Welcome

SRP Hot Topics Training

September 24, 2015

Tessie Fields
Office of Community Relations
Site Remediation Program
Tessie.fields2@dep.nj.gov
(609) 292-9962

UPDATES TO IEC GUIDANCE

September 24, 2015

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LSRP Continuing Education Requirements

36 Continuing Education Credits (CECs) over 3 year LSRP license renewal period:

Minimum no. of CECs must be satisfied in these categories:

- 3 CECs Ethics
- 10 CECs Regulatory
- 14 CECs Technical
- 9 CECs Discretionary

Continuing Ed Programs vs. Activities

Proposed Rules LSRP Continuing Ed. N.J.A.C. 7:26I Sub 4

- **Continuing Education "<u>PROGRAMS</u>":**
- **1 CEC for 1 hour of instruction at universities, colleges, DEP, LSRPA and other organizations**
- **Includes "Alternative Verifiable Learning Formats" (AVLF)**

  Webinars **- Exam required**

  No more than 18 CECs allowed for AVLFs / 3-year cycle

- **Continuing Education "<u>ACTIVITIES</u>": Applications for each activity**

  Teaching a course

  Preparing and giving presentations

  Presenting a paper

  "Activities" limited to 18 CECs / 3 year renewal cycle

Dates/Events to Remember

- **Upcoming Courses/Events – LSRPA.ORG**
  - **September 29 – LSRPA Member Breakfast**
    - **2 regulatory CECs are being sought, Eppe Essen's, Livingston**
  - **October 27 – Due Diligence in New Jersey**
    - **5.5 Regulatory CECs approved, @ Hatch Mott MacDonald HQ, Iselin**
  - **November 17 – Networking Event (BCONE, LSRPA, EDANJ)**
    - **League of Municipalities – Atlantic City**
  - **December 17 – Eco Evaluation Course (details soon)**
  - **January 13 – LSRPA Annual Meeting (details soon)**
- **Significant Dates for LSRPs**
  - **LSRPs w/licenses expiring December 20th**
    - **Renewal Applications to be submitted 8/22 - 9/21**
  - **LSRPs w/licenses expiring February 25th**
    - **Renewal Applications to be submitted 10/28 - 11/27**


NJ LICENSED SITE REMEDIATION
LSRPA
PROFESSIONALS ASSOCIATION

Thank You

IEC Guidance Update
and Other Topics

September 24, 2015

Andrew Sites
Immediate Concern Unit
Site Remediation Program
andrew.sites@dep.nj.gov
(609) 530-2582

IEC Guidance Committee Members

- Mark Fisher, The ELM Group, Inc.
- Jeff Farrell, AECOM
- Bob Gallagher, NJDEP
- Martin Hilfinger, Cumberland Gulf
- Steve MacGregor, NJDEP
- Andrew Sites, NJDEP - Chairperson
- Bruce Venner, NJDEP

Immediate Environmental Concern Technical Guidance

March 2015 version1.1

Topics

- Updated IEC Guidance – What's new?
- How to handle an unknown off-site source IEC
- Source Control for IECs
- When does IEC oversight end?
- Common Problems
- Case Studies: Evaluating VI Data in the real world

IEC Guidance
Changes and Improvements

Steve MacGregor
Immediate Concern Unit
Site Remediation program
Steve.Macgregor@DEP.nj.gov
(609) 530-4390

What's New in the IEC Guidance?

- Simplified
- Revised IEC and VC Response Action form
- Simplified mapping process
- Simplified IEC/VC Spreadsheet
- Updated Receptor Evaluation required
- M&M reporting requirement added

Note: No changes to time frames

What's new on the IEC Response Action Form?

- New check box for submission of the Annual Monitoring and Maintenance (AMM) Report
- New check box for reporting an unknown off-site source IEC
- Added email address for electronic submission to DEP's Immediate Concern Unit

Test Your Knowledge !

For webinar participants

One of the updates made to the **IEC Response Action Form** include a new check box for submission of the Annual Monitoring and Maintenance (AMM) Report

- True
- False

What's new with the Mapping Process?

- A GIS compatible map of the IEC is required with the Engineered System Response Action Report
  (N.J.A.C. 7:26E-1.11(a)7vi)
- New GIS layer that uses a point/symbol to show the location of an IEC case
- DEP will automatically map the IEC location in the IEC layer when the 14 day IEC form is submitted

New: Updated Receptor Evaluation

Guidance now includes a reminder to submit an updated Receptor Evaluation form with the Source Control Report

New: Annual Monitoring & Maintenance (AMM) Report

- AMM report required for all IEC cases
  (N.J.A.C. 7:26E-1.11(a)9)
- AMM report not required for VC cases
  - However, VI Tech Guidance recommends monitoring and maintenance, but is not reviewed by the case manager
- All receptors must be included in the AMM report (IEC, VC and elevated sub-slab)
- IEC case manager will review AMM

Recommendations for Monitoring and Maintenance (M&M)

