

Deer Park Citizens Advisory Council

Underground Injection of Hazardous Waste

October 26, 2015



Deer Park Citizens Advisory Council (DPCAC)

Underground Injection of Hazardous Aqueous Waste

- Underground Injection Background
 - » Purpose of Underground Injection Program
 - » Original Regulations
 - » Permits
 - » Process/Technical Requirements
- Underground Injection Sustainability
 - » Environmental Benefits
 - » Value to Industry
 - » Wide Use of Technology
- Underground Injection and TRI
- Texas Molecular Overview

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Underground Injection, Background

- Purpose of Underground Injection Program
 - » Protection of water supply in general and underground sources of drinking water in particular.
 - » Protection of the environment and our economy, according to the EPA:
 - “Our way of life would be quite different without injection wells. Agribusiness and the chemical and petroleum industries as we know them today, could not exist.”
 - “Reduces human exposure to organic and inorganic chemicals and heavy metals by removing them from the environment”
 - “Eliminates more than 9 billion gallons of hazardous waste and a trillion gallons of oil field waste from the environment each year”
 - “Avoids cost of ground water remediation, medical monitoring for health effects, and replacing a drinking water supply”
- Original Regulations Governing Injection of Hazardous Waste
 - » Safe Drinking Water Act of 1974 and subsequent revisions
 - » Underground Injection Control (UIC) regulations of 1980.
 - » 1988 Amendment to the Solid and Hazardous Waste Amendments of 1984 provided for injection of hazardous waste under what is known as the EPA “10,000 Year No Migration Petition.”

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Underground Injection, Background, continued

- Regulations, continued.
 - » Class 1 Hazardous Waste Injection Wells are subject to the most stringent technical and operating standards not only for injection wells, but also for operational permits for hazardous waste facilities.
- Permits
 - » TCEQ Hazardous Waste Permit for Surface Facility
 - Storage Tanks and Equipment
 - Operations and Waste Acceptance
 - » TCEQ Underground Injection Control (UIC) Permit
 - Annual Mechanical Integrity Tests
 - Controls on annulus pressure, injection pressure, specific gravity, etc.
 - » Federal EPA No Migration Exemption from Land Ban Regulations
 - » Significant studies and tests for required safe, stable, and dense geology
 - » Purpose of State and Federal UIC Program: Protect Underground Sources of Drinking Water

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Underground Injection, Background, continued

- Process/Technical Requirements

- » Geologic Requirements

- Stable geology and formation
- Impermeable containment layers above and below the injection zone
- Low seismic risk
- Low risk of pressure build up in injection zone

- » Design and Operations

- Casing for wells are constructed of layers of steel and concrete
- Annulus between casing and injection tubing is pressurized to detect leaks
- Injection pressures, flows and annulus pressure are recoded continuously
- Operations summary provided to State (TCEQ) every month
- Annual Mechanical Integrity Tests (MIT) test the integrity of each well and casing.

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Underground Injection, Sustainability

- Environmental Benefits
 - » No Discharges to Surface Water and Groundwater.
 - » Little or no air emissions and CO₂.
 - » Little or no NO_x, SO_x, or VOC emissions.
- Value to Industry and US Environmental Policy
 - » Reduces the risk of emissions to air like NO_x, SO_x, CO₂, VOCs, or discharges of toxic compounds to the environment.
 - » Helps manage changes in manufacturing processes or discharge regulations
 - » Reduces cost of managing waste.
 - » Large facilities with captive wells rely on them for their competitive existence.
 - » Facilities without captive wells benefit by using commercial facilities as a “utility” to manage large volumes of wastewater.
 - » Helps small businesses to manage problematic wastes in a compliant, sustainable and cost effective manner.

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- Wide Use of Technology
 - » Industries Served
 - » Increased Use of Class 1 Hazardous Injection Wells

