Environmental Connection Newsletter

Spring 2014

Contents

Sponsored by the Utah Department of Environmental Quality

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Legislation Promotes Cleaner Air

Record Number of Air Quality Bills during 2014 Session

A long January inversion combined with protests at the Capitol helped put air quality front-and-center during the 2014 legislative session. Lawmakers passed legislation to cut emissions, encourage energy efficiency, support clean vehicles and fuels, and reduce wood smoke in nonattainment areas. Funding provided by one-time and ongoing appropriations will boost air quality research and division staffing, increase public awareness of clean air issues, retrofit heavy-duty diesel engines, swap out high-polluting small engines, and convert wood-burning fireplaces to natural gas in homes where wood is the sole source of heat.

Proposed bills to fund transit, establish a grant program to replace "dirty diesel" school buses, and allow the Division of Air Quality (DAQ) to create air quality standards that are stricter than federal standards all failed to win legislative approval.

Here's a look at the air quality legislation passed during the 2014 session:

State Fleet

Legislators directed the Division of Fleet Operations to ensure that 50 percent or more of the state vehicles used to transport passengers will be alternative fuel or high-efficiency by August 30, 2018.

Electric Vehicles

A House bill amended the current definition of public utilities to encourage businesses to provide charging stations for electric cars. Another bill provides a state income tax credit of $1500 for the purchase or lease of a new electric vehicle and a tax credit allowance for a plug-in electric hybrid.

Legislation modified The Clean Fuels and Vehicle Technology Act to allow electric-hybrid vehicles to qualify for funding for alternative refueling infrastructure.

Wood Burn Program

The Division of Air Quality received funding to educate the public about the dangers of wood smoke and help convert homes whose sole source of heat is wood to natural gas or other clean fuels.

Medical Waste Incinerators

A Senate bill banned the incineration of medical waste within close proximity of a school or residential subdivision.

Retrofit and Replacement Program

This program will help small businesses and individuals by providing grant and loan funds for emission-reducing technologies, including retrofits, repowers, and replacements. The program will also encourage replacement of snow removal, landscaping, and other yard equipment with cleaner alternatives.

Funding

DAQ received a one-time, $1.4 million grant that allocated $1 million for Utah-specific air quality research, $300,000 for an inventory and photochemical modeling study in the Uinta Basin, and $100,000 for volatile organic compound (VOC) infrared testing equipment. DAQ also received $400,000 in ongoing funding for four full-time employees to work on Uinta Basin oil and gas permitting and compliance.

The legislature appropriated $500,000 to DEQ for an air quality public awareness campaign in partnership with existing clean air programs such as UCAIR and TravelWise. DAQ received a one-time, $500,000 appropriation to help convert homes that burn wood as their sole source of heat and a one-time, $250,000 grant to educate the public on the hazards of wood smoke. The Clean Air Retrofit, Replacement, and Off-road Technology (CARROT) program received a one-time grant of $200,000 for grants and loans to small businesses and individuals seeking to reduce the emissions from their heavy-duty diesel or small-engine equipment.

Additional Legislation

Governor Herbert signed a budget bill that gave DEQ over $50 million for FY 2015. Other DEQ-related legislation amended provisions for underground petroleum storage tanks, allowed individuals to bury nonhazardous solid waste in areas where no public or licensed waste disposal was available, and provided funding for a radon awareness campaign to be administered by the Department of Health in coordination with the Division of Radiation Control.

Community Involvement Vital for PCE Plume Cleanup
DERR works with stakeholders to address concerns

After the Environmental Protection Agency (EPA) added the 700 South 1600 East PCE Plume to its National Priorities List (Superfund) on May 24, 2103, the Division of Environmental Response

and Remediation (DERR), EPA, and the Veteran's Administration began developing plans for community outreach and stakeholder involvement during the cleanup process.

History

The ground water plume, first discovered in 1990 during routine sampling of the irrigation well for the Mount Olivet Cemetery, contains levels of PCE above state and federal drinking water standards. In 2010, sampling conducted to determine the extent of possible contamination from the 2010 Red Butte oil spill detected additional PCE contamination in natural springs fed by ground water in the area. Monitoring wells have turned up ground water concentrations of up to 320 micrograms per liter (µg/L) in some areas. The drinking water standard is 5.0 µg/L.

Tetrachloroethylene (PCE) is a synthetic chemical widely used in dry cleaning and metal degreasing. A former dry cleaning facility at the Salt Lake City Veterans Affairs Medical Center has been identified as the likely source of the PCE plume and the Veteran's Administration has been identified as the Responsible Party (RP).

