Clyde Community Meeting

December 16, 2008

Ohio EPA's presentation

- Ohio EPA overview
- What's been done to date?
- What's planned for the future?

What Ohio EPA evaluates

- Compliance with environmental laws
  - **Water:** Drinking water and waste water
  - **Land:** Landfills/dumps, waste disposal, cleanups
  - **Air:** Air pollution control

What Ohio EPA evaluates

- Quality of Ohio's air and water resources
  - Streams, rivers and lakes
  - Groundwater
  - Air

What’s been done to date?

Air

- Surveillance in area for unknown sources
- Additional inspections of area companies
- Study of possible air contaminant sources
- Preparations for air monitoring

Drinking water

- Evaluations of area public drinking water supplies
- Review of historical and current sampling
- Evaluations of possible contaminant sources
- Planning for additional sampling

Ground water

- Evaluate ground water on Vickery Environmental site (O.L.D.) semi-annually
- No contaminants are leaving the property
- Evaluate other ground water sampling data and flow of the ground water (which is north/northwest)
- Plan to sample groundwater in area

Dumps & Cleanups

- Reviewed historic and current information that exists on old dumps in the area
- Specifically
  - Clyde City Dump - 11 acres, located north of Rte 20, just north of Clyde City Water Pollution Control facility
  - Leach Dump - Operated 1950s-1968, west of C.R. 236
  - Amert Operated from 1970-1976, Green Creek Township. north side CR 185, west of Maple

What’s planned?

Air monitoring

- Monitors placed in Clyde area to monitor upwind and downwind air quality
- Plan to monitor for many chemicals
- Will evaluate the results using a risk assessment model

Drinking Water & Ground Water

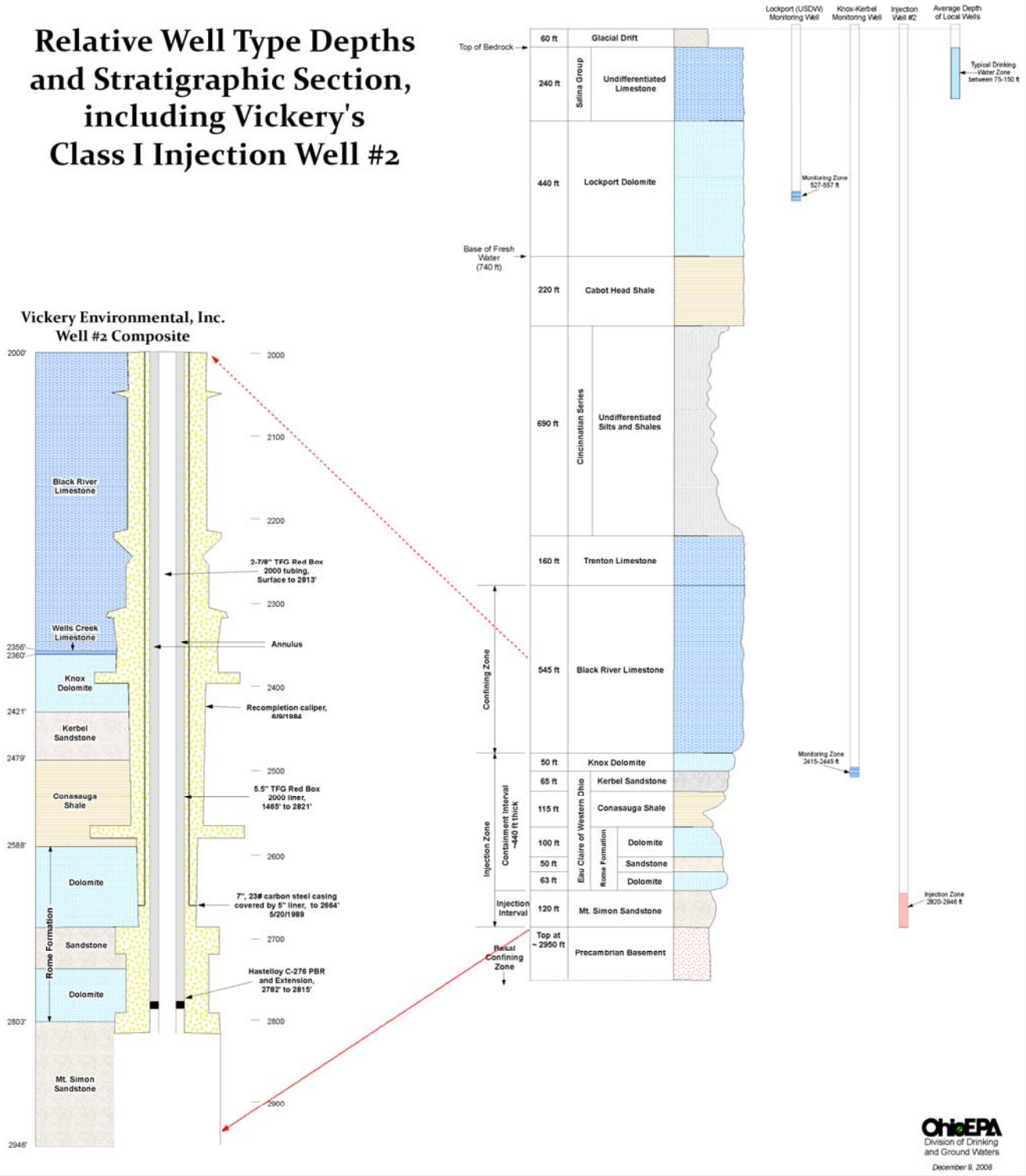
- Sampling private wells where juvenile cancer diagnosed
- Sampling municipal water at several locations throughout system
- Test for 186 chemicals
  - will sample for everything for which Vickery Environmental is required to sample
  - pesticides/herbicides
  - radionuclides

