



# ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276, 217-782-3397  
JAMES R. THOMPSON CENTER, 100 WEST RANDOLPH, SUITE 11-300, CHICAGO, IL 60601, 312-814-6026

ROD R. BLAGOJEVICH, GOVERNOR

RENEE CIPRIANO, DIRECTOR

**RECEIVED**  
CLERK'S OFFICE

FEB - 6 2004

STATE OF ILLINOIS  
Pollution Control Board

(217) 782-5544  
TDD: (217) 782-9143

February 4, 2004

Dorothy Gunn, Clerk  
Pollution Control Board  
100 West Randolph Street  
Suite 11-500  
Chicago, IL 60601

RE: **NOTICE OF PROVISIONAL VARIANCE DENIAL-PV-04-01**  
ISG Hennepin/1558010006-Putnam County/Compliance  
DLC File #14-04

Dear Ms. Gunn:

Pursuant to Subsection 37(b) of the Environmental Protection Act (415 ILCS 5/37(b)), attached is a copy of the Illinois EPA's recent denial of a request for provisional variance. As you know, the Board must maintain for public inspection copies of all provisional variances filed with it by the Illinois EPA. Please feel free to call me at the number referenced above should you have any questions.

Sincerely,

Todd Rettig, Mgr.  
BOL Section  
Division of Legal Counsel

Attachment



## ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

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ROD R. BLAGOJEVICH, GOVERNOR

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TDD: (217) 782-9143

February 4, 2004

Mr. Cory J. Peruba  
Environmental, Health & Safety Manager  
International Steel Group  
R.R. #1, P.O. Box 325  
Route 71 & I-180  
Hennepin, Illinois 61327

Re: **PROVISIONAL VARIANCE DENIAL – PV-04-01**  
ISG Hennepin/1558010006-Putnam County/Compliance  
DLC File #14-04

Dear Mr. Peruba:

The Illinois Environmental Protection Agency ("Illinois EPA") is in receipt of your letter dated December 29, 2003, and received by the Illinois EPA on January 5, 2004, in which you request a provisional variance from UIC Permit, UIC-004-W1-JL condition which requires Mechanical Integrity Testing of ISG Hennepin's Class I Injection Well No. 1 during calendar year 2003. Please be advised this request for a provisional variance is **denied**. The materials submitted by ISG Hennepin in support of their request for a provisional variance fail to demonstrate that the conditions of UIC Permit, UIC-004-W1-JL would impose an arbitrary or unreasonable hardship.

You may seek a regular variance by petitioning the Illinois Pollution Control Board pursuant to Section 35(a) of the Act.

Sincerely,

Todd Rettig, Mgr.  
BOL Section

Division of Legal Counsel



International Steel Group

Hennepin, Inc.

RR #1, PO Box 325, Rt. 71 & I-180, Hennepin, Illinois 61327

December 29, 2003

Illinois Environmental Protection Agency  
Division of Land Pollution Control  
1021 N. Grand Avenue East  
Springfield, IL 62702  
ATTN. Mr. Todd Rettig

RECEIVED  
Division of Legal Counsel  
JAN 5 - 2004  
Environmental Protection  
Agency

Re: Application for a Provisional Variance from the Annual and Five Year Mechanical Integrity Testing Requirements of ISG Hennepin's Class I Injection Well No. 1, Permit No. UIC-004-W1-JL

Dear Mr. Rettig:

ISG Hennepin Inc. (ISG) is applying for a Provisional Variance to the mechanical integrity testing requirements of the facility's Underground Injection Control Well No. WDW-1 (Injection Well No. 1) and Galesville Monitor Well (Monitor Well). UIC Permit, UIC-004-W1-JL, requires the annual mechanical integrity testing listed in Sections I, Permit Conditions (H)(30) for the WDW-1 and Attachment G, (15)(d) specifies a series of mechanical integrity tests required every five years on the Monitor Well. ISG is requesting a variance from the mechanical integrity testing required by Permit No. UIC-004-W1-JL for the calendar year 2003. The Provisional Variance is requested to allow the review of ISG's permit modification request submitted to the Illinois Environmental Protection Agency (IEPA), Division of Land and Pollution Control on September 19, 2003. In the permit modification, ISG is requesting that the permit be amended to be in line with the current state and federal criteria and standards for mechanical integrity testing.

The primary reason for requesting the Provisional Variance is to obtain relief from the five-year mechanical integrity tests on the Monitor Well until IEPA rules on ISG's permit modification request. The five-year mechanical integrity tests are due in the calendar year 2003, and will not be due again until the year 2008. The five-year testing currently required on the monitor well submits ISG to significant risk and cost during the workover required to perform the specified logs on the well. ISG proposes to perform the 2003 mechanical integrity testing on both wells within 30 days of IEPA ruling on the permit modification request. If the permit modification is approved, ISG will perform the testing according to the testing requirements included in the modified permit and, if the permit modification is denied, ISG will perform the testing currently specified in the UIC Permit, UIC-004-W1-JL.