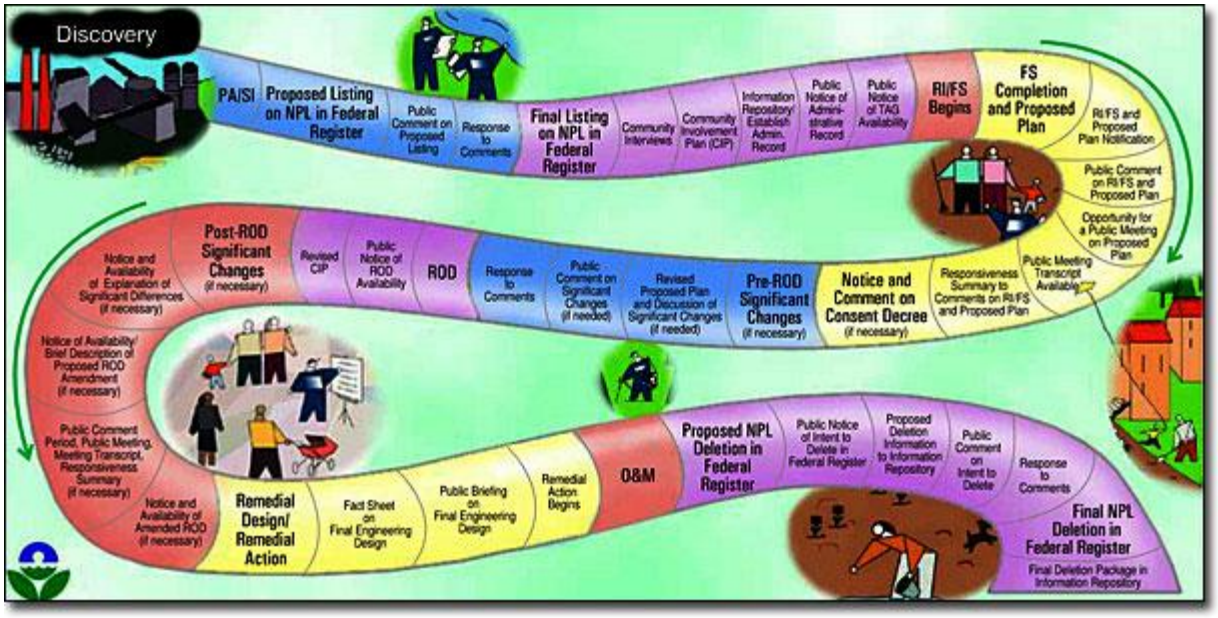
Community Involvement

Public involvement is fundamental to the Superfund cleanup process. Community involvement encourages and enables community members to be involved and informed about ongoing or planned activities at the site. Agencies involved in the cleanup listen carefully to what the community is saying, take the time to deal with community concerns, and alter planned actions when community concerns or comments warrant change.

Meaningful public participation in the site cleanup begins with the development of a Community Involvement Plan (CIP). The CIP identifies strategies and activities for addressing community needs, concerns, and expectations for the site cleanup and provides opportunities for citizens to be active partners in decisions that affect the Superfund sites in their communities.

Because the Veteran's Administration (VA) has been identified as the RP, it is responsible for the developing the CIP for the 700 South 1600 East Plume. DERR and EPA have organized remedial teams that will use the CIP to guide their interactions with the public.

CIP development begins with a series of interviews with residents, community councils, city and community leaders, and business owners to identify community needs, questions, and concerns. Because the public plays an important role in the decision making process, it is vital to cultivate mutual understanding between the members of the community and the VA, EPA and DERR. Continuous contact with the community throughout the Superfund process makes for better decisions and better cleanups. The Plan is a public document that community members can use to ensure that the VA is responsive to their questions and concerns during the cleanup process.



The CIP specifies the community involvement activities that will occur during the remedial response. To the extent practicable, the CIP should be in place before the Remedial Investigation/ Feasibility Study (RI/FS) phase begins. The RI/FS phase determines the nature and extent of contamination, assesses whether certain technologies are capable of treating the site contamination, and evaluates the potential performance and cost of treatment technologies. The VA has hired contractors to work on scoping and the development of work plans for this first phase of the process. EPA and DERR will provide oversight throughout the process.

Next Steps

The CIP is just one of the building blocks for community involvement during Superfund cleanups.

- Qualified citizen groups can apply for $50,000 Technical Assistance Grants (TAGS) to hire technical advisors to explain technical information about the site.
- An information repository, usually at a public library or city office, provides the public with site work plans, the CIP, investigation studies, a health assessment, the proposed plan for cleaning up the site, sampling reports, facts sheets, and other information related to the site.
- Once a cleanup remedy is selected, the public has an opportunity to review the plan and submit comments. A summary of the questions and comments, along with EPA responses, is included in the Record of Decision (ROD) for the site.

The Veteran's Administration will be developing a web site this summer to keep the community informed about cleanup plans and opportunities for public involvement. The EPA also has a web page available that includes a history of the contamination at the site, technical information, and a list of Frequently Asked Questions.

Sources include the Environmental Protection Agency.

DAQ Explains Smog Rating Information

Fact Sheet Will Help Consumers Identify Cleaner Options

The Division of Air Quality (DAQ) is encouraging consumers to consider cleaner cars when they purchase their next vehicle. Along the Wasatch Front, vehicles contribute over half of the emissions that form PM2.5. Choosing a cleaner car can help reduce these emissions and improve air quality.

Consumers wishing to reduce their emissions should ask the following questions when purchasing a car:

- What are the cleanest vehicles available at the dealership?
- What are the cleanest vehicles available for a given vehicle type (compact, midsize, SUV)?
- How can I identify a vehicle's Smog Rating?

DAQ has put together the following information to help consumers answer these questions.