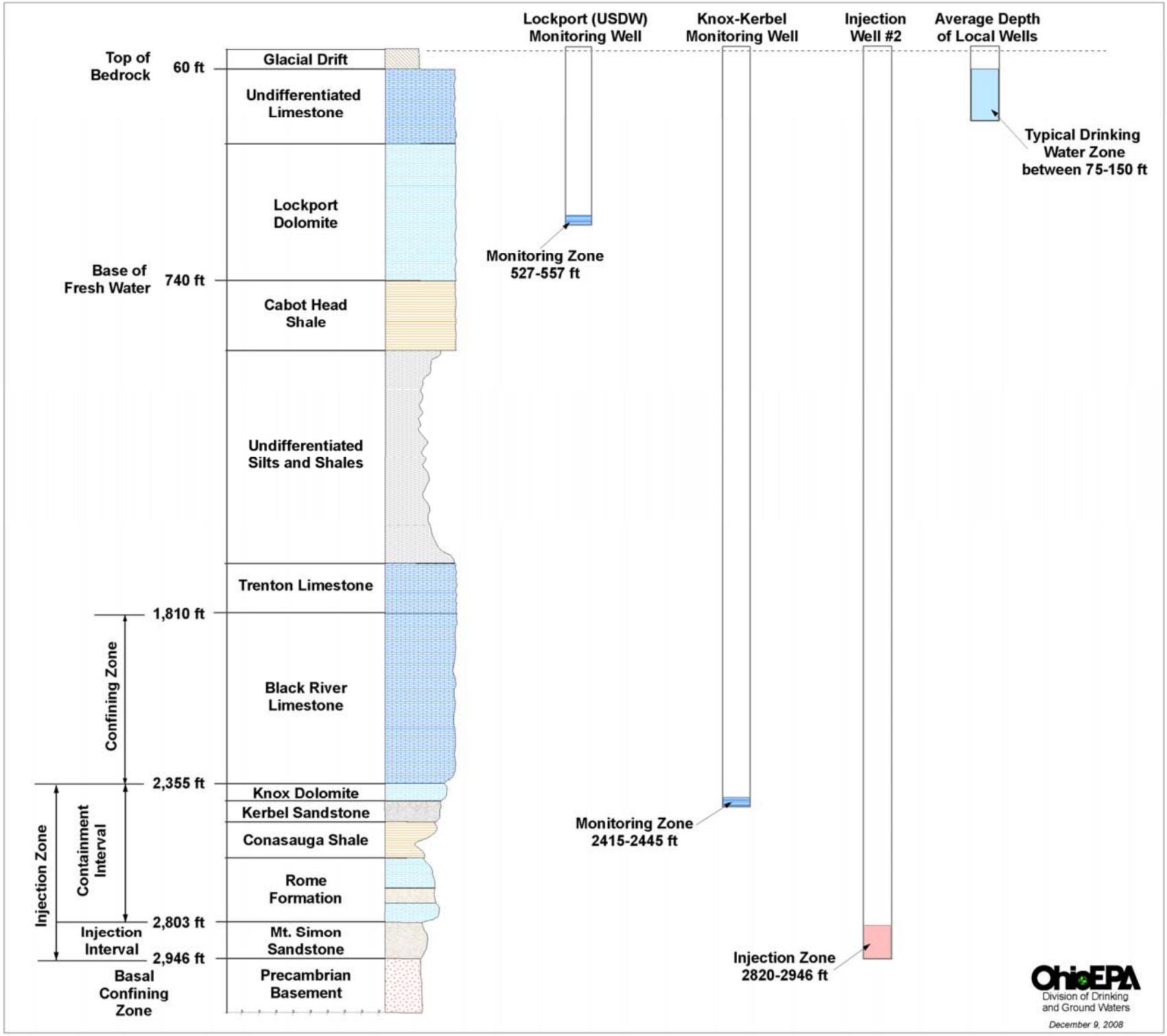
Surface Water Monitoring

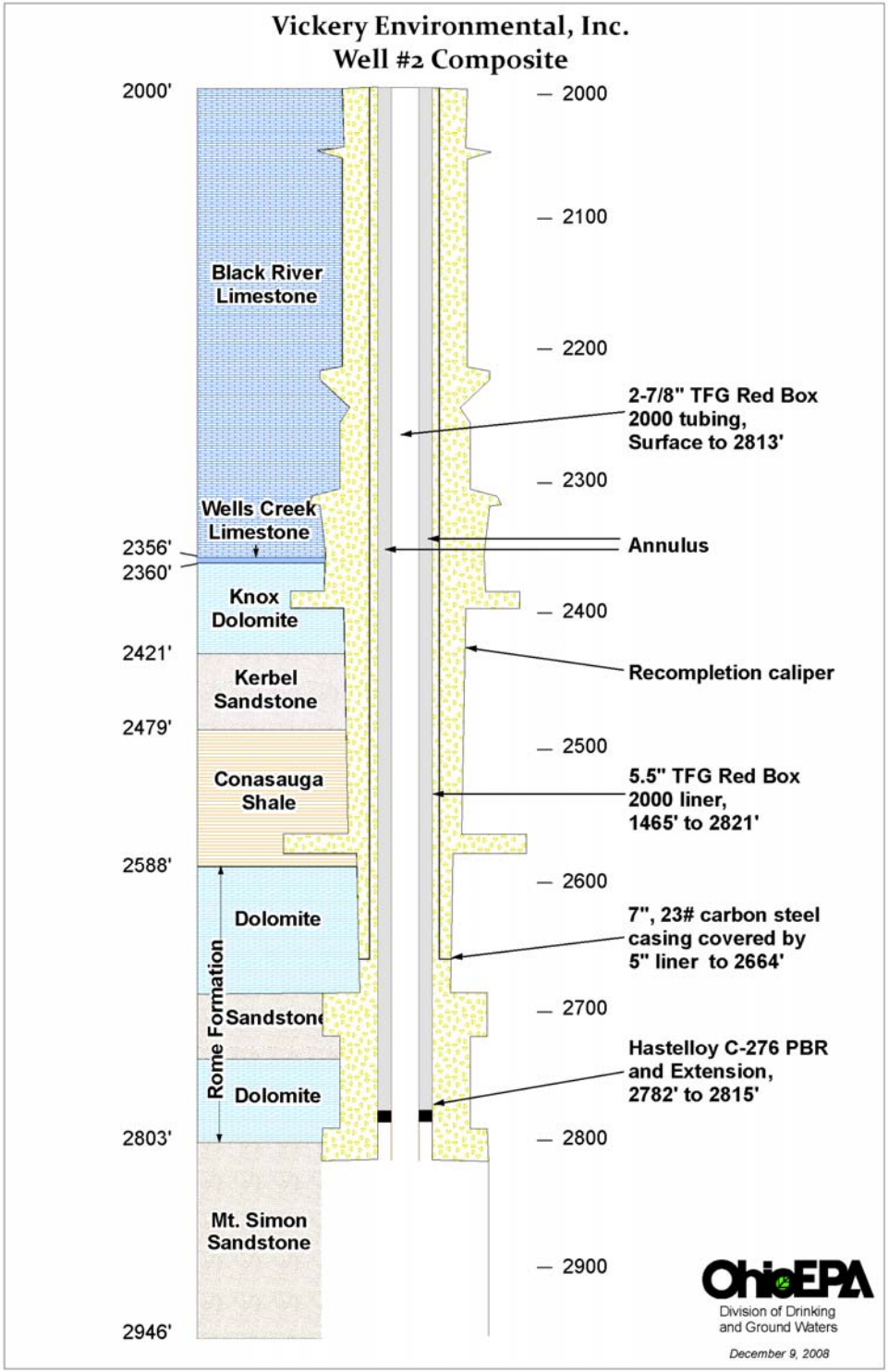
- Beaver Creek reservoir, Beaver Creek, Raccoon Creek (had already been scheduled for sampling in 2009)

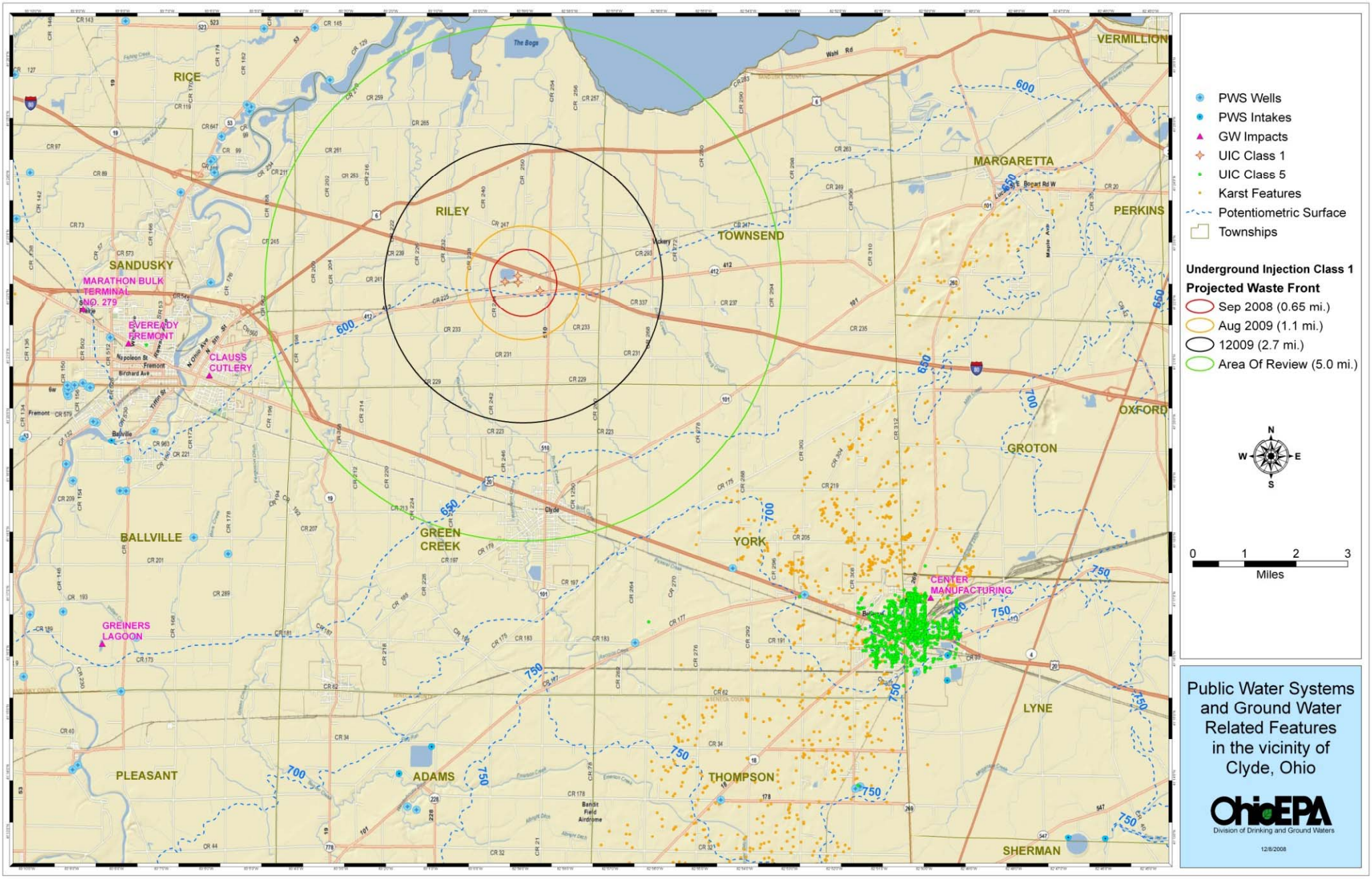
- Sampling will assess
  - water chemistry (How clean is the water?)
  - aquatic life (How healthy are the bugs and fish)

