

# **TOXIC** *TRESPASS*

**Addressing health concerns from Oil-Chemical exposures**

## **Learning Guide**

**a collaborative project with**

**Achieving Community Tasks Successfully (Pleasantville, TX)**

**Arkansas Environmental Justice Network (Conway, AR)**

**Mobile Environmental Justice Action Coalition**

**NAACP Mobile County Branch #5044**

**Sierra Club Delta Chapter, Acadian Group (Lafayette, LA)**

**South Bay Communities Alliance (Coden, AL)**

**Steps Coalition (Biloxi, MS)**

**Texas Environmental Justice Advocacy Services (Manchester, TX)**

**and**

**ALERT, a project of Earth Island Institute (Berkeley, CA)**

Work made possible by Compassion and Love  
with occasional gifts from those able to pay it forward

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## Introducing Our Team

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Most of our team members live in or near fence-line communities in one of the largest petrochemical producing regions in North America. Some have lived in communities directly harmed by large Oil-Chemical disasters; others are at risk of Oil-Chemical exposures from daily industrial activities and too-frequent disasters.

We have first-hand experience – earned expertise – dealing with illnesses from exposures to Oil-Chemical pollutants and consequences of laws that protect corporate profits over human health and our environment. Several team members have advanced degrees and have worked in health fields.

We wanted to design a program to help our community residents understand the connection between environmental health and human health. We wanted to work with people with academic training in health fields to ensure that their information would be accessible to our youth and community residents. We wanted a peer-led process to build confidence and social skills, a process that would engage people in the community-level work that drives social change. We wanted our program to nurture trust and relationships, and build capacity to sustain this long-term work.

We developed the Toxic Trespass Training Program, because chronic diseases from exposures to environmental pollutants are preventable – and we wanted to prevent the chronic diseases that plague our community residents. We want to reduce toxic exposures in our homes, workplaces, schools, and communities.

We believe that once community members understand the health impacts from Oil-Chemical exposures, and are trained to use scientific information, people will work together in a community-driven process to identify solutions and take actions to improve their own health and wellbeing.

It is going to take a lot of us, working together, to reduce dangerous pollutants in our environment and chronic diseases that often result from exposures to these pollutants because these are societal issues – deciding who pollutes, who is polluted, and who regulates and enforces policies designed to protect human health and our environment.

Our program addresses these questions. What are these toxic pollutants? How do toxic pollutants get into our environment? What are the health effects of exposures to Oil-Chemical pollutants and how do we recognize symptoms of exposure? How do we reduce exposures to these toxic pollutants? If we are already sick with chronic illnesses or disease, how do we find medical doctors to properly diagnose and treat chemical illnesses?

We designed our training program to be shared in homes, schools, workplaces, and at community workshops. We made the content easy to understand and the process engaging. We hope you agree – and will be inspired to start a Toxic Trespass Training Program in your community!

*~The Toxic Trespass Team*

## The Toxic Trespass Team

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## Learning Guide Introduction

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Chances are that if you are reading this, you are concerned about health impacts from exposures to Oil-Chemical pollutants.

You may know when and to what you were exposed; you may not. The triggering exposure may have occurred recently or in your distant past – or even before you were born.

You may be searching for answers to strangely persistent symptoms associated with degenerative neurological malaise, chronic fatigue, stiff and inflamed joints, trouble concentrating or thinking, or a myriad of other nonspecific symptoms, all happening together.

It may feel like your body is staging its own mutiny! And it may also feel like your health care provider, if you have one, doesn't have a clue about what is ailing you.

Sound familiar? We have developed this Learning Guide for you and your health care provider. It is designed to accompany the Toxic Trespass workshop.

After reading our Learning Guide, you should be able to:

- Understand why chemical illnesses are a source of confusion within the medical community.
- Choose a health care provider who is qualified to diagnose and treat Oil-Chemical illnesses.
- Assess the likelihood of whether you or your family may be suffering from chronic diseases or other health issues, related to exposure to Oil-Chemical pollutants in your home, school, workplace, community, or past.
- Understand your body's signs and symptoms that may be related to exposures to Oil-Chemical pollutants and that may assist your health care provider in proper diagnosis.
- Understand the need to document your past medical and exposure history to assist your health care provider in treating Oil-Chemical illnesses.
- Document your past and recent exposure history.

We hope this Toxic Trespass Learning Guide will assist you – and your doctor or health care provider – in finding a pathway to improved health and wellbeing.

## UNDERSTANDING IMMUNE SYSTEM RESPONSE

Our bodies are constantly on the alert for foreign substances entering it. Some foreign substances, called antigens, cause your immune system to produce antibodies, which could lead to a hypersensitive reaction (see definitions).

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### Understanding immune system response

#### Antigen (foreign substance)

A

Reaction!

B

C

#### Allergen (natural)

- Food
- Pollen
- Plants
- Feathers
- Pet dander
- Smoke
- Bee & snake venom

#### Non-allergen (natural)

- Bacteria
- Parasites
- Viruses
- Mold spores (fungi)

#### Non-allergen (man-made)

- Oil-Chemical pollutants
- Transplanted tissue cells
- Blood transfusions
- Pharmaceutical drugs

Cough  
Cold/flu  
Eye & nose irritation  
Sore throat  
Headache  
Dizziness  
Skin rash

**ALERT**

Initial symptoms of this reaction may include congestion, coughing, sore throat, eye and nose irritation, severe headache, vertigo (dizziness), or a skin rash.

Hypersensitive or “allergic” reactions could be caused by an allergen or a non-allergen. Understanding the difference is critical for proper diagnosis and health care.

An allergen is a natural substance that may or may not be harmful. Examples are pollen, plants, smoke, feathers, food (but not the chemicals in or on the food), animal dander, and insect or snake venom (column A, left).

A non-allergen is an antigen that could cause an infection or an illness. Examples of antigens that cause infections are viruses, parasites, bacteria, or mold spores (fungi) (column B, middle). Examples of antigens that cause illnesses are Oil-Chemical pollutants, transplanted tissue cells, blood transfusions, and pharmaceutical drugs (column C, right).

Our body only has so many ways to warn of danger. You and your doctor or health care provider have to look for clues to determine the cause of your symptoms, in order for you to be correctly diagnosed and successfully treated. This is why you and your family's medical history and exposure history are important.

This is also why your choice of health care providers is important. Many health care providers in the United States have not been trained in Environmental Medicine. They might not know to look for chemical causes for your symptoms. They might not know that chemical illnesses cannot be successfully treated using antibiotics, skin crèmes, or other products designed to treat allergies or infections caused by natural substances. A misdiagnosis could lead to much frustration and debilitating, chronic disease.

We developed the Toxic Trespass Learning Guide as an educational tool to guide readers towards better health and wellbeing. The next steps are up to you and your health care provider.

