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**HONIGMAN**

Jeffrey L. Woolstrum

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*Via Certified Mail and E-Mail*

October 31, 2012

Mr. Thomas Krueger  
Associate Regional Counsel  
U.S. Environmental Protection Agency  
77 West Jackson Boulevard  
Chicago, IL 60604

**Re: *Environmental Geo-Technologies, LLC;  
Underground Injection Control Permit Nos. MI-163-1W-C010 and MI-163-1W-C011;  
Notice of Intent to Demonstrate Mechanical Integrity and Request for Approval of  
Alternate Test***

Dear Mr. Krueger:

Pursuant to Part I, Condition H.3 of the above-referenced underground injection control permits (the "UIC Permits"), Environmental Geo-Technology, LLC's ("EGT") hereby notifies the United States Environmental Protection Agency ("EPA") that EGT intends to demonstrate mechanical integrity of underground injection control wells Nos. 1-12 and 2-12 (the "UIC Wells") in accordance with the test procedures contained in Exhibit A hereto. The testing will be performed by Subsurface Technology, Inc. ("Subsurface") and is scheduled to take place on December 3, 4 and 5, 2012. The testing will consist of the following: (i) Amplified Annulus Pressure Test (Conditions H.2(a) and H.2(d)); (ii) Static Temperature Log (Condition H.2(b)); and (iii) Radioactive Tracer Survey (Condition H.2(c)).

In addition, pursuant to Part I, Condition H.2(e) of the UIC Permits, EGT requests that EPA approve the enclosed Amplified Annulus Pressure Test as an alternate to conducting an "approved casing inspection log ... before injection commences" under Part I, Condition H.2(d) of the UIC Permits. As Mr. Richard Schildhouse of Subsurface explained during our October 12, 2012 meeting held in EPA's Chicago, Illinois offices, merely prepping the UIC Wells to perform an inspection log would needlessly destroy almost 10,000 feet of fiberglass tubing and could ultimately result in a permanent loss of mechanical integrity in UIC Wells. In spite of the test's destructive nature and inherent risks, and in spite of the fact that the UIC Wells currently have demonstrated mechanical integrity, EPA has interpreted Condition H.2(d) as requiring EGT to perform *new* inspection logs as a condition to receiving EPA's written approval to commence

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injection. For the reasons set forth below, EGT disagrees with EPA's interpretation and believes that there is no legal or technical reason to perform such a test at this time. Nonetheless, as a compromise, EGT has agreed to request that EPA approve the enclosed Amplified Annulus Pressure Test as an alternative to a casing inspection log.

**I. The Requirement to Perform a Casing Inspection Log "Before Injection Commences" Has Been Met and There is No Legal Basis to Require EGT to Perform a New Casing Inspection Log at this Time.**

Part I, Condition H.2(d) of the UIC Permits requires the performance of a casing inspection log under the following conditions:

Periodic Mechanical Integrity Testing [§146.8] – The permittee shall conduct the mechanical integrity testing as follows:

....

(d) An approved casing inspection shall be run **before injection commences and whenever the permittee conducts a workover in which the injection tubing is pulled.** The permittee may request the Director to waive this requirement if a satisfactory casing inspection log has been run within the previous year. (Emphasis added.)

Unlike Conditions H.2(a) through H.2(c), which require the performance of specified mechanical integrity tests (i.e., annulus pressure test, radioactive tracer survey, and temperature or noise log) at *periodic intervals*, Condition H.2(d) requires the performance of a casing inspection log relative to certain *events* concerning the wells. First, an inspection log must have been performed "before injection commences." Second, an inspection log must be performed whenever "the injection tubing is pulled." Because the wells currently have mechanical integrity and there is no basis to believe that any event has adversely affected that integrity,<sup>1</sup> only the first event, i.e., "before injection commences," is relevant here.

The UIC Permits merely require the performance of a casing inspection log "**before**" injection commences, but do not otherwise specify **when** that that test can or should be performed relative to commencing injection. Accordingly, the timing of this required test must be interpreted in the context of EPA's UIC regulations governing casing inspection logs. Under 40 C.F.R. Part 146, Subpart G (Criteria and Standards Applicable to Class I Hazardous Waste

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<sup>1</sup> EPA has previously stated in its September 26, 2011 Response to Comments on the UIC Permits that "ongoing integrity testing of the wells has shown there has been no adverse effect on the wells." (See EPA Response to Comment Nos. 22, 25 and 55.)