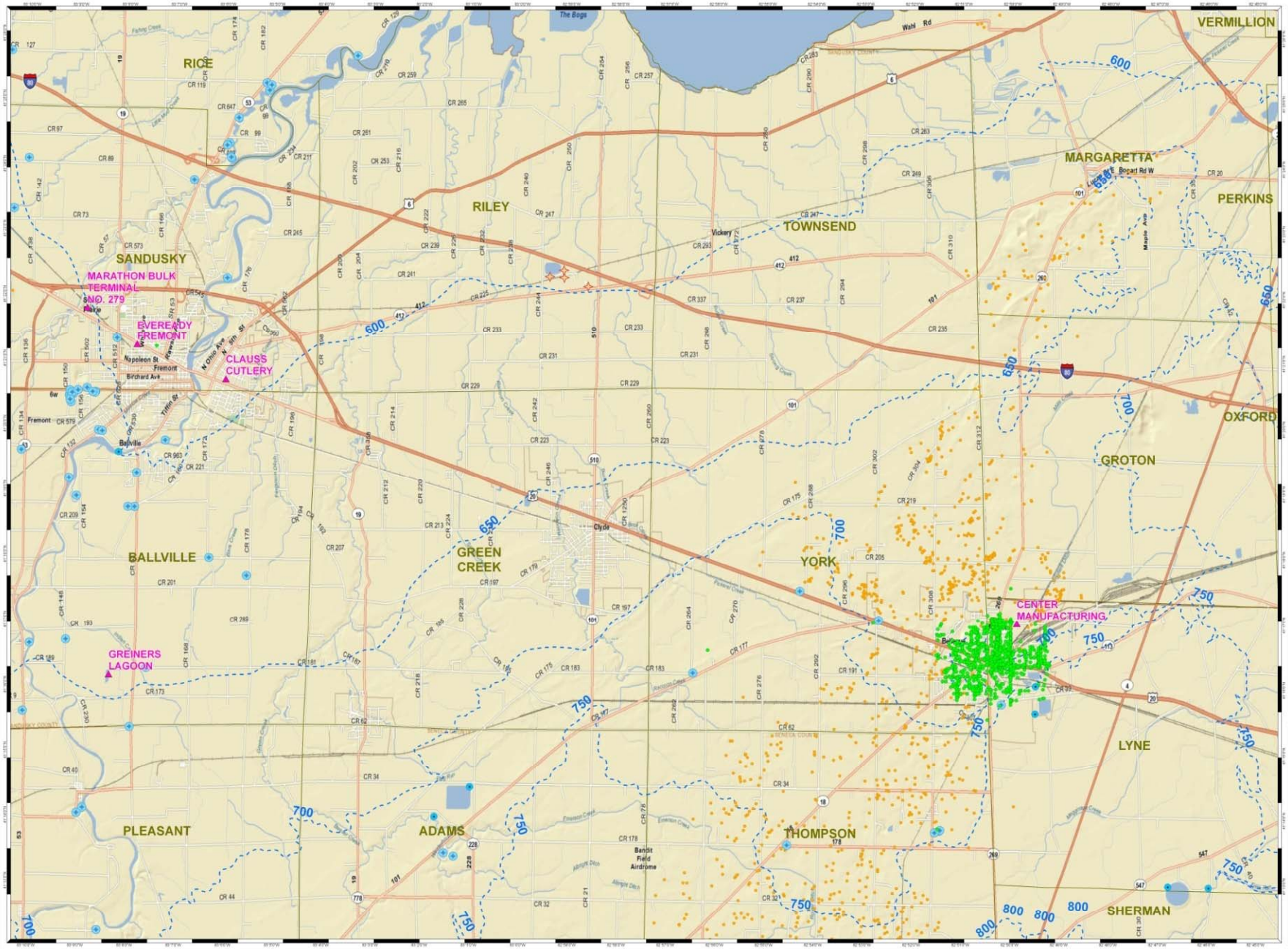
Relative Well Type Depths and Stratigraphic Section, including Vickery's Class I Injection Well #2




Lockport (USDW) Monitoring Well
Knox-Kerbel Monitoring Well
Injection Well #2
Average Depth of Local Wells
Top of Bedrock
60 ft
Glacial Drift
Undifferentiated Limestone
Lockport Dolomite
Base of Fresh Water
740 ft
Cabot Head Shale
Undifferentiated Silts and Shales
Trenton Limestone
1,810 ft
Black River Limestone
Confining Zone
2,355 ft
Knox Dolomite
Kerbel Sandstone
Conasauga Shale
Rome Formation
Injection Zone
Containment Interval
2,803 ft
Injection Interval
Mt. Simon Sandstone
2,946 ft
Basal Confining Zone
Precambrian Basement
Monitoring Zone 527-557 ft
Monitoring Zone 2415-2445 ft
Injection Zone 2820-2946 ft
Typical Drinking Water Zone between 75-150 ft
OhioEPA
Division of Drinking and Ground Waters
December 9, 2008


Vickery Environmental, Inc.
Well #2 Composite
2000'
2356'
2360'
2421'
2479'
2588'
2803'
2946'
Black River Limestone
Wells Creek Limestone
Knox Dolomite
Kerbel Sandstone
Conasauga Shale
Dolomite
Sandstone
Dolomite
Rome Formation
Mt. Simon Sandstone
2000
2100
2200
2300
2400
2500
2600
2700
2800
2900
2-7/8" TFG Red Box 2000 tubing, Surface to 2813'
Annulus
Recompletion caliper
5.5" TFG Red Box 2000 liner, 1465' to 2821'
7", 23# carbon steel casing covered by 5" liner to 2664'
Hastelloy C-276 PBR and Extension, 2782' to 2815'
OhioEPA
Division of Drinking and Ground Waters
December 9, 2008


RICE
RILEY
TOWNSEND
MARGARETTA
VERMILLION
PERKINS
SANDUSKY
MARATHON BULK TERMINAL SNO. 279
EVEREADY FREMONT
CLAUSS CUTLERY
OXFORD
GROTON
BALLVILLE
GREEN CREEK
YORK
CENTER MANUFACTURING
GREINERS LAGOON
LYNE
PLEASANT
ADAMS
THOMPSON
SHERMAN
PWS Wells
PWS Intakes
GW Impacts
UIC Class 1
UIC Class 5
Karst Features
Potentiometric Surface
Townships
Underground Injection Class 1
Projected Waste Front
Sep 2008 (0.65 mi.)
Aug 2009 (1.1 mi.)
12009 (2.7 mi.)
Area Of Review (5.0 mi.)
N
W
E
S
0
1
2
3
Miles
Public Water Systems and Ground Water Related Features in the vicinity of Clyde, Ohio
OhioEPA
Division of Drinking and Ground Waters
12/8/2008



PWS Wells
PWS Intakes
GW Impacts
UIC Class 1
UIC Class 5
Karst Features
Potentiometric Surface
Townships

N
W E
S

0 1 2 3
Miles

Public Water Systems and Ground Water Related Features in the vicinity of Clyde, Ohio

OhioEPA
Division of Drinking and Ground Waters

12/8/2008

Health Assessment Section

Bureau of Environmental Health

ATSDR
AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

OhioEPA

Comprehensive Cancer Program
Division of Prevention
"To protect and improve the health of all Ohioans"

Cancer

Answers to Frequently Asked Health Questions

What is cancer?

Cancer is the irregular growth of abnormal cells. In the human body, normal cells grow, divide and die in a normal process. Cancer cells outlive normal cells and continue to grow and make new abnormal cells.

Cancer cells will clump together and form tumors. These tumors can invade and destroy normal cells and tissue. Tumors can be malignant (cancerous) or benign (non-cancerous).

Cancer cells can travel (metastasize) through the blood or the lymph system to other areas of the body where they can settle and form new tumors. Some cancers, such as leukemia, do not form tumors but invade the blood and blood-forming organs. Benign (non-cancerous) tumors do not spread to other parts of the body and are usually not life-threatening.

In many cases, the exact cause of cancer is not known. We know certain changes in our cells can cause cancer to start but we don't yet know exactly how this happens. Many scientists and health professionals study cancer in the hope they can discover the causes and a cure. But, there are a lot things we **do** know about cancer.

Who gets cancer?

Cancer may strike at any age. However, cancer is mostly a disease of middle and old age. In Ohio, about 86% of cancers were diagnosed in people age 50 and older in 2000.

Cancer is the second-leading cause of death in the United States. It is estimated that half of all men and one-third of all women in the United States will develop cancer during their lifetimes.

In 2003, about 60,300 Ohioans – or 165 Ohioans per day – were diagnosed with cancer. More than 25,200 Ohioans – or about 69 people each day – died from it.

What are cancer risk factors?

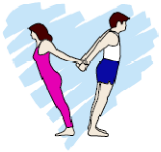
A risk factor is anything that increases a person's chance of getting a disease. Some risk factors, such as tobacco use, can be changed, and others, such as age, cannot.

Having a risk factor for cancer means a person is more likely to develop the disease at some point in his or her life. However, having one or more risk factors does not always mean a person will get cancer. Some people with one or more risk factors never develop the disease, while other people who develop cancer have no apparent risk factors. Even when a person who has a risk factor is diagnosed with cancer, there is no way to prove the risk factor actually caused the cancer. In reality, getting cancer is probably due to the combination of risk factors rather than one single factor.

Risk factors for cancer include a person's age, sex and family medical history (genetics). Other major factors are related to lifestyle choices such as using tobacco, drinking a lot of alcohol, eating a poor diet, lack of physical activity and unprotected exposure to the sun. Occupational (work) exposures can be another risk factor.

Using tobacco products, a poor diet and lack of physical activity account for about 65% of cancer deaths. Less than 5% of cancers are believed to be due to factors in the environment such as environmental pollution (2%), industrial products (1%) or food additives (1%).