New Cars

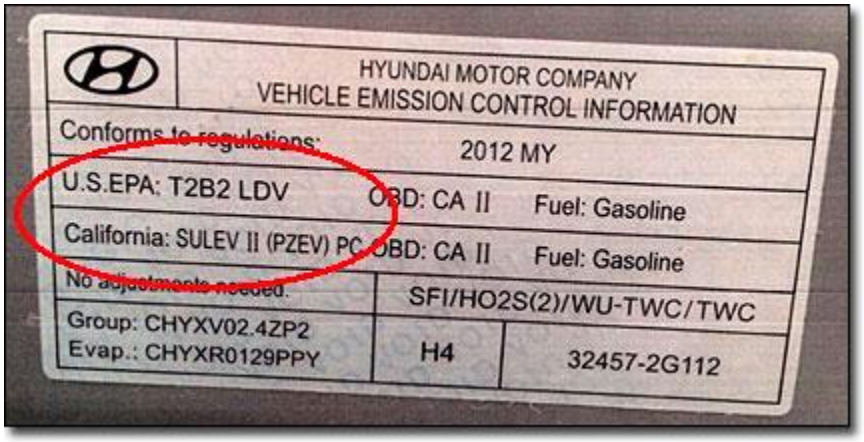
Look for the Smog Rating located on the right-hand-side of the EPA/DOT Fuel Economy and Environment window sticker (see Figure 1 below) to identify the cleanest vehicles. Cars with a Smog Rating of 8, 9, and 10 have the lowest tailpipe emissions and are good choices for keeping Utah's air clean. You can learn even more about a vehicle's environmental attributes by scanning the Smartphone QR Code on the window sticker with your smartphone.

Figure 1. EPA/DOT Fuel Economy and Environment Window Sticker

Used Cars

Find the Smog Rating for used cars or cars that don't have the above window sticker by locating the Vehicle Emission Control Information sticker on the underside of the hood (see Figure 2 below). This sticker will show the vehicle's emissions standard for EPA, California, or both.

Figure 2. Vehicle Emissions Control Information Sticker



Compare this standard to Table 1 below to determine the Smog Rating. Again, Smog Ratings of 8, 9, and 10 represent the cleanest vehicles.

Table 1. Smog Rating and Emissions Standards

Smog Rating	US EPA Tier 2	US EPA Tier 3	California LEV II	California LEV III
1 (worst)	-		ULEV & LEV II lg. trucks	
2	Bin 8 (T2B8)		SULEV II lg. trucks	
3	Bin 7 (T2B7)		-	
4	Bin 6 (T2B6)		LEV II opt. 1	
5	Bin 5 (T2B5)	Bin 160	LEV II	LEV 160
6	Bin 4 (T2B4)	Bin 125	ULEV II	ULEV 125
7	Bin 3 (T2B3)	Bin 70, Bin 50	-	ULEV 70, ULEV 50
8	Bin 2 (T2B2)	Bin 30	SULEV II	SULEV 30
9	-	Bin 20	PZEV/ ATPZEV	SULEV 20/ PZEV
10 (best)	Bin 1 (T2B1)	Bin 0	ZEV	ZEV

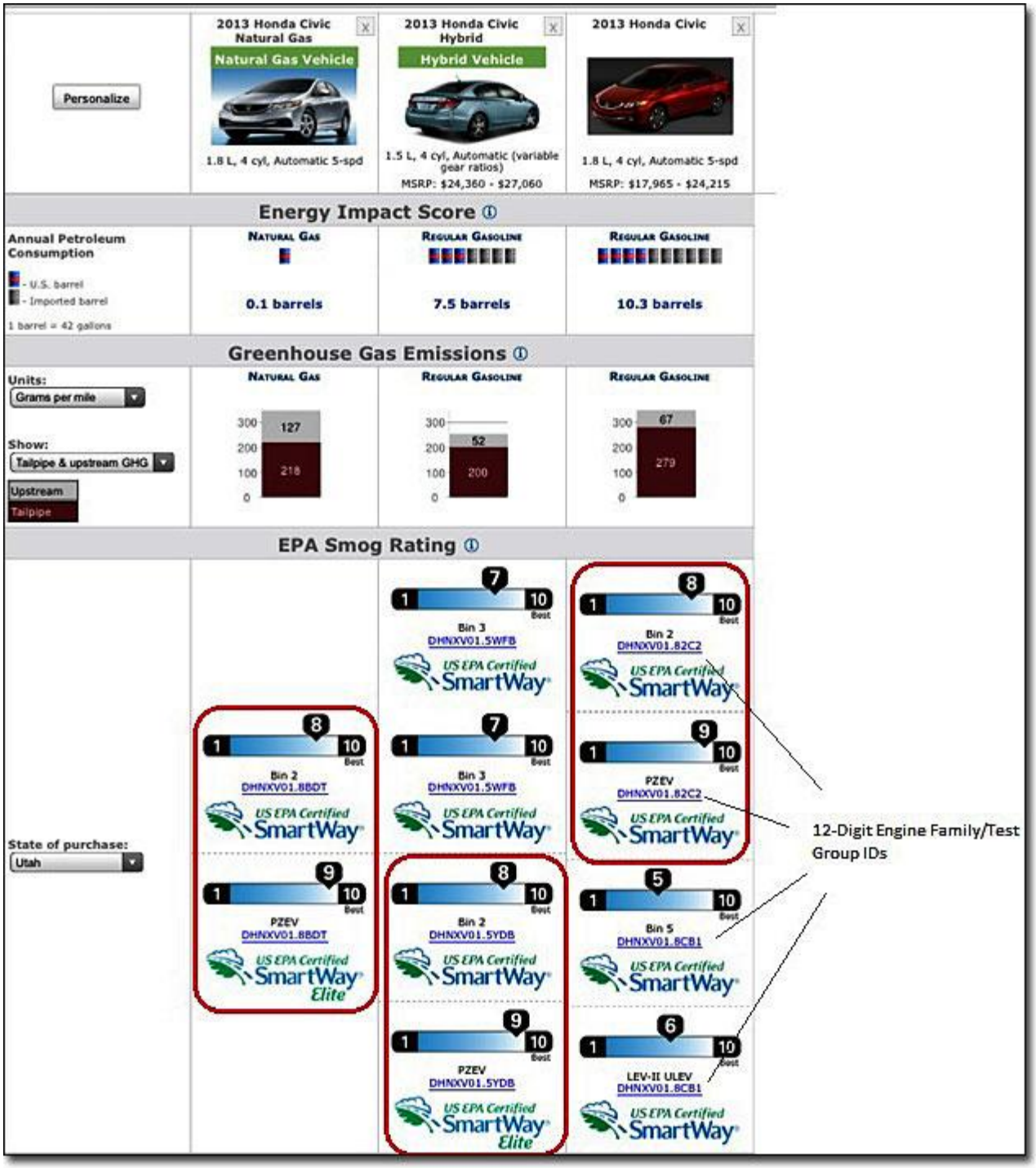
Alternatively, visit www.fueleconomy.gov and find the vehicle in question. Select the Energy and Environment tab to identify the vehicle's Smog Rating.