- M&M begins when an engineered remediation system is installed
- M&M recommendations for:
  - Sub-slab Depressurization Systems (SSDS) are in the Vapor Intrusion Tech Guidance (VITG)
  - Passive vapor systems, and situations with elevated sub-slab but no indoor air exceedance are in the VITG
  - POET monitoring is found in the POET specs

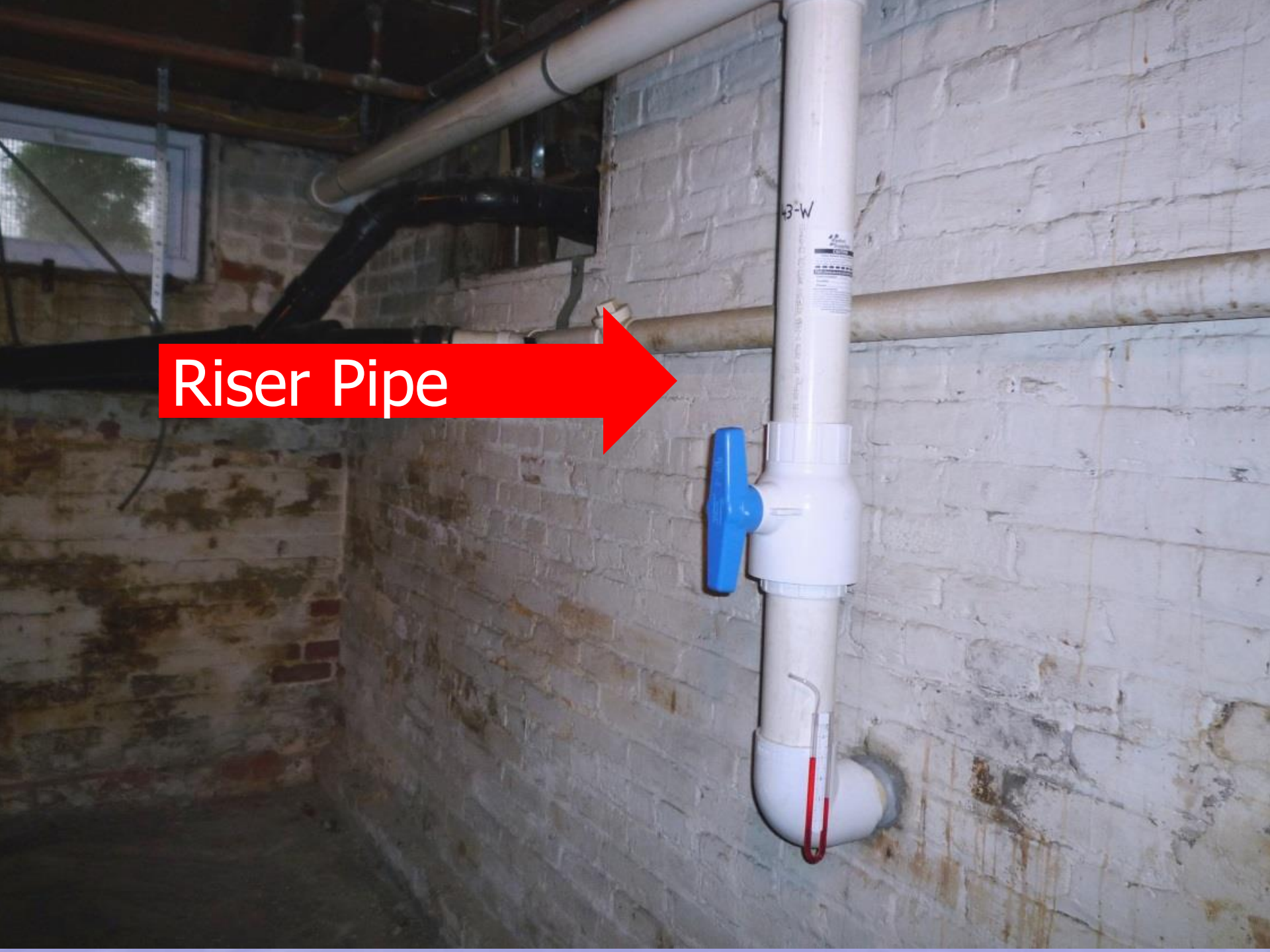
Sub-slab Depressurization Systems (SSDS) Commissioning Values

- System Commissioning and Verification Sampling (VITG 6.4) is critical to the M&M process
- Commissioning values are compared to all subsequent M&M readings collected

Critical Commissioning Values

These values will confirm that the system is working properly – receptors will be protected

- Vacuum readings in the riser pipe between the blower and the vapor extraction point
- Sub-slab vacuum measurements taken across the slab
- Post mitigation indoor air verification sampling
- These become the baseline for future M&M readings


Riser Pipe

Access outside the building is desirable

Vacuum readings

Sub-slab vacuum reading

SSDS Monitoring Options

- Measure vacuum in riser pipe
- Measure sub-slab vacuum
- Collect indoor air samples

Monitoring Options - continued

- Measure vacuum in riser pipe between the blower and vacuum extraction point
- Is vacuum within 20% (plus or minus) of the commissioning values?
  - If YES - SSDS is protective
  - If NO - Conduct a new round of sub-slab vacuum measurements or IA samples

Monitoring Options - continued

- If all sub-slab vacuum measurements are greater than 0.004 inches of water the SSDS is protective

- If the sub-slab vacuum measurements are less than 0.004 inches of water, SSDS should be amended/adjusted

Monitoring Options -continued

- What if the riser pipe and/or sub-slab vacuum probes are not accessible for sampling?
- Take indoor air samples (in the heating season only) in lieu of vacuum measurements to document that the SSDS remains protective

Annual Monitoring & Maintenance (AMM) Report – When is it due?