The risk of developing most types of cancers can be reduced by changes in a person's lifestyle. By quitting smoking, eating healthier and exercising, you can reduce your risk of developing cancer.



Comprehensive Cancer Program
Division of Prevention
"To protect and improve the health of all Ohioans"

Exposure to Toxic Chemicals and Cancer

How are we exposed to chemicals in our environment?

We come in contact with many different chemicals every day that generally do not cause health problems. But any chemical can become toxic if a person comes into contact with large enough doses. For example: aspirin will cure a headache, but too much aspirin becomes toxic and can cause serious health problems. Contact with toxic chemicals does not always cause adverse (negative) health effects. Whether or not you get sick as a result of a chemical exposure depends on:

- how toxic the chemicals are;
- how much you were exposed to (dose);
- how long you were exposed (duration);
- how often you were exposed (frequency);
- Your general health, age and lifestyle
  Young children, the elderly and people with chronic (ongoing) health problems are more at risk to health problems following exposures to chemicals.

What is a completed exposure pathway?

Chemicals must have a way to get into a person's body in order to cause health problems. Environmental scientists work to show the 5 (five) links between a chemical source and the people who are exposed to a chemical. In order for a person to get sick from contact with chemicals, a "Completed Exposure Pathway" must be present.

The five links that make a completed exposure pathway include:

(1) Source (where the chemical came from);
(2) Environmental Transport (the way the chemical moves from the source to the public. This can take place through the soil, air, underground drinking water or surface water);
(3) Point of Exposure (where contact with the chemical is made. This could be where chemical contamination occurred or off-site if the contamination has moved);
(4) Route of Exposure (how people came into physical contact with the chemical. This could occur by drinking, eating, breathing or touching the chemical);
(5) People Who Might be Exposed (those who are most likely to come into physical contact with a chemical).

Documenting a completed exposure pathway:

Documenting a completed exposure pathway can link a chemical exposure with a health problem such as cancer. But it is difficult to study communities living near chemical contamination sites and link their health problems with exposure to a chemical. A few of the difficulties include:

- Not knowing the exact level of a person's exposure to a cancer-causing chemical. This is especially true if the exposure to chemicals occurred years ago and there is no information to prove the exposure.
- Chemical contamination sites often contain more than one chemical. This makes it difficult to link a health problem to a single exposure or chemical.
- Scientists who study communities will also look at other factors before linking a disease to an exposure from a site. Cancer often takes a long time to develop and getting information on the type of past behaviors that increase the risk of getting cancer (such as tobacco use, alcohol consumption and diet) are often difficult or sometimes impossible to collect.

Do toxic chemicals cause cancer?

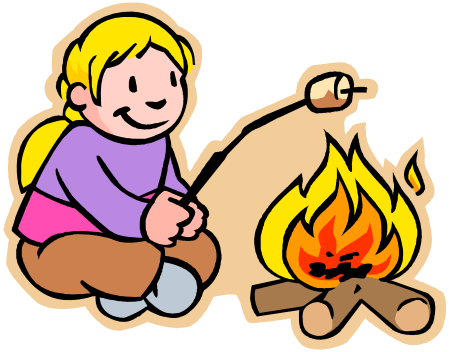
Yes, some chemicals are known to be carcinogenic (cause cancer). But it is important to know that less than 5% of all cancers are believed to be due to factors in the environment such as environmental pollution (2%), industrial products (1%) or food additives (1%).

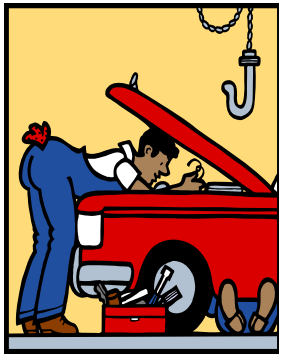
Toxic chemicals are cancer risk factors. A risk factor is anything that could increase a person's chance of getting a disease. Cancer risk factors, such as tobacco use, drinking a lot of alcohol, having a poor diet, lack of physical activity and unprotected exposure to the sun, can be changed. Other cancer risk factors such as a person's age, sex and family medical history (genetics) cannot be changed.

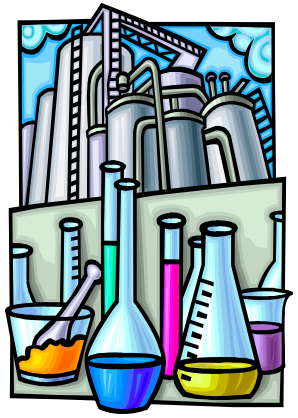
The Ohio Department of Health works closely with the Agency for Toxic Substance and Disease Registry (ATSDR), the U.S. EPA & Ohio EPA, local health departments and concerned communities to investigate and prevent harmful exposures and disease related to toxic substance in the environment.

IMPORTANT FACTS: Cigarette smoke contains 43 known cancer-causing chemicals. In 2003, the U.S. EPA Superfund program prepared a list of the 275 chemicals found at chemical contamination sites throughout the nation. Six of the top 10 chemicals found at chemical contamination sites are also found in cigarette smoke.

How are we exposed to chemicals in our environment?





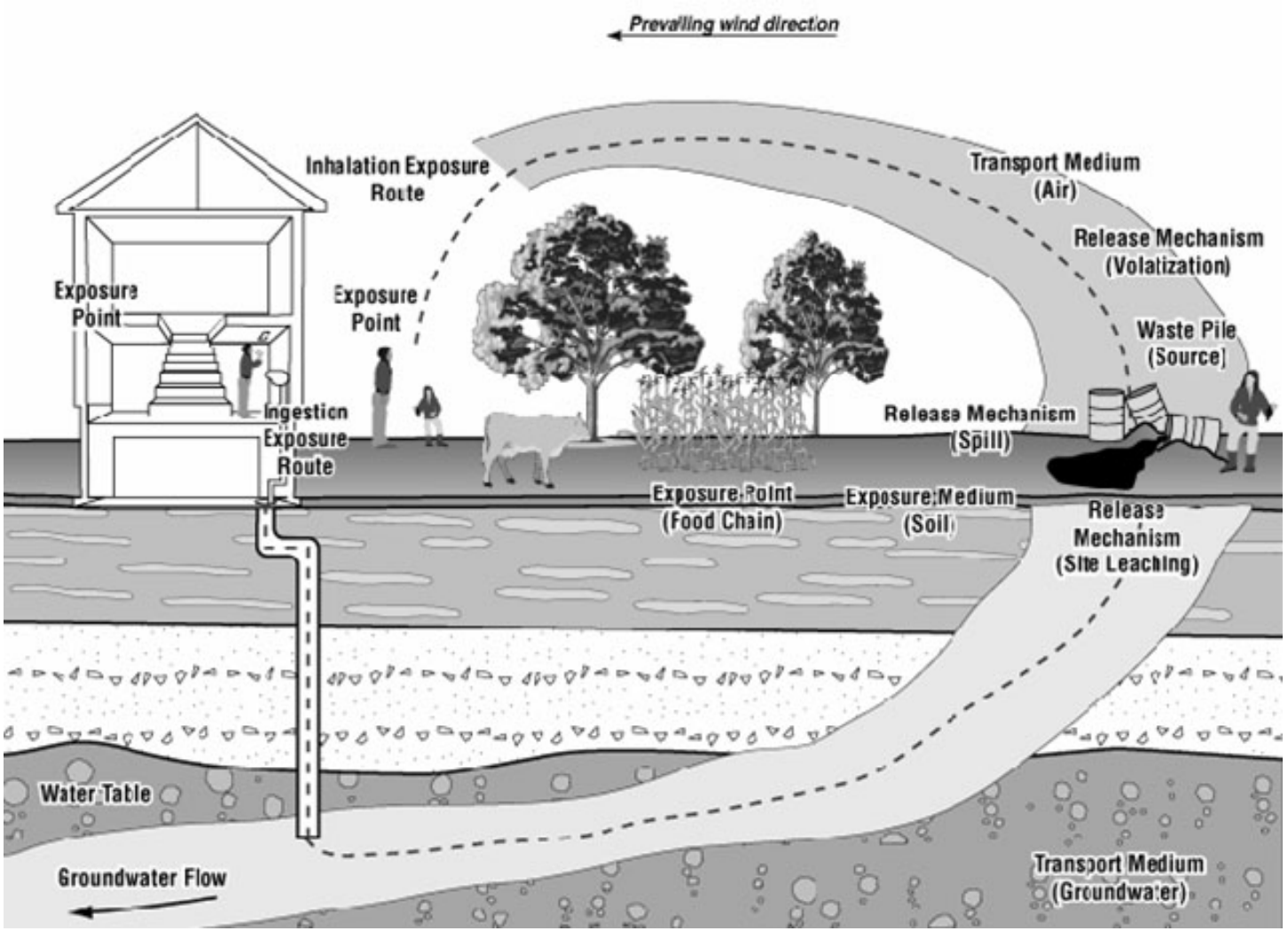


Aspirin

Whether or not you get sick as a result of a chemical exposure depends on:

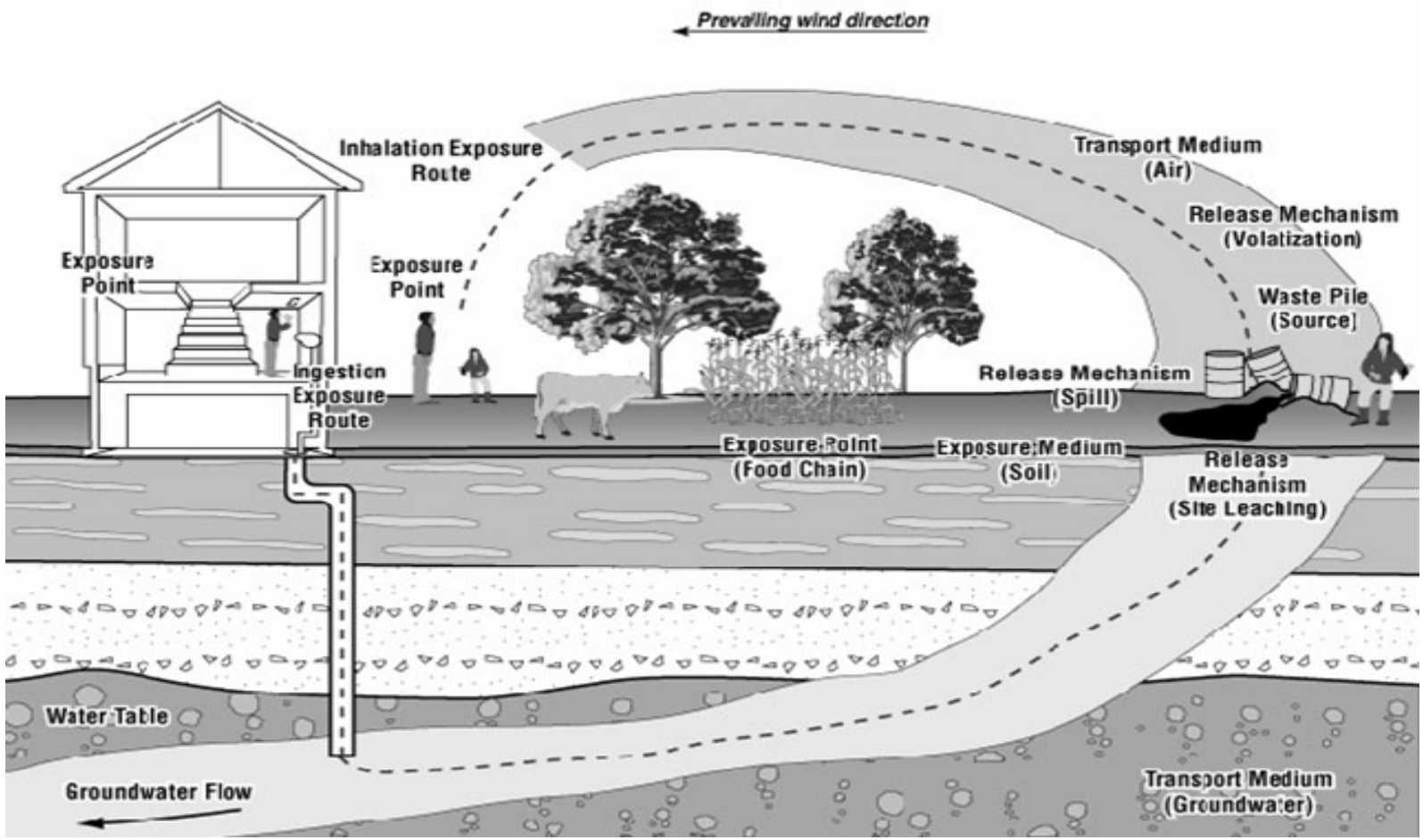
- **How toxic the chemicals are; (How chemical effects the body)**
- **Dose or how much you were exposed to;**
- **Duration or how long you were exposed;**
- **Frequency or how often you were exposed;**
- **Your general health, age and lifestyle**
  Young children, the elderly and people with chronic health problems are more at risk to health problems following exposures to chemicals.

Completed Exposure Pathway



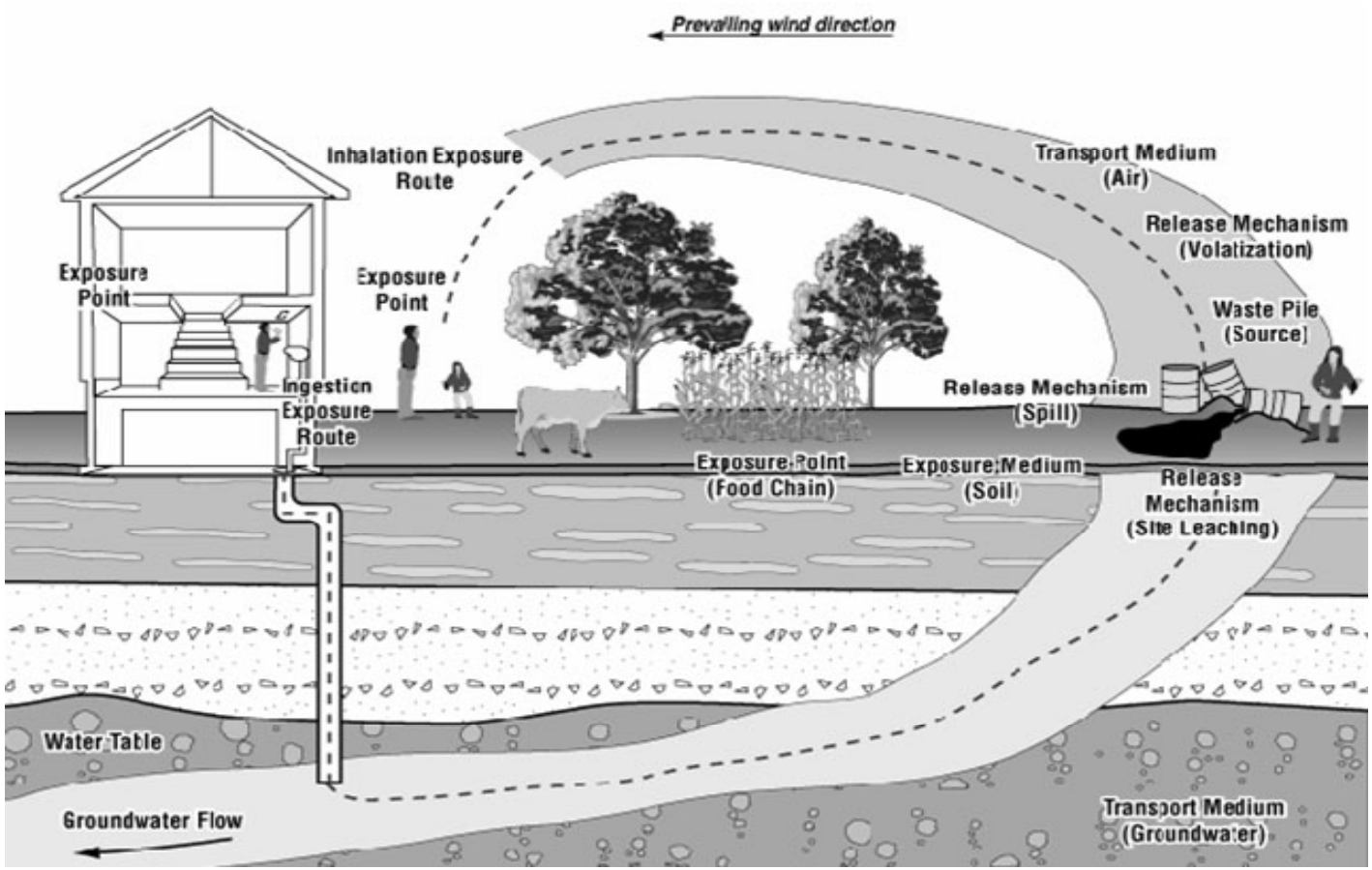
Completed Exposure Pathway

1. **Source (where the chemical came from);** **Factory release ("point source" discharge to land, air or water), spills (accidents), leaking landfill**