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Injection Wells), a casing inspection log is required under only two conditions. First, 40 C.F.R. § 146.66(a)(3)(iv) authorizes EPA to require a casing inspection log during the drilling and construction of a new well:

(a) During the drilling and construction of a new Class I hazardous waste injection well, appropriate logs and tests shall be run to determine or verify the depth, thickness, porosity, permeability, and rock type of, and the salinity of any entrained fluids in, all relevant geologic units to assure conformance with performance standards in § 146.65, and to establish accurate baseline data against which future measurements may be compared. A descriptive report interpreting results of such logs and tests shall be prepared by a knowledgeable log analyst and submitted to the Director. At a minimum, such logs and tests shall include:

....

(3) A mechanical integrity test consisting of:

....

(iv) A casing inspection log, if required by the Director.  
 (Emphasis added.)

Second, 40 C.F.R. § 146.68(d)(4) requires a casing inspection log whenever the injection string is pulled as part of a workover:

(d) Periodic mechanical integrity testing. In fulfilling the requirements of § 146.8, the owner or operator of a Class I hazardous waste injection well shall conduct the mechanical integrity testing as follows:

....

(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 this 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;  
 (Emphasis added.)

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When Condition H.2(d) is read in context with the above-quoted regulations, it is clear that the requirement to perform a casing inspection log “*before* injection commences” corresponds to the inspection log required during the drilling and construction of a *new* well under 40 C.F.R. § 146.66(a)(3)(iv), i.e., before the injection tubing has been installed. Such a casing inspection log of the UIC Wells was already performed by the previous well owners *before injection commenced* and EPA approved that log.<sup>2</sup> This inspection log is specific to the UIC Wells themselves, not to the owner of those wells. Neither the change in ownership of the UIC Wells nor EPA’s issuance of new UIC Permits bears any relationship to the casing or any other measurement of the mechanical integrity of the UIC Wells. Accordingly, it is arbitrary to require a destructive casing inspection log simply because EPA issued new permits to EGT rather than transferring the prior owner’s permits, as EGT had originally requested. The EPA-approved casing inspection log completed by the prior owner before injection commenced in the UIC Wells satisfies both the meaning and the intent of Condition H.2(d) of EGT’s UIC Permits. More importantly, nothing in the UIC Permits or the UIC regulations would require EGT to destroy nearly 10,000 feet of fiberglass tubing and potentially compromise the mechanical integrity of both UIC Wells by conducting a casing inspection log when there is no reason whatsoever to believe that the casings have been adversely affected by any event. Any other interpretation of Condition H.2(d) is arbitrary, capricious and unsupported by the plain language of the UIC Permits and the UIC regulations.<sup>3</sup>

## **II. There is No Technical Reason to Perform a Casing Inspection Log at This Time, But There Are Many Technical Reasons to NOT Perform this Log.**

As Mr. Schildhouse explained during our meeting, there is no technical reason to perform a casing inspection log at this time. A successful casing inspection log was performed on the UIC Wells during their construction and no subsequent event has compromised the casing walls. Each well annulus has been continuously maintained under pressure and filled with corrosion-inhibiting diesel fuel. The UIC Wells operated for only a brief period and the annual annulus pressure tests conclusively demonstrate that the casing walls have not come in contact with any injectate. As Mr. Schildhouse put it, “The wells are like a 10-year-old car with 3 miles on the odometer.”

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<sup>2</sup> In fact, the wording in the prior owner’s UIC permits concerning casing inspection logs was identical to the wording in Condition H.2(d) of EGT’s UIC Permits.

<sup>3</sup> To the extent EPA reads the introductory clause of Condition H.2(d) (“The *permittee* shall conduct the mechanical integrity testing ...”) literally as requiring *EGT* itself to conduct those test, that too would be an arbitrary and capricious interpretation. Obviously, EGT is not qualified to conduct integrity tests. EGT may rely on tests performed by third party contractors, including tests performed by the prior owner’s contractors, especially as in this case where EPA has reviewed and approved that test.