## CHOOSING A QUALIFIED HEALTH CARE PROVIDER

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If you believe that you or a family member may have had an exposure to Oil-Chemical pollutants that is making you or someone in your family sick, it is important to seek qualified medical help. “Qualified” here means those who have been trained in the specialty field of Environmental Medicine.

This branch of medicine focuses on the relationship of health and disease to health hazards in the air, water, soil, food, building materials, and household, personal care, and other products. Trained practitioners look for the cause of disease in indoor or outdoor exposures to biological, chemical, and physical factors. Medical training in this field applies to people who have Oil-Chemical exposures, whether workers, community residents, or children.

This is why choosing a Health Care Provider (HCP) is an extremely important first step to proper diagnosis and treatment. To determine whether your HCP is qualified to provide specialty care, you should ask:

- ➔ Have you had professional medical education and experience in diagnosis of Oil-Chemical illnesses?
- ➔ Have you successfully treated other patients for Oil-Chemical illnesses?
- ➔ Would you be comfortable providing me with a diagnosis and treatment for Oil-Chemical illnesses if my symptoms and state of health support such a diagnosis?

If your HCP does not answer these questions to your satisfaction, request to be referred to a specialist in this area of expertise such as:

- ➔ Occupational and Environmental Medicine Physicians
- ➔ Medical Toxicologists
- ➔ Preventive Medicine Specialists



## ASSESSING OIL-CHEMICAL ILLNESSES

An HCP's diagnosis of Oil-Chemical illnesses will be based on multiple assessments and extensive documentation.

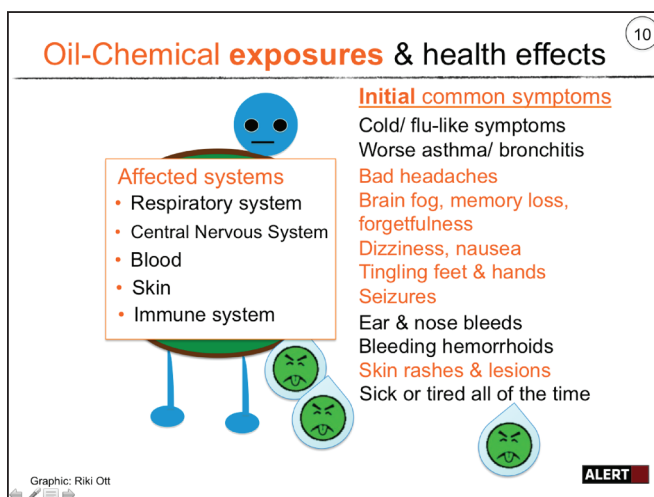


Oil-Chemical pollutants enter our bodies through inhalation, skin contact, drinking, and eating. Once inside our bodies, they do damage. They are processed through numerous systems and pathways to be broken down; transformed into metabolites, some of which may be as or more toxic than the parent compounds; eliminated; or stored in a variety of organs and fatty tissues.

No single laboratory or clinical test will show your HCP that you have had a toxic exposure. For example, blood, urine, or hair samples may indicate no or low levels of pollutants or be inconclusive when, in fact, your body is highly contaminated! The reason is because these tests do not measure the total amount of

toxicants distributed throughout your body's tissues and organs.

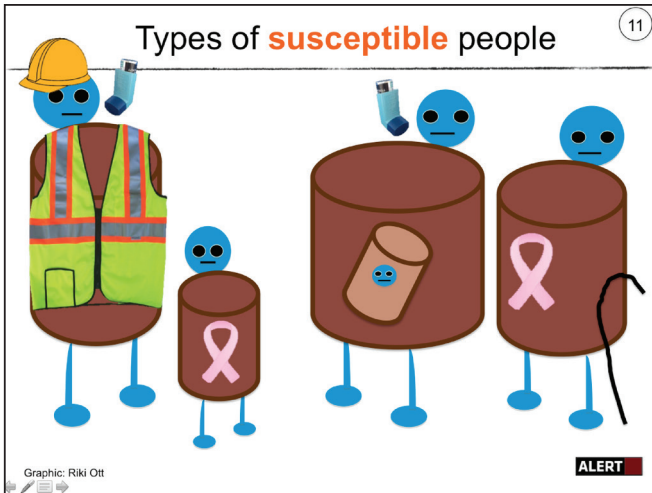
Further, when there is an extended period of time between the exposure and an examination, the Oil-Chemical levels in your body's blood, urine, or hair, may be too low to be detected by conventional tests, even if you are still suffering from multiple symptoms.



Our body only has so many ways to warn of danger. Symptoms for Oil-Chemical exposures are identical to many common symptoms that are normally associated with, for example, a cold or flu, an allergy, a bad headache, vertigo (dizziness), heat stroke or heat exhaustion, food poisoning, or a skin rash. This confuses many people, including health care professionals!

Symptoms of Oil-Chemical illnesses are known to change over time based on a variety of circumstances. How long ago the exposure occurred, and how old you were when it occurred, are important factors. Equally important is how long the exposure lasted; how many times exposures have occurred; how persistent, concentrated, or toxic the Oil-Chemical mixture is; and the route of exposure, i.e., inhalation, skin absorption, or drinking or eating.

# Toxic TRESPASS



Each person is affected differently than their family, neighbors or co-workers, because each individual body processes pollutants differently. This results in a wide variety of symptoms from toxic Oil-Chemicals exposures within and among individuals, and from day-to-day, year-to-year, and exposure-to-exposure.

Further, a person's susceptibility to toxic exposures can even depend on the person's parents and whether they had exposures to Oil-Chemical pollutants or other environmental hazards that caused DNA or genetic damage. This is important to document in an individual's exposure history.

Environmental Justice stressors & health risk

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**Income**

- Proximity to industry, traffic, hazardous sites
- Meaningful political voice
- Access to health care, nutritional food
- Quality of education

**Discrimination**

- Sacrifice zone
- Stress affects health
- Citizenship status

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**ALERT**

People who have worked together on the same jobs, or members of the same family who may have had exactly the same exposures, may still have a wide range of differing symptoms and health problems, due to individual susceptibility and varying Environmental Justice stressors.

## Temporary jobs = vulnerable

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BP Deepwater Horizon

Enbridge spill, Michigan

- No pre-hire screening
- Inadequate training
- No respirators
- Standards outdated
- Take-home exposures

ALERT

Often in Oil-Chemical disasters, companies hire contract workers for temporary cleanup jobs. The work is dirty and dangerous. Contract workers are more at risk than employees to dangerous exposures at the work site. Unlike employees, contract workers usually receive no screening for pre-existing health conditions; they receive only minimal safety training and are unaware of most work site health hazards and symptoms of exposure; they often do not receive critical safety equipment, such as respirators, or are told if they wear the respirators, their jobs will be terminated (this occurred during the BP disaster response). Federal safety standards are inadequate for long shifts (over 8 hours) and 24/7 exposures.

