



October 2, 2014

Mr. Lee Papas
Environmental Geo-Technologies
28470 Citrin Drive
Romulus, Michigan 48174

RE: Proposal to Conduct the 2014 Mechanical Integrity Testing on Well #1-12
and Well #2-12
28470 Citrin Drive; Romulus, Michigan

Dear Mr. Papas:

Subsurface Technology, Inc. is pleased to provide the costing and procedures for the Mechanical Integrity Tests for Well #1-12 and Well #2-12 for Environmental Geo-Technologies in Romulus, Michigan. This test will include an annulus test, radioactive tracer survey, and a build-up fall off test on both wells.

The procedures should be sent to both the EPA and MDEQ prior to running the tests. Ray Vugrinovich with the MDEQ should be called to witness the Annulus Pressure Test, and Jeff McDonald with the EPA should be contacted about an EPA field inspector witnessing the tests.

The work is tentatively scheduled for a mid-November start date and should take two (2) to three (3) days to complete.

Thank you in advance for the opportunity to be of service and please feel free to call me @ (574) 287-2282 if you should have any questions.

Sincerely,

Subsurface

Richard W. Schildhouse
Senior Engineer

RWS/rv

Attachments

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 Tailpipe: 4080'

T.D.: 4649'



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'

Packer: 3960'

Bottom of Tailpipe: 3971'

T.D.: 4550'



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)
- Return annulus to normal stand-by pressure
- Put WAMS system back on line
- Return well to operator control

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 4400' (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 stable rate of 30-35 gpm
- Release first slug at 3730'
- Run 30-minute time drive with bottom detector at 4080'
- Release second slug at 3100'
- Chase slug with a minimum of two (2) chases in tubing (as many as practical)
- Run final base bottom-up from 4400' to 3093'
- Rig down wireline
- Turn over to operator

**PROCEDURES FOR RUNNING
AMBIENT PRESSURE MONITORING
ON
EGT WELL #1-12**

Run in well with dual quartz memory gauges with pressure and temperature readings recording at 5 second intervals

- Inject into well at a steady rate of 30 to 35 GPM for at least 12 hours prior to start of falloff portion of test.
- Well No. 1-12 will be shut down at least 4 hours prior to and during the fall off portion of test.
- Bottom gauges to be in well to a depth of $\pm 3950'$ KB (top of injection interval) and record pressures and temperatures for a minimum of 2 hours prior to shutting down injection.
- Shut down injection as rapidly as possible at determined time starting fall off portion
- Record pressures and temperatures for a minimum of 8 hours.
- Pull bottom hole pressure gauge out of well.



**PROCEDURES FOR RUNNING
AMBIENT PRESSURE MONITORING
ON
EGT WELL #2-12**

Run in well with dual quartz memory gauges with pressure and temperature readings recording at 5 second intervals

- Inject into well at a steady rate of 30 to 35 GPM for at least 12 hours prior to start of falloff portion of test.
- Well No. 2-12 will be shut down at least 4 hours prior to and during the fall off portion of test.
- Bottom gauges to be in well to a depth of $\pm 3950'$ KB (top of injection interval) and record pressures and temperatures for a minimum of 2 hours prior to shutting down injection.
- Shut down injection as rapidly as possible at determined time starting fall off portion
- Record pressures and temperatures for a minimum of 8 hours.
- Pull bottom hole pressure gauge out of well.



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 4300' (or deepest attainable) to 3093' (sensitivity at 40 counts per second per inch (CPSPI))
- Run first 5-minute stat with bottom detector at 3855'
- Run second 5-minute stat with bottom detector at 3800'
- Start injection at a stable rate of 30-35 gpm
- Release first slug at 3750'
- Run 30-minute time drive with bottom detector at 3977'
- Release second slug at 3750'
- Chase slug with a minimum of two (2) chases in tubing (as many as practical)
- Run final base bottom-up from 4300' to 3600'
- Rig down wireline
- Turn over to operator