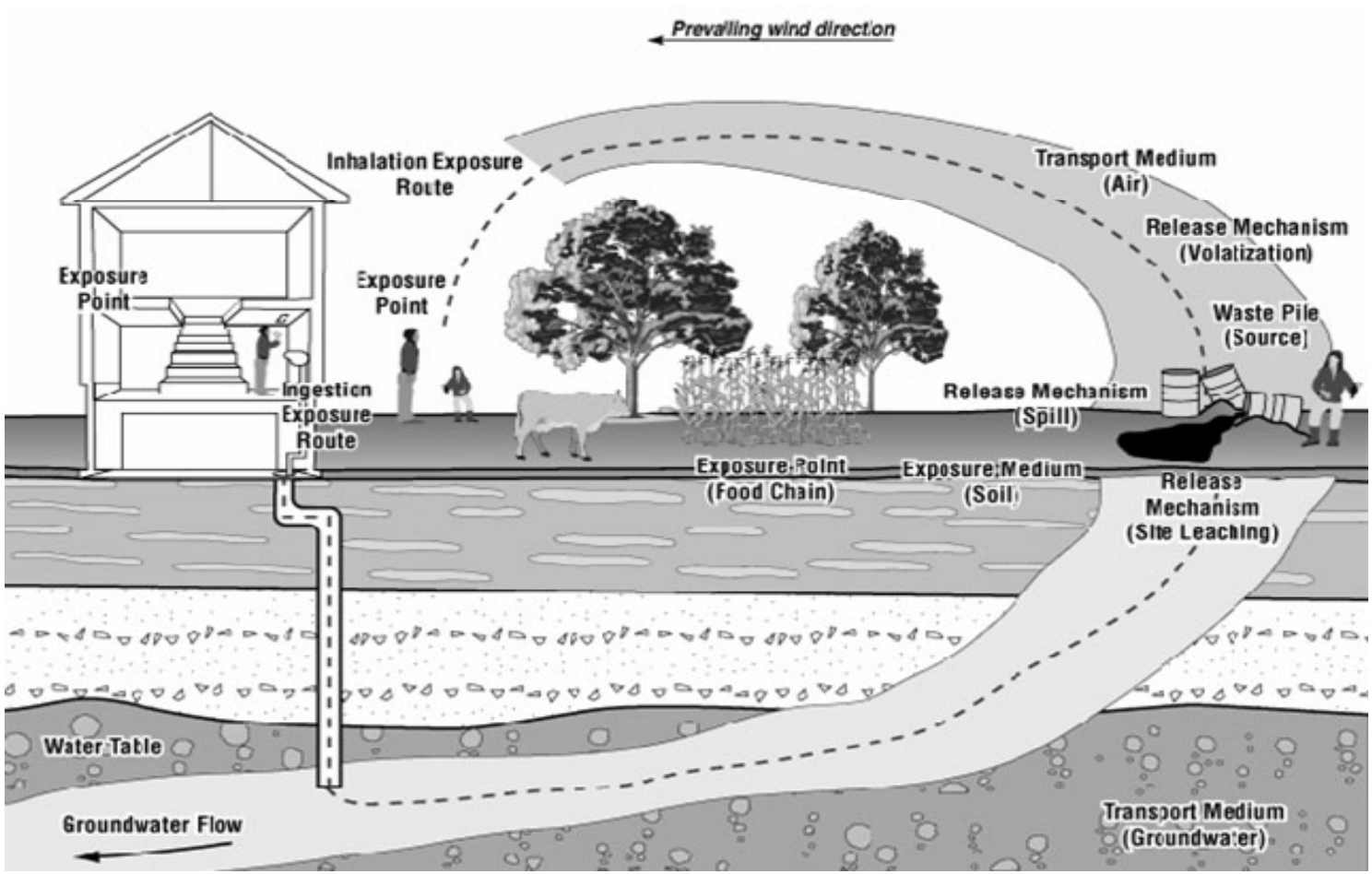
Completed Exposure Pathway

2. Environmental Transport (The way the chemical moves from the source to you. This can take place through the soil, air, underground or surface water);



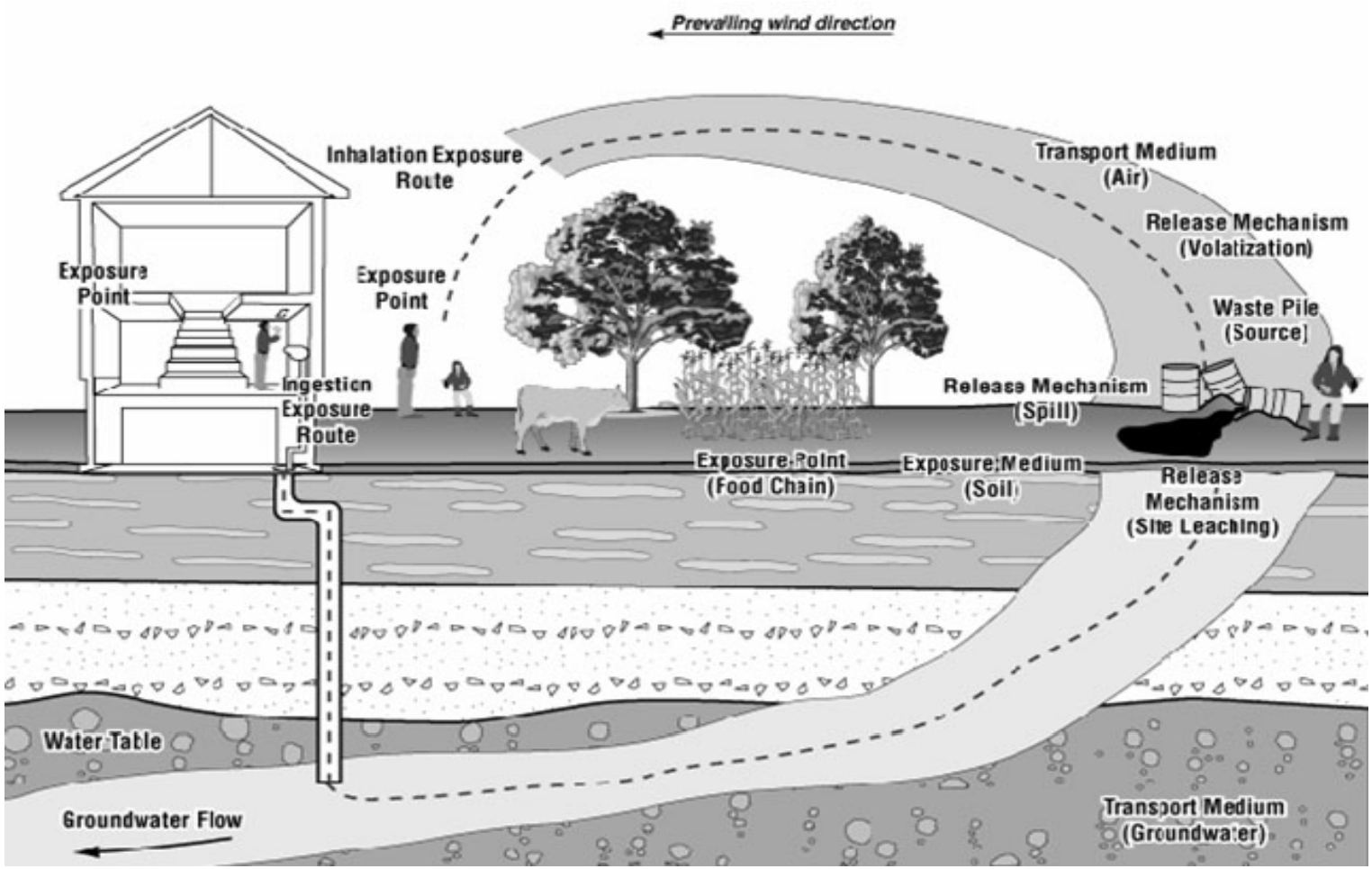
Completed Exposure Pathway

3. **Point of Exposure (Where contact with the chemical is made. This could be where chemical contamination occurred or off-site if the contamination has moved);**
   indoor air, drinking water, outdoor air, soil, food chain



