

Nockamixon TCE HSCA Site

Nockamixon Township
Bucks County

Public Hearing – May 25, 2011

Meeting Objectives

- ❖ Contaminants of Concern
- ❖ Site background and findings
- ❖ Response alternatives and associated costs
- ❖ Proposed response

Contaminants of Concern

- ❖ Trichloroethylene (TCE)
- ❖ Tetrachloroethylene (PCE)
- ❖ 1,1-Dichloroethylene (1,1-DCE)
- ❖ Cis-1,2-Dichloroethylene (cis-1,2-DCE)

Concentration Terminology

- ❖ MCL = maximum contaminant level
 - ❖ EPA Federal Safe Drinking Water Act
- ❖ ppb = parts per billion
- ❖ $\mu\text{g}/\text{L}$ = micrograms per liter

TCE

- ❖ Used mainly as a solvent to remove grease from metal parts, but it is also an ingredient in adhesives, paint removers, typewriter correction fluids, septic cleaners, and spot removers
- ❖ MCL is 5ppb ($\mu\text{g/L}$)

PCE

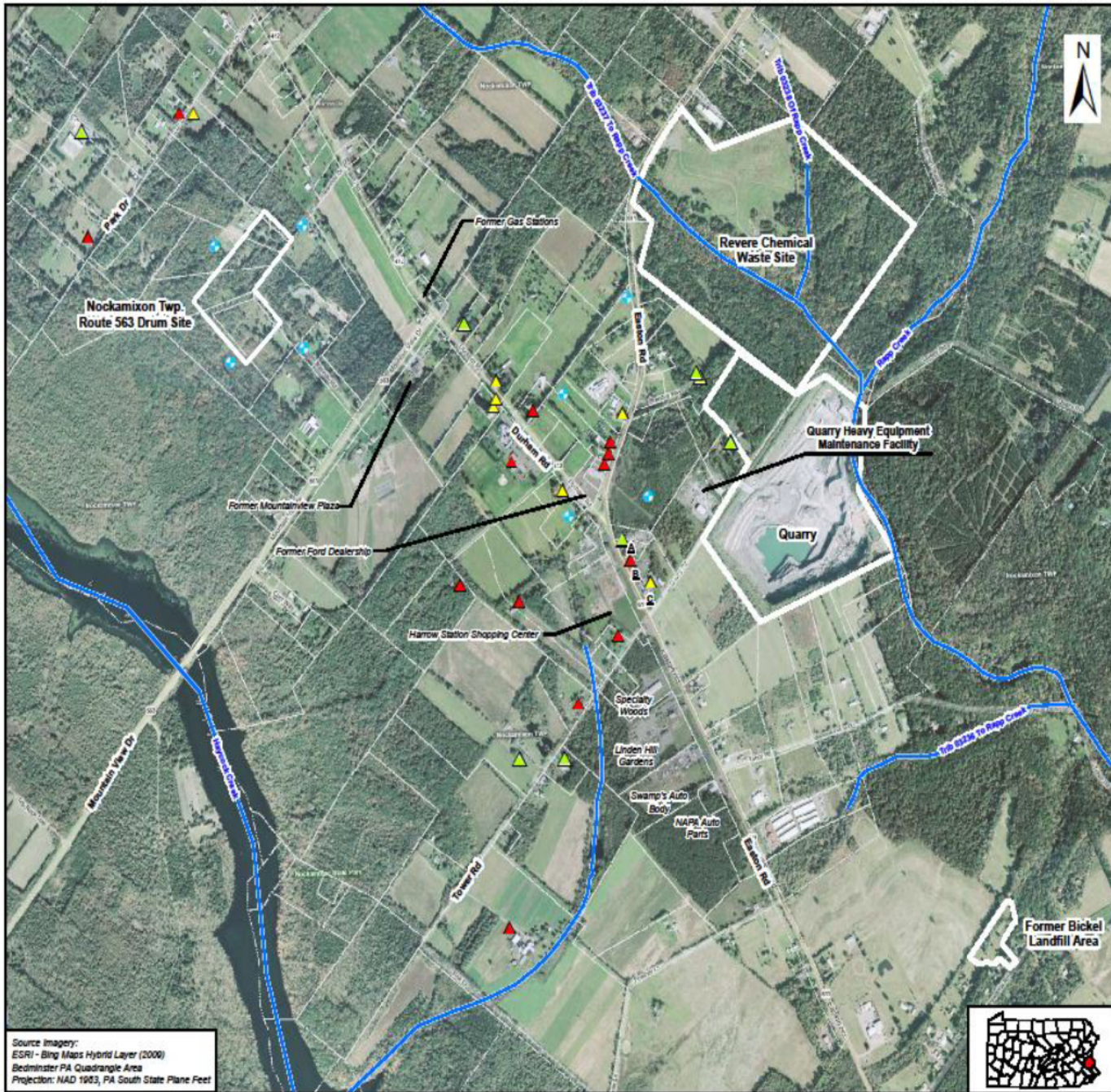
- ❖ Used for dry cleaning of fabrics and for metal-degreasing
- ❖ Used to make other chemicals and is used in some consumer products, such as auto brake cleaners, suede protectors and water repellents
- ❖ MCL is 5ppb ($\mu\text{g}/\text{L}$)

1,1-DCE

- ❖ Used to make certain plastics, such as flexible films like food wrap, and in packaging materials
- ❖ Used to make flame retardant coatings for fiber and carpet backings, and in piping, coating for steel pipes, and in adhesive applications
- ❖ MCL is 7ppb ($\mu\text{g/L}$)