- First AMM Report is due 1 year after the IEC ID date for all IEC cases

- Subsequent AMM reports are due on the anniversary of the IEC ID date

What needs to be included in the AMM Report?

- Monitoring and Maintenance (M&M) Plan for the period being reported and next year's M&M plan
- Describe all deviations/changes from the plan with explanation/justification for the change
- M&M Checklist for Vapor Intrusion IEC cases
- Updated Potable or IEC/VC Spreadsheet (if samples collected)

Using the Monitoring and Maintenance (M&M) Checklist

- M&M checklist used to simplify reporting of VI cases
- Use one M&M checklist for each VI location inspected
- Used primarily for subsurface decompression systems (SSDS), but can be used to certify a building is vacant (no receptors)
- LSRP signs each M&M checklist

Submitting the AMM to IEC Case Manager

- New check box on the IEC Response Action form for the AMM report
- Send electronic copy of AMM report to IEC case manager and ICU Mail Box
- Send paper copy of AMM report and IEC Response Action form to BCAIN
- Continue to submit AMM reports until IEC M&M is included in a Remedial Action Permit

IEC M&M Reporting under the Remedial Action (RA) Permit

- LSRP can create or modify either a groundwater or soil RA permit to include all IEC M&M formerly reported to the IEC case manager
- Once RA permit is issued, IEC M&M review will be part of the permit and IEC case manager oversight will end

Questions?

Revised IEC/VC Spreadsheet

Jared Makrancy
Immediate Concern Unit
Site Remediation Program
Jared.Makrancy@dep.nj.gov
(609) 530-4099

IEC Spreadsheet

- What is the purpose of the IEC Spreadsheet?
  - Tech. Reg. Requirement
  - Reference tool
  - Case summary
  - Time / money saver
- Where is it?
  - http://www.nj.gov/dep/srp/srra/forms/
- What Comes with it?
  - Reporting Spreadsheet, New location Template, Example Spreadsheet and Instructions

Test Your Knowledge !

For webinar participants

One purposes of the **IEC Spreadsheet** is:

A. It's a great opportunity to practice data entry
B. It serves as a useful reference tool
C. Can be submitted for continuing education credits

Changes Made to Spreadsheet

- Simplified the spreadsheet by removing Categories
- Corrected formatting issues
- Added directions for;
  - Adding a NEW sample to a location
  - Adding a NEW sample location/ receptor
- Added an Example Spreadsheet

Improving Spreadsheet Organization

- Where can organization be improved?
  - Adding new Sample Locations
  - Adding new Samples at existing Locations
  - Contaminant of Concern categories
  - Lack of receptor information
  - Comments Section

Adding Sample Locations

Directions at the top of the page

	A	B	L	M	N	O	P	Q	R	S	T	U
1												
2	VERSION 1.3			DIRECTIONS FOR ADDING DATA ROWS AND ADDITIONAL LOCATIONS								
3	DATE: 12/2014		To Add Additional Rows for a sample location			To add new locations select New Location Template tab at bottom of screen.						
4			LEAVE BLUE ROW BLANK			Follow directions on New Location Template sheet						
5			Right click the BLUE ROW # and Select INSERT									
6			New Row will be added above the BLUE ROW									
7												
8												
9	PROPERTY ID		ANALYTICAL RESULTS (Bold all exceedances)									
10	Block	Lot	Date Sampled	Sample Type	Sample Description	Sample ID#	COC1	ug/m^3	COC2	ug/m^3	COC3	ug/m^3
11	4	2.01	8/17/2011	initial	IA basement	A1B1	PCE	**87**				
12			8/17/2011	initial	IA basement	A1B2	PCE	**41**	TCE	**100**		
13			8/17/2011	initial	IA 1st floor	A1F1	PCE	**30**				
14			8/17/2011	initial	IA 1st floor	A1F2	PCE	**24**				
15			8/17/2011	initial	Outside ambient	AMB	PCE	7				
16			8/18/2011	initial	Subslab soil gas	SS1A	PCE	**1900**				
17			8/18/2011	initial	Subslab soil gas	SS1B	PCE	**1600**				
18			2/14/2012	verification sampling	IA basement	A1B1C	PCE	ND	TCE	ND		
19			2/14/2012	verification sampling	IA basement	A1B2C	PCE	ND	TCE	ND		

	A	B	C	D	E	F	G	H	I
1	Directions:	Copy all columns and rows and paste to the bottom of the main IEC Reporting Spreadsheet							
2									
3									
4									
5									
6			BLANK ROW						
7									
8									
9									