Consumers can go online to look at side-by-side comparisons of vehicles before heading to the showroom. Customers interested in finding the Smog Ratings for a range of vehicle makes and models can download the Green Vehicle Guide for the appropriate model year.

PLEASE NOTE: Some models have been certified for more than one Smog Rating.

For example, the 2013 Honda Civic is available with Smog Ratings ranging from 5 to 9 (see Figure 3 below). Those seeking to identify the cleanest vehicles should pay close attention to the 12-digit "Engine Family" or "Test Group ID" and the emissions standard certification level of the vehicle in question. This example also illustrates that many conventional, gasoline-powered vehicles are as clean as (or even cleaner than) some hybrid or alternative fuel vehicles. As indicated by the red boxes in Figure 3, the highest Smog Rating is available for all three models of the Honda Civic (natural gas, hybrid, and conventional gasoline-powered).

Figure 3. Example: 2013 Honda Civic



DAQ on the Lookout for Summer Ozone

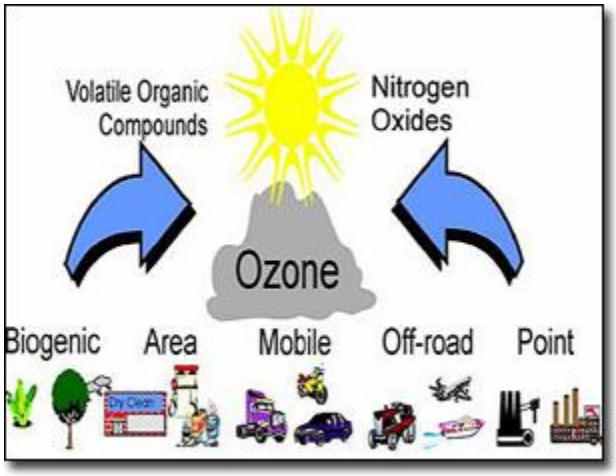
Utahns once again asked to help clear the smog

Now that Utah's winter air-polluting grip is subsiding, the summer smog season is just hovering around the corner.

Like winter inversions, the weather has a lot to do with determining how much pollution we get. The months of May through September — hot sunny days with no wind cook the pollutants coming from vehicle tailpipes and industrial sources, turning them into ozone.

But Division of Air Quality scientists say the air quality rules adopted to reduce the winter particulate pollution (PM2.5) will also help crack down on smog. That's because the rules crafted to curb emissions from auto body shops, industrial products, small boilers and diesel fuel target the volatile organic compounds - known as VOCs - a precursor gas that impacts both PM2.5 and ozone

Still, chances are Utah will see some smog this summer.



"Every year is different than the last because meteorology plays a major role in air pollution," said Bryce Bird, director of DAQ. "While we are optimistic that we will continue to see improved air quality because of the rules and regulations in place, there will be times when we will be asking the public to help cut pollution on days when there are high ozone levels."

Ozone is a mix of chemicals emitted mainly from vehicle tailpipes, diesel engines and industrial sources. Ozone is formed when volatile organic compounds (VOCs) and nitrogen oxides (NOx) mix with sunlight and heat. The highest ozone concentrations usually occur between 2-8 p.m., May through September. New research studies are exploring ozone pollution during the winter months and what implications it may have to wintertime particulate problems, as well.

Health Impacts

Ozone is reported in parts per million or ppm. The health based standard is .075 ppm and is designed to protect against longer-term exposure to ozone that can cause ongoing health effects.

Ozone can irritate the respiratory system, causing coughing, throat irritation, and/or an uncomfortable sensation in the chest. It can lower your resistance to diseases such as colds and pneumonia. Those who are most sensitive to its impacts are the very young, the elderly and those with pre-existing breathing problems. People with respiratory diseases whose lungs are more vulnerable to ozone may experience health effects earlier and at lower ozone levels than less sensitive individuals.

Ozone also makes people more sensitive to allergens, the most common triggers of asthma attacks. Even healthy adults doing heavy exercise or manual labor outdoors may experience unhealthy effects during high ozone periods. This is because, during physical activity, ozone penetrates deeper into the parts of the lungs that are more vulnerable to injury.

Studies have shown that ozone can inflame and damage the lining of the lungs. Within a few days, the damaged cells are shed and replaced - much like the skin peels after a sunburn.

However, if this type of inflammation happens repeatedly over a long time period, lung tissue may become permanently scarred, resulting in less lung elasticity, permanent loss of lung function, and a lower quality of life. It is best to consult with your primary health care provider if you have specific questions about your health as it relates to ozone.

What You Can Do

DAQ calls for Voluntary Action when exceptionally high concentrations of ground-level ozone are forecasted. Because air pollution from vehicles accounts for more than half of the air pollution along the Wasatch Front, the best choice you can make during the summer months is to leave your vehicle parked for the day and look for other ways to get around.