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Mr. Schildhouse also explained that there are a multitude of technical reasons to not perform a casing inspection log at this time, including:

- The casing inspection log will not produce any meaningful data regarding the integrity of the wells, which currently demonstrate mechanical integrity based on years of consistently passing annulus pressure tests required by EPA.
- Although the UIC Wells currently demonstrate mechanical integrity, there is no guarantee that mechanical integrity can be restored after the UIC Wells have been dismantled and reassembled as part of a casing inspection log test.
- Prepping the UIC Wells for the inspection requires the removal, disposal and replacement of nearly 10,000 feet of fiberglass tubing that currently has demonstrated continuous mechanical integrity.
- The fiberglass tubing is almost certain to break inside the well casing during the removal procedure.
- Seal testing on fiberglass tubing during reinstallation is very difficult due to variable inside and outside diameters of the tubing.
- Removal of the seal from the packer may damage the polished bore, preventing the reestablishment of mechanical integrity.
- The packer seal cannot be replaced exactly at its current elevation (where it has demonstrated mechanical integrity) and may not demonstrate mechanical integrity at other elevations within the packer.
- Damage to the packer may require its removal by milling, which will place undue stresses on the concrete bond that seals the casing to the borehole.

### **III. EGT Proposes the Amplified Annulus Pressure Test as an Alternative to a Casing Inspection Log.**

Although EGT does not believe that there is any legal or technical basis that would require a casing inspection log at this time, as a compromise, EGT requests that EPA approve the enclosed Amplified Annulus Pressure Test as an alternative pursuant to Condition H.2(e), which states that EGT “may use any other test approved by the Director in accordance with the procedures in 40 C.F.R. § 146.8(d).” The technical basis for substituting the Amplified Annulus Pressure Test for running a casing inspection log “before injection commences” is set forth in Mr. Schildhouse’s October 30, 2012 letter to Mr. Tom Athans, attached hereto as Exhibit B. Subsurface and EGT believe that this test will reliably demonstrate the mechanical integrity of the UIC Wells with far more certainty than any casing inspection log. Please note that, although

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EGT is requesting that EPA approve this alternate test, EGT does not waive, and specifically reserves, all of its rights in this matter, including the issues raised above.

In accordance with Part I, Condition H(3) of the UIC Permits, EGT looks forward to EPA's prompt review and response within 30 days of this notice. Please call me with any questions.

Very truly yours,

HONIGMAN MILLER SCHWARTZ AND COHN LLP.



Jeffrey L. Woolstrum

Enclosures

c: Ms. Tinka Hyde  
Mr. Allan Batka  
Mr. Tom Athans  
Mr. Richard Schildhouse

Exhibit A to 10/31/12 Letter to Krueger

**AMPLIFIED**  
**ANNULUS PRESSURE TEST PROCEDURES**  
**FOR**  
**EGT WELL #1-12 AND EGT WELL #2-12**

- Record last date of injection
- Well must be shut in a minimum of 48-hours prior to annulus testing
- Install digital test gauge at test port that has been certified within the last 12 months (certificates to be at hand)
- Pressure up annulus to approximately 900 psi for one (1) hour prior to test to allow for annulus to equilibrate
- Record current annulus pressure
- Record current injection pressure
- Record current annulus fluid in storage tank
- Pressure up annulus to 900 +25/-0 psi and allow annulus to equilibrate
- Record data at 10-minute intervals for a one (1) hour period. (Pressure change limited to 3% of applied pressure for a one (1) hour period)
- Raise annulus pressure to 1050 +25/-0 psi and allow annulus to equilibrate
- Record data at 10-minute intervals for a one (1) hour period. (Pressure change limited to 3% of applied pressure for a one (1) hour period)

Exhibit A to 10/31/12 Letter to Krueger

**AMPLIFIED**  
**ANNULUS PRESSURE TEST PROCEDURES**  
**FOR**  
**EGT WELL #1-12 AND EGT WELL #2-12**  
**(CONTINUED FROM PAGE 1)**

- The testing is considered acceptable if pressure fluctuation is less than 3% from original applied pressure for each of the one (1) hour periods
- Return annulus to normal stand-by pressure
- Put WAMS system back on line
- Return well to operator control



