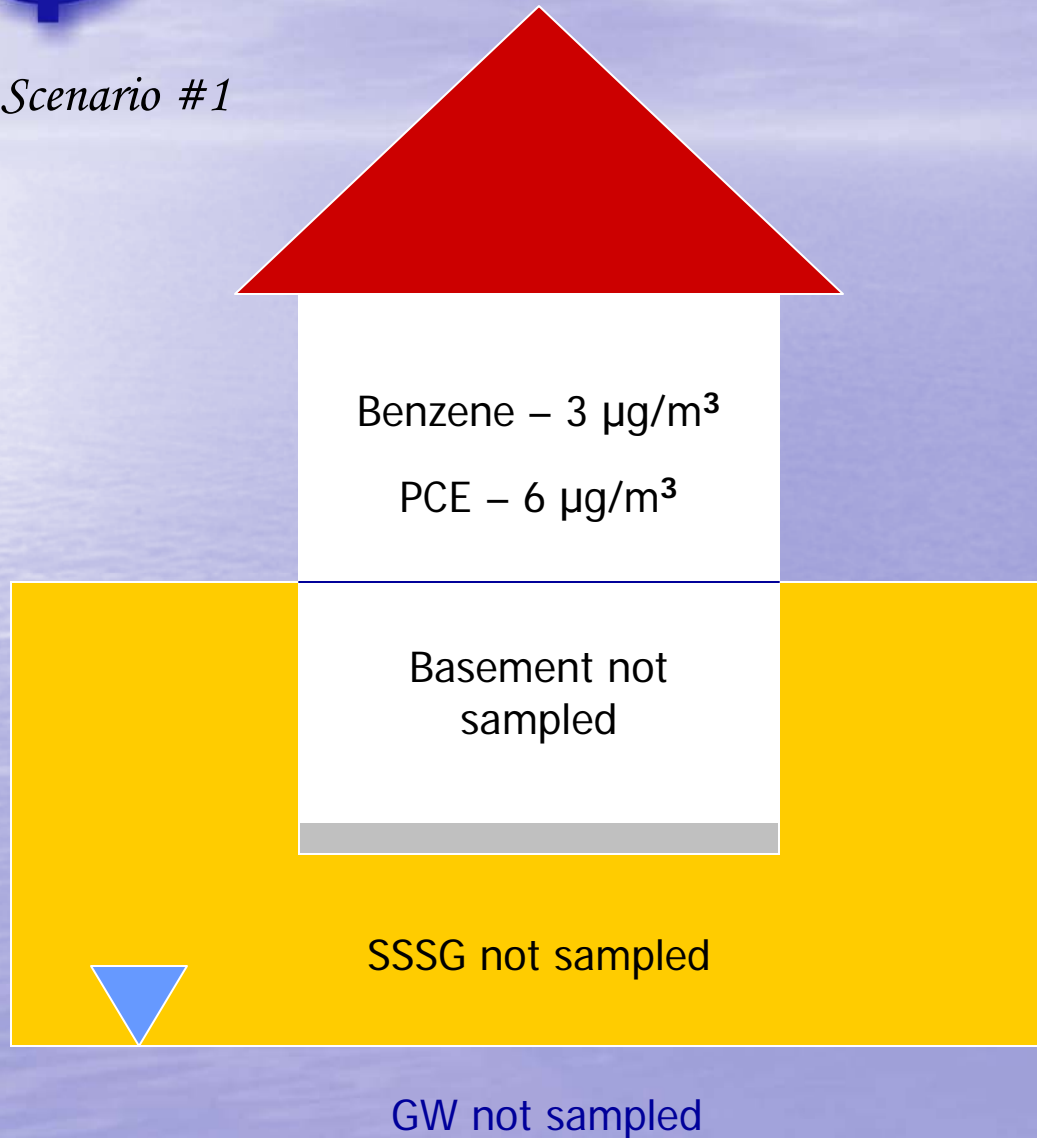
- Benzene
 - GWSL – 15 $\mu\text{g/L}$
 - SGS� – 16 $\mu\text{g/m}^3$
 - IASL – 2 $\mu\text{g/m}^3$





Is this a Vapor Intrusion IEC?

Scenario #1



ISSUES:

- IA COC > IASL
- IA non-COC > IASL
- SG & GW not sampled
- Status of VI Pathway unknown
- Additional VI investigation warranted

ANSWER:

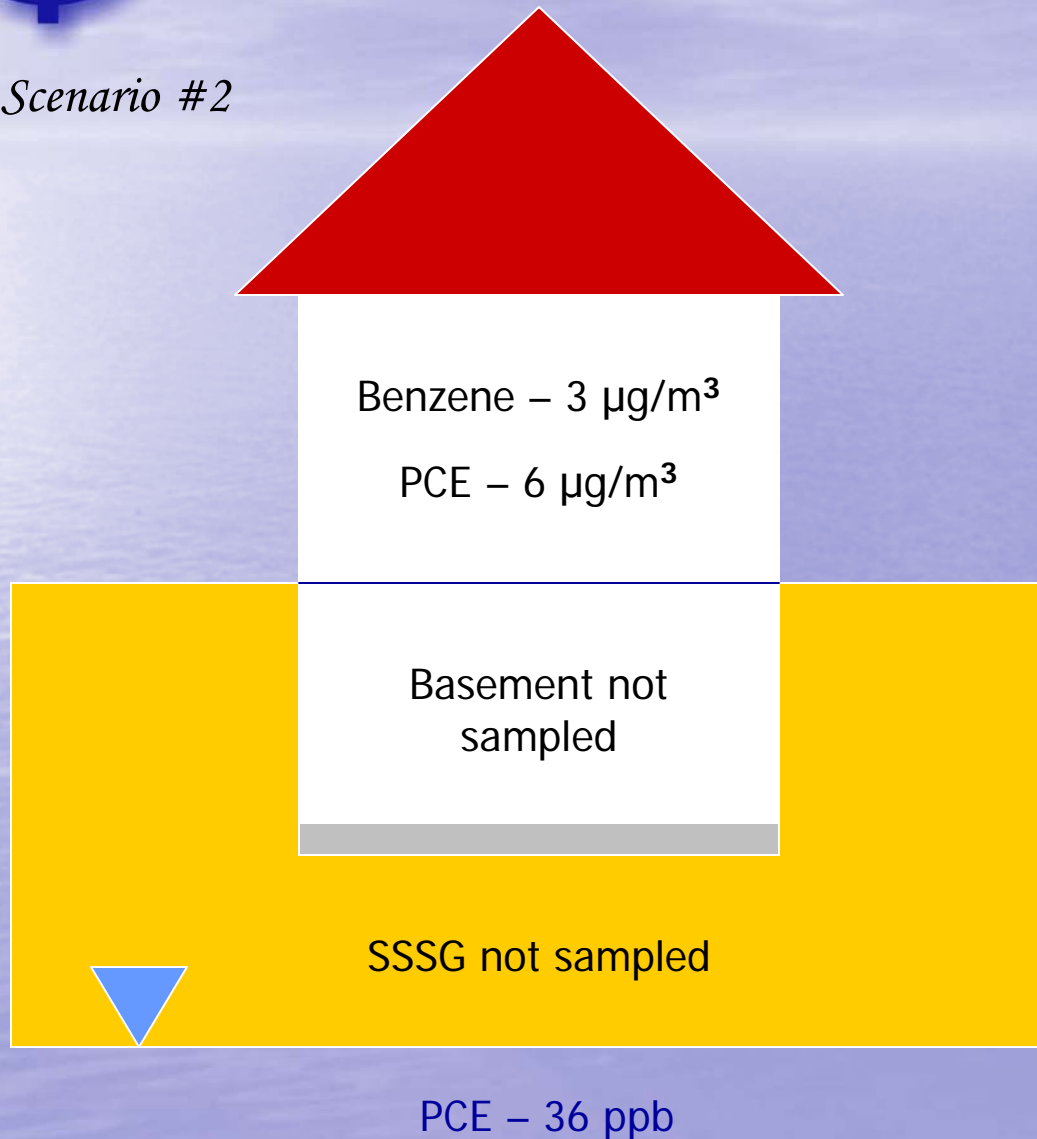
NO





Is this a Vapor Intrusion IEC?

Scenario #2



ISSUES:

- IA COC > IASL
- IA non-COC > IASL
- GW COC > GWSL
- Status of VI Pathway still unknown
- Additional VI investigation warranted

ANSWER:

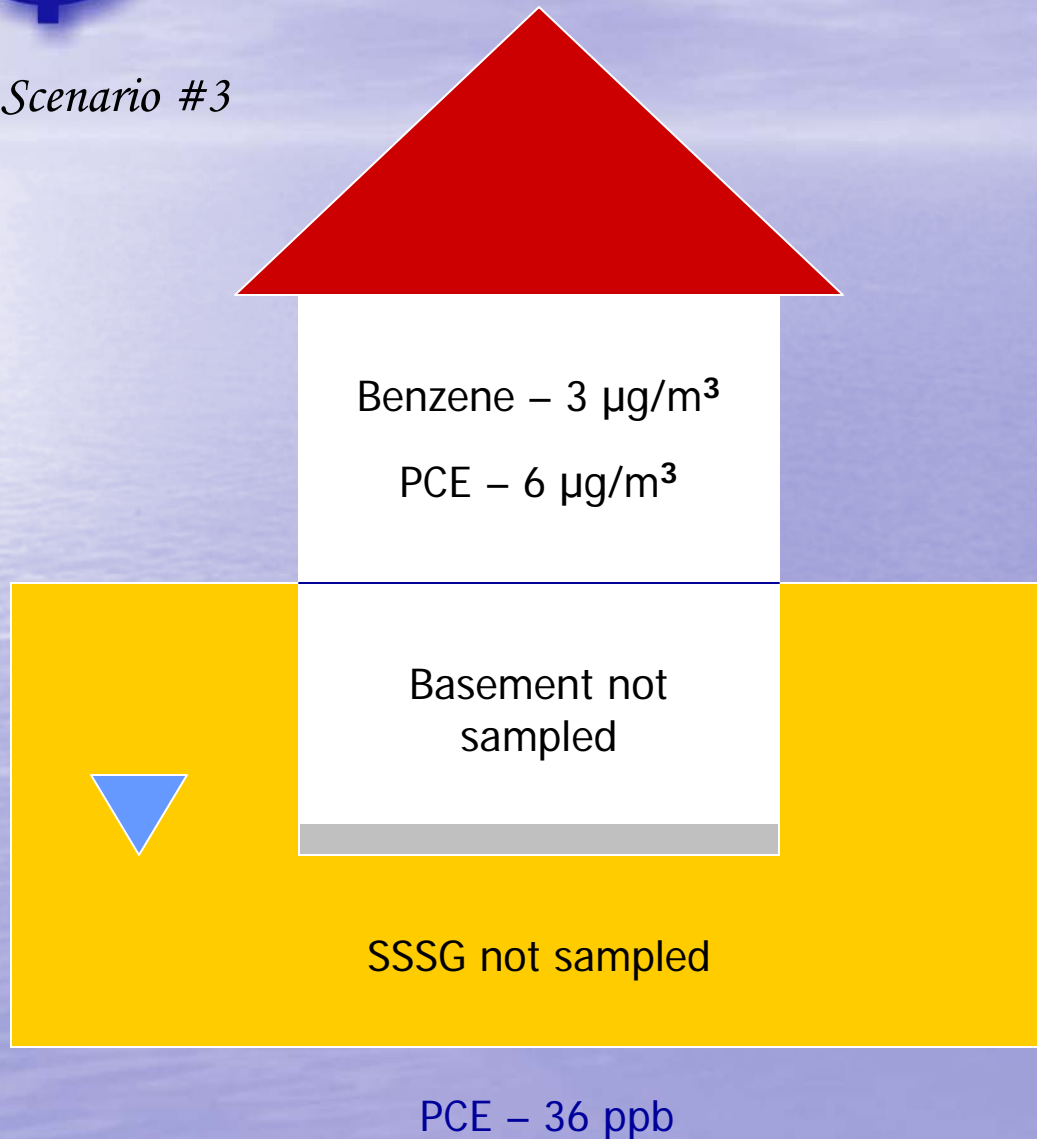
NO





Is this a Vapor Intrusion IEC?

Scenario #3



ISSUES:

- IA COC > IASL
- IA non-COC > IASL
- GW COC > GWSL
- High GWT
- Status of VI Pathway unknown
- Use Multiple Lines of Evidence (MLE)
- Additional VI investigation may be warranted

ANSWER:

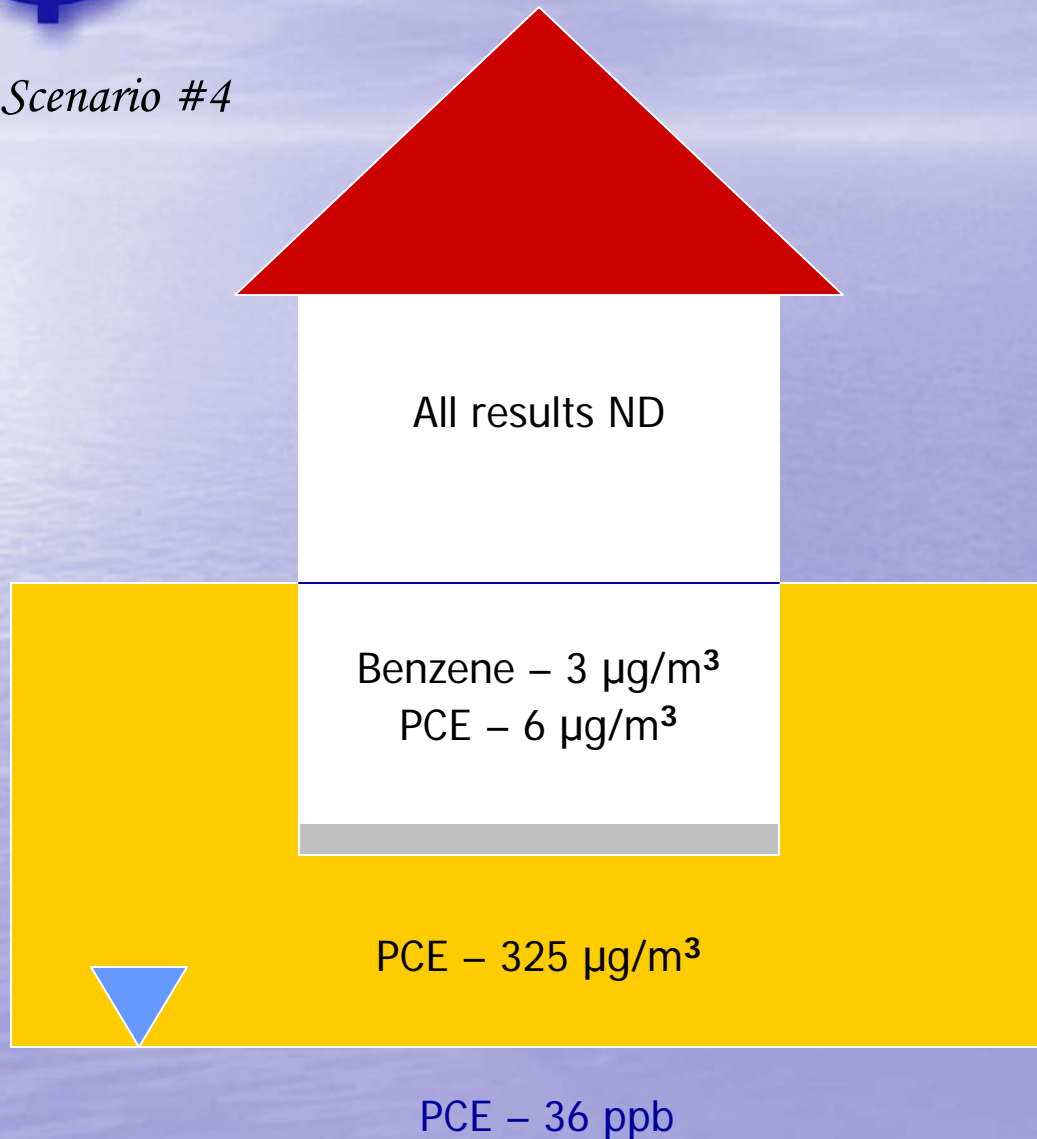
MAYBE





Is this a Vapor Intrusion IEC?