By simply parking your vehicle for one day, the average driver would keep just over ¼ pound of reduced pollutants to ozone precursors alone out of the air. While that may not seem like much, if every driver along the Wasatch Front would park his/her vehicle for one day per week, emissions would decrease by 125 tons per week. Some alternatives to driving include:

- Public transit
- Active transportation (walking or biking)
- Teleworking (conference calling, video conferencing or working from an off-site location)

If you can't leave your vehicle parked, help ensure you're driving smarter. You can do this by:

- Carpooling and vanpooling
- Trip chaining
- Skip the trip (plan ahead to bring a lunch or grocery shop once each week rather than a few times for a few items)
- Alternative and flexible work schedules
- Refrain from filling your vehicle gas tank unless levels are low

Other things help as well, such as:

- Refrain from mowing until after sundown; better yet, skip it for the day
- Conserve electricity. Don't overcool your home, and turn off lights and appliances that aren't in use. Wash laundry and dishes with full loads
- Don't paint your house exterior or use cleaning solvent outdoors

To protect your health from ozone:

- Limit outdoor exercise to early morning or after sundown
- Try to stay indoors if you have asthma or other respiratory problems
- Limit outdoor exposure for small children during peak ozone periods

DAQ provides air quality alerts through its UtahAir app, website, toll-free messages (1-800-228-5434), and regular email updates). For more information, visit: UCAIR or UDOT's Travelwise.

This article was written by Bethany Hyatt, Communications Specialist in the Office of Planning and Public Affairs.

Training Screencasts Help Water Systems

The Division of Drinking Water (DDW) is offering online training screencasts to water systems operators to help them stay current on their water certifications. Operators can receive Continuing Education Units (CEUs) for watching the videos and passing a short quiz. The screencasts also guide operators through complicated EPA rule changes to ensure they are in compliance with new drinking water regulations.

Online Training Available 24/7

DDW developed these screencasts in part to reach water systems operators in remote rural areas. Many rural water systems service very small populations and their operators live many miles from testing centers. These training screencasts are available to anyone with access to the DDW web site, cutting travel and associated costs with certification and recertification. The videos are 30 minutes or less and include a short quiz at the end.

Next Steps

DDW will expand their training screencast offerings throughout 2014. The Division plans to develop emergency training screencasts to provide operators with on-the-spot information in the event of an emergency situation or water contamination. New videos explaining rules changes will be ongoing.

Response to the screencasts has been overwhelmingly positive, with 3,143 visits in 2013.

New Technology Cleans Up Contamination
ERH Technology a First for Utah

Contaminated soils beneath a former gas station are heating up….literally. Antea and Tesoro are using Electrical Resistance Heating/Soil Vapor Extraction (ERH/SVE) technology to remove volatile organic compounds (VOCs) that have migrated to deep clay soils beneath the site.

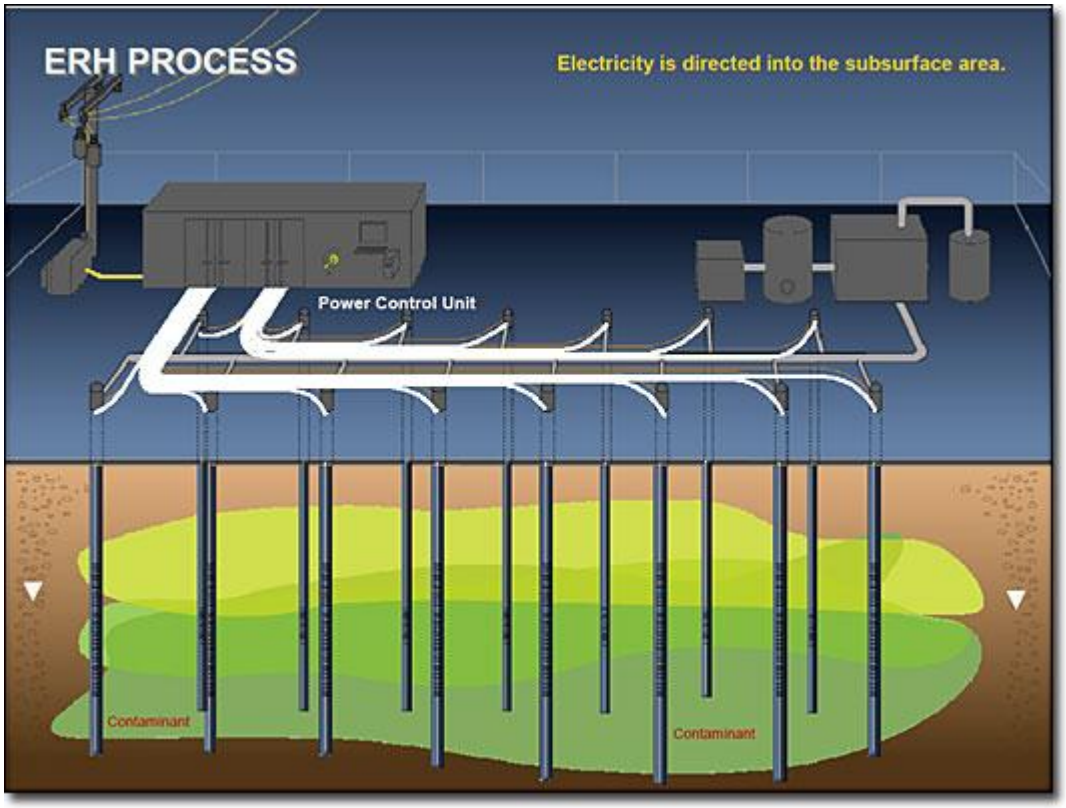
Scientists and engineers in the Division of Environmental Response and Remediation (DERR) are working closely with Antea, Tesoro, and the new property owner to ensure cleanup meets regulatory requirements and occurs in a timely manner. Funding for the project comes from the Petroleum Storage Tank (PST) Trust Fund.