Exhibit A to 10/31/12 Letter to Krueger

**PROCEDURES FOR RUNNING**  
**STATIC TEMPERATURE LOG**  
**ON**  
**EGT WELL #1-12**

- Rig-up wireline unit on hole
- Verify temperature sonde has been calibrated and has certification
- Run tool well and record temperature from surface to K.D. (4649') or top of fill
- Tool to be run at a consistent speed and not to exceed 30 feet per minute
- Once tool reaches bottom, stabilized temperature readings (3 minutes) should be made at 500' intervals while coming out of well
- After completion of temperature survey, wireline rig should be made ready to perform radioactive tracer survey (RTS)

Exhibit A to 10/31/12 Letter to Krueger

**PROCEDURES FOR RUNNING**  
**STATIC TEMPERATURE LOG**  
**ON**  
**EGT WELL #2-12**

- **Rig-up wireline unit on hole**
- **Verify temperature sonde has been calibrated and has certification**
- **Run tool well and record temperature from surface to K.D. (4550') or top of fill**
- **Tool to be run at a consistent speed and not to exceed 30 feet per minute**
- **Once tool reaches bottom, stabilized temperature readings (3 minutes) should be made at 500' intervals while coming out of well**
- **After completion of temperature survey, wireline rig should be made ready to perform radioactive tracer survey (RTS)**

Exhibit A to 10/31/12 Letter to Krueger

**PROCEDURES FOR RUNNING**  
**RADIOACTIVE TRACER SURVEY**  
**ON**  
**EGT WELL #1-12**

- Radioactive tracer material to be iodine 131
- Rig-up surface read out wireline unit on hole
- Run into hole with casing collar locator and radioactive tracer tool
- Run bottom up base run survey from 4649' (or deepest attainable) to 3093' (sensitivity at 40 counts per second per inch (CPSP))
- Run first 5-minute stat with bottom detector at 3955'
- Run second 5-minute stat with bottom detector at 3802'
- Start injection at a rate of 15 gpm
- Release first slug at 3100'
- Chase slug approximately 14 chases with a minimum of two (2) chasers in tubing
- Release second slug at 3750'
- Run 30-minute time drive with bottom detector at 4080'
- Run final base bottom-up from 4649' to 3093'
- Rig down wireline
- Turn over to operator

Exhibit A to 10/31/12 Letter to Krueger

**PROCEDURES FOR RUNNING**  
**RADIOACTIVE TRACER SURVEY**  
**ON**  
**EGT WELL #2-12**

- Radioactive tracer material to be iodine 131
- Rig-up surface read out wireline unit on hole
- Run into hole with casing collar locator and radioactive tracer tool
- Run bottom up base run survey from 4550' (or deepest attainable) to 3093' (sensitivity at 40 counts per second per inch (CPSP))
- Run first 5-minute stat with bottom detector at 3855'
- Run second 5-minute stat with bottom detector at 3800'
- Start injection at a rate of 50 gpm
- Release first slug at 3750'
- Chase slug approximately nine (9) chases with a minimum of two (2) chasers in tubing
- Release second slug at 3750'
- Run 30-minute time drive with bottom detector at 3977'
- Run final base bottom-up from 4550' to 3600'
- Rig down wireline
- Turn over to operator

Exhibit A to 10/31/12 Letter to Krueger

**GENERAL DESCRIPTION OF EGT WELL #1-12**

**Location: Wayne County / Romulus, Michigan**  
**Section: 12 / Township: 35 / Range: 9B**

**Ground Level Elevation: 626'**  
**K.B.: 13' / Drilling measured from K.B Elev. 639'**

**Conductor: 20"- 94# Surface to 119'**  
**Protection Casing: 13-3/8" - 48# Surface to 396'**  
**Intermediate Casing: 9-5/8" - 36# Surface to 825'**  
**Long String Casing: 7" - 26# Surface to 4079'**  
**Injection String: 4-1/2" Fiberglass Surface to 4060'**

**Packer: 4067'**  
**Bottom of 2-7/8" Tailpipe: 4080'**  
**T.D.: 4649'**

Exhibit A to 10/31/12 Letter to Krueger

**GENERAL DESCRIPTION OF EGT WELL #2-12**

**Location: Wayne County / Romulus, Michigan**  
**Section: 12 / Township: 35 / Range: 9B**

**Ground Level Elevation: 626'**  
**K.B.: 13' / Drilling measured from K.B Elev. 639"**

**Conductor: 16"- 65# Surface to 178'**  
**Protection Casing: 13-3/8"- 48# Surface to 598'**  
**Intermediate Casing: 9- 5/8"- 36# Surface to 1444'**  
**Long String Casing: 7"- 26# Surface to 3983'**  
**Injection String: 4-1/2" Fiberglass Surface to 3953'**