Instructions | Example sheet | New Location Template | Reference

New Location Template at the Bottom of the Spreadhseet

Adding New Samples

- Leave Blue Row Blank
- Enter NEW sampling events at the same sampling location

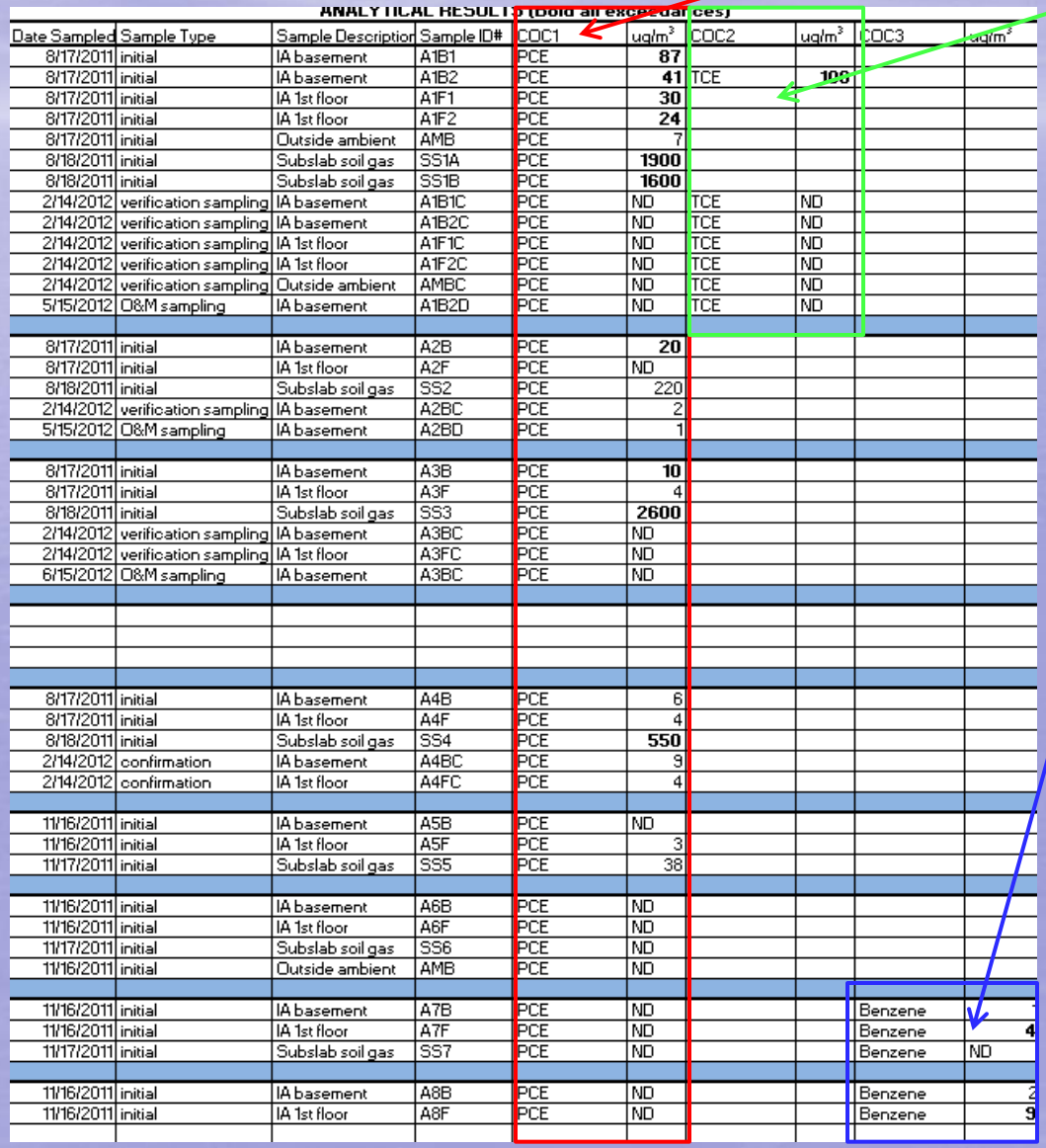
Locations organized in numerical order by street address