Scenario #4



ISSUES:

- IA COC > IASL
- IA non-COC > IASL
- 1st Floor IA results ND
- SSSG COC > SGSL
- GW COC > GWSL
- VI Pathway complete

ANSWER:

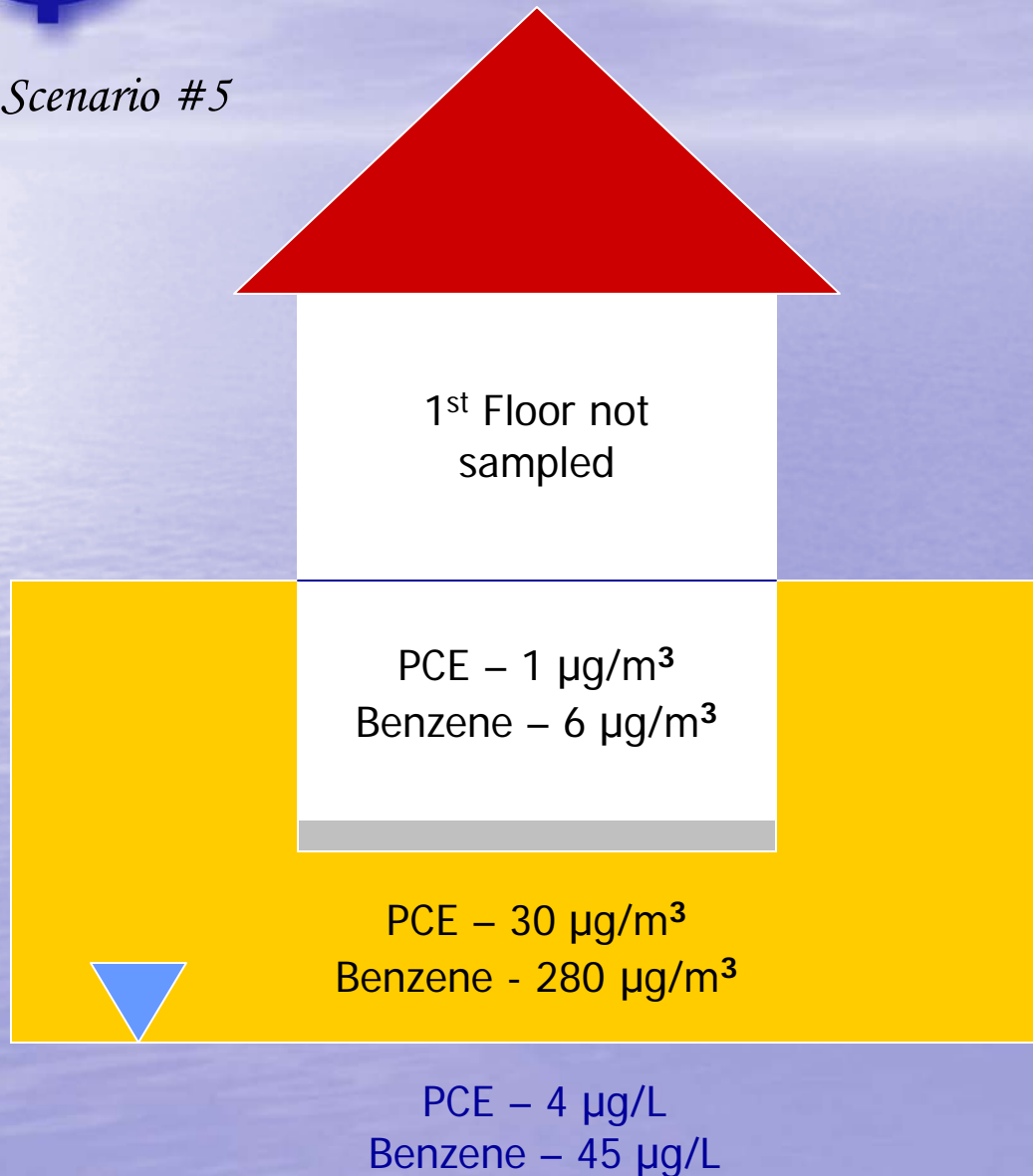
YES





Is this a Vapor Intrusion IEC?

Scenario #5



ISSUES:

- IA COC < IASL
- IA non-COC > IASL
- SSSG Non-COC > SGSL
- GW Non-COC > GWSL
- COCs well documented
- VI Pathway complete

ANSWER:

YES, but . . .





Is this a Vapor Intrusion IEC?