<b>Packer:</b>	<b>3960'</b>
<b>Bottom of 2- 7/8" Tailpipe:</b>	<b>3971'</b>
<b>T.D.:</b>	<b>4550'</b>

**PROPOSED SCHEDULE FOR FIELD ACTIVITIES**

**DAY #1 (December 3, 2012)**

**MORNING**

- Run amplified annulus pressure test on EGT Well #1-12

**AFTERNOON**

- Run amplified annulus pressure test on EGT Well #2-12

**DAY #2 (December 4, 2012)**

**MORNING**

- Run static temperature log on EGT Well #1-12

**AFTERNOON**

- Run radioactive tracer survey on EGT Well #1-12

**DAY #3 (December 5, 2012)**

**MORNING**

- Run static temperature log on EGT Well #2-12

**AFTERNOON**

- Run radioactive tracer survey on EGT Well #2-12



Exhibit A to 10/31/12 Letter to Krueger

**After Procedures Have Been Submitted**  
**Prior to Performing Mechanical Integrity Testing**

- **Verify that regulating agencies have received procedures a minimum of 30 days prior to performing MIT**
- **Provide agencies with a proposed date for running MIT in order to allow a witness to be present, if required**
- **Verify that all personnel and services have satisfied safety requirements of operator**
- **Provide JSA and/or review procedures with all on site**
- **Insure that all individuals are fitted with required safety attire**



Exhibit B to 10/31/12 Letter to Krueger



October 30, 2012

Mr. Tom Athans, V.P.  
Helicon Holdings, LLC  
28470 Citrin Drive  
Romulus, Michigan 48174

RE: Professional Service for Start-Up of EGT Well #1-12 and Well #2-12  
Subsurface Project No.: 60D6871

Dear Mr. Athans:

Subsurface is pleased to submit this document as a follow up of the discussion we had regarding the casing inspection at the Romulus, Michigan facility.

In the past, a technology existed that incorporated the use of small diameter tools that would read through the fiberglass to evaluate the outer steel casing. This technology was used predominantly by the chemical industry with somewhat unfavorable results. It was through their efforts that many casing inspection requirements were modified. The risks connected with removing fiberglass pipe far outweighed any benefits that data collection could provide. Because of the risks that were involved, removing tubing to check a casing became to be known as destructive testing. Since it is highly likely that if the well is functioning safely now, it will not operate to a greater or even equal level after a tubing removal.

In an attempt to see if this technology still even existed, I contacted both Baker Hughes and Halliburton. Between these two companies, the development and operations of nearly all U.S.-based casing inspection techniques are held. Attached are responses I received from them along with a verbal question such as "if the well can pass an annulus test, why are you doing a casing inspection?"

Exhibit B to 10/31/12 Letter to Krueger

Mr. Tom Athans  
Helicon Holdings LLC

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As with all Subsurface projects, peer review and team evaluation is an important part of our system. During this review, not one point of support was found to support pulling fiberglass without current problems to obtain casing condition data. Among Subsurface engineers, there are literally hundreds of years of combined experience including Jim Bundy. Jim is an icon to the well industry with over 45 years' experience alone. He has been a valuable resource in establishing standards, common practices and innovative techniques for our industry. Jim's comments, as stated previously, is that if an adequate annulus test is achieved, the information gathered from a casing inspection log will be just that information.

As an alternative to the request for EGT to perform a casing inspection, Subsurface would like to propose an amplified annulus pressure test. This test would involve three (3) phases rather than the standard accepted single phase test.

Phase I would involve the pressuring up of the annulus to approximately 900 psi (which is 150 psi above required) for a one (1) hour period. This will allow annulus to equilibrate and indicate any major losses of pressure caused by casing or tubing failure. Pressure changes would not be recorded during this phase.

Phase II would involve pressuring up the annulus to 900 psi for a one (1) hour period with an allowed deviation of 3% over that one (1) hour period.