Beware the “Healthy worker phenomenon” in the petrochemical industry! Workers must have and maintain a certain level of health in order to perform many of the physical job requirements of the Oil-Chemistry industry. Many workers who experience acute or chronic health problems following toxic exposures are no longer employed by the industry. So it appears that only healthy workers are employed by the Oil-Chemical industry. Don’t be fooled.

## Chronic & multiple exposures

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Sarnia, Ottawa, CANADA  
The Beloved Community [www.newsreel.com](http://www.newsreel.com)

**Health survey & body mapping project**

- Blood
- Brain
- Cardiovascular
- Gastro-intestinal
- Kidney
- Liver
- Nervous
- Reproductive
- Respiratory
- Skin
- Systemic

ALERT

The duration, concentration, and type of Oil-Chemical exposure make a difference in terms of health risk. For example, long-term or chronic exposures may be more dangerous than short-term exposures, because a body constantly exposed to pollutants fills up faster than it empties – to use the rain barrel analogy). Further, exposures to multiple Oil-Chemical pollutants at the same time can be much more dangerous than exposures to a single pollutant. This is because these pollutants often target the same body organs and disrupt the same body functions, creating a double-whammy effect. Also, federal safety standards are based on exposures to single pollutants and really are not relevant – or protective – for most real-life exposures.

## CLINICAL SIGNS AND SYMPTOMS

**Your Health Care Provider will need to know what symptoms you are experiencing currently or have experienced in the past.**

Many common symptoms may be triggered by exposures to Oil-Chemical pollutants and other environmental health hazards. The chart below provides examples of affected body systems and types of symptoms that someone with such exposures might experience. Familiarize yourself with these symptoms before completing your exposure history in the next section.

Affected Systems	Potential Symptoms
Blood	Bleeding from nose, ears, rectum, or meatus (pee hole); difficulty maintaining appropriate blood pressure and chemistry; drug and alcohol intolerance; rapid or irregular heart rate; worsening of pre-existing issues
Cardiovascular	Chest pain; irregular or skipped heart beats, palpitations, too fast or too slow heart rate; dizziness, fainting; blood pressure too high or too low; problems with circulation as indicated by cold hands and feet, tingling or numbness in feet or hands; easily bruised; difficulty healing
Central Nervous	Problems with thinking clearly or concentrating; forgetfulness; poor memory; headaches; learning or speaking difficulties; vertigo; dizziness; fainting; poor balance; clumsiness; tingling hands and feet; seizures; feeling intoxicated and/or “hung over”; ringing in ears; blurred or double vision; failing vision; seeing “spots”; worsening of pre-existing issues
Endocrine	Excessive feelings of being sick and tired; low energy; restlessness; trouble sleeping and/or staying awake; obesity or wasting away; worsening diabetes; acceleration of the normal aging process
Emotional/ Spiritual	Mood swings; anxiety; fear; nervousness; increased tearfulness; irritability; anger; mistrust; depression; sadness; inability to enjoy life; feeling “poisoned”; personality changes; alcohol and substance use; feelings of hopelessness
Financial	Loss of ability to work; loss of income
Gastroenterological (gut)	Nausea; vomiting; diarrhea or constipation; abdominal discomfort such as bloating, belching, passing gas, cramps; heart burn and other problems with digestion; urinary tract issues such as incontinence or bladder, kidney, and ureter infections
Immune	Allergic type hypersensitivity reactions; discharge and itching in eyes, ears, nose and throat; increased healing time; tendency for increased incidence of opportunistic infections such as viral, fungal, and yeast problems, i.e., pink eye, ring worm, athlete’s foot, etc.; cancers – initial diagnosis and/or reoccurrence

# LEARNING GUIDE

Affected Systems	Potential Symptoms
Physical Musculoskeletal (bones & muscles)	Loss of strength and stamina; more rest periods required; need to pace activity; stiffness; limited movement; blurred vision; twitching; aching; “pins and needles”; spasms; swollen and painful joints; problems with hand/eye coordination; handwriting difficulties; excessive loss of calcium in bone or teeth
Respiratory	Cold- or flu-like symptoms; ear, nose and throat pain, drainage or congestion; difficulty breathing, shortness of breath; coughing; sneezing; chest pain; increased hypersensitive reactions to pollutants such as diesel exhaust, new carpets, detergents, etc., and to smells and odors such as cigarette smoke, perfumes, fragrances, or other cosmetics; worsening of pre-existing conditions like asthma, bronchitis, COPD, or pneumonia
Reproductive	Menstrual cycle irregularities such as skipped, missed, or heavier than normal menses; difficulty becoming (men and women) or staying (women) pregnant, miscarriages, developmental deformities, genetic and DNA damage
Skin	Rashes or lesions; open wounds that take a long time to heal; itching, burning, tingling, psoriasis, eczema, dermatitis, rosacea, seborrheic dermatitis, acne, and allergic contact dermatitis; skin growths, skin tags, and cancers; excessive sweating



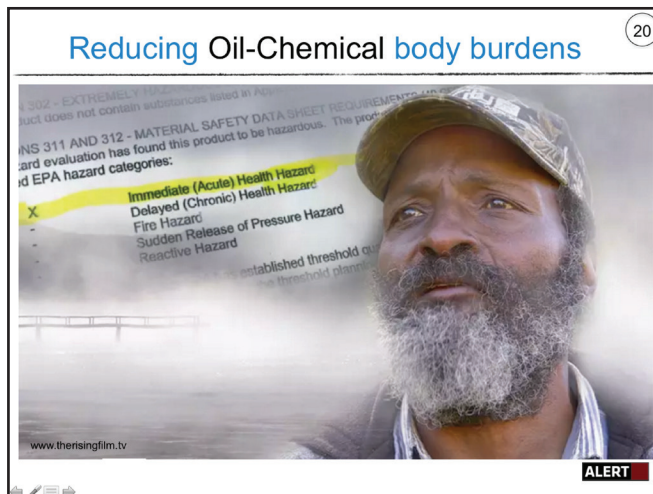
## Clinical Diagnosis Of Oil-Chemical Illness

You will need to provide your Health Care Provider with as much documentation or information as you can about the circumstances that you believe may have triggered your symptoms.

A clinical diagnosis of any illness, Oil-Chemical or other, should be made on the basis of past medical history; investigations of the exposure(s); reported symptoms, and HCP-observed and documented signs. Clinical signs documented by your HCP might include observations from a physical examination and results from laboratory tests that may detect changes in physiological function and/or Oil-Chemical or other foreign substances in the body.


An HCP trained in environmental medicine will likely provide medical and exposure history forms for you to fill out. The information in this section is to help you prepare for the types of questions and information that you will need to document for your HCP.