Scenario #6



PCE – 12 $\mu\text{g}/\text{m}^3$
1,1,1-TCA – 9 $\mu\text{g}/\text{m}^3$

PCE – 0.5 $\mu\text{g}/\text{m}^3$
1,1,1-TCA – 10 $\mu\text{g}/\text{m}^3$

PCE – 25 $\mu\text{g}/\text{m}^3$
1,1,1-TCA – 500 $\mu\text{g}/\text{m}^3$

PCE – 36 $\mu\text{g}/\text{L}$
1,1,1-TCA – 75 $\mu\text{g}/\text{L}$

ISSUES:

- 1st Floor IA COC > IASL
- SSSG COC > SGS�
- GW COC > GWSL
- VI Pathway complete??
- Background sources
- Multiple lines of evidence
- Additional VI investigation may be warranted

ANSWER:

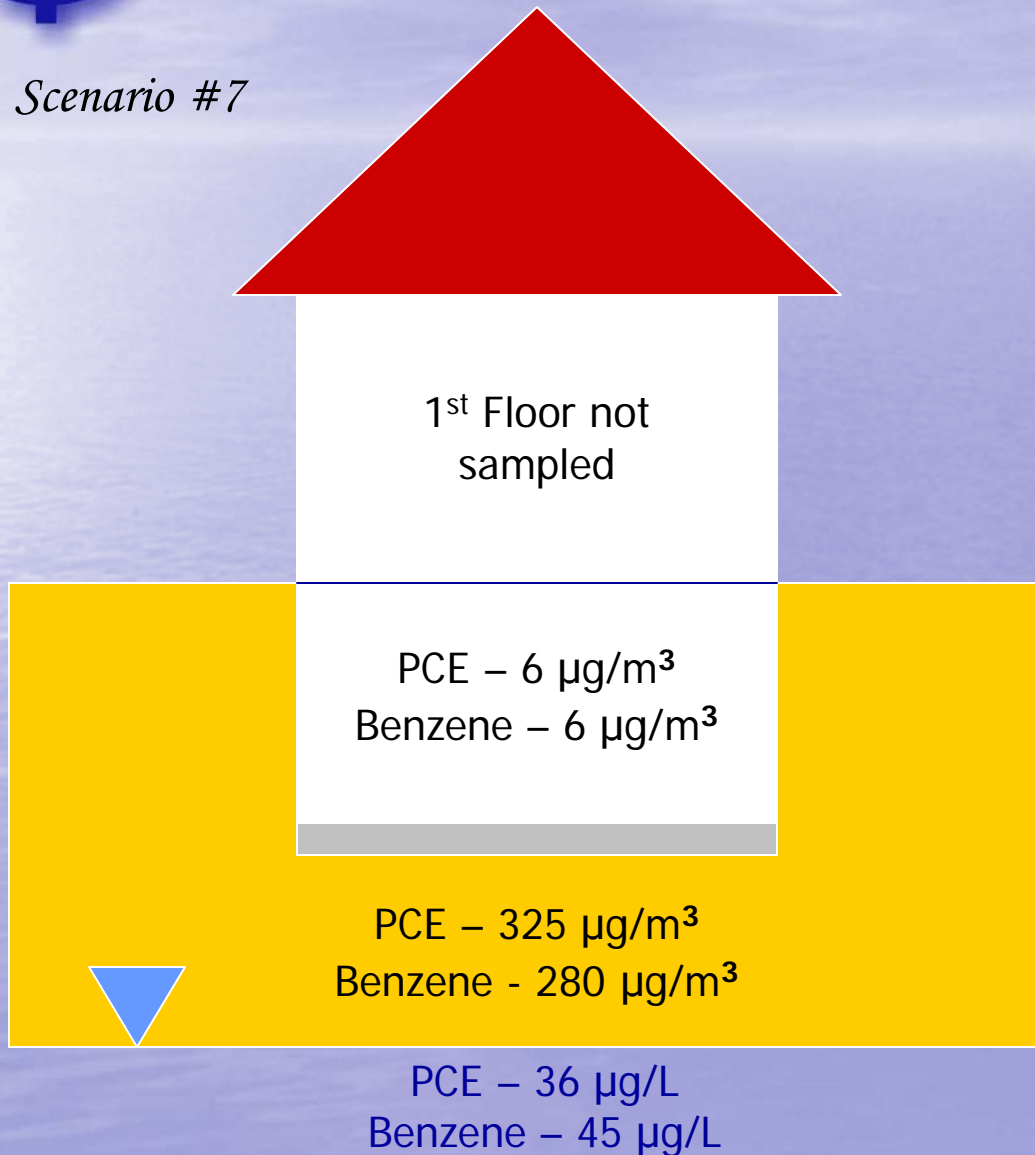
NO





Is this a Vapor Intrusion IEC?

Scenario #7



ISSUES:

- IA COC > IASL
- IA non-COC > IASL
- SSSG & GW COC > SLs
- SSSG & GW Non-COC > SLs
- VI Pathway complete

ANSWER:

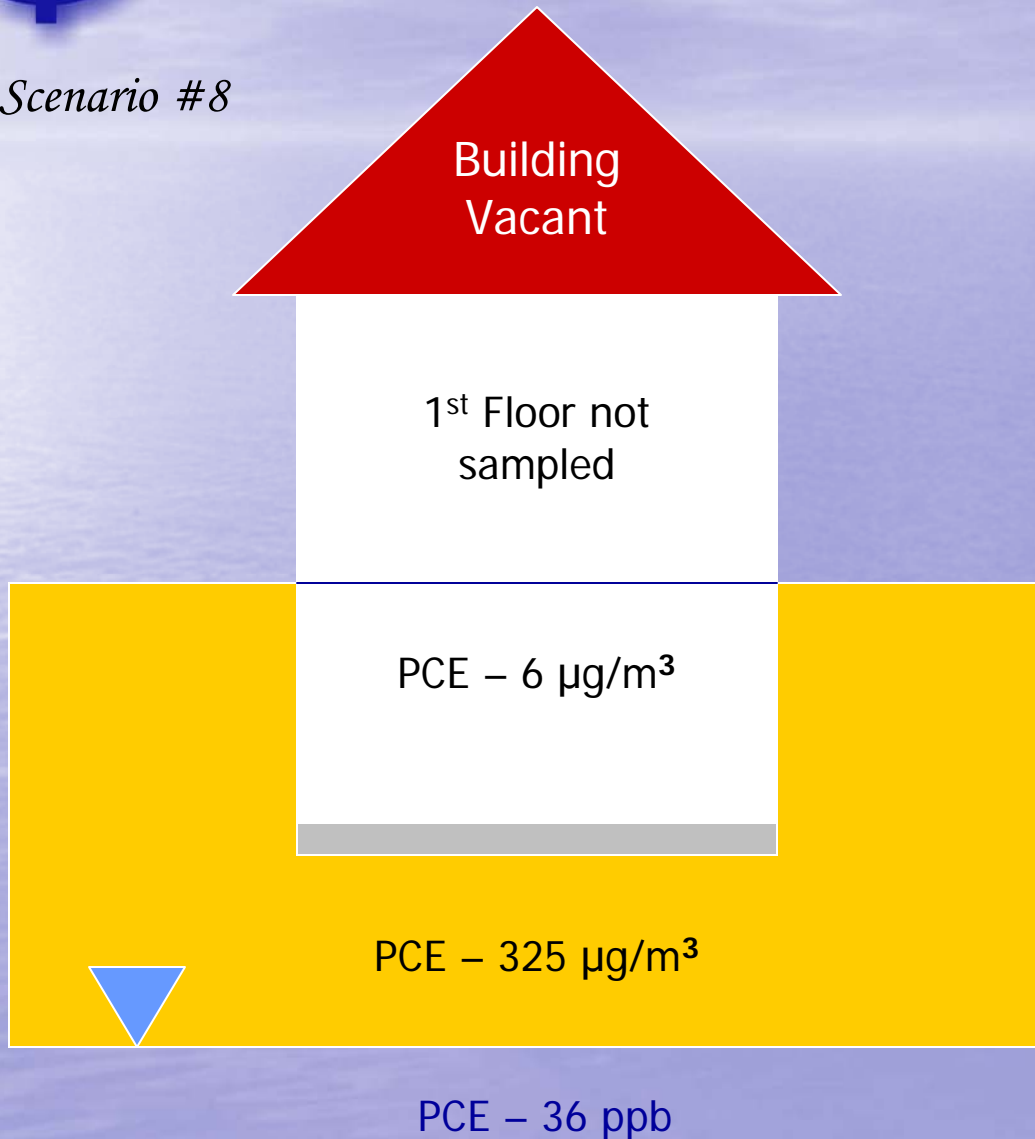
YES





Is this a Vapor Intrusion IEC?

Scenario #8



ISSUES:

- IA COC > IASL
- SSSG & GW COC > SLs
- Building vacant
- VI Pathway incomplete
- How to monitor future use?
- Off-site vs. onsite
- Mitigation warranted in the future if occupied

ANSWER:

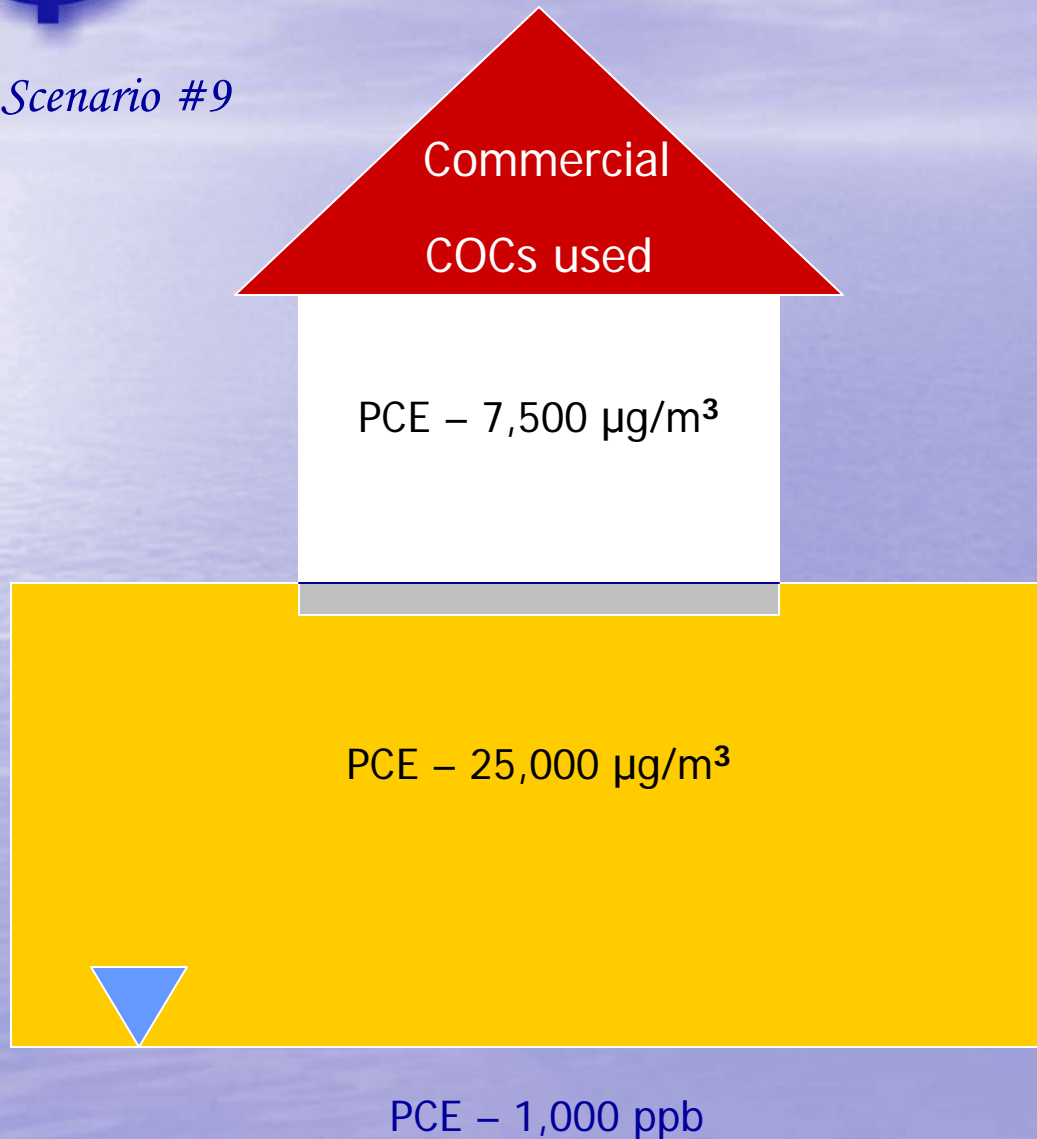
NO





Is this a Vapor Intrusion IEC?

Scenario #9



ISSUES:

- IA COC > IASL
- Commercial Building
- Status of VI Pathway unknown
- Utilize COC in current operations
- Future use?
- Additional VI investigation warranted if use changes

ANSWER:

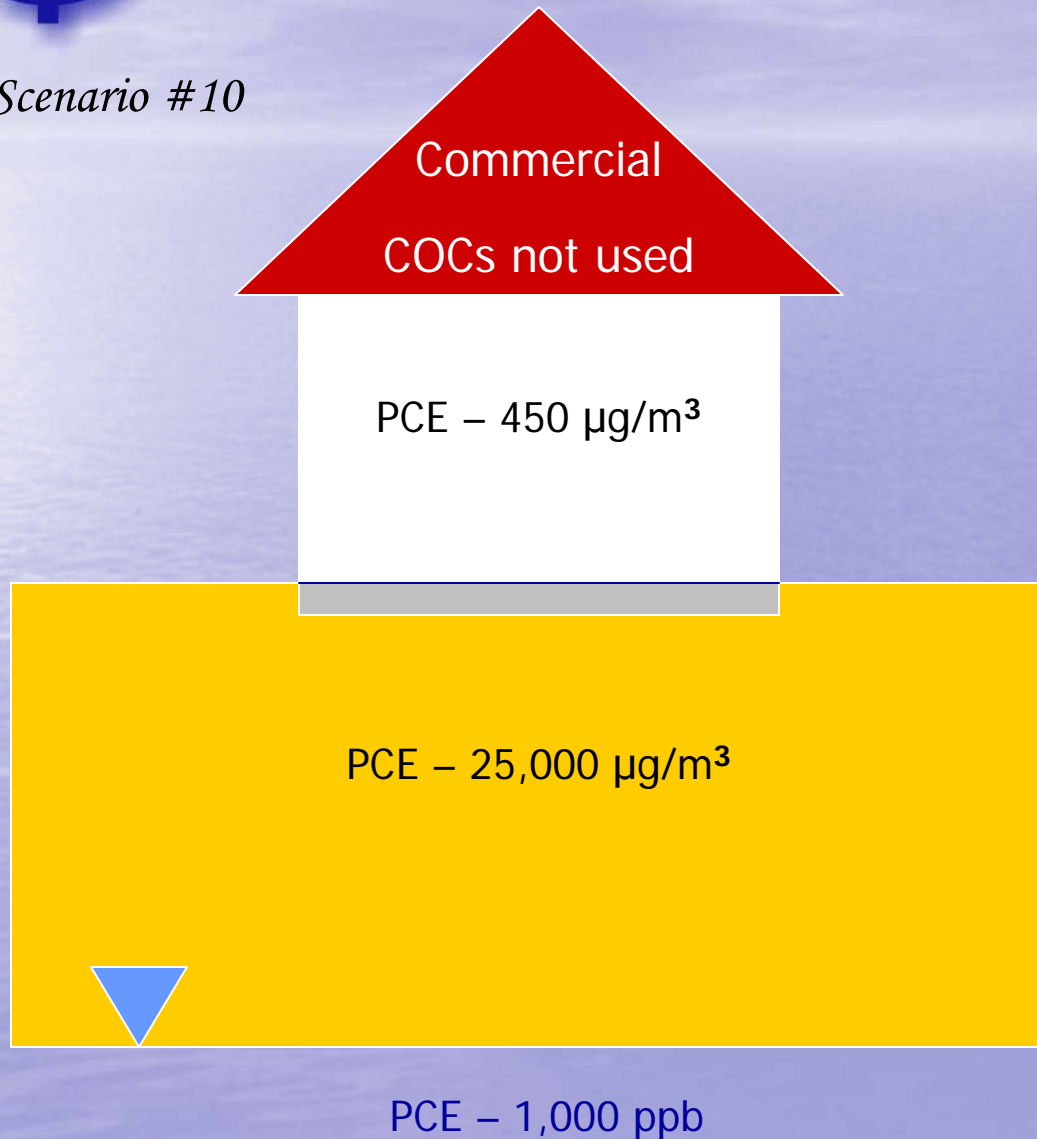
NO





Is this a Vapor Intrusion IEC?