Multiple Rounds of Sampling at the same Location

	PROPERTY ID				PROPERTY OWNER/ OCCUPANT INFORMATION						ANALYTICAL RESULTS (Bold all exceedances)						
	Block	Lot	Name	Relation	#	Street	City	Zip Code	Phone	email	Reason Not Sampled	Date Sampled	Sample Type	Sample Description	Sample ID#	COC1	ug/m³	COC2
	4	2.01	Less Averman	owner	24/26	Somewhere Rd.	Anywhere	55555	(555)-555-3434	Laverman@gmail.com		8/17/2011	initial	IA basement	A1B1	PCE	**87**	
												8/17/2011	initial	IA basement	A1B2	PCE	**41**	TCE
												8/17/2011	initial	IA 1st floor	A1F1	PCE	**30**	
												8/17/2011	initial	IA 1st floor	A1F2	PCE	**24**	
												8/17/2011	initial	Outside ambient	AMB	PCE	7	
												8/18/2011	initial	Subslab soil gas	SS1A	PCE	**1900**	
												8/18/2011	initial	Subslab soil gas	SS1B	PCE	**1600**	
												2/14/2012	verification sampling	IA basement	A1B1C	PCE	ND	TCE
												2/14/2012	verification sampling	IA basement	A1B2C	PCE	ND	TCE
												2/14/2012	verification sampling	IA 1st floor	A1F1C	PCE	ND	TCE
												2/14/2012	verification sampling	IA 1st floor	A1F2C	PCE	ND	TCE
												2/14/2012	verification sampling	Outside ambient	AMBC	PCE	ND	TCE
												5/15/2012	O&M sampling	IA basement	A1B2D	PCE	ND	TCE
			BLANK ROW															
	5	14	Charles Conway	owner	40	Somewhere Rd.	Anywhere	55555	(555)-555-6458	Charlie@gmail.com		8/17/2011	initial	IA basement	A2B	PCE	**20**	
												8/17/2011	initial	IA 1st floor	A2F	PCE	ND	
												8/18/2011	initial	Subslab soil gas	SS2	PCE	220	
												2/14/2012	verification sampling	IA basement	A2BC	PCE	2	
												5/15/2012	O&M sampling	IA basement	A2BD	PCE	1	
			BLANK ROW															
	5	7	Guy Germain	owner	35	Somewhere Rd.	Anywhere	55555	(555)-555-3469	GermainMan1@yahoo.com		8/17/2011	initial	IA basement	A3B	PCE	**10**	
			Jesse Hall	tenant						JHall43@yahoo.com		8/17/2011	initial	IA 1st floor	A3F	PCE	4	
												8/18/2011	initial	Subslab soil gas	SS3	PCE	**2600**	
												2/14/2012	verification sampling	IA basement	A3BC	PCE	ND	
												2/14/2012	verification sampling	IA 1st floor	A3FC	PCE	ND	
												6/15/2012	O&M sampling	IA basement	A3BC	PCE	ND	
			BLANK ROW															
	5	15	Julie K. Gaphnie	owner	39	Somewhere Rd.	Anywhere	55555	(555)-555-8989	JulykatG@veriz	no response from owner							
											owner refused							
			BLANK ROW															
	4	17	Adam Banks	owner	32	Somewhere Rd.	Anywhere	55555	(555)-555-1235	C8KEATR24@aol.com		8/17/2011	initial	IA basement	A4B	PCE	6	
												8/17/2011	initial	IA 1st floor	A4F	PCE	4	
												8/18/2011	initial	Subslab soil gas	SS4	PCE	**550**	
												2/14/2012	confirmation	IA basement	A4BC	PCE	9	
												2/14/2012	confirmation	IA 1st floor	A4FC	PCE	4	
			BLANK ROW															
	4	14	Fulton Reed	owner	38	Somewhere Rd.	Anywhere	55555	(555)-555-4687	FReed2000@hotmail.com		11/16/2011	initial	IA basement	A5B	PCE	ND	
												11/16/2011	initial	IA 1st floor	A5F	PCE	3	
												11/17/2011	initial	Subslab soil gas	SS5	PCE	38	
			BLANK ROW															

Contaminant of Concern Categories

- Every exceeding COC should have its own column
- Spreadsheet has up to 3 columns for identified COC's



ANALYTICAL RESULTS (Bold all exceedances)