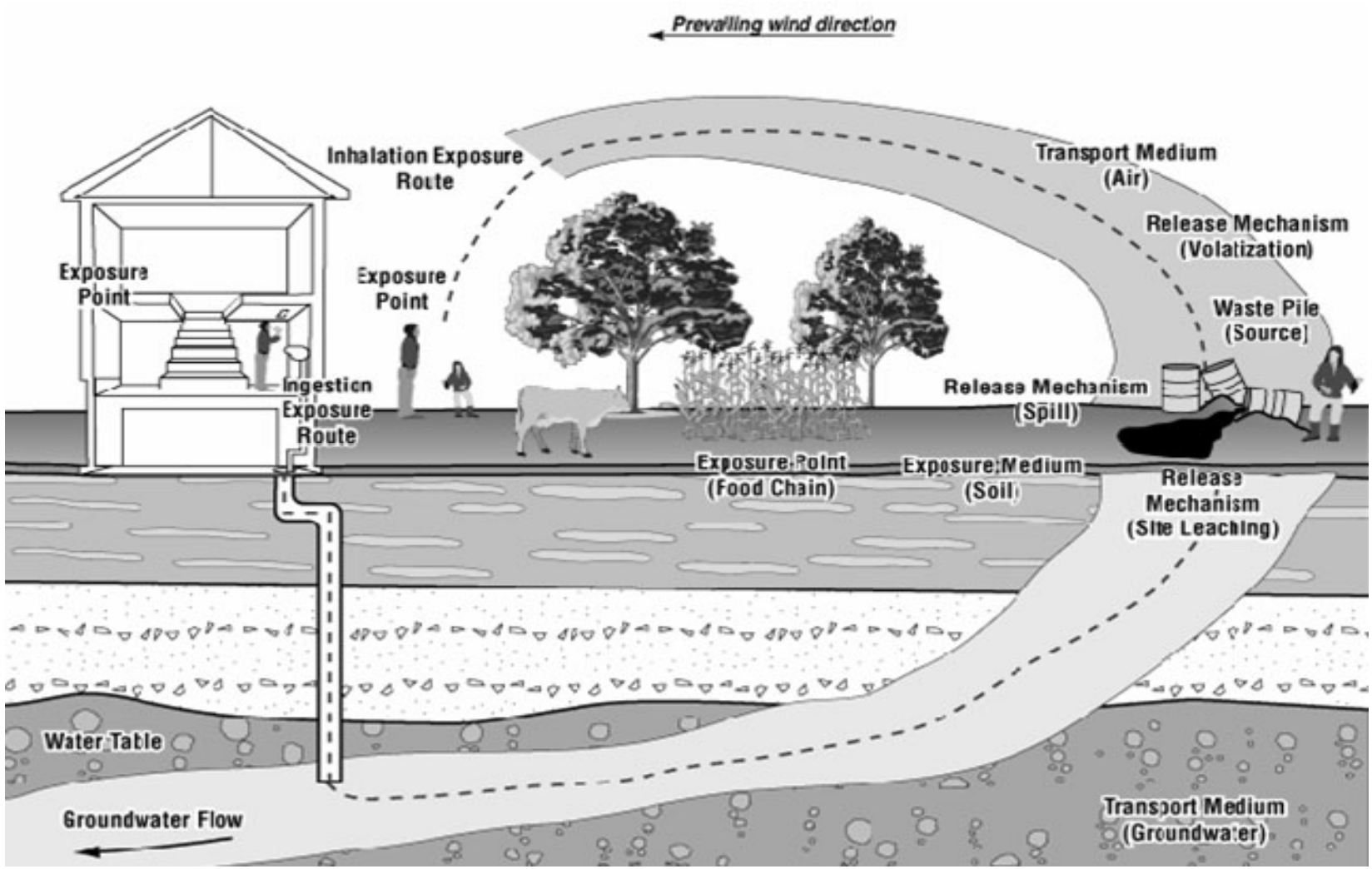
Completed Exposure Pathway

4. Route of Exposure (How chemical enters the body. This could occur by drinking, eating, breathing or touching the chemical);



Completed Exposure Pathway

5. People Who Might be Exposed (those who are most likely to come into physical contact with a chemical).



Whether or not you get sick as a result of a chemical exposure depends on:

- **How toxic the chemicals are; (how does the chemical effect the body)**
- **Dose or how much you were exposed to; (concentration)**
- **Duration or how long you were exposed;**
- **Frequency or how often you were exposed; (one time/ every day)**
- **Your general health, age and lifestyle**
  Young children, the elderly and people with chronic health problems are more at risk to health problems following exposures to chemicals.

Bureau of Environmental Health
Health Assessment Section

"To protect and improve the health of all Ohioans"

Exposure to Toxic Chemicals

Answers to Frequently Asked Health Questions

How are we exposed to chemicals?

We come in contact with many different chemicals every day that are non-toxic and normally do not cause health problems. But any chemical could become toxic if a person comes in contact with high enough doses. For example: Aspirin will cure a headache but too much aspirin becomes toxic and can cause serious health problems. You can get sick from contact with chemicals but getting sick will depend on the following:

- How much you were exposed to (dose).
- How long you were exposed (duration).
- How often you were exposed (frequency).
- General Health, Age, Lifestyle
  Young children, the elderly and people with chronic (on-going) health problems are more at risk to chemical exposures.

Other factors that increase health risks are:

- Current health status (if you are ill or healthy).
- Lifestyle, age, and weight.
- Smoking, drinking alcohol, or taking certain medicines or drugs.
- Allergies to certain chemicals.
- Past chemical exposure.
- Working in an industry/factory that makes or uses chemicals.

What is a completed exposure pathway?

Chemicals must have a way to get into a person's body to cause health problems. This process of those chemicals getting into our bodies is called an exposure pathway. A completed exposure pathway includes all of the following 5 links between a chemical source and the people who are exposed to that chemical.

(1) A Source of the chemical (where the chemical came from);
(2) Environmental Transport (the way the chemical moves from the source to the public. This can take place through the soil, air, underground drinking water or surface water);
(3) Point of Exposure (the place where there is physical contact with the chemical. This could be on-site as well as off-site);
(4) A Route of Exposure (how people came into the physical contact with the chemical. This can take place by drinking, eating, breathing or touching it);
(5) People Who Could be Exposed (people that live near a facility who are most likely to come into physical contact with the site-related chemical).

What are exposure routes?

There are three ways (routes) a person can come in contact with toxic chemicals. They include:

- Breathing (inhalation).
- Eating and drinking (ingestion).
- Skin contact (dermal contact).

Inhalation (breathing)
Chemicals can enter our body through the air we breathe. These chemicals can come in the form of dust, mist, or fumes. Some chemicals may stay in the lungs and damage lung cells. Other chemicals may pass through lung tissue, enter the bloodstream, and affect other parts of our body.

Ingestion (eating or drinking)
The body can absorb chemicals in the stomach from the foods we eat or the liquids we drink. Chemicals may also be in the dust or soil we swallow. These chemicals can enter our blood and affect other parts of our body.

Dermal (skin) Contact
Chemicals can enter our body through our skin. We can come in contact with water polluted by chemicals or touch polluted soil. Some chemicals pass through our skin and enter our bloodstream, affecting other parts of our body.

For more information contact:

Ohio Department of Health
Health Assessment Section
246 North High Street, 5th Floor
Columbus OH 43215
Phone: 614-466-1390
Fax: 614-644-4556

ATSDR
AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

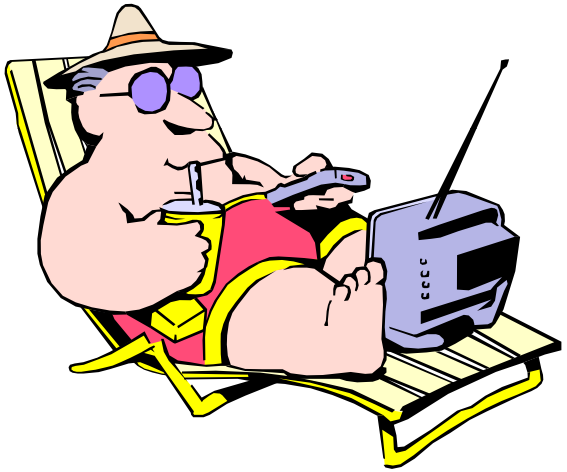
The Ohio Department of Health is in cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR), Public Health Service, U.S. Department of Health and Human Services.

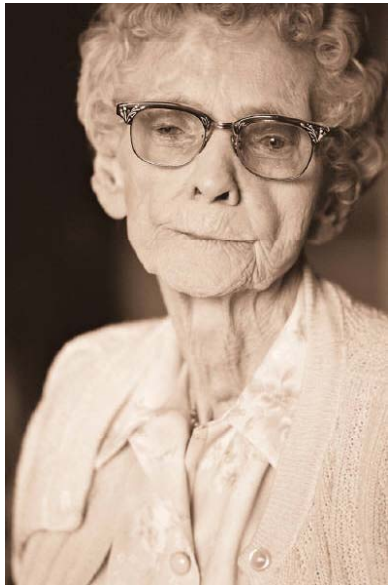
This pamphlet was created by the Ohio Department of Health, Health Assessment Section and supported in whole by funds from the Comprehensive Environmental Response, Compensation and Liability Act trust fund.

Do toxic chemicals cause cancer?

- It is important to know that <u>less than 5% of all cancers are believed to be due to factors in the environment</u>
- Environmental pollution (2%)
- Industrial products (1%)
- Food additives (1%)

Risk Factors





Next Steps

ORTHO
Diazinon Granules
Preen
ORTHO
Chlordane Spray
Dormant Spray
roach prufe

RADON
Awareness
Detection
Improvement

For More Information:

Health Assessment Section
Ohio Department of Health
Bureau of Environmental Health

Robert Frey, Ph.D., ***Chief, Principle Investigator, Health Assessment Section***
Laurie Billing, ***Epidemiologist***
Peter Ferron, ***Environmental Scientist***
John Kollman, ***Toxicologist***
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Childhood Cancer Among Residents of Clyde City and Green Creek Township, Sandusky County, Ohio, 1996-2008: An Overview

Robert W. Indian, M.S.

Chief, Comprehensive Cancer Control Program

Bureau of Health Promotion and Risk Reduction

Office of Healthy Ohio

Ohio Department of Health

Presented at:

Clyde Town Meeting

Clyde High School

Clyde, Ohio

December 16, 2008

Objectives

- Review the background of the incidence of cancer in Sandusky County, 2001-2005
- Review the background of childhood cancer in Ohio and Northwest Ohio
- Provide an overview of the initial assessment that found the elevated number of cases, 1996-2006
- Provide an overview of the case-review
- Provide an overview of the new initiatives of a spatial analysis of the cases and looking at other child health indices, including low birth weight, birth defects, and infant mortality.