Scenario #10



ISSUES:

- IA COC > IASL
- Commercial Building
- Don't utilize COC in current operations
- VI Pathway complete

ANSWER:

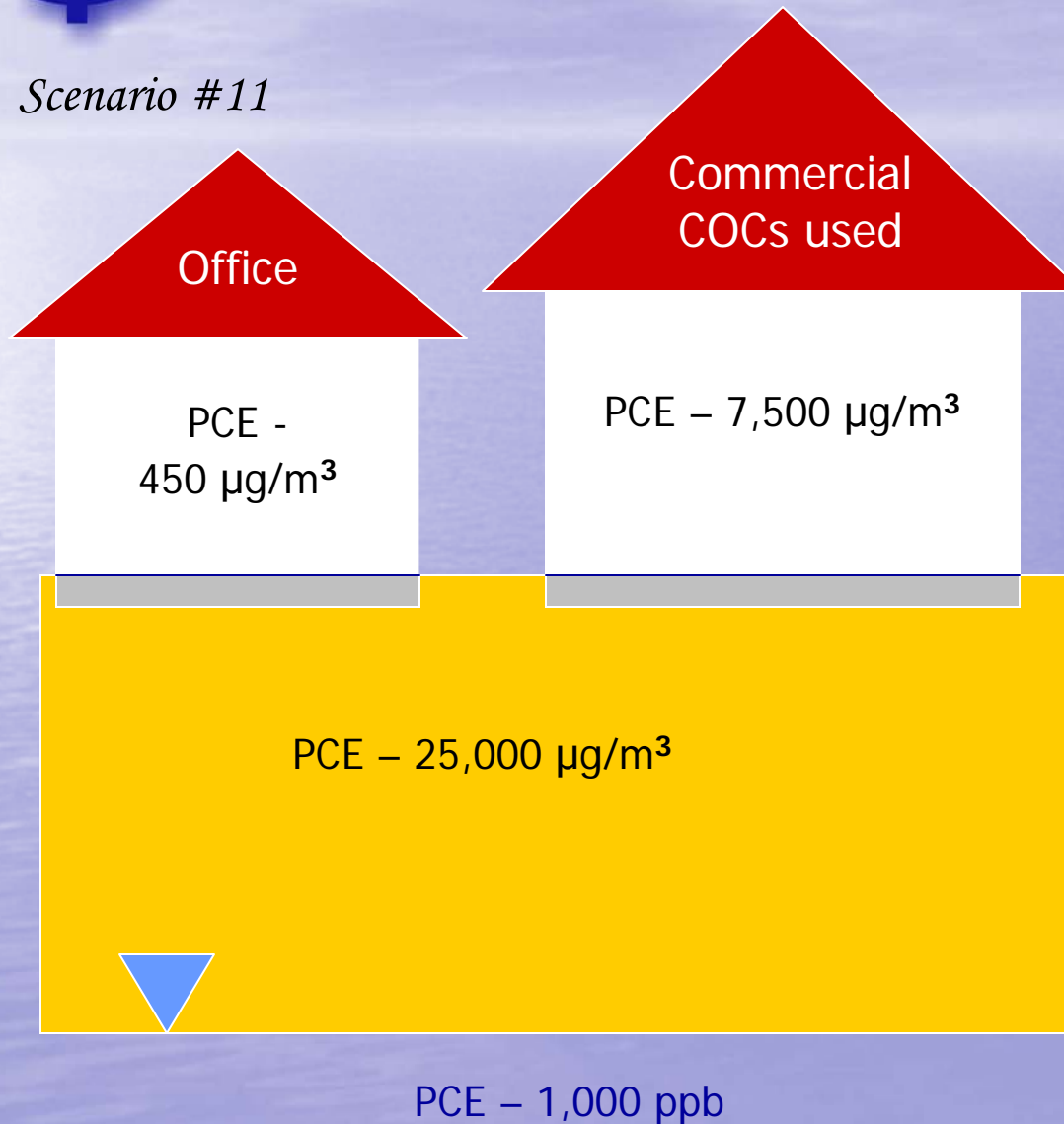
YES





Is this a Vapor Intrusion IEC?

Scenario #11



ISSUES:

- IA COC > IASL
- Commercial & Office Buildings on site
- Utilize COC in current factory operations
- Don't utilize COC in office
- VI Pathway complete? - depends on building
- Future use?
- Additional VI investigation warranted if use changes

ANSWER:

YES & NO





Immediate Response Actions

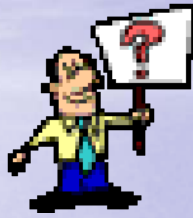
5-Day preliminary measures to reduce VI risk

- Seal major openings and cracks with caulk or expanding foam (volatile-free)
- Repairing compromised areas of the slab or foundation
- Covering and sealing exposed earth and sump pits
- Utilize indoor air treatment (not commonly employed)
- Implement selective ventilation





Questions?





Immediate Response Actions

5-Day preliminary measures to reduce VI risk

- Seal major openings and cracks with caulk or expanding foam (volatile-free)
- Repairing compromised areas of the slab or foundation
- Covering and sealing exposed earth and sump pits
- Utilize indoor air treatment (not commonly employed)
- Implement selective ventilation





Questions?