Date Sampled	Sample Type	Sample Description	Sample ID#	COC1	ug/m³	COC2	ug/m³	COC3	ug/m³
8/17/2011	initial	IA basement	A1B1	PCE	**87**				
8/17/2011	initial	IA basement	A1B2	PCE	**41**	TCE	**108**		
8/17/2011	initial	IA 1st floor	A1F1	PCE	**30**				
8/17/2011	initial	IA 1st floor	A1F2	PCE	**24**				
8/17/2011	initial	Outside ambient	AMB	PCE	7				
8/18/2011	initial	Subslab soil gas	SS1A	PCE	**1900**				
8/18/2011	initial	Subslab soil gas	SS1B	PCE	**1600**				
2/14/2012	verification sampling	IA basement	A1B1C	PCE	ND	TCE	ND		
2/14/2012	verification sampling	IA basement	A1B2C	PCE	ND	TCE	ND		
2/14/2012	verification sampling	IA 1st floor	A1F1C	PCE	ND	TCE	ND		
2/14/2012	verification sampling	IA 1st floor	A1F2C	PCE	ND	TCE	ND		
2/14/2012	verification sampling	Outside ambient	AMBC	PCE	ND	TCE	ND		
5/15/2012	O&M sampling	IA basement	A1B2D	PCE	ND	TCE	ND		
8/17/2011	initial	IA basement	A2B	PCE	**20**				
8/17/2011	initial	IA 1st floor	A2F	PCE	ND				
8/18/2011	initial	Subslab soil gas	SS2	PCE	220				
2/14/2012	verification sampling	IA basement	A2BC	PCE	2				
5/15/2012	O&M sampling	IA basement	A2BD	PCE	1				
8/17/2011	initial	IA basement	A3B	PCE	**10**				
8/17/2011	initial	IA 1st floor	A3F	PCE	4				
8/18/2011	initial	Subslab soil gas	SS3	PCE	**2600**				
2/14/2012	verification sampling	IA basement	A3BC	PCE	ND				
2/14/2012	verification sampling	IA 1st floor	A3FC	PCE	ND				
6/15/2012	O&M sampling	IA basement	A3BC	PCE	ND				
8/17/2011	initial	IA basement	A4B	PCE	6				
8/17/2011	initial	IA 1st floor	A4F	PCE	4				
8/18/2011	initial	Subslab soil gas	SS4	PCE	**550**				
2/14/2012	confirmation	IA basement	A4BC	PCE	9				
2/14/2012	confirmation	IA 1st floor	A4FC	PCE	4				
11/16/2011	initial	IA basement	A5B	PCE	ND				
11/16/2011	initial	IA 1st floor	A5F	PCE	3				
11/17/2011	initial	Subslab soil gas	SS5	PCE	38				
11/16/2011	initial	IA basement	A6B	PCE	ND				
11/16/2011	initial	IA 1st floor	A6F	PCE	ND				
11/17/2011	initial	Subslab soil gas	SS6	PCE	ND				
11/16/2011	initial	Outside ambient	AMB	PCE	ND				
11/16/2011	initial	IA basement	A7B	PCE	ND			Benzene	
11/16/2011	initial	IA 1st floor	A7F	PCE	ND			Benzene	**4**
11/17/2011	initial	Subslab soil gas	SS7	PCE	ND			Benzene	ND
11/16/2011	initial	IA basement	A8B	PCE	ND			Benzene	2
11/16/2011	initial	IA 1st floor	A8F	PCE	ND			Benzene	**9**

Receptor Information

- A lot of Spreadsheets lack Receptor Information
- Step out sampling identifies all potential receptors
  - All receptors, Sampled or NOT Sampled need to be added to the spreadsheet
    - If NOT sampled spreadsheet needs to have why they were not sampled and an explanation in the comments section

Comments Section

- The most under utilized field
- Explanations for any weird results
  - unexpected field conditions, receptor issues, background contamination…etc.
- Explanation as to why a receptor was not sampled
- Reminders for you and messages for the Case Manager

Remember it's a Story…

- The spreadsheet is a less formal way of telling the story of the case
  - The 14 day report to the 1 year source control report should be summed up in the spreadsheet
- Organized enough that the information is useful
- Detailed enough that it can answer any question

Questions?

IEC Issues

Andrew Sites
Immediate Concern Unit
Site Remediation Program
Andrew.Sites@dep.nj.gov
(609) 530-2582

Topics

- Unknown Off-site Source IEC
- Source Control for IECs
- End of IEC Oversight
- Common Problems

IEC Caused by Unknown Off-Site Source

Off-Site Source Guidance

1. Off-Site Source Ground Water Investigation Technical Guidance http://www.state.nj.us/dep/srp/guidance/srra/offsite_source_gw_investigation_guidance.pdf

2. Administrative Guidance for LSRPs and Subsurface Evaluators when Encountering Contamination that is Suspected to be Unrelated to a Known Discharge Undergoing Remediation
http://www.nj.gov/dep/srp/guidance/srra/offsite_source_guidance.pdf

3. Immediate Environmental Concern Technical Guidance: sections 4.1.1, 4.2.1 and 4.3.1
http://www.state.nj.us/dep/srp/guidance/srra/iec_guidance.pdf

IEC Caused by Unknown Off-Site Source

Scenario #1: Off-site IEC, COC not found on-site

Scenario #2: On-site IEC or off-site IEC with COC found on-site

LSRP believes IEC is caused by unknown off-site source not related to their site

What should the LSRP do?

IEC Caused by Unknown Off-Site Source
Scenario #1

1. Call the DEP Hotline & report an "unknown off-site source" IEC
2. Provide information requested in the Guidance
   http://www.nj.gov/dep/srp/guidance/srra/offsite_source_guidance.pdf
3. DEP creates a new publicly funded IEC and:
   - Addresses the IEC with public funds
   - Conducts a Receptor Evaluation
   - Conducts a Source Investigation
   - Starts Cost Recovery

IEC Caused by Unknown Off-Site Source
Scenario #2

- Call the DEP Hotline & report the IEC
- Start addressing the IEC per the IEC requirements in 7:26E-1.11
- Within 14 days submit the IEC Response Action form
- Complete investigation per N.J.A.C. 7:26E-3.9 or 3.10 to demonstrate that contamination is from an unknown off-site source
- Refer to Guidance
  http://www.nj.gov/dep/srp/guidance/srra/offsite_source_guidance.pdf

How to Claim an Unknown Off-site Source IEC
Scenario #2

- Call DEP Hotline and report an unknown off-site source IEC **(2nd call to hotline)**
- Submit IEC Response Action form and check box claiming an off-site source, include the incident number from 2nd call to hotline
- Must include justification supporting claim of off-site source contamination