Background

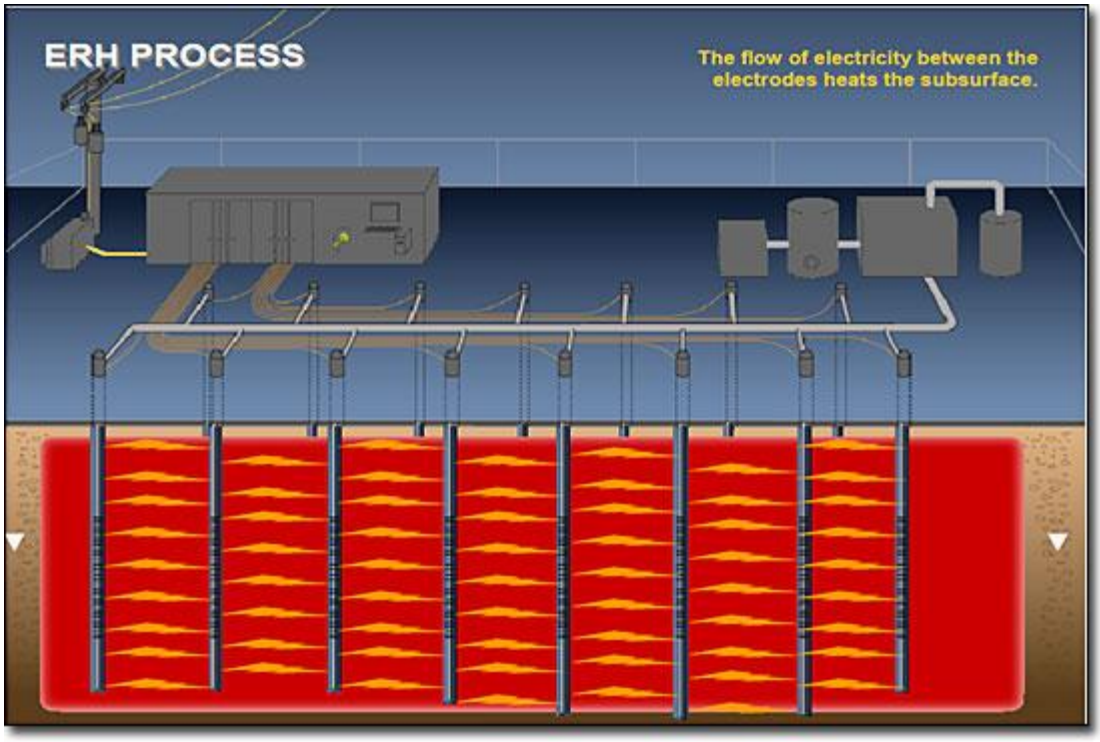
In 2008, contractors removed the underground storage tanks (USTs) at the gas station at 1310 East 3300 South. Soil sampling at the site showed that gasoline had leaked from the tanks and penetrated the subsurface soils. Additional investigation conducted from 2009 to 2012 showed that gasoline had migrated through the subsurface soils (vadose zone) to the ground water table at about 50 feet below the ground surface (bgs). The soils near the ground water table were fine-textured and clayey and contained gasoline thicknesses of over one foot. The gasoline contamination was too deep to remediate through excavation, and most in-situ remedies are not well-suited for removing VOCs in low-permeability clay soils. Antea, the environmental consulting firm that prepared the Corrective Action Plan for the site, evaluated alternative cleanup methods and determined that ERH/SVE was the best technology for remediating the site.

Electric Resistance Heating/Soil Vapor Extraction (ERH/SVE) Technology

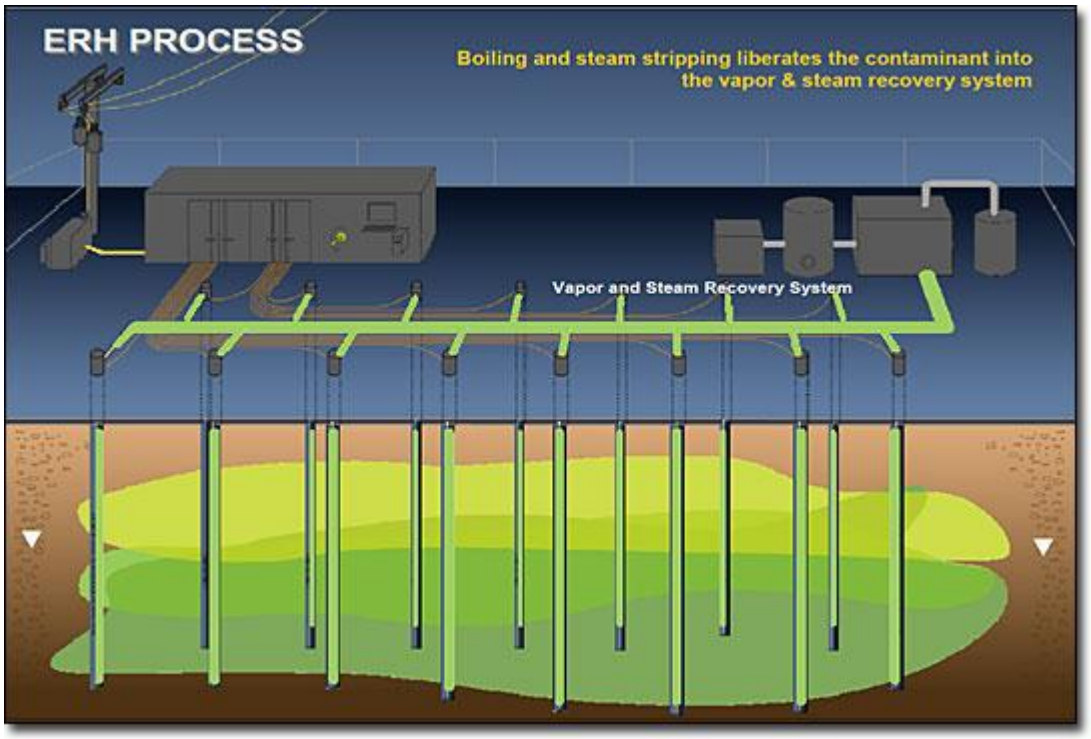
ERH uses electricity to heat the subsurface soils and ground water to the boiling point of water (212 degrees Fahrenheit). This heating converts the VOCs in the soils and ground water from liquid to vapor.



