



Underground Injection Control: INEOS USA, LLC

Facility Name:	INEOS USA, LLC
Facility Location:	1900 Fort Amanda Road Lima, Ohio 45802
Ohio UIC Permit Numbers:	UIC-03-02-003-PTO-I (Well No.1) UIC-03-02-004-PTO-I (Well No.2) UIC-03-02-005-PTO-I (Well No.3) UIC-03-02-006-PTO-I (Well No.4)

Permits to Operate

INEOS USA, LLC, formerly BP Chemicals, Inc., Lima, Ohio, currently operates four (4) Underground Injection Control (UIC) Class I hazardous waste injection wells (Wells No.1, No.2, No.3 and No.4). Ohio EPA renewed the INEOS permits to operate (PTOs) on January 27, 2011 for a five year term that expires January 27, 2016.

Underground Injection

Deep well injection activities were initiated at the Lima site in 1968. These wells are used to dispose of onsite generated wastewater, primarily from the manufacture of acrylonitrile, used in the production of many plastic products, and associated products. The waste stream is primarily comprised of water and includes four (4) percent salts and approximately one (1) percent organics. The industrial and hazardous wastes disposed include waste fluids produced during the manufacture of acrylonitrile, acetonitrile, hydrogen cyanide, sulfates, and ammonia compounds. A number of these compounds in the waste stream are identified by Ohio regulations as hazardous wastes. Also, waste water from one process unit can be corrosive (pH<2).

The waste stream is injected into the Mount Simon Sandstone and the lower Eau Claire Formation, approximately 2,800 to 3,200 feet below ground level. The injection zone is separated from the lowermost underground source of drinking water by approximately 2,400 feet of shale, limestone, dolomite, siltstone, and sandstone.

During 2013, the INEOS injection wells average injected volume was 49.59 million gallons per well for a cumulative total 2013 volume of 198.35 million gallons. As of August 31, 2014, the cumulative injection volume totaled 2.18 billion gallons for Well No. 1, 3.22 billion gallons for Well No. 2, 2.43 billion gallons for Well No. 3, and 1.26 billion gallons for Well No. 4. Other specific data pertaining to the INEOS wells are listed in Table 1.

U.S. EPA Exemption

The U.S. EPA granted BP Chemicals (now INEOS) an exemption from the federal ban on land disposal of hazardous wastes on May 7, 1992. To receive this exemption for continued disposal in the injection wells INEOS was required to demonstrate, with a reasonable degree of certainty, that the injected waste will not migrate vertically out of the designated injection zone and not more than five miles laterally from the well in a 10,000 year period. In 2006 INEOS submitted information supporting the continued exemption of banned hazardous wastes by deep well injection to US EPA.

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Table 1

Well No.	Drilled*	Began Operation	Max. Injection Pressures	Annulus Pressure**	Total Depth***
1	2/28/68	6/28/68	834 psi	50 psi > IP	3,120 feet
2	8/23/69	10/14/70	839 psi	50 psi > IP	3,210 feet
3	3/21/72	12/15/72	840 psi	50 psi > IP	3,213 feet
4	10/26/92	7/8/94	843 psi	50 psi > IP	3,223 feet

* Well construction completed

** Annulus pressure must be at least fifty (50) psi greater than injection pressure (IP).

*** Total depth measured from ground level.