“Document” here means including any information you recall about the incident such as onset of illness or exposure; symptoms and severity; known or suspected cause and type or composition of any pollutants; treating physician at the time and any medical records; anything that made initial symptoms less or worse; other activities or events that occurred at the same time as your symptoms; for example, painting your home; using pesticides or herbicides in your yard, home, neighborhood, or farm or community; starting a new job or going to a new church; acquiring a new pet or new household furnishings – anything like this might provide clues of your symptoms. Be sure to include dates.



### Talking with your doctor

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**PREPARE FOR YOUR VISIT**

- Is your doctor OEM-qualified?
- Know your & your family's health history
- Know your & your family's exposure history & symptoms
- Be informed about tests & treatments

- Talk with your neighbors – who else in your community has similar health issues? Who is their doctor? Results?
- Believe in yourself – Get a second opinion or a referral to a specialist if your doctor does not understand what is causing your symptoms

**ALERT**

### Medical History for Yourself and Your Family

Provide past and current medical history for you and your family. It will help your HCP to have it all in writing when you go to visit the HCP. Document any serious illness in your history. Document any serious illness in parents' and family's history, because some Oil-Chemical pollutants have the potential to alter DNA and other genetic material. Some exposures that are especially detrimental may be passed with genetic material or from the mother to the developing fetus, breast-fed infants, or small children.

### Exposure History for Yourself and Your Family

Provide past and current exposure history for you and your family, as best you can. Document any known or suspected exposures at home, work, school, church, recreational facilities, or elsewhere. You may not consider treating your home or your children's school for pest control or shampooing your carpet to be an environmental exposure – it is.

Chemical intolerances are a good indicator of exposures to toxic chemicals at some point in your life. The Quick Environmental Exposure and Sensitivity Inventory (QEESI) is a validated Toxicity Questionnaire that may provide valuable information to your HCP. QEESI is provided free of charge and used with permission by the author. For more information, visit <http://drclaudiamiller.com/>

<http://drclaudiamiller.com/wp-content/uploads/2012/01/qeesi.pdf>

## International Classification of Diseases

The International Classification of Diseases (ICD) is a clinical cataloging system used by doctors and other HCPs to classify and code diagnoses, symptoms, and procedures recorded as part of hospital care. The World Health Organization (WHO) owns, develops, publishes, and revises ICD codes. National governments adopt various coding systems as they are revised.

Until October 1, 2015, the United States used ICD-9 even though ICD-10 was available and in use in other countries as early as 1994. ICD-9 did not have coding for chemical illnesses; ICD-10 does. Illnesses must have an ICD code in order for insurance providers to reimburse patients and HCPs for treatment.

Make sure your Health Care Provider knows to use ICD-10 and that ICD-10 includes coding for chemical illnesses. For more information about ICD-10, refer to SearchHealthIT.com, a website for health care technology professionals: <http://searchhealthit.techtarget.com/definition/ICD-10>

## BP Oil Disaster Survivors

People who believe that their health has been adversely affected by and during the BP oil disaster should refer their HCP to the following website. You or your HCP should copy all 6 pages in color to show the red text on pages 4 and 6.

<https://www.cms.gov/Regulations-and-Guidance/Guidance/Transmittals/Downloads/R2999CP.pdf>

The reason is that a Change Request (CR) Modifier and a Disaster/Emergency-Related (DR) Condition Code went into effect on January 1, 2012, for patients expressing symptoms of exposure and illnesses related to the BP disaster. This might help some people – even though chemical illnesses were not recognized until October 1, 2015.

# *Toxic* TRESPASS

## Acronyms

<b>ATSDR</b>	Agency for Toxic Substances and Disease Registry
<b>BTEX</b>	(be-TEX) Benzene, Toluene, Ethylbenzene, and Xylene
<b>CERCLA</b>	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
<b>COPD</b>	Chronic Obstructive Pulmonary Disease
<b>COSH</b>	Council of Occupational Safety and Health
<b>CWA</b>	Clean Water Act
<b>DDT</b>	dichloro diphenyl trichloroethane
<b>dilbit</b>	diluted bitumen
<b>EJ</b>	environmental justice
<b>EMR</b>	Electro-Magnetic Radiation
<b>EPA</b>	Environmental Protection Agency
<b>HAZWOPER</b>	Hazardous Waste Operations and Emergency Response
<b>HCP</b>	Health Care Professional or Provider
<b>ICD</b>	International Classification of Disease
<b>IgE</b>	Immunoglobulin E
<b>IMID</b>	Immune-Mediated Inflammatory Disease
<b>MCS</b>	Multiple Chemical Sensitivity
<b>MTBE</b>	methyl tert-butyl ether
<b>NTSB</b>	National Transportation Safety Board
<b>OSEM</b>	Occupational Safety and Environmental Medicine
<b>PAHs</b>	polycyclic aromatic hydrocarbons
<b>PBT</b>	Persistent Bioaccumulative Toxic (chemical)
<b>PCBs</b>	polychlorinated biphenyls
<b>POPs</b>	Persistent Organic Pollutants
<b>PPE</b>	Personal Protective Equipment
<b>PTSD</b>	Post Traumatic Stress Disorder
<b>RTECS</b>	Registry of Toxic Effects of Chemical Substances
<b>TILT</b>	Toxicant-Induced Loss of Tolerance
<b>TSCA</b>	Toxic Substances Control Act
<b>UST</b>	Underground Storage Tanks
<b>VOCs</b>	Volatile Organic Compounds



## Definitions

**allergen:** a natural substance that causes your immune system to produce antibodies and may lead to an allergic reaction; the substance may or may not be harmful; examples are pollen, plants, smoke, feathers, food (but not chemicals in or on food), animal dander, and insect or snake venom. See *antibody*, *antigen*, *anti-histamine*, *food allergy*, *histamine*, and *non-food allergy*.

**antibody:** a blood protein produced by the body in response to and to counteract a specific antigen; these proteins combine chemically with substances that the body recognizes as foreign such as bacteria, viruses, insect or snake venom, or Oil-Chemical pollutants in the blood. See *antigen* and *Oil-Chemical pollutants*.

**antigen:** any foreign substance that causes your immune system to produce antibodies, leading to an immune reaction(s); some types of antigens (allergens) may cause an allergic reaction, while other types (non-allergens) may cause infections and illnesses. See *allergen* and *non-allergen*.

**anti-histamine:** compounds that are produced by the human body, medicinal plants, or as pharmaceutical drugs to block the physiological effects of histamine; these compounds may counter some antigens that produce allergic reactions, but not all. See *allergic*, *antigen*, *autoimmune disease*, *chronic disease*, *histamine*, *non-allergic*, and *Immune-Mediated Inflammatory Disease*.