Phase III, the third and final phase of the proposed amplified annulus test, would increase the pressure to 1050 (nearly 300 psi over required) for a one (1) hour period with a 3% allowable pressure deviation. Although this amplified test cannot provide a document product of casing condition, it by far provides actual and relevant "results" from an engineering point of evaluation. It is Subsurface's opinion that the condition of the casing could not be in question if the annulus would pass this test in connection with past well test performance. Thus, the data produced by a casing inspection, although valuable, would be less of a true assessment tool than the annulus test proposed.



Exhibit B to 10/31/12 Letter to Krueger

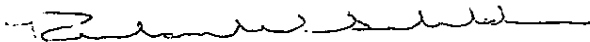
Mr. Tom Athans  
Helicon Holdings LLC

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In conclusion, all measures of consideration should be taken not to destroy a well that is testing sound and demonstrating mechanical integrity with an approved pressure test merely to obtain historical data. If the well showed any indication of integrity issue, the basis for removing the tubing and inspecting the casing would be justified. However, if the well has a history of successful annulus testing, as both EGT wells do, compiled with a properly run radioactive tracer survey (RTS) and static temperature survey (STS), the running of a casing inspection would not add any additional assurance.

Sincerely,

Subsurface Technology, Inc.



Richard W. Schildhouse  
Senior Engineer

RWS/rv

Attachments



Exhibit B to 10/31/12 Letter to Krueger

**Roseann Vittorie**

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**From:** Uhlmann, Jeffery <Jeffery.Uhlmann@bakerhughes.com>  
**Sent:** Thursday, October 18, 2012 4:13 PM  
**To:** Richard W Schildhouse  
**Subject:** RE: Casing Inspection Tools

Rich,

As per our discussion Tuesday we do not have a casing inspection tool that would read through 4 1/2" fiberglass tubing to check the condition of 7" casing.

Our 3 1/2 DMAG tool ID is 3.63 which would be a snug fit in 3.8 ID tubing The option would be to pull the 4 1/2" tubing and run High Resolution Vertilog.

Jeff Uhlmann | Operations Manager

Baker Hughes | Drilling & Evaluation / Wireline Systems

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Cell: +1 618.599.8880 | [jeffery.uhlmann@bakerhughes.com](mailto:jeffery.uhlmann@bakerhughes.com) <http://www.bakerhughes.com> | Advancing Reservoir Performance

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-----Original Message-----

**From:** Richard W Schildhouse [<mailto:rschildhouse@envirocorpinc.com>]  
**Sent:** Tuesday, October 16, 2012 3:04 PM  
**To:** Uhlmann, Jeffery  
**Subject:** Casing Inspection Tools

Per our conversation. Rich

## Exhibit B to 10/31/12 Letter to Krueger

Roseann Vittorie

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**From:** Richard W Schildhouse  
**Sent:** Monday, October 29, 2012 8:40 AM  
**To:** Roseann Vittorie  
**Subject:** FW: Casing Inspection Tools

-----Original Message-----

**From:** Des Murphy [<mailto:Des.Murphy2@Halliburton.com>]  
**Sent:** Tuesday, October 16, 2012 10:00 AM  
**To:** Richard W Schildhouse  
**Subject:** RE: Casing Inspection Tools

Hi Richard,

I have hunted around and spoken to our technical group in Houston to see what is available, but we currently do not have a tool in our arsenal that will meet your requirements. Our casing inspection tools are either ultrasonic scanning tools, mechanical multifinger tools and magnetic thickness tools, and all would require the 4.5" fiberglass tubing to be pulled from the wellbore.

I have not heard of the tool you are referencing but it may be similar to the Baker Atlas Vertilog tool.

Let me know if you would like me to look further but right now there is nothing we have available that will allow us to inspect the 7" through the 4 1/2".

rgds

Des Murphy  
North East Region Technical Team  
Halliburton  
121 Champion Way Suite 110  
Canonsburg, PA  
15317-5817

Office: +1-724-7438183  
Cell: +1-724-2070453  
email: [des.murphy2@halliburton.com](mailto:des.murphy2@halliburton.com)

-----Original Message-----

**From:** Richard W Schildhouse [<mailto:rschildhouse@envirocorpinc.com>]  
**Sent:** Monday, October 15, 2012 4:42 PM  
**To:** Des Murphy  
**Subject:** Casing Inspection Tools

Des: It was a pleasure to talk with you, please find attached the (2) schematics of the wells we are dealing with. The thought is to run a tool down the 4-1/2" fiberglass injection string to check the condition of the 7" 26# long casing