ISG operates a Class I hazardous injection well for the disposal of pickling and galvanizing waste generated during the manufacture of steel at ISG Hennepin Inc. The injection well is permitted for the disposal of 6,701,400 gallons of wastewater per month. The injection well is located 390 feet north and 191 feet west of the southeast corner of the southwest quarter of the southwest quarter of Section 3, Township 32 North, Range 2 West of the 3<sup>rd</sup> Principal Meridian, Putnam County, Illinois. WDW-1 is permitted for injection into the Mt. Simon interval. The injection zone is defined as extending from the top the Lomard Dolomite Member at  $\pm 2,902$  feet to the base of the Mt. Simon Sandstone at

±4,868 feet. The monitor well was designed and completed in the Galesville formation at ±2,708 feet, which is the first permeable zone immediately overlying the confining zone in WDW-1.

The variance will not result in any adverse environmental impacts. The variance is requested to allow an extension so that the IEPA can complete the review of ISG's permit modification prior to performing the facilities required 2003 mechanical integrity testing. The permit modification request was submitted to remove unnecessary, risky, and expensive annual and five-year mechanical integrity tests from the permit. The additional testing on the monitor well will result in an estimated additional cost to ISG of approximately \$70,000. ISG-Hennepin, Inc. is having a difficult time turning a profit and this additional cost would be very difficult (and unnecessary) to absorb.

ISG has not applied for or been granted a provisional variance within the calendar year.

#### Permit Modification Request Justification

ISG's UIC permit includes requirements to perform annual and five year mechanical integrity temperature surveys on Injection Well No. 1 and to pull the tubing and packer at least once every five years to run a cement bond/evaluation log and casing inspection log on both wells. The permit also requires that an Oxygen Activation (OA) Log be performed every five years on the Monitor Well. These requirements exceed the Illinois EPA and US EPA Underground Injection Control Criteria and Standards for mechanical integrity testing of Class I Hazardous Injection Wells. ISG submitted a permit modification request to amend the permit to be in line with the state and federal criteria and standards for mechanical integrity testing.

The mechanical integrity testing requirements in 35 Illinois Administrative Code, Section 730.168(d)(3) and (4) for temperature and casing inspection logs for Class I Hazardous injection wells are presented below:

- 3) An approved temperature, noise, or other approved log must be run at least once every five years to test for movement of fluid along the borehole. The Agency may require such tests whenever the well is worked over;
- 4) Running casing inspection logs.
  - A) Casing inspection logs must be run whenever the owner or operator conducts a workover in which the injection string is pulled, unless the Agency by permit allows otherwise:
    - i) due to well construction or other factors that limit the test's reliability, or
    - ii) based on the satisfactory results of a casing inspection log run within the previous five years.

The federal mechanical integrity testing standards for Class I Hazardous Injection Wells is included in 40 CFR §146.68(d). The requirements for running a temperature log and casing inspection log are in §146.68(d)(3) and (4), and are presented below:

- 3) An approved temperature, noise, or other approved log shall be run at least once every five years to test for movement of fluid along the borehole. The Director may require such tests whenever the well is worked over;

- 4) Casing inspection logs shall be run whenever the owner or operator conducts a workover in which the injection string is pulled, unless the Director waives the requirement due to well construction or other factors which limit the test's reliability, or based upon the satisfactory results of a casing inspection log run within the previous five years. The Director may require that a casing inspection log be run every five years, if he has reason to believe that the integrity of the long string casing of the well may be adversely affected by naturally occurring or man-made events;

Injection Well No. 1

UIC Permit, UIC-004-W1-JL, requires the following mechanical integrity testing in Sections I, Permit Conditions (H)(30)(c), (f), and (g) for Injection Well No. 1 which exceed the state and federal standards and are overly burdensome and expensive for ISG:

- c) The Permittee will demonstrate the absence of significant fluid movement into an underground source of drinking water through vertical channels adjacent to the injection well bore by use of a temperature log to be conducted annually and whenever the well is worked over.
- f) A cement bond log/evaluation will be run in the entire length of the long string casing at least once every five years.
- g) A casing inspection log will be run with the cement bond log to determine the thickness and condition of the long string casing at least once every five years.

The state regulations require that a temperature survey be performed at least every five years and state that the director may require a temperature survey when a workover is performed on the well. ISG requested the following changes in the permit modification request to Permit Condition (H)(30)(c):

- c) The Permittee will demonstrate the absence of significant fluid movement into an underground source of drinking water through vertical channels adjacent to the injection well bore by use of a temperature log to be conducted at least once every five years and whenever the well is worked over.

The state regulations require that casing inspection logs shall be run whenever the owner or operator conducts a workover in which the injection string is pulled, unless the Director waives the requirement due to well construction or other factors which limit the test's reliability, or based upon the satisfactory results of a casing inspection log run within the previous five years. ISG requested the following changes in the permit modification request to Permit Conditions (h)(30)(f) and (g):

- f) A cement bond log/evaluation will be run whenever the owner or operator conducts a workover in which the injection string is pulled, unless the Director waives the requirement due to well construction or other factors which limit the test's reliability, or based upon the satisfactory results of a cement bond log/evaluation run within the previous five years. The Director may require that a cement bond log/evaluation be run every five years, if he has reason to believe that the integrity of the cement in the long string casing borehole annulus of the well may be adversely affected by naturally occurring or man-made events.
- g) A casing inspection log shall be run whenever the owner or operator conducts a workover in which the injection string is pulled, unless the Director waives the

requirement due to well construction or other factors which limit the test's reliability, or based upon the satisfactory results of a casing inspection log run within the previous five years. The Director may require that a casing inspection log be run every five years, if he has reason to believe that the integrity of the long string casing of the well may be adversely affected by naturally occurring or man-made events.