**autoimmune disease:** an illness that occurs when body tissues are attacked by its own immune system. See *antigen*, *immune system*, *Immunoglobulin E*, *Immune-Mediated Inflammatory Disease*, and *non-allergen*.

**benzene:** a colorless, volatile, sweet-smelling, flammable, toxic, slightly water-soluble, liquid aromatic hydrocarbon, obtained chiefly from coal tar and petroleum; used in the manufacture of commercial and medicinal chemicals, dyes, and as a solvent for resins, fats, or the like; long-term exposure is known to cause anemia and leukemia

**bioaccumulative:** see *Persistent Bioaccumulative Toxic (PBT)* and *Persistent Organic Pollutants*.

**BTEX:** term used for benzene, toluene, ethylbenzene, and xylene Volatile Organic Compounds (VOCs) typically found in petroleum products, such as gasoline and diesel fuel; BTEX are the most soluble of the major gasoline compounds and so are common indicators of gasoline contamination

**carcinogen:** any substance or agent that tends to produce cancer

**CERCLA:** a United States federal law, commonly known as Superfund, designed to clean up sites contaminated with hazardous substances and pollutants other than any type of crude oil, refined oils

**chemical intolerance:** a non-IgE-mediated physiological response to drugs, food (and/or chemicals in food), and chemicals and other pollutants, in which the body does not produce IgE antibodies since IgE does not recognize the antigens causing the response; commonly misdiagnosed as a food allergy or psychological illness, which may lead to unsuccessful treatment and chronic disease. See *allergen*, *antigen*, *autoimmune disease*, *chemical sensitivity*, *chemical intolerance*, *chronic disease*, *food allergy*, *Immune-Mediated Inflammatory Disease*, *Immunoglobulin E (IgE)*, *non-food allergy*, *Occupational Safety and Environmental Health*, *OSEH*, *Oil-Chemical pollutants*, *pollutants*, and *Toxicant-Induced Loss of Tolerance*.

**chemical sensitivity:** a chronic disease that usually expresses as a syndrome or a collection of nonspecific symptoms that the affected person often attributes to exposures to pollutants in the environment; increasingly associated with chronic diseases, especially degenerative neurological diseases; now called “chemical intolerance” and best diagnosed and treated by people trained in environmental medicine fields such as Occupational Safety and Environmental Health, OSEH. See *Occupational Safety and*

*Environmental Health, OSEH and Toxicant-Induced Loss of Tolerance, TILT.*

**chem-trails:** the classified, ongoing artificial modification of Earth's climate systems using reflective nano-materials (aerosols) to reflect sunlight; (not to be confused with contrails condensate water droplets or ice crystals that occur in the wake of an aircraft); chem-trail aerosols dispersed via jet aircraft expand into reflective artificial clouds. See also *geo-engineering*. [www.skyderalert.com](http://www.skyderalert.com)

**chronic disease:** a disease lasting 3 or more months; a disease that generally cannot be prevented by vaccines or cured by medication, nor does it just disappear. See *autoimmune disease, Immune-Mediated Inflammatory Disease*.

**Clean Water Act:** the primary federal law in the United States governing water pollution; Section 311 governs prevention of, and response to, oil spills and releases of hazardous substances to waters of the U.S.

**COPD:** a chronic lung disease that makes it difficult to breathe; includes chronic bronchitis and emphysema

**crude oil:** mixture of naturally occurring, unrefined petroleum hydrocarbons and other organic materials; can be refined into gasoline, diesel, heating oil, jet fuel, kerosene, and literally thousands of various forms of petrochemicals and products

**dilbit:** a mixture of tar sands oil (bitumen) and toxic oil-chemical solvents used to thin tar sands oil for transportation by pipeline or rail car. See *solvent*.

**diluent:** (dil-u-ent) substance used to dilute or thin something; in this case, refers to toxic oil-based solvents that are used to thin tar sands oil for transportation. See *solvent*.

**dispersant:** substance used to separate particles and prevent clumping; in this case, refers to toxic formulations of oil-based solvents, mixed with small amounts of surfactants, that are used to break up spilled oil into small droplets; it is not possible to contain and remove dispersed oil from the water. See *solvents* and *surfactants*.

**Electro-Magnetic Radiation, EMR:** radiation (energy) having both the form of electromagnetic waves and particles (photons) traveling at the speed of light; includes (from long to short wavelengths) radio waves (least harmful), microwaves, infrared, ultraviolet, x-rays, and gamma rays (most harmful)

**endocrine disruptors:** "gender bender" chemicals that may interfere with the body's hormone (endocrine) system and cause harm such as developmental, reproductive, neurological, and immune problems in all beings including humans

**environmental justice:** the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to development, implementation, and enforcement of environmental laws, regulations, and policies

**environmental medicine:** the relationship of health and disease to environmental health hazards in the air, water, soil, food, building materials, and other products; focuses on the cause of disease in an environmental context, meaning indoor or outdoor exposures to biological, chemical, and other agents. See *antigen, autoimmune disease, chemical sensitivity, chemical intolerance, electro-magnetic radiation, Immune-Mediated Inflammatory Disease, Occupational Safety and Environmental Health, OSEH, and Oil-Chemical pollutants*.

**fence-line community:** a neighborhood that is immediately adjacent to a company and is directly affected by the Oil-Chemical emissions, odors, noise, traffic, parking, and operations of the company

**food allergy:** adverse reaction to food caused when your immune system overreacts by producing Immunoglobulin E, IgE, which travels to cells to release chemicals that may cause an allergic reaction; also known as IgE-mediated allergy. See *allergen, anti-histamine, histamine, Immunoglobulin E, and non-food allergy*.

**geo-engineering:** the artificial modification of Earth's climate systems through primarily Solar Radiation Management (SRM) and Carbon Dioxide Removal (CDR). See also *chem-trails* <http://www.geoengineeringwatch.org/category/health/>

**hazardous substance:** defined differently under different laws; in this use means any substance or mixture of substances that is toxic to humans or wildlife, corrosive, flammable, combustible, and/or radioactive. See *pollutant*.

**HAZWOPER:** a set of guidelines produced and maintained by the Occupational Safety and Health Administration to regulate hazardous wastes and dangerous goods from inception to disposal in the United States and its territories

**health risk:** the probability or chance that exposure to a hazardous substance will damage the health of the exposed person

**histamine:** a hormone produced by certain cells in the brain as part of an immune response to injury and certain allergic and non-allergic antigens, causing inflammatory reactions; this hormone increases the permeability of the capillaries to white blood cells and some proteins, to allow them to engage the foreign substance in the infected tissues; hormone also causes contraction of smooth muscle tissue. See *allergic, antigen, anti-histamine, autoimmune disease, non-allergic, and Immune-Mediated Inflammatory Disease*.