Table 1: Average Annual Number of New Invasive Cancer Cases and Age-Adjusted Incidence Rates per 100,000 Persons for Residents of Sandusky County with Comparison to Ohio, 2001-2005

Cancer Site/Type	Sandusky County Cases	Sandusky County Rate	Ohio Cases	Ohio Rate
All Cancers	327	473.2	56,415	465.1
Bladder	17	23.2	2,655	21.7
Brain and Other Central Nervous System	5	7.7	799	6.7
Breast (Female)	42	115.2	8,063	121.9
Cervix	3	7.5	482	7.9
Colon and Rectum	40	56.4	6,456	52.9
Corpus Uterus	14	37.1	1,755	26.4
Esophagus	5	6.8	662	5.4
Hodgkin's Lymphoma	1	2.3	340	2.9
Kidney and Renal Pelvis	10	13.9	1,644	13.6
Larynx	2	3.5	533	4.4

Table 1: Average Annual Number of New Invasive Cancer Cases and Age-Adjusted Incidence Rates per 100,000 Persons for Residents of Sandusky County with Comparison to Ohio, 2001-2005 - Cont'd

Cancer Site/Type	Sandusky County Cases	Sandusky County Rate	Ohio Cases	Ohio Rate
Leukemia	7	10.2	1,320	11.0
Liver and Intrahepatic Bile Duct	1	2.1	503	4.1
Lung and Bronchus	54	77.7	9,127	75.0
Melanoma of Skin	9	14.2	2,027	17.0
Multiple Myeloma	2	3.0	614	5.0
Non-Hodgkin's Lymphoma	14	20.1	2,313	19.1
Oral Cavity and Pharynx	6	9.1	1,149	9.4
Ovary	4	11.8	821	12.3
Pancreas	5	7.7	1,300	10.6
Prostate	46	153.1	7,706	145.7
Stomach	3	4.9	729	6.0
Testis	2	8.5	311	5.7
Thyroid	6	9.2	888	7.6
Other Sites/Types	29	-	4,218	-

Conclusion:

The overall cancer experience among residents of Sandusky County is very similar to Ohio

Table 2: Number of Childhood Cases by Age Group in Northwest Ohio and Ohio, by Age Group, 2001-2005

	Age (years)							Average Annual	
	≤ 1	1-4	5-9	10-14	15-19	0-14	0-19	0-14	0-19
Northwest Ohio	25	72	59	79	139	235	374	47	74.8
* Sandusky County	2	1	4	4	8	11	19	2.2	3.8
Ohio	192	617	421	503	825	1,733	2,558	346.6	511.6

[1]Source: Ohio Cancer Incidence Surveillance System, Bureau of Health Surveillance and Investigations: Prevention, Ohio Department of Health, 2008.

[2]Northwest Ohio: Defined as the following counties: Allen, Auglaize, Crawford, Defiance, Erie, Fulton, Hancock, Hardin, Henry, Huron, Lucas, Mercer, Ottawa, Paulding, Putnam, Richland, Sandusky, Seneca, VanWert, Williams, Wood, and Wyandot.

Clyde City and Green Creek Township Childhood Cancer Surveillance, 1996-2006

- Higher than expected numbers of childhood cancers for the 11-year time period 1996-2006, (observed 10, expected 5.32, SIR=1.88, 95% CI 0.90-3.46)

- Higher than expected number of childhood cancers for the more recent five-year period 2002-2006 (observed 8, expected 2.47, SIR=3.24, 95% CI 1.40-6.38)

- Case Counts increased from 1996-2006, with no cases diagnosed prior to 2001 and the majority diagnosed in 2005-2006. These data indicate a recent temporal (Time) phenomenon in the pattern of childhood cancers in the regions.

1996 – 0
1997 – 0
1998 – 0
1999 – 0
2000 – 0
2001 – 2
2002 – 1
2003 – 1
2004 – 0
2005 – 2
2006 – 4
2007 – 0
2008 – 2

The Most Predominant cancer was Brain and Central Nervous System

Cancer Site/Type	1996-2008 Cases	Percent
Brain and Other Central Nervous System	4	**33%**
Ewing's sarcoma (soft tissue)	1	**8%**
Hodgkin's' Lymphoma	1	**8%**
Leukemia's	2	**17%**
Osteosarcoma (bone)	1	**8%**
Pancreas	1	**8%**
Rhabdomyosarcoma	1	**8%**
Testis	1	**8%**
All	**12**	

- A statistically significant cancer burden was found not only in the Clyde City and Green Creek Township study population during 1996-2006, but also in the four-township area (Green Creek, Riley Townsend, and York Townships) surrounding and to the northeast of Clyde during both study periods

    * 1996-2006: 11 observed, 4.86 expected, SIR=2.26, 95% CI=1.13-4.05
    * 2002-2006: 7 observed, 2.25 expected, SIR=3.11, 95% CI=1.25-6.45

- In contrast, the number of cancers diagnosed in Fremont and in all of Sandusky County, was similar to what would be expected in both 1996-2006 and 2002-2006.

    * Fremont.

  1996-2006: 10 observed, 10.17 expected, SIR=0.98, 95% CI=0.47-1.81
  2002-2006: 1 observed, 4.72 expected, SIR=0.21, 95% CI=0.01-1.18

    * Sandusky County.

  1996-2006: 36 observed, 33.80 expected, SIR=1.07, 95% CI=0.75-1.47
  2002-2006: 17 observed, 15.68 expected, SIR=1.08, 95% CI=0.63-1.74

- Brain and other CNS Cancer was found to be the most common among the Clyde City and Green Creek Township population with four cases and was significantly higher at the 95 percent confidence level than would be expected based on national data for 1996-2006.

  * Clyde City and Green Creek Township (4 observed, 0.92 expected, SIR=4.35, 95% CI=1.18-11.13)

  * Sandusky County (8 observed, 5.85 expected, SIR=1.37, 95% CI=0.59-2.69)

Conclusions:

- The significantly higher than expected number of childhood cancer cases appears to be limited to the Clyde City and Green Creek Township area.

  * Brain and Central Nervous System Cancer is the predominant type of Cancer and is significantly higher.

Results of the Case Review

- 18 cases diagnosed 1996-2007 and 19 years and younger at diagnosis from Clyde City, Green Creek, York, Townsend, and Riley Townships invited by Sandusky County Health Department to participate in a case-review.

- The objective of the case review was to attempt to identify factors that may have placed a role in the development of the cancers.

  * These factors could be held in common or individual.

- 14 case families agreed to participate (78%)

- Variables examined included:

  * Family history of cancer
  * Parent/guardian work history
  * Estimated date of conception, age of mom at conception, infectious diseases, illnesses during pregnancy
  * Exposure to cigarette smoke, alcohol use, and have past exterminate during pregnancy
  * Exposure to hazardous/toxic substance during case pregnancy
  * Maternal work outside the home
  * Birth weight of case
  * Health problems and treatment at birth
  * History of birth defects and hereditary Diseases
  * History of breast feeding
  * History of infectious disease and vaccination

- Variables examined included cont'd:

  * Potential radiation exposure
  * History of exposure to mononucleosis, and history of surgery
  * Potential radiation exposure
  * History of sexually transmitted diseases
  * History of prescription and over-the-counter medications
  * Length of residence in Clyde City and/or Green Creek Township and drinking water source
  * History of farm residence, exposure to animals
  * Exposure to hazardous/toxic chemicals
  * Schools attended prior to diagnosis

[1]Source: Clyde City and Green Creek Township area Childhood Cancer Case Review, 1996-2006, Sandusky County Health Department, February, 2008

Conclusion of Case Review:

No Factor(s) found that may have played a role in the development of the cancers

Next Steps

- Spatial Analysis of Residence at Diagnosis for Cases 1996-2008
  - * Will use a birth cohort for comparison
  - * Objective is to determine if an unusual spatial pattern exists. This may be used as a guide to identify environmental factors.
  - * ODH to be lead

- Other Childhood Health Indices:
  - * Premise: The same factors that may play a role in childhood cancer may also play a role in adverse reproduction outcomes
  - * Identify low birth weight babies, infant deaths, and birth defects.
  - * ODH to provide data and statistical support to Sandusky County Health Department

- Anticipated Completion in April, 2009

QUESTIONS?

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Clyde Childhood Cancer Study Chronology of Events

Sandusky County Department of Public Health

Winter to Spring 2006

- SCHD receives phone calls from concerned residents
- SCHD contacts ODH (Robert Indian) and requests a review of the number of cancer cases in Sandusky County
- Preliminary investigation begins

Summer 2006

- SCHD works with ODH on preliminary investigation
- Request to Robert Indian ODH for assistance in addressing citizens concerns
- Private consultation with families also in June 06

Fall 2006

- Draft of preliminary investigation completed
- Additional review of preliminary data by SCHD and ODH

Winter to Spring 2007

- Preliminary investigation finds that further study is warranted regarding childhood cancer rates
- Development and review of survey questionnaire completed, (IRB approval)
- Final report of preliminary investigation released by ODH confirming rates are higher than expected

Summer, Fall, Winter 2007-2008

- Case reviews completed
- Data Analysis
- Development of final report

Winter to Spring 2008

- Release of draft and final reports to SCHD and families
- Meeting with families, ODH and SCHD
- Additional meetings with families, ODH, SCHD, OEPA asked to attend
- Meetings held between ODH, OEPA and SCHD to discuss next steps

Summer to Fall 2008

- Additional communications between SCHD and families and SCHD with OEPA, and ODH
- Village council meetings in Green Springs and Clyde