#### Galesville Monitor Well

UIC Permit, UIC-004-W1-JL, Attachment G, (15)(d) specifies a series of mechanical integrity tests required every five years on the Monitor Well. The five-year mechanical integrity tests currently required are listed below:

- i. Oxygen activation log
- ii. Annulus pressure test of 300 psi for one hour
- iii. Cement bond log
- iv. Casing inspection log
- v. Multi-finger mechanical caliper

The testing listed above far exceeds the five-year mechanical integrity testing required of a Class I Hazardous Injection Well by Illinois EPA or USEPA Standards. The standards for a Class I Hazardous Injection Well do not require that the tubing and packer be removed from a well to perform mechanical integrity testing, unless the Director has reason to believe that the integrity of the long string casing of the well may be adversely affected by naturally occurring or man-made events. Why should a major workover be performed on a monitor well just to run mechanical integrity logs when it is not required of a Class I Hazardous Injection Well?

The well was installed to monitor the formation pressure and constituents in the first aquifer above the Injection Zone, the Galesville Formation. The well is designed to monitor the formation pressure and to sample the formation fluid from the Galesville Formation. The permit also requires that the tubing-casing annulus be pressure tested to 300 psi to verify the mechanical integrity of the well tubulars prior to collecting a formation sample. The well is not a dynamic injection well subject to elevated pressures and erosion from the injection of waste fluids, but is a static well designed to monitor the formation pressure and to collect quarterly samples of formation fluids. The formation pressure in the Galesville interval is continuously monitored by the well.

The mechanical integrity of the Monitor Well is verified by the continuous monitoring of the Galesville formation pressure, quarterly annulus pressure tests, and the quarterly fluid samples collected and analyzed from the interval. The loss of the mechanical integrity of the well will be detected during pressure monitoring by a change in formation pressure, during the quarterly annulus pressure tests, or during the analysis of the quarterly fluid samples collected from the Galesville Formation. Fluid samples are analyzed for the constituents listed in Attachment D of the permit.

The process of pulling the tubing and packer to perform an oxygen activation log, cement bond log, casing inspection log, and multi-finger mechanical caliper log on the Monitor Well is not necessary and also interferes with the designed purpose of continuously monitoring the formation pressure and sampling the formation fluids for constituents on a quarterly basis. The required workover and the logging include a significant risk of introducing constituents to the monitored interval. The

continuous pressure monitoring will be interrupted unnecessarily, and most likely will be slightly shifted due to errors associated with the removal and reinstallation of the pressure monitoring equipment. The mechanical integrity of the Monitor Well is verified continuously by the formation pressure monitoring and quarterly during each sampling event. The required five-year mechanical integrity testing on the well is not needed, is detrimental to the design purpose for the well installation, and is extremely expensive and risky for the operator. ISG requested the following changes to UIC Permit, UIC-004-W1-JL, Attachment G, (15)(d) in the permit modification request:

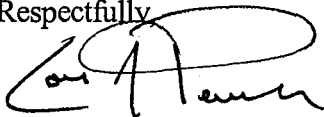
- d. Every year the mechanical integrity of the well will be verified by an annulus pressure test to 300 psi for one hour. The Director may require additional tests such as an Oxygen Activation Log, Cement Bond Log, or Casing Inspection Logs, if he has reason to believe that the integrity of the long string casing of the well may be adversely affected by naturally occurring or man-made events.

ISG has requested that these modifications be made to Permit No. UIC-0004-W1-JL prior to performing the 2003 mechanical integrity testing on the facility's wells. ISG plans to schedule the 2003 testing immediately after receiving IEPA's decision on the requested testing.

ISG is requesting relief from performing the 2003 annual and five-year mechanical integrity tests until IEPA rules on ISG's permit modification request. ISG is requesting a Provisional Variance to the performing the 2003 mechanical integrity testing of the facility's Underground Injection Control Well No. WDW-1 and Galesville Monitor Well while ISG's permit modification request submitted to the Illinois Environmental Protection Agency (IEPA), Division of Land and Pollution Control is reviewed.

ISG appreciates your consideration of the requested Provisional Variance. Mr. Steve Nightingale (RCRA Unit Manager) and Ms. Rebecca Vershaw (Environmental Protection Geologist, BOL) are both aware and have expressed support of our position. Please do not hesitate to contact either if you have any questions. If you have any questions or need additional information, please contact me at (815) 925-2133.

Respectfully



Cory J. Peruba  
Environmental, Health, & Safety Manager

Cc:

Ms. Rebecca Vershaw  
IEPA-BOL  
Field Operations Section  
4302 North Main Street  
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Keith Nagle