**Immune-Mediated Inflammatory Disease, IMID:** any of a group of conditions or diseases for which the medical researchers do not yet understand the cause(s) or manner(s) of causation of the disease, *and which* are characterized by common inflammatory pathways leading to inflammation, *and which* may result from, or be triggered by, a malfunction of the normal immune response. See *allergen, antibody, antigen, and autoimmune disease*.

**immune system:** a complex organization within the body that is designed normally to “seek and destroy” foreign substances entering the body. See *antigens*.

**Immunoglobulin E, IgE:** antibodies produced by the immune system and associated with immediate hypersensitivity reactions. See *food allergy* and *non-food allergy*.

**infectious disease:** are caused by microorganisms such as bacteria, viruses, fungi or parasites; can be spread, directly or indirectly, from one person to another; some infectious diseases of animals can cause disease when transmitted to humans, e.g., rabies

**International Classification of Diseases, ICD:** a clinical cataloging system used by doctors and other health care providers to classify and code diagnoses, symptoms, and procedures recorded in conjunction with hospital care; the World Health Organization owns, develops, and publishes ICD codes, and national governments adopt the system; the most recent version is ICD-10, which was adopted in the United States on October 1, 2015

**legacy pollutants:** chemicals often used or produced by industry, which remain in the environment long after they were first introduced. See *persistent organic pollutants*.

**MTBE:** a volatile, flammable, and colorless liquid used as a gasoline additive to raise the octane number; it has polluted groundwater across the U.S., due to MTBE-containing gasoline being spilled or leaked at gas stations.

**non-allergen:** a type of antigen that could cause an infection or illness; examples of the former are viruses, parasites, bacteria, and mold spores (fungi); examples of the latter are Oil-Chemical pollutants, transplanted tissue cells, blood transfusions, and pharmaceutical drugs. See *allergen, antigen, non-food allergy, and Oil-Chemical pollutant*.

**non-food allergy:** adverse reaction caused when your immune system overacts, causing cells in your body to

release chemicals that may produce an allergic reaction; also known as non-IgE-mediated allergy; this type of allergy is not caused by IgE antibodies; the cause(s) of the reaction are yet known, but are now suspected to be linked with pollutants in the environment. See *allergen, autoimmune disease, food allergy, Immune-Mediated Inflammatory Disease, Immunoglobulin E, and pollutant*.

**Occupational Safety and Environmental Health, OSEH:** a field of medicine that studies the relationship of health and disease to environmental health hazards in the context of human environments such as the work-place, home, and community. See also *chemical intolerance, chemical sensitivity* and *TILT*.

**oil:** greasy usually liquid substances from plant, animal, or mineral sources that do not dissolve in water and are used especially as lubricants, fuels, and food; as defined by the Clean Water Act, means oil of any kind or in any form, including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil

**Oil-Chemical pollutant:** oil, oil-based chemicals, and/or chemicals that are a health risk. See *health risk* and *pollutant*.

**ozone:** a gas that occurs both in the earth's upper atmosphere and at ground level which protects all life from the sun's harmful radiation

**parabens:** chemicals widely used as preservatives in cosmetic and pharmaceutical products

**Persistent Bioaccumulative Toxic (PBT):** compounds that are highly resistant to breaking down in the environment ("persistent"); readily taken up by people and wildlife and build up to high levels in bodies ("bioaccumulate"); and poisonous ("toxic")

**Persistent Organic Pollutants (POPs):** organic compounds that are resistant to environmental degradation through chemical, biological, and photolytic processes; POPs bioaccumulate (build up in biological tissue) with potential significant impacts on human health and the environment.

**Personal Protective Equipment:** equipment worn to minimize exposure to serious workplace injuries and illnesses that may result from contact with chemical, radiological, physical, electrical, mechanical, or other workplace hazards

**petcoke:** a toxic waste product of several distillation processes used to refine tar sands crude oil; when used as a fuel, it emits Greenhouse Gas pollutants on par with coal

**petrochemical:** substances obtained by the refining or processing of petroleum and natural gas; used to produce a wide variety of materials such as plastics, explosives, fertilizers, and synthetic fibers

**phthalates:** (THAH-lates) chemicals used to soften plastics such as vinyl, PVC, plastic containers, shower curtains, plastic wrap, and baby toys. See also *endocrine disruptors*.

**pollutant:** any health hazard which, after release into the environment and upon exposure, may cause death, disease or infection, behavioral abnormalities, cancer, genetic mutation, endocrine disruption, reproductive problems, and other physiological problems that disrupt body function in exposed organisms and their offspring – including humans; definition under CERCLA excludes oil of any kind or in any form

**Polycyclic Aromatic Hydrocarbons, PAHs:** a group of more than 100 different chemicals that are in, and released from burning coal, oil, gasoline, trash, tobacco, wood, or other organic substances such as charcoal-broiled meat; PAHs are usually found as a mixture containing two or more of these compounds, such as soot

**Post Traumatic Stress Disorder:** a condition of persistent mental and emotional stress occurring as a result of experiencing or witnessing a terrifying or disturbing event or a physical trauma

**solvent:** able to dissolve other substances; in this case, refers to oil-based chemicals that are a major ingredient

of diluents and dispersants and that pose extreme health hazards to people and wildlife as solvents easily transfer across cell membranes of living organisms; health hazards associated with solvent exposure include toxicity to the nervous system, reproductive damage, liver and kidney damage, respiratory impairment, cancer, and dermatitis

**surfactant:** a substance that reduces the surface tension of the substance in which it is dissolved; in this case, refers to detergents, emulsifiers, foaming agents, and a minor ingredient in oil dispersants

**Toxicant-Induced Loss of Tolerance, TILT:** a two-step process in which an at-risk, susceptible individual gets sick after a toxic exposure or exposures and then, instead of recovering, the neurological and immune systems remain damaged, and the individual fails to get well; the sufferer begins to lose tolerance to a wide range of chemicals common in everyday life. See also *chemical intolerance*, *chemical sensitivity*, *OSEH*, and *toxicant*.