Large electrodes are placed in vertical arrays around the site. Electrical current passes through the soils between these electrodes and flows through moisture in the pores in the soil. The resistance from the soil to the electrical current generates heat.



As the gasoline in the subsurface evaporates, soil vapor extractors (SVEs) draw these vapors to the surface through extraction wells. The volatized gasoline vapors are directed to a thermal oxidizer where they are burned.



Installation and Operationwell

Contractors began installation of the ERH/SVE system in Spring 2013. Large drills dug boreholes to position the electrodes and vapor extraction wells at regular intervals in the contaminated subsurface soils. The electrodes direct electrical current through the subsurface soils to heat them

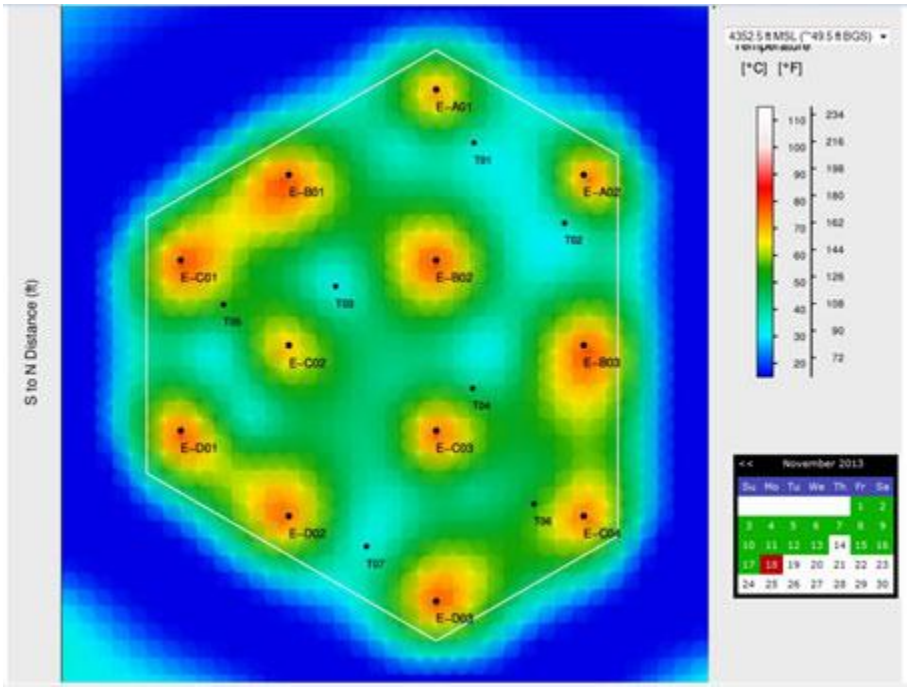
up. The gasoline contamination volatizes during the heating process and is removed by the vapor extraction wells.

Wiring for the electrodes was placed in trenches along the site and routed to the power control unit (PCU) that delivers the electrical current.

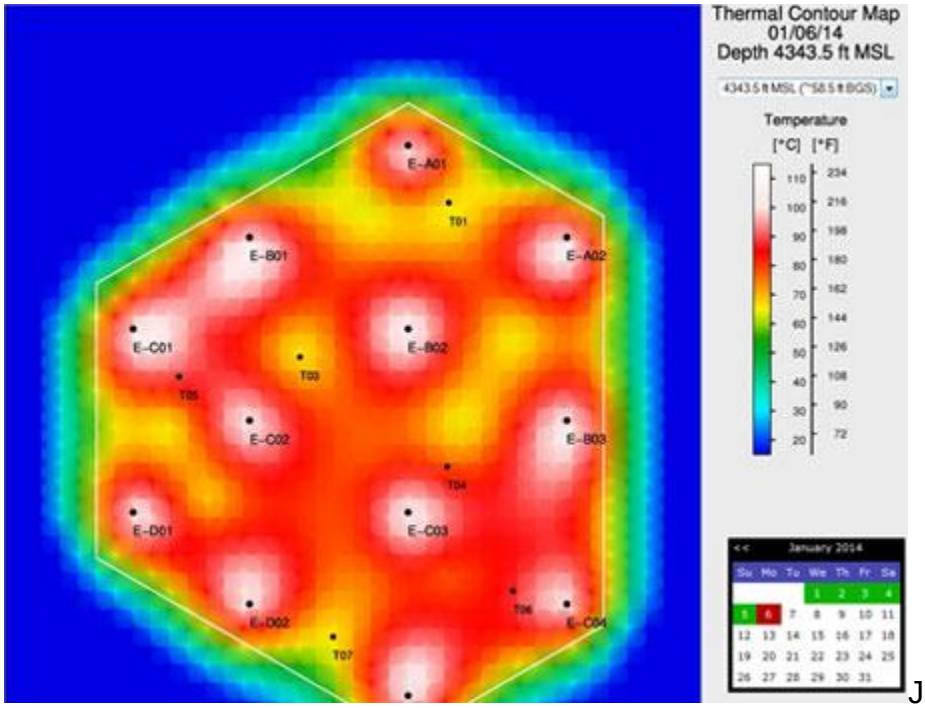
Piping connected the vapor extraction wells to the thermal oxidizer. The SVE system, powered by an explosion-proof blower, was put in place to move the vapors to the thermal oxidizer. The Division of Air Quality issued a permit for the thermal oxidizer to ensure that the emissions from the oxidizer meet air quality standards.
wiring