Off-Site Source IEC Justification

- Off-site source justification should include information like:
  - Historic site information
  - Site & regional hydrology
  - Contaminant concentration and gradient
  - Groundwater flow direction
  - Updated PA/SI

Off-Site Source IEC: DEP's Action

- DEP will create a new publicly funded IEC case after LSRP submits IEC form and supporting documentation
- DEP will address the IEC and conduct a receptor evaluation
- DEP will coordinate transfer of M&M of any IEC remediation systems installed by LSRP
- DEP will conduct a source investigation and start cost recovery

Off-Site Source IEC: Timing Issue

- Claim of an off-site source may need to be delayed particularly in cases when additional information needs to be gathered
- If you report an IEC attributed to your site it can be changed later to an off-site unknown source IEC (publicly funded IEC case)

Off-Site Source IEC: RAO-A (area)

- DEP recommends that an RAO-A be submitted for the off-site IEC

- The LSRP on the site may issue an RAO-A to address the contamination migrating onto the site from an off-site source and relieve the Person Responsible for Conducting the Remediation (PRCR) of the responsibility to remediate it.

Source Control
for IECs

Source Control Requirement

- Tech rules require that within one year of identifying an IEC: "initiate control of all IEC contaminant source areas" (N.J.A.C. 7:26E-1.11(a)8)

- "Initiate control" is interpreted to mean starting source control, it does not mean completing source control

Test Your Knowledge !
For webinar participants

Within one year of identifying an IEC, what do the Tech rules require?

A. Safety training for UST removal
B. Initiate control of all IEC contaminant source areas
C. Conduct a Preliminary Assessment

Source Control
IEC Guidance

- The goal: Remove the source of contamination creating the IEC
- Examples: removing leaking tanks, excavating heavily contaminated soils, reagent injection, vapor extraction
- A dissolved GW plume is not (generally) a source that would need to be controlled in 1 year as per the IEC Guidance
- Source control starts when the source is physically removed or reduced

Source Control

- Over 350 LSRP IECs have been reported to date
- **In most of these cases source control started before the IEC was discovered**
- Source Control Report and the IEC Engineered System Response Action Report can be combined

When Does IEC Oversight End?

3 scenarios for IEC Oversight ending

End of IEC Oversight
Scenario #1

An LSRP inadvertently reports an IEC that isn't really an IEC

Closeout process:

- Contact your IEC case manager and request IEC be closed
- Provide your case manager with supporting information via email

End of IEC Oversight
Scenario #2

Site conditions change so that the case is no longer an IEC (contaminant concentrations decrease below screening levels or DEP screening levels increase)

- Engineering system/control is no longer needed for protection of human health

Closeout process:

- Contact your IEC case manager, request IEC be closed and email supporting information
- If case manager concurs, IEC will be closed

End of IEC Oversight
Scenario #3

LSRP conducted all requirements for addressing receptor and source control

- Case is in routine M&M and Annual Monitoring and Maintenance (AMM) Reports being submitted to IEC case manager

Closeout process:

- When DEP issues a Remedial Action permit that includes M&M plan for the IEC case, M&M reporting shifts to the RA permit reporting

How Do I Know IEC Oversight is Complete?

- The case manager will close the IEC in NJEMS
- The Data Miner Activity Tracking Report will show "IEC Oversight Completed" with a completed date
- When this appears the IEC case manager will no longer be working on the IEC – oversight is complete

Activity Tracking Report

09/14/2015 9:06 AM

MARDI GRAS CLEANERS

PI Number: 474087

OSA120001

Activity Class Description	SRP Oversight
Activity Type Description	IEC-LSRP

Assigned To	Description	Completed Date
SITES, ANDREW	IEC Identified	4/12/2010
SITES, ANDREW	IEC 14-Day Information Submittal and Interim Response Action Received	4/16/2010
SITES, ANDREW	IEC 120-Day Report Received/Engineered System	12/21/2011
INGERSOLL, WARD	IEC 1-Year Report Received/Source Control	4/12/2012
INGERSOLL, WARD	IEC 1-Year Report Deficient/Source Control	4/30/2012
INGERSOLL, WARD	IEC 1-Year Revised Report Received/Source Control	5/15/2012
INGERSOLL, WARD	Phone call - LSRP Compliance Assistance	10/9/2013
INGERSOLL, WARD	IEC 1-year Report Complete	11/21/2013
INGERSOLL, WARD	IEC Annual Monitoring & Maintenance Report Received	12/3/2013
INGERSOLL, WARD	IEC Annual Monitoring & Maintenance Report Completed	12/16/2013
INGERSOLL, WARD	IEC Receptor Control Decommissioning Request Received	8/28/2014
INGERSOLL, WARD	IEC Receptor Control Decommissioning Approved	12/1/2014
INGERSOLL, WARD	IEC Oversight Completed	12/3/2014

Red Flags
&
Common Problems

Red Flags for VI Evaluation

- Sub-slab and indoor air values similar
- Two similar compounds in sub-slab and only one in indoor air
- Indoor air levels higher on first floor than basement
- No sub-slab sample collected but high indoor air
- High water table – unable to collect sub-slab sample and indoor air is high
- Missing ambient sample, particularly in urban areas