**toxicant:** a man-made poison

**toxin:** a naturally-occurring poison produced by living cells or organisms, such as spider venom

**toxicology:** (tox'-i-COL-ogy) the study of harmful effects of Oil-Chemical pollutants and other environmental health hazards on living organisms

**Volatile Organic Compounds (VOCs):** a variety of carbon-based chemicals that evaporate easily at room temperature and dissolve readily into water; VOCs are emitted by a wide array of products numbering in the thousands; many VOCs are toxic and contain known or suspected human carcinogens (cancer-causing substances)



## RESOURCES BY SLIDE

### 3/ Why is this important? Listen

InsideClimate News:

2012, A dilbit primer: How it's different from conventional oil. <http://insideclimatenews.org/news/20120626/dilbit-primer-diluted-bitumen-conventional-oil-tar-sands-Alberta-Kalamazoo-Keystone-XL-Enbridge>

2015, Unique hazards of tar sands oil spills: <http://insideclimatenews.org/news/09122015/unique-hazards-tar-sands-oil-spills-dilbit-diluted-bitumen-confirmed-national-academies-of-science-kalamazoo-river-enbridge>

MDCH (Michigan Department of Community Health). 2010. Acute Health Effects of the Enbridge Oil Spill. Lansing, Michigan. November 2010 (Minor revisions 12/20/2010). [http://www.michigan.gov/documents/mdch/enbridge\\_oil\\_spill\\_epi\\_report\\_with\\_cover\\_11\\_22\\_10\\_339101\\_7.pdf](http://www.michigan.gov/documents/mdch/enbridge_oil_spill_epi_report_with_cover_11_22_10_339101_7.pdf)

### 5/ Types of environmental health hazards

greatest health hazard for humans: <http://www.worstpolluted.org/2012-press-release.html>

85,000 industrial chemicals: [http://www.nytimes.com/2013/04/14/sunday-review/think-those-chemicals-have-been-tested.html?\\_r=0](http://www.nytimes.com/2013/04/14/sunday-review/think-those-chemicals-have-been-tested.html?_r=0)

petcoke: <http://www.nam.org/CRSreport/> and <http://priceofoil.org/content/uploads/2013/01/OCI.Petcoke.FINALSCREEN.pdf>

cell phones & children's health: <http://www.webmd.com/children/news/20140819/children-cell-phones>

cell phones & use restrictions in other countries for health concerns:

[http://ehtrust.org/wp-content/uploads/2011/04/BriefingBookA\\_Edition0\\_1\\_Mar08N.pdf](http://ehtrust.org/wp-content/uploads/2011/04/BriefingBookA_Edition0_1_Mar08N.pdf)

<http://articles.mercola.com/sites/articles/archive/2012/01/19/health-canada-on-cell-phone-use-limitation.aspx>

cell towers: <http://www.anticelltowerlawyers.com/links/school-news.html>

electric & hybrid cars & radiation risks: <http://emfblues.com/car-radiation/>

electric & hybrid cars & safety standards: <http://www.saferemr.com/2014/07/shouldnt-hybrid-and-electric-cars-be-re.html>

shielding products to reduce EMR exposures: <http://www.lessemf.com/>

oil is naturally radioactive: <http://www.nytimes.com/1990/12/03/us/radiation-danger-found-in-oilfields-across-the-nation.html?pagewanted=all>

<http://www.nytimes.com/1990/12/24/us/2-suits-on-radium-cleanup-test-oil-industry-s-liability.html?pagewanted=1>

<http://www.ncbi.nlm.nih.gov/pubmed/25551500>

<https://ohsonline.com/Articles/2014/06/01/Technologically-Enhanced-Naturally-Occurring-Radioactive-Materials-on-Oil-and-Gas-Sites.aspx>

low level radiation exposure: <http://www.washingtonsblog.com/2015/10/world-health-organization-prolonged-exposure-to-even-low-level-radiation-increases-the-risk-of-dying-from-cancer.html>

chemtrails and geoengineering:

[www.skyderalert.com](http://www.skyderalert.com)

<http://www.geoengineeringwatch.org/category/health/>

## 6/ Why “Oil-Chemical” pollutants?

Clean Water Act definition of oil: <https://www.law.cornell.edu/uscode/text/33/1321>

petroleum (oil) exclusion under CERCLA: [https://www.andrewskurth.com/assets/htmldocuments/10164\\_Updated\\_CERCLA%20Petroleum%20Exclusion.pdf](https://www.andrewskurth.com/assets/htmldocuments/10164_Updated_CERCLA%20Petroleum%20Exclusion.pdf)

CERCLA definition of “pollutant” and “contaminant” excludes oil (definition #33): <https://www.law.cornell.edu/uscode/text/42/9601>

very low levels of oil cause harm

to wildlife: [http://www.afsc.noaa.gov/publications/misc\\_pdf/peterson.pdf](http://www.afsc.noaa.gov/publications/misc_pdf/peterson.pdf)

to humans: <http://www.atsdr.cdc.gov/phs/phs.asp?id=120&tid=25>

## 7/ Where do Oil-Chemical pollutants go?

Examples from photos

air, land, surfaces:

<http://www.desmogblog.com/2014/08/20/general-honor-enviro-groups-call-strengthening-epa-s-proposed-refinery-emissions-standards>

water, food (fish), humans: <http://juliedermansky.photoshelter.com/image/I0000dTgHwDi5xnw>

fracking & well water contamination:

<http://www.desmogblog.com/2014/01/09/steve-lipsky-responds-report-clearing-epa-wrongdoing-fracking-study>

<http://one.gaslandthemovie.com/home>

air, land, food (crops), water (field runoff implied): <http://modernfarmer.com/2015/01/fog-farming/>

## 8/ Water cycle & Oil-Chemical hitch-hikers

hydrologic cycle: <http://www.physicalgeography.net/fundamentals/8b.html>

aerial transportation & deposition of pollutants:

<http://www.eoearth.org/view/article/155293/>

<http://www.environment.ucla.edu/reportcard/article1497.html>

## 9/ Routes of Oil-Chemical exposures

Galena Park in Houston (Manchester), Texas:

<http://www.houstonchronicle.com/news/science-environment/article/Residents-near-refineries-urge-new-pollution-5670059.php>

<https://publiclab.org/notes/liz/10-01-2015/when-100-000-is-not-enough-how-citizen-data-could-relate-to-government-regulation>

ATSDR glossary of terms: <http://www.atsdr.cdc.gov/glossary.html>

general overview of pollutant pathways from entry to elimination: <http://www.biotechnologyforums.com/thread-1876.html>

## 10/ Oil-Chemical exposures & health effects

newborn babies with chemical burden: <http://nutritionresearchcenter.org/healthnews/pre-poisoned-babies/>

pollution, toxic chemicals & your health: <http://www.nrdc.org/health/>

health hazards of oil spills:

[https://www.researchgate.net/publication/51171266\\_The\\_Adverse\\_Health\\_Effects\\_of\\_Oil\\_Spills\\_A\\_Review\\_of\\_the\\_Literature\\_and\\_a\\_Framework\\_for\\_Medically\\_Evaluating\\_Exposed\\_Individuals](https://www.researchgate.net/publication/51171266_The_Adverse_Health_Effects_of_Oil_Spills_A_Review_of_the_Literature_and_a_Framework_for_Medically_Evaluating_Exposed_Individuals)  
<http://insideclimatenews.org/news/20130618/what-sickens-people-oil-spills-and-how-badly-anybodys-guess>