05.15.2013

The ERH/SVE system began energizing the electrodes in early November 2013. By November 18, 2013, the temperatures in the soils at about 50 feet bgs had risen to 160 degrees Fahrenheit. Digital sensors monitored the soils temperature. Within a few months, temperatures in the vadose zone had risen dramatically.



November 18, 2013



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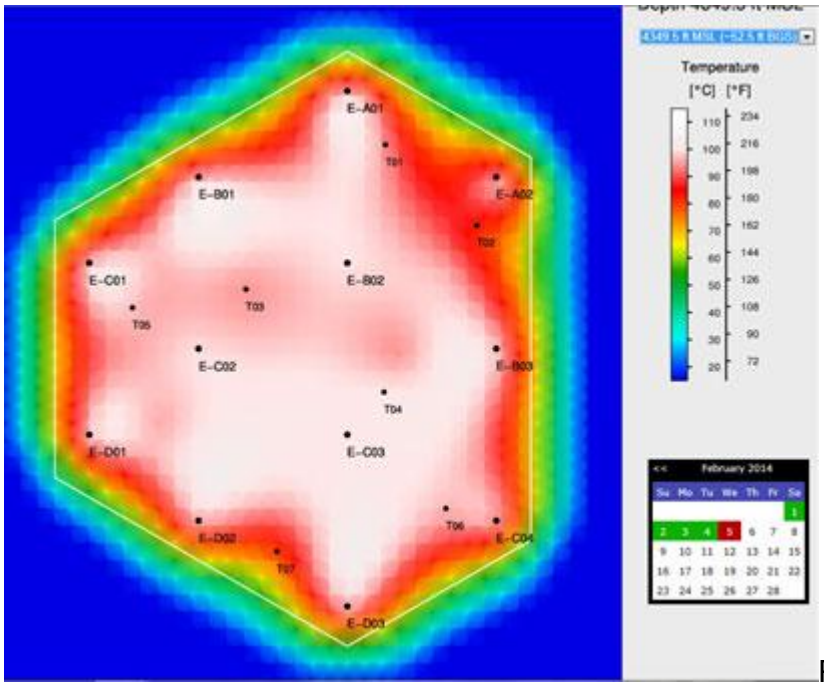

February 5, 2014

Current Situation

In late February 2014, Antea measured high gasoline vapor levels coming from the vapor extraction wells. They collected ground water samples from the monitor wells and found that the free product, or liquid hydrocarbon in the subsurface soils, was gone. The ground water was 180 degrees F at that time. Antea does not know how much longer it will take to complete the cleanup. They will collect soil and ground water samples upon completion of the ERH/SVE process to confirm that the site is clean.

DERR will evaluate all the data to make sure the site cleanup meets state standards before they will issue a No Further Action (NFA) letter. The NFA letter specifies that no further environmental site investigations or corrective actions are required on the basis of the current site conditions and land use reported by the owner/operator. If future data indicates that contamination from the site may cause a threat to human health and the environment, DERR may require further corrective action.

State Employees Park their Cars & Ride Transit

March 17-21, 2014: Ride Public Transit to Work Week

This week (March 17-21) state employees are encouraged to use public transportation to travel to and from work. This 'Ride Public Transportation to Work Week' represents a concerted effort by the state to increase transit ridership as a means of improving air quality and reducing congestion.

By participating in this effort, DEQ employees are leading by example in using our innovative, accessible and efficient public transportation system to make Utah an even better place to live and work.

In addition to public transportation, DEQ employees have been asked to use a combination of proven strategies that promote alternatives to driving alone. The UDOT TravelWise program

strategies are aimed at optimizing mobility, reducing energy consumption and improving air quality. They include:

- Carpooling and vanpooling
- Active transportation (walking or biking)
- Teleworking (conference calling, video conferencing or working from an off-site location)
- Trip chaining
- Skip the trip (planning ahead to bring a lunch or grocery shop once each week rather than a few times for a few items)
- Alternative and flexible work schedules

Many Utahns don't realize they are already using TravelWise strategies, such as trip chaining. Research has shown that 87 percent of Utahns support a program that promotes these kinds of strategies. All state employees and residents can be part of the solution by incorporating these strategies into our daily lives.

For more information about TravelWise, visit travelwise.utah.gov and for more information about the Utah Transit Authority's services, visit rideuta.com.