Common Problems Identifying IECs

Analytical results must **exceed** standard or criteria for an IEC

Standard = 1, lab result is 1.5, this rounds to 2
2 = exceeds standard

Standard = 1, lab result is 1.4, this rounds to 1
1 = does not exceed standard

Common Problems Identifying IECs

- Contaminated irrigation wells are not IECs
- Lead from plumbing is not an IEC
- Not taking sample in heating season
- COC used in the building
- Time extensions: missing 30 day requirement
- Source control reports being late

Chloroform & IECs

- Chloroform is an analyte in TO-15 and on the DEP's list of screening levels
- Chloroform can form from the reaction of chlorine with organic material
- Chloroform can be found in soil gas and indoor air samples
- Chloroform resulting from the use of bleach and leaking waterlines or sewer lines are not considered IECs

Questions?

Case Studies

Case 1: Vapor Intrusion?

Case 2: Trouble shooting an SSDS

Cases Study 1

Is it a vapor intrusion IEC or not?

Basic Case Information

- Vapor Intrusion IEC reported to DEP
- COC: 1,4 Dichlorobenzene
- Sub-slab & indoor air exceeded screening levels
- Building: warehouse
- COC not found in ground water

Red Flag
The Contaminant

COC is 1,4 Dichlorobenzene

- Not a common VI chemical
- Solid to vapor (sublimation)
- Spill unlikely
- Common uses: moth balls/pesticide, solid deodorizer

Red Flag
Distribution of the COC

- Indoor air and sub-slab levels are similar
- COC not found in ground water

Trouble Shooting

- Contacted the LSRP and scheduled a site visit

Main Goals of Site Visit:

- Find the source of COC: Discharge or Operation
- Determine why sub-slab soil gas and indoor air levels are similar

Trouble Shooting - continued

1. Sub-slab sample collection error?

No: observed sampling - proper sampling protocol used

2. Looked for any source of COC

1,4 Dichlorobenzene not used in operation or stored in warehouse

But… may have been used for pest control during shipping

That is likely our source

Trouble Shooting - continued

Why were sub-slab soil gas and indoor air levels similar?

- Looked at the building construction
  - Unusual cement block footer – cinder block was turned on its side
  - Building was built with a void/space under concrete floor slab
  - Sub-slab and indoor air equalized due to this unusual building construction

This is likely the reason for COC levels

Case 2: SSDS Trouble Shooting

Basic Case Information

- Soil Gas: >10,000 ug/m3 PCE
- Groundwater: 100 PPM of PCE
- Soil contamination behind dry cleaner: 9,800 PPM
- Indoor air level in 4 lease holds: averaged about 500 ug/m3 PCE
- Case is clearly an IEC

IEC Remediation Steps

- LSRP installed Sub Slab Depressurization System (SSDS)
- Conducted Commissioning testing
  - All vacuum reading good
- Verification sampling
  - **IA levels increased from 500 to 2,000 ug/m3**
- LSRP notified IEC case manager

Test Your Knowledge !
For webinar participants

One of the IEC remediation steps performed by the LSRP for this case was to:

A. Excavate the septic system leach field
B. Install a sub-slab depressurization system
C. Install a video gaming system

Trouble Shooting

1. Active dry cleaner- operational problem?

Trouble Shooting

1. Active dry cleaner- operational problem?

   Dry cleaner moved - vacant

Trouble Shooting

1. Active dry cleaner- operational problem?

   Dry cleaner moved recently

2. PCE off gassing from sheet rock?

Trouble Shooting

1. Active drycleaner- operational problem?

   Dry cleaner moved recently

2. PCE off gassing from sheet rock?

   Did not explain increase in levels

Trouble Shooting

1. Active dry cleaner- operational problem?

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3. SSDS not operating?

Trouble Shooting

1. Active dry cleaner- operational problem?

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   Checked – SSDS working

Trouble Shooting

1. Active dry cleaner- operational problem?

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   Checked – SSDS working

4. PCE use at other lease holds?

Trouble Shooting

1. Active drycleaner- operational problem?

   Dry cleaner moved recently

2. PCE off gassing from sheet rock?

   Did not explain increase in levels

3. SSDS not operating?

   Checked – SSDS working

4. PCE use at other lease holds?

   No other tenants use PCE

Trouble Shooting

1. Active dry cleaner- operational problem?

   Dry cleaner moved recently

2. PCE off gassing from sheet rock?

   Did not explain increase in levels

3. SSDS not operating?

   Checked – SSDS working

4. PCE use at other lease holds?

   No other tenants use PCE

5. Other system/building issue?

Vent at Dry Cleaner

Trouble Shooting

1. Active dry cleaner- operational problem?

   Dry cleaner moved recently

2. PCE off gassing from sheet rock?

   Did not explain increase in levels

3. SSDS not operating?

   Checked – SSDS working

4. PCE use at other lease holds?

   No other tenants use PCE

5. Other system/building issue?

Short Circuit

Fix Building Issue

- Sealed vent in dry cleaner
- Resampled leaseholds
- Indoor air below screening levels

Problem Resolved

Questions?