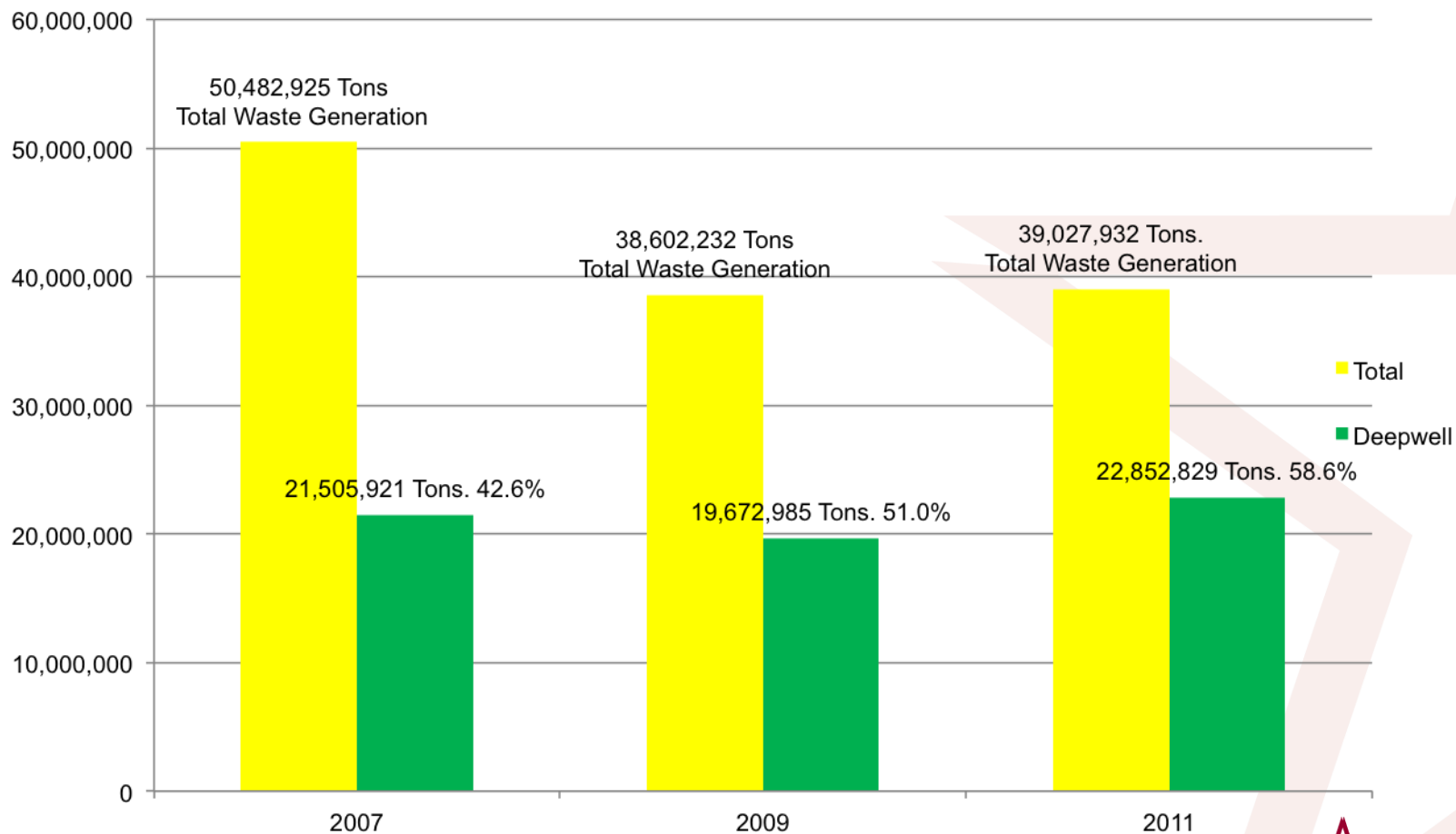
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Value to Industry, Industries Served

- Oil Refineries
- US Army Demilitarization Programs
- Landfills
- Chemical Plants
- Galvanizers
- Plating Companies
- Other Industries with Difficult to Treat Hazardous and Non Hazardous Wastewaters
- Small Businesses.

Increased Use of Class 1 Hazardous Wells

(EPA Biennial Reports for 2007, 2009, and 2011)



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Deepwell Injection and Toxic Release Inventory

- Toxic Release Inventory (TRI) is part of a program by the EPA to inform communities about the type and amount of a large list of chemicals.
- Underground Injection is listed in the “to land” section however it is significantly different than landfilling when it comes to managing TRI chemicals and their risk to the environment or people.
- The EPA No Migration Petition Program is specifically designed to remove the threat of these chemicals to the environment and people.
- The number of pounds of chemicals which are injected should be rightly viewed (as EPA does) as those which are removed from the environment. About 9 billion gallons of hazardous waste and their associated TRI chemicals were removed from risk to land, water, air, and people in the U.S. in 2014 by use of Class 1 Hazardous Waste Injection Wells.

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Texas Molecular Overview

- Industry Leader in Deepwell Technology
 - » Texas Molecular owns and operates 2 commercial hazardous waste injection wells located in Deer Park, TX
 - » The injection wells have been in operation for over 30 years.
 - » Regulated under TCEQ Hazardous and Solid Waste (surface facilities) and Underground Injection Control Regulations (deepwell operations).
 - » The injection wells are also regulated under an EPA “No Migration” Exemption which allows injection of land ban wastes without treatment.
 - » 24/7 service to industrial and government clients.
 - » Cost-effective management of hazardous waste with no discharges to waterways and minimal air emissions.
 - » Active member of the Deer Park Citizens Advisory Council (DPCAC) and the Deer Park Local Emergency Planning Committee (LEPC).
 - » Members of the Association of the Chemical Industry in Texas, East Harris County Manufacturer’s Association, the American Galvanizers Association, and the Society of Organic Chemical Manufactures and Affiliates.

Thank You

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