Cis-1,2-DCE

- ❖ Used as a solvent for waxes and resins; in the extraction of rubber; as a refrigerant; in the manufacture of pharmaceuticals and artificial pearls; in the extraction of oils and fats from fish and meat; and in making other organics.
- ❖ MCL is 70 ppb ($\mu\text{g}/\text{L}$)



Legend:

- Proposed Well Pair Location
- TCE Concentration Not Detected in Sample
- TCE Concentration in Sample Detected Below EPA Drinking Water Contaminants MCLs Standard
- TCE Concentration in Sample Exceeds EPA Drinking Water Contaminants MCLs Standard
- Parcel Boundaries
- PA Stream
- Harrow Center (Chiropractor, HVAC Contractor, Propane Contractor)
- Baumhauer's Kitchen and Bath
- 611 Auto Sales, Harrow Homes Builder Yard and Storage

Note: Sample results from samples collected October 2009 through November 2010



GTAC 5-1-222
Nockamixon TCE Site
Nockamixon Township, PA

Well Sampling Location Map

drawn JWS	checked RLM	approved	figure no.
date 4/11/2011	date 4/8/2011	date	PM
job no.	file no.	PM - CVOIC Conc 2010	

Source Imagery:
ESRI - Bing Maps Hybrid Layer (2009)
Bedminster PA Quadrangle Area
Projection: NAD 1983, PA South State Plane Feet



Background

- ❖ BCHD Spring 2009 referral
- ❖ 4 sampling events:
 - ❖ October 2009
 - ❖ April 2010
 - ❖ November 2010
 - ❖ April 2011

Findings

- ❖ Highest levels detected were in excess of 90 ppb ($\mu\text{g/L}$) TCE
- ❖ Result Levels have ranged from non-detect to mid 20's ppb ($\mu\text{g/L}$) TCE on average

Short-Term Response

- ❖ Bottled water has been a way to reduce exposure to the contaminants in the short-term
- ❖ Residents within the site area are provided bottled water when the concentrations in their well exceed the MCL for TCE and PCE

Alternatives

- ❖ No Action (Baseline)
- ❖ Bottled Water Delivery
- ❖ Whole House Carbon Filters
- ❖ Connection to a Public Water Supply System

Alternative 1: No Action (Baseline Alternative)

PROS

- ❖ No Cost.

CONS

- ❖ Discontinue sampling and analysis.
- ❖ Not protective of human health.
- ❖ Not a permanent solution.

Alternative 2: Bottled Water Delivery

PROS

- ❖ Easily implemented.
- ❖ Protects against the ingestion pathway.

CONS

- ❖ Inconvenience.
- ❖ May not protect against the inhalation pathway.
- ❖ Not a permanent solution.
- ❖ Sampling and analysis is required.
- ❖ Costly in the long run.

Alternative 3: Whole House Carbon Filters

PROS

- ❖ Easily implemented.
- ❖ Protective of public health and safety provided the system is maintained.
- ❖ Treats contaminated groundwater with a beneficial use after the treatment.
- ❖ Permanent solution
- ❖ Cost effective

CONS

- ❖ Protective of public health and safety provided the system is maintained
- ❖ Sampling and analysis is required.

Carbon Filter Units



- ❖ Two carbon canisters and a sediment filter
- ❖ 4-5' tall
- ❖ 2' diameter
- ❖ Three sampling ports
- ❖ Non-freezing conditions
- ❖ Monitoring and maintenance

Alternative 4:

Connection to a Public Water Supply System

PROS

- ❖ Protective of human health and safety.
- ❖ Supplier has mandated monitoring requirements.
- ❖ Permanent solution.
- ❖ No further residential sampling.

CONS

- ❖ Residents would need to pay a water bill.
- ❖ Inconvenience during construction.
 - ❖ Main
 - ❖ Laterals
- ❖ Not cost effective, extensive main would need to be constructed

Response Cost Summary

	Alternative 1 No Action	Alternative 2 Bottled Water	Alternative 3 Carbon Units	Alternative 4 Waterline
Water	\$0	\$9,153	\$56,000	\$3,000,000+
Sampling	\$0	\$ 8,100	\$8,100	\$0
Total	\$0.00	\$17,958	\$ 80,805	\$3,000,000+

Note: Total projected costs for one (1) year.
Sampling includes residential sampling only

Evaluation Criteria

- ❖ Overall protection of human health and the environment.
- ❖ Compliance with applicable or relevant and appropriate requirements (ARARs).
- ❖ Long-term effectiveness and permanence.
- ❖ Reduction of toxicity, mobility, or volume through treatment.
- ❖ Short-term effectiveness.
- ❖ Implementability.
- ❖ Cost.
- ❖ Community Input.

Proposed Response

- ❖ **Alternative 3: Whole House Carbon filters**
 - ❖ Protective of Human Health with Proper Maintenance
 - ❖ Complies with drinking water standards
 - ❖ Permanent solution
 - ❖ Cost effective

Submit Written Questions/Comments to:

Megan Harkins

HSCA – Project Officer

2 East Main Street

Norristown, PA 19401

mharkins@state.pa.us

484-250-5721

DEADLINE FOR COMMENTS:

July 14, 2011!!

Environmental Covenants (ECs)

- ❖ ECs are required when an institutional or engineering control is necessary for a property being remediated under Act 2, HSCA or the Storage Tank Act
- ❖ ECs becomes part of the deed record for a property
- ❖ They detail specific property conditions and requirements as they apply to the current or future property owners

Environmental Covenants (ECs)

- ❖ We review draft covenants to make sure they are accurate for the conditions at the site
- ❖ The covenant for the residential properties involved in the Nockamixon TCE response is aimed at preventing the use of contaminated groundwater.

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