## 11/ **Types of susceptible people**

Center for Environmental Health, archived webinar series, What's energy development doing to our reproductive health? <http://www.ceh.org/webinar-series-energy-development-impacts-reproductive-health/at-risk-populations>: <http://envirn.org/pg/pages/view/1334/harmful-environmental-exposures-and-vulnerable-populations>  
[http://www.healthyschools.org/HSN\\_KidsOilSpillFlyer.pdf](http://www.healthyschools.org/HSN_KidsOilSpillFlyer.pdf)  
TILT and pre-exposed populations:  
<http://discovermagazine.com/2013/nov/13-allergic-life>  
[http://www.niehs.nih.gov/news/assets/docs\\_a\\_e/download\\_background\\_material\\_toxicantinduced\\_loss\\_of\\_tolerance\\_by\\_claudia\\_miller\\_508.pdf](http://www.niehs.nih.gov/news/assets/docs_a_e/download_background_material_toxicantinduced_loss_of_tolerance_by_claudia_miller_508.pdf)  
African Americans:  
[http://www.heart.org/HEARTORG/Conditions/More/MyHeartandStrokeNews/African-Americans-and-Heart-Disease\\_UCM\\_444863\\_Article.jsp#.Vt4G5pMrKHo](http://www.heart.org/HEARTORG/Conditions/More/MyHeartandStrokeNews/African-Americans-and-Heart-Disease_UCM_444863_Article.jsp#.Vt4G5pMrKHo)  
<http://www.hematology.org/Patients/Anemia/Sickle-Cell.aspx>  
C677T mutations: <http://www.jillcarnahan.com/2014/02/23/health-tips-for-anyone-with-a-mthfr-gene-mutation/>

## 12/ **Dose plus host makes the poison**

host susceptibility makes the poison: <http://discovermagazine.com/2013/nov/13-allergic-life>  
Healthy Worker Syndrome: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2847330/>

## 13/ **Environmental Justice stressors & health risk**

<http://content.healthaffairs.org/content/30/5/879.long>

## 14/ **Air quality scenarios**

30 toxic chemicals at high levels: <http://www.desmogblog.com/2013/04/29/study-reveals-30-toxic-chemicals-high-levels-exxon-arkansas-tar-sands-pipeline-spill-site>  
home demolitions and purchases: <http://thecabin.net/news/local/2014-03-29/exxon-saturates-mayflower-housing-market#.Vwfn3WOSKtB>  
federal standards indicate air levels are "safe": <http://grist.org/climate-energy/arkansas-town-in-lockdown-after-oil-spill-nightmare/>

## 15/ **Why is this important? Listen ...**

BP oil spill, dispersants & health effects: <http://www.truth-out.org/news/item/28623-scientists-and-doctors-sound-alarm-over-health-dangers-of-oil-spill-dispersants>  
BP oil spill & children's health: <https://www.mailman.columbia.edu/public-health-now/news/oil-spill-has-far-reaching-effects-children-and-families>



Deadly dispersants, 2011–2013 investigation by Government Accountability Project: <https://www.whistleblower.org/program-areas/public-health/corexit>

## 16/ Temporary jobs = more at-risk

BP contract workers from Benndale, Mississippi: [http://switchboard.nrdc.org/blogs/rkistner/gulf\\_residents\\_complain\\_about.html](http://switchboard.nrdc.org/blogs/rkistner/gulf_residents_complain_about.html)

Deadly dispersants, addendum 2015: <https://www.whistleblower.org/sites/default/files/GAP%20Addendum%20Report%20Final.pdf>

## 17/ Chronic and multiple Oil-Chemical exposures

endocrine disruptors: <http://www.endocrinedisruption.org/>

Sarnia, The Beloved Community (film and resource guide): <http://www.newsreel.org/guides/belovedcommunity/bcdiscuss.htm>

Sarnia, improved air quality in 2013: <http://www.theobserver.ca/2015/04/15/sarnias-air-quality-rated-good-to-very-good-93-of-the-time-in-2013>

multiple chemical exposures & health issues:

<http://www.chemicalsensitivityfoundation.org/>

<https://www.youtube.com/watch?v=acw2kswJbw&feature=youtu.be>

## 18/ Reducing community Oil-Chemical exposures

Info mapping tool: EPA EJScreen: <https://www.epa.gov/ejscreen/learn-use-ejscreen>

Success stories:

Norco, Louisiana: <http://www.goldmanprize.org/recipient/margie-richard/>

Aamjiwnaang Band, Canada: <http://www.aamjiwnaangenvironment.ca/>

## 19/ Reducing indoor Oil-Chemical exposures

National Geographic, Pollution Within. 2006: <http://ngm.nationalgeographic.com/2006/10/toxic-people/duncan-text>

<http://www.consumerreports.org/cro/news/2010/08/7-easy-ways-to-reduce-indoor-air-pollution/index.htm>

<https://www.epa.gov/indoor-air-quality-iaq/inside-story-guide-indoor-air-quality#why-booklet>

parabens: <http://www.breastcancerfund.org/clear-science/radiation-chemicals-and-breast-cancer/parabens.html>

phthalates: <http://www.breastcancerfund.org/clear-science/radiation-chemicals-and-breast-cancer/phthalates.html>

webinar series on six classes of chemicals of concern: <http://www.sixclasses.org/>

## 20/ Reducing Oil-Chemical body burdens

effects of stress on health: <http://www.healthline.com/health/stress/effects-on-body>

Environmental Health Clinic–Dallas (one of oldest chemical detox centers in the U.S.): [www.ehcd.com](http://www.ehcd.com)

American Environmental Health Foundation: <http://www.aehf.com/>

Green Science Policy Institute, resources for consumers: <http://greensciencepolicy.org/>

[http://greenguard.org/en/consumers/consumers\\_tips.aspx](http://greenguard.org/en/consumers/consumers_tips.aspx)

## **21/ Talking with your health care provider**

Continuing medical educational webinar series accessible to the public:

patient evaluation: <https://www.youtube.com/watch?v=zNttF279-fc>

patient petrochemical services, example of treatment: <http://www.ehcd.com/patient-petrochemical-services/>

## **22/ Understanding immune system response**

Difference between food allergies and other hypersensitive reactions: <http://thewholejourney.com/differences-between-ige-and-igg-testing-for-allergies-and-sensitivities/>

Types of hypersensitive reactions: <http://meridianvalleylab.com/igg-food-allergy-testing>

Immunoglobulin classes and subclasses (NOT light reading but good concepts): <https://www.bio-rad-antibodies.com/immunoglobulins-classes-subclasses.html>

International Coding of Diseases, ICD-10; notice delays after BP disaster! <http://searchhealthit.techtarget.com/definition/ICD-10>

## **25/ Test scenario #3**

Toxic Trespass ~ How are your children? (film & resource guide): [www.toxictrespass.com](http://www.toxictrespass.com)

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<http://www.jillcarnahan.com/2014/02/23/health-tips-for-anyone-with-a-mthfr-gene-mutation/>
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